

## The correlation between parental education and childbirth sequence with the provision of early complementary feeding to children aged 1-5 years in the working area of the Lawahing Community Health Center, Alor Regency, East Nusa Tenggara, Indonesia

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World Journal of Advanced Research and Reviews, 2024, 21(03), 1134–1141

Publication history: Received on 28 January 2024; revised on 07 March 2024; accepted on 09 March 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.21.3.0795>

### Abstract

**Introduction:** According to the World Health Organization (*World Health Organization*), exclusive breastfeeding is when the baby only receives breast milk from the mother without providing liquids or other solid food, except for syrup containing vitamins, mineral supplements, or medicines that a doctor has approved. Indonesia's exclusive breastfeeding coverage in 2021 is 61.33% (1), East Nusa Tenggara Province's success rate for exclusive breastfeeding is 57.8% (2), Lawahing Community Health Center's exclusive breastfeeding coverage is 30%, and the other 70% have been given complementary feeding from under four months of age.

**Objective:** This study aims to analyze the correlation between parental education and childbirth sequence with the provision of early complementary feeding to children aged 1-5 years in the working area of the Lawahing Community Health Center, Alor Regency, East Nusa Tenggara

**Methods:** This research was an observational analytical study with a cross-sectional approach. The sample from this study was 214 children aged 1-5 years who met the inclusion and exclusion criteria. The independent variables in this study are parental education and childbirth sequence, and the dependent variable is early complementary feeding for children aged 1-5 years. The data analysis used was the chi-square test.

**Results:** Based on the results of the chi-square statistical test, it was found that there was a significant correlation between parental education ( $p\text{-value} < 0.01$ ) and childbirth sequence ( $p\text{-value} < 0.01$ ) by providing early complementary feeding to children aged 1-5 years in the working area of the Lawahing Community Health Center, Alor Regency, East Nusa Tenggara.

**Conclusion:** There was a significant correlation between parental education and childbirth sequence with the provision of early complementary feeding to children aged 1-5 years in the Lawahing Community Health Center, Alor Regency, East Nusa Tenggara working area.

**Keywords:** Parental Education; Childbirth Sequence; Early Complementary Foods; Child Health

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## 1. Introduction

Early complementary food is giving babies additional food other than breast milk before the age of 4 months. According to the Indonesian Pediatrician Association guidelines, complementary foods should be given at six months. However, if breast milk is insufficient, complementary foods can be given as early as four months (17 weeks). The signs that a baby is ready to be fed are that he can hold his head upright, sit without help, his tongue sticking out, his reflex is reduced, and he is interested when he sees people eating. The condition of the baby's organs not being ready to receive solid food other than breast milk can cause various health problems in the baby. Providing solid food to babies aged less than four months will result in various health problems, including babies not having their right to exclusive breast milk fulfilled and not getting complete nutrition in breast milk, being susceptible to disease, the risk of diarrhea, intestinal disorders, and baby's kidneys, the risk of obesity, the risk of allergies, and the risk of malnutrition and resulting in stunting. Babies who receive complementary feeding before six months of age have a 17 times greater risk of experiencing diarrhea and are three times more likely to develop an upper respiratory tract infection than babies who only receive exclusive breast milk and receive complementary feeding on time. Providing complementary feeding food that is not timely can result in detrimental things, including if it is too early, it can cause the risk of diarrhea, dehydration, decreased breast milk production, and allergies. The community's habit of providing early complementary feeding food is still strong; the public believes that babies who are given early complementary feeding food will grow quickly (3)

*World Health Organization* and the *United Nations International Children's Emergency Fund* have recommended the gold standard for infant feeding: exclusive breastfeeding for babies from birth to 6 months, preceded by early breastfeeding initiation immediately after birth. From 6 months, complementary foods can only be given and continued to provide breast milk until the child is two years old. Providing complementary feeding food appropriately and correctly supports children's growth and development both cognitively and psychomotorically and encourages good eating patterns. On the other hand, giving complementary feeding food too early affects the child's intelligence level as an adult and causes obesity, high blood pressure, and coronary heart disease.

Coverage of exclusive breastfeeding in Indonesia is 61.33%; the highest percentage is in West Nusa Tenggara (87.35%), and the lowest percentage is in Papua (15.32%) (1). According to Farida (2021), exclusive breastfeeding in Indonesia is only 52.5%, or half of the 2.3 million babies aged less than six months who do not receive exclusive breastfeeding. This figure has decreased by 12% from 2019. Exclusive breastfeeding coverage rates in Nusa Province East Southeast are only 57.8%. There are 43.2% of babies in East Nusa Tenggara Province aged less than four months who are not exclusively breastfed and are already receiving complementary foods in solid food. Meanwhile, at the Lawahing Community Health Center, with 458 children aged 1-5 years, only 30% of children receive exclusive breast milk, and the other 70% have been given complementary foods since the age of 3 months (2).

