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Determinants of cessation of exclusive breastfeeding in the early postnatal period in Indonesia

Determinan kegagalan pemberian ASI eksklusif pada periode awal pasca persalinan di Indonesia

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Abstract

Breast milk is the main source of nutrients in infants under six months of age. The causes of low exclusive breastfeeding coverage vary from region to region. Lack of husband's support is one of the factors contributing to exclusive breastfeeding failure. This study aimed to determine the determinants of exclusive breastfeeding failure, designed as a cross-sectional study, conducted in Sawangan District, Depok City, in February 2023. Subjects were selected using the total sampling method, namely all mothers who had babies aged 0-6 months who conducted antenatal checks at Health Center and private midwife clinics who were available to be interviewed and filled out a questionnaire with as many as 224 people and analyzed using the Chi-square test at 95% CI. Results: During antenatal care, the father's role in buying formula/instant porridge/bananas (p= 0,0000 and applying honey or mashed dates to the newborn (p= 0,000) was associated with failure of exclusive breastfeeding in the early postnatal period. Both variables were associated with a 3,7 times higher risk of discontinuing exclusive breastfeeding in the early postnatal period. In conclusion, the determinants of exclusive breastfeeding failure in the early postnatal period were fathers who bought formula/instant porridge/bananas and applied honey or mashed dates to newborns. Socialization and education of fathers regarding the importance of fathers' involvement in exclusive breastfeeding for mothers is needed.

Keywords: Cessation of exclusive breastfeeding, early postnatal, father's involvement, weaning food

Abstrak

ASI merupakan sumber nutrisi utama yang dibutuhkan bayi di bawah usia enam bulan. Penyebab rendahnya cakupan pemberian ASI eksklusif pada setiap daerah berbeda-beda. Kurangnya dukungan suami merupakan salah satu faktor kegagalan pemberian ASI eksklusif. Penelitian ini bertujuan mengetahui determinan kegagalan pemberian ASI eksklusif. Penelitian berdesain cross sectional study, dilakukan di Kecamatan Sawangan, Kota Depok pada februari 2023. Subjek dipilih dengan metode total sampling yaitu seluruh ibu yang memiliki bayi berusia 0-6 bulan yang melakukan pemeriksaan kehamilan di puskesmas dan klinik bidan swasta yang bersdia di wawancara dan mengisi kuisioner sebanyak 224 orang dan di Analisis menggunakan uji Chi-square pada CI 95%. Hasil, selama perawatan antenatal, peran ayah dalam membelikan susu formula/bubur instan/pisang (p= 0,0000 dan mengoleskan madu atau kurma tumbuk pada bayi baru lahir (p= 0,000) memiliki hubungan dengan kegagalan pemberian ASI eksklusif pada periode awal pascakelahiran. Kedua variabel tersebut memiliki risiko 3,7

kali lebih tinggi untuk menghentikan pemberian ASI eksklusif di awal masa pascakelahiran. Kesimpulan, determinan kegagalan pemberian ASI eksklusif pada awal pascakelahiran adalah ayah yang membelikan susu formula/bubur instan/pisang dan mengoleskan madu atau kurma tumbuk pada bayi baru lahir. Sosialisasi dan edukasi kepada para-ayah mengenai pentingnya keterlibatan ayah dalam memberikan ASI eksklusif kepada ibu sangat diperlukan

Kata Kunci: Kegagalan pemberian ASI eksklusif, pascakelahiran, keterlibatan ayah, MP-ASI

Introduction

Exclusive breastfeeding is an important habit that significantly influences newborn health and well-being (Jebena & Tenagashaw 2022). Exclusive breastfeeding has been shown to have a range of benefits, including reduced risk of overweight, improved cognitive function, increased intelligence, improved motor skills, healthy microbiota development, reduced risk of childhood cancer and diabetes, improved vision and speech, prevention of allergies, and stunting (Dhita et al., 2023; Martín-Rodríguez et al., 2022).

