

ORIGINAL RESEARCH ARTICLE

Exploring factors influencing complementary feeding practices of mothers with infants aged 6-23 months in Sidoarjo Regency, Indonesia: A qualitative study

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Abstract

Complementary feeding (CF) is crucial in a child's first thousand days of growth. This study aimed to explore the factors influencing mothers' use of CF practices in the Sidoarjo Regency. We conducted a descriptive qualitative study in June-August 2023 in Sedati District, Sidoarjo Regency and collected information from ten mothers with children aged 6-23 months using purposive sampling. In-depth interviews were carried out to gather data on the mothers' experiences and perspectives regarding CF practices. The qualitative data were interpreted using thematic analysis. The three key themes were emanated included 'complementary feeding practices', 'individual perspectives', and 'social support'. The result highlighted the diversity of practices, varying individual beliefs, and the impact of support systems. These findings provide insights into the complexities of CF practices and underline the need for targeted educational programs and support systems to enhance CF practices. (*Afr J Reprod Health* 2024; 28 [10s]: 25-33).

Keywords: Infant; feeding; perceived; behaviour

Résumé

L'alimentation complémentaire (AC) est cruciale au cours des mille premiers jours de croissance d'un enfant. Cette étude visait à explorer les facteurs influençant le recours aux pratiques de mucoviscidose par les mères dans la régence de Sidoarjo. Nous avons mené une étude qualitative descriptive en juin-août 2023 dans le district de Sedati, régence de Sidoarjo et collecté des informations auprès de dix mères d'enfants âgés de 6 à 23 mois à l'aide d'un échantillonnage raisonné. Des entretiens approfondis ont été menés pour recueillir des données sur les expériences et les perspectives des mères concernant les pratiques de mucoviscidose. Les données qualitatives ont été interprétées à l'aide d'une analyse thématique. Les trois thèmes clés dégagés comprenaient les « pratiques alimentaires complémentaires », les « perspectives individuelles » et le « soutien social ». Le résultat a mis en évidence la diversité des pratiques, les diverses croyances individuelles et l'impact des systèmes de soutien. Ces résultats donnent un aperçu des complexités des pratiques de AC et soulignent la nécessité de programmes éducatifs ciblés et de systèmes de soutien pour améliorer les pratiques de AC. (*Afr J Reprod Health* 2024; 28 [10s]: 25-33).

Mots-clés: Nourrisson ; alimentation; perception; comportement

Introduction

The introduction of solid or semi-solid foods, known as complementary feeding (CF), is a critical phase in an infant's development. It marks the transition from exclusive breastfeeding or formula feeding to a diversified diet. Typically, CF begins around the age of 6 months and continues until the child reaches 2 years of age, paving the way for more adult-like

eating habits¹. In Indonesia, the adherence of children aged 6-23 months to these recommended indicators varies. Data from the Indonesian Nutrition Surveillance System (SSGI) revealed that 48.9% of infants-initiated CF between 6 and 7 months, while 51.1% began CF after 7 months of age. Additionally, only 23.1% of children had a diversified diet, with 69.9% receiving adequate animal protein, 58.9% consuming milk, and 35.8% incorporating fruits and

vegetables rich in vitamin A². In East Java, 72.6% of children consumed three or more meals, 57.5% met minimum frequency of meals requirements, while 41.7% achieved the adequate intake³.

Complementary feeding practices were influenced by various factors. Children may exhibit preferences for foods with lower nutritional density, while mothers often face challenges in devising balanced menus. Additionally, cultural beliefs or myths about certain foods potentially harming a child's health, such as fish and eggs, can deter mothers from including these items in their child's diet⁴. Recognizing the benefits of both breastfeeding and appropriate CF practices, mothers play a pivotal role in fostering their children's health. Their perceived self-efficacy in executing CF activities according to recommended guidelines can serve as a motivating or inhibiting factor⁵.

Beyond maternal self-efficacy, the support system provided by husbands, families, the surrounding community, and health workers significantly impacts the quality of breastfeeding and CF practices⁶. Husbands' support through the purchase of family food items and assistance in providing CF to children can influence the success of both breastfeeding and CF. The surrounding community, including relatives, friends, parents, and neighbours, play roles in aiding mothers with childcare and disseminating valuable information about breastfeeding and CF⁷. Furthermore, the support offered by health workers, in the form of accurate health information and education, holds the potential to influence appropriate CF practices⁸.

