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Understanding Barriers to Complementary Feeding Practices in Rural Areas

Memahami Hambatan Praktik Pemberian Makanan Pendamping di Daerah Pedesaan

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ABSTRACT

Background: Complementary Feeding (CF) is one of the important factors in efforts to prevent malnutrition. There is a phenomenon of stunting prevalence increasing 1.6 times at the age of 6-24 months where this phase is the phase of CF.
Objectives: Understanding the obstacles in the practice of CF in rural areas.
Methods: Cross-sectional descriptive qualitative research is used to explore the phenomenon of obstacles experienced in depth. The data collection method included in-depth interviews with mothers whose children aged 6-23 months experiencing stunting. Triangulation methods are carried out by interviewing husbands, grandmothers, and health cadres.
Results: This study provides an overview of specific barriers to CF practices, such as picky eating, the onset of allergic reactions, and the risk of choking. The practical obstacles experienced are pressure from families and the environment to provide CF prematurely, limited time to prepare CF, and financial limitations to access healthier food. Obstacles that come from mothers, such as inadequate knowledge about CF cause concern, as well as the lack of time that mothers have to make CF independently. Support also plays an important role in the success of CF that comes from families and health cadres in the form of community-based education.
Conclusions: The main obstacles to CF experienced by mothers are the lack of proper knowledge and behavior, as well as limited socio-economic support. To increase the success of the CF program, interventions that include continuing education, increased family support, and strengthening support networks at the community level are recommended.

INTRODUCTION

During this decade, the prevalence of stunting in Indonesia has been decreasing, but it still does not meet the target of the National Medium-Term Development Plan 2020-2024, which is 14% in 2024[1]. In addition, it is necessary to be cautious because there is an increase in wasting cases to 7.7% in 2022 compared to 7.1% in 2021[2]. Wasting cases that are not handled properly will cause new cases of stunting[3]. Furthermore, there is also a phenomenon of 1.6 times increase in stunting cases occurring at the age of 6-24 months, where this phase is the phase of providing complementary feeding (CF)[4].

The practice of providing CF in Indonesia is still not in accordance with the recommendations of World Health Organization (WHO)[5] where the results of the National Socio-Economic Survey 2023 showed that the diversity of types of CF had only reached 59.3%[6]. More than 40% of babies in Indonesia were introduced to CF at the age of less than 6 months, while 40% of babies aged 6-23 months did not get a variety of foods and 28% of babies did not get enough meal frequency[7]. This is also in line with research conducted in Pontianak where 4.5% of mothers reported providing CF for their babies before the age of 4 months, and 12.7% only gave CF with a single menu or only one type of food, such as carbohydrates, and there was a delay in giving animal protein[8]. Research in Aceh also revealed that only 50% of toddlers received timely introduction to CF, and only 50% received a variety of foods, and 40% received a Minimum Acceptable Diet (MAD)[9]. Many babies under 2 years of age do not receive complete CF, even though food production conditions in Indonesia are rich in variety of food. Variations of food for

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CF are very well available, but the access to these food sources is still low, especially for the poor families. In addition, society has insufficient knowledge about balanced nutrition[10].

The period of providing CF is an important phase in the introduction of food, because the constructed habits built in this phase will be carried into adulthood[11]. Various studies have shown that obstacles in providing CF involve several interacting factors. One of the main obstacles is the lack of knowledge of mothers or families regarding the right time and type of food that should be given[12]. Many mothers do not yet understand the importance of CF that is rich in nutrients and how to provide it safely[13]. Cultural factors also influence the practice of providing CF, where local norms often influence the types of food introduced to the babies[14].

Research on CF practices, especially on Minimum Acceptable Diet (MAD)[15], Minimum Dietary Diversity (MDD)[16] and consumption of Animal-Source Foods (ASFs)[17] has been widely conducted, but data on specific barriers to CF practices are still limited. Understanding specific barriers to CF practices provides useful information for determining appropriate support methods for mothers' needs.

METHODS

Research Design

This study is a qualitative descriptive cross-sectional study using in-depth interview methods to collect information in the form of opinions and experiences in the practice of providing CF among mothers, fathers, grandmothers, and health cadres in rural areas. Qualitative data provides in-depth data to explore the phenomena that occur in the practice of providing CF so that it has the potential for further research. The protocol and procedures of this study have received approval from the health research ethics commission, Faculty of Health Sciences, Universitas Respati Yogyakarta number: 087.3/FIKES/PL/VII/2024 on July 8, 2024.

