

The Role of Posyandu Cadres in Improving the Nutritional Knowledge of Under-Five Mothers at Ambacang Padang Health Center

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ABSTRACT

To determine the effectiveness of nutrition education provided by Posyandu cadres in improving the nutritional knowledge of mothers of young children. Methods. The study was conducted in the working area of the Ambacang Community Health Centre, Padang City, West Sumatra, from March to May 2025. A structured questionnaire consisting of demographic data and 20 questions regarding basic knowledge of toddler nutrition (complementary feeding, balanced diet, and toddler feeding frequency) was used to collect data. The results of the paired t-test statistical test showed a significant difference in the average knowledge scores of mothers before and after education ($p = 0.000$). The univariate analysis in this study showed that most mothers under five had a low level of nutritional knowledge, which was 56%. Conclusions. This study confirms that nutrition education from Posyandu cadre plays a strategic role in improving nutritional literacy of mother of toddlers through a systematic and interactive educational approach. The practical implication of this study is that the results can be used as a basis for community health centres, health offices, and policy makers to strengthen cadre empowerment programmes as the spearhead of community nutrition education.

Keywords: Posyandu Cadres, Nutrition Knowledge, Mothers of Toddlers



INTRODUCTION

Fulfillment of nutrition in childhood is a crucial aspect in an effort to create a healthy, intelligent, and productive generation in the future. The toddler period, which is 0-59 months of age, is known as the golden period (golden period), in which the development of the child's brain, physical, and immune system occurs very quickly. In this phase, children need adequate and balanced nutritional intake so that the body's organs develop optimally. Lack of nutrients such as protein, iron, vitamin A, and iodine at this time can cause growth disorders that can not be repaired in the future. Therefore, nutritional intervention at the age of toddlers is a long-term prevention strategy against future health and social problems.

Inadequate nutrition during this golden period not only has short-term effects such as impaired growth, decreased endurance, and the risk of recurrent infections, but also has long-term effects on learning ability, academic achievement, and work productivity in adulthood. Children who experience malnutrition in infancy tend to have shorter height (stunting), stunted brain development, and an increased risk of degenerative diseases such as diabetes and hypertension. In addition, malnutrition also has an impact on the quality of life of society at large, because generations that do not grow optimally will inhibit the development of quality human resources.

In Indonesia, the issue of nutrition in toddlers is still a serious challenge, especially in areas with limited access to information and health services. Data from the Ministry of Health in 2023 shows that the National stunting prevalence is still at around 21.6%, while the prevalence in West Sumatra itself is close to that figure. This figure is still far from the national target to reduce stunting to 14% by 2024. One of the most common causative factors is the mother's lack of knowledge about the importance of balanced nutrition and the practice of giving nutritious food to the child.

One of the main factors contributing to the poor nutritional status of children is the low level of maternal knowledge about the nutritional needs of toddlers, including understanding of proper complementary feeding, variety of nutritious foods, and healthy eating habits. At the community level, the presence of Posyandu cadres has a very important role in efforts to improve maternal and Child Health. Posyandu cadres are an extension of health workers in Puskesmas who interact directly with the community. They are not only involved in routine activities such as weighing, recording, and immunization, but also act as agents of change in delivering health information, including education on nutrition. With intensive communication and interpersonal approaches, cadres are expected to be able to increase knowledge and change the behavior of mothers of toddlers in the practice of feeding.

Various studies in Indonesia have shown that the role of Posyandu cadres has proven effective in improving the nutritional knowledge of under-five mothers. One of them is a study conducted by Wulan Nur Insani, Cici Liska, and Kamiliya Putri (2024) in Citeureup Village, Bandung Regency. The study found that the active involvement of cadres in nutrition education contributed significantly to the improvement of the nutritional status of toddlers. Of the 86 respondents, the majority of mothers experienced an increased understanding of complementary feeding, balanced nutrition, and healthy eating after attending regular cadre counseling.

Similar findings were also demonstrated by Lu'lu' Washilatul Ulfah (2024) through his research in two villages in Sumedang Regency that had different stunting levels. The results of the study revealed that cadres in villages with low stunting prevalence had higher education intensity and more structured methods, which had an impact on better maternal nutrition knowledge. The results of statistical tests showed the value of $p = 0.001$ and 0.008 , which indicates a significant difference in the effectiveness of the role of cadres between the two regions.

