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The Effect of The Teach-Back Method on The Knowledge and Skills of Health Workers Regarding The Results of Plotting Anthropometric Measurements of Toddlers at The Posyandu in The Working Area

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ABSTRACT

Background: *The knowledge and skills of posyandu volunteers in explaining the results of toddler anthropometric plotting in the Maternal and Child Health (KIA) book are fundamental competencies that volunteers must possess. However, in the working area of Batujai Public Health Center, the use of the KIA book, particularly in explaining anthropometric plotting results, remains suboptimal. The teach-back learning method effectively improves volunteer knowledge and skills, as it involves repeating learned information in their own words to ensure comprehension.*

Research Methods: *This research used a quasi-experimental design with a pre-test post-test control group approach. Sixty volunteers were divided into two groups: the intervention group, which received the teach-back method, and the control group, which received conventional lecture-based training.*

Research Result: *The Mann-Whitney test showed a significant difference in the improvement of knowledge (p=0.001) and skills (p=0.003) among volunteers after the teach-back intervention.*

Conclusion: *Thus, the teach-back method effectively enhances the knowledge and skills of posyandu volunteers in explaining the results of toddler anthropometric plotting.*

BACKGROUND

Maternal and child health is a top priority in the national health care system, and one of the efforts to improve it is through the posyandu program. In this case, posyandu cadres are essential as the primary implementers of basic health services for mothers and children (Indonesian Ministry of Health, 2023). One of the critical instruments used to support maternal and child health monitoring in Indonesia is the Mother and Child Health Book (KIA), which can also serve as an educational medium for mothers of toddlers or caregivers in understanding child growth and development.

Health Promotion Data from the Batujai Community Health Center, as of October 2024, shows that using the KIA Book as an educational medium is still not optimal. It is known that 100 cadres from 20 posyandu have never received special training on using the KIA Book to explain the results of toddler anthropometry *plotting*. A preliminary survey through interviews with the Nutrition Coordinator revealed that cadres generally only take measurements and make records without educating mothers of toddlers.

In addition, the stunting rate in the Batujai Community Health Center area in 2024 is still relatively high, despite showing a downward trend, at 16.8% in the first quarter, 15% in the second quarter, and 14.2%

in the third quarter. This achievement is still above the national target of 14%. One of the efforts to prevent stunting is through education for mothers or caregivers of toddlers, particularly regarding understanding the nutritional status of children based on anthropometric measurements at the integrated health service post. This condition emphasizes the importance of cadres' skills in optimally utilizing the Maternal and Child Health Book as an educational medium, so that mothers of toddlers can monitor their children's growth and take appropriate steps in meeting their nutritional needs.

Effective and continuous training programs are needed for posyandu cadres to overcome these problems. Research states that structured and continuous training methods can improve cadres' competence in carrying out their duties. In addition, research by Shilvia et al. (2020) found that training provided to posyandu cadres significantly improved their skills in carrying out their duties. After receiving training, the skills of cadres in the good category increased from 17.8% to 93.3%.

The teach-back learning method is one effective training method in improving understanding and skills. According to Liu et al. (2018), the *teach-back* method involves an interactive learning process between health service providers and recipients. To assess the recipients' understanding, providers ask them to repeat or demonstrate the information given using their own language or words. The *teach-back* method allows health service providers to evaluate the recipients' understanding of the information.

Therefore, effective training programs using the *teach-back* method must be implemented to improve the cadres' knowledge and skills in explaining anthropometric *plotting* results to mothers of toddlers. In addition, applying *the teach-back* method in this educational process is expected to help cadres convey information effectively, while optimizing the function of the KIA Book as a growth monitoring tool. The results of this study are expected to provide recommendations for relevant parties, such as the Health Office and health training institutions, in designing more effective training programs for posyandu cadres, especially in the working area of the Batujai Community Health Center.

RESEARCH METHODS

This study used a quasi-experimental design with a *non-equivalent pre-test-post-test with control group design.* The treatment group received training using the *teach-back* method, while the control group received training using the conventional method. The sample consisted of 60 posyandu cadres (n=30 treatment, n=30 control) selected by *purposive sampling* from a total population of 100 cadres in the working area of the Batujai Community Health Center. The study was conducted in February–March 2025 at 12 posyandu in the working area of the Batujai Community Health Center.

