

Optimizing nutritional needs through education and local food utilization to improve mothers' knowledge and awareness in bonelalo village

Amina Amina^{1✉}, Zamli Zamli¹

¹ Master of Public Health Study Program, Faculty of Health, Universitas Mega Buana, Palopo, Indonesia

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ABSTRACT

Nutritional problems among pregnant women, toddlers, and children remain an important public health concern, particularly in rural areas where access to accurate nutrition information and routine growth monitoring may be limited. This community service program aimed to improve mothers' knowledge and awareness regarding balanced nutrition and nutritional status monitoring through contextual education and the utilization of locally available foods in Bonelalo Village, Lasalimu District, Buton Regency, Southeast Sulawesi. The program involved 43 participants consisting of pregnant women, mothers of toddlers, and mothers of children. Activities included pre-test assessment, interactive nutrition education, demonstrations of balanced food preparation using local ingredients, nutritional consumption assistance, and post-test evaluation. Before the intervention, 55.8% of participants had poor nutritional knowledge and 46.5% had low awareness of nutritional status monitoring. After the program, 34.9% demonstrated very good knowledge and 46.5% good knowledge, while 37.2% showed very good awareness and 41.9% good awareness. The proportion of participants with poor knowledge and awareness decreased to 4.6% in each category. The program also strengthened collaboration among the university, village government, health cadres, and local health services, supporting the continuity of nutrition promotion activities. These findings indicate that participatory nutrition education combined with local food demonstrations and community-based assistance can effectively improve mothers' knowledge and awareness and may support sustainable efforts to prevent nutrition-related problems among mothers and children.

Keywords: community nutrition; health education; local food; maternal knowledge; nutritional status



✉Correspondence author: amiebilbina@gmail.com

Master of Public Health Study Program, Faculty of Health, Universitas Mega Buana, Palopo, Indonesia



INTRODUCTION

Maternal and child nutrition remains a critical public health issue because nutritional conditions during pregnancy and early childhood have long-term consequences for physical growth, neurodevelopment, learning capacity, and health across the life course. The first 1,000 days of life, extending from conception to a child's second birthday, represent a particularly sensitive period in which adequate maternal and child nutrition is essential for optimal growth and development.^{1,2} Inadequate dietary intake during this period may contribute to maternal chronic energy deficiency, anemia, low birth weight, impaired child growth, wasting, and stunting. Recent evidence also emphasizes that maternal dietary quality and micronutrient adequacy during pregnancy and lactation are important determinants of maternal and infant outcomes.³

Nutritional challenges remain particularly relevant in low- and middle-income settings, where socioeconomic constraints, food insecurity, limited dietary diversity, restricted healthcare access, and inadequate nutrition literacy may interact to increase vulnerability among pregnant women and young children.⁴ Rural and geographically dispersed communities may experience additional barriers related to the availability of health information, continuity of nutrition services, and access to diverse foods. In Indonesia, these challenges remain important because nutritional problems among mothers and children continue to vary considerably across regions, particularly in rural and island communities. The community service report identified Southeast Sulawesi, including areas within Buton Regency, as a setting where geographical conditions, limited access to healthcare facilities, and inadequate nutrition literacy may complicate efforts to improve maternal and child nutritional status.

Bonelalo Village, Lasalimu District, Buton Regency, is a rural community in which many residents depend on farming and fishing for their livelihoods. Initial observation and coordination with the village government and local health cadres identified several practical nutritional problems. Mothers had limited knowledge regarding the nutritional requirements of pregnant women, toddlers, and children; locally available nutritious foods were not optimally utilized; household diets tended to lack diversity; and awareness of routine nutritional status monitoring through Posyandu remained inadequate. These findings indicate that nutritional vulnerability in the community is not solely related to food availability but also to knowledge, food selection, preparation practices, and the ability of households to translate available resources into nutritionally appropriate meals. Evidence from recent studies suggests that food availability alone is insufficient when families face limitations in nutritional knowledge, dietary quality, and appropriate feeding practices.⁵

