ORIGINAL ARTICLE

The effect of cadre assistance on the knowledge and attitudes of mothers regarding breastfeeding, complementary feeding, and monitoring children's growth

Khalidatul Khair Anwar[1], Nurmiaty Nurmiaty[2], Dyah Noviawati Setya Arum[3], La Banudi[4], Yustiari Yustiari[1], Arsulfa Arsulfa[1]

[1]Department of Midwifery, Poltekkes Kemenkes Kendari, Kendari, Southeast Sulawesi, Indonesia
[2]Department of Midwifery, Poltekkes Kemenkes Palu, Palu, Centre Sulawesi, Indonesia
[3]Department of Midwifery, Poltekkes Kemenkes Yogyakarta, Yogyakarta, DIY, Indonesia
[4]Department of Nutrition, Poltekkes Kemenkes Kendari, Kendari, Southeast Sulawesi, Indonesia

Corresponding Author: Khalidatul Khair Anwar **Email:** anwarkhalidatulkhair@gmail.com

Received: 10 January 2024 **Revised:** 3 March 2024 **Accepted:** 21 March 2024 **Available online:** May 2024
DOI: 10.55131/jphd/2024/220208

ABSTRACT

This study aimed to determine the effect of cadre assistance on mothers' knowledge and attitudes regarding breastfeeding, complementary feeding, and monitoring children's growth. The research design was quasi-experimental and was conducted from August to October 2023 at four health centers (Poasia, Mokoau, Nambo, and Abeli in Kendari City, Indonesia). The study population consisted of mothers from four Health Centers. The sample size included 92 mothers. The inclusion criteria were mothers who had babies aged 4-6 months, could read, had no disability, and lived in the study area. The intervention group was divided into 2 (intervention 1 with cadre assistance, Intervention group 2 provided modules https://doi.org/10.36990/978-623-88118-2-3, and the control group received no intervention). The intervention was performed for 2 months. Data collection was carried out through questionnaires. The data obtained were in the ratio category, and data analysis was performed using Wilcoxon and Mann-Whitney tests. Findings showed that there were differences in the maternal knowledge and attitude scores among the three groups ($p<0.05$). There was a difference between the pre-test and post-test in the mothers' knowledge scores in Intervention Group 1 ($p<0.001$). Regarding mothers' attitudes, there were significant differences between intervention groups 1 and 2 ($p<0.001$). However, no significant differences were observed in the control group. Practical benefits from the results can be seen in designing more effective interventions for improving maternal knowledge and attitudes towards the topic. This could lead to improved health outcomes for mothers and infants. Future research should explore the long-term impacts of such interventions on the sustainability of breastfeeding practices and child development.

Key words:
cadre assistance; knowledge; attitudes; mothers; children

Citation:
Khalidatul Khair Anwar, Nurmiaty Nurmiaty, Dyah Noviawati Setya Arum, La Banudi, Yustiari Yustiari, Arsulfa Arsulfa. The effect of cadre assistance on the knowledge and attitudes of mothers regarding breastfeeding, complementary feeding, and monitoring children's growth. J Public Hlth Dev. 2024;22(2):92-106 (https://doi.org/10.55131/jphd/2024/220208)

INTRODUCTION

Stunted linear growth is a global public health concern, especially in underdeveloped nations. In 2020, 149.2 million children worldwide suffered from stunting, a chronic form of undernutrition that accounts for 22% of all children under the age of five. With 41.4% of children under five apparently stunted, Oceania's countries—aside from Australia and New Zealand—bear the greatest burden, followed by Sub-Saharan Africa (SSA) at 36.8% and South Asia at 31.8%.[1] The average prevalence of stunted toddlers in Indonesia between 2005 and 2017 was 36.4%.[2]

According to a survey conducted in 2018, 29.9% of children under two years of age were stunted. This was 30.8% among toddlers. Furthermore, 27.67% of people were stunted in 2019. Despite some fluctuations, the prevalence of stunting in Indonesian children has remained relatively high. However, there was a slight decrease in the stunting rates between 2018 and 2019. This finding indicates that efforts to address this issue may have a positive impact.[3] Continued efforts are crucial to further reduce the prevalence of stunting among children in Indonesia. Interventions, such as improved nutrition, access to clean water, and healthcare services, can help address this ongoing challenge.

Stunting has long-term effects on plant growth and development. Previous research has found that the greatest impact of stunting involves low cognitive development, decreased school achievement, reduced economic productivity in adulthood, and poor maternal reproductive health.[4] In addition, children under five years of age with stunting are more susceptible to infections and diseases [5]. Another study found several factors that contribute to stunting in Indonesian children, including male sex, premature birth, body length, short birth, maternal height, maternal education, economic status, untreated drinking water, poor access to health services, livelihood in rural areas, birth weight, and number of antenatal care visits.[5–7]

Breastfeeding education can increase mothers' knowledge, attitudes, and behavior in providing exclusive breastfeeding for up to 6 months. Research on the effect of lactation education on baby growth showed that the group that received lactation education had a higher body weight and body length than the other groups.[8] According to recent studies, stunting is primarily influenced by the educational attainment of mothers. Children born to mothers with a low formal education are more likely to be stunted.[9] One possible explanation is that mothers with higher educational levels are more likely to have access to better health care, nutrition, and resources, which positively affects their children’s growth and development.[10] Additionally, educated mothers may possess knowledge of proper child-rearing practices and have the means to implement them effectively.[11]

Cadres are volunteer community health workers in the area chosen by locals based on their skills, honesty, loyalty, and dedication to raising public health standards and contributing to the creation of stunting prevention plans.[12,13] Typically, cadres receive training in recognizing issues of both individual and community health. Consequently, they can offer advice, promote health , and direct patients with medical issues to the medical facilities.[12] To preserve and advance their knowledge and abilities in delivering services to the community, cadres constantly undergo training. Previous studies have demonstrated that training enhances cadres’ accountability in providing independent treatment[14] and

boosts their ability to treat patients with mental disorders.[15]

There is a need to empower the community as educators in order to prevent stunting. Cadres who are willing, able, and have the time to organize activities voluntarily must be equipped with knowledge so that they can carry out their duties as cadres more optimally, especially in conveying information to the public about exclusive breastfeeding, complementary foods for breast milk, and monitoring children's growth and development.

