EFFECTIVENESS OF PARTICIPATORY, INNOVATIVE, COLLABORATIVE TRAINING MANAGEMENT IN IMPROVING MIDWIVES' COMPETENCY IN WEST NIAS DISTRICT

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Abstract: Midwives' competence plays a vital role in improving maternal and child health services, particularly in stunting prevention. However, many midwives still do not meet the required competency standards. This study aimed to evaluate the effectiveness of Participatory, Innovative, and Collaborative (PILAR)-based training in enhancing midwives' competence in West Nias Regency. Using a quasi-experimental design, 52 midwives were divided equally into an intervention group that received PILAR-based training and a control group without training. Independent t-test results indicated that the PILAR-based training management was effective in improving midwives' competence ($p = 0.001$). These findings suggest that participatory, innovative, and collaborative approaches in training can strengthen midwives' professional competencies and improve the quality of maternal and child health services. The study implies that integrating PILAR-based training into continuous professional development programs can serve as a strategic model for reducing stunting and promoting sustainable health outcomes in rural areas.

Key words: Effectiveness, Competency Improvement, Midwife competence, stunting prevention, training

Abstrak: Kompetensi bidan berperan penting dalam meningkatkan pelayanan kesehatan ibu dan anak, khususnya dalam pencegahan stunting. Namun, masih banyak bidan yang belum memenuhi standar kompetensi yang dipersyaratkan. Penelitian ini bertujuan untuk mengevaluasi efektivitas pelatihan berbasis Partisipatif, Inovatif, dan Kolaboratif (PILAR) dalam meningkatkan kompetensi bidan di Kabupaten Nias Barat. Dengan menggunakan desain kuasi eksperimen, 52 bidan dibagi rata menjadi kelompok intervensi yang menerima pelatihan berbasis PILAR dan kelompok kontrol tanpa pelatihan. Hasil uji-t independen menunjukkan bahwa manajemen pelatihan berbasis PILAR efektif dalam meningkatkan kompetensi bidan ($p = 0,001$). Temuan ini menunjukkan bahwa pendekatan partisipatif, inovatif, dan kolaboratif dalam pelatihan dapat memperkuat kompetensi profesional bidan dan meningkatkan mutu pelayanan kesehatan ibu dan anak. Penelitian ini menyiratkan bahwa mengintegrasikan pelatihan berbasis PILAR ke dalam program pengembangan profesional berkelanjutan dapat menjadi model strategis untuk mengurangi stunting dan mempromosikan hasil kesehatan berkelanjutan di daerah pedesaan.

Kata kunci: efektivitas, Kompetensi bidan, pelatihan, peningkatan kompetensi, pencegahan stunting.

INTRODUCTION

In 2011, the International Confederation of Midwives (ICM) defined a midwife as a person who has completed a midwifery education program recognized in the country in which she or he work. This program is based on the ICM essential competencies for basic midwifery practice and the ICM global standards framework for midwifery education. A midwife also obtains the qualifications necessary to become legally registered (licensed) to practice

midwifery and demonstrates the required competencies (Fullerton et al., 2003). According to the World Health Organization (WHO), a midwife is a person who has been regularly admitted to a legally recognized midwifery education program, has completed midwifery education, and is qualified, registered, and licensed to practice midwifery (Kemp et al., 2021).

In her work, a mother bears the responsibility as an implementer, manager, educator, and researcher. In accordance with their abilities, midwives can perform three types of tasks as implementers: independent, collaborative, and dependent. To improve one's abilities and capabilities, midwives possess underlying characteristics that relate to effective performance and intelligent action. Individuals must assume responsibility as a condition to be considered capable and have a causal or cause-effect relationship with the criteria used as a reference or ability to carry out or perform tasks or work based on skills and knowledge and supported by Competence, according to (Chairiyah et al., 2024), is a fundamental trait or deep part of personality that is inherent in a person and predictable behavior in various circumstances and work tasks. This motivates to achieve and encourages the desire to try harder to complete tasks.

Based on the definitions above, competence is the ability and attributes comprising the knowledge, skills, and professional attitudes required of a midwife to carry out her duties effectively. However, midwives often fail to perform their duties effectively in accordance with professional competency standards, and they frequently do so even under ideal conditions.