The needs of community partners were further demonstrated through the baseline assessment conducted before the intervention. Among the 43 participants, 24 mothers (55.8%) were classified as having poor nutritional knowledge, whereas only 7 (16.3%) demonstrated good knowledge. During initial discussions, many participants had difficulty identifying essential nutrients required during pregnancy and childhood, explaining the principles of balanced nutrition, and understanding the importance of dietary diversity. Some participants perceived adequate nutrition primarily in terms of the quantity of food consumed rather than its quality and nutrient composition. Such findings are important because nutrition-related knowledge is closely linked to household feeding decisions, food preparation, and preventive behaviors. Nutrition behavior-change communication has been shown to improve feeding practices and selected nutritional outcomes when education is delivered through structured and context-sensitive approaches.⁶

A comparable gap was found in awareness of nutritional status monitoring. Before education, 20 participants (46.5%) had low awareness, 14 (32.6%) had moderate awareness, and only 9 (20.9%) demonstrated good awareness. Some mothers believed that growth monitoring was necessary only when a child appeared underweight or became ill. Routine weighing, height measurement, growth assessment, and attendance at Posyandu were not consistently recognized as preventive measures for the early

identification of nutritional problems. This gap indicates the need for interventions that move beyond knowledge transfer and encourage mothers to recognize nutritional monitoring as an ongoing preventive practice.

Another important community need was the optimization of local food resources. Although Bonelalo Village has access to agricultural and fishery products, these resources had not been fully utilized as affordable components of balanced family meals. Community-based interventions that integrate nutrition education with practical food preparation may be particularly relevant in such settings because they connect nutritional recommendations with foods that are familiar, accessible, and economically feasible. Recent Indonesian evidence indicates that education incorporating local food recipes and practical counseling can improve maternal nutrition knowledge, while local food-based cooking demonstrations may also strengthen mothers' competence in complementary feeding and stunting prevention.⁷

To address these gaps, the community service program implemented an integrated approach consisting of interactive nutrition education, demonstrations of balanced meal preparation using locally available foods, nutritional consumption assistance, and reinforcement of routine nutritional status monitoring. The intervention involved village stakeholders and health cadres to facilitate community participation and support continuity after the formal program ended. This participatory approach is consistent with recent evidence emphasizing that nutrition interventions are more likely to generate meaningful behavioral change when information is reinforced through demonstration, counseling, interpersonal communication, and community participation.⁸

Accordingly, this community service activity aimed to improve mothers' knowledge and awareness regarding balanced nutritional needs and nutritional status monitoring among pregnant women, toddlers, and children in Bonelalo Village. Specifically, the program sought to strengthen mothers' understanding of balanced nutrition, increase awareness of routine growth and nutritional monitoring through Posyandu, and encourage the utilization of affordable local foods as household nutritional resources. Through this approach, the program was expected to contribute to sustainable maternal and child nutrition promotion and support community-based efforts to prevent stunting and other nutrition-related problems in rural settings.

METHOD of IMPLEMENTATION

The community service activity was conducted in Bonelalo Village, Lasalimu District, Buton Regency, Southeast Sulawesi. The program was implemented from 18 to 24 June 2026, following an initial coordination meeting with the village government on 15 June 2026. The main participants were 43 individuals, consisting of pregnant women, mothers of toddlers, and mothers of children. The implementation partners included the Bonelalo Village Government, community health cadres/Posyandu cadres, and healthcare workers from the local community health center. The program applied a community-based health education approach with pre-test and post-test evaluation to assess changes in participants' knowledge and awareness before and after the intervention. The intervention consisted of balanced nutrition education, demonstrations of local food preparation, provision and assistance in consuming nutritious foods, and monitoring and evaluation activities.

Table 1. Implementation methods of the community service program

Component	Description
Location	Bonelalo Village, Lasalimu District, Buton Regency, Southeast Sulawesi
Implementation Period	Initial coordination on 15 June 2026; main activities on 18 June 2026; monitoring and evaluation on 24 June 2026
Partners	Bonelalo Village Government, community health cadres/Posyandu cadres, and healthcare workers from the local community health center

