



## RELATIONSHIP FAMILY AND MATERNAL FACTORS WITH INFANT AND YOUNG CHILD FEEDING AGE 6-23 MONTHS IN INDONESIA

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### Abstract

The Infant and Young Child Feeding (IYCF) programs aim to improve the nutritional and health status, growth and development, and survival of children in Indonesia. Knowing the relationship between maternal factors and family factors in feeding infants and children under 6-23 months. This study used secondary data and analysis of the 2017 Indonesian Demographic and Health Survey (IDHS). The research design used was an analytic observational design using a cross-sectional type to determine the relationship between maternal factors and family factors in feeding infants and toddlers 6-23 months. The sample used is 4869 with a minimum sample of 790 samples. The unit of analysis for this study was all children who were born alive from all live births from mothers who had children under five years of age 6-23 months and children who were born alive and were the last child of a mother who had already had a birth. Data analysis used univariate, bivariate, and multivariate analysis. Multivariate analysis using multivariate logistic regression. The results found that most of the children had the practice of IYCF not according to the recommendations (72.2%). Factors related to IYCF practices are a place of residence, socioeconomic, parity, mother's education, and mother's age, while the most dominant factor related to IYCF practice is socioeconomic. It is necessary to improve education, socialization, and movements toward families, so that the community, especially mothers with children aged 6-23 months.

**Keywords:** *Infant and Young Child Feeding (IYCF); family factors; maternal factors*

### 1. Introduction

Nutritional problems in children are still a public health problem in Indonesia. Unresolved nutritional problems in Indonesia such as stunting and wasting (thin toddlers) (Subarkah et al., 2016). Based on basic health research data, the prevalence of stunting or stunted under five is 30.8% and has not yet reached the target, while the target of the National Medium Term Development Plan (RPJMN) for the health department for 2020-2024 is 19%, then wasting data on toddlers is 10.2% while the RPJMN target is 7%. Nutritional problems occur because of inappropriate feeding patterns for children (Kemenkes RI, 2018).

The practice of Infant and Young Child Feeding (IYCF) in Indonesia showed that the percentage of children who have IYCF practices according to the recommendations is higher in urban areas (46%) compared to children living in rural areas (35%) (Kemenkes RI, 2018). The percentage of children who received IYCF practices according to the recommendations increased with the increase in maternal education from low education (13%) to higher education (54%) and the wealth quintile increased from 28% in the lowest wealth quintile to 57% in the top wealth (Kemenkes RI, 2020). National data shows that only 40% of children aged 6-23 months practice IYCF according to the recommendations (BKKBN et al., 2017).

Based on the recommendations of WHO and UNICEF listed in the Global Strategy for Infant and Young Child Feeding, four important

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things must be done in IYCF practice (Nurbaiti, 2017). The proportion of infants in Pakistan who received the minimum recommended dietary diversity (10%), minimum feeding frequency (38%), and minimum acceptable diet (8%) was much lower (Khan et al., 2017). Improper IYCF practices can lead to malnutrition. The most malnutrition among children under five in Indonesia is stunted and severely stunted (Suryaputri et al., 2018).

Feeding children aged 6-23 months of 4 or more food groups from 7 food groups in the previous 24 hours (WHO et al., 2010). The seven food groups in question are grains and tubers, nuts, milk and dairy products (milk, yogurt, cheese), meats (meat, fish, poultry, and offal), eggs, vegetables, and fruit sources. vitamin A, other vegetables, and fruits (Suryaputri et al., 2018). The practice of IYCF ranges from exclusive breastfeeding to the practice of IYCF showing problems. Nationally, only 45% of IYCF practices in children aged 6-23 months are by the recommendations (Aprilla, 2020).

Improper feeding practices during infancy and early childhood lead to malnutrition, leading to impaired cognitive and social development, poor school performance, and decreased productivity later in life (Meshram et al., 2019). Bangladesh has made substantial progress in recent years. Reducing maternal and child mortality, immunization coverage, increased contraceptive use, and greater life expectancy at birth are key successes. Despite these advances, the persistence of malnutrition and nutrition-related health problems remains a serious concern. The number of children under five with severe acute malnutrition and moderate acute malnutrition is estimated at 600,000 and 1.8 million, respectively (Kabir & Maitrot, 2017). The prevalence of chronic malnutrition in children under five is 41%. Minimum dietary diversity is one component of IYCF practice and low dietary diversity is associated with stunting (Dagne et al., 2019).