According to (Darim, 2020)(Irjanawadi et al., 2023)(Wijayanto & SPi, 2013), management is defined as a process involving planning, organizing, directing, and supervising the activities of organizational members and the utilization of various other organizational resources, with the primary goal of achieving predetermined organizational goals. This opinion is in line with the view of T. Hani Handoko, where he stated that management means collaborating with people to determine, interpret, and realize organizational goals through the implementation of various functions, such as planning (Planning), organizing (Organizing), personnel or staffing (Staffing), direction and leadership (Leading), and supervision (Controlling).

Training activities for midwives play a significant role in management. According to Molan (2012), management functions can generally be classified into four main categories, namely: (1) Planning, which involves setting goals, formulating strategies, and compiling plan components to coordinate various activities; (2) Organizing, which aims to determine the tasks to be carried out, the methods of implementation, and the individuals responsible; (3) Leading, which includes controlling and motivating all parties involved; and (4) Controlling, which functions to monitor the activity process to ensure that its implementation is in accordance with the established plan. This view aligns with Fayol's concept, as noted by Safroni (2012), which holds that management functions include planning, organizing, commanding, coordinating, and controlling. On the other hand, Griffin, as quoted by Safroni (2012), identifies the management functions as planning and decision-making, organizing, leading, and controlling.

Training requires management, a tool for achieving organizational goals. The better the management, the easier it is to achieve goals, both internally (organizationally, with employees, and the community) and externally (with the community). Management can improve an organization's desired outcomes, maintain a balance between conflicting objectives, and achieve efficiency and effectiveness.

Research conducted by (Halawati & Purnomo, 2022; Pramono & Prahiawan,

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2022) shows that training has an indirect impact on performance through increased competency. Competence is defined as the ability and motivation to perform tasks effectively. Therefore, the better the education and training employees receive, the more their competencies will develop, ultimately improving their performance.

Specifically, midwifery training activities provide a work environment where employees can develop attitudes and acquire specific knowledge and skills. This aims to make midwives more skilled and able to carry out their responsibilities to a higher standard, as an integral part of human resource management in society. These efforts are also aimed at improving midwives' knowledge and skills, so they can achieve a competitive advantage and provide optimal service (Faradina, 2019)(Simatupang et al., 2024). This view aligns with the findings of research by (Olsen & Stensaker, 2014), which used a simple experimental design with a pretest and post-test in the UK. The results showed that post-training knowledge increased significantly, with 60% of respondents reporting significantly greater improvement after training. This means that a high level of satisfaction was achieved, accompanied by a statistically significant increase in knowledge and confidence regarding the training material. These findings confirm that training effectiveness can be achieved through the implementation of training management elements.

Training, according to (Sudaryo et al., 2019), is the process of teaching new employees the skills they need to perform their jobs. According to (Sofyandi, 2008), cited by Sudaryo Yoyo et.al (2018:124), training is an effort to improve employees' knowledge and skills so they can perform their jobs more efficiently and effectively. The goal of any training program for midwives is to provide instruction and experience to new employees to help them quickly and economically achieve the required level of performance in their jobs. That training will help them improve their performance in their current jobs, learn new technologies or procedures, and prepare them to take on increased responsibilities in the future (Marsandya et al., 2024; Parashakti et al., 2020).

Research by (Sapari, 2020) highlights the need for regular and rotating training for midwives to ensure all midwives are involved. This training can be conducted in the workplace or outside it, through both formal and informal approaches, with a primary focus on improving mastery of skills and work techniques relevant to midwifery services. Consequently, this can drive improvements in midwives' overall performance. (Friani et al., 2021) emphasizes that midwives' participation in training is a crucial step in improving their competency. This opinion aligns with (Ningsih & Wintarsih, 2022) findings, which identified training as a mechanism for improving midwives' competency within the framework of continuing professional education. Similarly, (Saadah, 2015) states that training is an essential component of midwives' attributes that needs to be strengthened as a strategy to maximize their job satisfaction.

