



# Effectiveness of nutrition training in improving cadres' knowledge and skills in Kupang City

## *Efektivitas pelatihan gizi dalam meningkatkan pengetahuan dan keterampilan kader di Kota Kupang*

Astuti Nur<sup>1\*</sup>, Santa Luciana Diaz Vera da Costa<sup>2</sup>, Maria Goreti Pantaleon<sup>3</sup>, Maria Helena Dua Nita<sup>4</sup>, Anak Agung Ayu Mirah Adi<sup>5</sup>

<sup>1</sup> Nutrition Study Program of Poltekkes Kemenkes Kupang, Provinsi Nusa Tenggara Timur, Indonesia.

E-mail: [astutinur1989@gmail.com](mailto:astutinur1989@gmail.com)

<sup>2</sup> Nutrition Study Program of Poltekkes Kemenkes Kupang, Provinsi Nusa Tenggara Timur, Indonesia.

E-mail: [santadacosta22@gmail.com](mailto:santadacosta22@gmail.com)

<sup>3</sup> Nutrition Study Program of Poltekkes Kemenkes Kupang, Provinsi Nusa Tenggara Timur, Indonesia.

E-mail: [merypantaleon@gmail.com](mailto:merypantaleon@gmail.com)

<sup>4</sup> Nutrition Study Program of Poltekkes Kemenkes Kupang, Provinsi Nusa Tenggara Timur, Indonesia.

E-mail: [gratiatukan.14@gmail.com](mailto:gratiatukan.14@gmail.com)

<sup>5</sup> Nutrition Study Program of Poltekkes Kemenkes Kupang, Provinsi Nusa Tenggara Timur, Indonesia.

E-mail: [agung.mirahadi74@gmail.com](mailto:agung.mirahadi74@gmail.com)

### \*Correspondence Author:

Nutrition Study Program of Poltekkes Kemenkes Kupang, Jl. RA. Kartini, Kecamatan Kelapa Lima, Kota Kupang, Provinsi Nusa Tenggara Timur, Indonesia, 85228.

Email: [astutinur1989@gmail.com](mailto:astutinur1989@gmail.com)

### Article History:

Received: September 19, 2024; Revised: November 12, 2024; Accepted: January 08, 2025; Published: March 07, 2025.

### Publisher:



Politeknik Kesehatan Aceh  
Kementerian Kesehatan RI

© The Author(s). 2025 **Open Access**

This article has been distributed under the terms of the *License Internasional Creative Commons Attribution 4.0*



## Abstract

Stunting is still a major nutritional problem in the East Nusa Tenggara Province. Efforts to reduce stunting cannot be separated from the role of Posyandu cadres (integrated health post-cadres). This study aimed to determine the effects of anthropometric measurement training, toddler growth monitoring, and Infant and Young Child Feeding (IYCF) training on cadres' knowledge and skills. The research was a quasi-experiment with a pre-post-test control group design. The participants were Oesapa Health Center cadres who underwent purposive sampling in May-July 2024. Thirty intervention group cadres were given modules and training on monitoring growth, development, and IYCF for three days. Thirty cadres in the control group were provided with nutrition education and modules only. The cadres were then practiced at Posyandu. Data were collected through questionnaires and checklists. Data were analyzed using the Mann-Whitney U test. Results: There was an increase in cadre knowledge for all variables in both the intervention and control groups ( $p < 0,05$ ). The highest CGM was 21,33 points in the intervention group. CGM training also significantly improved cadre skills after Post-test 1 in the intervention group by 9,33 points ( $p = 0,000$ ); however, at Post-test 2, there was no significant improvement ( $p = 0,934$ ). In conclusion, nutrition training significantly improved cadres' knowledge scores and skills in conducting anthropometric measurements.

