

The Effect of Growth Monitoring and Promotion (GMP) Program Counseling on Mothers' Behavior in Monitoring the Growth of Malnourished Children Under Two Years Old

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ABSTRACT

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Malnutrition in children under two years of age remains a public health problem that affects child growth and development. One of the interventions implemented to address this issue is the Growth Monitoring and Promotion (GMP) program accompanied by nutrition counseling for mothers. This study aimed to analyze the effect of GMP program counseling on maternal behavior in monitoring the growth of malnourished under-two children in the working area of the Margototo Public Health Center, East Lampung Regency. This study used a quantitative approach with a one-group pretest-posttest design. The sample consisted of 30 mothers who had malnourished under-two children, selected using a total sampling technique. Quantitative data were analyzed using the paired t-test. The results showed a significant improvement in mothers' knowledge, attitudes, practices, and behaviors after GMP counseling ($p < 0.001$). In addition, there was an increase in children's body weight after the intervention. In conclusion, GMP counseling was effective in improving maternal behavior in monitoring the growth of malnourished under-two children and supporting weight gain in children.

ABSTRAK

Malnutrisi pada anak baduta masih menjadi masalah kesehatan masyarakat yang berdampak pada pertumbuhan dan perkembangan anak. Salah satu upaya penanggulangan yang dilakukan adalah melalui Program Growth Monitoring and Promotion (GMP) disertai konseling gizi kepada ibu. Penelitian ini bertujuan menganalisis pengaruh konseling Program GMP terhadap perilaku ibu dalam pemantauan pertumbuhan anak baduta malnutrisi di Wilayah Kerja Puskesmas Margototo Kabupaten Lampung Timur. Penelitian menggunakan pendekatan kuantitatif, one group pretest-posttest design dengan sampel 30 ibu yang memiliki anak baduta malnutrisi menggunakan teknik total sampling. Data kuantitatif dianalisis menggunakan paired t-test. Hasil penelitian menunjukkan adanya peningkatan signifikan pada pengetahuan, sikap, praktik, dan perilaku ibu setelah konseling GMP ($p < 0,001$). Selain itu, terjadi peningkatan berat badan anak setelah intervensi. Konseling Program GMP efektif meningkatkan perilaku ibu dalam pemantauan pertumbuhan anak baduta malnutrisi dan mendukung peningkatan berat badan anak.



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A. BACKGROUND

Malnutrition in children, including stunting, wasting, underweight, and overweight, remains a global health problem affecting children's physical growth as well as cognitive, social, and emotional development (Haque et al., 2022). Malnutrition also contributes to high morbidity and mortality rates among children under five in developing countries, where nearly 45% of deaths in children under five are associated with undernutrition (Lestari et al., 2024). UNICEF reported that globally, 23.2% of children experienced stunting, 6.6% wasting, and 5.5% overweight in 2024 (UNICEF, 2025a).

In Indonesia, the 2024 Indonesian Nutritional Status Survey (SSGI) showed that the prevalence of stunting decreased from 21.5% to 19.8%, wasting from 8.5% to 7.4%, and overweight from 4.2% to 3.4%, while underweight increased from 15.9% to 16.8%. In Lampung Province, the prevalence of stunting reached 15.9%, underweight 14.8%, wasting 5.9%, and overweight 2.9%. Meanwhile, in East Lampung Regency, the prevalence of stunting was 14%, wasting 6.3%, underweight 14.9%, and overweight 4.1%, where several indicators had not yet achieved regional and national targets.

The highest cases of stunting and undernutrition in East Lampung Regency were found in the working area of Margototo Public Health Center. Data from the e-PPGBM in 2024 showed an increase in stunting prevalence from 1.8% to 2.8% and an increase in undernourished children from 2.4% to 3.3%, with the highest percentage of underweight children at 12.8% originating from the Margototo Public Health Center area. Differences between e-PPGBM and SSGI data are suspected to be influenced by limitations in data collection, anthropometric measurement errors, and survey sample sizes that are not fully representative (Sunjaya et al., 2021). Child malnutrition, such as stunting, wasting, underweight, and overweight, is influenced by various factors, including nutritional intake, disease, family economic conditions, education, nutritional knowledge, environmental hygiene, immunization, and utilization of health services (Tahmasebi et al., 2022). Limited utilization of health services, particularly growth monitoring and health promotion services, is one of the main causes of the high prevalence of malnutrition in developing countries.