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## 2. Materials and methods

### 2.1. Participant

This research has been approved by the Health Research Ethics Committee, Faculty of Medicine, Airlangga University. This type of research is quantitative, using an observational design with a cross-sectional approach. This research uses a simple random sampling technique. The population of this study was 458 children aged 1-5 years in 3 villages in the working area of the Lawahing Community Health Center, Alor Regency, East Nusa Tenggara. The sample from this study was 214 children aged 1-5 years. The inclusion criteria in this study were all children aged 1-5 years in the work area of the Lawahing Community Health Center, Alor Regency, East Nusa Tenggara, mothers who were physically and mentally healthy, and mothers who were willing to be respondents. Exclusion criteria are children aged 1-5 years with genetic disorders or congenital diseases. This research was conducted from May-September 2023. Analysis of this research used the chi-square test,

### 2.2. Measurement and Analysis

Data was taken from all respondents who had previously obtained informed consent. Data was collected using questionnaires, most of which were filled out at integrated service posts, and other data was collected by visiting respondents' homes. Demographic data consists of 6 questions, and early complementary feeding consists of 12 questions with 0 for a no answer and 1 for a yes answer. The questionnaire used has been tested for validity and reliability of Cronbach's *Alpha Coefficient* of 0.86% for early complementary feeding.

### 2.3. Data analysis

Quantitative data analysis used *the Statistical Package for the Social Sciences 22*. The tests used in this research are the chi-square and logistic regression tests, with statistical significance set at  $<0.05$ .

## 3. Results

### 3.1. Univariate Analysis

**Table 1** Frequency Data Distribution

Characteristics	Category	Number (n)	Percentage (%)
Father's Age	< 20 Years	24	11.2 %
	21 – 34 Years	101	47.2 %
	>35 Years	89	41.6 %
Mother's age	< 20 Years	15	7.0 %
	21 – 34 Years	135	63.1 %
	>35 Years	64	29.9 %
Father's education	Elementary School	80	37.4 %
	Junior High School	76	35.5 %
	Senior High School	41	19.2 %
	University	17	7.9 %
Mother's Education	Elementary School	83	38.8 %
	Junior High School	76	35.5 %
	Senior High School	37	17.3 %
	University	18	8.4 %
Father's occupation	Work	214	100 %
	Does not work	0	0
Mother's Job	Work	91	42.5 %
	Does not work	123	57.5 %
Age of Child	12-24 Months	79	36.9 %
	25-36 Months	58	27.1 %
	37-48 Months	40	18.7 %
	49-60 Months	37	17.3 %
Child's Gender	Man	106	49.5 %
	Woman	108	50.5 %
Childbirth sequence	1 <sup>st</sup>	22	10.3 %
	2 <sup>nd</sup>	48	22.4 %
	3 <sup>rd</sup>	53	24.8 %
	More than 3 <sup>rd</sup>	91	42.4 %
Giving early complementary feeding	Not given	71	33.2%
	Given	143	66.8%

Based on the table above, it can be concluded that the largest age group for fathers is 21-34 years, amounting to 47.2%; the largest age group for mothers is 21-34 years, amounting to 63.1%; the highest education group for fathers is elementary school amounting to 37.4%, the mother's highest educational group is Elementary School amounting to 38.8%, the father's occupation group is 100% all of them are employed, the mother's occupation group is the largest not working at 57.5%, the child's age group the highest number was 12-24 months at 36.9%, the largest gender group was female at 50.5%, the childbirth sequence group for the most children was more than third at 42.4%. The early complementary feeding group is given equally to 66.8%.

