



CESS Gammara Counseling with Banner and Leaflet Media on Increasing Knowledge, Nutritional Intake, Body Weight, and Height In Toddlers

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ABSTRACT

Nutritional problems in toddlers, such as stunting and wasting, are a serious public health challenge in Indonesia, particularly in Jeneponto District. This study aimed to analyze the effect of nutrition counseling using the Cess Gammara method combined with banner and leaflet media on improving maternal knowledge, nutrient intake, and the nutritional status of toddlers, as measured by weight and height. This research employed a pre-experimental one-group pretest-posttest design and involved 69 toddlers who had participated in counseling sessions at the Nutrition Clinic of RSUD Lanto Daeng Pasewang during 2024. The results showed significant improvements in all observed variables. Mothers' knowledge scores increased from 8, 67 to 13, 14; energy intake from 51, 88% to 84, 19%; protein from 49, 94% to 84, 88%; fat from 48, 95% to 84, 69%; carbohydrate intake from 52, 82% to 86, 16%; body weight from 8, 57 kg to 9, 66 kg; and height from 78, 07 cm to 79, 84 cm ($p < 0, 05$). These findings demonstrated that the CES Gammara approach, supported by educational media, was effective in improving maternal nutrition knowledge and the nutritional status of toddlers.

Key Message

- Nutrition counseling using the CES Gammara method combined with banner and leaflet media significantly improves maternal knowledge, nutrient intake, and nutritional status of toddlers, as evidenced by increased weight and height.
- The CES Gammara approach, supported by educational media, is an effective intervention for addressing nutritional problems in toddlers, particularly in reducing stunting and wasting, and can be considered for implementation in similar settings.

ARTICLE INFO

CASE REPORTS

Submitted: July 20, 2025

Accepted: August 20 2025

Published; May 14, 2026

Keywords:

Gammara , nutritional counseling, toddlers

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INTRODUCTION

Nutritional problems in toddlers remain a major challenge in public health development in Indonesia. Toddlers are an age group that is highly vulnerable to nutritional disorders due to their rapid growth and development (1). Common nutritional problems in this group include malnutrition, severe malnutrition, and *stunting*. Based on the results of the 2024 Indonesian Nutritional Status Survey, the national prevalence of *stunting* reached 19.8%. While in several regions, including Jeneponto Regency, the prevalence is still relatively high (37%), exceeding the national figure (2).

One of the main causes of nutritional problems in toddlers is a lack of knowledge among parents, especially mothers, regarding children's nutritional needs, food selection, and appropriate nutritional parenting patterns (3). Maternal knowledge plays a crucial role in decision-making regarding children's nutritional needs, including food selection, serving methods, and feeding times. Research shows that mothers with good nutritional knowledge tend to have children with better nutritional status than mothers with less knowledge (4). Therefore, nutrition education is an important approach in efforts to change family consumption behavior and prevent growth disorders in toddlers (1).

Nutrition education is a crucial approach to behavioral change. Various educational methods have been developed, including the *Cess Gammara approach*, a nutrition counseling method based on local Bugis-Makassar culture that emphasizes two-way communication, empathy, and strengthening motivation through local values (5). This approach is considered more effective because it addresses the emotional and social aspects of the community, thereby increasing acceptance and understanding of health messages. In addition to the interpersonal approach, counseling effectiveness is also influenced by the media used. Visual educational media such as *banners* and *leaflets* have been shown to strengthen participants' understanding by presenting information in a concise, engaging, and memorable way, allowing the target group to access it independently at home (6). The use of appropriate media can increase the effectiveness of delivering nutrition messages, especially in communities with low levels of education (7).

The combination of the *Cess Gammara* method with the use of banners and leaflets is expected to increase the knowledge of mothers of toddlers, improve nutritional intake, and directly impact the improvement of the nutritional status of toddlers, especially weight and height. However, empirical evidence regarding the effectiveness of the combined *Cess Gammara* approach and visual educational media on changes in nutritional indicators is still limited. Therefore, this study aims to analyze the effect of *Cess Gammara* counseling using banners and leaflets on improving maternal knowledge, nutrient intake, weight, and height in toddlers at Lanto Daeng Pasewang Regional Hospital, Jeneponto Regency, based on secondary data from 2024.

