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EFFECT OF STUNTING COUNSELING ON MATERNAL KNOWLEDGE AND ATTITUDES: *A QUASI-EXPERIMENTAL STUDY*

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ABSTRACT
Stunting is a global nutritional problem that affects children's health and development, characterized by a height-for-age index below the standard growth reference. This study aimed to determine the effect of counseling on mothers' knowledge and attitudes in handling stunted toddlers in Sumberejo Village, Kediri Regency. A quantitative pre-experimental design with a one-group pretest–posttest approach was employed. The study population consisted of all mothers of stunted toddlers in the village, totaling 36 respondents, who were included as research samples. Counseling on stunting served as the independent variable, while mothers' knowledge and attitudes were the dependent variables. Data were collected using structured questionnaires and analyzed using the McNemar test. The results showed a significant improvement in mothers' knowledge after counseling ($p = 0.013$), indicated by a decrease in low knowledge levels from 50% to 22%. However, no significant change was found in mothers' attitudes ($p = 0.754$). In conclusion, counseling effectively improves maternal knowledge but has not significantly influenced attitudes toward stunting management, highlighting the need for continuous and comprehensive education programs.

Keywords: Attitude, Counseling, Knowledge, Stunting

INTRODUCTION

Stunting remains a major global nutritional problem and continues to pose a serious public health challenge, particularly in low- and middle-income countries. It is defined as a condition of impaired linear growth in children, characterized by a height-for-age measurement below established growth standards, and is primarily caused by chronic malnutrition and repeated infections over a prolonged period (Adelia et al., 2022). According to the Global Nutrition Report (2018), approximately 22.2% of children worldwide experience stunting. In Indonesia, the prevalence of stunting remains high at 24.4%, based on data from the Indonesian Nutritional Status Survey (SSGI) in 2021, with East Java Province reporting a prevalence of 23.5%. These figures indicate that stunting continues to be a persistent nutritional problem requiring targeted and context-specific interventions.

The consequences of stunting extend beyond impaired physical growth. Children affected by stunting are at increased risk of delayed cognitive, motor, and language development, which may have long-term implications for educational achievement and future productivity (Rafika, 2019). These long-term impacts highlight the importance of early and effective interventions that address not only nutritional intake but also caregiving practices at the household level.

Various intervention strategies have been implemented to reduce stunting, one of which is counseling or health education delivered by health workers and community health cadres. Counseling aims to improve mothers' understanding of appropriate nutrition, child care practices, and early detection of growth problems. Several previous studies have reported that

counseling interventions can improve maternal knowledge related to stunting prevention and child nutrition (Rahmanindar et al., 2020; Adelia et al., 2022). However, evidence regarding the effect of counseling on maternal attitudes remains inconclusive. While some studies have shown positive changes in attitudes following counseling, others have reported minimal or no significant improvement, suggesting that changes in attitudes may require more sustained or contextually tailored interventions.

In addition, most existing studies have focused on mothers of young children in general rather than specifically targeting mothers of already stunted children. Studies conducted in rural settings, particularly in areas with a high burden of stunting such as East Java, are still limited. Moreover, few studies have simultaneously examined changes in both knowledge and attitudes using a pretest–posttest approach, which is essential to distinguish between cognitive improvements and affective responses to counseling interventions.

Given these gaps, this study was conducted to examine the effect of stunting counseling on mothers' knowledge and attitudes in handling stunted toddlers in Sumberjo Village, Kediri Regency. By focusing on mothers of stunted children in a rural setting and analyzing both knowledge and attitude outcomes, this study seeks to provide empirical evidence that can inform the development of more effective and comprehensive stunting intervention programs at the community level.

METHODS

A. Study Design

This study applied a pre-experimental quantitative research design using a one-group pretest–posttest approach**.** It was not a quasi-experimental study**,** as no control group or comparison group was included. All participants received the same counseling intervention, and changes in outcomes were assessed by comparing measurements taken before and after the intervention within the same group.

B. Study Setting and Participants

The study was conducted in Sumberjo Village, Grogol District, Kediri Regency**,** on December 24, 2024**.** The study population consisted of all mothers of stunted toddlers living in the village. A total of 36 respondents met the inclusion and exclusion criteria and were included in the study using a total sampling technique**,** given the relatively small population size.