**Keywords:** Training, Posyandu cadres, IYCF, stunting

## Abstrak

Stunting masih menjadi masalah gizi utama di Provinsi Nusa Tenggara Timur. Upaya penurunan stunting tidak terlepas dari peran kader posyandu. Penelitian bertujuan untuk mengetahui pengaruh pelatihan pengukuran antropometri, pemantauan tumbuh kembang balita, dan pelatihan PMBA terhadap pengetahuan dan keterampilan kader. Desain penelitian quasi-experiment dengan rancangan pre-post test control group. Peserta adalah kader Puskesmas Oesapa yang diambil secara purposive sampling pada bulan Mei-Juli tahun 2024. 30 kader kelompok intervensi diberikan modul serta pelatihan tentang pemantauan pertumbuhan, perkembangan dan PMBA selama 3 hari. 30 kelompok control diberikan edukasi gizi dan modul saja. Kemudian kader melakukan praktek di posyandu. Pengumpulan data menggunakan kuesioner dan lembar ceklis. Analisis data menggunakan uji Mann-whitney. Hasil, terjadi peningkatan pengetahuan kader pada semua variabel baik pada kelompok intervensi maupun control ( $p < 0,05$ ). Skor tertinggi pada CGM 21,33 poin pada kelompok intervensi. Pelatihan CGM juga meningkatkan ketrampilan kader secara signifikan setelah posttest 1 pada kelompok intervensi sebesar 9,33 poin ( $p = 0,000$ ) namun, pada posttest 2 tidak terjadi peningkatan secara signifikan ( $p = 0,934$ ). Kesimpulan, pelatihan gizi secara signifikan meningkatkan skor pengetahuan kader, serta keterampilan kader dalam melakukan pengukuran antropometri

**Kata Kunci:** Pelatihan, kader Posyandu, PMBA, stunting.

## Introduction

Stunting is a major nutritional concern in Indonesia. This condition occurs due to malnutrition in the first 1000 days of life so children experience growth failure (Katmawanti et al., 2021). Stunted children will experience impaired growth and development, brain development, and have the opportunity to earn a low income as adults (Hina & Picauly, 2021). Stunting affects the economic productivity of a country and is one of the contributors to the increase in early childhood mortality (Tiwery et al., 2023). According to the Indonesian Health Survey, the stunting rate for children under five years of age in Indonesia is 24,2% in 2023; however, it is 37,9% in East Nusa Tenggara. These numbers show that, after the Papua Mountains, NTT Province has Indonesia's second-highest stunting rate (Ministry of Health, 2023). Meanwhile, Kupang City is still ranked 8<sup>th</sup> highest among the 22 districts in NTT, at 18,7% (EPPGBM, 2024).

Child nutrition problems refer to nutritional problems in the local community. Therefore, data on children's nutritional status are required to address this problem at the community level. Cadres' ability and expertise in conducting anthropometric measurements are very important because they relate to the interpretation of nutritional status and to decision-making and planning for the next nutrition program (Budiman et al., 2021).

The Oesapa Health Center is a pilot health center in Kupang City. The number of cadres in the Oesapa Health Center area consists of 5-6 people at each integrated service post. This number was adjusted to the number of stages in the integrated service post, namely the 5-table system. Technically, some mistakes are still often made by cadres in anthropometric measurements (Nur et al., 2024). In addition, developmental detection has not yet been performed in integrated service posts. A case study in South Central Timor District showed that the barriers experienced by cadres were mostly due to the cadres' lack of knowledge and lack of training on their duties as Integrated Service Post cadres (Nataliningsih & Suseno, 2024).

Qualitative research conducted at the Oesapa Health Center shows that the challenges faced by integrated service post cadres are equipment resources in the implementation of

specific nutrition interventions in the form of anthropometric kits/service post kits are limited while the number of Integrated Service Post is 40 so that cadres can only use them on Integrated Service Post days (Katmawanti et al., 2024).

In addition, based on the results of the observations, other challenges faced by cadres are the demands to obtain accurate growth and development monitoring data for toddlers. Still, they are not accompanied by adequate and continuous training facilities where training is provided more often to cadre leaders or is sporadic and not comprehensive, and lack of support from the community due to the assumption that stunting occurs due to heredity (Al Rahmad et al., 2024; Fallo, 2020).