In light of these multifaceted influences on CF practices, this study seeks to comprehensively understand three key aspects: (1) the complementary feeding practices adopted by mothers, (2) mothers' perceptions of the benefits, barriers, self-efficacy, and vulnerability associated with CF practices, and (3) the social support experienced by mothers in the context of complementary feeding. This research aims to explore an in-depth understanding of CF among mother in Sidoarjo Regency, ultimately contributing to improved infant and child nutrition.

Methods

Setting

This research was conducted during the period of June to August 2023 within the Sedati District,

located in the Sidoarjo Regency of East Java, Indonesia. The Sidoarjo Regency covers a substantial land area, totalling 714,243 square kilometres, and it is administratively divided into 18 individual districts. Notably, the Sedati District accounts for approximately 11.12 percent of the total land area within the regency.

Study design and sample size

This study aimed to provide descriptive and exploratory analysis of complementary feeding practices and the factors influencing them based on Health Belief Model (HBM) as our theoretical framework⁹. For our participant selection, we purposefully chose ten mothers with children aged 6-23 months from one village in Sedati District. This selection was facilitated by utilizing a list of eligible mothers that was compiled based on growth monitoring records, with the assistance of community health workers known as "cadres". It is important to note that we did not employ a specific sample size calculation; instead, our objectives were to attain a saturation point in our finding through the thorough exploration of individual interviews¹⁰.

Inclusion and exclusion criteria

In this study, we included participants based on specific criteria (1) Participant had to be either the parent or full-time caregiver on an infant aged between 6-23 months. (2) Mothers included in the study had to be resident of Sidoarjo Regency, and (3) the child in their care had to be in apparent good health. It's important to note that participation in the study was entirely voluntary. There was no coercion involved in their decision-making process.

Procedure

We conducted semi-structured face-to-face interviews to delve into participants' personal experiences and perspectives. Once we identified eligible participants, we initiated contact via text message or phone call to arrange a convenient interview time. The scheduling of the interviews was tailored to the participants; availability. Each participant engaged in in-depth interviews with one of our researchers, it took approximately 1h to complete.

Data collection

The interview took place within the participants' homes, chosen for their comfort and convenience. To safeguard the confidentiality of the data, we anonymized it by assigning a unique identification number to each record, transcript, and set of field notes. We employed a set of 6 open-ended questions. These questions were carefully developed to elicit detailed responses from our participants¹⁰⁻¹².

1. Can you recall when you first introduced solid foods to your child?
 - Could you describe your child's typical eating routine, including whether they have solid foods immediately upon waking, or if they first consume breastfeeding or formula milk? Please detail their breakfast, snacks, lunch, and dinner routines.
2. Have you encountered any perceived barriers or challenges while practicing CF? If so, please elaborate on them.
3. Do you perceive any specific benefits associated with practicing CF? If yes, kindly explain.
 - In your opinion, does the preparation of hygienic complementary foods help in preventing child infections?
 - Do you believe that providing energy-dense complementary foods can reduce the risk of child malnutrition?
 - Is it your understanding that offering a variety of foods and adhering to an appropriate feeding frequency based on the child's age can reduce the likelihood of child malnutrition?
4. Are there any aspects of CF practices that make you feel vulnerable?
5. How confident do you feel when it comes to managing the portion sizes, food variety, and feeding frequency in CF?
6. Do you receive support from your husband or other family members when practicing CF? If so, could you provide some insights into how they assist you?
 - Are you receiving support from peers or cadre members as you navigate CF practices? If yes, could you share more about the nature of their support?
 - Have health workers provided any support or guidance to facilitate CF practices? If they have,

kindly elaborate on the nature of their support and assistance in this regard.

Participant characteristic

Ten mothers and their children completed the research procedure. The study involved mothers aged 25 to 35 years, with 3 mothers between 25 and 30 years old and 7 mothers between 31 and 35 years old. In terms of education, 7 mothers had a bachelor's degree, 1 had a master's degree, and the remaining 2 had completed junior and senior high school. Regarding employment status, 3 mothers were employed, and 7 were unemployed.

The gender distribution among the children was 7 females and 3 males. The children, aged 6 to 23 months, included 5 aged 6 to 9 months, 2 aged 10 to 12 months, and 3 aged 13 to 23 months. Complementary feeding was introduced at varying times: 2 children at 5 months, 6 children at 6 months, and 2 children at 7 months. Nutritional assessments based on Weight-for-Age Z-Scores classified 8 children as having normal weight, 1 as underweight, and 1 as obese. Height-for-Age Z-Scores indicated that 4 children had normal height, 3 were stunted, and 3 were severely stunted.