C. Intervention (Counseling on Stunting)

The intervention consisted of a stunting counseling session aimed at improving mothers' understanding of stunting and appropriate management practices. The counseling was delivered face-to-face in a group setting at the village health post. The session lasted approximately 60 minutes, consisting of a lecture, interactive discussion, and question-and-answer session.

The counseling was delivered by health workers (midwives/community health personnel) with experience in maternal and child health. Educational materials included verbal explanations and printed leaflets covering the definition of stunting, causes, impacts, prevention strategies, and appropriate caregiving practices for stunted children.

D. Data Collection and Instruments

Data were collected using structured questionnaires administered before (pretest) and after (posttest) the counseling intervention. The questionnaires measured two outcome variables: mothers' knowledge and mothers' attitudes toward handling stunting. Knowledge was assessed using multiple-choice questions, while attitudes were measured using statement items with a Likert-type response scale. Questionnaire scores were categorized into predefined levels (e.g., low/high knowledge and negative/positive attitudes) for analysis.

E. Data Analysis

Data were analyzed using the McNemar test**,** which is appropriate for analyzing changes in paired categorical data obtained from pretest–posttest measurements. Statistical significance was determined at a p-value < 0.05**.**

F. Ethical Considerations

Ethical clearance for this study was obtained from the Ethics Committee of Strada University**.** All participants received a clear explanation of the study objectives and procedures, and written informed consent was obtained prior to participation. Participants' confidentiality and anonymity were ensured throughout the research process, and all data were used solely for research purposes.

RESULTS

A. Characteristics of Respondents

Table 1. Characteristics of Respondents (n = 36)

Variable	Category	n	%
Age (years)	< 20	0	0.0
	20–35	27	83.3
	> 35	9	16.7
Education level	Elementary School	7	19.4
	Junior High School	12	33.3
	Senior High School	10	27.8
	Higher Education	7	19.4
Occupation	Housewife	29	80.6
	Private Sector Employee	7	19.4
	Civil Servant	0	0.0
Children's gender	Male	13	36.1
	Female	23	63.9

Table 1 presents the characteristics of the respondents. Most mothers were aged 20–35 years (83.3%) and had completed junior high school (33.3%). The majority of respondents were housewives (80.6%). Regarding children's gender, more than half of the stunted children were female (63.9%), while 36.1% were male. Overall, the respondents' characteristics reflect a population in which mothers play a primary role in daily child care, supporting the relevance of counseling-based interventions.

B. Variable Characteristics

Table 2. Cross-tabulation of Mothers' Knowledge of Stunting Before and After Counseling (n = 36)

Mothers' Knowledge (Pre-Test)	Post-Test: Good	Post-Test: Fair	Post-Test: Poor	Total
Good	12	0	0	12
Fair	2	2	1	5
Poor	7	3	9	19

Total	21	5	10	36

McNemar test p-value = 0.013

Table 2 shows the cross-tabulation of mothers' knowledge levels before and after the counseling intervention. Prior to counseling, most respondents were categorized as having poor knowledge. After counseling, an improvement was observed, with a notable shift toward the good knowledge category. The McNemar test indicated a statistically significant difference in mothers' knowledge before and after counseling ($p = 0.013$; $p < 0.05$), demonstrating that the counseling intervention effectively improved maternal knowledge regarding stunting management.

Table 3. Cross-tabulation of Mothers' Attitudes Toward Stunting Before and After Counseling (n = 36)

Mothers' Attitudes (Pre-Test)	Post-Test: Positive	Post-Test: Negative	Total
Positive	18	3	21
Negative	8	7	15
Total	26	10	36

McNemar test p-value = 0.754

Table 3 presents the cross-tabulation of mothers' attitudes toward stunting before and after counseling. Although there was an increase in the number of respondents with positive attitudes following the intervention, the McNemar test showed no statistically significant difference between pre-test and post-test attitudes ($p = 0.754$; $p > 0.05$). These findings suggest that while counseling may contribute to a positive trend in maternal attitudes, a single counseling session was not sufficient to produce a significant attitudinal change.

