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MATERNAL KNOWLEDGE AS THE SIGNIFICANT FACTOR OF EXCLUSIVE BREASTFEEDING FAILURE IN PATI, CENTRAL JAVA

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Abstract

The percentage of exclusive breastfeeding (EBF) failure in Pati Regency is 19%, with a particular health center, Margorejo, having a significantly high rate of EBF failure in all 16 villages, where the failure rate is 100%. One of the causes of EBF failure is the early introduction of complementary feeding (CF), which is influenced by the mother's knowledge about exclusive breastfeeding and complementary feeding. To determine the relationship between maternal knowledge and the practice of early complementary feeding for infants aged 0-12 months in Margorejo and Bumirejo villages, Pati Regency. This research used a cross-sectional design. The sample consisted of 54 respondents selected through proportional random sampling. The instruments used were a questionnaire on knowledge about exclusive breastfeeding and complementary feeding, as well as a questionnaire on the age at which the mother began introducing complementary feeding. Data analysis was performed using Fisher's Exact test. 64.8% of mothers had good knowledge, while 35.2% had poor knowledge. 51.9% of mothers introduced complementary feeding early, while 48.1% did not. Statistical tests showed a significant relationship between maternal knowledge and the practice of early complementary feeding (p=0.001). Improving mothers' understanding of exclusive breastfeeding and complementary feeding is still necessary, and this can be achieved through various efforts by community health workers and village midwives, including periodic and targeted nutrition education for mothers of infants and toddlers.

Keywords: Early complementary feeding, Exclusive breastfeeding, Maternal knowledge

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INTRODUCTION

Children aged 0–12 months are in a critical period as they undergo continuous maturation. Nutritional needs for infants are essential for maintaining health and supporting growth to prevent growth failure

(Kemenkes RI, 2016). The World Health Organization, in its Global Strategy for Infant and Young Child Feeding, emphasizes four important actions to achieve optimal growth and development in young children. These actions include early initiation of breastfeeding, exclusive breastfeeding for the first six months, introducing complementary feeding (CF) from 6–24 months, and continuing breastfeeding up to 24 months (WHO, 2021). Once infants reach six months, they must be given complementary feeding because breast milk alone can no longer meet their nutritional needs (Puspitasari, et.al, 2019). This period marks a transition from exclusive breastfeeding to family foods through the weaning process. Complementary feeding is introduced gradually in terms of texture, type, amount, and frequency (AsDI, 2015).

According to WHO statistical data from 2015–2020, globally, only 44% of infants were exclusively breastfed, while 54% had received MP-ASI before six months. In Indonesia, the percentage of exclusive breastfeeding is 66.1% (Kemenkes RI, 2020). However, in Central Java Province, the average duration of exclusive breastfeeding is only 4.5 months (BPS, 2020), with a rate of 67.3% (Dinas Kesehatan Jawa Tengah, 2020). Pati Regency in Central Java has an exclusive breastfeeding rate of 81% (Dinas Kesehatan Kabupaten Pati, 2020), although some health centers, like Margorejo health center, report lower rates, with only 22.1% achieving exclusive breastfeeding. In the Margorejo health center, 16 out of 18 villages had a 100% failure rate in exclusive breastfeeding. The villages of Margorejo and Bumirejo have the highest population of infants and young children, making them accessible for research. According to Government Regulation No. 33 on Exclusive Breastfeeding, Article 6, mothers are required to exclusively breastfeed their babies without providing additional food or drink (W. Festi P, 2018).

Providing complementary foods before six months is referred to as early complementary feeding, which can lead to gastrointestinal and respiratory infections because an infant's digestive system is not yet ready to process solid foods and they are at risk of choking (Majestika S, 2018). Research conducted by the Center for Nutrition and Food Development shows that infants who are not exclusively breastfed are more likely to suffer from diarrhea, coughs, colds, and fevers compared to those who are exclusively breastfed (Heryanto E, 2017).

Despite the health risks, many parents still practice early complementary feeding, preventing the achievement of exclusive breastfeeding. This is supported by research conducted in Bengkulu, where 66.7% of 60 infants received early complementary feeding (Sariy RB et.al, 2018). Similar findings were reported in Babakan Madang, Bogor, where 83.7% of infants were given complementary food early by their mothers (Hidayatullah RN et.al, 2021). Early complementary feeding can be influenced by several factors, including low maternal knowledge about exclusive breastfeeding and complementary feeding, making mothers more susceptible to advertisements for baby food products and cultural myths.

