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The Impact of Community Empowerment-Based Nutrition Education on Nutritional Knowledge Among Mothers of Toddlers in Bunga Eja Village, Makassar City

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ABSTRACT
Nutritional problems among children under five years of age remain a significant public health challenge in Indonesia. One of the factors influencing the nutritional status of toddlers is the mother's level of nutritional knowledge. Community empowerment-based nutrition education is a strategy that can enhance mothers' understanding through the active involvement of community health volunteers and local communities. This study aimed to determine the effect of community empowerment-based nutrition education on the nutritional knowledge of mothers with toddlers in Bunga Eja Village, Makassar City. A pre-experimental study with a one-group pretest–posttest design was conducted from April 1 to April 30, 2026. The study involved 35 mothers of toddlers selected through purposive sampling. The intervention consisted of nutrition counseling, group discussions, balanced menu demonstrations, and assistance from community health volunteers over a four-week period. Data were collected using a nutrition knowledge questionnaire that had been tested for validity and reliability. Data analysis was performed using the Paired Sample t-test with a 95% confidence level. The results showed that the mean nutritional knowledge score increased from 61.48 ± 10.27 before the intervention to 82.74 ± 8.65 after the intervention. Statistical analysis revealed a significant difference between pretest and posttest scores (p= 0.000; p < 0.05), indicating that community empowerment-based nutrition education had a significant effect on improving mothers' nutritional knowledge. It can be concluded that community empowerment-based nutrition education is effective in enhancing the nutritional knowledge of mothers with toddlers and may serve as a promotive strategy to improve child nutritional status.

INTRODUCTION

Malnutrition among children under five years of age continues to be a major public health challenge worldwide and remains a priority issue requiring comprehensive interventions(1)(2). Maternal nutritional knowledge plays a crucial role in shaping child-feeding practices and ensuring adequate nutrient intake for optimal growth and development (3). Insufficient knowledge of nutrition may contribute to inappropriate food choices, suboptimal feeding behaviors, and a higher risk of malnutrition and other growth-related problems among young children (4).

Previous studies have reported that nutrition education interventions are effective in improving maternal knowledge and practices regarding child nutrition and feeding (5).

Educational programs implemented through community empowerment approaches, involving community health workers and *Posyandu* cadres, have demonstrated greater effectiveness by increasing community engagement, ownership, and participation in health-related activities(6)(7).

Community empowerment is a participatory approach that places community members at the center of health behavior change interventions. Through this approach, mothers of under-five children are encouraged not only to receive health information but also to actively participate in discussions, hands-on activities, and problem-solving processes related to family nutrition (8). Previous studies have demonstrated that community empowerment can effectively enhance knowledge, awareness, and community engagement, thereby promoting sustainable improvements in health-related behaviors (9)(10).

This research integrates nutrition education with community empowerment through an active, participatory learning process. Rather than merely positioning mothers as passive recipients of nutritional information the intervention actively angages them though interactive group discussions, practical demenstrations on balance meals and appropriate complementary feeding, and problem-solving activities rooted in their daily nutritional experiences. Furthermore, *Posyandu* cadres are involved as community facilitators to support the intervention's implementation and strengthen mothers' participation within existing public health service structures. This integrated approach differs from conventional nutrition education, which typically relies on one-way information delivery. Thus, the study offers a participatory, community-based approach that emphasizes not only the acquisition of nutritional knowledge but also active engagement and practical learning for mothers with children under five.

Bunga Eja Subdistrict, Makassar City, is an area where community-based integrated health service posts (*Posyandu*) are actively implemented. Nevertheless, preliminary observations indicated that a proportion of mothers have insufficient knowledge of balanced nutrition and proper complementary feeding practices for toddlers. Consequently, a community empowerment-based nutrition education program is considered necessary to enhance maternal nutritional knowledge and support optimal child feeding practices.

The aim of this study was to assess the effect of community empowerment-based nutrition education on the nutritional knowledge of mothers of under-five children in Bunga Eja Village, Makassar City

METHODS

Study Design and Participants

This study employed a pre-experimental design using a one-group pretest-posttest approach and was conducted in Bunga Eja Village, Makassar City, from April 1 to April 30, 2026. A total of 35 mothers with children aged 0–59 months were selected using purposive sampling based on the following inclusion criteria: having a child aged 0–59 months, being willing to participate in the study, and attending the entire intervention program.

Intervention

The community empowerment-based nutrition education intervention was implemented over four weeks. The intervention consisted of balanced nutrition counseling, group discussions, demonstrations of nutritious menu preparation for toddlers, and assistance from Posyandu cadres. Counseling was provided to improve mothers' understanding of balanced nutrition and the nutritional needs of toddlers. Group discussions encouraged mothers to share experiences and discuss challenges related to toddler feeding. Demonstrations provided practical experience in

selecting and preparing nutritious menus for toddlers. Posyandu cadres supported the implementation of the activities, encouraged participant engagement, and assisted mothers throughout the intervention.