Growth Monitoring and Promotion (GMP) is a fundamental strategy for preventing malnutrition recommended by World Health Organization (WHO) and UNICEF through regular child growth monitoring using anthropometric measurements accompanied by health promotion and counseling for mothers of under-five children (Yeshaneh et al., 2021). This program is prioritized especially in low- and middle-income countries to detect growth disorders at an early stage (Tut & Tsegaye, 2020). GMP is an essential component of integrated child health and nutrition programs because it not only monitors growth but also increases mothers' awareness regarding child growth and development, parenting practices, and the utilization of health services. This program has demonstrated positive impacts on child growth and is able to detect growth disorders before they develop into more severe nutritional problems (Suwadi & Nasution, 2025).

According to WHO guidelines, GMP includes routine measurement of children's weight and height, recording data on growth charts, nutritional status assessment, counseling, as well as health promotion and nutritional improvement interventions when necessary (Pollifrone et al., 2020). In Ethiopia, the use of growth charts has helped health workers and mothers monitor children's growth and determine appropriate follow-up actions (Utami et al., 2021). Previous research also showed that GMP interventions can improve children's nutritional status and the utilization of health services (Hossain et al., 2025). GMP functions as an early screening strategy in preventing undernutrition through growth monitoring and the promotion of maternal health behaviors. The program aims not only to reduce the rates of malnutrition, morbidity, and mortality among children under five, but also to improve mothers' knowledge, attitudes, and practices regarding child care and feeding (Yunus & Damansyah, 2021).

However, the implementation of the Growth Monitoring and Promotion (GMP) program still faces various challenges, including low service coverage, limited training of health workers, measurement errors, inaccurate interpretation of growth charts, and suboptimal counseling implementation. In addition, the utilization of GMP programs is influenced by factors such as maternal age, education, place of residence, and family economic conditions. In practice, health workers should provide promotive counseling and actively interact with mothers based on the results of child growth monitoring recorded in the Maternal and Child Health (MCH) handbook (Pollifrone et al., 2020).

A study in the working area of Margototo Public Health Center showed that GMP implementation through weight measurement, growth chart plotting, result interpretation, and counseling had not been optimally carried out, particularly in the aspects of plotting, interpretation, and counseling. The main barriers to counseling activities included the low educational level of community health volunteers (cadres), lack of self-confidence, and insufficient counseling training. Other studies have also shown that cadres who receive GMP training demonstrate better practices in growth monitoring and health promotion. Health promotion through education and counseling is an important strategy in improving public knowledge and behavioral change. However, in Margototo Public Health Center, the promotional component of the GMP program has not yet been implemented optimally by posyandu cadres, although growth monitoring activities have already been conducted (Kamilah et al., 2025).

The East Lampung Regency Government has undertaken various efforts to address malnutrition through cadre training, refresher training, growth and development training, and strengthening the 25 basic competencies of cadres. Nevertheless, the prevalence of malnutrition in the working area of Margototo Public Health Center remains relatively high, with underweight at 12.6%, stunting at 15.8%, and wasting at 5.3% in 2025. Preliminary survey results showed that 56.6% of cadres had not conducted promotional activities related to growth monitoring outcomes, such as counseling, while 43.4% had provided counseling but were still limited to explaining growth chart interpretations. These conditions formed the basis for conducting this study to analyze the effect of the GMP counseling program on mothers' behavior in monitoring the growth of malnourished children under two years old in the working area of Margototo Public Health Center, East Lampung Regency.

Previous studies on Growth Monitoring and Promotion (GMP) have primarily focused on evaluating improvements in knowledge or nutritional outcomes. However, limited studies have integrated behavioral theories and mixed-method approaches to explore both quantitative changes and mothers' experiences following GMP counseling. Therefore, this study combines the Health Belief Model (HBM) and Health Promotion Model (HPM) within a mixed methods sequential explanatory design to provide a more comprehensive understanding of behavioral changes among mothers of malnourished children under two years of age.

The purpose of this study was to analyze the effect of the Growth Monitoring and Promotion (GMP) counseling program on mothers' behavior in monitoring the growth of malnourished children under two years old.

