

Determinants of successful exclusive breastfeeding in primiparas mothers

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Abstract

Background. Since 2016 the City of Surabaya has assisted for the first 1000 days of an infant's life. The given mentoring aimed to reduce stunting and increase exclusive breastfeeding (EB) coverage. However, EB coverage has yet to be achieved.

Objective. This study aimed to determine the effects of delayed onset of lactation, early initiation breastfeeding (EIBF), and frequency of antenatal care on exclusive breastfeeding in primipara mothers.

Methods. The research design was cross-sectional, the number of samples was 131 out of 378 primipara mothers and lactating pregnant women selected by cluster random sampling. Chi-square and logistic regression analysis $\alpha=0.05$. data was collected in April 2021.

Results. The results showed that exclusive breastfeeding was associated with the onset of lactation and early initiation of breastfeeding (p-value = 0.022 and p-value = 0.014). EIBF and timely onset lactation had a greater chance of successful EB.

Conclusion. EB and the timely onset of lactation are likely to determine the success of EB. Therefore, EIBF and lactation onset are enhanced for EB success.

Introduction

Maternal and child health is a determinant of human resources quality.¹ The initial 1000 days, from the conception stage to the two-year-old age are essential periods of growth and development.² The early 1000 days of life are considered the *golden window of opportunity*.³ Thus, to ensure optimal growth and development of 0-6 month-old infants, exclusive breastfeeding is highly recommended.⁴

The World Health Organization (WHO) targets 50% of newly born babies to receive exclusive breastfeeding. The report on assistance in the West Surabaya and North Surabaya areas in 2021 showed that only 40% of babies were exclusively breastfed. As a matter of fact, exclusive breastfeeding coverage has yet to meet the expectations so far. Furthermore, the Basic Health Research 2018 conducted in East Java reported that only 38% of newly -born babies got exclusive breastfeeding.⁵

The failure of exclusive breastfeeding was mainly caused by the delay in lactation onset or the initial release of breast milk.^{6,7} The timing of lactation onset determines successful breastfeeding. In Indonesia, there are 42% of mothers experiencing delayed onset of lactation,⁸ while in China it is reported that 30.3% of mothers experience delayed onset of lactation⁶ whereby 22% of them were primiparas mothers.⁹

Early initiation of breastfeeding is associated with exclusive breastfeeding¹⁰⁻¹² which is crucial to maintain the baby's life as it likely reduces the incidence of hypothermia.^{13,14} A systematic review reported that initiation of breastfeeding within 24 hours of birth was significantly associated with a reduction in all-cause of neonatal mortality.¹⁵ The WHO recommends that expecting mothers make at least eight antenatal care (ANC) visits during pregnancy, whereas the Indonesian Government recommends that they make at least six ANC visits during pregnancy.¹⁶ Timely antenatal care can save the life of both the baby and the mother.¹⁷ Based on the 2018 Basic Health Research Report, only 74.1% of pregnant women in Indonesia performed ANC up to 4 times.¹⁸ The objective of this study was to determine the effect of delayed onset of lactation, early initiation of breastfeeding, and frequency of Antenatal Care on exclusive breastfeeding.

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Materials and Methods

The research design was a cross-sectional study, the observa-

tions were carried out once on mentoring conditions in April 2021. The study population was all pregnant women and breastfeeding mothers who participated in the mentoring program for the early 1000 days of infant life in Surabaya, Indonesia. There were 378 pregnant and lactating mothers spread across the Community Health Center. The sampling method is cluster random sampling started by selecting clusters based on the area of responsibility, consisting of North Surabaya, South Surabaya, West Surabaya, East Surabaya, and Central Surabaya. The selected clusters are West Surabaya and North Surabaya from which breastfeeding mothers whose babies were at least 7 months old were randomly selected. The sample size for this study from 2 selected clusters, namely breastfeeding mothers who have a 7-month-old baby and are in the West Surabaya and North Surabaya areas, totaled 131 breastfeeding mothers.

In addition, independent variables comprise early initiation of breastfeeding, family income, maternity work, on-site lactation, age of delivery, and frequency of antenatal care, while dependent variables included exclusive breastfeeding. Moreover, Bivariate analysis was performed by using the Chi-Square test ($\alpha=0.05$) to determine the effect of breastfeeding early initiation on exclusive breastfeeding, the effect of lactation onset on exclusive breastfeeding, and the frequency effect of antenatal care visits on exclusive breastfeeding. Next, Multivariate analysis was conducted with logistic regression ($\alpha=0.05$) to determine the effect of the independent variables together on the dependent variable.