Data analysis

The interviews were first transcribed in Bahasa Indonesia and then translated into English. We double-checked these transcripts by comparing them with the original interview records and also took into account our field notes from each interview. Afterward, the data underwent manual coding by the lead author. Codes were developed and refined through discussions involving all three authors. Once we agreed upon the final set of codes, we applied them consistently to all remaining transcripts¹².

Ethical considerations

Ethical permission was obtained from Health Research Ethics Committee at Universitas Nahdlatul Ulama Surabaya with certificate number 0171/EC/KEPK/UNUSA/2023. Informed written consent was taken from all the participants after full explanation of the nature, purpose, and procedures used in the study. This research received funding from Universitas Nahdlatul Ulama Surabaya.

Results

Themes

The present study explored the themes on various aspects of complementary feeding practices and the influencing factors among mothers in Sedati District, Sidoarjo Regency. The study revealed several important themes related to CF, individual perspective, and social support dynamics among mother in this region.

Complementary feeding practice

Mothers reported the menu and additional ingredient for their children

Mothers described varied approaches to complementary feeding, ranging from simple homemade meals to catered services. One mother mentioned providing fortified porridge until her child was 7 months old, while another typically prepared basic meals like rice with eggs and shredded meat for breakfast, followed by vegetable soup at noon. However, dinner was often skipped depending on the family's schedule. In contrast, another mother opted for a baby-specific catering service due to concerns about the quality of processed or fortified products available in stores.

"I gave my child fortified porridge only until 7 months"- Participant 6, 38 years, 15 months

"Breakfast is usually just something simple, like rice, eggs, and shredded meat. Only at noon are we given vegetable soup. Yes, I use rice... Children rarely eat dinner; it depends on when they go out, so they eat together. If they are at home, they give them simple soup or clear vegetables."- Participant 2, 33 years, 19 month

Mothers reported the meals frequency for their children

Mothers generally reported that their children typically ate three times a day, though some adjustments were necessary depending on the child's mood and routine. One mother explained that her child usually had three meals, but if the child became fussy and sleep coincided with mealtime, she would

sometimes only manage to feed the child twice a day. Another mother shared that despite occasionally forgetting to feed her child on time, she would ensure that the child still received all three meals, even if it meant feeding them later than usual.

"Usually, my child eats three times. But if she's really fussy, then sleeping time coincides with eating time, and he goes to sleep, so she only eats twice a day like that." Participant 4, 31 years, 9 months

"My child always eats three times a day. There was a time when I forgot to feed my child, but even though it was late, I still fed him." Participant 6, 38 years, 15 months

Mother's preferred non-dairy animal source for the children

Mothers exhibited different preferences when it came to providing non-dairy animal sources for their children. One mother avoided giving her child beef, opting instead to serve rice accompanied by shrimp or catfish. In contrast, another mother included beef in her child's diet, along with chicken liver, chicken meat, and a variety of vegetables like carrots, celery, and leeks.

"I have not given my child beef. Usually, I serve rice with shrimp or catfish." Participant 4, 31 years, 9 months

"At the moment, I am still given a menu of beef, chicken liver, carrots, celery, and sometimes leeks, and I also give chicken with chicken meat." Participant 3, 33 years, 7months

Mothers allowed the children to eat sweet and beverage

Mothers expressed varied preferences for their children's food choices. One mother mentioned that her child enjoys sweet foods like chocolate. In contrast, another mother shared that although her child was once offered chocolate or candy by an older sibling, the child did not develop a liking for sweet snacks, instead preferring traditional foods such as 'gethuk' and pastels.

"My child likes to eat sweet foods like chocolate." Participant 2, 33 years, 19 months

“My child was once given chocolate or candy by her older brother. But my daughter does not like to eat sweet snacks. Prefer traditional snacks such as ‘gethuk’ and pastels”. Participant 6, 38 years, 15 months

Different mother’s approach to giving unhealthy food to the children

The mother reported that their younger son was exposed to high-sodium snacks such as French fries by his older brother. Despite this introduction, the child did not develop a liking for these foods. In contrast, another mother indicated that they have not yet introduced high-sodium snacks into their child's diet.

“My son was introduced to eating French fries or high-sodium snacks by his older brother, but he doesn’t really like it.” Participant 9, 27 years, 10 months

“I have not introduced high-sodium snacks yet.” Participant 10, 30 years, 8 months

Individual perspectives

Mothers feel the positive benefit when they introduced CF

The introduction of complementary feeding was met with positive feedback from mothers, who noticed significant improvements in their children's behaviour and development. Mother observed a better satisfaction of the child’s nutritional needs, leading to increased comfort and emotional stability. Similarly, another mother reported noticeable benefits, including weight gain, increased activity, and more frequent babbling.