Data Collection

Data collection was conducted in four villages in Sleman Regency, which were selected purposively based on the lowest level of animal protein consumption and low diversity of complementary foods, so that it is in accordance with the context of the study. This study involved 5 main informants, namely mothers with children aged 6-23 months experiencing stunting, and 5 triangulation informants consisting of husbands, grandmothers, and health cadres who provided additional perspectives to enrich the data. Sample selection was carried out purposively based on a qualitative approach that emphasizes the depth of information rather than quantitative respondents, with informants selected based on inclusion criteria and willingness to be interviewed in depth regarding the provision of CF.

Data Collection Instruments

In-depth interviews were conducted by researchers and one enumerator in charge of documentation. The interviews were conducted for 40-60 minutes with open-ended questions divided into 4 themes regarding obstacles in providing CF, including (1) barriers from health and children's response, (2) social, cultural, and economic, (3) knowledge. behavior, and practice, and (4) support systems. In-depth interviews were conducted with 5 main informants, and 5 triangulation informants until no new themes emerged so that it could be concluded that data saturation had been achieved. In-depth interviews were conducted after respondents gave their consent.

Data Analysis

The results of the in-depth interviews were transcribed verbatim by the research assistant. The research team checked the transcript results by matching the recording results with field notes. Qualitative data analysis used the analysis method developed by Helvi Kyngäs[18], which includes three main steps: identifying initial codes from the data, grouping codes into categories, and compiling main themes to find the deep meaning of the phenomenon being studied. The validity of the results was strengthened by the Lincoln and Gaba criteria used to validate the research findings[19], including credibility through data triangulation and confirmation from participants, transferability by providing detailed research context, reliability through analysis by other researchers who were not involved in data collection, and confirmability with detailed documentation of the analysis process. In addition, audio recordings and field notes were used to ensure that the data found were objective. Data analysis was carried out by other people who had qualitative study skills and were not involved in the data collection process.

RESULTS AND DISCUSSIONS

This study explores information about the obstacles experienced by mothers in the practices of providing CF. Researchers conducted interviews with 10 informants. The main informants in this study were 5 mothers whose children aged 6-23 months experiencing stunting, and triangulation informants of 5 people, namely two husbands, one mother-in-law and two health cadres with the following characteristics:

Table 1. Frequency distribution of participant characteristics

Participant Code	Participant	Age	Education Level	Occupation	Family Income
P1	Mother 1	41	Diploma	Private Employee	> IDR 2,315,976
P2	Mother 2	27	Senior High School	Housewife	< IDR 2,315,976
P3	Mother 3	29	Senior High School	Factory Worker	> IDR 2,315,976
P4	Mother 4	38	Junior High School	Housewife	< IDR 2,315,976
P5	Mother 5	39	Bachelor	Private Employee	> IDR 2,315,976
S1	Husband 1	45	Senior High School	Dataller	< IDR 2,315,976

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Participant Code	Participant	Age	Education Level	Occupation	Family Income
S2	Husband 1	37	Bachelor	Private Employee	> IDR 2,315,976
M1	Mother-in-law	58	Junior High School	Housewife	< IDR 2,315,976
K1	Cadre 1	48	Bachelor	Housewife	> IDR 2,315,976
K2	Cadre 2	40	Senior High School	Housewife	> IDR 2,315,976

IDR = Indonesian Rupiah (Indonesian Currency)

Theme of Barriers to the Practice of Providing CF

All parents have obstacles in providing CF. There are four themes used in exploring the obstacles to the practice of providing CF in rural areas. The themes include: (1) barriers from health and children's response, (2) social, cultural, and economic, (3) knowledge. behavior, and practice, and (4) support systems.

Table 2. Themes and sub-themes of obstacles to the practice of providing CF

Theme	Sub-theme
Barriers from health and children's response	1. What health problems did you find when providing CF? 2. What obstacles did you find related to children's reactions when practicing providing CF? 3. How do you solve problems related to refusal to eat?
Social, cultural, and economic	1. How do cultural beliefs or traditions influence the practice of providing CF? 2. What social pressures or norms influence your decisions regarding the practice of providing CF? 3. How do financial constraints affect your ability to provide complementary CF? 4. What barriers do you encounter in accessing a variety of CF?
Knowledge, behavior, and practice	1. How do your fear, anxiety, and confidence levels affect the practice of providing CF? 2. What emotional or psychological challenges do you face when practicing providing CF? 3. What practical difficulties do you face in preparing and providing CF 4. How do time or skill constraints affect the practice of providing CF?
Support systems	1. How does family support (husband, grandmother, etc.) affect the practice of providing CF? 2. What is the role of cadres in the practice of providing CF?