In the practice of IYCF, several things need to be considered, namely: the age of the child, the frequency of feeding in a day, the number of feedings or portions for one meal, the texture of the food, the variety of food, always maintaining cleanliness. The IYCF strategy includes increasing the coverage of infants who are breastfed in the first 1 hour. Increased coverage of children aged 6-24 months who consume more than 4 food groups (Wijayanti & Fauziah, 2019). There are still limited research results that identify the relationship between family and

maternal factors in feeding infants and children aged 6-23 months using national survey data. Existing research is generally conducted on a smaller area and sample. This study aims to determine the relationship between family factors and maternal factors in infants and young child feeding aged 6-23 months.

## 2. Method

The study uses the 2017 IDHS data with a research design type cross-sectional. The population of this study was all mothers who had children under five aged 6-23 months who received the practice of infant and young child feeding (IYCF). The sample used was 4869 children. IYCF practice according to recommendations: Proportion of children aged 6-23 months who receive a minimum of IYCF. Minimum food diversity means that there are at least 4 food groups on a child's menu. The four food groups must come from the following 7 food groups: tubers and grains, nuts, milk and its processed products: meat (beef, poultry, fish, liver/offal), egg, fruit and vegetable sources of vitamin A, and other fruits and vegetables.

The sample selection method in this study follows the 2017 IDHS sampling process. The 2017 IDHS sampling design is designed to be able to present national and provincial level estimates. The 2017 IDHS sample covers 1,970 census blocks covering both urban and rural areas. The number of census blocks is expected to be able to obtain a total sample of 49,627 households. In household interviews, it was found that 34,199 women who have given birth, but women who have given birth. There are 15,357 children in the last 5 years and 14,783 children living with their parents. Based on the results of a survey conducted by the 2017 IDHS, researchers chose a sample among the population that was in this study, namely mothers who had children aged 6-23 months as many as 4,869. Data analysis used univariate analysis to describe the characteristics of each research variable.

Bivariate analysis using test *Chi-Square* to find candidates who will be included in the multivariate analysis, and multivariate analysis using binary logistic regression test. to see the relationship between the independent and dependent variables and to see the most dominant factors associated with infant and child feeding practices. The implementation of the Indonesia Health Demographic Survey (IDHS) in 2017 has a research ethic review by the

Institutional Review Board ICF (International Classification of Functioning) with ICF Project No. 132989.000. Whereas in this study itself, before the research was carried out, a research ethics permit was first submitted to the Health Research Ethics Commission of the Bengkulu Ministry of Health Poltekkes with an Ethical Eligibility Number (Ethical Clearance) KEPK.M/013/05/2021.

### 3. Result and Discussion

Based on table 1 explains most (72.2%) of the practice of feeding infants and children (IPM) is not by the recommendations. The study found that Indonesia still faces problems in the practice of IYCF that need to be a priority in solving problems because it will have an impact on the nutritional status of children and children's health problems.

**Table 1.** Frequency Distribution of Infant and Young Child Feeding in Indonesia

Infant and Young Child Feeding	Frequency (n= 4,869)	Percentage (%)
According to Recommendation	1,352	27.8
Not According to Recommendation	3,517	72.2

Only 27.8% of IYCF practices are categorized according to the recommendations. Food sources that have been recommended by the 2017 IDHS to consume the four food groups must come from the following 7 food groups, consisting of tubers, seeds, nuts, milk, and them processed products: meat, eggs, fruit, and vegetables are sources of vitamin A, as well as other fruits and vegetables in children aged 6-23 months in Indonesia (BKKBN et al., 2017).

**Table 2.** Frequency Distribution of Family Characteristics

Family Characteristics	Frequency (n= 4.869)	Percentage (%)
Socio-Economic Status		
Very Rich	793	16.29
Rich	827	16.98
Intermediate	958	19.68
Poor	992	20.37
Very poor	1,299	26.68
Residential Area		
Urban	2,424	49.78
Rural	2,445	50.22
Parity		
Primipara	1,566	32.16
Multipara	2,990	61.41
Grandemultipara	313	6.43

IYCF strategy for children aged 6-23 months is an important element of efforts to overcome malnutrition and child mortality (Biks et al., 2018). Lack of proper diet affects children's health and results in increased child mortality (Tariq et al., 2018).

Based on table 2 shows that mothers with the socioeconomic status of their families are very poor (26.68%), mostly in rural areas (50.22%) and with multipara (61.41%).