### 3.2. Bivariate Analysis

**Table 1** The Correlation between Parental Education and Early Complementary Feeding

Father's education	Providing Early Complementary Feeding			
	Yes		No	
	Number (n)	Percentage (%)	Number (n)	Percentage (%)
Elementary School	43	20.1%	37	17,3%
Junior High School	50	23.4%	26	12,1%
Senior High School	36	16.8%	5	2,3%
University	14	6.5%	3	1,4%
Total	143	66.8%	71	33,2%
<i>P value = &lt; 0,01</i>				

Mother's education	Providing Early Complementary Feeding			
	Yes		No	
	Number (n)	Percentage (%)	Number (n)	Percentage (%)
Elementary School	46	21.5%	37	17.3%
Junior High School	50	23.4%	26	12.1%
Senior High School	32	15.0%	5	2.3%
University	15	7.0%	3	1.4%
Total	143	66.8%	71	33.2%
<i>P value = &lt; 0,01</i>				

Based on Table 2, it is known that the educational group of fathers whose children were given early complementary food was the first-junior high school with a percentage of 23.4%, then the elementary school education group was 20.1%, the senior high school education group was 16.8% and the university group had the least 6.5%. The highest educational group of mothers whose children were given early complementary food was in junior high school, with a percentage of 23.4%, then the elementary school education group at 21.5%, the senior high school education group at 15.0%, and the university group at least 7.0%.

**Table 2** The Correlation Between Childbirth Sequence and Early Complementary Feeding

Childbirth sequence	Providing Early Complementary Feeding			
	Yes		No	
	Number (n)	Percentage (%)	Number (n)	Percentage (%)
1 <sup>st</sup>	53	24.8%	13	6.1%
2 <sup>nd</sup>	26	12.1%	13	6.1%
3 <sup>rd</sup>	21	9.8%	7	3.3%
More than 3 <sup>rd</sup>	43	20.1%	38	17.8%
Total	143	66.8%	71	33.2%
<i>P value = &lt; 0,01</i>				

Table 4 shows that early complementary feeding is highest in children with the first childbirth sequence(24.8%), and the lowest is in the third child (9.8%).

#### 4. Discussion

Based on the results of the bivariate analysis test with the chi-square test, a significant correlation was obtained (*p-value*: <0.01)) between parental education and early complementary feeding for children aged 1-5 years in the working area of the Lawahing Community Health Center, Alor Regency, East Nusa Tenggara.

The level of parental education greatly influences the success of providing exclusive breast milk, and many parents give their children complementary foods early because of their low level of education and understanding. The higher the parent's education, the better their knowledge. The parents' educational level in the Lawahing Community Health Center working area, which has more basic education, is one of the factors causing the early provision of complementary foods for breast milk. Low parental education results in parents being closed off from accepting good changes for their children, so they do not understand the importance of giving them exclusive breast milk and the consequences of giving complementary foods to breast milk. Early and younger people receive and follow information from people who have previously given complementary foods to breast milk.

Providing complementary food for early breast milk is also given by parents with secondary and higher education because they follow traditions and advice from their closest family and are not open to accepting changes for things that are useful for their child's health. Parents who are highly educated are also more likely to accept information from people who have previously provided complementary foods with breast milk and do not want to see their children cry because they assume that their children are hungry and do not want to be disturbed by their children is crying and assume that they are people who understand science and know what is best for their child. Hence, it is not easy to accept the input given by health workers; this makes this research different from other studies.

The level of parental education is closely related to behavior in providing correct and appropriate complementary breast milk to children. According to Notoatmodjo (2010), a person's education influences the growth of thinking abilities. Highly educated people can make more rational decisions than those with low education; they are open to change or new things (4). This aligns with research by Hurek (2020), which shows a significant correlation between parental education and early complementary feeding for babies under six months with a *p-value* of 0.003 (5). In another study by Yulianto (2019), the results showed that there was a correlation between maternal education and the provision of complementary breast milk to babies aged 0-6 months, *p-value* = 0.034 and OR = 8, which means that mothers with low education had an eight times higher risk. High to provide early complementary foods (6). Similar research was also conducted by Oktarinda (2019) that there was a correlation between maternal education and the provision of complementary breast milk to babies aged 0-6 months, *p-value* = 0.004, the proportion of highly educated mothers and the provision of complementary breast milk to children over six months amounted to 20 respondents (69%) (7). Similar results were also presented by Mariani (2016), who found that there was a correlation between parental education and early complementary feeding, *p-value* = 0.002 and OR = 6, which means that mothers with low education had a six times higher risk of providing complementary foods Breast feeding, *p-value* = 0.003 and OR = 3.178, which means that the chance of early complementary feeding is 3.178 times higher in mothers with a low level of education compared to

mothers with higher education (8), there is a significant correlation between knowledge and early complementary feeding. In babies aged less than six months with values in three villages supported by Akkes Sapta Bakti Bengkulu ( $p=0.034$ ) (9)

The results of the bivariate analysis test with the chi-square test showed a significant correlation ( $p\text{-value}: <0,01$ ) between the child's childbirth sequence and the provision of early complementary foods for children aged 1-5 years in the working area of the Lawahing Community Health Center, Alor Regency, East Nusa Tenggara. Based on the latest recommendations from the Indonesian Pediatrician Association and national nutritionists, children can now be fed over four months, provided that the child has been breastfed well and correctly. However, there is no increase in weight/height; the baby has shown signs of being ready to eat, can control his head upright, can sit upright on his own, and the reflex to stick out his tongue is reduced.