Component	Description
Participants	43 participants consisting of pregnant women, mothers of toddlers, and mothers of children
Program Design	Community-based health education using a pre-test and post-test approach to evaluate changes in participants' knowledge and awareness
Initial Assessment	Identification of mothers' knowledge and awareness regarding nutritional needs, nutritional status monitoring, and the utilization of local food resources
Main Intervention	Balanced nutrition education, local food preparation demonstrations, provision of nutritious food, and nutritional consumption assistance
Delivery Methods	Socialization, group education, discussion and question-and-answer sessions, direct demonstrations, hands-on practice, and mentoring
Educational Media	Leaflets, visual media, nutrition education materials, and local food ingredients used for demonstrations
Evaluation Instruments	Pre-test and post-test questionnaires, attendance records, participant characteristic forms, observation, and activity documentation
Evaluation Variables	Mothers' knowledge of balanced nutrition and awareness of nutritional status monitoring
Data Analysis	Pre-test and post-test data were analyzed descriptively using frequency distributions and percentages. Results before and after the intervention were compared to describe changes in knowledge and awareness categories
Monitoring	Conducted after the education and mentoring activities to assess participants' understanding and changes in knowledge and awareness
Follow-up	Continued nutrition education through Posyandu cadres and sustained use of educational leaflets in routine community health activities

The methods described in the report included socialization, health education, demonstration, and mentoring, while data collection was conducted using pre-test and post-test questionnaires, attendance and participant characteristic records, observation, and documentation.

The program was organized systematically from problem identification to post-evaluation follow-up. The sequence of activities was designed not only to increase knowledge but also to provide practical experience and strengthen program sustainability through the involvement of local partners.

Table 2. Stages of the community service activities

Stage	Main Activity	Implementation Description	Expected Output
Problem Identification	Observation and needs assessment	Identified limited maternal knowledge of nutritional needs, low awareness of nutritional status monitoring, suboptimal use of local food resources, and limited dietary diversity	Mapping of community problems and needs
Partner Coordination	Meetings with village authorities and health cadres	Coordinated with the Bonelalo Village Head, health cadres, and relevant stakeholders regarding participants, schedule, location, and technical implementation	Agreement on program implementation
Preparation	Preparation of educational materials and supporting resources	Prepared leaflets, visual media, pre-test and post-test instruments, and local food ingredients for food preparation demonstrations	Educational materials, evaluation instruments, and demonstration materials ready for use
Implementation	Pre-test and nutrition education	Conducted baseline assessment and provided education on the nutritional needs of pregnant women, toddlers, and children, balanced nutrition, and nutritional status monitoring	Baseline data and improved participant understanding
Demonstration and Mentoring	Local food preparation practice	Demonstrated the preparation of balanced meals using local food	Improved practical skills in preparing nutritious meals

Evaluation	and nutrition mentoring Post-test and reflection	ingredients, followed by hands-on practice and direct mentoring Reassessed participants' knowledge and awareness using the post-test questionnaire and conducted a joint reflection session	Data on changes in knowledge and awareness
Follow-up	Strengthening the role of health cadres	Encouraged Posyandu cadres to continue education, mentoring, and nutritional status monitoring using leaflets and routine Posyandu activities	Sustainability of community-based nutrition education and mentoring

RESULT

The community service program was implemented according to the planned stages, beginning with coordination and preparation, followed by nutrition education and practical activities on 18 June 2026, and monitoring and evaluation on 24 June 2026. A total of **43 participants**, consisting of pregnant women, mothers of toddlers, and mothers of children, participated in the program. The activities included a pre-test, interactive nutrition education, demonstrations of local food preparation, nutritional assistance, and a post-test evaluation.

Table 3. Implementation process and program achievement

Component	Activity/Indicator	Achievement
Participants	Pregnant women, mothers of toddlers, and mothers of children	43 participants
Partner involvement	Village government, Posyandu/health cadres, and local healthcare workers	Partners participated in coordination, implementation, and follow-up
Initial assessment	Pre-test of nutritional knowledge and awareness	Completed before the educational intervention
Nutrition education	Balanced nutrition for pregnant women, toddlers, and children	Delivered through interactive education and discussion
Local food demonstration	Preparation of nutritionally balanced meals using locally available foods	Participants observed and practiced food preparation
Nutrition mentoring	Guidance on food preparation, serving, and consumption	Participants received direct assistance from the team and health cadres
Educational media	Leaflets and visual materials	Used during nutrition education
Monitoring and evaluation	Post-test of knowledge and awareness	Conducted on 24 June 2026
Program continuity	Involvement of Posyandu cadres	Cadres were encouraged to continue nutrition education and monitoring

The entire activity was reported to have proceeded according to plan with active participation from the target mothers and local health cadres.

