

# Thefactorsassociated

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## Original Research Article

# The factors associated with chronic energy deficiency in breastfeeding mothers

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## ABSTRACT

**Background:** Chronic energy deficiency (CED) in breastfeeding mothers is very likely to occur because apart from the mother meeting the recovery needs of giving birth, the mother also provides breast milk to her baby. This study aimed to determine the factors associated with the incidence of CED in breastfeeding mothers.

**Methods:** The research was conducted on 203 breastfeeding mothers who were randomly selected from 10 villages in Kefamenanu Regency, East Nusa Tenggara (NTT), Indonesia. Data collection was done directly by nutrition officer with interviews using g-13n. Data were analysed using the Chi Square.

**Results:** It was found that the factors associated with the incidence of CED in breastfeeding mothers were age (OR=0.5 times (CI 95%: 0.257-1.054)) and parity of the number of children in the family OR=2.1 times (95%: 1.4-4)), as well as family income which is not directly related to the incidence of CED in the mother (OR=1.7 times (CI 95%: 0.5-6.3)).

**Conclusions:** Factors associated with CED in breastfeeding mothers are age, the parity of the number of children in family, and family income. Support from the family is vital for breastfeeding mothers to meet their nutritional needs.

**Keywords:** Breastfeeding, CED, Nutrition

## INTRODUCTION

Health problems regarding children under two years and five years are often related to issues with the mother's condition. This is not without reason; maternal health patterns and maternal parenting patterns are the basic foundation for suppressing the threat of one of the child's health problems, such as stunting. Mothers in the family play various roles, so sometimes mothers forget to care for their health, especially breastfeeding mothers. Mothers who have just had a baby will focus on caring for their baby. If the mother and the people around the mother ignore the mother's needs, the breastfeeding mother will

likely suffer from malnutrition problems, namely Chronic energy deficiency (CED). The prevalence of non-pregnant women with CED in Indonesia is 14.5%, while the prevalence for pregnant women is even higher, namely 17.3%.<sup>1</sup> The government has supported breastfeeding mothers by providing exclusive breast milk to their babies. However, it still does not support the nutritional needs of breastfeeding mothers, thus allowing breastfeeding mothers to experience CED conditions. The cause of CED in breastfeeding mothers can be seen in the mother's nutritional condition during pregnancy.<sup>2</sup> Mothers who have good nutrition during pregnancy usually also do well during breastfeeding. As one of the programs to

reduce problems for mothers and babies, the government provides services to pregnant women every month by providing additional food, health checks, and education. However, there is a possibility that this program will not be successful because CED is still a problem for women today. After all, mothers continue to ignore their nutritional conditions.<sup>3</sup> Breastfeeding mothers require higher energy, but often, mothers do not provide themselves with enough food.<sup>4</sup> CED in women is seen from arm circumference below 23.5 cm. This arm circumference examination is always carried out when the mother has a pregnancy check-up. NTT is one of the provinces included in the government's attention because it is Indonesia's leading, underdeveloped, and outermost area, so many health problems occur. The prevalence of CED in NTT province is the highest in Indonesia, namely in non-pregnant women 32.5% and pregnant women 36.8%.<sup>1</sup> The aim of this study is to find out the factors associated with the incidence of CED in breastfeeding mothers in NTT.

## METHODS

<sup>3</sup> This research uses a quantitative approach with a community-based cross-sectional design among breastfeeding mothers living in villages in Kefamenanu regency, NggT, Indonesia. Ten villages were selected randomly, with a total sample of 203 mother with the inclusion criteria are breastfeeding mothers and registered in research area. If the breastfeeding mother had the serious ill, we exclude from the study. Each village is represented by 10 breastfeeding mothers who are registered in primary health care. Data collection was done directly, using interviews conducted by nutrition

officers in December 2023. Nutrition officers were selected based on their place of assignment from selected villages and then received online training from the research team. A valid and reliable questionnaire was used to assist with structured interviews, which included questions on the mother's internal factors (age, education, working status, and breastfeeding) and external factors (family income and number of children). Interviewers use a g-form questionnaire, where every question must be answered and cannot be ignored. This study was obtained from the ethics committee of the universitas Kristen Indonesia with ethical clearan<sup>16</sup> number 012/Etik Penelitian/FKUKI/2023, beside it Informed consent was directly obtained from each participant in this study. We used SPSS (IBM SPSS statistics for Windows, version 21.0. Armonk, NY: IBM Corp). To get the aim of the research, we used correlation chi square analysis through the odds ratio results.