B. METHODS

This study employed a quantitative approach. The research was conducted in the working area of Margototo Public Health Center, East Lampung, from March to May 2026. The independent variable in this study was GMP counseling, while the dependent variables were knowledge, attitudes, and practices related to feeding practices and growth monitoring. The population consisted of 146 mothers with malnourished children under two years old distributed across seven villages in the working area of Margototo Public Health Center. Sample

size was calculated using the paired numerical hypothesis formula for quasi-experimental studies and yielded a minimum sample of 30 respondents. Sampling was conducted using proportional stratified random sampling based on village strata. Inclusion criteria included mothers of malnourished under-two children who were willing to participate and complete all study procedures.

The knowledge questionnaire consisted of 15 items covering growth monitoring, malnutrition, and GMP concepts. The attitude questionnaire consisted of 15 Likert-scale items developed from Health Belief Model (HBM) and Health Promotion Model (HPM) constructs. The practice questionnaire consisted of 15 Likert-scale items assessing growth monitoring, counseling utilization, feeding practices, and health commitment. Instrument validity was assessed using Pearson Product Moment correlation, while reliability was evaluated using Cronbach's Alpha coefficient with a cut-off value of >0.60 .

The GMP counseling intervention was delivered by the researcher as the primary counselor through home visits lasting approximately 1–2 hours per session. Educational materials included growth charts, nutrition education videos, food models, and counseling observation sheets. Counseling topics covered growth chart interpretation, child nutrition, feeding practices, growth monitoring, and follow-up recommendations. Post-intervention assessment was conducted using the same questionnaire administered during the pretest.

Maternal behavior was conceptualized using the Knowledge-Attitude-Practice (KAP) framework. Knowledge represents cognitive understanding, attitude reflects perception and beliefs regarding child nutrition and growth monitoring, while practice refers to actual implementation of recommended behaviors. Improvements in maternal behavior were assessed through changes in these three domains.

Data normality was assessed using the Shapiro–Wilk test because the sample size was less than 50 respondents. Normally distributed variables were analyzed using the Paired t-test, whereas non-normal variables were analyzed using the Wilcoxon Signed-Rank Test. Data cleaning and screening procedures showed no significant outliers that could influence the study results (Dahlan, 2020).

This study was approved by the Health Research Ethics Committee, Faculty of Medicine, Universitas Lampung (Ethical Clearance No. 1648/UN26.18/PP.05.02.00/2026).

C. RESULTS AND DISCUSSION

1. Results

The research results are presented in the table below, explaining the characteristics of the respondents and the pre- and post-measurements for the knowledge and attitude variables.

Table 1. Characteristics of the Respondents

Characteristics of the Respondents	N	%
Mother's Education		
Elementary School	4	13,3
Junior High School	25	83,3
No Formal Education	1	3,3
Child's Gender		
Male	14	46,7
Female	16	53,3
Total	30	100,0
Characteristics	Mean	Standard Deviation

Mother's age	28.50	3.848
Child's age	13.70	6.737

Based on the characteristics of the respondents, most mothers had a junior high school education level or equivalent, totaling 25 participants (83.3%). Based on the sex of the children, the majority were female, with 16 children (53.3%). Based on descriptive analysis results, the mean age of mothers was 28.50 ± 3.848 years, ranging from 15–34 years, while the mean age of children was 13.70 ± 6.737 months, ranging from 5–23 months.

Table 2. Measurement in Knowledge, Attitude and Practice

Measurement	Mean	SD	Mean Difference	Effect Size	p-value
Knowledge (pre)	12.67	1.241	1.533	1.39	<0.001
Knowledge (post)	14.20	0.887			
Attitude (pre)	45.33	4.566	5.400	2.36	<0.001
Attitude (post)	50.73	3.912			
Practice (pre)	55.13	4.369	2.533	1.09	<0.001
Practice (post)	57.67	2.537			

The results showed that the mean knowledge score of respondents increased from 12.67 to 14.20, with a mean difference of 1.533. A p-value of < 0.001 indicated that the increase in knowledge after the intervention was statistically significant. For the attitude variable, the mean score increased from 45.33 to 50.73, with a mean difference of 5.400. Statistical analysis showed a p-value of < 0.001 , indicating a significant improvement in attitudes after the intervention. For the practice variable, the mean score increased from 55.13 to 57.67, with a mean difference of 2.533. A p-value of < 0.001 indicated that the increase in practice after the intervention was also statistically significant. Furthermore, effect size analysis indicated that the intervention had a very large effect on knowledge ($d = 1.39$), attitude ($d = 2.36$), and overall maternal behavior ($d = 2.74$), while practice ($d = 1.09$) and children's body weight ($d = 1.13$) demonstrated large effects. These findings confirm that GMP counseling was not only statistically effective but also clinically and practically meaningful in improving mothers' growth-monitoring behaviors and child nutritional outcomes. The findings suggest that GMP counseling was associated with significant improvements in maternal knowledge, attitudes, and practices regarding growth monitoring and child nutrition.