In West Nias Regency, North Sumatra, efforts to improve midwives' skills have been underway. Research by (Vitasari et al., 2019) found that training significantly improves midwives' performance. According to Farida in 2019, the training aims to broaden their knowledge, skills, and attitudes related to their duties, with a focus on both practice and theory to improve work outcomes. Research by (Tallam et al., 2022)(Tallam et al., 2022) found that midwifery training is intended to help midwives adapt to current standards, work methods, and technology, thereby improving the quality of midwifery services. Unfortunately, the existing training programs have not significantly improved

midwives' competency. The performance of a midwife is influenced by internal factors, such as education, training, attitude, motivation, length of work experience, knowledge, and skills, as well as external factors such as completeness of equipment, community support, organizational structure, and rewards or salaries, as mentioned by (Wulandari & Kusumastuti, 2020) Midwives are health workers who have the qualifications to help reduce maternal and child mortality and play a role in suppressing stunting because they are directly involved with women who are the targets of these programs.

Innovative training is like a system of organizational activities that transforms ideas into commercial products. In collaborative methods, this reflects interactions and lifestyles in which collaboration emphasizes cooperation based on member consensus rather than individual competition. Group members are trained to solve problems more effectively in groups, with necessary observations and input throughout the process (Ted Panitz, 1996). Innovative and collaborative participation is crucial to fostering cooperation and generating ideas within an organization, enabling it to manage resources effectively.

Participatory training has been widely tested in various types of training, especially in non-formal education in many institutions (Darmawangsa et al., 2011, p. 75). This participatory learning model emphasizes active participation in all aspects of training, from planning and implementing to evaluating learning activities (Kamil, 2012). This means that the success of participatory training depends not only on the trainer but also on participants' active participation (Mediasi, 2016, p. 4). Therefore, participant participation is at the heart of this type of training.

Research on Participatory Learning Strategies to Improve Non-Formal Education in Karawang Regency (Hidayat, 2016) shows that learning resources can motivate learners to evaluate their existing skills and experiences in real-life tasks or daily life, thereby improving the attitudes and skills acquired during learning. Similarly, research on the design of a participatory training program to improve the professionalism of high school biology teachers (Darwangsa, 2012) found that a participatory approach can enhance teacher professionalism. The development of a Participatory, Integrative, and Collaborative Education and Training model to improve the professional competence of chemistry teachers showed the effectiveness of this training, with an average score of 50, which is categorized as good. This aligns with research on the influence of training guidance, empowerment development, and participation on employee performance (Kambey & Suharnomo, 2013), which indicates that participation management has a positive impact on employee performance.

Innovation refers to an idea, event, or method perceived as new by individuals or groups, emerging through discovery or rediscovery to achieve specific goals or solve specific problems. According to Rogers (1983), four key elements characterize the diffusion of innovation: (1) the innovation itself, (2) communication through defined channels, (3) time, and (4) members of the social system. Understanding the diffusion process within organizations facilitates comprehension of educational innovation, as educational institutions function as organizational systems. Diffusion involves the communication of innovation within a social structure, whereas dissemination refers to its deliberate and managed distribution by implementers. Rogers further identifies five stages in the innovation-decision process: knowledge, persuasion, decision, implementation, and confirmation.

The findings of this study are expected to be used as a training model for midwives based on Participatory, Innovative, and

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Collaborative-based training to improve midwives' competency in stunting prevention in West Nias Regency.

METHOD

Research Design

This study used a quasi-experimental design to test the effectiveness of the Participatory Innovative Collaborative training management model in improving midwives' competency regarding stunting in West Nias Regency. Two groups were involved: an intervention group that received PILAR-based training and a control group that did not. Each group consisted of 26 midwives, selected randomly but not entirely at random, allowing control over variables that could influence the results. The intervention group participated in training to improve their knowledge, skills, and attitudes regarding stunting prevention, while the control group did not. This study was conducted in West Nias Regency, with data collection conducted at all 13 Community Health Centers (Puskesmas) in the regency. The study locations were chosen because they were representative of the implementation of the training model for midwives in the region.

Population and Sample

The population in this study comprised all midwives working at the West Nias Regency Community Health Center, totaling 308. From this number, the researcher selected a sample consisting of two groups of 26 people each. The sample was selected using a purposive sampling technique, with the first group, the intervention group, comprising 26 midwives who participated in the Participatory Innovative Collaborative-based training. Meanwhile, the second group, namely the control group, consisted of 26 midwives who did not participate in the training, but their competency was still measured for comparison purposes. The inclusion criteria for sample selection were midwives who were willing to serve as respondents, were working at the West Nias Regency Community Health Center with at least 1 year of experience, held civil servant status, and had participated in previous training. Meanwhile, the exclusion criteria included midwives who were unwilling to be respondents, had been working for less than 1 year, were non-civil servants, or had never participated in related training. The sample selection for the intervention and control groups was based on similar characteristics, allowing a valid comparison of changes in midwives' competencies in preventing stunting after receiving PILAR-based training interventions.

