Journal of Applied Nutrition and Dietetic
Volume 5, Number 2, December 2025
P-ISSN: 2797-7412
DOI : 10.30867/jand.v5i2.940

Impact of Poster-Based Counseling on Maternal Knowledge of High–Animal Protein Complementary Feeding among Toddlers Aged 6–24 Months

Maritza Saifa[1], Arnisam[2*]
[1]Department of Nutrition, Health Polytechnic of Aceh, Aceh Besar 23352, Indonesia.
[2]Department of Nutrition, Health Polytechnic of Aceh, Aceh Besar 23352, Indonesia.
*Correspondence email: arnisamskmmkes@gmail.com

Submitted : 02/07/2025 *Accepted: 24/12/2025* *Published: 30/12/2025*

Stunting among toddlers remains a major nutritional problem in Indonesia, including Aceh Besar Regency. In Gampong Kayee Kunyet, Blang Bintang District, the prevalence of stunting reached 29.82% in 2024. One contributing factor is inadequate complementary feeding practices, particularly low intake of animal protein. Maternal knowledge plays an important role in shaping feeding practices and parenting behaviors. Nutrition counseling using poster media is considered an effective and easily understood educational approach. This study aimed to determine the effect of poster-based nutrition counseling on mothers' knowledge of high–animal protein complementary feeding among toddlers aged 6–24 months at the integrated health post in Gampong Kayee Kunyet, Blang Bintang District, Aceh Besar Regency. This study employed a quasi-experimental design with a one-group pretest–posttest approach. The study population consisted of all mothers of toddlers aged 6–24 months attending the integrated health post (n = 21), using a total sampling technique. Data were analyzed using a dependent t-test with a 95% confidence level ($\alpha = 0.05$) in SPSS. The mean knowledge score increased3 from 12.10 before the intervention to 15.86 after the intervention. Statistical analysis showed a significant difference ($p = 0.000$; $p < 0.05$), indicating a significant effect of the intervention. Poster-based nutrition counseling significantly improved mothers' knowledge of high–animal protein complementary feeding. Health workers and community health cadres are encouraged to routinely use poster media and place them in strategic locations to improve accessibility for mothers of toddlers.

Keywords: complementary feeding, high–animal protein, knowledge, nutrition counseling, poster media

Introduction

Infants and toddlers are among the most nutritionally vulnerable population groups. More than one-third of child deaths worldwide each year are associated with malnutrition. Globally, UNICEF, the World Health Organization (WHO), and the World Bank Group reported that in 2022 approximately 148.1 million children under five years of age were stunted (22.3%), while 45 million children experienced wasting (6.8%) (World Health Organization, 2023). In Indonesia, data from the Indonesian Nutrition Status Survey (SSGI) in 2022 indicated that the national prevalence of stunting among toddlers was 21.6% (Ministry of Health of the Republic of Indonesia, 2022).

Aceh Province ranks among the regions with the highest stunting prevalence in Indonesia, occupying the fifth position nationally with a prevalence of 31.2%. Within Aceh Province, Aceh Besar Regency contributes substantially to this burden, with a stunting prevalence of 27.0% (Ministry of Health of the Republic of Indonesia, 2022). Blang Bintang Sub-district is one of the areas in Aceh Besar with a high stunting rate; in 2023, the prevalence reached 19.74%. Furthermore, baseline data from the Field Learning Practice (PBL) report of Applied Bachelor of

Journal of Applied Nutrition and Dietetic
Volume 5, Number 2, December 2025
P-ISSN: 2797-7412
DOI : 10.30867/jand.v5i2.940

Nutrition and Dietetics students in 2024 showed that Gampong Kayee Kunyet had a particularly high stunting prevalence of 29.82%, indicating a serious local public health concern.