CF = Complementary Feeding

Barriers from Health and Child Response

This theme examines the obstacles experienced by parents from the aspect of health and child response. Health problems that often arise in the practice of providing CF are the emergence of allergic reactions[20] and the risk of choking[21]. In addition, the child response to food also affects the practice of providing CF, such as children who like to be picky eaters[22] and do not want to chew or to open their mouths. This causes mothers to provide food according to what their children want, even though it does not meet the specified CF guidelines

"…I don't give saltwater fish, shrimp, or scallop, because I'm afraid it will cause allergies…" (P5)

"…I don't introduce meat before my child is 1 year old, because meat is hard to chew. I'm afraid it will make him choking …" (P4)

Concerns about allergies cause mothers not to provide foods, such as seafood and to meet animal protein needs come from eggs and meat. Seafood has many benefits as it contains high animal protein and is rich in omega-3 fatty acids, especially DHA (*Docosahexaenoic Acid*) and EPA (*Eicosapentaenoic Acid*) that are important for children's brain development[23]. Concerns about choking in children when giving meat as CF are also a common obstacle[21]. Therefore, providing food with a texture that is appropriate for the child's age according to existing guidelines can reduce the risk of choking[5,24].

Problems that often arise in children's response are that they like to be picky eaters and sometimes do not want to chew or even close their mouths, causing mothers to worry that their children are malnourished[11,25]. This encourages mothers to provide food according to their children's preferences so that they will eat without paying attention to the nutritional

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contents. As an alternative to meeting nutritional needs, mothers replace it with formula milk. Some people assume that providing formula milk will fulfill all children's nutritional needs.

"…My child is a picky eater…" (P2)
"...I give food according to my child's preferences, even if it's just rice and instant food, rather than my child not eating at all..." (P1)
"...because my child has difficulty eating, I give him formula milk to fulfill his nutrition..." (P5)

Children who are picky eaters can suffer malnutrition[26]. Malnutrition in the long term can increase the risk of stunting[27]. The phenomenon of mothers who provide food without considering the nutritional contents and give instant food so that their children are willing eat will have an impact on long-term eating patterns[28]. Eating habits during the period of providing CF will become habits that are carried into adulthood[29]. Furthermore, children who are picky eaters are formed because they see the eating patterns of their families, so it is important for families to form good habits[30]. The habit of consuming instant food from an early age will increase the risk of degenerative diseases in adulthood[31]. Consumption of formula milk without medical indications also needs to be considered, because some formula milk contains high sugar so that it risks increasing obesity[32]. The existence of a wrong perception regarding formula milk as a meal replacement also needs attention, this is due to the massive advertisement of formula milk in various media[33]. Many formula milk advertisements claim that their products contain various nutrients and can increase intelligence[34].

Social, Cultural and Economic

This social, cultural, and economic theme examines how cultural beliefs or traditions influence the practice of providing CF, as well as how financial barriers influence the practice of providing diverse foods, which is supported by the following interview excerpt:

"…my grandmother suggested providing CF before my child is 6 months old..." (P3)
"…My parents suggested giving meat after the child is 1 year old, because he cannot chew properly yet…" (P2)

Several studies reveal that family members, especially grandmothers, play an important role in shaping feeding habits[35]. However, it sometimes leads to feeding practices that are not in accordance with guidelines, such as providing CF before the age of 6 months and prohibiting the consumption of animal protein at the beginning of providing CF[36]. Animal protein should be given from the beginning of providing CF[37] as various literatures state that a lack of animal protein is a factor causing stunting[16].

"…our family income is under the regional minimum wage, besides that my husband also smokes, so I can't buy meat every day for CF so I replace it with eggs…" (P1)
"…I give my wife limited shopping money, so she cooks almost the same food every day to meet our needs…" (S1)

Access to healthy and diverse food is also influenced by the family's economic capacity[38]. Financial challenges are exacerbated by a lack of awareness of the importance of nutritious CF[39]. This lack of knowledge can lead to suboptimal feeding practices, which further exacerbate malnutrition[40]. It is also worsened by the family's lack of wisdom in spending money, by preferring to buy cigarettes rather than healthy food for the family[41]. Smoking can cause the risk of stunting, not only because of the content of hazardous substances that cause children to become sick, but also because smoking reduces the family's financial allocation to buy healthy food[42].

