

## The Relationship between Maternal Characteristics and Health Workers Role on Early Complementary Feeding in the Era of the COVID-19 Pandemic

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### ABSTRACT

**Background:** Early complementary feeding in Indonesia, especially in Palu city, is still relatively high and should focus. Early complementary feeding can negatively affect babies, such as being more susceptible to disease than babies who only get breast milk. This study aims to analyze the relationship between maternal characteristics and the role of health workers on early complementary feeding in the Pantoloan Public Health Center, Palu City.

**Subjects and Method:** This research is quantitative research with a cross-sectional study. The study was conducted in all Integrated Healthcare Centers in the Pantoloan Health Center working area from April to October 2021. The research sample was mothers aged 0-6 months with inclusion and exclusion criteria. Sampling is done by total sampling. Complementary feeding was the dependent variable in this study. The independent variables in this study were the mother's characteristics in the form of age, education, occupation, maternal parity, and the role of health workers. This Data was collected using a questionnaire and analyzed by univariate and bivariate tests.

**Results:** The results showed that there was a significant relationship between maternal characteristics in the form of age ( $p= 0.031$ ), education ( $p= 0.002$ ), occupation ( $p= 0.035$ ), parity ( $p= 0.027$ ), and the role of health workers ( $p= 0.046$ ) in the provision of early complementary feeding in the work area of the Pantoloan Public Health Center, Palu City.

**Conclusion:** Early complementary feeding can be influenced by maternal characteristics such as age, education, occupation, and parity, as well as the influence of the role of health workers.

**Keywords:** maternal characteristics, health workers, complementary feeding, diarrhea, infant mortality

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### BACKGROUND

The provision of early complementary feeding in Indonesia, especially in the Palu city area, is still relatively high. complementary feeding is a complementary food given to infants when the baby's nutritional needs cannot be fulfilled if only breast milk is given (WHO, 2019). Diarrhea cases rank second after

Upper Respiratory Tract Infection (ARI), which is the cause of infant mortality (Sani, 2014). According to WHO, in 2017, cases of diarrhea in children in the world occurred every year at around 1.7 billion (Rahmawati, 2020). One of the common causes of diarrhea problems is early complementary feeding (Rahmawati, 2020). Factors causing

the occurrence of early complementary feeding are internal and external factors. The internal factors that may cause early complementary feeding are maternal psychology, physical health, education, knowledge, lifestyle, unpleasant personal experiences such as being bitten while breastfeeding, and the adequacy of breast milk (Triana, 2012). External factors that can cause early complementary feeding include low support from families, the surrounding community, the role of health workers and the government, lack of support for exclusive breastfeeding and rampant advertising of formula milk, the environment and socio-cultural surroundings, low infrastructure related to MCH services (Aprilina and Rahmawati, 2018).

Early complementary feeding refers to the earliest time of giving food and beverages other than breast milk to infants. When giving early complementary feeding, apart from referring to the initial time of giving complementary foods, the type of food introduced is also an important factor during the introduction of complementary feeding (Wang et al., 2019). World Health Organization (2017) stated that only 40% of babies in the world aged 0-6 months were exclusively breastfed, and the rest early complementary feeding. The percentage of early complementary feeding based on data from the Central Sulawesi Provincial Health Office in 2020, the coverage of exclusive breastfeeding for infants aged less than six months in Palu City is 52.4%. Based on these data, it can be seen that there is a decrease in exclusive breastfeeding by 12%. This means that around 47.6% of infants aged less than six months still receive additional intake other than breast milk, which is included in the category of early complementary feeding (Central Sulawesi Provincial Health Office, 2020).

The most dominant factor causing early complementary feeding to occur is the

mother's characteristics and the role of health workers. Internal factors are also called predisposing factors, including characteristics, knowledge, and attitudes. The mother's characteristics in question include age, education, occupation, and parity (Ginting, 2015). The role of health workers is a reinforcing factor for early complementary feeding (Winarsih, 2020). The role of health workers in the COVID-19 pandemic has certainly changed slightly due to the decline in health services such as Integrated Healthcare Center services. The coverage of Integrated Healthcare Center services in Palu City has decreased from 119 active Integrated Healthcare Center or 54.34% in 2019 down to 113 active Integrated Healthcare Center by 51.60% in 2020 (Central Sulawesi Provincial Health Office, 2020).