## RESULTS

Two hundred three breastfeeding mothers were research subjects, of which 56 women of childbearing age suffered from CED and 147 women of childbearing age who did not have CED. The age group at risk (<20 years/ >35 years) is the largest, 67% of the research subjects. The majority, namely 92% of family income, is below the provincial drinking wage, which comes from the father's income. As many as 93% of mothers are not working, whereas exclusive breastfeeding is 85%. The education of the research subjects was 50% low (no school, elementary school, and junior high school) and 50% high. The maximum number of children in a family is under four children (70%).

<sup>15</sup> Table 1: Relationship between characteristics and the incidence of CED in breastfeeding mothers.

Characteristics	Nutritional status		Total	P	OR	CI 95%	
	CED	Non-CED				Min	Max
Age (in years)							
Risk	43	93	136	0.046	0.521	0.257	1.054
No risk	13	54	67				
Education							
Low	23	78	101	0.085	0.617	0.331	1.150
High	33	69	102				
Mother's working status							
Work	7	8	15	0.082	0.403	0.139	1.169
Doesn't work	49	139	188				
Breastfeeding							
Exclusive	45	127	172	0.196	0.644	0.286	1.449
Non exclusive	11	20	31				
Family income							
>UMP	3	13	16	0.308	1.714	0.469	6.258
<UMP	53	134	187				
Parity							
Low	45	97	142	0.032	2.11	1.004	4.430
High	11	50	61				

Bivariate analysis in this study used the Fisher's exact test. It calculated the odds ratio (OR) value with a confidence level of 95% to determine the characteristics that are risk factors for the incidence of CED in breastfeeding mothers in Kefamenanu, NTT. This research showed that the risk factors for CED were age and parity of the number of children in the family. Age provides 0.5 times (CI 95%: 0.257-1.054) higher probability of developing CED. The number of children provides 2.11 times (CI 95%: 1.004-4.430) higher likelihood of developing CED. Family income is not directly related to the incidence of CED but can be six times higher than CED, as presented in data in Table 1.

## DISCUSSION

The age at risk for pregnant women is <sup>12</sup> 20 years and over 35 years. The results of the analysis of the relationship between age and the incidence of CED in this study were that mothers with CED conditions were 43 respondents at risk. In comparison, 93 respondents at risk did not experience CED. Age was not at risk for 13 <sup>6</sup> others experiencing CED and 54 mothers without CED. The results of the Fisher's exact test showed a significant relationship with an OR of 0.5 times in mothers at an age at risk of experiencing CED compared to those at an age not at risk. Younger mothers are less ready to become mothers and have minimal knowledge about caring for children.<sup>5</sup> besides that, the nutritional intake consumed by mothers is needed for the quality of breast milk and the mother's growth. Maternal age influences the incidence of low birth weight.<sup>6,7</sup> Meanwhile, at older ages, mothers experience declining health due to degenerative factors, so nutritional needs are often neglected.<sup>8</sup> The number of children (parity) in a family is also related to the incidence of CED in the mother. There were 45 low parity respondents (number of children <3) who experienced CED, and 97 respondents did not experience CED, while 11 high parity respondents experienced CED and 50 respondents did not experience CED. The results of the bivariate test showed a significant relationship between parity and the incidence of CED with an OR 2 times higher in families with high parity regarding the incidence of CED in the mother. The number of children affects the mother's attention, so the mother ignores her nutritional status.<sup>9,10</sup> Cultural factors where mothers always put the head of the household and children first also contribute to the mother's inability to meet the nutritional needs.<sup>11</sup>

The results of the study found that family income was not directly related to the incidence of CED in mothers with an OR 1.7 times higher than the incidence of CED in mothers who came from families with incomes below the UMP. If it was not addressed, the incidence of CED in mothers was 95%, believed to have an impact of 6 times higher. The income question is very sensitive to local culture so there is a possibility that respondents answered incorrectly, but the enumerator tried to ask well and compare it with the usual expenses spent in a month.

