Changes in Maternal Knowledge, Attitudes, and Local Complementary Feeding Practices Through Demonstration-Based Nutrition Education

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Abstract

Wasting remains a public health problem in Indonesia, including Sambeng Kulon Village, Banyumas Regency, Central Java, with a prevalence of 6.67%. Malnutrition can be prevented through complementary feeding practices, associated with maternal knowledge. This study aimed to assess differences in maternal knowledge, attitudes, and complementary feeding practices before and after nutrition education to address wasting. This quasi-experimental one-group pretest-posttest study involved 17 mothers meeting inclusion and exclusion criteria. Nutrition education was delivered through live demonstrations of local-food-based complementary feeding combined with video-based reinforcement and complementary feeding practice support. Data were collected using knowledge and attitude questionnaires, with practice data derived from 24-hour food recalls and scored using the complementary feeding practice questionnaire. Knowledge and attitude posttest data were obtained after the live demonstration, while practice data were collected after the intervention. Knowledge and practice data were analyzed using the Wilcoxon test, whereas attitude data were analyzed using the Paired t-test. The results showed no significant difference in knowledge before and after nutrition education (p=0.151). However, attitudes improved significantly (p=0.026), as did complementary feeding practices (p=0.026). In conclusion, live demonstration-based nutrition education improved maternal attitudes toward complementary feeding and was followed by improved complementary feeding practices after completion of the intervention.

Keywords: attitude; complementary feeding; knowledge; live demonstration; practice

I. INTRODUCTION

Wasting resulting from inadequate nutrient intake and/or recurrent illness is one of the three major nutritional burdens currently faced globally (UNICEF et al., 2023). Wasting is characterized by significant weight loss or failure to gain weight and is associated with a weakened immune system and an increased risk of child mortality in severe cases (Galler et al., 2021). Malnutrition during the growth period can also hinder motor development and increase the risk of non-communicable diseases (UNICEF, 2019).

According to the results of the 2024 Indonesian Nutrition Status Survey, the prevalence of wasting among under five years of age in Central Java was 5,9% (Kemenkes RI, 2025). This figure exceeds the acceptable threshold for a public health problem (<5%) and falls into the "poor" category, indication that it requires attention (de Onis et al., 2019). The peak risk of stunted growth and nutritional deficiencies occurs during the first two years of life, a period referred to as early childhood (WHO, 2023; Ayu et al., 2020). Breast milk and complementary foods are the primary sources of nutrients during this period, with complementary foods introduces when breast milk alone is no longer sufficient (Abeshu et al., 2016). Age-appropriate, energy- and nutrient-dense complementary foods can prevent malnutrition in children (Bégin & Aguayo, 2017). The provision of complementary foods requires a minimum level of variety and frequency in practice (Nurkomala et al., 2018).

The use of a variety of food ingredients in complementary feeding has the potential to improve nutrient absorption and help children become familiar with various flavors and

textures. Meanwhile, a diet lacking in variety carries the risk of causing micronutrient deficiencies (Lutter et al., 2021). The Indonesian Health Survey (2023) reported that the proportion of children aged 6-23 months in Central Java Province who consume animal protein and meet the criteria for minimum dietary diversity and minimum meal frequency has not yet reached 80% (Kemenkes RI, 2023). The World Health Organization (2023) recommends providing diverse, nutrient-rich, and locally available complementary foods to meet children's nutritional needs. The success of providing complementary foods in accordance with recommendations is supported by the availability of affordable and easily accessible food (Susanto et al., 2017). However, inadequate complementary feeding practices in developing countries are also influenced by mother's low levels of knowledge (Abiyu & Belachew, 2020).

Knowledge, Attitudes, and Practices (KAP) are core components of child feeding improvement programs (Kang & Bagaoisan, 2024). Knowledge serves as a foundation for shaping attitudes and promoting appropriate changes in practices (UNICEF, 2020). Nutritional knowledge determines changes in attitudes and behaviors regarding food selection, which in turn impact nutritional status (Zara et al., 2019). Mothers' attitudes toward selecting and preparing food are key determinants of appropriate feeding practices (Ayu et al., 2017). The practice of providing homemade complementary foods in several developing countries presents a challenge to achieving the Minimum Acceptable Diet (MAD). This challenge is characterized by poor feeding practices and the poor quality of complementary foods, including the timing of introduction, frequency of feeding, dietary diversity, consistency, and the nutritional content provided (Abeshu et al., 2016). These various aspects form the basis for planning nutrition education programs aimed at improving complementary feeding practices (Ahmad et al., 2018).

