# The Impact of Health Worker Assistance on the Skills of Posyandu Cadres in Measuring the Height of Toddlers

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ARTICLE INFO	ABSTRACT
Article history	Weight and height measurements are crucial for monitoring toddler growth and enabling early detection of developmental disorders. Cadres at posyandu (integrated health service
Received date 28 Oct 2024	posts) play an essential role in this monitoring; however, many lack adequate skills. This study employed a pre-experimental design with pre-test and post-test assessments conducted in the Kedondong Health Center area of Pesawaran Resency. The study
Revised date 22 Nov 2024	involved 47 randomly selected active posyandu cadres, focusing on their skills in measuring toddler height. The treatment variable was the support provided by health workers to these cadres. Skill measurements were taken twice: before (pre-test) and after
Accepted date 29 Nov 2024	(post-test) assistance. A checklist outlining the steps for measuring children's height was utilized as the assessment tool. Data analysis included the Shapiro-Wilk test for normality and the Wilcoxon test to evaluate differences in skills pre- and post-mentoring. Results
Keywords:	demonstrated a significant improvement in average skill scores, with the infant meter increasing from 6.44 to 8.92 and the stadiometer from 6.06 to 9.11. Statistically significant differences were found before and after mentoring for both instruments (p-value=0.012 for
Children's height; Mentoring skills; Posyandu.	the infant meter; p-value=0.000 for the stadiometer). The study recommends that health workers effectively mentor cadres using these measurement tools, aligning with existing standard operating procedures (SOPs).

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## **INTRODUCTION**

Monitoring toddlers' growth is an activity carried out to find out the development and growth of toddlers. These activities are done by weighing weight or measuring height Periodically so that they can be used for the early detection of Growth and development disorders in children (Fitriasih & Siswanti, 2014). Toddler growth monitoring activities can be held at Posyandu and carried out by cadres. Growth monitoring for toddlers can only be done well if accurate data is available. So, posyandu cadres, as implementers of Growth Monitoring Activities, Toddlers in posyandu must have precision and skills in weighing and measuring.

Data from various research results show that the skills of posyandu cadres in weighing and measuring are still not good enough. This can be proven from the data from the results of weighing and measurement by cadres recorded in e-PPBGM (Electronic-Community-Based Nutrition Recording and Reporting), where the incidence of stunting and wasting was found to be very low when compared to the results of nutritional status surveys, such as the Indonesian Nutrition Status Survey (SSGI), and the Indonesian Health Survey (SKI). The low discovery of stunting or wasting by cadres occurs due to a lack of accuracy due to not being skilled in determining the age of toddlers, weighing or measuring, and interpreting the measurement results (Ministry of Health Republic Indonesia 2022; 2023).

Cadres' low accuracy and skills in weighing and measuring toddlers can arise due to various factors, both internal and external. From the internal side, many cadres have a low level of education, impacting their knowledge level. From the external side, cadre training has been provided by Health Centre Officers for quite a long time, while posyandu cadres have also had relatively high mobility.

In the activity, Posyandu, cadres have a vital role in Monitoring the growth and development of children at the Posyandu because they are the implementers of services at the Posyandu (Handayani & Wulan, 2024). Posyandu cadres are community members willing, able, and

have time to organize active volunteer activities of the Posyandu and carry out their activities every month (Widaryanti et al., 2023). Given the central role of cadres in posyandu activities, cadres are required to have good skills. One of the skills that cadres must have is to correctly weigh and measure the child's height so that the results of the weighing and measurements can describe the child's actual condition (Sulaeman et al., 2012). Through posyandu activities, posyandu cadres can carry out early detection of growth and development disorders, find out the risk factors for growth and development disorders in children, and carry out appropriate treatment if growth and development disorders are found in children (Cahyawati & Permatananda., 2022).