Fulfilling the mother's needs with proper nutrition needs financial to fulfill it but 93% respondents were below the minimum income.<sup>10,12,13</sup> Providing knowledge and practice of food diversification to breastfeeding mothers is very beneficial for mothers. For this reason, the role of the government and private sector is needed to be able to fulfill the nutrition of mothers in NTT so that they can produce a golden generation in 2045.

## CONCLUSION

So, it can be concluded that East Nusa Tenggara is a province that needs attention because many health problems, such as chronic lack of energy, occur in breastfeeding mothers. Factors related to the incidence of CED are the mother's age, number of children in the family, and family income. Supporting breastfeeding mothers is necessary for the family, government, and private sector.

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## REFERENCES

1. Indonesian Minister of Health. 2018 National Riskesdas Report. 2019:165.
2. Kusumawati I, Indarto D, Hanim D, Suminah S. Relationship of Food Intake, Fe and Folic Acid Supplementation with Hemoglobin Levels in Pregnant Women with a History of Chronic Energy Deficiency and Anemia While Breastfeeding. *Nutrit Food Res*. 2016;39(2):103-10.
3. Biru KM, Jima A, Abeya SG. Prevalence of Chronic Energy Malnutrition and Maternal Health Service Utilization among Lactating Mothers in Adama District, Oromia Region, Eastern Ethiopia. *J Food Process Technol*. 2017;8(1):1-5.
4. Hailelassie K, Mulugeta A, Girma M. Feeding practices, nutritional status and associated factors of lactating women in Samre Woreda, South Eastern Zone of Tigray, Ethiopia. *Nutr J*. 2013;12:1-11.
5. Degarege D, Degarege A, Animut A. Undernutrition and associated risk factors among school-aged children in Addis Ababa, Ethiopia Global health. *BMC Publ Health*. 2015;15(1):1-9.
6. Moreira IM, De Sousa PRM, Sarno F. Low birth weight and its associated factors. *Einstein (Sao Paulo)*. 2018;16(4):1-6.
7. Mtongwa RH, Festo C, Elisaria E. A comparative analysis of determinants of low birth weight and stunting among under-five children of adolescent and

- non- adolescent mothers using 2015/16 Tanzania Demographic and Health Survey (TDHS). *BMC Nutr*. 2021;7(1):1-10.
8. Ernawati. Relationship Age and Occupational Status with Chronic Energy Deficiency in Pregnant Woman. *J Litbang*. 2018;XIV(1):27-37.
  9. Iftikhar, Bari A, Bano I, Masood Q. Impact of maternal education, employment and family size on nutritional status of children. *Pakistan J Med Sci*. 2017;33(6):1401-5.
  10. Desisa TH, Gemele HF, Wirtu D, Negussa DK. Nutritional Status and Associated Factors Among Lactating Mothers in Nekemte Referral Hospital and Health Centers, Ethiopia. *Int J Nutr Food Sci*. 2015;4(2):216.
  11. Martina, Muharrina CR. Cultural Relationship with the Incident of Chronic Energy Deficiency (KEK) in Pregnant Women in the Working Area of the Montasik Health Center, Aceh Besar Regency in 2020. *J Aceh Med*. 2020;4(2):209-15.
  12. Tette EMA, Sifah EK, Nartey ET, Nuro-Ameyaw P, Tete-Donkor P, Biritwum RB. Maternal profiles and social determinants of malnutrition and the MDGs: What have we learned? *BMC Public Health*. 2016;16(1):1-11.
  13. Triatmaja NT, Hidayat A. Determinant of Lactating Mothers Nutritional Status (Chronic Energy Deficiency) Based on Individual and Household Aspect In Kediri City. *J Wiyata*. 2018;5(2):69-76.

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