Breast milk significantly reduces a child's chance of contracting diarrhea and infectious diseases. Breast milk is hygienic and contains abundant compounds that protect children from disease-causing microorganisms. Breast milk contains many elements, such as oligosaccharides, secretory immunoglobulins, lactoferrin, and bacterial microbiota, which contribute to protecting children from diarrhea and infectious disorders (Turin & Ochoa, 2014). Exclusive breastfeeding during the early postpartum period is essential for optimal infant health and development. This involves feeding only breast milk to the baby, without any other additional food or drink, for the first six months of life. This practice is recommended by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) as it provides many benefits to both children and mothers (Dukuzumuremyi et al., 2020).

The failure of exclusive breastfeeding not only has a direct impact on child health and development but also has economic implications for the entire society. The potential healthcare cost savings from the reduced incidence of diarrhea and pneumonia through increased breastfeeding can help offset the costs of breastfeeding promotion. Therefore, there is a feasible and affordable opportunity to accelerate progress towards achieving Global Nutrition Targets for exclusive breastfeeding by 2025 (Walters et al., 2016).

Exclusive breastfeeding is an important habit that significantly influences the health and well-being of newborns. However, early failure of exclusive breastfeeding remains a widespread problem in several countries, including Indonesia (Hadi et al., 2021). Understanding the factors that influence exclusive breastfeeding failure is essential for creating successful treatments aimed at promoting exclusive breastfeeding. A recent study investigated the factors contributing to early failure of exclusive breastfeeding in several countries, including Indonesia. Rapingah et al. (2021) investigated the factors contributing to exclusive breastfeeding failure in Indonesia. This study emphasized the impact of variables such as lack of maternal knowledge, nipple and breast tenderness, low milk supply, maternal attitude, and lack of confidence. Further research conducted by Sulasmi et al. (2021) revealed that variables such as the number of previous pregnancies, regular visits to healthcare providers during pregnancy, maternal age, family support, families with limited financial resources, and living in rural areas are key factors influencing exclusive breastfeeding practices in Indonesia (Gayatri, 2021).

Fathers' involvement is critical for promoting exclusive breastfeeding during the early postpartum phase. Fathers' participation and support can significantly impact maternal achievement of exclusive breastfeeding. However, cultural traditions, knowledge, attitudes, and behaviors regarding fathers' involvement in exclusive breastfeeding can hinder success (Agrawal et al., 2022). In Indonesia, the success of exclusive breastfeeding is influenced by traditional beliefs, sometimes strong gender norms, and family, social, and economic participation. Therefore, it is critical to understand how fathers can exert a significant influence in facilitating or hindering exclusive

breastfeeding to develop effective interventions (Budiati et al., 2022). Exclusive breastfeeding is a crucial approach to promote the well-being of both infants and mothers.

However, the rate of successful exclusive breastfeeding is frequently below the desired level. Although the significance of dads in promoting exclusive breastfeeding has been acknowledged, substantial obstacles remain associated with cultural customs, gender expectations, and fathers' understanding and actions concerning their participation in this process. These obstacles impact both the willingness and capability of dads to be active as well as the effectiveness of women in exclusive breastfeeding. This study aimed to identify and comprehend the factors that impact fathers' participation in exclusive breastfeeding in Indonesia and how these factors interact to facilitate or impede exclusive breastfeeding practices. The ultimate goal was to develop more efficient interventions to enhance exclusive breastfeeding rates.

Methods

This quantitative study with a cross-sectional design was conducted in Sawangan Subdistrict, Depok City, in 2023. The population of this study included 224 mothers who had babies aged 0–6 months and underwent antenatal checks at the Health Center and private midwife practices in Sawangan Subdistrict, Depok City. The sampling technique used was total sampling.