Table 4. Characteristics of the target participants

Characteristic	Description
Total participants	43
Target population	Pregnant women, mothers of toddlers, and mothers of children
Residence	Bonelalo Village, Lasalimu District, Buton Regency
Community setting	Rural community
Main household context	The village population is predominantly associated with farming and fishing livelihoods
Baseline nutritional knowledge	Predominantly poor
Baseline awareness of nutritional monitoring	Predominantly poor to moderate

The source report does not provide a detailed numerical distribution of participants by age, education, occupation, pregnancy status, or maternal category. Therefore, these

characteristics should not be estimated or added without primary data. The report specifically identifies the 43 participants as pregnant women, mothers of toddlers, and mothers of children.

Table 4. Nutritional knowledge before and after the intervention

Knowledge Category	Pre-test, n (%)	Post-test, n (%)
Very Good		15 (34.9)
Good	7 (16.3)	20 (46.5)
Moderate	12 (27.9)	6 (14.0)
Poor	24 (55.8)	2 (4.6)
Total	43 (100)	43 (100)

Before the intervention, more than half of the participants had poor nutritional knowledge (55.8%). Following nutrition education, demonstration, and mentoring, 81.4% of participants were classified as having good or very good knowledge, while the proportion with poor knowledge decreased to 4.6%.

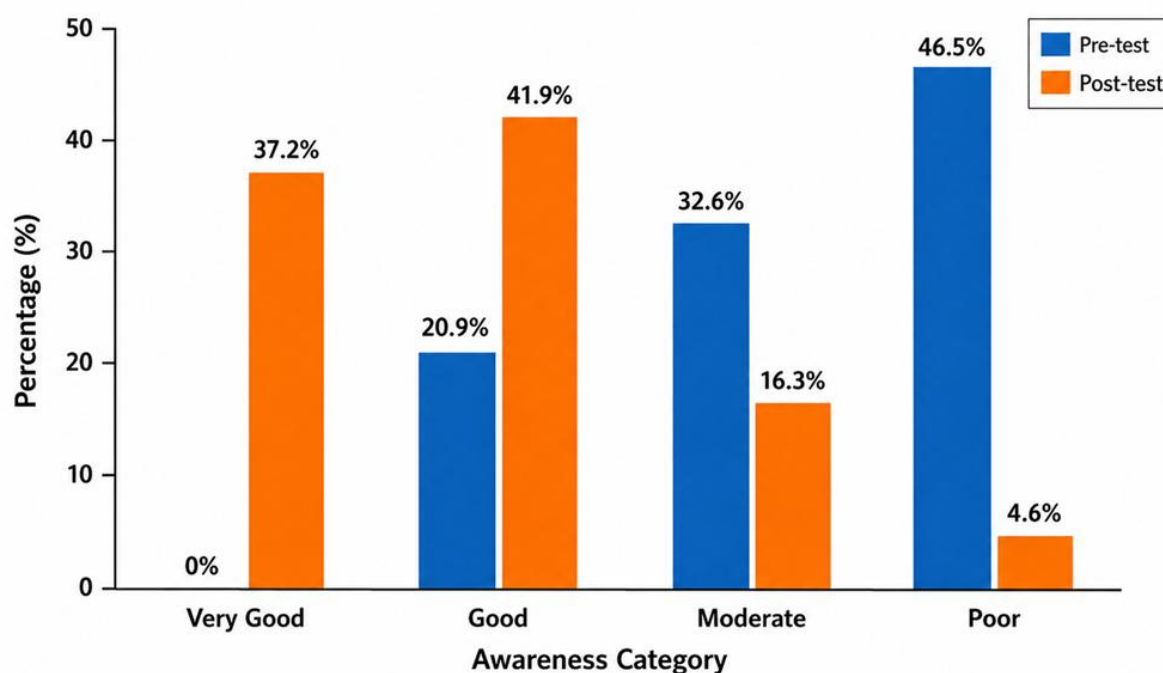


Figure 1. Comparison of participants' nutritional knowledge before and after the community-based nutrition education program.