Structured and targeted nutrition education can be used to improve knowledge, attitudes, and complementary feeding practices (Ahmad et al., 2019). One of the group nutrition education methods, demonstration, can help make educational materials clearer and more concrete (Nadia et al., 2021). Research by Gumelar and Tangpukdee (2022) demonstrated that the demonstration method using video recordings can improve mothers' knowledge. Meanwhile, a study by Tengkawan et al. (2022) showed that attitudes and practices of mothers of infants can be improved through seminars and demonstrations on complementary feeding. A preliminary study indicated that 6.67% of children aged 6-23 months in Sambeng Kulon Village, Kembaran District, Banyumas Regency were indicated as wasting. As a curative and preventive measure, nutrition education through demonstrations of locally prepared complementary foods was provided to mothers of children aged 6-23 months to improve their knowledge, attitudes, and complementary feeding practices.

II. METHOD

This study employed a quasi-experimental, one-group pretest-posttest design and was conducted at two integrated health posts (posyandu) in Sambeng Kulon Village, Kembaran District, Banyumas Regency, from August through October 2025. The study received approval from the Health Research Ethics Committee of the Faculty of Health Sciences at Jenderal Soedirman University, No: 1926/EC/KEPK/VIII/2025.

The target population for this study consisted of mothers of children aged 6–23 months in Sambeng Kulon Village, with a total population of 32 mothers. The sample comprised all members of the population who met the predetermined inclusion and exclusion criteria, totaling 17 mothers. The specified inclusion criteria were: 1) Mothers with infants aged 6–23 months; 2) Residing in Sambeng Kulon Village; 3) Mothers or caregivers who participated until the end of the study; and 4) Filling out the informed consent form.

The independent variable in this study was nutrition education related to locally sourced complementary foods, while the dependent variables were the mothers' knowledge, attitudes, and practices regarding the provision of locally sourced complementary foods, measured on a ratio scale. The nutrition education consisted of several sessions (Table 1) with demonstration procedures based on the FAO (2017) guidelines.

Table 1. Nutrition Education Sessions on Local Complementary Feeding

No.	Activity Details	Media
1	*Door-to-door pretest* on knowledge, attitudes, and practices regarding the provision of local complementary foods	Questionnaire on knowledge, attitudes, practices, and 24-hour food recall form
2	Live demonstration of local complementary feeding preparation by researchers, lasting approximately 45 minutes, covering the following topics: 1) Explanation of the nutritional issue of wasting in relation to complementary feeding, followed by guidelines for providing local complementary foods 2) Demonstration of complementary feeding preparation in accordance with guidelines on variety, portion size, and texture by age group	Local food ingredients and cooking utensils
3	Hands-on activity: a participatory practical session on preparing local complementary foods by mothers of children in groups, lasting approximately 30 minutes, using stickers as a guide	Local food ingredients, cooking utensils, and stickers as guides for preparing complementary foods
4	Post-test on knowledge and attitudes regarding local complementary foods	Knowledge and attitude questionnaire
5	Sharing of a video demonstration on the preparation of local complementary foods, featuring the same content as the live demonstration (duration: approximately 18 minutes), via WhatsApp two days after the live demonstration	Video demonstration of local complementary feeding preparation available on YouTube
6	Monitoring in the form of guidance on the preparation of local complementary foods by mothers of infants via WhatsApp	Photos of food ingredients and prepared complementary feeding menus
7	Evaluation of complementary feeding practices following nutrition education in the second week after door-to-door hands-on demonstrations	Practice questionnaire and 24-hour food recall form

The questionnaires on knowledge, attitudes, and practices each consisted of 10 items (Table 2). These questionnaires were developed by modifying questionnaires from previous studies and material from scientific references that had been pilot-tested on 15 mothers of toddlers in Kembaran Subdistrict. Reliability testing yielded Cronbach's Alpha values of 0.48 for knowledge, 0.68 for attitudes, and 0.43 for practices. The practice questionnaire was completed by the researchers based on the transcribed data from the 24-hour children aged 6-23 months dietary intake interview forms.