Research procedures

After the training is complete, the next step is to conduct data analysis to assess its effectiveness in improving midwives' competencies in stunting. Data collected through pretests, post-tests, and evaluation questionnaires will be analyzed to measure changes in participants' knowledge, skills, and attitudes.

Data Analysis

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Before the data analysis, the research instruments were tested for validity and reliability. Based on the results of SPSS analysis regarding the validity test, all question items (70 items) had a Corrected Item-Total Correlation value greater than the r-table value of 0.361, indicating that all items were valid at a 5% significance level. Furthermore, the reliability test showed that the Cronbach's Alpha value was 0.996 for 70 items; since this value (0.996) is greater than

the reliability criterion (0.60 or the critical r-table value of 0.60 at df = n–2), the research instrument is declared reliable and consistent.

Quantitative data analysis began by comparing the pretest and post-test results. The pretest was administered at the beginning of the training to assess participants' initial knowledge of stunting. In contrast, the post-test was administered after the training to assess changes in their knowledge. Based on these pretest and post-test results, the analysis will focus on differences in scores before and after the training, which will then be processed using appropriate statistical techniques, such as the t-test for normally distributed data or the Wilcoxon test for non-normally distributed data. The purpose of this analysis is to determine whether the PILAR-based training has a significant impact on improving participants' knowledge and competency.

In addition, qualitative data analysis was conducted using evaluation questionnaires completed after the training. The results will be analyzed to identify participants' perceptions of the training materials, teaching quality, and the relevance of the training to their work as midwives.

Data from the evaluation questionnaire completed by participants will be averaged using a Likert scale to measure participant satisfaction with various aspects of the training. Aspects evaluated include the appropriateness of the material, teaching methods, and the training's usefulness in the context of their daily tasks. Based on this analysis, researchers will be able to determine the extent to which participants received the training and the extent to which it contributed to improving their competency.

Based on the quantitative and qualitative analyses, researchers will evaluate the training's success and identify areas for improvement. If the analysis results show significant improvements in participants' knowledge and skills, along with high levels of satisfaction, then the PILAR-based training model can be considered adequate. However, if there are aspects that need improvement, such as unclear material or adapted teaching methods, revisions will be made before the training is implemented on a larger scale. This study has received ethical approval from the Research Ethics Committee with approval number 123/UN33.19.19/LL/2025.

RESULT

Respondent Characteristics

In this sub-chapter, the characteristics of the respondents involved in this study will be discussed. This analysis includes various demographic aspects of the participants, including age, education, years of service experience, and the number of training sessions attended.

Tabel 1. Characteristic respondent

Characteristics	Intervention		Control	
Age				
20 - 25	5	19.23	7	26.92
26-30	17	65.38	15	57.69
31-35	3	11.54	2	7.69
36-40	1	3.85	2	7.69
Education				
DIII	18	69.23	16	61.54
SI	7	26.92	8	30.77
S2	1	3.85	2	7.69
Years of service				
< 5 years	15	57.69	18	69.23
6-10 years	9	34.62	6	23.08
11-15 years	1	3.85	1	3.85
16-20 years	1	3.85	1	3.85
Training that Midwives Have Attended				
1-4	23	88.46	24	92.31
5-9	3	11.54	2	7.69
Total	**26**	**100**	**26**	**100**

In this study, two groups participated: an intervention group that received training and a control group that did not. In terms of age, the majority of participants in both the intervention and control groups were in the 26-30 age range, with 65.38% in the intervention group and 57.69% in the control

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group. The intervention group had slightly more participants aged 20-25 years (19.23%) than the control group (26.92%).

Regarding education, the majority of participants in both groups held a Diploma III (D3) degree. In the intervention group, 69.23% of participants had a Diploma III degree, while in the control group, this figure was slightly lower at 61.54%. A small proportion of participants in both groups held Bachelor's and Master's degrees, with a higher proportion in the control group (30.77%) than in the intervention group (26.92%).

Regarding length of service, in the intervention group, the majority of midwives had less than 5 years of service (57.69%), while in the control group, this figure was higher, at 69.23%. The intervention group had more midwives with 6-10 years of service (34.62%) than the control group (23.08%).