Research in Sidomulya Health Center, Pekanbaru, shows a relationship between maternal knowledge and early complementary feeding, as higher maternal knowledge is linked to the introduction of complementary foods after six months (Andriyani R, 2018). The aim of this research is to determine the relationship between maternal knowledge and the practice of early complementary feeding for infants aged 0-12 months in Margorejo and Bumirejo villages, Pati Regency.

MATERIALS AND METHODS

This study uses a cross-sectional method to explain the relationship between the independent variable, which is the mother's knowledge, and the dependent variable, which is the early provision of complementary feeding (MP-ASI). The data collection for this study was conducted over three months, from February to April 2022. The research was carried out in Margorejo and Bumirejo Villages, Margorejo Sub-district, Pati Regency, Central Java. The required sample size for this study was 54 participants, based on the sample size calculation formula by Lameshow (Lemeshow S. et.al, 1990). The sampling technique from each posyandu (integrated health service post) used proportional random sampling. Each posyandu in the Margorejo and Bumirejo areas (a total of 8 posyandu) was proportionally sampled based on the number of toddlers at each posyandu, calculated using the proportional sampling formula. The study has received ethical clearance from the Faculty of Medicine, Muhammadiyah University of Surakarta, with reference number 4229/B.1/KEPK-FKUMS/IV/2024.

The inclusion criteria for respondents were mothers with toddlers aged 0–12 months, residing in Margorejo and Bumirejo Villages, and willing to participate by signing an informed consent form. Respondents were selected from five posyandu in Margorejo and Bumirejo, namely Posyandu Pembangunan Wanita 1-5 and Posyandu Bumiasih 1-3. The exclusion criteria were mothers who were not present at the posyandu during data collection and those who withdrew as respondents during the study.

The mother's knowledge was measured using a knowledge questionnaire containing questions related to exclusive breastfeeding and complementary feeding, such as the age at which complementary feeding began, the reasons for early complementary feeding, and the first type of food introduced. The knowledge questionnaire consisted of 21 true or false questions that had undergone validity and reliability tests, with an r-value >3.12 and a Cronbach's Alpha of 0.892. Respondents who answered correctly were given a score of 1, while incorrect answers received a score of 0. The level of the mother's knowledge was categorized into two: good knowledge (score ≥Mean ±76.05) and poor knowledge (score <Mean ±76.05). The category determination threshold used the average score since the mothers' knowledge scores were normally distributed according to the Kolmogorov-Smirnov statistical test (p=0.15).

The history of early complementary feeding was measured using a behavior questionnaire that explored the history of providing complementary feeding to babies before six months of age. This included probing statements about when the baby was first given food other than breast milk, what kind of food it was, its form, the reasons for giving it, and who provided the complementary food. The behavior questionnaire consisted of 10 statements using a Likert scale. The boundary for determining the mother's behavior was scaled into "ever" and "never." Each "ever" response was given a score of 0, while "never" responses were given a score of 1. The mother's behavior was categorized into two: good behavior (≥Mean ±78.08) and poor behavior (<Mean ±78.08), with determination using the Kolmogorov-Smirnov statistical test (p=0.19). All interviews were conducted by three trained interviewers who had undergone training and testing using a reliability test for all questionnaires.

RESULTS AND DISCUSSION

Characteristics of Research Subjects and Respondents

The characteristics of the respondents can be seen in Table 1. The majority of respondents in the study were mothers aged 26–35 years (28 people or 51.9%), had a high school or equivalent education (36 people or 66.7%), and were not employed (36 people or 66.7%).