Given the significance of their role, cadres must possess strong knowledge and skills to effectively serve the community (Noya et al., 2021). The ability to monitor growth, development, and infant and young child feeding (IYCF) is a very important competency for Posyandu cadres (integrated health post-cadres). Cadres need to provide training before assisting toddlers. Training can increase cadre knowledge and cadre motivation in stunting prevention (Mediani et al., 2020), and training can increase cadres' knowledge and skills related to infant and young child feeding (IYCF) through training (Efrizal & Utami, 2022). Previous training for cadres in East Nusa Tenggara was mostly on stunting detection (Simbolon et al., 2023; Tampake et al., 2021) and training in making complementary feeding (Loaloka & Zogara, 2023; Trisnawati et al., 2023). Research in Yogyakarta has combined growth, development, and IYCF monitoring training but lacked control (Siswati et al., 2022).

This study aimed to determine the effects of anthropometric measurement training, growth and development monitoring for toddlers, and Infant and Young Child Feeding (IYCF) training on the knowledge and skills of health cadres in improving health service delivery to reduce stunting in Kupang City. The novelty of this research lies in the comprehensive training approach for integrated service post-cadres in a single training session, which includes monitoring the growth and development of toddlers, as well as the IYCF. This research not only focuses on strengthening

the technical competencies of cadres, but also integrates technology-based training methods or the latest evidence-based practices. This aims to improve data accuracy, service quality, and cadre understanding to support sustainable stunting reduction efforts.

## Methods

This study employed a quasi-experimental design with a pre-test-post-test control group framework. This research was conducted from May to July 2024 at the Nutritional Status Assessment Laboratory and Food Implementation Laboratory of the Nutrition Program at the Kupang Ministry of Health Polytechnic in East Nusa Tenggara, involving health cadres. The sample comprised cadres from the Oesapa Health Center, selected through purposive sampling based on the following criteria: health cadres in the Oesapa Health Center's working area can read and write, are not the main cadre, and can fully participate in the training. The exclusion criteria were health factors and non-participation in all activities.

A sample calculation using the formula for the minimum sample size obtained 30 participants in each group. Thirty cadres in the intervention group received modules, education on stunting, and training in Children Growth Monitoring (CGM), which included anthropometric measurements (weight, height/length, upper arm circumference, and head circumference), age calculations, plotting on growth charts, Children Development Monitoring (CDM) using MCH books, and Infant Young Child Feeding (IYCF). The control group of 30 cadres was provided with only nutritional education and modules. This study used a 1:1 ratio between cases and controls, as this ratio is the minimum requirement for valid comparisons of cases and controls for variable measurements.

Participants underwent nine hours of training per day for two days, utilizing lectures, demonstrations, and hands-on practice methods. Theory was taught to large classes, while demonstrations were conducted with five small groups. Certified facilitators specializing in the Stimulation of Early Intervention Detection of Growth and Development conducted training. Afterward, the cadres were given one month to practice in the field at Posyandu. The field

supervisors included healthcare nutrition workers and researchers. Knowledge was assessed at baseline and after training using a questionnaire, with answers scored as 1 for correct and 0 for incorrect, and weighted to yield a maximum score of 100. Anthropometric measurement skills were evaluated using a checklist.

Data on cadre characteristics were analyzed using the chi-square test, and differences in cadre knowledge before and after the intervention were examined using the Mann-Whitney test because the data were not normally distributed. A research permit was obtained from the Health Research Ethics Commission (KEPK) of the Kupang Ministry of Health Polytechnics (number: LB.02.03/1/0021/2024).

## Result and Discussion

Most cadres were >40 years old, had completed high school, worked as housewives, served as cadres for <5 years, and had never received training. The specific details are provided in Table 1.

Cadre performance is closely related to its characteristics. Most cadres have a high school graduate education level that exceeds the 9-year compulsory education (equivalent to junior high school) set by the Indonesian government. A high level of education supports cadres' ability to receive information and deal with problems in integrated service posts. Most of the cadres are housewives so they have free time to volunteer as cadres (Widiansari et al., 2023). Age can be linked to cadres' capacity to absorb new information. The productive age of 18-59 years has a higher ability to absorb information, thus influencing the training results (Zalela et al., 2024). Research in the Penajam Paser Utara Region shows that other factors affecting cadre performance are cash and non-cash incentives received. The performance of cadres will be impacted because those who receive suitable rewards will be more engaged in carrying out integrated service post activities than those who receive insufficient ones (Asrianah et al., 2024). Most participants had served as cadres for <5 years, 70% in the intervention group, and 80% in the control group had never attended training. This is because the

participants taken in this study were not cadre leaders who often attended training so it is hoped that this training can improve their knowledge.