Early complementary feeding can hurt the baby. The Center for Research and Development of Nutrition and Food stated that in a study conducted for a year and nine months, it was found that infants who had been given complimentary feeding under the age of six months were more susceptible to diarrhea, flu, and increased body temperature that exceeded normal limits, compared to with babies who only get breast milk (Aprilina and Rahmawati, 2018). The risk of disease that will attack infants who have received early complementary feeding will increase along with the addition of the baby's age (Fitriana et al., 2016). Therefore, early complementary feeding should be the focus of attention given the recommendation from WHO those infants should be exclusively breastfed for the first six months of life for optimal growth, development, and health while still being provided with adequate and safe nutrition during breastfeeding until the baby is aged two years (WHO, 2017). The results of this study are also to add data regarding the factors causing early complementary feeding giving, analyze the

relationship between maternal characteristics and early complementary feeding giving, and analyze the relationship between the role of health workers in health workers early complementary feeding giving in the COVID-19 pandemic era.

## SUBJECTS AND METHOD

### 1. Study Design

This was a cross-sectional study. The study was conducted in all Integrated Healthcare Centers in the Pantoloan Health Center working area from April to October 2021.

### 2. Population and Sample

The research took the population used in this study from all mothers who have babies aged 0-6 months who were recorded in 17 Integrated Healthcare Centers in the work area of the Pantoloan Health Center with a total of 118 populations residing in the Pantoloan village, Palu. The research sample was mothers aged 0-6 months with inclusion and exclusion criteria.

### 3. Study Variables

The dependent variable in this study was early complementary feeding. The independent variables in this study were the maternal characteristics in the form of age, education, occupation, and mother's parity. Another independent variable is the role of health workers.

### 4. Operational Definition of Variables

**Age** was the mother's life span is calculated from the mother's birth to her birthday.

**Education** was mother's last level of education.

**Work** was an obligation or task that produces sweat, value, and livelihood.

**Parity** was the number or number of deliveries that have been experienced by the mother, both live and stillbirths.

**Role of Health Workers** was the presence or absence of the part of health workers such as active support and emotional support to mothers related to the provision

of complementary feeding for infants aged <6 months.

**Early Complementary Feeding** was provide food or drink other than breast milk given to infants aged <6 months.

### 5. Study Instruments

The research instrument used in this study was a questionnaire containing questions and statements based on research variables. Before filling out the questionnaire, the researcher first gave an informed consent form to the subjects to be used as research subjects.

### 6. Data Analysis

The data analysis used a univariate and bivariate test through the SPSS version 26 computer program to determine the frequency distribution and the relationship between the independent and dependent variables.

### 7. Research Ethics

This research has obtained agreement between the researcher and the respondent, anonymity guarantee, and data confidentiality. This research has also received a statement of ethical feasibility No. 173/-EC/KEPK/FKUA/2021 from the Faculty of Medicine, Universitas Airlangga.

## RESULTS

### 1. Sample Characteristics

Table 1 shows that most subjects are aged 20 – 35 years, namely 84.7%. For the level of education, most of them, namely 48.3%, have a secondary school education level. As for the subjects' work, the majority of mothers do not work or become housewives, namely as much as 88.1%. The majority of the parity of the subjects is multipara, which is as much as 65.3%.

### 2. Univariate Analysis

Table 2 shows that most of the roles of health workers are positive good, even though in the era of the COVID-19 pandemic, as many as 84.7%. Table 2 also shows that most mothers do not give early com-

plementary feeding to their babies. As many as 78.8% of mothers do not give complementary feeding to babies less than six months. Most of the subjects who gave complementary feeding for less than six months were because the baby was always crying and fussy, and the mother assumed that the baby was hungry and breast milk alone was not enough to meet the baby's needs.