Table 2. Statement Indicators for the Questionnaire on Knowledge, Attitudes, and Practices Regarding the Provision of Local Complementary Foods

Variable	Indicator	Statement Number
Knowledge, Attitudes, and Practices Regarding the Provision of Local Complementary Foods	Meeting the nutritional needs of infants	1, 3
	Portion sizes of food ingredients in complementary foods	2, 10
	Variety of food ingredients in complementary foods	4, 5, 6
	Texture and preparation of complementary foods appropriate for the child's age	7, 8
	How to ensure adequate energy density and nutrient content in complementary foods	9

Data analysis was performed using SPSS version 29, including univariate analysis to describe the characteristics, knowledge, attitudes, and practices of the respondents, as well as bivariate analysis to test differences in the dependent variables before and after nutrition education. Bivariate analysis was preceded by a normality test using the *Shapiro-Wilk* test. Knowledge and practice data that were not normally distributed were analyzed using the *Wilcoxon* test. Meanwhile, attitude variable data that were normally distributed (p-value > 0.05) were analyzed using a *paired t-test*. Results were considered significant if *the p-value* was < 0.05.

III. RESULTS AND DISCUSSIONS

A. Result

The respondent characteristics included age, highest educational attainment, occupation, and family income, as well as the age and sex of the children aged 6-23 months (Table 3).

Table 3. Distribution of Respondent Characteristic

Category	n (17)	%
Age		
26-30 years	11	64,7
31-35 years	5	29,4
>35 years	1	5,9
Highest educational attainment		
Elementary education	7	40,2
Secondary education	8	47,1
Tertiary education	2	11,8
Occupation		
Not working/housewife	12	70,6
Home-based worker	2	11,8
Private-sector employee	3	17,6
Family income*		
<Rp2,338.410	9	52,9
≥Rp2,388.410	8	47,1
Age of children		
6-8 months	5	29,4
9-11 months	1	5,9
12-23 months	11	64,7
Sex of children		
Male	9	52,9
Female	8	47,1

* Family income was categorized based on the 2024 Banyumas Regency Minimum Wage (UMK), according to the Decree of the Governor of Central Java No. 561/45 of 2024.

Most of the participating mothers of children (64.7%) were aged 26–30 years, and 47.1% had completed secondary school. The majority of mothers (70.6%) were housewives, with 52.9% having a household income below the Banyumas Regency Minimum Wage (Rp2,338,410). A total of 64.7% of children aged 12–23 months were included in the pretest data collection. In this study, the sex distribution of the children was relatively balanced, with 52.9% male and 47.1% female.

Table 4. *Pre-test and post-test* scores, and differences in knowledge before and after nutrition education regarding locally sourced complementary foods

Variable	Mean ± SD / Median (Min–Max) Score		*p-value*	Frequency	
				Decreased/Remained the Same	Increased
	Pre-test	*Post-test*		n (%)	n (%)
Knowledge	8 (5–10)	8 (4–10)	0.151	9 (52.9)	8 (47.1)
Attitude	28.59±2.98	30.53 ± 3.38	0.026	5 (29.4)	12 (70.6)
Practice	16 (1–20)	17 (11–20)	0.026	5 (29.4)	12 (70.6)

*Maximum total score for the knowledge variable = 10, attitude variable = 40, practice variable = 20

The results of the Wilcoxon test showed no significant difference in the knowledge of mothers regarding the provision of local complementary foods before and after nutrition education based on hands-on demonstrations (p=0.151). These results may have been influenced by the high baseline scores of the mothers of children (Table 4), which limited the potential for score improvement on the post-test. The average total attitude score regarding the provision of locally sourced complementary foods increased by 6.78% following nutrition education (Table 4). This increase was supported by the results of a paired t-test, which indicated a significant difference in the attitudes of mothers of toddlers before and after nutrition education based on hands-on demonstrations (p=0.026). Differences in the feeding practices of mothers of children aged 6-23 months before and after the nutrition education series were evident in changes in the median values and minimum total scores, which showed an increase from the pre-test to the post-test (Table 4). Based on the results of the Wilcoxon test, complementary feeding practices showed a significant improvement following a series of nutrition education sessions, including hands-on demonstrations, the distribution of sticker guides on complementary feeding preparation, instructional videos, mentoring, and discussions on complementary feeding practices (p-value = 0.026).

B. Discussion

The characteristics of the respondents provide an overview of the study population and may provide context for interpreting the findings. Most respondent were in the 26-30 years age group. In terms of age, Icenogle et al. (2019) found that psychosocial maturity increases with age, with individuals aged 26-30 years showing greater psychosocial maturity than younger age groups. However, this finding should be interpreted cautiously, as Icenogle et al. (2019) examined psychosocial maturity rather than maternal feeding practices. Meanwhile, a higher level of education also facilitates the understanding of information related to child-rearing practices (Rahayu et al., 2018). In addition, employment status may influence the time available for childcare and food preparation. In general, mothers who are not employed have more time to manage their children's feeding. However, mothers with household incomes below the minimum wage pay less attention to the types of food given to their children, resulting in inappropriate feeding behaviors (Pradanie et al., 2020).