DISCUSSION

The community service program demonstrated a substantial descriptive improvement in participants' nutritional knowledge and awareness of nutritional status monitoring after the intervention. Before the program, 55.8% of participants were categorized as having poor nutritional knowledge, whereas only 16.3% had good knowledge. Following the intervention, 34.9% reached the very good category and 46.5% reached the good category, while the proportion with poor knowledge decreased to 4.6%. These findings suggest that combining nutrition education with interactive discussion, demonstration, and direct mentoring can facilitate the acquisition and reinforcement of nutrition-related information among mothers. This interpretation is consistent with recent evidence indicating that structured nutrition education and counseling can improve maternal knowledge, self-efficacy, feeding practices, and nutritional behaviors.⁶

The observed improvement is particularly relevant because maternal knowledge constitutes an important behavioral determinant in maternal and child nutrition. Nutrition during pregnancy and the

first 1,000 days of life has substantial implications for fetal growth, infant development, nutritional status, and subsequent health outcomes. Studies conducted in Indonesia have similarly demonstrated relationships between maternal education or knowledge and childhood nutritional outcomes, including stunting and appropriate feeding practices.^{9,10} Therefore, strengthening nutrition literacy at the household level represents an important component of community-based strategies for preventing maternal and child malnutrition.

A comparable pattern was observed in participants' awareness of nutritional status monitoring. At baseline, 46.5% had poor awareness and only 20.9% demonstrated good awareness. After the intervention, 37.2% reached the very good category and 41.9% reached the good category, while poor awareness declined to 4.6%. Participants increasingly understood that routine weighing, height measurement, growth monitoring, and attendance at Posyandu should be conducted preventively rather than only when a child appears ill or underweight. Regular growth assessment is important because nutritional problems may develop progressively and may not always be recognized through visual observation alone. Integrated growth assessment during the first 1,000 days can facilitate earlier recognition of growth-related problems and support appropriate counseling or referral.¹¹

Several factors may have contributed to the success of the program. First, education was delivered through a participatory approach rather than through lecture alone. Participants received information through explanation, discussion, question-and-answer sessions, visual educational materials, and practical demonstrations. Such multimodal strategies provide opportunities for participants to clarify misconceptions and connect nutritional information with daily household practices¹². Systematic evidence indicates that nutrition social and behavior change communication can improve nutritional practices when messages are context-sensitive and reinforced through interpersonal or community-based approaches.

Second, the use of locally available foods strengthened the practical relevance of the intervention. Participants were not merely informed about dietary recommendations but were shown how familiar food ingredients could be processed and served as balanced meals. This aspect is particularly important in settings where financial limitations or perceptions about the high cost of nutritious foods may become barriers to dietary improvement. Local food-based complementary feeding interventions in Indonesia have demonstrated improvements in mothers' ability to prepare food, conduct appropriate feeding, and implement responsive feeding practices. In addition, counseling supported by local-food recipe materials has been reported to improve maternal nutrition knowledge.⁷ These findings strengthen the rationale for integrating locally available foods into community nutrition interventions.

Third, the program involved local health cadres and village stakeholders. Their participation increased the contextual acceptability of the intervention and created a mechanism for continued communication after the formal activity ended. Community health workers can contribute to maternal and child health interventions by facilitating education, strengthening access to services, reinforcing preventive behaviors, and linking families with health facilities.¹³ Evidence also suggests that the effectiveness of community health workers depends on adequate training, supervision, community acceptance, health-system integration, and organizational support.¹⁴ Therefore, the involvement of Posyandu cadres should be viewed not merely as operational assistance but as an important sustainability mechanism.

The findings are also comparable with recent Indonesian intervention studies. Mardani et al¹⁵ found that a structured nutrition education program improved mothers' knowledge, self-efficacy, complementary feeding practices, and selected anthropometric outcomes among children younger than 2 years. Andriyani et al⁹ reported improvement in maternal knowledge after a PRECEDE-PROCEED-based health promotion intervention for stunting prevention. Sutinbuk et al¹⁰ demonstrated that a

community-based assistance model improved mothers' knowledge, attitudes, and practices related to stunting prevention. Nafista et al¹⁴ similarly reported improvements in maternal feeding knowledge and attitudes following education based on feeding recommendations. These studies provide convergent evidence that education is more likely to produce meaningful outcomes when it is structured, targeted, and connected to practical caregiving behaviors.

The practical orientation of the Bonelalo program also corresponds with recent findings concerning family- and community-centered interventions. Setiawan et al¹⁶ reported significant improvements in mothers' knowledge, attitudes, and self-efficacy following a structured family-based nursing intervention for stunting prevention in Indonesia. Similarly, Erfina et al¹⁷ demonstrated that a blended intervention incorporating tailored education improved knowledge and food-related practices among adolescent mothers. These findings suggest that nutrition behavior is influenced not only by the provision of information but also by social support, self-efficacy, family context, and opportunities to practice recommended behaviors.