Nutritional problems in toddlers are multifactorial, with inadequate dietary intake being one of the most significant contributors. Exclusive breastfeeding is essential from birth until six months of age; however, after six months, complementary feeding (MP-ASI) is required to meet increasing nutritional needs. Poor access to high-quality complementary foods, particularly those rich in animal protein, is closely associated with growth faltering and malnutrition. According to WHO, only about one-third of children in low- and middle-income countries receive adequate complementary feeding. In Indonesia, inappropriate feeding practices remain common, largely due to ineffective parenting patterns. Inadequate energy and nutrient intake negatively affects the quality of MP-ASI provided. In Aceh, the 2014 Total Diet Survey reported that 24.7% of toddlers had insufficient protein intake and 60.4% had inadequate energy intake (Ahmad et al., 2019).

One of the key determinants of inappropriate complementary feeding practices is maternal knowledge. Mothers' knowledge significantly influences caregiving behaviors and feeding decisions for infants and young children. Previous studies have shown that children born to mothers with low educational and knowledge levels are at substantially higher risk of nutritional problems. A study reported that children of mothers with low education were 10.2 times more likely to experience malnutrition (Ramdhani, Handayani, & Setiawan, 2020). Mothers who lack adequate knowledge about appropriate complementary feeding are less likely to provide nutritionally optimal MP-ASI, increasing the risk of stunting.

Nutrition education plays a crucial role in improving maternal knowledge and feeding practices, particularly regarding complementary foods rich in animal protein. Nutrition counseling is an effective form of health education aimed at improving knowledge, understanding, and health-related behaviors through structured information delivery (Nabila & Andriani, 2020). The Ministry of Health of the Republic of Indonesia (2012) has emphasized that counseling on complementary feeding can significantly enhance maternal knowledge. Educational media are essential in this process, as they make health information more attractive, accessible, and easier to understand (Jatmika et al., 2019).

Poster media are widely used in health counseling due to their visual appeal, simplicity, and ability to convey messages quickly and effectively. Posters combine images, colors, and concise messages that can attract attention and enhance comprehension. Studies have shown that counseling supported by poster media improves participants' understanding and retention of information compared to verbal explanations alone (Astuti et al., 2018; Nabila & Andriani, 2020). Previous research has demonstrated that education and counseling on MP-ASI significantly increase mothers' knowledge levels (Aprillia, Nugraha, & Mawarni, 2019; Nengsih, Kubillawati, & Daulay, 2020).

Considering the persistently high prevalence of stunting in Gampong Kayee Kunyet and the critical role of maternal knowledge in complementary feeding practices, it is essential to implement effective educational interventions. Therefore, this study aimed to examine the effect of poster-based nutrition counseling on mothers' knowledge of complementary feeding rich in animal protein among toddlers aged 6–24 months at the integrated health post in Gampong Kayee Kunyet, Blang Bintang District, Aceh Besar Regency.

Journal of Applied Nutrition and Dietetic
Volume 5, Number 2, December 2025
P-ISSN: 2797-7412
DOI : 10.30867/jand.v5i2.940

Methods

This study employed a quantitative approach using a quasi-experimental design with a one-group pretest–posttest model. The study aimed to assess the effect of poster-based nutrition counseling on the knowledge of mothers of toddlers. The intervention consisted of counseling sessions delivered through lectures, discussions, and question-and-answer methods supported by poster media.

The study was conducted at the integrated health post (Posyandu) in Gampong Kayee Kunyet, Blang Bintang District, Aceh Besar Regency. Data collection took place from December 12 to December 18, 2024. The study population comprised all mothers who had toddlers aged 6–24 months residing in Gampong Kayee Kunyet, totaling 21 participants. A total sampling technique was applied, whereby all eligible mothers were included in the study.

The research instrument was a structured questionnaire designed to measure mothers' knowledge of complementary feeding rich in animal protein. The educational media used in this study were posters for nutrition counseling on high–animal protein complementary feeding (MP-ASI). The posters were sourced from the Ministry of Health of the Republic of Indonesia (2023) and contained age-specific information on high–animal protein MP-ASI. Three types of posters were used, targeting toddlers aged 6–8 months, 9–11 months, and 12–23 months. The posters were printed on albatros paper with dimensions of 59.4 × 84.1 cm.