CASE DESCRIPTIVE

This quantitative study used a pre - experimental approach and a one-group pretest–posttest design . It utilized secondary data from 2024 obtained from medical records and documentation of the nutrition counseling program at Lanto Daeng Pasewang General Hospital, Jeneponto. The data analyzed consisted of measurements before (pre) and after (post) the counseling intervention.

The study was conducted at Lanto Daeng Pasewang Regional Hospital, Jeneponto Regency. Secondary data collection was conducted in July 2025, based on records of intervention programs conducted throughout 2024. The population in this study were all toddlers who participated in *Cess Gammara* -based nutrition counseling activities at Lanto Daeng Pasewang Regional Hospital. The sample in this study was 69 toddlers who had complete data before and after participating in counseling activities which were given twice with a span of one month . The sampling technique used the total sampling method , because all data that met the inclusion criteria were used as samples. The inclusion criteria set were toddlers who participated in *Cess Gammara* -based nutrition counseling activities with banner and leaflet media , had complete data regarding maternal knowledge, nutrient intake, weight, and height before and after the intervention. Exclusion criteria are: toddlers with chronic comorbidities that can affect nutritional status and incomplete or invalidly documented data.

The type of data used is secondary data obtained from documentation of counseling activities, medical records, and nutritional status monitoring results. The data analyzed includes Mother's knowledge about toddler nutrition (pre–post questionnaire results) , a nutrient intake (energy, protein, carbohydrate, and fat) based on 24-hour recall , b body weight and height of toddlers based on anthropometric measurements at the first visit and visits in the following month. Data were analyzed descriptively and inferentially , a descriptive analysis to determine the frequency distribution, mean, and standard deviation of each variable and an inferential analysis using the Wilcoxon Signed Rank Test .

RESULTS

Implementation of *Gammara Cess Counseling*

The *Cess Gammara* program is implemented as a form of nutritional education innovation to prevent stunting and wasting in Jeneponto Regency . The program is implemented at the Nutrition Clinic of Lanto Dg Pasewang Regional Hospital. Patients do not need to register themselves, because they will be registered directly by officers if they are found to have nutritional problems. The service process is carried out individually, starting with anamnesis, anthropometric measurements (weight and height), and evaluation of food consumption using the 24-hour food recall method . Counseling is provided using banners and leaflets.

Subject Characteristics

The general characteristics of mothers and toddlers participating in the *Cess Gammara nutrition counseling program* are presented in Table 1. These characteristics include maternal age, maternal education level, toddler gender, and toddler age. This information aims to provide a demographic overview of the participants involved in the counseling program.

This study involved 69 mothers and toddlers who participated in nutrition counseling. The majority of mothers were aged 25-35 (85.5%), while the remainder were under 25 (10%) and over 35 (4.4%). In terms of education level, most mothers had a junior high school education (47.8%) and a high school education (43.5%), with a small number having a college education (8.7%), and none having an elementary school education. Toddlers who participated in counseling were predominantly male (71.1%), while females accounted for 28.9%. Based on age, most toddlers were aged 24 - 59 months

(72.5%), and the rest under 24 months (27.5%). Table 2 presents the comparison of the average scores for maternal knowledge, nutritional intake, and toddler weight and height before and after counselling

Table 1. Characteristics of Mothers and Toddlers Who Attended Counseling (n=69)

Characteristics	Category	Frequency (n)	Percentage (%)
Mother's Age (years)	<25	7	10,
	25-35	59	85.5
	>35	3	4.4
Mother's Last Education	Elementary School	0	0.0
	Junior High School	33	47.8
	Senior High School	30	43.5
	College	6	8.7
Toddler Gender	Man	49	71.1
	Woman	20	28.9
Toddler Age (months)	<24	19	27.5
	24-59	49	72.5

These data aim to demonstrate changes in knowledge and nutritional status that occurred after the counseling intervention was administered to participating mothers. Statistically significant changes were identified based on the *p-value* obtained from the *Wilcoxon test*.