Regarding training attended, the majority of midwives in both groups had attended 1-4 training sessions, with a slightly higher rate in the control group (92.31%) than in the intervention group (88.46%). Only a small number of participants had attended 5-9 training sessions, both in the intervention (11.54%) and control (7.69%) groups.

2. Effectiveness of training management based on Participatory, Collaborative, and Innovative.

The implementation stage in this study is the training evaluation stage, which includes testing the model's effectiveness and public dissemination of information on the application and use of the developed model. The effectiveness of the PILAR-based training management model is assessed through the completion of the midwife competency improvement test, which includes pretest and post-test questions administered in a limited test and a broad trial to determine whether there is an increase in midwife competency before and after the PILAR-based training management model.

The limited external trial phase included preparing the measuring instruments and facilitators. The next step was to conduct a trial of the measuring instruments that would be used in the study. The limited external trial involved 52 midwives, divided into 26 treatment groups and 26 control groups, randomly selected from 13 community health centers. The comparative results of the pretest and posttest scores of midwives in the treatment and control groups were as follows:

Table 2. Effect of midwife competency training

NO	intervention				control			
	Pretest		Posttest		Pretest		posttest	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Tall	0	0	22	85	0	0	0	0
Currently	24	92	4	15	0	0	0	0
Low	2	8	0	0	26	100	26	100

The study evaluated the impact of the intervention on midwife competence, as measured by pre- and posttests in two groups: the intervention and the control. The results showed that, before the intervention, no participants in the intervention group were in the high competency category. However, after the intervention, 22 participants (85%) increased their competency to the high category. Meanwhile, in the medium category, 24 participants (92%) were in the pretest, but only 4 (15%) moved up to a higher category after the intervention. In the low category, despite the intervention, no participants moved up to the high category. Overall, this study demonstrates that the intervention is efficacious in improving midwife competency, especially among

participants with higher initial competency. Without the intervention, the control group did not experience significant changes, confirming the importance of the intervention in significantly improving midwife competency.

Table 3. Effectiveness of Collaborative, Participatory, and Innovative Training Management on Midwives' Competence (Max score: 70)

Variables	Treatment Mean±SD (n= 26)	Control Mean±SD (n=26)	p-value between groups
Competence			
Pretest	35.03 ± 7.660	34.07 ± 8.162	0.613 a)
Posttest	59.76 ± 4.974	35.52 ± 8.333	0.021 a)
Gain	24.73 ± 6.612	1.15 ± 1.00	0.001 b)

a)The mean difference between groups (pre-treatment test & pre-control test) was analyzed using the independent statistical test, t-test, at a significance level of 5%.

b)The mean differences between groups (treatment & control gain) were analyzed using the independent statistical test, t-test, at a significance level of 5%.

The analysis results showed a significant difference between the treatment and control groups in the competency measurements at the pretest, posttest, and gain. In the pretest measurement, the treatment group had an average score of 35.03 with a standard deviation of 7.660. In contrast, the control group had a slightly lower average score, namely 34.07, with a standard deviation of 8.162. However, the difference between the two groups on the pretest was not significant ($p = 0.61$; $p > 0.05$), indicating that both groups had similar levels of competency before treatment.

After treatment, the posttest results showed a significant difference between the two groups. The treatment group showed a significant increase, with an average score of 59.76 and a standard deviation of 4.974. In contrast, the control group achieved only an average score of 35.52 with a standard deviation of 8.333. The statistical test results showed a p-value of 0.021 ($p < 0.05$), indicating a significant difference between the two groups in the posttest. This shows that the treatment given had a positive impact on improving the competence of the treatment group compared to the control group.

The most striking difference is seen in the gain calculation, namely, the difference between the posttest and pretest scores. The treatment group achieved a very high gain of 24.73 (SD = 6.612), while the control group achieved a gain of 1.15 (SD = 1.00). Statistical tests on the difference in gain showed a p-value of 0.001 ($p < 0.05$), indicating a very significant difference between the treatment and control groups. This indicates that the treatment resulted in a much greater increase in competence in the treatment group than in the control group.

Overall, these results indicate that the treatment group's competency improved significantly on the posttest and in the gain calculation compared to the control group. This indicates that the treatment was highly effective in improving participants' competency.