This study aimed to determine the effect of cadre assistance on mothers' knowledge and attitudes regarding breastfeeding, providing complementary foods to breast milk, and monitoring children's growth and development, and to determine the differences in the impact between intervention and control groups. The novelty of this study lies in its focus on the impact of cadre training on knowledge, attitudes, and practices related to exclusive breastfeeding, complementary breastfeeding, and growth and development monitoring. By examining these specific areas, this study provides valuable insights into the effectiveness of cadre training programs in improving the quality of counseling provided to the public. These insights can inform the development of more effective training programmes.

METHOD

Design

The research design was quasi-experimental. This research was conducted from August to October 2023 at four health centers (Poasia, Mokoau, Nambo, and Abeli in Kendari City, Indonesia)

Population and sample

The study population included all mothers in the working areas of the four Community Health Centers. The sample size was measured using the Lemeshow formula and the samples taken were filtered using inclusion criteria. The inclusion criteria were mothers who had babies aged 4-6 months, could read, had no disability, and lived in the study area. The exclusion criteria were mothers with mental health problems who were not willing to participate in the study. The total sample consisted of 138 mothers, with 46 mothers in Intervention 1, 46 mothers in Intervention 2, and 46 mothers in the control group. Further details can be found in the consort diagram below.

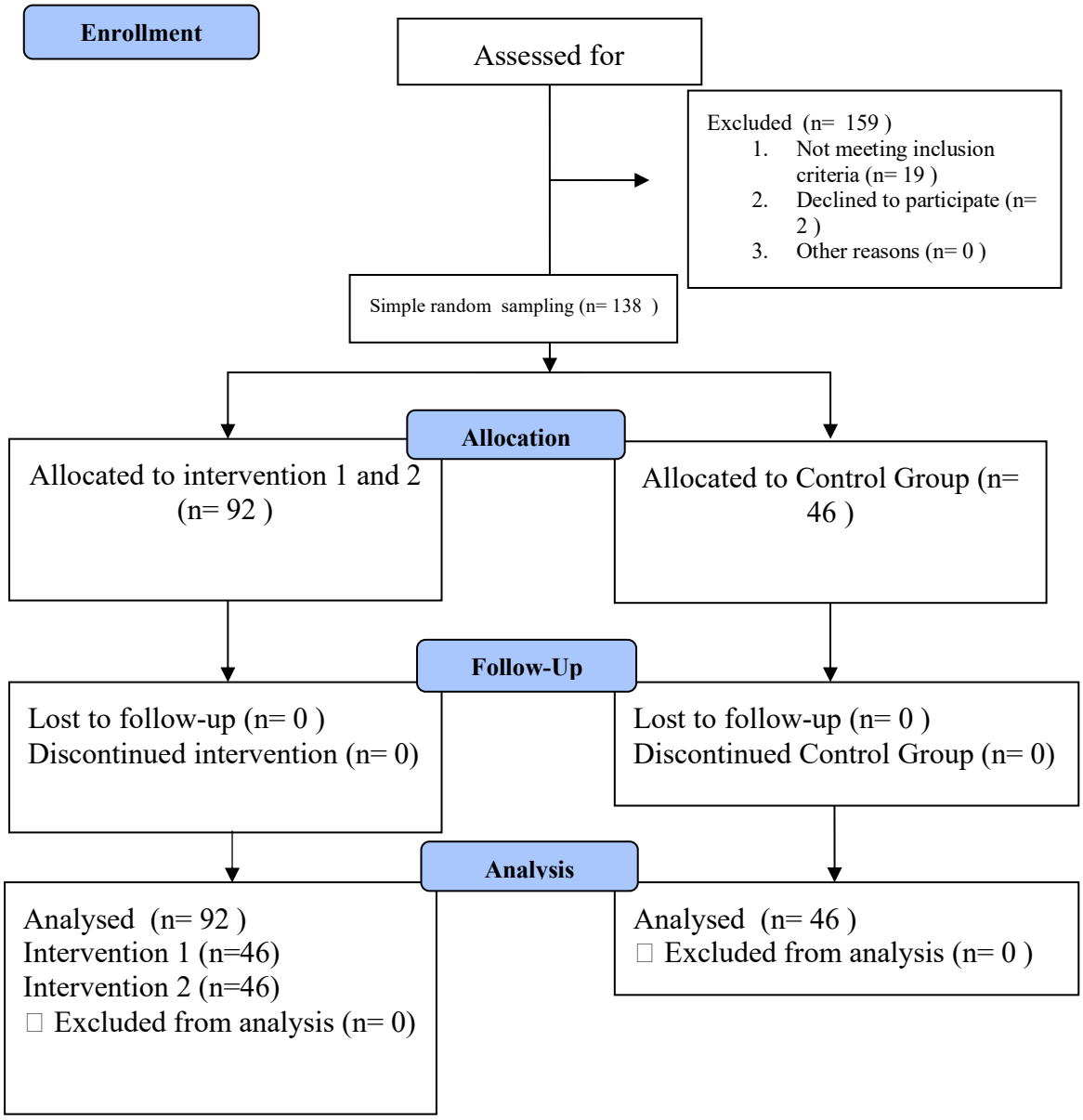

Figure 1. Consort Diagram

Collecting and data analysis

Knowledge and attitudes were measured using a questionnaire on mothers' knowledge and attitudes regarding breastfeeding, complementary feeding, and monitoring of children's growth, which was created based on previously existing questionnaires and guidelines by the Indonesian Ministry of Health through a basic health research questionnaire that was tested for validation and reliability. The total sample consisted of 138 mothers, with 46 mothers in Intervention 1, 46 mothers in Intervention 2, and 46 mothers in the control group. Further details can be found in the consort diagram below. The intervention group was divided into 2 (intervention 1 received cadre assistance, while intervention group 2 was provided with modules), and Control Group 3 did not receive any modules. The module provided has been published and

has a Doi number https://doi.org/10.36990/978-623-88118-2-3, ISBN Number 978-623-88118-2-3 and can be accessed from https://drive.google.com/file/d/1Yf3XFMZtP2nlXSX3NAodUc50n3uRzljb/view?usp=drive_link (English Version) https://mybook.poltekkeskdi.ac.id/index.php/polkeskenpress/catalog/book/5 (Original Version). Intervention group 1 was given cadre assistance for two months, and their progress was measured every month, while intervention group 2 was given a module. The module was entitled Basic Knowledge of Breastfeeding and Monitoring the Growth and Development of Toddlers. The children's development was measured