**Table 1.** Characteristics of respondents based on treatment group

Variables	Intervention (n=30)		Control (n=30)		p-value
	n	%	n	%	
Age					
<30 years	2	6,7	2	6,7	0,287
30-40 years	4	13,3	9	30	
>40 years	24	80	19	63,3	
Education					
Elementary school	1	3,3	2	6,7	0,413
Junior high school	9	30	4	13,3	
Senior high school	17	56,7	19	63,3	
College	3	10	5	16,7	
Occupation					
Housewife	28	93,3	28	93,3	0,694
Self-employed	2	6,7	2	6,7	
Length of service as a cadre					
<5 years	12	40	13	43,3	0,301
5-10 years	7	23,3	11	36,7	
>10 years	11	36,7	6	20	
Training history					0,110
Never	21	70	24	80	
Growth monitoring	6	20	5	16,7	
IYCF	3	10	1	3,3	

Table 1 shows that, based on statistical tests, all cadre characteristics (age, education, occupation, length of service as a cadre, and training history) were similar in the intervention and control groups. The intervention was carried out in a laboratory with a fairly spacious space and quiet atmosphere. In addition, adequate facilities include projectors, exciting slides, video playbacks on how to use

anthropometric tools, as well as learning aids such as module books, KMS, anthropometric tools, and foodstuffs. The event was followed by great enthusiasm and motivation from participants.

The statistical test results showed a difference in mean knowledge scores between the intervention and control groups. The mean knowledge scores are presented in Table 2.

**Table 2.** Average knowledge score in each group

Knowledge	Intervention (n=30)	Control (n=30)	95% CI lower-upper	p-value
Stunting				
Before (average $\pm$ SD)	60,33 $\pm$ 11,29	58,33 $\pm$ 11,76	2,00 (3,90 - 7,9)	0,588
After (average $\pm$ SD)	77,67 $\pm$ 7,73	68,33 $\pm$ 10,85	9,33 (4,4-14,2)	0,000*
CGM				
Before (average $\pm$ SD)	70,00 $\pm$ 14,38	69,33 $\pm$ 13,37	0,66 (6,5 - 7,8)	0,493
After (average $\pm$ SD)	91,33 $\pm$ 8,86	79,67 $\pm$ 13,51	11,6 (5,8 - 17,5)	0,000*
CDM				
Before (average $\pm$ SD)	68,00 $\pm$ 20,74	68,00 $\pm$ 15,62	0,00 (8,4 - 9,4)	0,938
After (average $\pm$ SD)	83,33 $\pm$ 13,97	74,00 $\pm$ 13,02	9,33 (2,3 - 16,3)	0,012*
IYCF				
Before (average $\pm$ SD)	74,67 $\pm$ 21,45	76,00 $\pm$ 16,10	1,33 (8,4 - 11,1)	0,833
After (average $\pm$ SD)	90,67 $\pm$ 11,42	82,67 $\pm$ 15,52	8,00 (0,9 - 15,0)	0,036*

\*Mann-whitney test, significant  $p < 0,05$ ; CGM= Children Growth Monitoring; CDM= Children Development Monitoring; IYCF= Young Children Feeding.

A comparison of knowledge score rates between the intervention and control groups was performed to determine the differences in knowledge score ratios prior to training (pre-test). The comparison was performed using the Mann-Whitney U test with a 95% confidence rate ( $p < 0,05$ ). The pre-test results in Table 2 show that the knowledge values of the intervention and control groups did not differ significantly for any variable ( $p > 0,05$ ). The intervention and control groups had almost identical initial knowledge. After the intervention, there was an increase in

knowledge on all variables, even though the mean values of the four variables varied, but statistically, the increase differed significantly between the intervention and control groups ( $p < 0,05$ ).