3. Evaluation of Activity Assessment

Evaluating training activities involves assessing their impact, such as the positive changes they bring about. Regardless of the training material, every training program provides a learning outcome evaluation. This process measures how well participants understand the information and how they feel about new ideas. Attitude scores determine how well participants engage with training activities, act appropriately, and pay attention

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during the training. Training organizers can assess their scores for each aspect by comparing their pretest and posttest results. Training organizers can also measure quality both synchronously and asynchronously. Subsequent training and education are critiqued to improve training delivery. The format for evaluating participants' feelings is a completed in-person questionnaire. Participants can use Google Forms, Microsoft Office, email, or other means to submit completed questionnaires. The trainer's delivery technique can be evaluated using a classic training evaluation format and by the event organizer.

a. Midwife Instructor Evaluation

From the questionnaire data collected, the results for the midwife instructors (Figure 1) were excellent, with an 88% response rate, indicating the instructors' success in training the midwife participants.

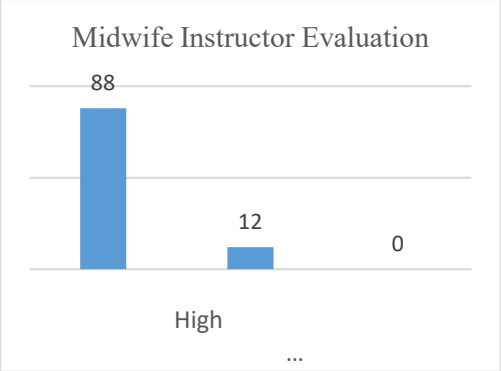


Figure 1. Midwife Instructor Evaluation.

b. Midwife Training Organizer

Based on the observation data, the questionnaire results were perfect for the organizers of the Midwife training management, as shown in Figure 2, with a 75% success rate in training the Midwife participants.

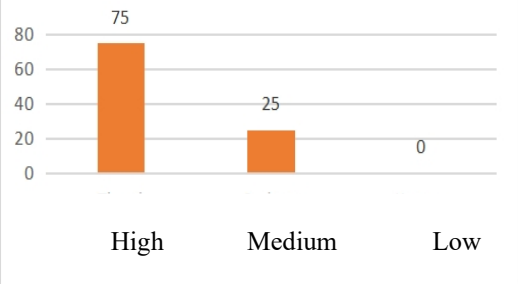


Figure 2. Evaluation of training participants

From the questionnaire data collected during the observation, the evaluation results of the training participants in the Midwife training management were obtained: very good, with 75% understanding and the ability to carry out the training.

c. Evaluation of Midwife Training Participants

From the questionnaire data collected, the evaluation results of training participants in midwife training management were obtained, namely, as shown in Figure 3, which was very good, with a percentage of 62.50% in understanding and being able to carry out the training.

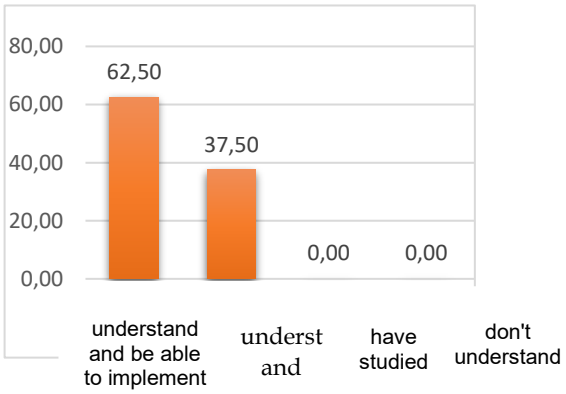
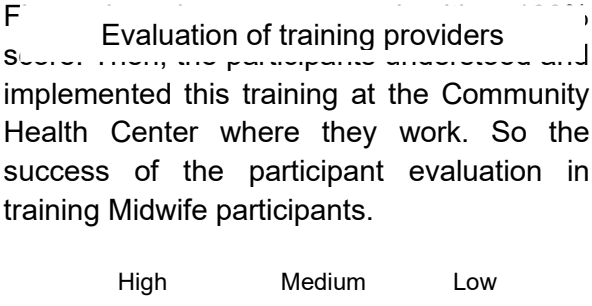


Figure 3. Evaluation of Midwife participants.

d. Evaluation of the Midwife Training Pillars

From the questionnaire data collection, the evaluation results of the training participants in the Midwife training management were obtained, as shown in F



implemented this training at the Community Health Center where they work. So the success of the participant evaluation in training Midwife participants.