The age of the children is also relevant to complementary feeding practice because feeding requirements and eating abilities change with age. Children aged 12-23 months are at stage when food preferences begin to develop, as reflected in selective eating behavior and increasing ability to consume a wider variety of foods (Kemenkes RI, 2024). Consequently, differences in children's age influence the quantity and texture of complementary foods provided by mothers (Kemenkes RI, 2020; Kemenkes RI, 2024). According to the Recommended Dietary Allowances, children aged 1-3 years have recommended energy intake of 1,350 kcal/day, with the same recommended energy value for both sexes (Kemenkes RI, 2019).

Regarding the outcomes of the nutrition education intervention, no significant difference was observed in mother's knowledge. This is consisted with the results of previous studies

on nutrition education, whether using seminars and practical demonstrations of complementary feeding preparation in a single session or demonstrations conducted three times (Tengkawan et al., 2022). The high baseline knowledge scores may reflect a ceiling effect, which occurs when many respondents have high initial scores, so that scores after the intervention do not show a significant increase and meaningful variations within the population are masked (Staus et al., 2021; Gish et al., 2026). Based on Bloom's theory (1908), knowledge is acquired through sensory perception (Nurmala et al., 2018). Although there were no significant differences in the knowledge variable, the 47.1% increase in total scores among mothers of toddlers indicates that the stimulus in the form of direct demonstrations was well-received by some of these mothers. This type of stimulus is capable of influencing an individual's attention (Mahendra et al., 2019). According to several theories, knowledge serves as the foundation for changes in practice, and mothers' knowledge regarding complementary feeding will influence their attitudes and actions regarding the provision of complementary feeding (Kang & Bagaoisan, 2024; Lestiarini & Sulistyorini, 2020).

Mother's attitudes toward complementary feeding improved significantly after the nutrition education intervention. This finding is consisted with the study by Tengkawan et al. (2022), which found that complementary feeding seminars accompanied by practical demonstrations of complementary feeding preparation had a significant effect on the attitudes of mothers of children. These findings are also supported by the research by Puriastuti and Utomo (2021), which showed that the use of demonstration methods for complementary feeding preparation was able to significantly improve the attitudes of mothers of toddlers. Participatory cooking demonstrations provide positive experiences that support attitude formation, both through cognitive and affective components (Bakanauskas et al., 2020; Talavera et al., 2020).

In this study, the attitudes of mothers of children aged 6-23 months were measured through their responses to positive and negative statements, categorized as strongly disagree (STS) – disagree (TS) – agree (S) – strongly agree (SS), with the highest score assigned when the response supported a positive evaluation. An individual's attitude toward an object is influenced by knowledge containing both positive and negative information about that object, the more positive aspects known, the more positive the attitude (Darsini et al., 2019). An increase in the number of mothers of children who answered correctly on the knowledge questionnaire items can serve as a stimulus for attitude formation, even though the difference in their responses before and after nutrition education through hands-on demonstrations was not statistically significant.

According to information integration theory, when new information emerges, individuals evaluate it and integrate it with information already stored in *long-term memory*, thereby forming an appropriate attitude. At the cognitive level, attitudes can change in response to change in information (Bakanauskas et al., 2020). Demonstrations provide knowledge and opinions that subsequently influence the affective component (emotions, feelings, and enthusiasm), as evidenced by the emergence of questions during the learning process. Answered questions are then adopted as ideas or perceptions and serve as a reference for more positive behavior in line with changing attitudes (Polly et al., 2024). Thus, changes in mother's knowledge and attitudes are relevant aspects in supporting the implementation of complementary feeding practices. Mother's knowledge and attitudes toward optimal complementary feeding are related to their ability to implement recommended complementary feeding practices (Abiyu & Belachew, 2020).

Improvements in complementary feeding practices were also observed in this study, as reflected in indicators such as the use of a variety of local food ingredients and the appropriate portion sizes of vegetables according to age (Table 2). These improvements in practices are consistent with the principles of SBCC (social and behavior change communication), which promotes behavioral change through several mechanisms, including

increased knowledge and awareness, the use of various communication channels, and repeated exposure to health messages that encourage behavioral change (Workicho et al., 2021).