2. Discussion

a. Characteristics of The Respondents

The characteristics of respondents showed that the majority of mothers had a junior high school education or equivalent, followed by elementary school education or equivalent, while a small proportion had no formal education. Most of the children were female, although the distribution was relatively balanced with male children. The average age of mothers was within young adulthood, ranging from adolescence to adulthood, while the average age of children was within the under-two-year-old category, with a broader age variation.

These findings indicate that most mothers were in their productive age and had basic to intermediate educational backgrounds. This condition highlights the importance of GMP counseling as an effort to improve mothers' knowledge and behavior in monitoring child growth. Based on health behavior theory, education is a predisposing factor influencing mothers' ability to understand health information. Maternal age may be associated with

parenting practices, as it relates to the level of physical, emotional, and psychological maturity in carrying out parenting roles. Mothers in young adulthood generally have better preparedness in caring for children, including meeting nutritional needs, providing stimulation, and monitoring child growth and development. In this age group, mothers tend to be more capable of receiving and understanding health information, enabling them to apply more appropriate parenting practices. In contrast, adolescent mothers may still experience limitations in experience and knowledge regarding childcare, which can potentially affect the quality of parenting provided. Nevertheless, parenting practices are influenced not only by maternal age but also by other factors such as educational level, experience, family support, and access to health information. Therefore, continuous education and support for mothers remain essential to promote optimal parenting practices for children. (Lawrence Green) in (Glanz et al., 2015).

In addition to education, mothers in young adulthood are generally more psychologically prepared for childcare, although adolescent mothers may still have limited knowledge. Children in the under-two-year-old period are in a critical stage of growth and therefore require intensive monitoring. Overall, these characteristics emphasize that GMP counseling is relevant for improving maternal behavior in growth monitoring and preventing malnutrition. Educational level has a close relationship with knowledge, which ultimately may affect stunting prevention efforts. Education plays an important role in enhancing an individual's ability to receive, understand, and process health information, including information related to nutrition, feeding practices, sanitation, immunization, and child growth monitoring. Mothers with higher levels of education generally have better access to health information and are more likely to understand the importance of appropriate parenting practices in supporting child growth and development. Adequate knowledge regarding stunting prevention can influence maternal behavior in providing appropriate nutritional intake, practicing exclusive breastfeeding, offering adequate complementary feeding, maintaining environmental hygiene, and routinely monitoring child growth at health facilities or community health posts. In contrast, limited educational attainment may contribute to lower maternal understanding of child nutritional and health needs, thereby increasing the risk of suboptimal childcare practices (Kamilah et al., 2025).

Based on health behavior theory, education is considered a predisposing factor that influences an individual's knowledge and behavior. Higher maternal educational attainment increases the likelihood of better knowledge related to child health, which may subsequently be translated into behaviors that support stunting prevention. However, formal education is not the sole determinant, as access to health education, family support, personal experience, and exposure to information from healthcare professionals also contribute to shaping maternal knowledge and behaviors regarding stunting prevention (Yeshaneh et al., 2021).

b. The Effect of the GMP Counseling Program on Mothers' Knowledge in Monitoring the Growth of Malnourished Children Under Two Years Old in the Working Area of Margototo Public Health Center, East Lampung Regency

The results of this study showed that the Growth Monitoring and Promotion (GMP) counseling program improved mothers' knowledge regarding child growth monitoring and nutrition among children under two years old. The mean knowledge score increased after the intervention, with a statistically significant difference ($p < 0.001$), indicating that GMP counseling had a significant effect on improving mothers' knowledge.