In the Regulation of the Minister of Health Republic Indonesia No. 66 of 2014 concerning Child Growth Monitoring, it is expressly stated that to detect the early onset of nutritional problems in children, it is necessary to carry outgrowth monitoring, one of which can be done at the integrated service posyandu. As a community-based health effort, posyandu monitors children's growth by measuring monthly weight and height (Ministry of Health Republic Indonesia, 2014). The data of weight weighing and height measurement results must be accurate because the results of weighing and measuring are not only important for mothers of toddlers to know the nutritional status and growth of their children, but they are also helpful as a policy basis for local and central governments in solving nutritional problems.

Current facts show that many cadres still need to take skills as implementers of weighing and measuring activities at posyandu. Therefore, the data collected is not accurate enough to describe the actual condition of the children. The results of Sutiani's et al. (2015) research in the working area of the Lalang Village Health Center showed that more than half of the cadres (66.1%)were less skilled in monitoring growth (Sutiani et al., 2015). Then, the results of Sasmita's (2017) research at the Posyandu in Karangasem Village, Yogyakarta, also showed that 25% of posyandu cadres had fewer anthropometric measurement skills (p-value=0.019) (Sasmita, 2017). Similarly, the results of Gandasari (2017) research at the Pesanggrahan Health Center show that only 51.9% of posyandu cadres have accuracy in measuring anthropometry, and none have accuracy in measuring anthropometry (Gandasari, 2017). The results of the latest research conducted by Fitriani & Purwaningtyas (2020) in the Kenanga posyandu area, South Jakarta, also show results that are not much different because 53.3%

of cadres are still not skilled in measuring anthropometry (Fitriani & Purwaningtyas, 2020). The low skill of cadres in weighing and measuring children's height will have profound implications for providing accurate growth monitoring data (Fitriani, 2021).

Various efforts have been made to improve the skills of posyandu cadres in monitoring the growth of toddlers, including through the recruitment process or providing knowledge and skills through the training of posyandu cadres (Muamar et al., 2024). However, Facts in the field show that cadre training cannot be carried out periodically due to limited funds.

Related to the above problems, it is necessary to look for other forms to improve the skills of cadres. This study aims to improve the skills of selected cadres' assistance in the form of assistance from Health Center Officers or Village Midwives to cadres. The choice of assistance is because activities carried out can be more flexible and related to the implementation time, the material provided, the method used, and the implementation process. This is also important because Assistance activities can be carried out periodically whenever posyandu activities and funds are not tied to training funds (Sari et al., 2023).

Based on the description, this study aims to prove whether assistance by health workers or village midwives to posyandu cadres affects their skills in weighing and measuring toddlers at the Kedondong Health Center, Pesawaran Regency.

## **METHOD**

This study uses a pre-experimental design with a one-group pre and post-test design approach, which was carried out from April to May 2024 in the working area of the Kedondong Health Center, Pesawaran Regency. As a research subject, there are active posyandu cadres. The research subjects were taken by accident, according to the opening schedule of the nearest posyandu of the 32 existing posyandu, 9 posyandu were determined with 47 cadres. The number of research subjects was divided into two groups, namely, 23 cadres measuring body length using an infant meter and 24 measuring height using a Stadiometer. In this study, the variable tried was the skill of posyandu cadres in measuring TB in toddlers.

In contrast, the treatment variable was the assistance of health workers to posyandu cadres in measuring the height of toddlers. Assistance for health workers is carried out in April at each posyandu after the cadres have finished their activities. Assistance is provided in the form of interactive lectures and discussions, as well as practices or exercises on how to measure the height of toddlers. The tool used to measure the baby's height is an infant meter with an accuracy of 0.1 cm, and the tool used to measure the height of children under five is a Stadiometer with an accuracy of 0.1 cm. The measurement of the skills of posyandu cadres was carried out 2 times, namely before (pre-test) and after (post-test). The instrument used to measure the skills of posyandu cadres is a checklist containing steps that must be taken to measure children's height. Body length measurement using an infant meter consists of 13 steps, while height measurement using a stadiometer consists of 9 steps. The analysis used to determine the effect of health worker assistance on cadre skills in measuring tuberculosis in toddlers depends on the expected test results. In this study, the normality test used was the Shapiro-Wilk test because the number of subjects studied was <100. If the normality test results show a normal distribution, a t-test will be used, but if not, a Wilcoxon test will be used.