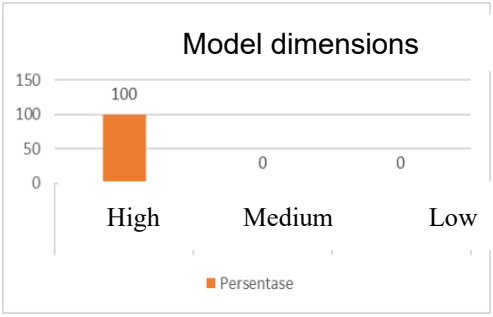


Figure 4. Evaluation of Midwifery Pillars based on Participatory, Innovative, Collaborative

DISCUSSION

The implementation aimed to demonstrate the influence of the competency-based training model on improving midwife competency. Subsequently, an analysis of differences in average pretest and post-test scores and the mean gain in observation scores before and after the implementation of the midwife training model was carried out. To assess the significance of differences in items, a statistical analysis of the difference in mean gain was conducted using the F test to assess homogeneity of variance, and a two-tailed t-test with α = 0.05 (Sugiyono, 2007).

From the Table above, it can be seen that the average midwife competency before the Participatory, Innovative, Collaborative-based training in the treatment group was 35.03 with a standard deviation of 7.660. In the control group, the average midwife competency before training was 34.07, with a standard deviation of 8.162. The statistical test showed no significant difference between the treatment and control groups at the initial measurement (p=0.613). After the training, the average competency in the treatment group increased to 59.76 (standard deviation = 4.974), while in the control group it increased only to 35.52 (standard deviation = 8.333). The statistical test showed a significant difference between the treatment and control groups (p-value = 0.021).

Furthermore, for the difference in gain value or increase in competence, the treatment group showed a greater increase, with an average gain of 24.73 and a standard deviation of 6.612, compared to the control group, which showed only an increase, with an average gain of 1.15 and a standard deviation of 1.00. Statistical tests showed a significant difference between the two groups (p-value = 0.001). From the Independent t-test, it can be concluded that Participatory, Innovative, Collaborative-based training is efficacious in improving midwives' competence, as evidenced by the significant difference between the treatment and control groups (p-value = 0.001).

This study tested the effectiveness of an intervention in improving midwives' competency through participatory, innovative, and collaborative training. Based on pretest and posttest results, the intervention group that received the training showed significant improvements in their competency. In contrast, the control group that did not receive the intervention experienced no significant changes. 85% of participants in the intervention group advanced to the high category on the posttest, compared with 0% in the control group, which remained in the low category. This aligns with previous research showing that competency-based training can significantly improve midwives' knowledge and skills (Yuliana, 2011).

Similar results were found in a study by (Purnomo et al., 2016), which revealed that practical training can improve employee competency, a finding that can be applied to the midwifery profession. This study indicates that participatory, innovative, management-based training can improve midwives' skills in their daily tasks. This is evident from the fact that 85% of participants in the intervention group achieved a high category after the training, compared to only 15% in the medium category.

In the moderate category, most participants remained there, although there was a significant decrease from 92% in the pretest to 15% in the posttest. This decrease suggests that while the training provided

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benefits, some participants may not have been able to apply the knowledge and skills learned in practical situations optimally. It also suggests that training effectiveness can vary depending on an individual's readiness to adopt change, a finding supported by previous research (Yuningsih, 2016).

Furthermore, in the low category, despite receiving training, none of the participants successfully advanced to the high category. This may be due to various factors, including a lack of practical experience or limitations in the training materials provided. Research by (Jumawan et al., 2024; Pramono & Prahiawan, 2022) shows that while training can have a positive impact, in some cases, factors such as educational background and work experience also influence outcomes. This is relevant to the finding that participants with less background or less than 5 years of experience are more likely to remain in the low category.

The control group, which received no training, showed very different results. No participants advanced to the high category on the posttest, indicating that without intervention, there was no significant change in competency. This aligns with research by (Farida, 2015), which found that without structured, competency-based training, midwives' work outcomes and performance remained stagnant. This research also demonstrates that training is a key element in improving the quality of healthcare workers, including midwives.