In this study, participants completed questionnaires assessing mothers' knowledge, attitudes, and perceptions of fathers' involvement, alongside socio-demographic data. Postnatal data collection involved house-to-house visits with trained enumerators conducting these surveys. The primary instrument used was the "Baseline Questionnaire on TTD and MMS Consumption among Pregnant Women in Depok City," which refers to the 2022 Indonesian Nutritional Status Survey (INSS) questionnaire. This method combines direct participant feedback with extensive demographic and health data, providing a comprehensive view of the factors influencing exclusive breastfeeding (Ministry of Health, 2022).

This study examined the influence of several independent variables on exclusive breastfeeding discontinuation in the early postnatal period. These variables included infant sex, maternal perceptions of paternal involvement, education and occupation of both parents, maternal knowledge and attitudes, family income, number of children, gestational age, and antenatal care. The couples sampled in this study had to have a child aged 0-6 months. The questionnaire was validated prior to data collection.

The father's involvement as the primary decision-maker in everything in the family, including health and childcare, was the focal point compared to others such as relatives, friends, health workers, and the mother herself. Mothers' perceptions of their husbands' involvement included various forms of support, such as the purchase of formula, instant porridge, or bananas for the baby; the provision of honey or mashed dates to the newborn; support for mothers to breastfeed their babies; attention to the mother's health condition so that she can breastfeed well; and reminders for the mother to eat nutritious foods so that breast milk production is sufficient.

The categorization of maternal knowledge was based on the scores obtained from the questionnaire. Maternal knowledge was classified as 'low' (coded as 0) if the score was less than 50% of the total number of questions answered correctly. This shows how these variables may influence a mother's decision to breastfeed exclusively during the critical postnatal period.

Data analysis

The data were screened for missing variables. If possible, missing data were reconfirmed by the respondents. After screening, the data were entered into statistical software, which was used for the analysis. Categorical variable distributions were presented as numbers and percentages.

The results obtained were analyzed bivariate using the Chi-square test to test the relationship between the independent and dependent variables and are presented in tables and narratives to explain the results obtained from this study.

A p-value <0,05 indicates statistical significance, and a p-value <0,1. They were considered to show a tendency towards correlation with the corresponding 95% confidence interval (CI). Potential confounding variables for the multivariable analysis were

selected from variables with a p-value of < 0,25 in bivariable analysis, and variables that have conceptual connections with the outcome.

This project was approved by the Research and Community Engagement Ethical Committee of the Faculty of Public Health, Universitas Indonesia (Number 440/UN2). F10.D11/PPM.00.02/2023. Written informed consent was obtained from all participants.

Result and Discussion

Table 1 shows that the variables that have a significant relationship with cessation of exclusive breastfeeding in the early postnatal period are antenatal care (p=0,022), fathers buying formula milk/instant porridge/bananas (p<0,001), and smeared honey or crushed dates to newborns (p<0,001).

Table 2 presents the results of the initial and final multivariate models. Determinant factors for cessation of exclusive breastfeeding in the early postnatal period were formula milk/instant porridge/bananas and smeared honey or crushed dates to newborns, birth weight, and mother's knowledge. Fathers buying formula milk/instant porridge/bananas increased the risk of cessation of exclusive breastfeeding in the early postnatal by 3,7 times (*p*<0,001, 1,884;7,135 95%CI) after adjusting for the potential confounding variables.

Table 1 shows the distribution of the child-, mother-, and household-related variables. The percentage of women who breastfed exclusively during the early postnatal period was 29,9%. Of the 67 mothers who did not offer exclusive breastfeeding, 70,1% and 22,4% baby were provided with formula milk and honey, respectively. Furthermore, graduated senior high school or under degree education level was dominant for mothers' and fathers' education at about 86,7% and 83,5%, respectively. Regarding the number of children delivered, the dominant mother had ≤ 4 children was 97,8%. Only 11,6% of the patients received complete antenatal care from health providers. Regarding mothers' knowledge and attitude, 51,6% had low ability, and 51,1% had a negative attitude. Half of the fathers were unemployed or working as laborers, while 88,4% of the mothers were not working. The highest proportion of the main decision makers in all matters in the family was the husband (72%), followed by the mother alone (20,4%), relatives (5,8%), and parents/parents-in-law (1,8%). Meanwhile, the health-related decision-makers in the family were the mother alone (50,2%), husband (38,7%), relatives (9,3%), and parents/parents-in-law (1,8%).