The ethical feasibility test was conducted at the Health Research Ethics Commission, Poltekkes Kemenkes Tanjung Karang, and was declared ethically feasible with letter number .468/KEPK-TJK/VII/2024.

## RESULTS

Tab	le	1.	Characteristics	of	Posyance	<u>lu cadr</u>	es
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Characteristic	n	%
Education:		
Basis	11	23,4
Intermediate	33	70,2
Above	3	6,4
Cadre Length :		
< 1 year	8	17,0
1 to 2 years	6	12,8
> 2 years	33	70,2
Cadre training experience		
Ever	45	95,7
Never	2	4,3
Age		
<20 years	3	6,4
20-30 years old	19	40,4
>30 years	25	53,2

Table 1 shows that 53.2% Posyandu cadres were over 30 years old, and only 6.4% were less than 20 years old. Most (70.2%) of Posyandu cadres admitted to having secondary education, ranging from junior high school to high school. Then 70.2% admitted to having been a posyandu cadre for more than 2 years, and almost all (95.7%) admitted to having participated in cadre training. Posyandu cadres have long recognized the training activities provided by the health center about 3 years ago.

Table 2.	Average	score	of	skills	of	Posyandu
	cadres be	efore h	elp	ing he	altl	h

cuties before helping heaten				
Cadre skills using	Average	n		
measuring instruments	score			
Infantometer	6.44	23		
Stadiometer	6.06	24		

The table 2 shows that the average score of cadres who used infantometers before the health workers assisted was only 6.44. This means that of all the stages or steps that must be taken in using infantometers, cadres can only do 6 to 7 steps correctly. Meanwhile, the average skill score of posyandu cadres in using a stadiometer is 6.06, meaning that cadres can only do 6 to 7 steps correctly.

 Table 3. Types of TB measurement errors by

 Posyandu cadres before being given

 assistance

	assistance		
	Types of measurement errors	n	%
I	nfantometer		
•	Do not make corrections to the	20	86.9
	measurement results; if the child		
	being measured is $>=2$ years old, the		
	measurement result must be reduced		
	by 0.7 cm		
•	Do not straighten the toddler's legs	18	78.3
	and press on his knees in such a way		
	that the knees and calf backs are		
	attached to the measuring board		
•	The assistant does not make sure the	16	69.6
	toddler's head is attached to the head of		
	the bed, and the toddler's back remains		
	attached to the measuring board		
S	tadiometer		
•	Do not make corrections to the	11	45.8
	measurement results; if the toddler is		
	<2 years old, then the measurement		
	result must be added 0.7 cm		
•	Do not ask the assistant to make sure	15	62.5
	the toddler's body parts are attached at		
	5 points on the measuring pole (back		
	of the head, back, buttocks, calves,		
	and heels) with the left hand holding		
	the knee and the right hand holding		
	the shin	(	25.0
•	Do not position the todaler's head by	0	25.0
	holding the toddler's chin with the left		
	forward so that it forms a horizontal		
	Fronkfurt plana		

From the observation results, it can be seen that the most common mistake in measuring the height of children made by posyandu cadres when using an infantometer is not correcting the measurement results; if the child being measured is >=2 years old, the measurement result must be reduced by 0.7 cm (86.9%); then do not straighten the toddler's legs and press his knees in such a way that the knees and calves of the back are attached to the measuring board (78.3%). The measuring assistant did not ensure that the toddler's head was attached to the head of the bed, and the toddler's back remained attached to the measuring board (69.6%).