every month, and the control group received no treatment. After two months of intervention, knowledge, mother's attitude, and child's height were measured. The data collected were in the form of ratios. Before analyzing the data, a normality test was performed using the Shapiro-Wilk test. Most of the data were not normally distributed; therefore, non-parametric data analysis was used, namely the Wilcoxon signed-rank test (paired test) and Mann-Whitney Test (between-group test).

Research protocol

The first step for researchers was to register this research with the Ministry of Health, Indonesia via the web system https://simlitabkes.kemkes.go.id/Login.aspx which was then approved by the ministry via number 5034.DDC.007.521219. The next step was to coordinate with the related parties (four community health centers). After obtaining approval from the four health centers, the researchers looked for research subjects through secondary data and then planned to contact all subjects to be researched at the health centers and coordinate the interventions and measurements that would be carried out. Once measurements were completed, the researcher entered the measurement results into the SPSS system, which was then processed using the Wilcoxon and Mann–Whitney tests.

Test the validity of the questionnaire

The research questionnaire was developed using the basic health research questionnaire distributed by the Ministry of Health of the Republic of Indonesia. The questionnaire was then tested for validity using the Pearson Product Moment analysis test. Validity testing was performed by statisticians using data processing applications with the Pearson product-moment test. This analysis was performed by correlating each item with the total score. The total score was the sum of all items. Questionnaire items that were significantly correlated with the total score showed that these items were able to provide validity. When a r count of 0.985 ≥ r table 0.446 was obtained, then the instrument or questionnaire items have a significant correlation with the total score (declared valid). The test results show that the value of each submitted question is greater than 0.3. Cronbach's alpha was used for the instrument reliability test. The reliability test results show a Cronbach's alpha value of >0.973, and can be concluded that the variable can be said to be reliable or consistent in its measurements. The sample used for the validity test consisted of 40 respondents, chosen randomly from various regions in Indonesia. From the results of the analysis, it can be concluded that the questionnaire used in this research was valid and reliable for measuring the variables studied.

Research Flow

This study was registered with the Ministry of Health, Indonesia (number 5034).DDC.007.521219, and has also been approved by the relevant parties at the research locations. The formation of cadres and determination of samples were conducted at the coordination stage for the four health centers used as research locations. Next, coordination was

established with all selected samples. The research was then conducted over a period of two months. Further details can be found in the research flow below.