The improvement in framework knowledge after training can also be seen in pre- and post-intervention differences. The CGM variable has the highest differences of 21,33 points in the intervention group and 10,33 points in the control group. For clarity, refer to Table 3.

**Table 3.** Impact of training on cadre knowledge

Knowledge	Intervention (average $\pm$ SD)	Control (average $\pm$ SD)	95% CI lower-upper	p-value
Stunting	17,33 $\pm$ 9,07	10,00 $\pm$ 7,42	7,33 (3,1 – 11,6)	0,001
CGM	21,33 $\pm$ 12,24	10,33 $\pm$ 16,07	11,00 (3,6 – 18,4)	0,002
CDM	15,33 $\pm$ 18,7	6,00 $\pm$ 12,20	9,33 (1,2 – 17,5)	0,026
IYCF	16,00 $\pm$ 17,14	6,66 $\pm$ 10,93	9,33 (1,7 – 16,9)	0,044

CGM= Children Growth Monitoring; CDM= Children Development Monitoring; IYCF= Young Children Feeding.

Table 3 shows that treatment in the intervention and control groups improved the framework knowledge. This is because control groups were also given nutritional education using the same methods of lectures and discussions as well as modules. At the time of education, accompanied by video playback, growth monitoring methods are the same as those used in the intervention groups, thus enhancing the knowledge of the framework. However, the value of the intervention group was greater than that of the control group, which means that training is more effective in improving knowledge of the framework than that provided only to nutrition education without training.

According to the book of healthcare cadre guides published by the Ministry of Health in 2019, cadre should have sufficient knowledge about integrated service post, especially the five-step system, ranging from registration, weighing, completion of the growth graph, certification, and basic health services, as well as good performance in carrying out his duties as cadre (Kemenkes, 2019).

The results of this study are in line with Rahmawati's (2019) study, which showed that there was an increase in the value of cadre knowledge after nutrition education in the intervention and control groups. However, with simulation techniques and practice, it is possible to raise cadres' knowledge scores higher than

those of the control group, which only received nutrition education with lecture techniques. (Rahmawati et al., 2019).

Through simulation and practical media, cadres gain direct experience by applying previous theoretical knowledge to help them better understand the material and how to apply it. By engaging directly in practice, cadres become more active in the learning process. Active learning tends to be more effective as students directly experience and solve problems (Hapudin, 2021).

In practice, cadres can also receive immediate feedback on their actions from the facilitators. This feedback helped them correct their mistakes and improve their skills. Thus, they were more confident in doing their jobs on the ground. Measurement of anthropometry is generally thought to be easier for integrated service post frames than monitoring child development because the process of measuring anthropometry usually has clear and direct instructions. For example, there are specific guidelines on how to use measuring tools, correct positioning, and how to read results that make this process simpler for frames (Lensoni et al., 2023). Instead, child development monitoring involves assessing more complex aspects such as motor, linguistic, and social-emotional development. Cadres need to understand a range of development indicators

that can vary depending on age and environment, which adds complexity to monitoring (Lestari et al., 2023).

In addition to knowledge, framework skills in anthropometric measurements were assessed. Table 4 presents the results

**Table 4.** Impact of training on cadre skills

Skills	Intervention (n=30) (average ±SD)	Control (n=30) (average ± SD)	95% CI Lower-upper	p-value
CGM				
Before	69,50 ± 5,92	67,83 ± 5,82	1,67 (1,4 - 4,7)	0,229
After 1	78,83 ± 5,52	71,33 ± 5,56	7,50 (4,6 - 10,3)	0,000
After 2	80,17± 5,64	73,00± 6,24	7,16 (4,1 - 10,2)	0,000
Before - After 1				
Effect size	9,33±5,68	3,50±4,93	5,83 (3,1 - 8,6)	0,000
After 1 - After 2				
Effect size	1,84± 3,55	1,67± 2,60	0,33 (1,3 - 1,9)	0,934

CGM: Children's growth monitoring; SD: Standard Deviation

A person or group engages in training, a learning process that prioritizes practice over theory, with the goal of enhancing abilities in one or more specific types of skills (Husnaniyah et al., 2022). Based on the difference in growth monitoring skills scores between pre- and post-intervention, it is known that training can significantly improve the skill score in intervention groups by 9,33 points relative to the control group of 3,50 points. Both the intervention and control groups showed improved skills, similar to their knowledge. This is because the control group was also educated, and respondents read growth monitoring modules that improve skill scores, even if not as much as the intervention group.