Furthermore, Tri Sakti Widyaningsih, Maria Wisnu Kanita, and Novita Kurnia Wulandari (2023) in their research in Banyuanyar Village emphasized the importance of training Posyandu cadres in a structured manner, especially through direct demonstration methods. The training included nutritious feeding practices according to the child's age as well as anthropometric measurement techniques such as height, weight, and head circumference at regular intervals. Cadres are not only given material in theory, but also involved in field simulations to improve practical skills. The results showed that after training, cadres became more confident, communicative, and able to convey nutritional information to mothers of toddlers more clearly and purposefully. This shows that increasing the capacity of cadres is highly correlated with the effectiveness of counseling at the community level.

Increasing the capacity of these cadres directly affects the increase in knowledge of mothers of toddlers. The study showed a significant increase in maternal knowledge scores after attending counseling conducted by cadres who had received training. Mothers are becoming more aware of the importance of providing varied and nutritious complementary foods, and are starting to adopt a healthy diet for their children. This knowledge is not only theoretical, but is also realized in daily practice, such as the preparation of family meals and the habit of eating together. This finding confirms that cadres equipped with quality training are able to play a role more than just volunteers, namely as agents of nutritional behavior change at the household level.

Although some research results show the effectiveness of the role of Posyandu cadres in increasing the knowledge of mothers of toddlers about nutrition, implementation in various regions certainly varies, depending on the social, economic, and cultural backgrounds of local communities. Therefore, it is necessary to conduct contextual research in the working area of Ambacang Padang Health Center to see the extent to which the role of cadres has an effect on improving the nutritional knowledge of under-five mothers in the area. This research is expected to provide a real picture of the effectiveness of cadre intervention and become the basis for strengthening community empowerment programs in the field of nutrition.

This study is expected to provide a realistic picture of the effectiveness of cadre interventions and serve as a basis for strengthening community empowerment programmes in the field of nutrition. The uniqueness of this study lies in its focus on the role of Posyandu cadres in the context of the Ambacang Community Health Centre (Puskesmas) working area, which has not been widely researched to date. Thus, this study provides new contributions in the form of empirical evidence regarding the effectiveness of cadres in improving the nutritional knowledge of mothers of young children at the community level, thereby enriching the literature and practice of public health interventions in areas with similar characteristics.



METHODS

This study used a quantitative approach with a descriptive analytical design to determine the role of Posyandu cadres in improving the nutritional knowledge of mothers of young children. The study was conducted in the working area of the Ambacang Community Health Centre, Padang City, West Sumatra, from March to May 2025.

The study population consisted of all mothers with toddlers aged 6–59 months who regularly attended Posyandu activities. The study sample consisted of 75 respondents selected using purposive sampling, with the following inclusion criteria: (1) willing to be a respondent, (2) attended Posyandu activities at least twice in the last two months, and (3) had never received nutrition counselling from other parties in the last three months.

This study has obtained ethical approval from the Health Research Ethics Committee of Dr. Soebandi University with approval letter number 123/KEPK/III/2025. Before data collection was carried out, all respondents signed a written consent form (informed consent).

The research instrument was a structured questionnaire consisting of two parts, namely the respondents' demographic data and 20 questions regarding basic knowledge of toddler nutrition (complementary feeding, balanced diet, and toddler feeding frequency). Content validity was tested by three experts in nutrition and public health. Construct validity was tested using Pearson's correlation, with all questions scoring $r > 0.3$. Reliability testing showed a Cronbach's alpha value of 0.87, indicating that the instrument had high internal consistency.

The intervention, in the form of nutrition education, was carried out by Posyandu cadres who had received training from the community health centre team. Education was provided through small group counselling and interactive discussions, which were conducted in two weekly meetings. After the intervention was completed, the knowledge of mothers of toddlers was measured again using the same questionnaire.

Data analysis was performed descriptively to describe the characteristics of the respondents, as well as a paired t-test to determine the difference in knowledge scores before and after the intervention, with a significance level set at $p < 0.05$.