Based on perspective of the stimulus-organism-response (SOR) framework, behavioral change may occur when an external stimulus is received and processed by the individual, leading to a response (Mahendra et al., 2019). Demonstration techniques provide a tangible way of teaching how to perform a task and involve hands-on practice, allowing the material to be understood more quickly (Yasin & Oktavianisya, 2021). Demonstrations stimulate individual interest and action because the process involves observation, participation, and practice (Das, 2016). According to Alkattan and Alreshaid (2025), live demonstrations provide direct guidance from instructors, allowing participants to receive feedback and correct their techniques, thereby supporting the development of procedural skills. In addition, providing repetition in diverse, engaging, and enjoyable ways can enhance mastery of new skills (Contento, 2011).

One method of repeating demonstration material in this study involved the use of demonstration videos. Providing repetition of material through video demonstrations can encourage consistency in mothers' practices regarding the preparation of complementary foods for their infants. For visual learners, presenting information in visual form is more effective in improving the ability to remember and apply information because visual cues and patterns serve as powerful mnemonic devices (Alabi, 2024). Video demonstrations also allow participants to pause, replay, and rewatch the material, which facilitates the gradual acquisition of skills (Alkattan & Alreshaid, 2025).

Complementary feeding practices are influenced by several factors, including mothers' understanding of complementary feeding and household income (Sembiring et al., 2025; Gemede et al., 2025). Mothers with a good understanding of complementary feeding are better able to follow guidelines for feeding, including food types, feeding times, and preparation methods (Sembiring et al., 2025). In addition to mothers' understanding, Gemede et al. (2025) state that complementary feeding practices among mothers of toddlers are also influenced by average monthly household income. Low-income households tend to face food insecurity, resulting in limited access to healthy food options and suboptimal feeding practices.

Practices are the actions and reactions taken by individuals in specific environments and situations, and changes in these practices are influenced by knowledge and attitudes (Kang & Bagaoisan, 2024). Consistent with this concept, Tengkawan et al. (2022) reported a significant improvement in mother's complementary feeding practices following a nutrition intervention that combined a complementary feeding seminar with a practical demonstration of complementary food preparation, assessed at the fourth week after the pre-test.

Changes in health behaviors can be evaluated through follow-up measurements taken several weeks after an intervention. Pfledderer et al. (2022) identified significant changes in several health behavior indicators at the first follow up measurement, which took place two weeks after the intervention. In line with this, Phillips et al. (2019) found that habit strength related to fruit and vegetable consumption was significantly greater in the intervention group than in the control group at each follow-up assessment, including at weeks two and three. These findings provide and empirical basis that health-related behavioral changes can begin to be observed through follow-up measurements within two weeks after an intervention.

IV. CONCLUSION

Nutrition education related to local complementary foods based on participatory demonstrations significantly improved mothers' attitudes toward feeding local complementary foods, but not their knowledge. Appropriate local complementary feeding

practices showed a significant increase following the nutrition education series, as measured two weeks after the in-person demonstration-based nutrition education. Although the nutrition education series may contribute to improvements in complementary feeding practices, the consistency of these practices over time was not assessed. Therefore, the researchers recommend continuing nutrition education alongside regular monitoring and evaluation by relevant health care facilities to support sustained improvements in complementary feeding practices and contribute to efforts to prevent and address wasting among children under five.

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REFERENCES

Abeshu, M. A., Lelisa, A., & Geleta, B. (2016). Complementary Feeding: Review of Recommendations, Feeding Practices, and Adequacy of Homemade Complementary Food Preparations in Developing Countries – Lessons from Ethiopia. *Frontiers in Nutrition*, *3*, 41. https://doi.org/10.3389/fnut.2016.00041

Abiyu, C., & Belachew, T. (2020). Effect of Complementary Feeding Behavior Change Communication Delivered through Community-Level Actors on Dietary Adequacy of Infants in Rural Communities of West Gojjam Zone, Northwest Ethiopia: A Cluster-Randomized Controlled Trial. *PLoS ONE*, *15*(9), e0238355. https://doi.org/10.1371/journal.pone.0238355

Ahmad, A., Madanijah, S., Dwiriani, C. M., & Kolopaking, R. (2018). Complementary Feeding Practices and Nutritional Status of Children 6-23 Months Old: Formative Study in Aceh, Indonesia. *Nutrition Research and Practice*, *12*(6), 512–520. https://doi.org/10.4162/nrp.2018.12.6.512

Ahmad, A., Madanijah, S., Dwiriani, C. M., & Kolopaking, R. (2019). Complementary Feeding Practices and Nutritional Status of Children 6-23 Months Old: Formative Study in Aceh, Indonesia. *Jurnal Gizi Klinik Indonesia*, *16*(1), 1–13. https://doi.org/10.4162/nrp.2018.12.6.512

Alabi, M. (2024). Visual Learning: The Power of Visual Aids and Multimedia. *J Educ Technol*, *15*(4), 123–135.