“My children have become less fussy.” Participant 2, 33 years, 19 months

“The weight has increased; the child is also more active and babbles a lot.” Participant 3, 33 years, 7 months

Barriers faced by the mothers such as limited cooking skills, time constraint, baby reluctance and complicated food preparation.

Several mothers faced significant challenges that impacted their ability to consistently prepare and

provide appropriate meals for their children. Time constraints emerged as a primary barrier, particularly for mothers juggling multiple responsibilities. The mother expressed frustration with the time-intensive process of preparing complementary foods, which involved using a blender and filtering food to achieve the right texture. Due to her busy schedule and exhaustion, especially in the evenings, she often resorted to purchasing ready-made rice porridge and simply adding side dishes. Similarly, another mother streamlined her meal preparation by cooking in bulk every two days and freezing the meals, which she then reheated as needed. This approach helped her manage time better but may not fully address concerns about meal freshness and nutritional quality. Cooking skills also presented a challenge for some mothers. Mother admitted to lacking confidence in her cooking abilities, leading to instances where her child refused to eat due to taste issues.

“I have a bottleneck in time. I have to cook for my children and husband. must be a food blender; filter food to adjust texture. It takes a long time; if I do it at night, I am already tired. So, at this time, I buy rice porridge, and then all I have to do is add side dishes.” Participant 2, 33 years, 19 months

“I cook it once for two days, so I put it in the freezer, and then when I want to eat it, I heat it up.” Participant 3, 33 years, 8 months

Varying levels of confidence to CF food preparation process

Mothers exhibited varying levels of confidence in their ability to prepare complementary foods for their children, reflecting a spectrum of experiences and self-assurance. The mother demonstrated high confidence in her approach, stating that she carefully adheres to recommended portions and frequencies, and routinely monitors her child's growth at the health center (Posyandu). However, not all mothers shared the same level of certainty. Another mother expressed concern about whether her child would accept and enjoy the menu she prepared,

“I do not hesitate to prepare MPASI according to the portion and frequency. Because every month I always monitor my weight and height at the

Posyandu.”Participant.” Participant 3, 33 years, 7 months

“Yes, usually when I cook solid food by myself, there is a fear of whether there are enough carbohydrates or not enough protein. Yes, there is a fear like that.” Participant 4, 31 years, 9 months

Varying perspective among participants regarding vulnerability if mothers did not focus on food hygiene, energy-dense food and frequency of CF

Mothers had varied views on the risks of not focusing on food hygiene, energy-dense nutrition, and the frequency of complementary feeding. Many agreed on the importance of food hygiene, believing that proper cooking and frying could reduce the risk of infections. Concerns about malnutrition were also raised, with some mothers noting that small portion sizes and nutrient-poor diets had led to weight loss in their children. Opinions differed on the importance frequency and variety of foods. One mother mentioned that less frequent and varied solid foods might not have caused malnutrition because the immune system differed. Another believed that as long as breastfeeding continued, the frequency of solid food was less important. Another mother took a different stance, arguing that energy-dense foods were not essential and that introducing animal proteins was more important, suggesting that a varied diet might not have been necessary for every child.

“Yes, I feel that preparing hygienic solid food can prevent children's infections.” Participant 4, 31 years, 9 months

“I feel that energy-dense solid food can reduce malnutrition in children because yesterday it seemed less nutrient-dense. The problem is that the portions are small, so she loses weight.” Participant 2, 33 years, 19 months

Social support

Involvement of husband in the complementary feeding process

The involvement of husbands in the complementary feeding process varies significantly among families, reflecting diverse levels of engagement and support. For some mothers, husbands play an active and supportive role. In contrast, other mothers

experience limitations in paternal involvement due to external factors. Additionally, some mothers rely more on alternative sources of help. In this case, the support from other family members, such as grandparents, becomes crucial in compensating for the husband's limited involvement.

“My husband really supports the process of complementary feeding; he helps me feed the baby and sometimes helps me blend the food.” Participant 3, 33 years, 7 months

“Her father rarely helps to feed my child because my husband has to work and comes home at night; sometimes he is out of town.” Participant 5, 33 years, 18 months

Limitation of support from peer or cadre in the community

Support for complementary feeding from community cadres and health centers was often inadequate. Cadres, despite their potential role, frequently focused on broader issues like stunting rather than providing specific guidance on complementary feeding. Peer support varied; some mothers exchanged information with friends and neighbors, while others relied on online sources for guidance.