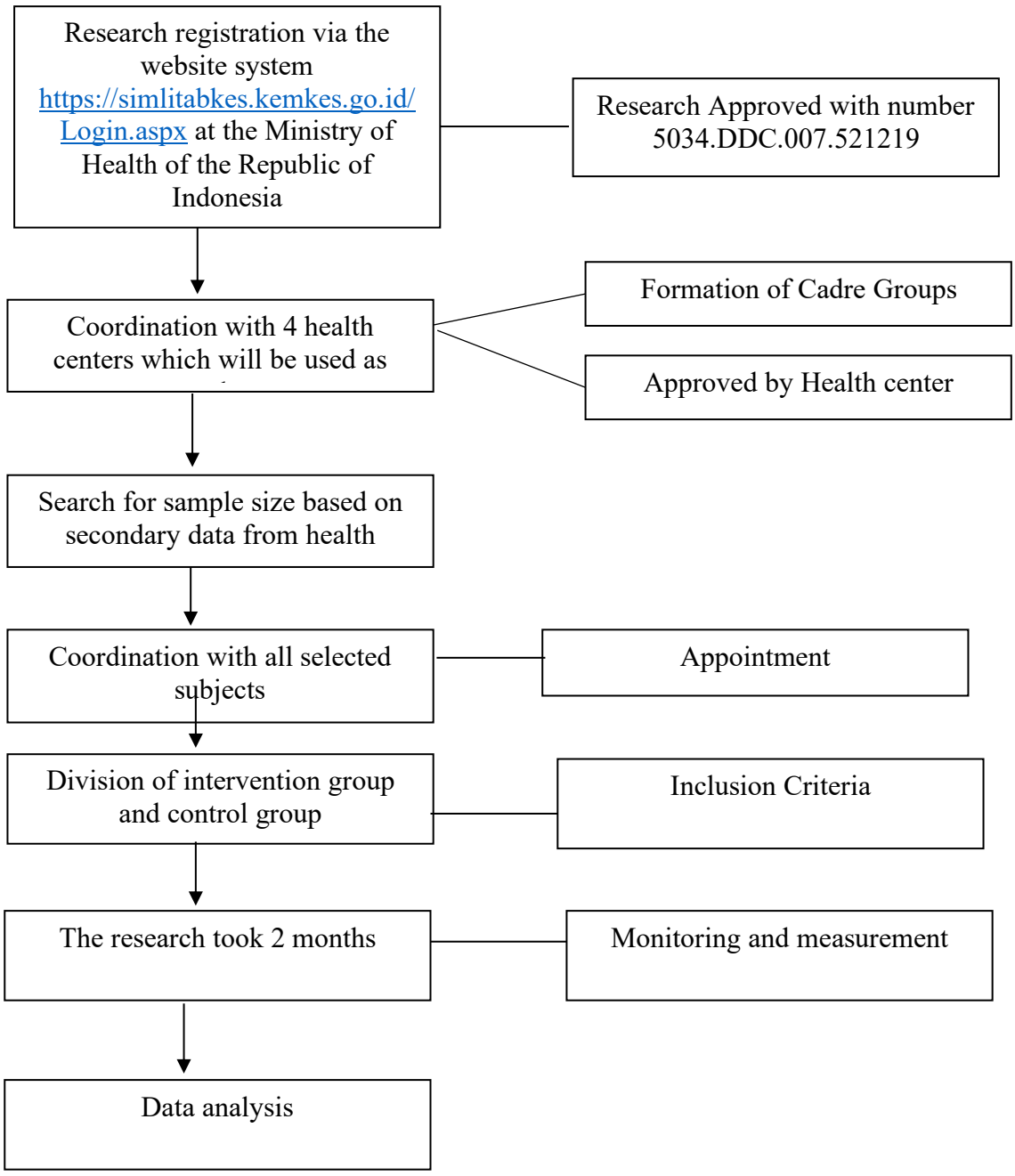

Figure 2. Research Flow

RESULTS

The results of the research show that there is no difference in age among the three groups in the sample with a value of p=0.682, as well as for the education variable, showing that there is no difference among the three groups with a value of p=0.441. The same applies to employment status, where there is no difference among the three groups in the sample, with a value of 0.662. This shows that the research

variables were homogeneous. The age distribution of the mothers in the intervention and control groups was similar, with the majority aged 20-35 years. Most patients had received Senior High School education (54.3% in the intervention group and 47.8% in the control group). The percentage of mothers with only elementary school education was 15.2% in the intervention group and 17.4% in the control group. Most mothers were housewives, with 30.4% working in the intervention group and 34.8% working in the control group. (Table 1)

Table 1. Characteristics Respondent

Variable	Group			Total (138)	P-Value
	Intervention 1 (46)	Intervention 2 (46)	Control (46)		
Age					0.862
20-35	38 (82.6%)	35 (76.1%)	33 (71.7%)	106 (76.8%)	
<20 or >35	8 (17.4%)	11 (23.9%)	13 (28.3%)	32 (23.2%)	
Education					0.441
Elementary	7 (15.2%)	10 (21.7%)	8 (17.4%)	25 (18.2%)	
Senior High School	25 (54.3%)	22 (47.8%)	23 (50%)	70 (50.7%)	
University	14 (30.4%)	14 (30.4%)	15 (32.6%)	43 (31.2%)	
Status					0.662
Not Working	32 (69.6%)	30 (65.2%)	34 (73.9%)	96 (69.6%)	
Working	14 (30.4%)	16 (34.8%)	12 (26.1%)	42 (30.4%)	

The distribution based on increasing baby body length in the three groups was almost the same. The majority of babies had a normal increase in body length (131 babies, 92%). Among the three groups of mothers, only around seven (8%) had an abnormal increase in body length. This suggests that the majority of mothers in all three groups experienced a typical growth pattern in their babies' body length. (Table 2)

Table 2. Distribution of increase in children's body length

Increase in children's body length	Group			Total
	Intervention 1	Intervention 2	Control	
Normal	45 (97.8 %)	46 (100 %)	40 (87 %)	131 (92 %)
Not Normal	1 (2.2 %)	0 (0 %)	6 (13 %)	7 (8 %)

Table 3 shows that mothers who received cadre assistance experienced an increase in knowledge and attitudes (Intervention 1), but mothers who were only given the module experienced an increase in knowledge but did not experience an increase in skills (Intervention 2), and mothers who were not given any treatment did not experience an increase in knowledge or skills (Control). For further details, see Table 3.