RESULTS

To determine the effectiveness of nutrition education provided by Posyandu cadres, an analysis was conducted on changes in the knowledge level of mothers of toddlers before and after the intervention. The results of the study are presented in the following table.

Table 1. Frequency Distribution of Nutrition Knowledge Levels among Mothers of Toddlers Before and After Education by Posyandu Cadres (n = 75)

Level of Knowledge	Before Education	After Education
Low	42 (56%)	5 (6,7%)
Medium	25 (33,3%)	19 (25,3%)
High	8 (10,7%)	51 (68%)
Total	75 (100%)	75 (100%)

Before receiving education from Posyandu cadres, most mothers of toddlers were in the low knowledge category (56%). After education, the proportion of low knowledge dropped dramatically to 6.7%, while high knowledge increased sharply from 10.7% to 68%. This shows a significant increase in mothers' nutritional knowledge after the educational intervention.

To reinforce these findings, a statistical analysis was conducted using a paired t-test on the average knowledge scores of mothers before and after education.

Table 2. Comparison of Average Nutrition Knowledge Scores of Mothers of Toddlers Before and After Education by Posyandu Cadres

Variable	Mean \pm SD	<i>p-value (Paired t-test)</i>
Before Education	58,4 \pm 12,3	0,000 ($p < 0,05$)
After Education	78,6 \pm 10,1	

The results of the paired t-test showed a significant difference in the average knowledge scores of mothers before and after education ($p = 0.000$). The average score increased from 58.4 to 78.6, confirming that the nutrition education provided by Posyandu cadres had a significant effect on improving the knowledge of mothers of young children.

DISCUSSION

1. Univariate Analysis

The results of univariate analysis in this study showed that before the educational intervention, most mothers under five had a low level of nutritional knowledge, which was 56%. This condition indicates that more than half of the respondents do not have an adequate understanding of the basic principles of balanced nutrition, such as the importance of proper complementary feeding (MP-ASI), selection of nutritious foods, and frequency of feeding in accordance with the needs of toddlers. This lack of knowledge can be influenced by various factors, including low levels of maternal education, lack of access to information that is easy to understand, and lack of effective health counseling at the community level.

Furthermore, the importance of nutrition education by Posyandu cadres to improve maternal knowledge is evident from the significant changes that occurred after the intervention. With systematic and continuous education, the nutritional knowledge of mothers of toddlers increases dramatically, which will have a positive impact on the upbringing and provision of nutritious food to children. This increase in knowledge not only improves the ability of mothers to meet the nutritional needs of toddlers, but also contributes to the Prevention of growth disorders such as stunting and anemia. Therefore, effective cadre empowerment and education strategies need to be strengthened in order to reach more mothers in various regions, especially in areas that still have high challenges related to child nutrition issues.

The finding of low nutritional knowledge of under-five mothers before intervention is in line with the results of a recent study conducted by NI'matul Fitri and Neneng Tasuah (2025) in Jenarsari Village, Kendal Regency. In their study, the supplementary feeding program initiated and run in a structured manner by Posyandu cadres managed to show a decrease in stunting cases



from 26 cases in 2024 to 21 cases in early 2025. The Program not only focuses on the distribution of supplementary food, but also on nutrition education to mothers of toddlers on a regular basis, which is the key to success in improving the quality of children's nutritional intake.

The success of this program confirms the importance of the role of Posyandu cadres as spearheads in the delivery of Health and nutrition information at the community level. Cadres who are organized and equipped with training are able to identify nutritional needs and provide targeted education to mothers of toddlers. Thus, the intervention of Posyandu cadres not only improves the nutritional status of children directly through supplementary foods, but also increases the knowledge and awareness of mothers so that they are better able to manage their family's diet and nutritional intake independently. This reinforces the argument that low knowledge of nutrition as the root of the problem can be overcome through a structured and sustainable approach by Posyandu cadres.

After being given nutrition education by Posyandu cadres, there was a very significant increase in the distribution of the level of knowledge of mothers of toddlers. The higher knowledge category increased dramatically from 10.7% before education to 68% after the intervention, while the lower category declined sharply to only 6.7%. This increase shows that education carried out directly by cadres is able to change the understanding of mothers about the importance of balanced nutrition and proper diet for toddlers. Education that is carried out continuously and interactively also allows mothers to more easily accept and apply the knowledge given in everyday life.