**Table 3.** Frequency Distribution of Mother's Characteristic

Mother Characteristics	Frequency (n= 4,869)	Percentage (%)
Mother's Education		
Higher Education	970	19.92
Middle Education	3,771	56.91
Low Education	1.128	23.17
Mother's Age		
20-35 years old	3,704	76.07
< 20 years old	197	4.05
> 35 years old	968	19.88
Mother's Occupation		
Work	2,266	46.54
Not Work	2,598	53.36
Marital status		
There are a Couple	4,771	97.99
No partner	98	2.01

Based on table 3 shows that the majority of mothers with secondary education are (56.91%), with mothers aged 20-35 years (76.07%), while the majority of mothers who do not work (53.36%) and who have a partner as many as (97.99%). Table 4 shows that there are differences in the proportion of IYCF practices according to the socioeconomic level of the family (p=0.000), Residential Area (p=0.000), and parity (p=0.000). Table 5 also shows that there are differences in the proportion of IYCF practices according to the mother's education level (p=0.000), mother's age (p=0.000), mother occupation (p=0.001), and mother's marital status (p=0.036).

Based on table 6 shows that the results of the multivariate logistic regression analysis, there are only five variables (place of residence, socioeconomic, parity, mother's education, and mother's age) which show a statistically significant relationship with the practice of IYCF according to the recommendations. Mothers with very poor socioeconomic status are at risk 3.618 times (95% CI: 2,883-4,541) IYCF practice is not as recommended compared to mothers with very rich socioeconomic status. Likewise, mothers who live in villages are at a risk of 1.8 times (95% CI: 1,631-2,139) the practice of IYCF does not match the recommendations compared to women who live in cities.

**Table 4.** Relationship between Family Characteristics with Infant and Young Feeding in Indonesia

Family Characteristics	IYCF Appropriate Recommendation		IYCF No Appropriate Recommendation		Total		p-value
	n	%	n	%	n	%	
<b>Socioeconomic Status</b>							
Very Rich	340	25.15	453	12.88	1,039	15.94	0.000*
Rich	314	23.22	513	14.59	1,096	16.82	
Intermediate	253	18.71	705	20.04	1,285	19.72	
Poor	251	18.57	741	21.07	1,319	20.24	
Very poor	194	14.35	1,105	31.42	1,778	27.28	
<b>Residential Area</b>							
Urban	846	62.57	1,578	44.87	3,183	48.84	0.000*
Rural	506	37.43	1,939	55.13	3,334	51.16	
<b>Parity</b>							
Primipara	802	59.32	2,188	62.21	4,015	61.61	0.000*
Multipara	500	36.98	1,066	30.31	2,067	31.72	
Grand multipara	50	3.70	263	7.48	435	6.67	

\*: Multivariate Candidate (<0.25)

Mothers with parity grand multipara (having more than 5 children) had a 1.382 times risk (95% CI: 0.986-1.936) IYCF practice does not match the recommendations compared to mothers who have more than 1 child (multipara). Mothers with low education are at risk 1.3 times

(95% CI: 1.075-1.716) IYCF practice is not as recommended compared to mothers with higher education. Mothers who are less than 20 years old are at 2,034 times (95% CI: 1.344-3,080) risk of IYCF practices not according to recommendations compared to mothers aged 20-35 years.

**Table 5.** Analysis of the Relationship of Maternal Factors with Infant and Young Child Feeding in Indonesia

Mother Characteristics	IYCF Appropriate Recommendation		IYCF No Appropriate Recommendation		Total		p-value
	n	%	n	%	n	%	
<b>Mother's Education</b>							
Higher Education	364	26.93	606	17.23	970	19.92	0.000*
Middle Education	803	59.39	1,968	55.96	2,771	56.91	
Low Education	185	13.68	943	26.81	1,128	23.17	
<b>Mother's Age</b>							
20-35 years old	1,061	78.48	2,643	75.15	3,704	76.07	0.000*
< 20 years old	30	2.22	167	4.75	197	4.05	
> 35 years old	261	19.30	707	20.10	968	19.88	
<b>Mother's Occupation</b>							
Work	681	50.41	1,585	45.12	2,266	46.59	0.001*
Does Not Work	670	49.59	1,928	54.88	2,598	53.41	
<b>Marital status</b>							
There is a Couple	1,334	98.67	3,437	97.73	4,771	97.99	0.036*
No partner	18	1.33	80	2.27	98	2.01	

\* : Multivariate Candidate(<0.25)

Mothers with higher education have more knowledge in practicing IYCF. The results of this study found that mothers with elementary school education were at risk of 1,358 times the practice of IYCF not according to recommendations compared to mothers with higher education (Wahyuningksih & Handayani, 2015). Viewed

from the point of view of the respondent's education, it shows that respondents with a 100% tertiary education have a good effect. In addition, in this study, the mother's level of education was assessed and statistically associated with meeting the recommended dietary diversity (Eshete et al., 2018).