Table 3. The pretest and posttest scores of knowledge and attitude of the Intervention and Control Groups

Cadre Group	Variable	Pre-Test				Post-Test			
		$\bar{X}$	SD	min±max	N	$\bar{X}$	SD	min±max	N
Intervention (Receiving Training)	Mother's Knowledge	60	8.9	40±70	23	86.41	6.1	80±10	23
	Mother's attitude	75.98	8.4	55±95		87.67	5.7	75±10	
Intervention (Module)	Mother's Knowledge	59	8.5	42±80	23	87.51	6.5	90±80	23
	Mother's attitude	74.81	8.2	52±93		75.76	8.1	53±87	
Control (No Training)	Mother's Knowledge	58.91	8.7	40±70	23	58.91	8.7	40±70	23
	Mother's attitude	75.61	8.1	60±95		82.13	7.3	70±95	

Based on Table 4, there are differences in mothers' knowledge after intervention in one of the domains of breastfeeding, complementary feeding, and monitoring children's growth and development, with a p-value <0.005. Meanwhile, in the mother's attitude component, there is a significant difference between intervention groups 1 and 2 with a p-value <0.005. This result shows that cadre interventions can increase mothers' knowledge and attitudes about breastfeeding, complementary feeding, and monitoring of children's growth and development.

Table 4. Comparison of differences in knowledge and attitude in each group

Variable	Cadre Group	Z	p
Mother's Knowledge			
Breastfeeding	Control	1.552	0.098
	Intervention 1	5.965	0.002
	Intervention 2	0.000	0.765
Complementary Feeding	Control	1.345	0.103
	Intervention 1	4.823	0.000
	Intervention 2	0.000	0.784
Monitoring Of Children's Growth And Development.	Control	1.078	0.845
	Intervention 1	5.935	0.000
	Intervention 2	0.001	0.885
Mother's Attitudes			
Breastfeeding	Control	1.726	0.092
	Intervention 1	5.920	0.000
	Intervention 2	5.503	0.005
Complementary Feeding	Control	1.507	0.104
	Intervention 1	5.620	0.002
	Intervention 2	5.841	0.032
Monitoring Children's Growth And Development.	Control	1.809	0.076
	Intervention 1	5.587	0.000
	Intervention 2	5.950	0.000

Wilcoxon signed-rank test

DISCUSSION

The results of the research show that there is no difference in age among the three groups in the sample with a value of p=0.682, as well as in the education variable, showing that there is no difference among the three groups with a value of p=0.441. The same applies to employment status, where there is no difference among the three groups in the sample, with a value of 0.662. This shows that the research variables were homogeneous. The majority of the mothers' education levels were senior high schools and universities. However, there are also mothers who have elementary school education. Highly educated people already have sufficient basic knowledge to understand information conveyed by cadres or professionals. This can lead to effective communication and better decision making between mothers and other individuals. Additionally, mothers with higher education may have access to more resources and opportunities, which can positively impact their children's development and overall well-being.[16] The higher a person's educational level, the easier it is for them to receive information and their knowledge increases.[17,18] Based on job characteristics, most of the mothers in the three groups were housewives (69.6 %). A person's employment status is a protective factor, meaning that housewives (not working) will have plenty of time and opportunity to take their babies to the health center. Working mothers tend to take their babies to a doctor's clinic or to midwives' independent practice to be immunized because they have to work in the morning.[19–21] Other studies have shown that employed mothers tend to have higher levels of stress and lower levels of overall well-being than mothers who are not employed.[22,23] This suggests that employment status can have both positive and negative effects on mothers' ability to access healthcare for their babies. Additionally, it is important to consider factors such as income and access to transportation, as these can also impact a mother's ability to take her baby to a health center for immunization.[24]

Following Intervention I with a mentoring process by cadres, there was a substantial difference in maternal knowledge ratings. Additionally, this research helps mothers directly by assigning a cadre to accompany them for two months. Maternal knowledge increased as a result of this. The assigned cadre provides personalized guidance and support to the mothers by addressing their specific concerns and questions. This individualized approach enhances the effectiveness of the intervention, leading to significant improvements in maternal knowledge. As message recipients, the participants acquired knowledge and skills from learning sources through a series of learning activities.[25] According to the theoretical framework on how to increase knowledge, it can be increased through a personalized approach provided by assigned cadres.[26] Thus, the increase in maternal knowledge became significant after two months of running the program.

Training is aimed at preparing individuals to work and perform certain activities.[27] Previous research has shown that training programs that incorporate personalized guidance and support are more effective in improving knowledge retention and skill development.[28] By assigning a cadre to accompany the participants for two months, the intervention not only increased maternal knowledge but also enhanced their practical skills through hands-on learning experiences. This approach ensured that participants were well prepared to apply their newfound knowledge in real-life situations, ultimately leading to better outcomes for both mothers and their children.

There was no difference in knowledge scores before and after Intervention 2 with the provision of the

module. This could be due to mothers not reading the modules that have been given in detail. It is possible that the mothers did not have sufficient time or motivation to read the module thoroughly, resulting in no improvement in their knowledge scores. Additionally, other factors, such as distractions or a lack of understanding, may have contributed to the lack of differences in knowledge scores despite the provision of the module.[29] It is important to note that the lack of improvement in knowledge scores cannot be attributed solely to mothers not reading the module. Other factors, such as distractions, competing priorities, and difficulty in comprehending the material, could also contribute to the lack of improvement.[30] Previous research has shown that individuals' reading habits and comprehension skills play a significant role in their ability to effectively gain knowledge from educational materials.[31] Therefore, it is crucial to consider these factors when evaluating the impact of a module on the knowledge scores.