Overall, the proportions of support for childcare in the family from parents/parents-in-law, relatives, husbands, and health workers were 19,6%, 19,6%, 16,9%, and 16,9%, respectively for fathers.

Table 1. The association between the population characteristics and cessation of exclusive breastfeeding in the early postnatal period

Variables	Cessation of exclusive breastfeeding in the early postnatal period		p-value	OR (95% CI)
	Yes (%)	No (%)		
Sex				
Boys	33 (28,7)	82 (71,3)	0,793	0,888
Girls	34 (31,2)	75 (68,8)		(0,501-1,573)
Gestational age				
Preterm	10 (45,5)	12 (54,5)	0,152	2,120
Term	57 (28,2)	145 (71,8)		(0,868-5,180)
Mother's knowledge				
Low	57 (28,2)	145 (71,8)	0,152	0,472
High	10 (45,5)	12 (54,5)		(0,193-1,153)
Mother's attitude				
Negative	34 (29,8)	80 (70,2)	1,000	0,992
Positive	33 (30,0)	77 (70,0)		(0,560-1,757)
Number of children delivered				
>4 children	3 (60)	2 (40)	0,155	3,690

≤4 children	63 (28,9)	155 (71,1)		(0,602-22,618)
Antenatal care				
Incomplete	34 (39,1)	53 (60,9)	0,022*	2,065
Complete	32 (23,7)	103 (76,3)		(1,150-3,708)
Mother's education				
Senior high school or under	47 (29,4)	137 (70,6)	0,821	0,832
Bachelor or higher	10 (33,3)	20 (66,7)		(0,367-1,888)
Father's education				
Senior high school or under	55 (29,6)	131 (70,4)	0,880	0,875
Bachelor or higher	12 (32,4)	25 (67,6)		(0,410-1,865)
Father's occupation				
Non-staff	33 (28)	85 (72)	0,600	0,822
Staff	34 (32,1)	72 (67,9)		(0,464-1,458)
Mother's occupation				
Employed	9 (34,6)	17 (65,4)	0,472	1,278
Unemployed	58 (29,3)	140 (70,4)		(0,539-3,032)
Birth weight				
Low	10 (50)	10 (50)	0,072+	2,579
Normal	57 (27,9)	147 (72,1)		(1,019-6,526)
Household income				
Low (< IDR 3,000,000)	55 (29,7)	130 (70,3)	0,896	0,881
High (>IDR 3,000,000)	12 (32,4)	25 (67,6)		(0,413-1,879)
Husband supports mother always to breastfeed their babies				
No	1 (14,3)	6 (85,7)	0,677	2,623
Yes	66 (30,4)	151 (69,6)		(0,310-22,216)
Husband pays attention to the mother's health condition so that she can breastfeed her baby well				
No	1 (20)	4 (80)	1,000	1,725
Yes	66 (30,1)	153 (69,9)		(0,189-15,733)
Husband reminds mother to consume nutritious food so that she will have lots of milk				
No	2 (18,2)	9 (81,8)	0,594	1,976
Yes	65 (30,5)	148 (69,5)		(0,415-9,402)
Husband buys formula milk/instant porridge/bananas for babies				
Yes	37 (53,6)	32 (46,4)	0,000*	4,818
No	30 (19,4)	125 (80,6)		(2,595-8,946)
Husband smeared honey or crushed dates on newborns				
Yes	29 (52,7)	26 (47,3)	0,000*	3,845
No	38 (22,5)	131 (77,5)		(2,026-7,298)