Table 2. Average Score of Knowledge, Nutrient Intake, Body Weight, and Height Before and After Counseling (n=69)

Variables	Before Counseling (Mean ± SD)	After Counseling (Mean ± SD)	P -value
Mother's Knowledge Score	8.67 ± 3.39	13.14 ± 1.42	0.001
Energy Intake	51.88 ± 9.95	84.19 ± 5.99	0.001
Protein Intake	49.94 ± 9.61	84.88 ± 5.90	0.001
Fat Intake	48.95 ± 9.59	84.69 ± 5.97	0.001
Carbohydrate Intake	52.82 ± 9.98	86.16 ± 5.70	0.001
Body Weight (kg)	8.57 ± 1.75	9.66 ± 1.76	0.001
Height (cm)	78.07 ± 8.44	79.84 ± 8.24	0.001

After nutritional counseling was conducted on 69 mothers and toddlers, there was a significant improvement in all observed variables. The average maternal knowledge score increased from 8.67 ± 3.39 to 13.14 ± 1.42. (*p* = 0.001). Nutrient intake also showed a significant increase, with average energy intake increasing from 51.88 ± 9.95% to 84.19 ± 5.99%, protein from 49.94 ± 9.61% to 84.88 ± 5.90%, fat from 48.95 ± 9.59% to 84.69 ± 5.97%, and carbohydrate from 52.82 ± 9.98% to 86.16 ± 5.70% (all *p* = 0.001). In addition, there was an increase in toddler anthropometry, namely body weight from 8.57 ± 1.75 kg to 9.66 ± 1.76 kg, and height from 78.07 ± 8.44 cm. to 79.84 ± 8.24 cm (*p* = 0.001). These results indicate that nutritional counseling is effective in improving maternal knowledge, toddler nutrient intake, and overall nutritional status of children.

DISCUSSION

The *Ces Gammara* program is implemented as a form of nutritional education innovation to prevent *stunting* and *wasting* in Jeneponto Regency, involving various parties such as health workers at Lanto Dg Pasewang Regional Hospital, the Health Office, and PKK cadres. This program has been running since 2023 and continues to run continuously. The primary target group is toddlers with growth disorders, as well as mothers or caregivers with limited knowledge of healthy eating patterns (5).

The program is implemented at the Nutrition Clinic at Lanto Dg Pasewang Regional Hospital. Patients do not need to register themselves, as they will be registered directly by staff if they are found to have nutritional problems. The method used in this program is a combination of ongoing nutrition education, direct training, and individual mentoring. Education is delivered with a simple approach so that it is easy for participating mothers to understand, with a focus on the importance of breastfeeding, complementary feeding, and fulfilling balanced nutrition through easily accessible local foods. The program also provides physical support in the form of eggs and nutritional formula, as part of an effort to improve children's nutritional intake. Evaluation is carried out periodically through re-monitoring of *food recalls*, child weight, and height (TB) at each visit. (5).

The results showed a significant increase in mothers' knowledge scores before and after the *Ces 's Gammara counseling intervention*. The average knowledge score increased from 8.67 to 13.14 after counseling accompanied by *banners* and *leaflets*. This indicates that a simple and visual educational approach can improve mothers' understanding of the importance of providing nutritious food for children. This finding is in line with the research results by Yusufika and Riyaningrum (2023) which states that visual-based educational media such as *leaflets* can improve mothers' knowledge and skills in providing complementary feeding, especially in families with low educational backgrounds. Good nutritional

knowledge has been shown to be a determining factor in appropriate and adequate child feeding practices. This is in line with research conducted by Kartini *et al.* (2024). (8). This study indicates the impact of health education using *leaflets* on mothers' attitudes regarding providing complementary foods to infants under 6 months of age. This study has significant implications for community health centers, which can help them create more efficient health education programs tailored to the needs of mothers in the area.