Instrument Validity and Reliability

Maternal nutritional knowledge was assessed using a 20-item multiple-choice questionnaire. The validity test showed that all items had r-count values greater than the r-table value of 0.444, indicating that all items were valid. The reliability test showed a Cronbach's alpha value >0.70, indicating acceptable internal consistency of the questionnaire.

Data Analysis

Data were collected through a pretest before the intervention and a posttest after completion of the intervention. The data were analyzed using univariate and bivariate analyses. Differences in nutritional knowledge scores before and after the intervention were assessed using the Paired Sample t-test with a 95% confidence level. A p-value <0.05 was considered statistically significant.

Ethical Considerations

Regarding ethical considerations, this research received ethical approval from the Health Research Ethics Committee of the Faculty of Public Health, Hasanuddin University, under Ethical Clearance Number 2126/UN4.14.1/TP.01.02/2026 Participation in the study was entirely voluntary, and all respondents provided written informed consent prior to their involvement. The confidentiality and privacy of participants' identities and personal information were safeguarded throughout the research process. Furthermore, respondents were informed of their right to withdraw from the study at any stage without facing any penalties or adverse consequences.

RESULTS

Table 1. Distribution of Respondents' Characteristics

Characteristics	n	%
Age		
20–29 years	12	34,3
31–39 years	17	48,6
>40 years	6	17,1
Education Level		
Elementary School	5	14,3
Junior High School	10	28,6
Senior High School	15	42,9
Higher Education	5	14,3

Source: Primary Data (2026)

Based on the respondents' characteristics, the majority of mothers of children under five years old were aged 31–39 years, accounting for 17 respondents (48.6%), followed by those aged 20–29 years with 12 respondents (34.3%), and those aged over 40 years with 6 respondents (17.1%). These findings indicate that most respondents were in the productive adult age group, which is generally associated with an active role in childcare and meeting the nutritional needs of young children.

Regarding educational attainment, most respondents had completed senior high school education, comprising 15 respondents (42.9%), followed by junior high school graduates with 10 respondents (28.6%). Respondents with elementary school education and those with tertiary education each accounted for 5 respondents (14.3%). These results suggest that the majority of mothers had a moderate level of education, which may facilitate their ability to receive,

understand, and apply information related to child nutrition and health delivered through educational interventions.

Table 2. Descriptive Statistics of Knowledge Scores at Pretest and Posttest

Variabel	Mean	SD
Pretest	61,48	10,27
Posttest	82,74	8,65

Source: Primary Data (2026)

The results showed that the mean maternal nutrition knowledge score prior to the educational intervention (pretest) was 61.48 (SD = 10.27). After receiving community empowerment-based nutrition education, the mean knowledge score increased to 82.74 (SD = 8.65). These descriptive findings indicate that community empowerment-based nutrition education may be effective in enhancing maternal nutrition knowledge among mothers of young children.

Table 3. Paired Sample t-Test Results

Variabel	Mean	p-value
Pretest-Posttest	21,26	0,000

Source: Primary Data (2026)

Based on the results of the Paired Sample t-test, the mean difference between the pre-intervention and post-intervention knowledge scores was 21.26, with a p-value of 0.000 ($p < 0.05$). These findings indicate a statistically significant difference in maternal nutrition knowledge before and after the implementation of the community empowerment-based nutrition education program. Therefore, the research hypothesis was accepted, demonstrating that community empowerment-based nutrition education was effective in improving the nutrition knowledge of mothers with toddlers in Bunga Eja Village, Makassar City. The substantial increase in knowledge scores suggests that the intervention, which included nutrition counseling sessions, group discussions, toddler menu planning demonstrations, and support from community health volunteers (posyandu cadres), successfully enhanced respondents' understanding of toddler nutrition.

DISCUSSION

The results of this study showed that the mean nutritional knowledge score of mothers with toddlers increased from 61.48 in the pretest to 82.74 in the posttest following the implementation of community empowerment-based nutrition education. Statistical analysis revealed a p-value of 0.000 ($p < 0.05$), indicating a significant effect of community empowerment-based nutrition education on improving maternal nutritional knowledge. These findings suggest that the educational intervention effectively enhanced respondents' understanding of balanced nutrition principles, the nutritional requirements of toddlers, and appropriate child-feeding practices. The results are consistent with previous studies reporting that nutrition education is an effective strategy for improving mothers' knowledge regarding child health and nutrition.