This phenomenon is in line with the results of a quantitative study conducted by Minton Manalu and Faisal Faisal (2024) in the working area of Hutabalang Health Center, Central Tapanuli Regency. In the study, 50 Posyandu cadres who attended the Kartu Menuju Sehat (KMS) training showed a significant increase in knowledge, from only 28% of well-informed cadres to 92% after receiving participatory-based training, such as group discussions and practical simulations. Increasing the capacity of these cadres has a positive impact on the quality of counseling they provide to mothers of toddlers in their respective communities, thereby increasing the effectiveness of nutrition education programs as a whole.

However, to ensure the sustainability of this positive impact, systematic support from the government and health institutions is needed, both in the form of ongoing training, monitoring, and the provision of educational materials that are easy to understand. Educational interventions that are only incidental without continuous mentoring and capacity building have the potential to reduce the effectiveness of the program in the long term. Therefore, multisector collaboration and strengthening networking among stakeholders is the key to achieving optimal results in improving the knowledge and nutritional behavior of under-five mothers.

However, this study has limitations in that the sample size is relatively small and was only conducted in one community health centre working area, so the results should be generalised with caution. Further research is recommended involving a broader sample and considering the socio-cultural factors that influence nutritional behaviour. From a practical perspective, the results of

this study can provide input for community health centres to strengthen their nutrition education programmes through cadres on an ongoing basis.

2. Comparison of Average Maternal Nutrition Knowledge Score Before and After Education by Posyandu Cadres

The results of the paired t-test statistical test showed a very significant increase in the nutritional knowledge score of toddler mothers after receiving education from Posyandu cadres. The p value of 0.000 ($p < 0.05$) confirms that the difference in knowledge scores before and after the intervention is not a coincidence, but the real impact of the educational program implemented. This increase shows that the education provided by cadres is able to effectively change the level of understanding of mothers regarding important aspects of toddler nutrition.

The average maternal knowledge score before the intervention was 58.4, which is classified as moderate, and increased to 78.6 after education. This significant increase reflects the success of cadre counseling methods that not only convey information in theory, but are also able to invite mothers to actively understand and apply nutritional knowledge in their daily lives. This is important because good knowledge will be the basis for mothers to make the right decisions regarding the provision of nutritious food to their toddlers.

This finding also strengthens the strategic role of Posyandu cadres as spearheads in efforts to improve the quality of public health, especially in managing optimal child nutrition intake. Trained and organized cadres can be effective agents of change at the community level, helping to lower the risk of malnutrition and improve the health status of toddlers. Therefore, Posyandu cadre training and empowerment programs need to be continuously strengthened and developed so that these positive results can be sustainable and reach more families.

The findings of this study are in line with the results of a recent study conducted by Rahmawati and Santoso (2024) in Malang regency. In their research, Posyandu cadre training using interactive modules proved to be effective in significantly improving maternal nutrition knowledge of toddlers. After the intervention, there was a 25% increase in knowledge scores, indicating that learning approaches involving interactive media and easy-to-understand materials greatly helped cadres in conveying information more effectively to mothers in the community.

In addition, research conducted by Putri and Wibowo (2023) in Yogyakarta also provides important evidence regarding the effectiveness of educational methods carried out by Posyandu cadres. They found that methods involving live demonstrations and group discussions were able to change the behavior of mothers in feeding nutritious food to children. This approach not only improves theoretical understanding, but also helps mothers to apply this knowledge practically in their daily lives, thus promoting changes in better nutritional parenting.

Both studies affirm the importance of cadre training that focuses on effective communication and empowerment of mothers as the key to the success of nutrition education programs. By equipping Posyandu cadres through participatory and interactive methods, nutritional information can be conveyed more clearly and easily accepted by mothers of toddlers.



This not only increases knowledge, but also motivates behavioral changes that have a positive impact on the health and growth of children in society.