Data processing involved coding, editing, cleaning, and data presentation. Statistical analysis was performed using a dependent (paired) t-test with a 95% confidence level ($\alpha = 0.05$) to examine differences in mean knowledge scores before and after the counseling intervention. Data were analyzed using a computer-based statistical program and presented in tabular and narrative forms.

Results

Characteristics of Respondents

A total of 21 mothers of toddlers participated in this study. Most respondents were aged 27–33 years (n = 12; 57.1%), while the smallest proportion was aged 20–26 years (n = 4; 19.0%). The majority of respondents had completed senior high school education (n = 9; 42.9%), and most were housewives (n = 19; 90.5%). Among the toddlers included in the study, most were female (n = 11; 52.4%). The largest age group was 12–24 months (n = 15; 71.4%), while the smallest group was 9–11 months (n = 2; 9.5%).

Maternal Knowledge Before and After the Intervention

Table 1. Descriptive statistics of maternal knowledge scores before and after the intervention at the Posyandu of Gampong Kayee Kunyet, Blang Bintang District, Aceh Besar Regency

Variable	n	Minimum	Maximum	Mean	SD
Pre-test	21	6	19	12.10	3.404
Post-test	21	10	19	15.86	2.651

As shown in Table 1, there was a noticeable increase in maternal knowledge following the counseling intervention. Prior to counseling, the mean knowledge score was 12.10 (SD = 3.404). After counseling using poster media, the mean score increased to 15.86 (SD = 2.651),

Journal of Applied Nutrition and Dietetic
Volume 5, Number 2, December 2025
P-ISSN: 2797-7412
DOI : 10.30867/jand.v5i2.940

indicating an improvement in mothers' knowledge regarding high–animal protein complementary feeding.

Effect of Poster-Based Counseling on Maternal Knowledge

The paired t-test analysis demonstrated a statistically significant increase in maternal knowledge following the intervention. The mean difference between pre-test and post-test scores was 3.76 (SD = 2.96), with a 95% confidence interval ranging from 2.41 to 5.11. The p-value was <0.001, indicating a significant effect of poster-based counseling on maternal knowledge.

Based on these findings, the null hypothesis was rejected, and the alternative hypothesis was accepted. This indicates that nutrition counseling using poster media significantly improved mothers' knowledge of complementary feeding rich in animal protein for toddlers aged 6–24 months at the Gampong Kayee Kunyet Posyandu, Blang Bintang District, Aceh Besar Regency.

Table 2. Effect of poster-based counseling on maternal knowledge of high–animal protein complementary feeding

Variable	n	Mean Difference	Mean ± SD	95% CI	p-value
Knowledge (Pre–Post)	21	3.76	3.76 ± 2.96	2.41–5.11	<0.001

Maternal Knowledge Before Poster-Based Counseling

The findings of this study showed that prior to the intervention, the mean maternal knowledge score regarding high–animal protein complementary feeding was 12.10 (SD = 3.404), indicating a relatively low level of knowledge among mothers of toddlers. This condition suggests that most respondents had limited understanding of appropriate complementary feeding practices, particularly those involving animal protein sources. Low maternal knowledge may be influenced by several factors, including educational level, limited access to nutrition information, and insufficient experience in providing appropriate complementary feeding.

Knowledge is acquired through a process of information exposure, where individuals move from a state of not knowing to knowing, and from inability to ability, through learning and experience. This process can occur through formal education as well as informal learning in daily life (Ridwan, Syukri, & Badarussyamsi, 2021). Inadequate exposure to accurate and practical nutrition information may therefore contribute to suboptimal feeding practices and increase the risk of nutritional problems such as stunting.

Maternal Knowledge After Poster-Based Counseling

Following the implementation of nutrition counseling using poster media, maternal knowledge scores increased significantly, with a post-test mean of 15.86 (SD = 2.651). This result demonstrates that poster-based counseling on high–animal protein complementary feeding for toddlers aged 6–24 months was effective in improving maternal knowledge at the Gampong Kayee Kunyet Posyandu.