This improvement indicates that Growth Monitoring and Promotion (GMP) counseling is an effective educational intervention for enhancing maternal understanding of child nutrition, feeding practices, and growth monitoring. GMP counseling not only provides

information but also facilitates mothers' ability to interpret and apply health messages in daily childcare practices. Through repeated education, practical demonstrations, and interactive communication, mothers are encouraged to better recognize the importance of balanced nutrition, age-appropriate feeding patterns, routine growth monitoring, and early detection of growth problems. As a result, mothers become more aware of their role in supporting optimal child growth and preventing nutritional disorders, including stunting and malnutrition (Ayele et al., 2022).

From a theoretical perspective, this finding can be explained through the Health Promotion Model developed by Nola J. Pender, which emphasizes that health-promoting behavior is influenced by individual experiences, perceived benefits, and knowledge gained through health education. In the context of GMP counseling, mothers who receive structured information are more likely to perceive the benefits of proper nutrition, growth monitoring, and preventive childcare practices. This increased awareness may strengthen mothers' motivation to adopt healthier behaviors, such as attending routine growth monitoring sessions, ensuring adequate dietary intake, and following recommended feeding practices for children (Kamilah et al., 2025).

Similarly, according to the health behavior framework proposed by Lawrence Green, knowledge serves as a predisposing factor that shapes individual behavior. Predisposing factors include internal characteristics such as knowledge, beliefs, attitudes, and values that influence a person's readiness to act. In this regard, GMP counseling contributes to improving maternal knowledge, which subsequently increases the likelihood of positive behavioral changes in childcare practices. Mothers with better knowledge are generally more capable of making informed decisions regarding breastfeeding, complementary feeding, meal frequency, food diversity, hygiene practices, and seeking healthcare when growth problems are identified (Yeshaneh et al., 2021).

Moreover, improved maternal knowledge may contribute to changes in parenting behavior through several mechanisms. First, mothers become more capable of identifying early signs of growth faltering by understanding growth charts and anthropometric indicators. Second, mothers gain practical skills related to child feeding, including food preparation, meal portioning, and dietary diversity according to the child's age and nutritional needs. Third, counseling enhances maternal confidence and self-efficacy in childcare, enabling mothers to feel more competent in implementing healthy practices consistently (Yunus & Damansyah, 2021).

These findings are consistent with previous studies demonstrating that nutrition education and counseling significantly improve maternal knowledge regarding child growth and nutrition. Research has shown that mothers who receive regular counseling interventions tend to have greater awareness of nutritional needs, improved feeding behaviors, and increased participation in child health services. GMP counseling is particularly beneficial because it combines educational content with practical and communicative approaches, allowing mothers to actively engage, ask questions, and receive personalized guidance based on their child's growth condition. This interactive process makes health information easier to understand and more likely to be implemented in everyday life (Wulandari et al., 2025).

Furthermore, the sustainability of behavioral change is an important aspect of GMP counseling effectiveness. Increased knowledge alone may not automatically lead to long-term behavioral improvements; however, when counseling is conducted regularly and reinforced through monitoring and follow-up, mothers are more likely to maintain healthy childcare practices. Consequently, GMP counseling may contribute not only to immediate improvements in maternal understanding but also to sustained positive behaviors that

support optimal child growth, nutritional status, and overall child health outcomes over time (Kamilah et al., 2025).

c. The Effect of the GMP Counseling Program on Mothers' Attitudes in Monitoring the Growth of Malnourished Children Under Two Years Old in the Working Area of Margototo Public Health Center, East Lampung Regency

The results showed that the Growth Monitoring and Promotion (GMP) counseling program improved mothers' attitudes toward growth monitoring and nutrition for children under two years old. The mean attitude score increased significantly after the intervention, with a p-value of < 0.001 , indicating that GMP counseling had a significant effect on the development of positive maternal attitudes.

This improvement in maternal attitudes suggests that mothers became more receptive, attentive, and motivated to adopt health recommendations related to child growth monitoring and nutrition practices. Attitude change is an important outcome of health education because attitudes often serve as an intermediary between knowledge acquisition and behavioral implementation. In the context of Growth Monitoring and Promotion (GMP) counseling, mothers not only gained information but also developed a stronger sense of responsibility and awareness regarding their child's nutritional status and growth patterns. As mothers became more informed about the importance of routine growth monitoring, balanced nutrition, and age-appropriate feeding, they were more likely to develop positive perceptions toward these preventive health practices (Ayele et al., 2022).

