Nutritional status, family income and early breastfeeding initiation as determinants to successful exclusive breastfeeding

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Abstract

Background: The target by the Indonesian public health services to obtain at least 50% exclusively breastfeed babies during the first 6 months has not been achieved, due to the increased in infant morbidity. This study aims to determine factors associated with exclusive breastfeeding.

Design and Methods: The cluster random sampling method was used to obtain data from a total of 273 babies in the first 1000 days of life *i.e.* aged 6-24 months and analyzed using linear regression at α= 0.05. The data obtained were based on exclusive breastfeeding using maternal age, education, family income, frequency of antenatal care, nutritional status before pregnancy, place and mode of delivery, gestational age at delivery.

Results: The result showed that exclusive breastfeeding was significantly affected by nutritional status before pregnancy based on MUAC (P=0.15) and BMI (P=0.047), family income (P=0.047) and initiation of early breastfeeding (P=0.001).

Conclusions: In conclusion, nutritional status before pregnancy tends to benefit the family income, therefore, initiating early breastfeeding need to be improved for successful exclusive breastfeeding.

Introduction

Exclusive breastfeeding is the act of administering only breast milk to a baby during the first 6 months of life (as well as supplements such as vitamins, minerals and medicines). According to the Ministry of Health Strategic Plan 2015-2019, the target for exclusive breastfeeding was 44% by 2019, which has never been achieved.[1] The low adoption of exclusive breastfeeding tends to affect the incidence of illness in infants. However, when properly administered, it reduces morbidity and death from diarrhoea and pneumonia.[2] In addition, it strengthens the relationship between mother and baby, and creates a superior future generation.[3,4] Therefore, to achieve this superior generation, the Surabaya City Government created the first 1000 days life assistance program for couples since October 2016. Studies explained that factors related to exclusive breastfeeding practices include age, educational level, financial and working status, antenatal care services, early feeding practices, babies' age, place of delivery and access to health services. Mothers aged over 30 years old reportedly improved breastfeeding practices compared to mothers aged less than 25 years old. Additionally, mothers living in rural areas were 4.54 times more likely to breastfeed (AOR 4.54; 95 % CI: 2.64, 7.81, P = 0.001).[5-7] Despite multiple factors affected exclusive breastfeeding practice, traditional practices were still major barriers especially when it comes to introducing solid food too early. This study, therefore, aims to determine factors associated with exclusive breastfeeding.

Design and Methods

This is a cross-sectional study divided into 5 areas, namely, West, East, North, South and Central Surabaya. Data were obtained from the population of 1500 children above 6 months using the multistage random sampling method. However, the simple random sampling method was used in West and North Surabaya to obtain a total of 272 infants. Research data was based on the first 1000 days of life logbook reports of maternal age, education, family income, middle-upper arm nutritional status, body mass index, gestational age at delivery, frequency of antenatal care, place of delivery, methods and residence. The data collectors had a minimum qualification of bachelor degree in nutrition, midwives and public health graduates. To determine the relationship between independent and dependent variables, the data were analyzed using linear regression with α = 0.05.

Significance for public health

Overcoming barriers to exclusive breastfeeding helps to determine the effectiveness of successful breastfeeding program. This paper highlights factors influence exclusive breastfeeding, such as maternal age, educational level, family income, frequency of antenatal care, nutritional status before pregnancy, place and mode of delivery, and gestational age at delivery.

Results and Discussions

Table 1 shows characteristics of respondents practicing non-exclusive breastfeeding (56.04%), with the most participant being high school graduates (63.00%), with an average age of 23.93. Most participants' family incomes ranged from 4,100,000-6,000,000 IDR, with a good ANC frequency, more than 9 times the visit. A total of 183 (67%) participants had normal nutritional status based on MUAC and 164 (60.1%) had BMI.

From Table 1, it was known that the majority of mothers have a good education. Furthermore, the age of the pregnant women was in accordance with the required time for marriage. Based on family income, some had income values, while the nutritional status before pregnancy was represented by Middle Upper Arm Circumference (MUAC) and Body Mass Index (BMI). This showed that there were still mothers with inadequate nutritional status for pregnancy. Approximately 6.6% of the babies were born prematurely due to the health condition of the mother.

Table 2 shows that family income is significantly related to the successful implementation of exclusive breastfeeding (0.047). Maternal nutritional status before pregnancy is represented by the Middle-Upper Arm Circumference and Body Mass Index, which are also significantly related to the successful implementation of exclusive breastfeeding (0.015 and 0.047). Early breastfeeding initiation is significantly related to the successful implementation of exclusive breastfeeding (0.001).

Other variables such as mother's educational level, frequency of ANC, residence status, place of delivery, gestational age, delivery method and maternal age were not significantly related to its successful implementation.

The minimum wage for the City of Surabaya in March 2019 was 3,850,000 IDR/month. However, most family's income is around regional minimum wage, although some are still lower. Exclusive breastfeeding is the right solution to provide the best and cheapest nutritional intake. Besides being healthy and nutritious for the baby, it is also very economical.

The pre-conception period is significant, especially for expectant mothers, because they have to prepare themselves during pregnancy, childbirth, and when breastfeeding the baby. Nutritional needs are higher during lactation compared to pregnancy. MUAC and BMI are depictions of past nutritional status and represent an adequate energy reserve. Conversely, in BMI, the maternal fat reserves are used as an additional requirement for producing milk. Babies born to mothers with poor nutritional status do not grow optimally, especially after 6 months.[8] Previous study has shown that underfed pregnant women often experience failure in providing exclusive breastfeeding.[9] Early breastfeeding initiation can provide stimulation to the production of oxytocin and prolactin, which are stimulated by skin contact when the baby sucks the mother's nipples in the first hour after delivery.[10-12] The baby crawls to find her mother's nipples, giving rise to confidence: this increases the hormone prolactin and oxytocin.[13,14] Early breastfeeding initiation can decrease infant mortality due to hypothermia, especially in preterm infant.[15,16.]

Table 1. Characteristics of respondents.

Variables	N=273	%
Breastfeeding		
Exclusive	120	43.96
Non-Exclusive	153	56.04
Maternal educational level		
Elementary School	4	1.46
Junior High School	8	2.93
Senior high school	172	63.00
College	85	31.14
Postgraduate	4	1.46
Family income (IDR)		
< 2,000,000	20	7.33
2,000,000-4,000,000	96	35.16
> 4,000,000-6,000,000	100	36.63
>6,000,000-8,000,000	42	15.38
>8,000,000	15	5.49
MUAC before pregnancy		
Undernutrition	90	33
Normal	183	67
BMI before pregnancy		
Underweight	48	17.6
Normal	164	60.1
Overweight	49	17.9
Obesity	12	4.4
Frequency of ANC		
Normal	201	73.6
High	72	26.4
Gestational age at delivery		
Premature	18	6.6
Normal	255	93.4

Table 2. Linear regression test results

Variables	P value
Maternal educational level	0.88
Family income	0.047
ANC frequency	0.173
Early breastfeeding initiation	0.001
Resident status	0.209
Gestational age at delivery	0.732
Place of delivery	0.293
Childbirth method	0.371
MUAC before pregnancy	0.015
Maternal age	0.933

Conclusions

In conclusion, nutritional status before pregnancy tends to benefit the family income, therefore, initiating early breastfeeding need to be improved for successful exclusive breastfeeding.

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