There was a significant difference in the attitude scores before and after the intervention by trained cadres. Attitude is a person's reaction or response that is still close to a stimulus or object and is a readiness or willingness to act.[32,33] Mothers who received lactation education had higher knowledge and attitude scores post-intervention. Yunitasari et al. stated that there is a significant difference between education, brainstorming, and demonstrations in terms of increasing mothers' knowledge, attitudes, and behaviors in preventing stunting.[34] Improving knowledge and attitudes and lactation education can also positively impact mothers' breastfeeding-related behaviors.[35] Providing comprehensive education and support can lead to more successful breastfeeding practices, and ultimately contribute to the prevention of stunting in infants.[36]

There were differences in the attitude scores before and after Interventions 1 and 2. Both cadre assistance and module provision can change mothers' attitudes towards breastfeeding, complementary foods, and monitoring children's growth and development. This shows that the combination of cadre assistance and module distribution can effectively influence mothers' attitudes towards important aspects of children's health and nutrition. These findings suggest that providing mothers with necessary support and educational materials can have a significant impact on their attitudes and behaviors. This finding highlights the importance of comprehensive interventions that address multiple aspects of maternal and child health to achieve positive outcomes. Attitude is one of the domains contained in the process of behavioral change and can be formed through a learning process, either through training or experience.[37] Health education can improve thinking patterns and result in changes in attitude.[38,39] The connection with this study is that cadre mentoring and respondents' experiences can increase awareness and produce positive changes in attitudes.

Mothers who received cadre assistance experienced an increase in knowledge and attitudes (Intervention 1), but mothers who were only given the module experienced an increase in knowledge but did not experience an increase in skills (Intervention 2), and mothers who were not given any treatment did not experience an increase in knowledge or skills (Control). These findings suggest that cadre assistance provided in Intervention 1 was effective in improving both knowledge and attitudes among mothers. This indicates that providing additional support through cadre assistance can lead to more comprehensive improvements in maternal knowledge and

attitudes than just providing educational modules. This highlights the importance of personalized assistance in promoting positive outcomes in maternal health interventions. These results emphasize the significance of tailored support in maternal health programs, as it can enhance the overall impact on knowledge and attitudes. By offering individualized assistance, interventions can address the specific needs of mothers and ultimately contribute to better health outcomes for both mothers and children.

Providing training to cadres is very effective and influential in enhancing the knowledge of mothers, who are the subjects of counseling by these cadres, compared to being given modules for independent study. This is because the training sessions conducted by cadres allow for interactive learning and the opportunity to ask questions, which enhances the understanding and retention of information.[40] The personal connection established between cadres and mothers during training sessions fosters a supportive environment that encourages active participation and boosts knowledge acquisition. Training effectively increases maternal knowledge of complementary foods and correlates with improved feeding practices.[41,42]

Cadre interventions can increase mothers' knowledge and attitudes about breastfeeding, complementary foods, and monitoring children's growth and development. Health education comprises several experiences that have a beneficial influence on the habits, attitudes, and knowledge related to the health of each person, society, and nation. Compared to adults with lower levels of education, those with higher education tend to be healthier and live longer.[43-45] This is due to the fact that higher education provides better access to health information, promotes an understanding of good health practices, and the ability to make wiser decisions related to health. Additionally, individuals with higher education tend to have better access to health services and resources.[44]

RECOMMENDATIONS

The cadre intervention in intervention group 1 showed an increase in knowledge and attitude in each component. However, in the intervention group with 2, there was only an increase in skills in each component, so the module given to the intervention group was not sufficient to improve skills in breastfeeding, complementary feeding, and monitoring children's growth and development. Cadre assigned for intervention 1 helps mothers overcome breastfeeding problems, such as engorgement, and provides emotional support. Cadre interventions also help mothers understand the importance of appropriate complementary foods for children's nutritional needs. The implications of these findings indicate that cadre intervention is effective in increasing mothers' knowledge of and attitudes towards breast milk, complementary foods, and child growth and development. To implement this in community practice, it is essential to train and equip cadres with the necessary knowledge and skills to effectively communicate with mothers and provide them with accurate information. Additionally, ongoing monitoring and evaluation of cadre intervention programs will be crucial in ensuring their continued success and impact on maternal and child health outcomes. However, further research is needed to understand the long-term impact of these interventions on the maintenance of breastfeeding practices and child-development outcomes. The clinical implications of these findings are that cadres can play an important role in supporting mothers in choosing the right complementary foods for their children’s growth and development. In addition, it would be beneficial to investigate other factors that may influence maternal knowledge and attitudes to develop more

comprehensive interventions. Future studies could explore alternative methods of delivering educational content that may better engage and motivate individuals to actively learn and retain information.

ETHICAl APPROVAL

This study was approved by the Kendari Ministry of Health Polytechnic Ethics Committee (number LB.02.01/Etik// 2022). Informed consent was obtained from all participants. First, we explained the goals, processes, and benefits of the study to the participants. Second, we provided participants with time to clarify or ask questions related to the study. Written informed consent was obtained from all the participants before the study was conducted.

ACKNOWLEDGMENT

Thank you to all the mothers in the working areas of the four Community Health Centers and the Indonesian Ministry of Health via number 5034.DDC.007. 521219, who provided funding for this research.