According to the attitude theory proposed by Gordon Allport, attitudes are psychological predispositions that are formed through experiences and influence an individual's response toward particular situations or behaviors. Attitudes consist of cognitive, affective, and behavioral tendency components. In this study, GMP counseling likely influenced the cognitive component by increasing maternal understanding of nutrition and growth monitoring, the affective component by creating emotional concern for child well-being, and the behavioral tendency component by increasing mothers' willingness to engage in recommended health practices. Consequently, improved maternal attitudes may reflect a greater readiness to monitor child growth regularly and implement healthier childcare practices (Wulandari et al., 2025).

Similarly, the Health Belief Model explains that individuals are more likely to adopt preventive health behaviors when they perceive health risks, understand the severity of potential problems, and recognize the benefits of preventive actions. Through GMP counseling, mothers may develop stronger perceptions regarding the risks of poor nutrition, growth faltering, and malnutrition, while simultaneously recognizing the benefits of routine growth monitoring and proper feeding practices. This shift in perception can positively influence maternal attitudes and increase their willingness to engage in preventive childcare behaviors (Wulandari et al., 2025).

The improvement in maternal attitudes observed in this study may also be explained by the interactive and practical nature of GMP counseling. Counseling sessions often provide opportunities for discussion, questions, emotional support, and personalized guidance, making mothers feel more involved in the learning process. Emotional experiences during counseling—such as concern for a child's growth status or reassurance from healthcare providers—can reinforce positive attitudes and strengthen mothers' commitment to applying health recommendations. In many cases, emotional engagement is essential because mothers who feel personally connected to the information are more likely to internalize health messages and translate them into action (Yunus & Damansyah, 2021).

Furthermore, increased knowledge obtained during counseling may have contributed significantly to attitude changes. Knowledge and attitudes are closely related, as better

understanding of health issues often shapes more favorable perceptions and beliefs about preventive practices. Mothers who understand the importance of nutrition, growth monitoring, and early detection of growth problems may become more confident and optimistic about their ability to support their child's development. This confidence may encourage more positive attitudes toward attending growth monitoring sessions, following nutritional recommendations, and practicing appropriate feeding behaviors (Kamilah et al., 2025).

These findings are consistent with previous studies demonstrating that nutrition counseling can significantly improve maternal attitudes toward child growth monitoring and feeding practices. Earlier research has reported that mothers exposed to regular counseling sessions tend to show more positive attitudes regarding preventive healthcare, nutritional care, and participation in child health services. Therefore, GMP counseling appears to play an important role not only in increasing maternal knowledge but also in fostering positive attitudes that support sustainable health behaviors and improved child health outcomes over time (Ayele et al., 2022).

d. **The Effect of the GMP Counseling Program on Mothers' Practices in Monitoring the Growth of Malnourished Children Under Two Years Old in the Working Area of Margototo Public Health Center, East Lampung Regency**

The results showed that the Growth Monitoring and Promotion (GMP) counseling program significantly improved mothers' practices in monitoring child growth and fulfilling nutritional needs among children under two years old, with a p-value of < 0.001 . This indicates that the counseling intervention had a significant effect on improving maternal practices.

The improvement in maternal practices suggests that mothers became more capable of implementing appropriate childcare behaviors related to child growth monitoring, feeding practices, and adherence to recommended health guidelines. In the context of Growth Monitoring and Promotion (GMP) counseling, practice improvement reflects the successful translation of knowledge and positive attitudes into real actions in daily childcare. This indicates that mothers were not only able to understand health information theoretically but were also increasingly able to apply that knowledge in practical situations to support child growth and prevent nutritional problems, including malnutrition and stunting (Ayele et al., 2022).

GMP counseling contributes to practice improvement by providing mothers with practical education regarding proper feeding patterns, nutritional requirements according to the child's age, growth monitoring procedures, and early identification of growth problems. Through counseling sessions, mothers are encouraged to routinely monitor their child's weight and height, interpret growth charts, ensure age-appropriate complementary feeding, maintain dietary diversity, and seek health services when developmental concerns arise. As a result, counseling helps mothers develop healthier caregiving routines that are essential for promoting optimal child growth and preventing nutritional deficiencies (Yunus & Damansyah, 2021).