These findings are consistent with previous research showing that nutrition education interventions can significantly improve mothers' knowledge. A study by Masitah (2022) reported a substantial increase in maternal knowledge related to stunting, exclusive breastfeeding, and complementary feeding after nutrition education, with mean scores rising from 46.66 at pre-test

Journal of Applied Nutrition and Dietetic
Volume 5, Number 2, December 2025
P-ISSN: 2797-7412
DOI : 10.30867/jand.v5i2.940

to 73.66 at post-test. Such evidence supports the effectiveness of structured nutrition education in enhancing maternal understanding of child feeding practices.

Effect of Poster-Based Counseling on Maternal Knowledge

Statistical analysis using a paired t-test revealed a significant effect of poster-based counseling on maternal knowledge, with a p-value < 0.001. The mean knowledge score increased by 3.76 points, representing a 31.07% improvement after the intervention. This finding confirms that nutrition counseling using poster media has a meaningful impact on increasing maternal knowledge of high–animal protein MP-ASI.

Knowledge improvement occurs through sensory engagement, particularly sight and hearing, which play a major role in information processing and retention. Education level is closely associated with knowledge acquisition, as individuals with higher educational backgrounds tend to have better cognitive skills, enabling them to understand and process new information more effectively (Darsini, Fahrurrozi, & Cahyono, 2019).

In this study, most respondents had completed senior high school education (42.9%). This educational background likely contributed to their ability to comprehend the counseling material presented in both narrative and visual formats. According to Notoatmodjo (2014), education is a key determinant of knowledge and behavior, as higher education facilitates easier reception and understanding of information. These findings suggest that mothers with a senior high school education background were more receptive to nutrition messages delivered through poster media.

Age also played a role in knowledge acquisition. The majority of respondents were aged 27–33 years, an age range categorized as early adulthood. This life stage is generally associated with optimal cognitive function, analytical thinking, and accumulated life experience. According to Mubarak (2015), older individuals tend to have more mature thought processes, which enhances their ability to absorb new information (as cited in Pariati & Jumriani, 2021). Mothers in this age group are also more likely to have prior experience in childcare and greater interaction with health services, providing a foundation that supports faster understanding of new nutrition information.

Role of Poster Media in Knowledge Improvement

The effectiveness of the intervention in this study is also strongly linked to the use of poster media. The posters used were developed and standardized by the Indonesian Ministry of Health, ensuring the accuracy and appropriateness of the content for diverse educational and cultural backgrounds. Visual media such as posters are effective educational tools because they combine images, colors, and concise messages that attract attention and enhance memory retention (Jatmika et al., 2019). In this study, posters were not only used during counseling sessions but were also permanently displayed in a strategic location at the PAUD facility, which also serves as the Posyandu site. This space is frequently visited by mothers for both early childhood education activities and health services. Continuous exposure to visual educational media in such settings has the potential to reinforce learning and increase awareness over time (Jatmika et al., 2019). Additionally, standardized posters that have undergone validation and field testing are more likely to facilitate effective information delivery (Nurfitriani & Kurniasari, 2023). The findings of this study align with previous research demonstrating that education

Journal of Applied Nutrition and Dietetic
Volume 5, Number 2, December 2025
P-ISSN: 2797-7412
DOI : 10.30867/jand.v5i2.940

involving both visual and auditory senses, such as counseling supported by print media, is more effective in increasing maternal knowledge (Muharram et al., 2021).

Implications

Overall, this study demonstrates that nutrition counseling using poster media is an effective strategy for improving maternal knowledge of high–animal protein complementary feeding. The success of the intervention was influenced by several key factors, including respondents' educational level, age, and the quality and strategic placement of the counseling media. Mothers with a senior high school education and those in early adulthood showed good cognitive readiness to receive and process nutrition information. Meanwhile, the use of attractive, validated, and strategically placed poster media strengthened message delivery and knowledge retention. These findings support the use of poster-based counseling as a practical and scalable educational approach in Posyandu settings to improve maternal knowledge and potentially contribute to better complementary feeding practices and stunting prevention.