It is important to note that although pretest and posttest results showed improved competency, some participants in the intervention group still did not reach the high category. This suggests that training, while effective, requires a more holistic approach, including follow-up training and more practical application in the field to achieve optimal results. For example, research by (Adefolarin et al., 2021) emphasized the importance of ongoing training and supervision in improving midwives' skills.

Training programs need to be assessed after all other parts of training management are completed. This final stage, called evaluation, can cause problems with training programs if not implemented properly. Assessment is necessary to obtain the final results of each activity. Gathering information for assessment is crucial because it provides the basis for the assessment.

These results also demonstrate the importance of evaluation and feedback in the training process, as demonstrated in research by (Salas et al., 2012). Pretest and posttest evaluations are crucial steps in assessing training effectiveness and identifying areas for improvement. Furthermore, the importance of using a variety of training methods, such as lectures, group discussions, and case studies, has been shown to help participants understand and implement their knowledge in practice.

The findings of this study — showing that the *Participatory, Innovative, and Collaborative (PILAR)*-based training significantly improved midwives' competencies (gain mean = 24.73) — are consistent with international evidence on the effectiveness of practice-centered training interventions. A quasi-experimental study by Wu et al. (2024) in China reported that a simulation-based training workshop for obstetric emergency management among midwives led to a significant increase in participants' clinical confidence, teamwork scores, and overall competence after the intervention (Wu et al., 2024)

Overall, the results of this study confirm that competency-based training, designed with a participatory, innovative, and collaborative approach, has been effective in improving midwives' competencies, particularly in stunting prevention. This study also provides valuable insights into the importance of targeted training interventions and the relevance of training materials to the

challenges midwives face in the field. However, to achieve optimal results, this training needs to be complemented by continued support and ongoing evaluation.

Implication

The findings of this study have important global implications for strengthening midwifery competencies within diverse health system contexts. The *Participatory, Innovative, and Collaborative (PILAR)* training model demonstrated its effectiveness in enhancing knowledge, skills, and professional attitudes, suggesting that similar approaches could be successfully adapted and scaled in other low- and middle-income countries (LMICs). In alignment with the World Health Organization's Global Strategy on Human Resources for Health (2030), this model promotes interactive, context-based learning that empowers midwives as frontline providers in maternal and child health services. The PILAR framework can be integrated into continuous professional development (CPD) systems or pre-service education programs in countries facing similar challenges—such as limited resources, geographic disparities, and skill gaps among maternal health workers. Moreover, by emphasizing collaboration and participatory learning, the model aligns with international efforts to strengthen community-based healthcare delivery and reduce preventable maternal and child mortality. Therefore, this approach not only provides a practical training strategy for local health systems but also offers a scalable and adaptable framework that can inform global midwifery education standards and policy reforms to improve maternal and child health outcomes across diverse regions.

Limitation and Suggestion for Further Research

This study has several limitations that should be acknowledged. One major limitation was the long travel distance between research sites, as the participating midwives were dispersed across multiple community health centers (Puskesmas) in West Nias Regency. Geographical constraints and limited accessibility in some areas created logistical challenges and time constraints in organizing training and collecting data, which may have influenced participant attendance and focus during the sessions. Future research should focus on evaluating the long-term impact of the Participatory, Innovative, and Collaborative (PILAR) training model on midwives' performance and community health outcomes, such as reductions in stunting rates and improvements in maternal–child health indicators. Longitudinal studies with follow-up periods of six months to one year are recommended to assess the sustainability of competency improvements after training. In addition, future studies should explore the model's adaptability across different healthcare systems and cultural settings—for example, comparing its implementation in urban versus rural areas or in other countries with decentralized health systems. Mixed-method designs combining quantitative outcomes with qualitative interviews could provide deeper insights into the behavioral and organizational factors that influence training success. Finally, comparative studies integrating digital or blended learning components within the PILAR framework could help identify cost-effective and scalable approaches for professional development among midwives and other community health workers.

CONCLUSION

This study concludes that the Participatory, Innovative, and Collaborative (PILAR)-based training model effectively enhances midwives' competence in stunting prevention in West Nias Regency. By applying participatory, innovative, and collaborative learning principles, the training fostered active engagement, improved understanding, and strengthened the practical skills required for quality maternal and child health services. The findings highlight the importance of interactive and contextually relevant training as a strategy for professional development in midwifery. Therefore, integrating the PILAR model into continuous education programs is recommended to improve midwives' performance and support national efforts to reduce stunting through better maternal and child health practices.

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