Digital education may provide an additional mechanism for reinforcing face-to-face interventions. Faridah et al¹¹ demonstrated that online educational interventions improved maternal knowledge related to the care of children with stunting, although improvements in attitudes were less consistent. Erika et al²³ developed a stunting-focused mobile application and reported improvement in maternal knowledge following digital education. Hartini et al²⁴ also demonstrated the potential of an application-based educational approach to influence knowledge, attitudes, and behavior related to stunting prevention. These studies indicate that digital tools may complement, rather than replace, community-based interpersonal education.

Several limitations should nevertheless be considered when interpreting the present program results. The evaluation relied on categorical pre-test and post-test distributions without inferential analysis of paired individual scores. Consequently, the findings demonstrate descriptive improvement but should not be interpreted as statistically confirmed intervention effects. In addition, the evaluation occurred shortly after implementation, meaning that the persistence of knowledge, awareness, and behavioral changes over longer periods remains unknown. Recent studies indicate that knowledge gains do not invariably translate directly into sustained attitudes or behaviors, emphasizing the need for repeated education, reinforcement, and longer-term evaluation.

Participant characteristics may also have influenced learning outcomes. Differences in educational level, age, previous exposure to nutrition information, household resources, and caregiving experience can affect the acquisition and application of nutritional knowledge. Evidence from Indonesia indicates that maternal education and prior exposure to health information are associated with nutritional knowledge and child nutrition-related outcomes.¹⁰ Therefore, future programs should consider differentiated educational strategies for participants requiring additional support.

Overall, the findings reinforce the value of an integrated approach combining nutrition education, practical food demonstrations, local-food utilization, mentoring, and community participation. The intervention appears particularly suitable for rural settings because it connects scientific nutrition recommendations with locally accessible resources and existing community structures.

The most immediate impact of the program was improvement in maternal nutrition knowledge. Participants demonstrated greater ability to identify the nutritional needs of pregnant women and children, explain the importance of balanced nutrition, recognize appropriate dietary components, and understand nutritional problems such as stunting and anemia. During post-intervention evaluation, participants were also increasingly able to identify examples of balanced menus and appropriate feeding practices. This finding is consistent with evidence that maternal nutrition counseling and education can improve knowledge and health-related behaviors, particularly when delivered through structured and interactive strategies.⁶⁻¹²

A second impact involved practical competence. Through demonstrations and direct mentoring, participants gained experience in selecting, processing, and serving nutritious foods from ingredients available within their local environment. This practical skill is important because increased knowledge alone does not guarantee appropriate feeding behavior. Interventions that enable mothers to practice food preparation and responsive feeding may increase confidence and facilitate translation of information into household routines.^{13,21} The use of local ingredients can also improve intervention feasibility because recommendations are more readily aligned with household food availability and purchasing capacity.

The third impact was an improvement in participants' awareness of preventive nutritional monitoring. Mothers increasingly recognized that monitoring should occur routinely through weighing, height measurement, and growth assessment rather than only after signs of malnutrition become visible. Such changes in awareness may facilitate earlier utilization of Posyandu and primary healthcare services. Integrated growth monitoring and timely counseling are important components of nutritional surveillance during the first 1,000 days of life.²⁰

At the behavioral level, the intervention created a foundation for improved feeding and health-seeking practices, although long-term behavioral change was not directly measured. This distinction is important because knowledge, attitudes, self-efficacy, and actual behavior represent related but different outcomes. Evidence from Indonesian interventions indicates that sustained, multicomponent programs are more likely to improve not only knowledge but also feeding practices and preventive behaviors¹⁸.

At the partner level, the program strengthened the role of health cadres and created closer collaboration among the university, Bonelalo Village Government, Posyandu cadres, and local healthcare workers. Community health workers are particularly valuable in settings where continuity of professional services may be constrained because they can reinforce health information, encourage service utilization, support families, and identify individuals requiring referral.¹⁹

The program also generated educational resources that can continue to be used after completion of the formal intervention. Leaflets, practical demonstrations, and locally relevant menu examples constitute reusable tools for community education. Such materials can reduce dependence on one-time educational sessions and allow cadres to repeat key messages during Posyandu activities.

Taken together, the program produced impacts across several interconnected domains: knowledge, awareness, practical food-preparation competence, motivation for nutritional monitoring, utilization of local food resources, and strengthened community capacity for nutrition promotion. These outcomes are consistent with contemporary evidence emphasizing that maternal and child nutrition improvement requires coordinated attention to individual knowledge, family behavior, community support, and health-system linkages²⁰.