Exclusive breastfeeding remains a significant problem contributing to an increase in the infant mortality rate. The percentage of exclusive breastfeeding in the early postnatal period was less than that reported in a national survey (72%) and West Java Province (77%) (Prima et al., 2020). The results showed that the most dominant factor associated with the failure of exclusive breastfeeding was the mother's perception of the father's support in buying infant formula/instant baby porridge/banana. The success of exclusive breastfeeding is closely related to family social support. The family is the closest community that can influence mothers' actions. Family support is an external factor influencing self-

confidence in exclusive breastfeeding (Radzyminski & Callister, 2016). The availability of family support, especially for husbands, increases mothers' self-confidence or motivation to breastfeed (Mannion et al., 2013). The role of fathers in supporting EBF has been included in the global strategy for breastfeeding promotion issued by the World Health Organization. However, some fathers were not mentioned in the original Ten Steps to Successful Breastfeeding or explicitly addressed in the revised version (WHO & UNICEF, 2018). Paternal interventions aim to strengthen breastfeeding knowledge, positive attitudes, and fathers' involvement in providing mothers with practical, physical, and emotional support, which may improve breastfeeding practices (Sherriff et al. 2014).

Table 2. Multivariable model

Independent variable	B	*p-value*	OR	95% CI
Initial Model				
Sex (boys compared to girls)	-0,372	0,266	0,689	0,357;1,329
Mother's knowledge (low compared to high)	-1,075	0,037*	0,341	0,124;0,939
Number of children delivered (>4 children compared to <4 children)	0,609	0,552	1,839	0,247;13,676
Antenatal care (complete compared to incompleted)	0,414	0,231	1,512	0,768;2,978
Birth weight (low compared to normal)	1,267	0,014*	3,549	1,290;9,764
Husband buys formula milk/instant porridge/bananas for babies (yes compared to no)	1,240	0,000*	3,454	1,724;6,921
Husband smeared honey or crushed dates on newborns (yes compared to no)	0,986	0,007*	2,680	1,302;5,516
Final Model				
Husband buys formula milk/instant porridge/bananas for babies (yes compared to no)	1,299	0,000*	3,666	1,884;7,135
Husband smeared honey or crushed dates on newborns (yes compared to no)	1,046	0,004*	2,847	1,395;5,809
Mother's knowledge (low compared to high)	-1,050	0,037*	0,350	0,130;0,939

Other studies concluded that when the mother felt she had low milk supply, the father suggested providing infant formula (Rothstein et al., 2021). The husband or father of a child can be a barrier to or support breastfeeding. In developing countries, the presence of a husband is associated with early termination of breastfeeding. In contrast, in developed countries, a mother may not successfully breastfeed her child for six months without the support of her husband (Emmott & Mace, 2015). Additionally, grandmothers suggest providing additional food when the baby is 4-5 months old because they used to do the same for their children and grew healthy (Khasanah & Sukmawati, 2019).

Apart from easy access and relatively affordable prices, infant formula is considered practical for most mothers to overcome the problem of low breast milk supply. In addition, the community usually provides weaning food to provide additional nutritional intake for babies in addition to the obligation of breastfeeding itself. Misguiding the function of infant formulas is unfortunate. Infant formula is not a weaning food or complementary food. Breastfeeding alone is sufficient to meet the nutritional needs of infants. Infant formula is 'medication,' which must be prescribed by a doctor and only to be provided for infants. According to Government Regulation No. 33 of 2012, infant formula is specifically formulated milk as a substitute for breast milk for babies up to six months of age with problems of inability to drink breast milk (Government of Indonesia, 2012). Suppose an infant has been introduced into infant formula. In such cases, it is very likely that the baby will refuse breastmilk and will tend to choose milk in a bottle because the process of drinking from a bottle is much faster than breastfeeding

directly from the breast, so the baby will not get hungry quickly (Tulpule et al., 2022). Infants need more time to digest infant formula than breast milk; therefore, unsurprisingly, the baby does not become hungry quickly (Martin et al., 2016). Other studies have revealed that infant formula provision by parents was due to the infant's grandparents because infants who are provided with infant formula appear to be overweight/obese compared to infants who are exclusively breastfed and are considered to be able to meet the nutritional needs of infants (Tulpule et al., 2022).