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Results

The result in Table 1 shows that most breastfeeding mothers are 96.2% below 30 years old and 70.2% of them are employed respectively. Additionally, most families with income greater than IDR 4,000,000,00 and babies older than six months were at 67.9 and 53.4%, respectively. Similarly, mothers who started breastfeeding early, whose breast milk came out three days after delivery, and who had more than six ANC visits were at 64.9, 77.9, and 79.4%, respectively. Lastly, the respondents' ages ranged from 21 to 34 years old, with most of them getting married at 30 years old.

Meanwhile, the respondents' income ranged from IDR 1.5 to 13 million with an average of IDR 5.4 million.

Table 2 shows the results of the bivariate analysis. It was performed using Chi-Square ($\alpha=0.05$) to determine the effect of one variable on the success of exclusive breastfeeding (EB). Table 2 shows that the success of EB ($P=0.352$) is unlikely affected by the variable frequency of antenatal care visits, whereas EIBF and onset of lactation have a significant effect on the success of EB at p values of 0.22 and 0.014 respectively. According to the Ministry of Health's maternal and child health guidelines, ANC visits include counseling for prenatal care, nutrition fulfillment during pregnancy, and postnatal period, as well as health checks. The information provided during ANC is extensive, thus it is hardly possible to dis-

Table 1. Characteristics of breastfeeding mothers in the mentoring program for the first 1000 days of life in Surabaya, Indonesia in 2021.

Variable	Categories	%
Maternal age	≤30 years old	96.2
	>30 years old	3.8
Family income	≤IDR 4,000,000	32.1
	>IDR 4,000,000	67.9
Maternal employee	Employed	70.2
	Unemployed	29.8
Babies age	≤6 months	46.6
	>6 months	53.4
Early initiation breastfeeding	Yes	64.9
	No	35.3
Exclusive breastfeeding	Yes	54.0
	No	46.0
Onset lactation	On-time (≤3 days)	77.9
	Delay (>3 days)	22.1
ANC frequency	≤6 times	20.6
	>6 times	79.4

ANC, antenatal care.

Table 2. Results of Chi-square bivariate analysis.

Variable	P value
ANC frequency with early initiation of breastfeeding	0.251
Frequency of ANC with successful exclusive breastfeeding	0.352
Early initiation of breastfeeding with successful exclusive breastfeeding.	0.022
Early initiation of breastfeeding with onset lactation.	0.092
Onset lactation with successful exclusive breastfeeding.	0.014

ANC, antenatal care.

cuss EB in specific.

Table 3 illustrates the logistics regression analysis carried out to determine the effect of the independent variables on the dependent variable. Table 3 shows that early breastfeeding initiation and the onset of lactation have a combined effect on EB success with p values of (0.033 and 0.05) and (0.019 and 0.05), respectively. The other variables have no significant effect on EB. The proposed regression equation is based on the results of the logistic regression: and elaborated as follows:

$$\text{Probability} = \frac{\text{Exp}(-1.848 + 1.072 \text{ onset lactation} + 0.966 \text{ EIBF})}{1 + \text{Exp}(-1.848 + 1.072 \text{ onset lactation} + 0.966 \text{ EIBF})}$$

Taking the value of Exp (B) into account, it is concluded that deliveries with EIBF have a 2.628- or 3-times greater chance of successful EB than deliveries without applying early initiation of breastfeeding. When compared to the delayed onset of lactation, the timely onset of lactation has a 2.921 (or three times) greater chance of successful EB.

Discussion

The Indonesian government has set a minimum marriage age of 18 years for girls and boys.¹⁹ Furthermore, the United Nations (UN) stated in Convention on Consent to Marriage, Minimum Age for Marriage and Registrations of Marriages that child, early, and forced marriage is a fundamental violation of human rights and such marriages are only permitted if the bride-to-be is over the age of 18. This is done to safeguard the physical readiness of brides and also to reduce violence against them.²⁰

The Indonesian government also recommends that ANC inspection be performed at least six times; twice in the first trimester, once in the second trimester, and three times in the third trimester.¹⁷ Therefore, most pregnant women enrolled in Surabaya's mentoring program for the first 1000 days of life had been inspected more than six times during their pregnancy. The main purpose of periodic ANC inspection is to evaluate the condition of the mother and fetus. In addition, it is vital to monitor fetal growth and detect any abnormalities either in mothers or fetuses as early as possible. As a result, mothers with three-time ANC inspections are more likely to have normal-weighted babies.²¹⁻²³