REFERENCES

1. WHO. Stunting prevalence among children under five years of age [Internet]. WHO Library Cataloguing-in-Publication Data 2020. Available from: https://data.unicef.org/wp-content/uploads/2020/03/JME-2020-UNICEF-regions-new.pdf
2. Laksono AD, Kusrini I. Ecological analysis of stunted toddler in Indonesia. Indian J Forensic Med Toxicol. 2020; 14(3):1685–91.
3. The Ministry of Health of The Republic of Indonesia. Report on the Implementation of the March 2019 Susenas Integration and the 2019 Indonesian Toddler Nutritional Status Survey [Internet]. 2019. Available from: https://cegahstunting.id/unduhan/publikasi-data/
4. Alam MA, Richard SA, Fahim SM, Mahfuz M, Nahar B, Das S, et al. Correction: Impact of early-onset persistent stunting on cognitive development at 5 years of age: Results from a multi-country cohort study. PLOS ONE. 2020;15(2):e0229663. doi: 10.1371/journal.pone.0229663
5. Nshimyiryo A, Hedt-Gauthier B, Mutaganzwa C, Kirk CM, Beck K, Ndayisaba A, et al. Risk factors for stunting among children under five years: A cross-sectional population-based study in Rwanda using the 2015 Demographic and Health Survey. BMC Public Health. 2019;19(1):1–10. doi: 10.1186/s12889-019-6504-z
6. Beal T, Tumilowicz A, Sutrisna A, Izwardy D, Neufeld LM. A review of child stunting determinants in Indonesia. Matern Child Nutr. 2018; 14(4):e12617. doi: 10.1111/mcn.12617
7. Titaley CR, Ariawan I, Hapsari D, Muasyaroh A, Dibley MJ. Determinants of the stunting of children under two years old in Indonesia: A multilevel analysis of the 2013 Indonesia basic health survey. Nutrients. 2019;11(5):1–13. doi: 10.3390/nu11051106
8. Jang GJ, Ko S. Effects of a breastfeeding coaching program on growth and neonatal jaundice in late preterm infants in South Korea. Child Heal Nurs Res. 2021;27(4):377–84. doi: 10.4094/chnr.2021.27.4.377
9. Berhe K, Seid O, Gebremariam Y, Berhe A, Etsay N. Risk factors of stunting (chronic undernutrition) of children aged 6 to 24 months in Mekelle City, Tigray Region, North Ethiopia: An unmatched case-control study. PLOS ONE. 2019;14(6):1–11. doi:

10.1371/journal.pone.0217736
10. Prasetyo YB, Permatasari P, Susanti HD. The effect of mothers' nutritional education and knowledge on children's nutritional status: a systematic review. Int J Child Care Educ Policy. 2023;17(1):1–16.
11. Vikram K, Vanneman R. Maternal education and the multidimensionality of child health outcomes in India. J Biosoc Sci. 2019;52(1):57–77. doi: 10.1017/S0021932019000245
12. Shiroya-Wandabwa M, Kabue M, Kasungami D, Wambua J, Otieno D, Waka C, et al. Coaching community health volunteers in integrated community case management improves the care of sick children under-5: Experience from Bondo, Kenya. Int J Integr Care. 2018;18(4):1–11. doi: 10.5334/ijic.3971
13. Mediani HS, Hendrawati S, Pahria T, Mediawati AS, Suryani M. Factors Affecting the Knowledge and Motivation of Health Cadres in Stunting Prevention Among Children in Indonesia. J Multidiscip Healthc. 2022;15:1069–82. doi: 10.2147/JMDH.S356736.
14. Wibowo Y, Setiadi AP, Halim S V., Saputra RD, Oktavia R, Irianti R, et al. A pilot study of cadre training to promote responsible self-medication in Indonesia: Which is better specific or general modules? Heal Soc Care Community. 2021;29(2):554–63. doi: 10.1111/hsc.13118
15. Siswati T, Iskandar S, Pramestuti N, Raharjo J, Rialihanto MP, Rubaya AK, et al. Effect of a Short Course on Improving the Cadres' Knowledge in the Context of Reducing Stunting through Home Visits in Yogyakarta, Indonesia. Int J Environ Res Public Health. 2022;19(16):1–10. doi: 10.3390/ijerph19169843
16. Roodbeen R, Vreke A, Boland G, Rademakers J, van den Muijsenbergh M, Noordman J, et al. Communication and shared decision-making with patients with limited health literacy; helpful strategies, barriers and suggestions for improvement reported by hospital-based palliative care providers. PLOS ONE. 2020;15(6):1–20. doi: 10.1371/journal.pone.0234926
17. Coman C, Țîru LG, Meseșan-Schmitz L, Stanciu C, Bularca MC. Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. Sustain. 2020;12(24):1–22.
18. Haleem A, Javaid M, Qadri MA, Suman R. Understanding the role of digital technologies in education: A review. Sustain Oper Comput. 2022;3:275–85. doi: https://doi.org/10.1016/j.susoc.2022.05.004
19. Gauld N, Martin S, Sinclair O, Petousis-Harris H, Dumble F, Grant CC. Influences on Pregnant Women's and Health Care Professionals' Behaviour Regarding Maternal Vaccinations: A Qualitative Interview Study. Vaccines. 2022;10(1):1–23. doi: 10.3390/vaccines10010076
20. Kaufman J, Attwell K, Hauck Y, Omer SB, Danchin M. Vaccine discussions in pregnancy: interviews with midwives to inform design of an intervention to promote uptake of maternal and childhood vaccines. Hum Vaccines Immunother. 2019;15(11):2534–43. doi: 10.1080/21645515.2019.1607131
21. Khoirunisa E, Karsidi R, Yusuf M. The Role of Posyandu as Primary Health Care Services in Implementing Early Detection and Intervention for Autistic Children in Indonesia. Int J Multicult Multireligious Underst. 2019;6(1):101.
22. Feizi A, Najmi B, Salesi A, Chorami M, Hoveidafar R. Parenting stress among mothers of children with different physical, mental, and psychological problems. J Res Med Sci. 2014;19(2):145–52.
23. Nomaguchi K, Milkie MA. Parenthood and Well-Being: A Decade in Review.