Table 1: Characteristics of Research Subjects and Respondents

Characteristics	Number	Percentage (%)
Mother’s Age		
19–25 years	22	40,7
26–35 years	28	51,9
36–40 years	4	7,4
Mother’s Age		
Elementary School	2	3,7
Junior High School	11	20,4
High School	36	66,7
Diploma	3	5,6
Bachelor's Degree	2	3,7
Mother's Employment Status		
Employed	18	33,3
Unemployed	36	66,7
Child's Age		
0-4 months	16	29,6
5-8 months	13	24,2
9-12 months	25	46,2
Child's Nutritional Status		
Good Nutrition	37	68,3
At Risk of Overnutrition	15	37,8
Undernutrition	1	1,9
Overnutrition	1	1,9
Maternal Knowledge		

Good	19	35,5
Poor	35	64,8
Early complementary feeding		
Yes	28	51,9
No	26	48.1

The majority of respondents' knowledge levels were classified as good (35 people or 64.8%), while 35.5% (19 people) had a poor knowledge level. Meanwhile, 51.9% of respondents (28 people) provided early complementary feeding (MP-ASI) to their toddlers. Only 48.1% of respondents gave complementary feeding (MP-ASI) at the right time (at 6 months of age).

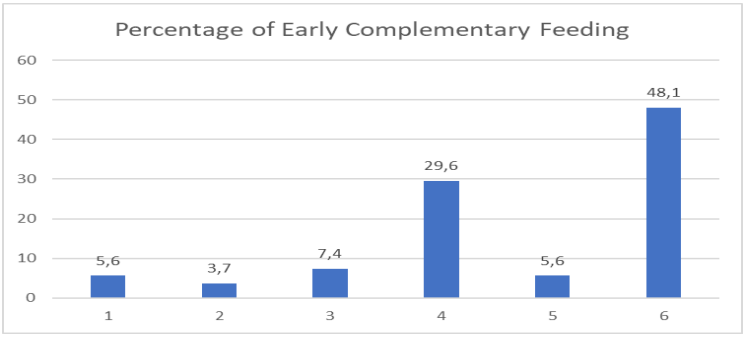

Figure 1: Percentage of Early Complementary Feeding

The majority of respondents who provided early complementary feeding (MP-ASI) to toddlers did so most frequently when the toddler was 4 months old (16 people or 29.6%). Three people provided MP-ASI at 1 month of age, two people at 2 months, four people at 3 months, and three people at 5 months.

The types of complementary foods (MP-ASI) first given to babies included formula milk (57,1%), porridge (28,5%), and bananas (14,3%). Meanwhile, the most common reason respondents gave early MP-ASI to toddlers was because the baby often cried (35,7%). Other reasons that led mothers to provide early complementary feeding included personal initiative (25%), work mother (17, 9%), family encouragement (10,7%), and insufficient/no breast milk production (10,7%).

The Relationship Between Maternal Knowledge and the Practice of Early Complementary Feeding

The bivariate statistical analysis tested using the Fisher Exact test can be seen in Table 2. The correlation coefficient value is 0.614, the prevalence ratio as seen from the Relative Ratio (RR) is 2.126, and the p-value is 0.000 ($p<0.05$).

Tabel 2: Practice of Early Complementary Feeding According to Maternal Knowledge

Maternal Knowledge	Practice of Early Complementary Feeding						Cooefisien Correlation	RP	p
	Yes		No		Total				
	n	%	n	%	N	%			
Poor	15	78,9	4	21,1	19	100	0,614	2,126	0,001
Good	13	37,1	22	62,8	35	100			

Discussion

Early complementary feeding (ECF) refers to food or drinks given to babies under six months of age. Providing early complementary feeding can negatively affect several aspects, such as development and growth, food acceptance issues, infections, obesity, and allergies. Most of the respondents in this study were in the 19–25 age group, which is considered a period of healthy reproduction. Physically healthy and ready reproductive organs characterize this age group. In this condition, mothers are considered prepared and have better knowledge than younger ones. The majority of the mothers' educational levels were high school or equivalent (66.7%), with only 3.7% holding a university degree or equivalent. Education, whether formal or informal, aims to develop a person's skills and personality, so it does not necessarily determine someone's level of knowledge. This study shows that mothers with lower educational backgrounds tend to provide early MP-ASI to their children (51.9%) because their understanding of the recommended age for exclusive breastfeeding is still low, and working mothers have less interaction with their children.