The improvement in knowledge may be attributed to the community empowerment-based educational approach, which actively involved health cadres, community health posts (Posyandu), and mothers of toddlers in the learning process (11). This approach facilitated a two-way learning process through group discussions, active contribution of ideas, question-and-answer sessions, and the sharing of experiences among participants (12). Participatory learning methods have been shown to be more effective than conventional one-way health education because participants are directly engaged in understanding and solving problems encountered in their daily lives. Through such active involvement, the information delivered becomes easier for participants to understand,

retain, and apply in practice (13).

The findings of this study are consistent in Ethiopia, which demonstrated that community-based health education significantly improved mothers' knowledge. The study found that the proportion of mothers with good knowledge was higher in the intervention group than in the control group. This finding suggests that educational approaches implemented within the community and involving women's groups can create a more contextualized and effective learning process for improving maternal knowledge (14).

Similar findings were reported in Bangladesh, where a community-based parenting and nutrition education program delivered by community health workers improved mothers' knowledge of childcare and home-based stimulation and was associated with improved child development outcomes. The intervention was implemented through repeated home-based education sessions, demonstrating that sustained interaction between community health workers and mothers can facilitate the transfer of health and nutrition knowledge into household practices(15) . These findings support the role of health cadres and community-based health workers as facilitators of learning, as their close proximity to the community enables them to deliver health information in a familiar, accessible, and contextually appropriate manner.

Furthermore, the implementation of multiple educational strategies, including nutrition education sessions, balanced meal demonstrations, and support from community health cadres, played a significant role in improving respondents' nutritional knowledge (16). Hands-on demonstrations offered mothers practical opportunities to develop skills in food selection, nutritious meal planning, and the adoption of appropriate child-feeding practices (17). Consistent with previous findings, the use of educational media such as leaflets, videos, booklets, and live demonstrations has been shown to increase the effectiveness of nutrition education by stimulating multiple sensory channels, which facilitates better comprehension and long-term retention of information (18)(19).

Respondent characteristics may also influence the improvement in knowledge gained through the intervention. In this study, the majority of respondents were within the productive age range and had a secondary level of education. These characteristics may facilitate the acquisition of new information and its application in daily life. Higher educational attainment is generally associated with a greater ability to understand health and nutrition-related information, thereby supporting the effectiveness of educational programs. This finding is consistent with the study conducted by Septina, Nurasiah, and Rosdiana (2023), which reported that mothers with higher educational levels demonstrated a better capacity to receive information and improve their knowledge regarding toddler nutrition (20).

The findings of this study support the theory that knowledge is a predisposing factor influencing an individual's health-related behavior. Improved maternal knowledge of nutrition increases the likelihood of adopting appropriate feeding practices that meet the nutritional needs of toddlers (21). Adequate maternal nutritional knowledge is also associated with a greater ability to select appropriate foods that support children's growth and development (22). Furthermore, the enhancement of nutritional knowledge is expected to extend beyond the cognitive domain and promote positive behavioral changes in food selection, food preparation, and child-feeding practices within the household (23). Consequently, improving maternal nutritional knowledge may contribute to the prevention of nutritional problems, including stunting, undernutrition, and other growth-related disorders among toddlers (24).

The findings of this study indicate that community empowerment-based nutrition education is an effective strategy for improving nutritional knowledge among mothers of under-

five children. The involvement of community health volunteers and support from local communities played a crucial role in the success of the program by fostering an environment conducive to positive health behavior change. Therefore, community-based nutrition education initiatives should be implemented continuously through integrated health service posts (*Posyandu*) and other public health programs to ensure the sustainability of their beneficial effects over the long term.

This study has several limitations that should be considered when interpreting the findings. First, the study employed a one-group pretest–posttest design without a control group, which limits the ability to control for potential confounding factors and external influences that may have contributed to the observed changes in the outcome. Second, the sample size was relatively small, comprising only 35 respondents from a single study area. Therefore, the findings should be interpreted with caution and may not be directly generalizable to broader populations with different demographic and contextual characteristics. Future studies are recommended to employ a quasi-experimental or randomized controlled trial design with a larger and more diverse sample to provide stronger evidence regarding the effectiveness of the intervention and enhance the generalizability of the findings.

CONCLUSION

This study found an increase in maternal nutritional knowledge following participation in the community empowerment-based nutrition education program in Bunga Eja Village, Makassar City. The mean knowledge score increased from 61.48 at pretest to 82.74 at posttest, with a statistically significant difference between the two measurements ($p < 0.000$).

These findings suggest that community empowerment-based nutrition education has the potential to improve maternal nutritional knowledge. However, because this study used a one-group pretest-posttest design without a control group, the observed improvement cannot be interpreted as definitive evidence of a causal effect of the intervention.

Community empowerment-based nutrition education may therefore be considered a potentially useful approach for strengthening maternal nutritional knowledge through Posyandu and community health programs. Further studies involving larger samples, control groups, and longer follow-up periods are needed to confirm these findings and determine whether improvements in maternal knowledge are sustained over time.

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