The most common type of mistake made by posyandu cadres when measuring height using a stadiometer is not asking the measuring assistant to ensure that the body part of the toddler is attached to 5 points on the measuring pole (the back of the head, back, buttocks, calves, and heels) with the left hand holding the knee. The right hand holding the shin (62.5%), Not correcting the measurement results; if the toddler is < 2 years old, then the measurement result should be added 0.7 cm (45.8%), and do not position the toddler's head by holding the toddler's chin with his left hand so that the view is straight forward so that it forms a horizontal Frankfurt plane (25.0%).

 Table 4. Average skill score of Posyandu cadres after assisting health workers

Cadre skills using measuring instruments	Average score	n
Infantometer	8.92	23
Stadiometer	9.11	24

Table 4 shows that after being assisted by health workers, the average score of cadres using infantometers increased to 8.92, while the average score of posyandu cadres using stadiometers increased to 9.11.

Table 5. Types of TB measurement errors by Posyandu cadres after assistance

Posyandu cadres after assist	anc	e
Types of measurement errors	n	%
Infantometer		
Do not straighten the toddler's legs and	5	21.7
press on his knees in such a way that		
the knees and calf backs are attached to		
the measuring board		
Stadiometer		
Do not ask the assistant to make sure the	7	29.2
toddler's body parts are attached at 5		
points on the measuring pole (back of		
the head, back, buttocks, calves, and		
heels) with the left hand holding the		
knee and the right hand holding the shin		
Source: Research data		

After health workers assist cadres in measuring children's height, cadre skills improve. This can be seen from the reduction in the number of measurement errors. It is known that there is only one error in the use of infant meters and stadiometers. The mistake in measuring using an infant meter is not straightening the toddler's legs and pressing his knees so that his knees and calves are attached to the measuring board. This mistake was made by 5 cadres (21.7%). Likewise, with the use of stadiometers, it turns out that there is only one mistake, which is not asking the assistant to make sure that the toddler's body parts are attached to 5 points on the measuring pole (back of the head, back, buttocks, calves, and heels) with the left hand holding the knee. The right-hand holds the shin, done by 7 cadres (29.2%).

 Table 6. Distribution of Posyandu cadre skills

 score before and after assistance

score before and after assistance							
Skills	n	Mean	Median	p-value			
Infant meter							
Before	23	6.44	6	0.012			
After	23	8.92	9				
Stadiometer							
Before	24	6.06	6	0.000			
After	24	9.11	10				
~ ~ ~							

Source: Test Wilcoxon

From the results of the Wilcoxon test, in cadres who use infant meters, there is an increase in the average skill score before and after mentoring by 2.48. Then, there was a significant difference between the average skills of cadres before and after mentoring because of the value of p-value=0.012. Similarly, with cadres who used stadiometers, there was an increase in the average score of measuring skills by 3.05. The analysis results also showed a significant difference between the average skills of cadres before and after being assisted because of the value of p-value=0.000.

## DISCUSSION

The skills of cadres were assessed based on their ability to use an infant meter to measure the height of babies and their ability to use a safranin meter to measure the height of children under five. The cadre skill assessment is carried out using an instrument in the form of a checklist that contains the steps that must be taken in the measurement. Each stage/stage done correctly will be given a score of 1, and a stage that is not done correctly will be given a score of 0. The final score of a skill is calculated by adding up the total number of stages performed precisely.

Before being assisted, all cadres were measured for their skills in measuring height. This assessment shows that cadres still need to be more skilled in measuring height using infant meters because the average skill score is only 6.44, and the average skill score using a Stadiometer is only 6.06. The most common mistake when using an infant meter is not correcting the measurement results. If the child being measured is >=2 years old, the measurement result should be reduced by 0.7 cm (86.9%). This condition will certainly affect the measurement results because the measurement results are invalid. Meanwhile, in the use of Stadiometers, the most common type of error is not asking the assistant to make sure that the toddler's body parts are attached to 5 points on the measuring pole (back of the head, back, buttocks, calves, and heels) with the left hand holding the knee and the right hand holding the shin (62.5%); so the child's body cannot be measured correctly because the child's body is not standing upright.