J Marriage Fam. 2020;82(1):198–223. doi: 10.1111/jomf.12646.
24. Anderson EL. Center for Vaccine Development Recommended Soluti ons to the Barriers to Immunizati on in Children and Adults. Sci Med [Internet]. 2014.. Available from: www.cdc.gov/vaccines/vac-en/6mishome.
25. Jahnke I, Meinke-Kroll M, Todd M, Nolte A. Exploring Artifact-Generated Learning with Digital Technologies: Advancing Active Learning with Co-design in Higher Education Across Disciplines. Technol Knowl Learn. 2022;27(1):335–64. doi: https://doi.org/10.1007/s10758-020-09473-3
26. Alhawari S, Karadsheh L, Nehari Talet A, Mansour E. Knowledge-Based Risk Management framework for Information Technology project. International Journal of Information Management. 2012;32(1):50-65. doi: https://doi.org/10.1016/j.ijinfomgt.2011.07.002
27. Wart A Van, O'brien TC, Varvayanis S, Alder J, Greenier J, Layton RL, et al. Applying experiential learning to career development training for biomedical graduate students and postdocs: Perspectives on program development and design. CBE Life Sci Educ. 2020;19(3):1–12. doi: 10.1187/cbe.19-12-0270.
28. Tong DH, Uyen BP, Ngan LK. The effectiveness of blended learning on students' academic achievement, self-study skills and learning attitudes: A quasi-experiment study in teaching the conventions for coordinates in the plane. Heliyon. 2022;8(12):e12657. doi: 10.1016/j.heliyon.2022.e12657
29. Chernikova O, Heitzmann N, Stadler M, Holzberger D, Seidel T, Fischer F. Simulation-Based Learning in Higher Education: A Meta-Analysis. Rev Educ Res. 2020;90(4):499–541.
30. Schmidt SJ. Distracted learning: Big problem and golden opportunity. J Food Sci Educ. 2020;19(4):278–91.
31. Amri NAAA, Fauzi NFM, Zaid NNM, Mee RWM. Gender Differences in Reading Attitudes Among Undergraduates. Selangor Hum Rev. 2021;5(2):190–207.
32. Rini AM, Marsono, Yoto. The Effect of Attitude and Motivation on Students' Entrepreneurship Interest. Budapest Int Res Critics Institute-Journal. 2021;4(4):10814–23.
33. Getie AS. Factors affecting the attitudes of students towards learning English as a foreign language. Cogent Educ. 2020;7(1):1–37. doi: https://doi.org/10.1080/2331186X.2020.1738184
34. Yunitasari E, Rahayu M, Kurnia ID. The Effects of Lecture, Brainstorming, Demonstration (CBD) to Mother's Knowledge, Attitude, and Behavior About Stunting Prevention on Toddler. Syst Rev Pharm. 2020;11(6):1131–6.
35. Laksono AD, Wulandari RD, Ibad M, Kusrini I. The effects of mother's education on achieving exclusive breastfeeding in Indonesia. BMC Public Health. 2021;21(1):1–6. doi: 10.1186/s12889-020-10018-7
36. Abdulahi M, Fretheim A, Argaw A MJ. Initiation and Exclusive Breastfeeding Practices and Infant Ethiopian Setting. Nutrients. 2021;13:1–15.
37. Verplanken B, Orbell S. Attitudes , Habits, and Behavior Change. Annu Rev of Psychology Attitudes. 2022;73:327–52.
38. Abd El Salam AE, AbdAllah AM, El Maghawry HA. Effect of health education program on improving knowledge and atitude towards mental health stigma and professional help-seeking among adolescents. Middle East Curr Psychiatry. 2023;30(1):1–9.
39. Xue Y, Saeed SA, Muppavarapu KS, Jones K, Xue LL. Exploring the Impact of Education Strategies on Individuals'

Attitude Towards Telemental Health Service: Findings from a Survey Experiment Study. Psychiatr Q. 2023;94(3):483–99. doi: 10.1007/s11126-023-10033-y
40. Andrianto A, Ardiana M, Aditya M, Sitorus SJ, Rachmi DA, Septianda I, et al. Interactive training and education improves basic hypertension knowledge of woman cadres in surabaya. Open Access Maced J Med Sci. 2020;8(E):313–7.
41. Maingi M, Kimiywe J, Iron-Segev S. Maternal knowledge in complementary feeding following Baby Friendly Community Initiative in Koibatek, Kenya. Matern Child Nutr. 2020; 16(4):1–8. doi: 10.1111/mcn.13027
42. Mohammed EAI, Taha Z, Eldam AAAG, Shommo SAM, El hidai MM. Effectiveness of a Nutrition Education Program in Improving Mothers' Knowledge and Feeding Practices of Infants and Young Children in Sudan. Open Access Maced J Med Sci. 2022;10(E):776–82.
43. Kari JT, Viinikainen J, Böckerman P, Tammelin TH, Pitkänen N, Lehtimäki T, et al. Education leads to a more physically active lifestyle: Evidence based on Mendelian randomization. Scand J Med Sci Sport. 2020;30(7): 1194–204. doi: 10.1111/sms.13653
44. Raghupathi V, Raghupathi W. The influence of education on health: An empirical assessment of OECD countries for the period 1995-2015. Arch Public Heal. 2020;78(1):1–18. doi: 10.1186/s13690-020-00402-5
45. Zajacova A, Lawrence EM. The relationship between education and health: reducing disparities through a contextual approach. Annu Rev Public Heal. 2018;1(39):273–89. doi: 10.1146/annurev-publhealth-031816-044628