From a theoretical perspective, this improvement in practice can be explained through the behavioral framework developed by Lawrence Green, which emphasizes that behavior is influenced by predisposing, enabling, and reinforcing factors. In this framework, knowledge and attitudes function as predisposing factors, meaning they shape an individual's motivation and readiness to perform health-related behaviors. GMP counseling improves maternal knowledge and attitudes, which subsequently increases mothers' likelihood of adopting healthier childcare practices. Once mothers understand the importance of proper nutrition and growth monitoring and develop favorable attitudes

toward these practices, they become more inclined to implement them consistently (Kamilah et al., 2025).

In addition, counseling may also function as an enabling factor by equipping mothers with practical skills and actionable guidance. For example, mothers may learn how to prepare nutritious meals, determine appropriate meal frequency, recognize signs of growth faltering, and use growth monitoring records effectively. This practical component is essential because behavioral change is more likely to occur when individuals not only understand what should be done but also know how to implement it in everyday life. By strengthening maternal confidence and competence, GMP counseling supports the development of sustainable health behaviors (Yunus & Damansyah, 2021).

The observed improvement in maternal practices may also be influenced by repeated exposure to health messages during counseling sessions. Continuous reinforcement of information can strengthen behavioral habits and encourage mothers to integrate recommended practices into their daily routines. Mothers who consistently receive reminders and education about child nutrition and growth monitoring are more likely to maintain adherence to preventive health behaviors over time. Consequently, the benefits of counseling may extend beyond short-term behavioral changes and contribute to sustained improvements in childcare practices.

These findings are consistent with previous studies showing that nutrition counseling significantly improves maternal practices related to child feeding, parenting, and growth monitoring. Earlier research has demonstrated that mothers who participate in educational interventions are more likely to adopt healthy feeding practices, improve meal quality and frequency, regularly attend growth monitoring sessions, and actively participate in preventive healthcare services for children. Improved maternal practices are particularly important because they directly influence children's nutritional intake, growth patterns, and overall health outcomes (Wulandari et al., 2025).

Ultimately, better maternal practices are expected to contribute to improved child nutritional status and long-term health outcomes. When mothers consistently implement proper feeding, growth monitoring, and preventive healthcare behaviors, children are more likely to experience adequate growth, reduced risk of malnutrition, and healthier developmental trajectories. Therefore, GMP counseling plays a crucial role not only in improving maternal knowledge and attitudes but also in fostering sustainable behavioral changes that support optimal child health and well-being over time (Yunus & Damansyah, 2021).

The findings of this study demonstrated that GMP counseling significantly improved mothers' knowledge, attitudes, practices, and overall behavior related to child growth monitoring. These results are consistent with the recommendations of WHO (2023) and (UNICEF, 2025b) which emphasize that Growth Monitoring and Promotion (GMP) should function not only as a growth assessment activity but also as a behavior change intervention through nutrition education, counseling, and caregiver empowerment. Improved maternal knowledge may increase awareness of the importance of growth monitoring, early detection of growth faltering, and appropriate feeding practices, thereby contributing to better child health outcomes.

The observed behavioral changes can be explained by the Health Belief Model (Rosenstock, 1990), Health Promotion Model (Pender, 1982), and Lawrence Green's behavioral framework (Green & Kreuter, 2022). GMP counseling likely enhanced mothers' perceived benefits, self-efficacy, and motivation to engage in growth-monitoring activities while reducing barriers to adopting healthy childcare practices. Furthermore, the support and guidance provided by health workers served as reinforcing factors that encouraged sustained behavioral change. These mechanisms may explain the significant improvements

in maternal behavior and the subsequent increase in children's body weight following the intervention.

This study employed a one-group pretest-posttest design without a control group. Consequently, the findings may be influenced by potential threats to internal validity, including history effects, maturation effects, and testing effects. Therefore, the observed changes cannot be attributed solely to the intervention, and future studies are recommended to utilize controlled experimental designs.

D. CONCLUSION AND SUGGESTIONS

The results of the study showed that the majority of mothers had a junior high school education or equivalent, with mothers generally belonging to the productive age group and children being within the under-two-year-old age range. These conditions supported the acceptance of the health education provided. The GMP counseling program was proven to have a significant effect on improving mothers' knowledge, attitudes, and practices. Based on these findings, GMP counseling should continue to be strengthened by public health centers through more interactive and easily understandable approaches, accompanied by intensive assistance. Posyandu cadres are expected to play a more active role in providing education and conducting home visits, while mothers and families are encouraged to maintain positive behaviors and provide continuous support for child growth monitoring and nutritional fulfillment.

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