DISCUSSION

A. Mothers' Knowledge Of Stunting

This study demonstrated a significant improvement in mothers' knowledge regarding stunting following the counseling intervention. Prior to counseling, most respondents had poor knowledge, indicating limited understanding of stunting, its causes, and appropriate management strategies. This finding aligns with previous studies reporting that insufficient caregiver knowledge remains a major contributor to the persistence of stunting in Indonesia, particularly in community settings with limited access to structured health education (Haskas et al., 2020; Ministry of Health of the Republic of Indonesia, 2021).

After the counseling intervention, there was a substantial shift in knowledge levels, with the majority of mothers categorized as having good knowledge. This improvement supports existing evidence that counseling and nutrition education are effective approaches for increasing maternal knowledge related to child growth and nutrition. Anjarsari et al. (2021) found that structured educational interventions using clear and practical messages significantly improved awareness and understanding of nutritious food and child feeding practices. Similarly, Candra (2020) emphasized that counseling plays a crucial role in enhancing mothers' comprehension of stunting prevention and management by correcting misconceptions and providing evidence-based information.

The effectiveness of counseling in improving knowledge can be explained by the structured delivery of information and the interactive nature of the intervention. Health education delivered through counseling allows mothers to receive accurate information, ask questions, and clarify misunderstandings directly with health workers. Gerung (2020) highlighted that the use of appropriate health promotion media and interpersonal communication enhances message acceptance and comprehension, particularly in community-

based settings. Through this process, counseling helps transform abstract health concepts into practical knowledge that can be applied in daily child care practices.

Improved maternal knowledge is especially important given the well-documented consequences of stunting. Stunted children face increased risks of impaired cognitive development and reduced learning capacity, which may affect their long-term productivity and quality of life (Daracantika et al., 2021; Dasman, 2019). Understanding these consequences may strengthen mothers' awareness of the importance of early prevention and appropriate nutritional practices, reinforcing the value of counseling interventions.

Although this study demonstrated significant knowledge improvement, some respondents remained in the low knowledge category after counseling. This finding suggests that a single counseling session may not be sufficient for all mothers, particularly those with lower educational backgrounds or limited prior exposure to health information. National data indicate that sustained and repeated educational interventions are necessary to address knowledge gaps and ensure long-term understanding of stunting prevention strategies (Ministry of Health of the Republic of Indonesia, 2021).

In summary, the findings confirm that counseling is an effective strategy for improving mothers' knowledge of stunting. However, to maximize its impact, counseling programs should be delivered continuously and supported by appropriate health promotion media. Strengthening maternal knowledge through regular and structured education is essential for supporting effective stunting prevention and management at the community level.

B. Mothers' Attitudes Toward Stunting

The present study found no statistically significant association between counseling exposure and respondents' attitudes. Although counseling is widely recognized as an important strategy to influence health-related attitudes, this finding suggests that counseling alone may not be sufficient to produce measurable attitudinal change. Several factors may explain the absence of a significant relationship and should be interpreted within a broader behavioral and contextual framework.

First, the effectiveness of counseling is strongly influenced by its quality, duration, and method of delivery**,** rather than simple exposure. Counseling that is brief, one-directional, or primarily informational may increase knowledge but may not be powerful enough to alter deeply rooted attitudes. Glanz et al. (2019) emphasize that attitude change requires interactive communication, emotional engagement, and opportunities for reflection. Similarly, Rollnick et al. (2020) highlight that counseling approaches such as motivational interviewing are more effective when they actively involve participants in the change process rather than relying on didactic communication.

Second, attitudes are shaped by multiple determinants**,** including socio-cultural norms, education level, family influence, and previous personal experiences. Counseling represents only one component within a complex system of behavioral determinants. Nutbeam et al. (2019) describe a persistent gap between knowledge acquisition and attitude or behavior change, indicating that improved knowledge does not automatically translate into positive attitudes. This gap may explain why respondents who received counseling did not demonstrate significantly different attitudes compared to those who did not.

Another possible explanation is the presence of a ceiling effect**.** If respondents already had relatively positive attitudes before counseling, the intervention may not have produced a statistically detectable improvement. Al-Delaimy et al. (2021) reported similar findings in a quasi-experimental study, where health education significantly improved knowledge but showed no significant change in attitudes due to high baseline scores among participants.