According to researchers, the change in skills on the frame is due to the absorption of information with audiovisual media. In addition, there are simulation methods and practices provided, making it easier for cadres to remember and do what they have done themselves and seen in person. By accepting interventions that include repetitive practice and simulation, cadres in the intervention group tended to feel more confident in carrying out their duties. This confidence, in turn, increases the effectiveness of applying the skills learned in integrated service posts.

This is in line with the results of research conducted in the village of Meteseh, Boja, Kendal which shows that the training of cadres can improve skills in anthropometric measurement, which is important to detect nutritional problems such as stunting in young children. (Lestari et al., 2023).

This study combines several methods, including demonstrations. The demonstration method is the process of the occurrence of an event or object to the appearance of behavior that is exemplified so that it can be known and understood by participants in real or imitation, and this method provides opportunities for participants to work together in analyzing situations (Endayani et al., 2020). This is in line with Angelia's research (2024), which combines several media in providing nutrition education such as videos and demonstrations that increase knowledge, attitudes, and practices in adolescent girls to prevent anemia. So the three media are more effective in improving practice than other methods (Angelia et al., 2024).

The combination of various training methods is highly influential on the knowledge and skills of participants because more stimuli are received by the five senses. With the use of various methods, more media are used, and more information is received. This can maximize cadres' ability to receive a large amount of information. Training or education using a variety of media will increase the willingness to see, read, feel, or hear the information presented (Hanifah & Hartriyanti, 2023).

Therefore, this training is effective in increasing cadres' knowledge and skills, which will be useful for reducing stunting. Training designed using appropriate methods will have a real impact on the performance of cadres in the field. However, continuous development, utilization of technology, and regular evaluation are necessary to ensure that training remains relevant and able to address community needs.

This study has limitations, namely the measurement of developmental monitoring skills was not carried out considering the need for toddler volunteers according to age groups with various complex conditions in developmental monitoring, such as comfortable conditions and long periods of time.

## Conclusion

Nutrition training can significantly improve cadres' knowledge scores on stunting, CGM, CDM, and IYTV and cadres' skills in anthropometric measurements.

Suggestions for future research include involving the measurement of toddler development monitoring skills while considering the needs of toddler volunteers according to age groups. The research should prepare comfortable conditions and allocate adequate time to ensure more representative and in-depth measurement results. This can be achieved by expanding cooperation with relevant parties, such as local communities or healthcare facilities, to support the availability of volunteers and optimal implementation time.

## Acknowledgements

The researcher would like to thank the Kupang Ministry of Health Polytechnic for providing research funds, and the Head of Oesapa Village, Oesapa Health Care, especially nutritionists and cadres who participated in this study.