In this study, only 33.3% of respondents were employed. Working mothers tend to give early complementary feeding because they struggle to manage the time for exclusive breastfeeding, and the three-month maternity leave provided by their companies is insufficient to support exclusive breastfeeding practices. Most of the babies were female, with 34 girls (63%) and 20 boys (37%). The majority of the babies were 9–12 months old (46.02%), with the fewest being 5–8 months old (24.07%). The 0-12 month age period is crucial because of rapid growth and development, peaking at 24 months. This period can become critical if not properly addressed. The data showed that most babies were well-nourished (68.5%), while 27.8% were at risk of becoming overweight, and 1.9% were either undernourished or overweight. The weight-for-length nutritional status reflects whether a child's weight is proportional to their length/height growth.

The practice of early complementary feeding is influenced by several factors, including knowledge, education, employment, attitude, and socio-cultural aspects. complementary feeding should be given to babies based on their physical and psychological readiness. Respondents answered correctly most frequently on questions regarding knowledge about exclusive breastfeeding and complementary feeding (an average of 92.6%), but fewer correct answers were given on questions about babies' physical and psychological readiness to receive complementary feeding (an average of 62.1% and 50.9%). These

results indicate that respondents understood the concept of exclusive breastfeeding but lacked an understanding of the physical and psychological readiness of babies for complementary feeding due to insufficient information on the subject.

The appropriate time to introduce complementary feeding is when the baby is six months old. Early complementary feeding can cause issues, such as breastfeeding problems, overloading the kidneys with hyperosmolarity, food allergies, appetite regulation issues, and risks from the consumed food. Statistical tests showed a relationship between mothers' knowledge and the practice of early complementary feeding in infants aged 0–12 months in Margorejo and Bumirejo Villages, Margorejo Sub-district, Pati Regency. The correlation coefficient was 0.614, indicating a strong relationship between maternal knowledge and complementary feeding practices.

This study aligns with research conducted in Ghisikdrono, Semarang, which concluded that there is a relationship between maternal knowledge and early complementary feeding in mothers with babies aged 0–6 months. Maternal knowledge can influence a mother’s behavior and attitude in choosing food. Good knowledge enables mothers to provide food according to their babies' needs. Andriyani’s research also found a relationship between maternal knowledge and early complementary feeding because higher knowledge levels allow mothers to give complementary feeding only after their babies are older than six months.

Referring to Regulation No. 33 on exclusive breastfeeding, Article 7 mentions that exclusive breastfeeding is not required under three conditions: medical indications, the mother's absence, and the mother being separated from the baby. Medical indications, as determined by a pediatrician, allow for complementary feeding as early as four months (17 weeks), depending on the baby’s oromotor readiness. Medical indications may affect either the baby or the mother. Indications for the baby include not being able to receive breast milk or other milk due to congenital metabolic disorders (galactosemia, maple syrup urine disease, phenylketonuria) or needing additional nutrients for a specific period (low birth weight <1500 grams, premature babies, or neonates at risk of hypoglycemia). Indications for the mother include permanent cessation of breastfeeding due to conditions like HIV infection or temporary cessation due to severe illness, herpes simplex type 1, or certain medications.

The reason for early complementary feeding in this study was that the baby often cried. Crying is normal and a part of a baby’s development. Babies cry for various reasons, such as discomfort, wet diapers, or an uncomfortable sleeping position. A common mistake is immediately breastfeeding the baby when it cries. Crying is a late sign of hunger, so the baby should be calmed before breastfeeding. Most respondents provided the formula as complementary feeding. Advertising on television or other media regarding formula can influence mothers' knowledge, leading them to believe that formula is good for babies without specific medical indications.

CONCLUSION

There is a relationship between the level of maternal knowledge and the practice of early complementary feeding (MP-ASI) in infants aged 0–12 months in Margorejo and Bumirejo Villages, Margorejo Sub-district, Pati Regency, Central Java. The high rate of early complementary feeding in these villages increases the risk of failure to achieve exclusive breastfeeding. It is necessary to conduct educational programs on lactation management for working mothers, the benefits of exclusive breastfeeding, and the impact of early complementary feeding for women of childbearing age, family members, and posyandu health workers.

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Declaration of Interest Statement

The authors declare that there are no conflicts of interest related to this study. No financial support or incentives were received from any organizations, companies, or individuals that could influence the results or interpretation of this research.

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