Knowledge data were collected through a 15-question multiple-choice questionnaire administered before and after the training, while skills were assessed using *a* direct observation *checklist form*. The *Mann-Whitney* and *Wilcoxon* statistical tests were used because the data were not normally distributed based on the results of the *Shapiro-Wilk* normality test. This study has received ethical approval from the Ethics Committee of the Mataram Ministry of Health Polytechnic (No. DP.04.03/F.XLVIII.14/127/2025).

RESULT AND DISCUSSION

Characteristics of Health Workers

Each posyandu has varying cadre characteristics, such as age, education, and length of service. Table 1 presents the attributes of posyandu cadres.

Table 1. Characteristics of Posyandu Cadres

Characteristics	Treatment		Control	
	n = 30	%	n = 30	%
Age (Years)				
25-31	3	10.00	6	20.00
32–38	10	33.33	9	30
39–45	12	40.00	8	26.67
46–52	3	10.00	5	16.67
53–59	2	6.67	1	3.33
60–65	0	0.00	1	3.33
Level of Education				
Elementary	6	20.00	4	13.3
Junior High School	4	13.33	8	26.67
High School	19	63.33	15	50.00
D3/S1	1	3.33	3	10
Length of Service as a Cadre (years)				
1–3	2	6.67	2	6.67
4–5	8	26.67	1	3.33
6–10	7	23.33	12	40.00
>10	13	43.33	15	50

In both groups, most cadres were aged 39–45 years, totaling 20 cadres (33.33%), followed by those aged 32–38 years, totaling 19 cadres (31.66%), which is considered the productive age group. This age indicates that the cadres are within an age range that is still physically and mentally active to be involved in training and community service activities (Barokah et al., 2022). The productive age group also has great motivation to improve their competence to support their performance in the work environment (Zalela, 2024).

The cadres in this study came from formal educational backgrounds, with the majority having a high school education (SMA) level, totaling 36 people (60%), and four people (6.67%) having a college education. Higher education generally supports better understanding and application of training materials. Individuals with higher education tend to have better cognitive abilities, self-confidence, and problem-solving skills, which are important in carrying out their roles as cadres (Zalela, 2024).

Based on their length of service, most cadres have served for more than 10 years, namely 23 cadres (38.33%). Cadres who have been active in posyandu for a long time generally have a better understanding of the community's conditions and are accustomed to their duties, making it easier for them to adopt new knowledge and skills, although they still need updates through training relevant to their duties (Barokah et al., 2022).

Differences in Knowledge and Skills of Cadres Before and After Learning Using the *Teach-Back* Method

Table 1. Differences in Knowledge and Skills of Cadres Before Learning

Variable	Treatment Group		Control Group		p
	n	Mean score	n	Average score	
Pre-test knowledge	30	66.80	30	65.93	0.958
Pre-test skills	30	7.50	30	7.13	0.115

In Table 2, the *Mann-Whitney* test results obtained a p-value of 0.958 for the knowledge variable and p=0.115 for the skill variable, where p>0.05. Therefore, there was no significant difference in knowledge and skills between the treatment group and the control group before teaching with the *teach-back* method in the treatment group and the conventional method in the control group.

Table 2 . Wilcoxon Test for Differences in Cadre Knowledge Before and After Learning

Category	Treatment Group (n=30)				Control Group (n=30)			
	Before		After		Before		after	
	n	%	n	%	n	%	n	%
Good	24	80	30	100	25	83.3	30	100
Sufficient	6	20	0	0	5	16.7	0	0
Less	0	0	0	0	0	0	0	0
Total	30	100	30	100	30	100	30	100
Average	66.80		73.53		65.93		69.13	
p-value	0.000				0.00			

Table 3 shows the knowledge level of cadres before and after learning. In the treatment group, there were 24 cadres (80%) in the good knowledge category, which increased to 30 cadres (100%) in the good knowledge category after learning using the *teach-back* method. Similarly, in the control group, before the training, there were 25 cadres (83.3%) in the good category, which increased to 30 cadres (100%) with good knowledge after the training. The *Wilcoxon* test results obtained a p-value of 0.000 ($p < 0.05$) in both groups, meaning there was a difference in the change in cadres' knowledge before and after the training in each group.