## References

- Al Rahmad, A. H., Sofyan, H., Usman, S., & Mudatsir. (2024). The Accuracy Data of the Toddlers' Nutritional Status using the "PSG Balita" App. In T. Tahlil & P. Ardia (Eds.), *The 6th Aceh International Nursing Conference* (82–86). Journal of Liaquat University of Medical and Health Sciences. <https://doi.org/10.22442/jlumhs.2024.01130>
- Angelia, S., Noor, Z., Herawati, H., Sanyoto, D. D., & Suhartono, E. (2024). Analisis Efektivitas Metode Ceramah dan Demonstrasi Terhadap Pengetahuan, Sikap dan Praktik Upaya Pencegahan Anemia Pada Remaja Putri. *Jurnal Ners*, 8(1), 553–557.
- Asrianah, A., Wisnuwardani, R. W., Iriyani, I., Nurzihan, N. C., Siddiq, M. N. A. A., & Fitriastuti, T. (2024). The association between financial and non-financial incentives and performance of posyandu cadres. *AcTion: Aceh Nutrition Journal*, 9(3), 489–495.
- Budiman, L. A., Rosiyana, R., Sari, A. S., Safitri, S. J., Prasetyo, R. D., Rizqina, H. A., Kasim, I. S. N. I., & Korwa, V. M. I. (2021). Analisis Status Gizi Menggunakan Pengukuran Indeks Massa Tubuh dan Beban Kerja dengan Metode 10 Denyut pada Tenaga Kesehatan. *Nutrizione: Nutrition Research And Development Journal*, 1(1), 6–15.
- Efrizal, W., & Utami, R. (2022). Perilaku Kader Posyandu Dalam Pemberian Makan Pada Bayi Dan Anak: *Jurnal Pangan Kesehatan Dan Gizi Universitas Binawan*, 3(1), 1–12.
- Endayani, T. B., Rina, C., & Agustina, M. (2020). Metode demonstrasi untuk meningkatkan hasil belajar siswa. *Al-Azkiya: Jurnal Ilmiah Pendidikan MI/SD*, 5(2), 150–158.
- Fallo, A. R. (2020). Implementasi Kebijakan Pencegahan Stunting oleh Dinas Pengendalian Penduduk dan Keluarga Berencana Kabupaten Timor Tengah Selatan di Kecamatan Kie. *GLORY Jurnal Ekonomi Dan Ilmu Sosial*, 1(2), 1–21.
- Hanifah, A. K., & Hartriyanti, Y. (2023). Efektivitas Berbagai Jenis Metode Pelatihan Untuk Meningkatkan Kapasitas Kader Posyandu Dalam Upaya Pencegahan Stunting Pada Balita. *Journal of Nutrition College*, 12(2), 121–134.
- Hapudin, H. M. S. (2021). *Teori belajar dan pembelajaran: menciptakan pembelajaran yang kreatif dan efektif*. Prenada Media.
- Hina, S. B. G. J., & Picauly, I. (2021). Hubungan Faktor Asupan Gizi, Riwayat Penyakit Infeksi Dan Riwayat Asi Eksklusif Dengan Kejadian Stunting Di Kabupaten Kupang. *Jurnal Pangan Gizi Dan Kesehatan*, 10(2), 61–70.
- Husnaniyah, D., Yulyanti, D., Sari, D. Y., Maulana, R., & Tarkawi, T. (2022). Perbedaan Pengetahuan Kader Posyandu Tentang Pengelolaan Posyandu Sebelum Dan Sesudah Dilakukan Pelatihan Di Desa Wanantara Kecamatan Sindang Kabupaten Indramayu. *Proceeding Seminar Nasional Keperawatan*, 8(1), 104–110.
- Nataliningsih, Mp., & Suseno, H. G. P. (2024). Pendidikan dan Pemberdayaan Masyarakat: Transformasi Sumber Daya Manusia dalam