**Table 1. Sample Characteristic**

Sample Characteristic	Frequency (N)	Percentage (%)
<b>Age</b>		
< 20 years	2	1.7
20 – 35 years	100	84.7
>35 years	16	13.6
<b>Education</b>		
No school	4	3.4
Primary School	38	32.2
Secondary School	57	48.3
College	19	16.1
<b>Work</b>		
Work	14	11.9
Does not work	104	88.1
<b>Parity</b>		
Primipara	41	34.7
Multipara	77	65.3

**Table 2. Univariate Analysis**

Variables	Frequency (N)	Percentage (%)
<b>Role of Health Workers</b>		
Positif	100	84.7
Negatif	18	15.3
<b>Early Complementary feeding</b>		
Given	25	21.2
Not Given	93	78.8

**DISCUSSION**

**1. The relationship between mother's education and early complementary feeding**

The results of the analysis found to indicate that this research is in line with research conducted in 2 Dayo Village, the work area of the Tandun II Health Center, Rokan Hulu Regency, which explains that there is a significant relationship between education

**3. Bivariate Analysis**

Table 3 shows the results of a bivariate analysis. Table 3 showed that age (p= 0.030), education (p= 0.002), occupation (p= 0.035), parity (p= 0.027), the role of health workers (p= 0.046) were associated with early complementary feeding.

and early complementary feeding with a p-value of 0.02 (Aldriana, 2015).

Education is one of the factors that influence the provision of early complementary feeding. This is in line with research carried out at BPM Midwives in the Bogor district, which explains a significant relationship between education and early complementary feeding (Yuliani, 2019). Early complementary feeding to infants tends to be carried out by mothers who are younger

and have a lower level of education (Zielinska et al., 2019). The lack of a mother's education level is a challenge in the practice of giving appropriate complementary feeding (Potts et al., 2021). The influence caused by education is related to the knowledge possessed by the mother, namely, the higher the level of education possessed by the mother, the higher the knowledge possessed by the mother. In general, mothers with low levels of education are still attached to and maintain all traditions and cultures that have a relationship with feeding babies, and this is what makes it difficult for mothers to receive new information in terms of nutrition, which is related to feeding babies

(Irianti and Sari, 2019). The provision of early complementary feeding is carried out by two-thirds of mothers because they follow the advice of their parents to do so. This shows that traditional beliefs by families are the driving force in the practice of giving appropriate complementary feeding (Potts et al., 2021). Based on this statement, it shows that the research conducted is following the research conducted by Irianti and Sari in 2019, namely the formation of progressive values that exist within the individual depending on the level of formal education of an individual, which in this study can form progressive values in the pattern of giving MPASI in the baby (Indriyani, 2011).

**Table 3. Relationship between Maternal Characteristics and The Role of Health Workers on Early Complementary Feeding**

Independent Variables	Early Complementary feeding				p
	Yes		No		
	n	%	n	%	
<b>Age</b>					
< 20 years	1	4	1	1.1	0.031
20 – 35 years	17	68	83	89.2	
>35 years	7	28	9	9.7	
<b>Education</b>					
No school	3	12	1	1.1	0.002
Primary School	13	52	25	26.9	
Secondary School	6	24	51	54.8	
College	3	12	16	17.2	
<b>Work</b>					
Work	6	24	8	8.6	0.035
Does not work	19	76	85	91.4	
<b>Parity</b>					
Primipara	4	16	37	39.8	0.027
Multipara	21	84	56	60.2	
<b>Role of Health Workers</b>					
Positif	18	72	82	88.2	0.046
Negatif	7	28	11	11.8	

**DISCUSSION**

**2. The relationship between mother's education and early complementary feeding**

The results of the analysis found to indicate that there is a significant relationship

between education and early complementary feeding with  $p= 0.02$  (Aldriana, 2015).

Education is one of the factors that influence the provision of early complementary feeding. This is in line with research carried out at BPM Midwives in the Bogor district, which explains a significant rela-

tionship between education and early complementary feeding (Yuliani, 2019). Early complementary feeding to infants tends to be carried out by mothers who are younger and have a lower level of education (Zielinska et al., 2019). The lack of a mother's education level is a challenge in the practice of giving appropriate complementary feeding (Potts et al., 2021). The influence caused by education is related to the knowledge possessed by the mother, namely, the higher the level of education possessed by the mother, the higher the knowledge possessed by the mother. In general, mothers with low levels of education are still attached to and maintain all traditions and cultures that have a relationship with feeding babies, and this is what makes it difficult for mothers to receive new information in terms of nutrition, which is related to feeding babies (Irianti and Sari, 2019). The provision of early complementary feeding is carried out by two-thirds of mothers because they follow the advice of their parents to do so. This shows that traditional beliefs by families are the driving force in the practice of giving appropriate complementary feeding (Potts et al., 2021). Irianti and Sari (2019) stated that the formation of progressive values that exist within the individual depending on the level of formal education of an individual, which in this study can form progressive values in the pattern of giving MPASI in the baby (Indriyani, 2011).