Alkattan, R., & Alreshaid, L. (2025). The Effectiveness of Live and Prerecorded Video Demonstrations in Teaching Restorative Dentistry to Undergraduate Students: Cohort Study. *JMIR Formative Research*, *9*, e74383. https://doi.org/10.2196/74383

Ayu, W. K., Zen Rahfiludin, M., & Fatimah Pradigdo, S. (2017). Hubungan Perilaku Ibu Terkait MP-ASI Standar WHO dengan Status Gizi Baduta Usia 6-23 bulan (Studi di Kelurahan Punggawan Kota Surakarta). *Jurnal Kesehatan Masyarakat*, *5*(3), 202–209.

Ayu, R. N. S., Abdullah, & Surahman, N. (2020). Hubungan Asupan Protein dengan Penambahan Tinggi Badan pada Baduta Stunting di Wilayah Kerja Puskesmas payung Rejo. *Jurnal Gizi Aisyah*, *3*(1), 24–26.

Bakanauskas, A. P., Kondrotienė, E., & Puksas, A. (2020). The Theoretical Aspects of Attitude Formation Factors and Their Impact on Health Behaviour. *Management of Organizations: Systematic Research*, *83*(1), 15–36. https://doi.org/10.1515/mosr-2020-0002

Bégin, F., & Aguayo, V. M. (2017). First Foods: Why Improving Young Children's Diets

Matter. *Maternal and Child Nutrition*, *13*((S2)), e1252. https://doi.org/10.1111/mcn.12528

Contento, I. R. (2011). *Nutrition Education: Linking Research, Theory, and Practice* (Second Ed.). Jones and Bartlett Publishers International.

Darsini, Fahrurrozi, & Cahyono, E. A. (2019). Pengetahuan ; Artikel Review. *Jurnal Keperawatan*, *12*(1), 95–107.

Das, S. (2016). *Textbook of Community Nutrition*. Academic Publishers.

de Onis, M., Borghi, E., Arimond, M., Webb, P., Croft, T., Saha, K., De-Regil, L. M., Thuita, F., Heidkamp, R., Krasevec, J., Hayashi, C., & Flores-Ayala, R. (2019). Prevalence Thresholds for Wasting, Overweight and Stunting in Children Under 5 Years. *Public Health Nutrition*, *22*(1), 175–179. https://doi.org/10.1017/S1368980018002434

FAO. (2017). *Guide To Conducting Cooking Participatory Demonstrations: To Improve Complementary Feeding*. Food and Agriculture Organization of The United Nations. http://www.fao.org/3/a-i7265e.pdf

Galler, J. R., Bringas-vega, M. L., Tang, Q., Rabinowitz, A. G., Imran, K., Jia, W., Omar, H., Abdul, M. R., Ismafairus, A., Hamid, A., Malin, J., & Valdés-sosa, P. A. (2021). NeuroImage Neurodevelopmental Effects of Childhood Malnutrition : A Neuroimaging. *NeuroImage*, *231*, 117828. https://doi.org/10.1016/j.neuroimage.2021.117828

Gemede, H. F., Ayele, K., & Demisew, M. (2025). Maternal Knowledge and Practices on Complementary Feeding and Associated Factors in Sedal District, Western Ethiopia. *Food Science & Nutrition*, *13*(5), e70286. https://doi.org/10.1002/fsn3.70286

Gish, M., Nowominski, A., & Dror, R. (2026). Breaking the Ceiling : Mitigating Extreme Response Bias in Surveys Using an Open-Ended Adaptive-Testing System and LLM-Based Response Analysis. *AI*, *7*(2), 73.

Gumelar, W. R., & Tangpukdee, J. (2022). The Effect of Nutrition Education based on Local Foods on Mothers' Knowledge and Anthropometry of Malnutrition Children Aged 6 to 21 Months. *Malaysian Journal of Nursing*, *14*(1), 53–58. https://doi.org/10.31674/MJN.2022.V14I01.008

Icenogle, G., Steinberg, L., Duell, N., Chein, J., Chang, L., Chaudhary, N., Di Giunta, L., Dodge, K. A., Fanti, K. A., Lansford, J. E., Oburu, P., Pastorelli, C., Skinner, A. T., Sorbring, E., Tapanya, S., Tirado, L. M. U., Alampay, L. P., Al-Hassan, S. M., Takash, H. M. S., & Bacchini, D. (2019). Adolescents' Cognitive Capacity Reaches Adult Levels Prior to Their Psychosocial Maturity: Evidence for A "Maturity Gap" in A Multinational, Cross-Sectional Sample. *Law and Human Behavior*, *43*(1), 69–85. https://doi.org/10.1037/lhb0000315