“The support from the cadres has not been maximized. I am also a cadre in this area, but it'sit has only been talking about stunting incessantly; in reality, there is still not enough education for the people.” Participant 1, 32 years, 10 months

“I have never exchanged information with neighbours or friends regarding MPASI. I searched on Instagram or Google myself.” Participant 10, 30 years, 8 months

Insufficient support from community health centers (Posyandu) especially from health care workers

Community health centers, such as Posyandu, also fell short in offering comprehensive education on complementary feeding. Many participants reported that these centers primarily focused on basic services like weighing and immunization, with little to no education on feeding practices. Although some mothers received occasional advice from the

midwife, however, this support was not consistently available.

“There is no education about complementary feeding at Posyandu, only weighing it and then immunization.” Participant 2, 33 years, 19 months

“I once received education from a midwife because my child was underweight; then he was given food such as biscuits and was given short menu suggestions.” Participant 10, 30 years, 8 months.

Discussion

In this study, some mothers noticed positive changes in their children's behaviour and health when they introduced complementary feeding. However, some mothers faced challenges like limited cooking skills, concern about time, and dealing with their children's food preferences. Self-efficacy affects the ability to implement the decision-making process in terms of complementary food preparation¹³. Other findings from this study showed that mothers stressed the importance of hygiene when preparing solid foods to prevent infections in their children. Regarding energy-dense solid foods and their role in reducing child malnutrition, opinions varied. Mothers in Ghana also showed both positive and negative effect of adequate complementary foods⁴. It's clear that mothers may adopt different approaches to complementary feeding based on their beliefs and available resources¹⁴.

The involvements of husband in complementary feeding practices vary among the participants. This study showed that mothers that expressed more appreciation of their husbands were more involved and supportive. When husbands actively participate, it can alleviate the mother's burden and contribute to a more effective and successful complementary feeding process¹⁵. These mothers were more likely to give adequate intake and are more inclined to avoid giving junk foods¹³. Some mothers in this study exchanged information with their peers, which can be helpful. But not all mothers use this support equally. Some prefer to look up information online instead. In addition, our study found that this support was not always available at health centres. They ended up searching for information online. The results of this study confirm that having community nutrition experts and counsellors can offer valuable support to primary

caregivers in enabling women to make informed decisions about their child's nutrition¹⁶.

The strength of the study is the respondents' diversity. It employed a qualitative research which allowed for an in-depth exploration of the complementary feeding practices and the factors influencing them among mothers in Sidoarjo Regency, Indonesia. Nevertheless, the study suffered from several limitations: 1) The sample size may be suitable for qualitative research aimed at achieving data saturation, it limits the generalizability of the finding to a broader population. 2) The data collected in rely on self-reported information provided by the mothers. This introduces the possibility of recall bias and social desirability bias, where participants may provide responses, they believe are socially acceptable. 3) The study did not investigate the interactions between mothers and health workers could provide valuable insights.

To improve complementary feeding practices, it is crucial to develop and implement education and training programs that focus on basic cooking skills, particularly for preparing healthy snacks. These programs should be practical and accessible, taking into account the time constraints faced by mothers. Health education should be integrated into existing initiatives, with a focus on proper food handling and preparation techniques to prevent infections. Additionally, clear guidelines on incorporating beneficial energy-dense foods into a child's diet should be provided through various channels, including online resources and community-based programs¹⁷. Encouraging fathers involvement in nutrition education and meal preparation can help alleviate the burden on mothers and contribute to more effective practices. Establishing and promoting peer support networks for mothers, as well as ensuring the accessibility and reliability of online resources, is also essential¹⁸. Integrating community nutrition experts and counselors into health centers can offer comprehensive support. Developing community-based nutrition programs that are culturally sensitive and tailored to local needs will further enhance complementary feeding practices. By addressing these challenges and implementing these recommendations, policies and practices related to them can be significantly improved, leading to better health outcomes for children^{19,20}.

Conclusion

This study provides insights into the practices, individual beliefs, and social support related to complementary feeding. The results indicate the need to address obstacles, strengthening familial support, enhancing peer and healthcare professional assistance, and considering personalized dietary approaches. These measures are essential to effectively implement complementary feeding practices and advance child nutrition and development in this population. Further research and interventions are needed to address these aspects comprehensively and support mothers in providing optimal complementary feeding to their children.

Contribution of Authors

Ira Dwijayanti : conceptualized and designed the study

Muji Sulistyowati : wrote the introduction and edited the paper.

Emyr R Isaura : wrote the discussion and edited the paper.

Anugrah L Mutiarani : designed the methodology

Gusti M.S Noor : collected and analysed the data.

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