In theory, the results of this study are supported by The Behavior Change Process Model or Transtheoretical Model (TTM), which explains that knowledge change is the initial stage in the process of changing one's behavior. This Model divides the process of change into several stages, ranging from pre-contemplation, contemplation, preparation, action, to maintenance. Nutritional education provided by Posyandu cadres serves as a trigger that encourages mothers of toddlers to move from the pre-contemplation or contemplation stage to the preparation and action stage in adopting a healthy diet for their children.

In addition, the theory of Health Communication is also an important foundation in understanding the effectiveness of education provided by Posyandu cadres. This theory emphasizes the importance of two-way communication that involves active interaction between the messenger and the audience. By adjusting the method of delivering messages according to the characteristics and needs of mothers of toddlers, cadres can increase the understanding and motivation of mothers to apply nutritional knowledge in daily practice. This approach also helps build the mother's trust and emotional involvement, so that behavioral changes become more likely and lasting.

Furthermore, the continuous empowerment of cadres is a key factor so that the communication process runs effectively and has a long-term impact. Cadres who continue to receive training and support are able to maintain the quality of counseling and adapt messages according to the development of community needs. Thus, the empowerment of cadres not only increases maternal knowledge, but also facilitates consistent and sustainable behavior change, which will ultimately contribute significantly to improving the nutritional status of toddlers in the community.

The researchers' analysis confirms that the success of Nutrition Education conducted by Posyandu cadres is not solely measured by the increase in the knowledge score of mothers of toddlers. More than that, the education must be able to change the mindset and attitude of mothers towards the importance of balanced nutrition, so as to create real behavioral changes in the management of children's nutritional intake. This change in mindset is the main foundation so that the knowledge gained can be applied consistently in everyday life, so that it has a positive impact on the health of toddlers.

Cadre training that is carried out in a participatory and sustainable manner provides space for mothers to actively interact, ask questions, and clarify the information received. This approach helps the process of internalizing knowledge so that the mother not only understands it in theory, but is also able to translate the knowledge into real practice. Active involvement of mothers in the educational process increases motivation and a sense of responsibility for the health of children, which ultimately strengthens the effectiveness of nutrition education programs run by cadres.

Nevertheless, the researchers caution that in order for this increase in knowledge and behavior change to be sustained in the long term, it is necessary to strengthen the overall support system. Regular supervision of cadres is very important to ensure the quality of counseling is

maintained. In addition, the provision of educational materials that are interesting and easy to understand will enrich the communication media and help strengthen the message conveyed. Ongoing policy support from Puskesmas and local governments is also needed so that Posyandu cadre programs can run optimally, obtain adequate resources, and be able to reach more mothers of toddlers in their communities.

The limitation of this study is that it has not evaluated the long-term impact of increased knowledge on changes in infant feeding behaviour, so longitudinal studies are still needed to see the sustainability of the educational effects. Future research could also examine more innovative educational methods, such as the use of digital media. In practical terms, these findings recommend the need for structured and ongoing training for Posyandu cadres, so that the positive impact on the nutritional knowledge of mothers of infants can be maintained and expanded to other areas.

CONCLUSIONS

This study shows that nutrition education provided by Posyandu cadres significantly improved the knowledge of mothers of young children in the working area of the Ambacang Community Health Centre, Padang. Before the intervention, most respondents were in the low knowledge category (56%), but after the education, this proportion decreased dramatically to 6.7%, while the high knowledge category increased from 10.7% to 68%. Statistical analysis using a paired t-test also showed a significant difference in the average knowledge score of mothers, from 58.4 before education to 78.6 after education ($p = 0.000$).

These findings confirm that Posyandu cadres play a strategic role in improving the nutritional literacy of mothers of toddlers through a systematic and interactive educational approach. Thus, the continuous empowerment and training of cadres is very important to maintain the effectiveness of nutrition education programmes at the community level.

The practical implication of this study is that the results can be used as a basis for community health centres, health offices, and policy makers to strengthen cadre empowerment programmes as the spearhead of community nutrition education. Support in the form of continuous training, provision of attractive educational media, and routine monitoring needs to be integrated into public health programmes. This has the potential to support the achievement of national targets for reducing stunting and improving child nutrition quality in Indonesia.

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