Intiyati, A., Edi, I. S., Soesanti, I., Christianingsih, J., Suprihatin, K., & Widarti, L. (2024). Enhancing Maternal Knowledge and Practices in Complementary Feeding through Emotional Demonstration Methods: Meningkatkan Pengetahuan dan Praktik Ibu dalam Pemberian Makanan Pendamping ASI melalui Metode Demonstrasi Emosional. *Amerta Nutrition*, *8*(2SP), 49–57. https://doi.org/10.20473/amnt.v8i2SP.2024.49- 57

Kang, K., & Bagaoisan, M. A. P. (2024). Research Status of the Knowledge-Attitude-Practice Theory Model in Gastric Cancer Prevention. *Cureus*, *16*(7), 3–7. https://doi.org/10.7759/cureus.64960

Kemenkes RI. (2019). *Angka Kecukupan Gizi 2019*. Kementerian Kesehatan Republik Indonesia.

Kemenkes RI. (2020). *Pedoman Pemberian Makan Bayi dan Anak (PMBA)*. [Ebook]. Kementerian Kesehatan Republik Indonesia. https://puskesmasbanjarsatu.bulelengkab.go.id/pedoman-pemberian-makan-bayi-dan-anak-pmba/

Kemenkes RI. (2023). Survei Kesehatan Indonesia (SKI) 2023. Tersedia di:

https://www.badankebijakan.kemkes.go.id/ski-2023-dalam-angka/ (diakses: 23 Februari 2025)

Kemenkes RI. (2024). *Buku Kesehatan Ibu dan Anak*. [Ebook]. Kementerian Kesehatan Indonesia. https://ayosehat.kemkes.go.id/buku-kia-kesehatan-ibu-dan-anak

Kemenkes RI. (2025). *Survei Status Gizi Indonesia 2024*. Tersedia di: https://www.badankebijakan.kemkes.go.id/survei-status-gizi-indonesia-ssgi-2024/ (diakses: 22 Juni 2025)

Lestiarini, S., & Sulistyorini, Y. (2020). Perilaku Ibu pada Pemberian Makanan Pendamping ASI (MPASI) di Kelurahan Pegirian. *Jurnal PROMKES*, *8*(1), 1–11. https://doi.org/10.20473/jpk.v8.i1.2020.1-11

Lutter, C. K., Grummer-Strawn, L., & Rogers, L. (2021). Complementary Feeding of Infants and Young Children 6 to 23 Months of Age. *Nutrition Reviews*, *79*(8), 825–846. https://doi.org/10.1093/nutrit/nuaa143

Mahendra, D., Jaya, I. M. M., & Lumban, A. M. R. (2019). Buku Ajar Promosi Kesehatan. In *Program Studi Diploma Tiga Keperawatan Fakultas Vokasi UKI*.

Nadia, U., Sufriani, & Fajri, N. (2021). The Impact Of Socialization Through Demonstration In Improving Mother's Knowledge Of Toddlers' Diets. *JIM FKep*, *5*(3), 84–92.

Nurkomala, S., Nuryanto, N., & Panunggal, B. (2018). Praktik Pemberian MPASI (Makanan Pendamping Air Susu Ibu) pada Anak Stunting dan Tidak Stunting Usia 6-24 Bulan. *Journal of Nutrition College*, *7*(2), 45–53. https://doi.org/10.14710/jnc.v7i2.20822

Nurmala, I., Rahman, F., Nugroho, A., Erlyani, N., Laily, N., & Anhar, V. Y. (2018). *Promosi Kesehatan*. Airlangga University Press.

Pfledderer, C. D., Bai, Y., Brusseau, T. A., Burns, R. D., & King, J. L. (2022). Changes in College Students 'Health Behaviors and Substance Use After A Brief Wellness Intervention During COVID-19. *Preventive Medicine Reports*, *26*, 101743. https://doi.org/10.1016/j.pmedr.2022.101743

Phillips, L. A., Johnson, M., & More, K. R. (2019). Experimental Test of A Planning Intervention for Forming A 'Higher Order' Health-Habit. *Psychology & Health*, *0*(0), 1–19. https://doi.org/10.1080/08870446.2019.1604956

Polly, J. Y., Nayoan, C. R., Limbu, R., & Marni, M. (2024). Demonstration Method Better Increased Knowledge, Attitude, and Skills on Hand Washing With Soap in Elementary School Students. *Journal of Public Health for Tropical and Coastal Region*, *7*(3), 249–255. https://doi.org/https://doi.org/10.14710/jphtcr.v7i1.22054