- Pembangunan Berkelanjutan di Era Digital. *Mega Press Nusantara*.
- Katmawanti, S., Supriyadi, & Mariroh, F. (2021). Is instant porridge with a high calcium content based on *Moringa oleifera* as an alternative baby food to prevent stunting in Indonesia? *Journal of Public Health Research*, 10(2), jphr-2021.
- Katmawanti, S., Wahyuni, O. S., Paramita, F., Kurniawan, A., & Khuzaimah, S. (2024). Implementation of Specific Nutrition Interventions to Prevent Stunting in Pregnant Women in the Oesapa Community Health Center Area East Nusa Tenggara. *Preventia: The Indonesian Journal of Public Health*, 9(1), 29. <https://doi.org/10.17977/um044v9i12024p29-47>
- Kemenkes. (2023). Survey Kesehatan Indonesia (SKI). In *Kemenkes RI* (Vol. 01).
- Kemenkes, R. I. (2019). Panduan Orientasi Kader Posyandu. *Kemenkes RI*, 53(9).
- Lensoni, L., Elmiyati, E., Yulinar, Y., Yahya, M., & Hanum, U. (2023). The Effectiveness of Using the Anthropometric Stunting Meter in Children Aged 24-59 Months at the Lageun Health Center, Aceh Jaya District. *Jurnal Penelitian Pendidikan IPA*, 9(9), 6952-6956.
- Lestari, P., Kurniati, W. D., & Hidayati, A. H. (2023). Peningkatan Keterampilan Kader Posyandu dalam Pengukuran Antropometri di Desa Meteseh, Boja, Kendal. *Poltekita: Jurnal Pengabdian Masyarakat*, 4(2), 594-601.
- Loaloka, M. S., & Zogara, A. U. (2023). Pelatihan Pembuatan MP-ASI dan PMT Lokal Bagi Kader Posyandu di Desa Oeltuah Kabupaten Kupang. *BERNAS: Jurnal Pengabdian Kepada Masyarakat*, 4(3), 2179-2182.
- Mediani, H. S., Nurhidayah, I., & Lukman, M. (2020). Pemberdayaan kader kesehatan tentang pencegahan stunting pada balita. *Media Karya Kesehatan*, 3(1), 82-90.
- Noya, F., Ramadhan, K., Tadale, D. L., & Widyani, N. K. (2021). Peningkatan pengetahuan dan keterampilan kader melalui pelatihan kader posyandu remaja. *JMM (Jurnal Masyarakat Mandiri)*, 5(5), 2314-2322.
- Nur, A., Pantaleon, M. G., Nita, M. H. D., & Nenotek, C. R. (2024). Pencegahan Stunting pada Balita Melalui Refreshing Pemantauan Pertumbuhan dan Pelatihan Pembuatan PMT MI Beras Hitam Kelor pada Kader Posyandu. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, 7(10), 4440-4452.
- Rahmawati, S. M., Madanijah, S., Anwar, F., & Kolopaking, R. (2019). The effectiveness education of counseling of infant and young child feeding as intensive to improve counseling performance of Posyandu cadres in Bogor, Indonesia. *International Journal Of Community Medicine And Public Health*, 6(6), 2280.
- Simbolon, D., Meriwati, M., Okfrianti, Y., Sari, A. P., & Yuniarti, P. (2023). Peningkatan Kemampuan Kader Dalam deteksi Risiko Stunting di Desa Riak Siabun Kabupaten Seluma Bengkulu. *Kontribusi: Jurnal Penelitian Dan Pengabdian Kepada Masyarakat*, 3(2), 116-128.
- Siswati, T., Iskandar, S., Pramestuti, N., Raharjo, J., Rialihanto, M. P., Rubaya, A. K., & Wiratama, B. S. (2022). Effect of a Short Course on Improving the Cadres' Knowledge in the Context of Reducing Stunting through Home Visits in Yogyakarta, Indonesia. *International Journal of Environmental Research and Public Health*, 19(16), 9843.
- Tampake, R., Arianty, R., Mangundap, S. A., Emy, B., & Sasmita, H. (2021). The effectiveness of training on improving the ability of health cadres in early detection of stunting in toddlers. *Open Access Macedonian Journal of Medical Sciences*, 9(E), 373-377.
- Tiwery, I. B., Anggryni, M., Widiansari, F. E., & Amalia, A. A. (2023). *STUNTING: Penyebabnya di Indonesia dan Negara Berkembang*. Penerbit NEM.
- Trisnawati, R. E., Janggu, J. P., Senudin, P. K., Bebok, C. F. M., & Mon, M. C. (2023). Optimalisasi Pemanfaatan Pangan Lokal Dalam Pembuatan Makanan Sehat Balita Stunting. *Jurnal Abdimas Bina Bangsa*, 4(2), 989-993.
- Widiansari, F. E., Anggryni, M., Tiwery, I. B., & Amalia, A. A. (2023). *Keaktifan Kader dalam Pencegahan Stunting pada Anak Balita*. Penerbit NEM.
- Zalela, Z., Prasiwi, W. M., & Purnamawati, D. (2024). Efektivitas Pelatihan Kader dalam Rangka Peningkatan Kompetensi dan Keterampilan Kader di Puskesmas Pasar Minggu. *Prosiding Seminar Nasional Kesehatan Masyarakat Universitas Muhammadiyah Surakarta*, 145-157.