Meanwhile, the respondents' income ranged from IDR 1.5 to 13 million with an average of IDR 5.4 million. Furthermore, the minimum wage in Surabaya in 2020 is IDR 4.2 million per month, as declared by the Governor of East Java in 2019. In the study, food supply is linked to family income, and it clearly has an impact on the nutritional status of breastfeeding mothers.^{8,24}

In 2014, the Indonesian government targeted that 50% of babies born in 2019 should be breastfed early and exclusively.²⁵ As a matter of fact, the implementation of mentoring for the initial 1000 days of life in Surabaya has exceeded the target set by the Indonesian Ministry of Health, which included the rate of early breastfeeding and EB at 64.9% and 54%, respectively. This figure illustrates an apparently higher achievement than that of EB in Indonesia and East Java, which are 37.3 and 38%.⁸ Subsequently, EIBF shows a significant impact on the success of EB.²⁶

The high number of ANC visits should be far from expectations if it has yet impacted EB on average pregnant women once they seek advice on how to care for themselves and their babies from health workers. Hence, the health workers: midwives, or doctors who provide the treatments, play the main role in ensuring that EB messages are well-distributed during ANC, and they shall lead to the success of EB. Additionally, midwives are usually proven to gain more success than other health workers in educating pregnant women for the success of EB.²⁷

Early breastfeeding initiation has a significant effect on the implementation of EB, particularly, in the first hour of the postnatal period in which it provides the mother with confidence and comfort to the baby. Subsequently, it will stimulate the prolactin and oxytocin hormones to produce breast milk and the letdown reflex respectively; thus, it allows breast milk to be given. Undoubtedly, the success of EB relies on the mother's self-confidence and family support.²⁸⁻³¹

The onset of lactation is the first release of milk immediately after the baby's birth. Whereas, the delayed onset of lactation occurrence is referred to as the event when it takes 72 hours or four days in the case of C-Section delivery before babies are initially breastfed.^{6,7,30,32} Since the onset of lactation is essential to ensure the success of EB, therefore it is suggested that mothers perform it on their babies shortly after delivery to avoid maternal anxiety and lack of assurance in the quality of her milk as a result of the delayed onset of lactation.³³⁻³⁵ There were previous studies related to delayed onset of lactation — one of them was Anna Ismiyana's study which revealed that 42% of mothers in Indonesia experienced delayed onset of lactation,³⁴ whereas, there were 30.3% of mothers experienced delayed onset of lactation in China.³² Kathryn G. Dewey's research in 2003 showed that 22% of those who experienced delayed onset of lactation were primiparous mothers.³⁵

The high number of births that are not carried out early breastfeeding is very influential on the success of exclusive breastfeeding. Research conducted in India and Bangladesh shows that several things cause the failure of early initiation of breastfeeding, including family residence status, socioeconomics, and family incitement. Groups with lower economies are likely to delay the

Table 3. Logistic regression analysis with $\alpha=0.05$.

Variable	B	P value	OR
Early initiation breastfeeding	0.966	0.033	2.628
Family income	0.722	0.116	2.058
Methods of delivery	0.454	0.302	1.574
Maternal employee	-0.719	0.139	0.487
Onset lactation	1.072	0.019	2.921
Maternal age	-0.680	0.513	0.506
ANC frequency	0.121	0.810	1.129
Constant	-1.848	0.337	1.574

OR, odds ratio; ANC, antenatal care.

early initiation of feeding.^{36,37} In Indonesia, there are so many new couples who still live with their extended family. Parents/in-laws are very influential in exclusive breastfeeding decisions. Research conducted by Rasyika Nurul Fadriah that low social support from the family causes the lack of exclusive breastfeeding.³⁸

This research has high accuracy because it is carried out by assistants with midwife and nutritionist qualifications. It is necessary to pay more attention to family income because many families have income that cannot be calculated accurately.

Conclusions

The onset of lactation and EIBF result in an impressive effect on the success of EB. On the other hand, the frequency of antenatal care examinations had no considerable impact on the success of EB. In addition, births with EIBF will lead to a 3 times greater chance of successful EB compared to deliveries with the absence of early initiation of breastfeeding. Moreover, those who apply the timely onset of lactation produce a threefold greater chance of successful EB than those who experience a delayed onset of lactation.

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