The childbirth sequence of the first child in the Lawahing Community Health Center working area is mainly given early breast milk supplementation because the mother has no experience, so the first child is mainly cared for by the grandmother and family. The first child of a mother with no experience, it is easier to accept input from people who have previously provided complementary food for their child's early breast milk because they think they have more experience and have seen it themselves. The habit of feeding children aged less than four months in the Lawahing Community Health Center working area has become a tradition handed down from generation to generation, believing that this has been done since ancient times and has no negative impact. Children who cry are considered hungry and are immediately given food. This has become a community habit and has been applied to previous children. The environment and family are the main supporting factors in providing early complementary foods for breast milk. Children are given complementary foods like pureed banana or mashed corn.

Providing complementary food for early breast milk in the Lawahing Community Health Center working area is often given to children with a childbirth sequence of more than three because parents follow the example of previous children. Parents who have given breast milk complementary food to their previous child will apply it to the next child because the parents assume that no side effects have occurred so far and feel more comfortable if the child is not fussy. Parents with more than three children also tend not to receive good input regarding the correct timing of giving breast milk complementary food and the risks that will occur if it is given too quickly because they assume they have more experience caring for and raising children.

The theory states that with the first child, the mother needs more experience in raising a baby so that the mother will rely more on information obtained from outside; in contrast to the second child, the mother already has much experience in raising children. The more parity, the more the mother knows how to provide complementary breast milk correctly (10). This is in line with research conducted by Sugiharti (2017); there is a significant correlation ( $p\text{-value}$  0.20) between childbirth sequence and early complementary feeding (11). This is also in line with research conducted by Mariani (2016) that there is a significant correlation ( $p\text{-value} <0.01$ ) between maternal parity and early complementary feeding (8), and research conducted by (12) mothers with primiparous parity mostly gave MP-ASI to babies aged <6 months, namely 20 respondents (15.5 %), and among multiparous mothers the majority gave MP-ASI to babies aged >6 months, namely 19 respondents (14.5%).

From the results of this study, it was found that there was a significant correlation between parental education and a child's childbirth sequence and early provision of complementary breast milk with a  $p\text{-value}$  of <0.01. The highest level of parental education in the Lawahing Community Health Center working area is elementary school. However, including package B and C learning programs in rural areas provides opportunities for parents who previously could not continue school due to economic problems, limited educational facilities and infrastructure, and urban access. Continuing education at the equivalent of a Junior High School and a Senior High School, but there are not many universities themselves because the community's economy is still below average. Parental education in the working area of the Lawahing Health Center, Alor Regency, NTT, where more elementary school education makes people Older adults receive more input, which has a more negative impact on their children's health and growth and development, one of which is related to providing complementary breast milk food, giving food that is not appropriate for the baby's age will affect the child's growth and development as they get older, or poor nutrition will affect the child's growth and development, namely attitude: child apathy, speech disorders, and other developmental disorders (13). The childbirth sequence of children in the Lawahing Community Health Center work area also greatly influences the provision of early complementary breastfeeding. There are still many children, more than 3, in the working area of the Lawahing Community Health Center because they still adhere to the principle of many children, many fortunes, and are reluctant to use planned contraceptives because they are worried about myths and side effects. Children with more than three children are also more likely to be found in parents over 35 years with children who are close together (less than two years). This then influences the provision of early complementary foods to children.

## 5. Conclusion

This research shows a significant correlation between parental education and childbirth sequence and the provision of early complementary breastfeeding to children aged 1-5 years in the working area of the Lawahing Health Center, Alor district, East Nusa Tenggara. Based on the results of the regression test, it was found that the most critical factor Dominant is parental (Father) education with (p-value 0.00) in providing early complementary breastfeeding to children aged 1-5 years in the working area of the Lawahing Community Health Center, Alor district, East Nusa Tenggara. Parents must understand the risks of giving children early complementary foods, both long-term and short-term so that the child becomes healthy and is not disturbed in the process of growth and development.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

All authors declare that no competing interests were disclosed.

### *Statement of Ethical Approval*

Ethical clearance was approved by the Ethics Committee of the Faculty of Medicine Universitas Airlangga, Surabaya, Indonesia Number 156/EC/KEPK/FKUA/2023, on June 26, 2023.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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