Program sustainability should prioritize integration into existing community structures rather than creating an entirely separate intervention. The first strategy is to incorporate periodic nutrition education into routine Posyandu activities and maternal health sessions. The educational leaflet developed during the program can function as a standardized tool covering balanced nutrition, nutritional needs during pregnancy and childhood, growth monitoring, local food utilization, and early recognition of nutritional problems.

The second strategy is periodic mentoring for mothers, particularly those whose post-test results remained in the moderate or poor categories. Follow-up may include brief individual counseling, household menu planning, repeated local-food cooking demonstrations, and reminders regarding growth monitoring schedules. Evidence indicates that repeated or structured educational exposure tends to produce stronger outcomes than isolated information delivery.⁶⁻¹⁰

Third, existing Posyandu cadres should be strengthened as community nutrition facilitators. Rather than creating a new cadre structure, sustainability can be enhanced through refresher training,

simplified counseling guides, local-food menu sheets, monitoring checklists, and clear referral pathways. Community health worker effectiveness depends on ongoing supervision, supportive health-system relationships, appropriate workloads, and community trust.²¹ Therefore, cadre development should be accompanied by support from the village government and local community health center.

Fourth, the program should maintain formal collaboration among Universitas Mega Buana, the Bonelalo Village Government, Posyandu cadres, and healthcare professionals from the local health center. Collaborative activities may include periodic community education, maternal and child nutrition screening, review of Posyandu attendance, local-food demonstrations, and referral of high-risk mothers or children. This approach can transform the program from a short-duration community service activity into a continuing community-based nutrition promotion initiative.

Fifth, digital educational media may be gradually incorporated to reinforce face-to-face activities. Short educational videos, electronic leaflets, WhatsApp reminders, and simple mobile resources can provide repeated exposure to nutrition messages between Posyandu visits. Evidence from recent Indonesian studies demonstrates that online and application-based interventions can increase maternal knowledge and provide scalable educational support.²² However, digital interventions should complement rather than replace interpersonal education, particularly in communities with variable digital literacy or internet connectivity.

A sixth sustainability strategy involves the continued development of local-food-based educational content. The food demonstrations can be expanded into a simple community nutrition module containing locally available ingredients, balanced menu combinations, complementary feeding recommendations, safe preparation methods, and affordable household meal examples. Evidence from Indonesian local-food interventions indicates that practical food-based education can improve maternal competence in preparing and providing appropriate meals.

Finally, monitoring should be conducted periodically using feasible indicators such as Posyandu attendance, retention of nutrition knowledge, dietary diversity, utilization of local foods, compliance with growth monitoring, and referral of identified nutritional risks. When resources permit, longer-term evaluation may incorporate anthropometric indicators and behavioral outcomes. Monitoring should focus not only on whether educational sessions continue but also on whether participants translate knowledge into routine household practices.

Through periodic mentoring, strengthened cadres, reusable educational materials, digital reinforcement, local-food-based interventions, intersectoral partnership, and systematic monitoring, the Bonelalo program can develop into a sustainable community nutrition model. Such continuity is essential because maternal and child nutritional improvement requires sustained behavioral and service-level support rather than a single educational exposure.

CONCLUSION

The community service program successfully achieved its main objective of improving mothers' knowledge and awareness regarding balanced nutrition and nutritional status monitoring among pregnant women, toddlers, and children in Bonelalo Village. The intervention, which combined interactive nutrition education, local food preparation demonstrations, nutritional assistance, and post-intervention evaluation, produced a clear descriptive improvement in both outcome indicators. The proportion of participants with good or very good nutritional knowledge increased from 16.3% before the intervention to 81.4% after the intervention, while good or very good awareness of nutritional status monitoring increased from 20.9% to 79.1%. Beyond participant-level outcomes, the program strengthened collaboration among the university, Bonelalo Village Government, Posyandu cadres, and local health workers, while also enhancing the role of cadres in continuing nutrition education and community-based monitoring. The program should therefore be developed through periodic nutrition

education, repeated mentoring, continued use of educational materials, strengthening of Posyandu cadres, and routine monitoring of maternal and child nutrition indicators. Future implementation may also integrate simple digital educational media and structured local-food modules to support wider reach, continuity, and long-term sustainability.

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