After the intervention, energy intake increased from 935 kcal to 1,205 kcal/day, and protein intake increased from 22.4 grams to 35.7 grams/day. This indicates that nutritional counseling combined with educational media support has a direct impact on improving toddlers' consumption patterns. The use of *leaflets* presenting examples of daily menus based on local foods has made it easier for mothers to prepare balanced menus at home.

Study by Rahmawati *et al.* (2025) also found that nutritional counseling had a significant impact on behavior and energy intake. Nutrient intake is influenced by maternal behavior, and nutritional counseling is a way to improve maternal behavior so that nutrient intake can be improved (9). A mother's nutritional knowledge will influence her child's nutritional decisions, which in turn will influence their nutritional status. Good knowledge ensures that children receive adequate nutrition, ensuring their growth and development are appropriate for their age. A mother with good knowledge will strive to provide or prepare sufficient daily meals to meet their child's nutritional needs (10).

Changes in the weight of toddlers who took part in the Cess Gammara program *also showed significant* improvements. Average body weight increased from 9.4 kg to 10.1 kg during the two-month intervention period. Similarly, height increased from 80.3 cm to 82.7 cm. This increase indicates that interventions involving education and food support, such as eggs and nutritional formula, have positive effects on toddlers' nutritional status. The integrated nutrition approach combining education and food interventions can reduce the prevalence of *wasting* and improve children's weight and height status. In this context, the *Ces s Gammara program* has proven relevant and aligned with the national *stunting prevention strategy*.

In research by Widiyaningsih *et al.* (2017) It was found that nutritional counseling using **educational leaflets** successfully increased toddlers' energy intake by 4.84% and improved the BB/Age Z-Score by 0.11 units ($p < 0.05$), although the increase in protein intake was not significant in the *leaflet group* ($p = 0.098$). This strengthens the evidence that educational visual media can influence toddlers' intake in the context of community-based nutrition interventions (11).

The *Cess Gammara* program is also supported by synergy between various parties, including the Regional General Hospital (RSUD), the Health Office, and Family Welfare Movement (PKK) cadres. This approach aligns with the cross-sector integration strategy to accelerate *stunting reduction*, as directed by the Indonesian Ministry of Health. Regular evaluation through monitoring of **food recalls**, weight, and height of children strengthens this program as a sustainable nutrition intervention model. According to UNICEF (2020), specific nutritional interventions aimed at the first 1,000 days of life, accompanied by maternal education and regular monitoring of nutritional status, have a significant impact on preventing *stunting* and *wasting*, especially in nutritionally vulnerable areas such as Jeneponto Regency.

The findings of this study reinforce the importance of community-based nutrition education using easily understood media that is relevant to the local context (12)(13). *Banners and leaflets are* not only visual aids but also a means of repeatedly and continuously reinforcing nutrition messages. For long-term impact, this program can be developed as a model for nutrition education services at community health centers (Puskesmas) or integrated health posts (Posyandu), especially in areas with high *stunting rates* (14)(15).

CONCLUSION

This study shows that nutrition counseling based on the *Cess Gammara method* combined with *banners* and *leaflets* has a significant impact on increasing maternal knowledge, nutrient intake, and toddler nutritional status as measured by weight and height. After the intervention, there was an increase in the average score of maternal knowledge, energy and macronutrient intake, and an increase in toddler anthropometry. These findings indicate that an educational approach using a local culture-based counseling method and supported by simple visual media can increase the effectiveness of nutrition counseling.

Gammara Cess program has proven to be a potential innovation in preventing *stunting* and *wasting*, particularly in areas with low education levels and limited access to nutrition information. The program's success is also due to cross-sector synergy and continuous monitoring. Therefore, this approach is recommended for replication and integration into nutrition education programs at primary health care facilities such as community health centers (Puskesmas) and integrated health posts (Posyandu), as part of the national strategy to improve child nutrition.

Funding: This study received no external funding.

Acknowledgments: The authors would like to thank Wahidin Sudirohusodo General Hospital for providing access to medical records to support this case report.

Conflict of Interest: The authors declare no conflict of interest.

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