Although errors were still found in the use of the Infant meter and stadiometer, after being assisted by health workers, most of the posyandu cadres were able to measure the height of children correctly, the average score of skill using the Infant meter increased to 8.92, and the average score of skill using the stadiometer increased to 9.11.

The results of this study are in line with the findings of Rasyida (2023) in 16 posyandu cadres in Rejosari Hamlet Village, Ambal II Health Center Work Area before being given counseling, it was known that all cadres (100%) did not have good skills to measure height using stadiometers, but after being given counseling, there an increase in skills, namely 43.7% of cadres already had good skills. Then, the results of the research of Nurbaya et al., (2022), on 37 posyandu cadres in Kadubale Village, Banjar Regency, also showed consistent results that there was an increase in the average value of cadre skills before and after being given height measurement training, from 5.62 to 9.46. Furthermore, the results of the research by Ruaida et al., 2018, which was carried out at the Batu Sori Posyandu Tawiri Health Center, said that the reading of the results of weighing measurements increased after the refreshment of posyandu cadres who were initially less thorough, especially when measuring the height of toddlers.

According to Rais et al. 2022, three factors lead to a lack of cadre skills in anthropometric measurements: governance, financial, and service provider factors. In the service provider factor, the low skills of cadres are caused by the absence of technical guidance from program managers. Regarding financial factors, cadres' low training or refreshment is caused by the low allocation of funds. Some research results also state that the skills of posyandu cadres are influenced by knowledge, motivation, education, experience, attitudes, available facilities, and support of health workers (Brhane & Regassa, 2014).

Most posyandu cadres can measure their height using infant meters and stadiometers after being assisted by health workers. The results of the normality test on the cadre skill score using the infant meter and stadiometer were found to be abnormally distributed; therefore, to find out the difference in the average score of measurements before and after mentoring, the Wilcoxon test was carried out.

This study's results align with the research conducted by Fitriani and Purwaningtyas (2020), which showed a significant increase in the skill score of posyandu cadres before and after the training (p-value=0.001). Similarly, the results of research by Julianti and Elni (2022) Stated a significant difference between the average skills of posyandu cadres in stunting prevention before and after being given the stunting intervention package (p-value=0.001). Other research results conducted by Nurvati & Pramono (2021) in 37 cadres in Kadubale Village, Banjar District, Pandeglang Regency, there was an increase in the average value of cadre skills between before and after being given height measurement training (pvalue< 0.001).

Although the goal to be achieved is almost the same, namely, to improve knowledge, attitudes, and skills, when compared to training, the assistance of health workers to posyandu cadres differs from training. Cadre assistance by health workers was chosen because this method is more flexible regarding the implementation time, materials, and methods provided, and the implementation process is also more informal. Meanwhile, limited by the standard implementation structure, training is more formal and requires funding. Cadre training activities are also still sporadic (Iswarawanti, 2010).

Assistance activities for posyandu cadres in the Kedondong Health Center work area were provided through lectures and interactive discussions on height measurement and the practice of measuring the height/length of toddlers. The lecture method is easier to implement without complicated preparation; it can be related to daily life phenomena and make it easier for students to understand (Herlina & Permata, 2019). The interactive discussion method can stimulate cadres to be creative in providing ideas and dare to express opinions. At the same time, the exercise method can provide learners with hands-on experience with the correct height measurement (Nurhayu et al., 2022). Result of Widiastuti et al. (2022) mentioned that breastfeeding mother assistance can improve breastfeeding skills in mothers.

#### CONCLUSION

There is a significant difference in the average skills of Posyandu cadres who carry out measurements using infantometers and

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stadiometers before and after receiving services from health workers. The study recommends that health workers effectively mentor cadres using these measurement tools, aligning with existing standard operating procedures (SOPs).

#### **CREDIT AUTHOR STATEMENT**

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