### **3. The relationship between mother's work and early complementary feeding**

The results of the analysis found to indicate that there is a significant relationship between mother's work on early complementary feeding with  $p = 0.042$  (Juliyandari, 2018).

Work is an activity carried out by a person in his daily life that aims to earn income or income to meet the needs of life in

living his life (Kumalasari, 2015). Occupational factors are generally one of the factors that influence mothers in giving complementary feeding. This will be even more influential if the mother has a job outside the home or away from home. However, mothers who do not have jobs generally also continue to provide early complementary foods or early complementary feeding on the pretext of training their babies to get used to these foods until the mother has started working. So, sometimes someone's job status tends to get better. It will make giving formula milk and complementary feeding to children easier when compared to exclusive breastfeeding (Kumalasari, 2015).

### **4. The relationship between maternal parity and early complementary feeding**

The analysis results were found to indicate that this study is in line with research conducted at BPM Midwife Y in the Bogor Regency area in 2019, which explained that there was a significant relationship between parity with early complementary feeding with a  $p$ -value of 0.031 (Yuliani, 2019). This study explained that early complementary feeding would have a 3.9 times greater risk for mothers with multiparous parity than primiparous parity (Yuliani, 2019).

Parity is the term for the total pregnancies that are successful and able to live and develop (Suparyanto, 2010). Parity is one of the factors that influence the behavior of giving complementary feeding. In giving complementary feeding, a woman tends to have much knowledge because the woman has more than one child, which means that the woman gets much experience every time she takes care of her previous child, which she can apply to the next child (Juliyandari, 2018). A person will have much knowledge if he goes through many experiences in his life. The experience becomes new knowledge for someone to take action. The more experien-

ce one gets, the more knowledge a person has (Zaimy, 2021). A mother who has just had a baby will generally experience a problem such as breastfeeding due to the mother's lack of information and experience regarding breastfeeding, so the mother may feel doubtful when giving breast milk to her baby. Multiparous mothers generally have sufficient experience in the parenting phase (Artini, 2018).

### **5. The relationship of the role of health workers to the early complementary feeding in the era of the COVID-19 pandemic**

The results of the analysis found to indicate that this research is in line with research conducted at Poskesdes Harjowinangun Belitang East OKU in 2017, which explains that there is a significant relationship between the role of health workers in early complementary feeding, namely with a  $p= 0.001$  (Winarsih, 2020). Meanwhile, in a study conducted at BPMN South Jakarta in 2016, it was explained that there was no significant relationship between the role of health workers on early complementary feeding. This difference may be due to the subject's and subjects' perspectives when conducting research (Winona and Sari, 2016).

The role of health workers, being one of the many factors that play a role in influencing behavior change in people's lives, is also a factor that plays a role in the practice of giving appropriate complementary feeding (Potts et al., 2021). The roles of health workers are, among others, as advocates, educators, motivators, and facilitators (Fransisca, 2011). The role of health workers is important in the success of maternal and child health, especially during the COVID-19 pandemic. The influence of the COVID-19 pandemic, apart from creating unrest in the community, also occurs in health services, where health services are the spearhead of handling a disease (Putri, 2020). Health

workers often make efforts in improving maternal and child health includes conducting counseling and information related to health, for example, information related to not giving early complementary feeding (Sadli, 2019).

This study concludes that maternal characteristics such as age, education, occupation, and maternal parity can influence early complementary feeding. The role of health workers can also influence the behavior of mothers in providing early complementary feeding.

### **AUTHOR CONTRIBUTION**

In this study, Endyka Erye Frety and Fitri Ramadhani collaborated to create a conceptual framework and research methodology. Fitri Ramadhani collected the data. Endyka Erye Frety, Fitri Ramadhani, and Dominicus Husada collaborated to analyze the data.

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### **CONFLICT OF INTEREST**

There are no conflicts of interest

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