Conclusion

This study demonstrates that nutrition counseling using poster media significantly improves mothers' knowledge of complementary feeding rich in animal protein for toddlers aged 6–24 months ($p < 0.001$). Poster-based counseling proved to be an effective educational approach in the Posyandu setting by enhancing maternal understanding of appropriate complementary feeding practices. Based on these findings, it is recommended that health workers and community health cadres routinely utilize poster media as part of nutrition education activities at integrated health posts. Posters should be placed in strategic and frequently visited locations to reinforce key messages and support sustained knowledge improvement among mothers of toddlers. Future studies are encouraged to involve larger sample sizes, include control groups, and assess long-term behavioral and nutritional outcomes to further strengthen the evidence base.

References

Ahmad, A., Suryana, A., & Rahman, N. (2019). Protein and energy intake among toddlers in Aceh Province based on the Total Diet Study. *Journal of Nutrition and Food Research*, 42(2), 123–131.

Aprillia, T., Nugraha, P., & Mawarni, A. (2019). The effectiveness of complementary feeding (MP-ASI) education classes in improving maternal knowledge. *Journal of Nutrition College*, 8(3), 150–158. https://doi.org/10.xxxx/jnc.v8i3.xxxx

Astuti, D., Sari, K., & Pratama, R. (2018). The use of poster media in health education to improve community knowledge. *Journal of Health Promotion*, 6(1), 45–52.

Darsini, D., Fahrurrozi, F., & Cahyono, E. A. (2019). Knowledge as an important determinant of health behavior. *Journal of Health Education*, 4(2), 135–142.

Jatmika, S. E. D., Nugraheni, H., & Kurniawan, A. (2019). *Health promotion media*. Yogyakarta: K-Media.

Masitah, M. (2022). The effect of nutrition education on maternal knowledge of stunting, exclusive breastfeeding, and complementary feeding. *Journal of Community Nutrition*, 11(2), 98–105.

Journal of Applied Nutrition and Dietetic
Volume 5, Number 2, December 2025
P-ISSN: 2797-7412
DOI : 10.30867/jand.v5i2.940

Ministry of Health of the Republic of Indonesia. (2012). *Guidelines for complementary feeding (MP-ASI)*. Jakarta: Ministry of Health of the Republic of Indonesia.

Ministry of Health of the Republic of Indonesia. (2022). *Indonesian nutrition status survey (SSGI) 2022*. Jakarta: Ministry of Health of the Republic of Indonesia.

Ministry of Health of the Republic of Indonesia. (2023). *Posters on high–animal protein complementary feeding (MP-ASI)*. Jakarta: Directorate of Community Nutrition.

Mubarak, W. I. (2015). *Health promotion and behavior science*. Jakarta: Salemba Medika.

Muharram, M., Sari, D. P., & Lestari, Y. (2021). Effectiveness of print media-based education in improving maternal knowledge. *Journal of Public Health Research*, 10(1), 55–62.

Nabila, R., & Andriani, M. (2020). Health counseling as an effort to improve maternal knowledge. *Journal of Health Education and Promotion*, 5(2), 87–94.

Nengsih, Y., Kubillawati, S., & Daulay, D. (2020). The effect of counseling on mothers' knowledge in preparing complementary feeding (MP-ASI). *Journal of Midwifery and Health*, 9(1), 22–30.

Notoatmodjo, S. (2014). *Health promotion and behavioral science*. Jakarta: Rineka Cipta.

Nurfitriani, N., & Kurniasari, R. (2023). Development and validation of nutrition education media for mothers of toddlers. *Indonesian Journal of Nutrition Education*, 6(1), 40–48.

Pariati, P., & Jumriani, J. (2021). Age and knowledge level in maternal health behavior. *Journal of Health Behavior Studies*, 3(2), 101–108.

Ramdhani, R., Handayani, D., & Setiawan, A. (2020). Maternal education and risk of child malnutrition. *Journal of Public Health*, 15(1), 12–20.

Ridwan, R., Syukri, M., & Badarussyamsi, B. (2021). Knowledge acquisition through education and experience. *Journal of Educational Psychology*, 9(2), 88–96.

World Health Organization, UNICEF, & World Bank Group. (2023). *Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group joint estimates*. Geneva: World Health Organization.