Table 3 . Wilcoxon Test for Differences in Cadre Skills Before and After Learning

Category	Treatment Group (n=30)				Control Group (n=30)			
	Before		After		Before		after	
	n	%	n	%	n	%	n	%
Good	15	50	26	86.7	10	33.3	21	70
Fair	15	50	4	13.3	20	66.7	9	30
Less	0	0	0	0	0	0	0	0
Total	30	100	30	100	30	100	30	100
Average	7.50		8.80		7.13		7.93	
p-value	0.000				0.003			

Table 4 shows the skill levels of cadres before and after learning. In the treatment group, 15 cadres (50%) were in the adequate knowledge category, which increased to 30 cadres (100%) in the good knowledge category after learning the *teach-back* method. In the control group, before the training, there were 20 cadres (66.7%) in the adequate category, and after the training, 21 cadres (70%) became proficient. The remaining nine cadres (30%) remained in the adequate category. The *Wilcoxon* test results obtained a p-value of 0.000 and 0.003 ($p < 0.05$) in both groups, which means there was a difference in the change in cadres' skills before and after the learning process in each group.

The application of the *teach-back* method in this study can be explained through its central principle, which is that participants are asked to repeat the information they have received in their own words. This technique allows cadres to truly understand the material because they hear and receive information passively and process, repeat, and obtain clarification directly from the facilitator. Thus, the learning process becomes more interactive and oriented towards deep understanding, not just memorization (Kanang et al., 2021).

Training or education for posyandu cadres plays an important role in increasing understanding and broadening knowledge, especially regarding the duties and responsibilities of cadres at posyandu. This additional education is important in shaping the positive attitudes of cadres and encouraging their active involvement in every posyandu activity (Wahyudi et al., 2022)

Analysis of the Effect of the *Teach-Back* Learning Method on the Knowledge and Skills of Posyandu Cadres

Table 4. Results of the Test on the Influence of the Teach-Back Method on the Knowledge and Skills of Posyandu Cadres

Variable	Treatment Group		Control Group		p
	n	Mean score	n	Average score	
Post-test knowledge	30	73.53	30	69.13	0.001
Post-test skills	30	8.80	30	7.93	0.003

In Table 5, the *Mann-Whitney* test results obtained a p-value of 0.001 for the knowledge variable and p=0.003 for the skill variable, where p<0.05. Therefore, there is a significant difference in knowledge and skills between the treatment and control groups after the learning process. This means that the *teach-back* method of learning affects the knowledge and skills of cadres in explaining the results of anthropometric plotting of toddlers when compared to the conventional method in the control group.

The results of this study are in line with the research by , where the use of the *teach-back* method had a significant impact on improving the understanding of mothers of toddlers in monitoring child growth, especially in the use of the Healthy Growth Card (KMS) and early detection of growth problems, with a significance value of p = 0.003 (p < 0.05) in the treatment group, indicating that this method can be used in various public health education contexts. In addition, this is supported by research by Octavia & Laraeni (2017), where the results of this study show that there is an effect of providing education or learning through cadre refresher training on knowledge and skills before and after the refresher training, with a significance value of $p < 0.05$.

The teach-back method has advantages, as its application encourages the educational targets—in this study, posyandu cadres—to be more active in listening, understanding, and re-communicating the material learned. When the educational targets are asked to explain the information back to the educator, they are indirectly undergoing a process of relearning, which strengthens their memory and understanding (Anderson et al., 2020).

Strong knowledge and understanding of the role of posyandu cadres, health service procedures, and how to convey health information to the community will improve the quality of posyandu services. Therefore, this training is provided to enhance cadres' understanding of presenting anthropometric plotting results for infants and improve the quality of services at the posyandu level.

CONCLUSIONS

Statistical analysis results indicate that the *teach-back* learning method significantly improves the knowledge ($p = 0.001$) and skills ($p = 0.003$) of posyandu cadres in explaining the results of plotting anthropometric measurements of toddlers in the working area of the Batujai Community Health Center.

RECOMMENDATION

It is hoped that the Batujai Community Health Center will implement training programs using the teach-back method in various activities at the Community Health Center and hold regular refresher courses for posyandu cadres to improve the quality of health services.

Posyandu cadres are expected to apply the teach-back method in providing education or advice related to the results of anthropometric plotting of toddlers to mothers of toddlers and other target groups.

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