The contextual relevance and cultural appropriateness of counseling content may also play a critical role. Counseling that does not align with participants' beliefs, values, or daily

realities may fail to resonate at an emotional level, which is essential for attitude formation. Kreuter and McClure (2020) emphasize that culturally tailored health communication is more effective in influencing attitudes than standardized counseling approaches.

Methodological considerations should also be acknowledged. The cross-sectional design of this study limits the ability to capture changes in attitudes over time. Attitudinal change often occurs gradually and may only become evident after sustained exposure and reinforcement. Longitudinal studies have demonstrated that counseling effects on attitudes may emerge weeks or months after the intervention (Zhang et al., 2022).

Overall, the lack of a significant association between counseling and attitudes in this study does not negate the value of counseling but highlights the need for more comprehensive, continuous, and context-sensitive counseling strategies**.** Future research should incorporate longitudinal designs, assess counseling quality and intensity, and integrate counseling with broader behavioral change interventions to better understand its impact on attitudes.

C. Factors Contributing To The Lack Of Significant Change In Mothers' Attitudes After Counseling

The absence of a statistically significant change in mothers' attitudes following the counseling intervention can be explained by several interrelated factors that have been widely discussed in previous studies. Although health education is effective in improving knowledge, attitude change represents a more complex process involving affective, social, and cultural dimensions. Consequently, attitude modification generally requires sustained, repeated, and context-sensitive interventions rather than short-term educational exposure.

Nutbeam (2019) emphasized that increased knowledge alone is insufficient to produce meaningful changes in attitudes or health-related behaviors unless it is reinforced through continuous learning and supported by enabling social environments. This perspective aligns with the findings of the present study, where counseling significantly improved knowledge but did not result in a statistically significant shift in maternal attitudes toward stunting management.

Similar results have been reported in previous research. Haskas et al. (2020) found that nutrition education interventions successfully enhanced mothers' understanding of stunting; however, changes in attitudes and feeding behaviors were limited. This was largely attributed to deeply rooted beliefs, habitual practices, and long-standing perceptions of child growth and nutrition. Such findings suggest that attitudes are shaped not only by information but also by accumulated personal experiences and cultural norms that are resistant to rapid change.

Cultural context further influences maternal attitudes toward child nutrition and stunting prevention. Kreuter and McClure (2020) highlighted that health-related attitudes are often embedded within family traditions and community norms. In many settings, child-feeding decisions are influenced by extended family members, particularly elders, whose beliefs may differ from health professionals' recommendations. As a result, individual counseling sessions may have limited impact if they are not supported by broader family or community engagement.

The duration and intensity of counseling interventions also play a critical role in determining attitudinal outcomes. A study by Zhang et al. (2022) demonstrated that repeated and long-term counseling interventions were significantly more effective in changing attitudes compared to single or short-duration sessions. This finding supports the results of the present study, in which the limited exposure to counseling may not have been sufficient to generate a statistically significant change in attitudes despite a positive descriptive trend.

Additionally, the lack of environmental and social support may hinder the internalization of positive attitudes. According to health behavior theories, attitudes are reinforced through social interaction, modeling, and community validation (Glanz et al., 2019).

Without consistent reinforcement from family members, community health cadres, or peer groups, mothers may find it challenging to translate newly acquired knowledge into stable attitudinal change.

Overall, the findings of this study are consistent with existing literature, indicating that while counseling is effective in increasing mothers' knowledge, changes in attitudes require longer-term, multi-component, and culturally sensitive interventions. Integrating continuous education, family involvement, and community-based support is essential to ensure that improved knowledge leads to positive and sustainable attitudinal changes in stunting prevention and management.

CONCLUSIONS

Based on the results of this study, several conclusions can be drawn:

1. This study shows that counseling is effective in improving mothers' knowledge regarding stunting and its management, confirming the important role of health education as a core component of stunting prevention efforts. Strengthened maternal knowledge provides a critical foundation for appropriate childcare practices, nutritional decision-making, and early recognition of growth problems in children.
2. However, the findings also indicate that improved knowledge does not necessarily lead to immediate changes in maternal attitudes. Attitudinal change appears to be influenced by broader factors, including cultural norms, prior experiences, family influence, and social environments. This suggests that one-time or short-term counseling interventions are insufficient to address the affective dimension of stunting prevention.

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