**Table 6.** Relationship between Family Factors and Maternal Factors in Infant and Young Child Feeding Age 6-23 Months in Indonesia

Variable	B	p-value	OR (95% CI)
<b>Residential Area</b>			
Urban			1
Rural	0.625	0.069	1.868 (1.631 - 2.139)
<b>Socioeconomic Status</b>			
Very Rich		0.000	1
Rich	0.263	0.105	1.301 (1.058 - 1.599)
Intermediate	0.723	0.108	2.060 (1.667 - 2.564)
Poor	0.764	0.110	2.146 (1.729 - 2.664)
Very poor	1.286	0.116	3.618 (2.883 - 4.541)
<b>Parity</b>			
Primipara		0.000	1
Multipara	-0.302	0.076	0.740 (0.637 - 0.859)
Grandemultipara	0.323	0.172	1.382 (0.986 - 1.936)
<b>Mother's Education</b>			
Higher Education		0.000	1
Middle Education	-0.019	0.086	0.981 (0.829 - 1.161)
Low Education	0.306	0.119	1.358 (1.075 - 1.716)
<b>Mother's Age</b>			
20-35 years old		0.000	1
< 20 years old	0.710	0.212	2.034 (1.344 - 3.080)
> 35 years old	-0.021	0.092	0.979 (0.817 - 1.174)
Constant	0.050		

Classification: 72.7%

There is no relationship between a mother's work and infant and child feeding practices. The increasing workload is a challenge for mothers to initiate and maintain proper infant feeding practices (Gautam et al., 2016). Mothers aged <20 years are at 2,034 times the risk of IYCF practices not according to recommendations compared to mothers aged less than 20 years, meaning that mothers aged from 20-35 years are still able to pay attention to child-rearing patterns and IYCF practices while mothers aged <20 years are less pay attention to this because mothers who are <20 years old still do not have the knowledge and are not yet of mature age in providing parenting patterns and practices by the recommendations of IYCF. The risk of stunting, wasting, and being underweight is greater in children with teenage mothers (13-17 years) compared to children with older mothers (Wahyuningsih & Handayani, 2015).

There is no relationship between maternal marital status and IYCF practices. This study confirms other studies in which increased social support positive by fathers improving some targeted infant feeding practices by mothers will provide IYCF practices according to recommendations (Ahishakiye et al., 2021).

Socioeconomic related to the practice of IYCF because the lower the socioeconomic status of the family, the higher the risk of IYCF not according to the recommendations.

The results of this study found that mothers with very poor socioeconomic status were at risk of 3,618 times the practice of IYCF not according to recommendations compared to mothers with very rich socioeconomic status. The lower food diversity can be due to the monotonous diet of the people, in Ethiopia side dishes are made from cereals which are usually served with nuts or seeds. In this study, the prevalence of timely initiation of complementary foods and food diversity was low (Eshete et al., 2018; Geda et al., 2021).

Place of residence is related to the practice of IYCF because mothers who live in cities have more access and facilities than those who live in villages who lack access and adequate facilities in supporting factors for the practice of IYCF. The results of this study found that mothers who live in villages are at risk of 1.868 times the practice of IYCF not according to recommendations compared to mothers who live in cities. Those who live in rural areas have a lower chance of being categorized as IYCF practices according to

the higher recommendations compared to those who live in urban areas (Ahishakiye et al., 2021).

Parity is related to IYCF practice because mothers with more than one parity are experienced in IYCF practice skills. The results of this study found that mothers with grand multipara parity (having more than 5 children) were at risk of 1,382 times the practice of IYCF not according to recommendations compared to mothers who had more than 1 child (multipara). Research conducted by Beyene et al (2015) found that children born in second to fourth order (Multipara) and above fourth-order (Grandmultipara) were more likely to meet the minimum feeding frequency compared to children born in first-order (Beyene et al., 2015).

Based on the research that has been done, it can be seen that there are still many children in Indonesia who have not received IYCF practice according to the recommendations suggested by the IDHS to consume seven food groups, at least four food groups because previous studies have not done much research on IYCF practices so that they experience limitations in getting references to compare against other countries.

#### 4. Conclusion and Suggestions

Most of the infant and child feeding practices have not met the recommendations for children aged 6-23 months. Variables related to IYCF practice are socioeconomic, place of residence, parity, mother's education, and mother's age. The most dominant factor related to the practice of IYCF in Indonesia is socioeconomic status. Need an effort to increase awareness and encourage the public to take part in education and socialization so that the community, especially mothers with children aged 6-23 months, know the importance of the practice of IYCF for children. This research needs to be done further research for researchers about the importance of PMBA practice for children aged 6-23 months.

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