Knowledge, Behavior, and Practice

Mothers' knowledge plays an important role in influencing the behavior and practice of providing CF[43]. A study in Indonesia found that mothers' education level is a significant factor influencing the practice of providing CF to children. This indicates the importance of education in improving the practice of providing CF[44]. The interview reveals the mothers' concerns regarding the adequacy of nutrients from the provided CF and the obstacles encountered during the practice of providing CF, as in the following interview excerpt:

"...I am not sure whether the food I give is sufficient to meet the needs so sometimes I supplement it with formula milk..." (P2)

Mothers' concerns about fulfilling their children's nutritional needs can be overcome by educating them about the right practice of providing CF[13]. Adding formula milk without medical indication will affect the children's eating portion, because they are already full from drinking formula milk[45]. In rural areas, there is a social phenomenon that considers condensed milk to be the same as formula milk. This has fatal consequences, because condensed milk contains a lot of sugar content, which increases the risk of obesity in children[46]. Therefore, adequate education is needed so that mothers do not add formula milk to the practice of providing CF without medical indication.

"...to be honest, I feel that the CF phase is very tiring. I have taken the time to cook, but sometimes it doesn't meet my expectations when my child eating, he only eats a little and sometimes refuses the food I have made..." (P3).
"I feel frustrated when my child has difficulty eating and has difficulty gaining weight..." (P5)
"...I work 8-10 hours outside the home. I don't have much time to cook CF every day, so sometimes I buy it..." (P2)
"...we have educated mothers to provide a menu according to the maternal and child health book. Mothers have been given raw animal protein assistance from the village. However, some of the mothers do have time to cook because they are working, so they buy CF..." (K2)

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Another obstacle found in this study is the limited time of parents in preparing CF. Often parents feel that they spend a lot of time preparing CF, but it is not commensurate with the amount of food consumed by the children as they eat only a small amount[47].

Support System

Family support plays an important role in the practice of providing CF[48]. Support is not only in the form of financial support for providing CF but should also be in the form of psychological support.

"...husbands often only provide financial support to buy CF, but are rarely involved in cooking or feeding their children..." (P3)

Husbands have an important role in the practice of providing CF. Not only responsible for financial support, but they must be involved also in the practice of providing CF[48]. A study conducted in Kenya shows that increasing fathers' and grandmothers' knowledge about child health and nutrition will increase the support, both materially and psychologically[49].

"...health cadres provide advice to provide CF with a balanced menu as instructed in the maternal and child health book..." (P3)

"...not all cadres have attended the Infant and Young Child Feeding (IYCF) counselor training, so we provide education on providing CF using the maternal and child health book..." (K1)

The findings in this study show that cadres provided education on the practice of providing CF through community-based nutrition education. Health cadres provided education using maternal and child health book guidelines. This was done because not all cadres had attended *IYCF* counselor training. This is also in line with research findings in the city of Yogyakarta where there are still limited health cadres who have the opportunity for *IYCF* counselor training[50]. This study has the advantage of using a qualitative design that allows for deeper information on the complex phenomenon of the practice of providing CF to mothers whose children experiencing stunting. The limitation of this study is that it has not explored more deeply the picture of the eating patterns or habits of stunted children.

CONCLUSIONS

This study found several obstacles in the practice of providing CF, such as children's picky eating preferences, risk of allergies, and potential for choking. To overcome pressure from family and the environment to provide CF earlier, it is recommended to increase awareness of the right time to provide CF through family education. To solve time and financial constraints, mothers can be directed to use simple and affordable CF recipes, as well as practical guidelines for more efficient preparation of CF. Lack of knowledge about CF in mothers can be overcome through education and training programs by health workers, while health cadres can play an important role in providing moral support and information for mothers.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

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AUTHOR CONTRIBUTIONS

All authors contribute their ideas. MM: conceptualization, methodology, writing–review and editing, supervision. TMK: writing–original draft, methodology, software, supervision. DAP: writing–original draft, data curation, validation. RW: conceptualization, coding, verbatim transcript, formal analysis

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