Pradanie, R., Rachmawati, P. D., & Cahyani, M. D. (2020). Factors Associated with Mothers' Behaviors in Selecting Complementary Feeding in Surabaya, Indonesia. *Nurse Media: Journal of Nursing*, *10*(3), 306–316. https://doi.org/10.14710/nmjn.v10i3.27706

Puriastuti, E. A., & Utomo, B. (2021). Feeding Demonstration Method as An Effort To Increase Mother ' s Knowledge and Attitude in Feeding Infants 6-12 Months. *EMBRIO: Jurnal Kebidanan*, *13*(2), 172–178.

Rahayu, R. M., Pamungkasari, E. P., & Wekadigunawan, C. (2018). The Biopsychosocial Determinants of Stunting and Wasting in Children Aged 12-48 Months. *Journal of Maternal and Child Health*, *3*(2), 105–118. https://doi.org/10.26911/thejmch.2018.03.02.03

Sembiring, E. E. B., Suyoko, C., Bidaya, D. S., Tambunan, J. T., & Paninsari, D. (2025). The Relationship Between Mother's Knowledge of Complementary Feeding and The Proper Practice of Complementary Feeding. *Journal of Pharmaceutical and Sciences*, *8*(2), 913–921. https://doi.org/https://doi.org/10.36490/journal-jps.com

Staus, N. L., Connell, K. O., & Storksdieck, M. (2021). Addressing the Ceiling Effect when Assessing STEM Out-Of-School Time Experiences. *Frontiers in Education*, *6*(690431), 1–9. https://doi.org/10.3389/feduc.2021.690431

Susanto, T., Syahrul, Sulistyorini, L., Rondhianto, & Yudisianto, A. (2017). Local-Food-based

Complementary Feeding for The Nutritional Status of Children Ages 6–36 Months in Rural Areas of Indonesia. *Korean Journal of Pediatrics*, *60*(10), 320–326. https://doi.org/10.3345/kjp.2017.60.10.320

Talavera, M. T. M., Orillo, A. T. O., Domingo, D. G. C., & Abacan, S. F. (2020). Participatory Cooking Demonstration to Enhance Capacity of Community Nutrition Workers in Promoting Optimal Complementary Feeding Practices. *Journal of Social Health*, *3*(2), 8–18.

Tengkawan, J., Septisari, A. A., Ihyauddin, Z., Karuniawaty, T. P., Nurbaiti, L., Dewi, N. E., & Sekartini, R. (2022). Improving Knowledge, Attitude, and Practices of Complementary Feeding Using Practical Intervention Training for Parents Living in Central Lombok, Indonesia: A Community-Based Study. *WHO South-East Asia Journal of Public Health*, *11*(1), 54–60. https://doi.org/10.4103/WHO-SEAJPH.WHO-SEAJPH_336_20

UNICEF. (2019). The State of the World's Children 2019: Children, Food and Nutrition--Growing Well in a Changing World. In *UNICEF*.

UNICEF. (2020). Improving Young Children's Diets During The Complementary Feeding Period. In *UNICEF Programming Guidance*. UNICEF.

UNICEF, WHO, & World Bank. (2023). Level and Trend in Child Malnutrition: Key Findings of The 2023 Edition of The Joint Child Malnutrition Estimates. In *World Health Organization*.

WHO. (2023). *WHO Guideline for Complementary Feeding of Infants and Young Children 6–23 Months of Age*. World Health Organization.

Workicho, A., Biadgilign, S., Kershaw, M., Gizaw, R., Stickland, J., Assefa, W., Abuye, C., Woldegiorgis, B., Berhanu, L., & Kennedy, E. (2021). Social and Behaviour Change Communication to Improve Child Feeding Practices in Ethiopia. *Maternal & Child Nutrition*, *17*(4), e13231. https://doi.org/https://doi.org/10.1111/mcn.13231

Yasin, Z., & Oktavianisya, N. (2021). Metode Pembelajaran Demonstrasi untuk Meningkatkan Kemampuan Ibu dalam Pengelolaan Makanan Bergizi pada Balita Stunting. *The Indonesian Journal of Health Science*, *12*(2), 130–136. https://doi.org/10.32528/ijhs.v12i2.4869

Zara, N., Lubis, Z., & Siagian, A. (2019). Family Characteristic Relations with Nutrition Status of Toddlers at Dewantara Aceh Heatlh Center. *Jurnal Kesehatan Almuslim*, *4*(8), 1–7.