The sugar content of the formula can increase infant weight (Huang et al., 2018). Infant formula promotion is presented intensively and attractively, which can change the perception of husbands/fathers and parents towards infant formula and make them believe that it is better than breast milk. In addition, maternity clinics still provide infant formula to the infants of postpartum mothers (Li et al., 2021).

A study in Australia reported that 50% of babies were exclusively breastfed for 2 months. The main reasons for this are that mothers do not obtain support and have different opinions from their partners when they intend to breastfeed their babies (Hauck et al., 2021). This also occurs in Indonesia, where infants who are given infant formula eventually refuse to return to breastfeeding directly through the breast. This condition is called 'nipple confusion,' where the baby refuses to breastfeed again (Muniandy & Yusof, 2021). Some mothers with children experiencing this condition continue to struggle by consulting with a lactation expert until they are entirely 'cured'. However, some mothers have limited access to information and are ultimately forced to choose to provide infant formula using milk bottles (Haryani et al. 2014).

Research data show that industrially processed foods, including infant formula, have the potential to contain Enterobacter sakazakii when consumed by newborn infants up to 28 days, premature, low-birth-weight babies, and babies born from mothers with HIV and immunosuppressed infants (abnormal antibodies)(Nguyen et al., 2016). If an infant is infected with E. sakazakii, 50% are reported to have died within one week of diagnosis, and if they survive, they will experience complications and neurological disorders (Hooshfar et al., 2020). Although infant formula milk is designed to resemble human milk as much as possible, the gut microbiome of infants who receive formula milk differs from that of infants fed human milk (Chong et al., 2022). Diverse microbial populations in human milk and microbes seed the infant gut microbiome. Human milk contains nutritional components that promote infant growth and bioactive components such as oligosaccharides, lactoferrin, and immunoglobulins, which contribute to immunological development (Chong et al., 2022).

The results of this study also illustrate that another cause of exclusive breastfeeding failure is fathers who apply honey or crushed dates to newborns. This is no different from the research conducted by Rosmiati (2020), in which providing honey to newborns has become a hereditary culture carried out by mothers living in rural areas, where it is considered that the baby will become healthier. Another reason newborn infants are smeared with honey is because of recommendations from parents or in-laws who have instilled this habit as part of an inherited culture (Fadjriah et al., 2021).

Although honey is a foodstuff that contains abundant vitamins, it is not intended for infants aged 0-6 months because it feared that it could become a channel for germs and bacteria to enter the infant's body and cause failure of exclusive breastfeeding (Tundia et al., 2018). Several developed countries have stated that honey consumption is prohibited in infants aged < 12 months. The main reason for this is that honey contains Clostridium bacteria, which harm infants. Clostridium bacteria release toxins in the infant's digestive tract and cause 'botulism' poisoning; however, the baby cannot naturally produce antibacterial agents (Retnangtyas & Mardjengi, 2020). These toxins can attack the nervous system and result in muscle disorders, including those of muscles that control breathing and limb movement (Charantimath et al., 2020).

Conclusion

The dominant factor most related to the failure of exclusive breastfeeding in infants is the mother's perception of the father who buys the infant formula/instant baby porridge/banana for the baby. Other factors include low birth

weight, father-smeared honey or crushed dates to newborns, and mothers' lack of knowledge.

Advice: The government and health departments should prioritize implementing tangible measures to promote exclusive breastfeeding. A practical approach is to enhance fathers' agency by establishing father-to-father support groups and coordinating seminars that offer educational resources on the responsibilities of fathers in childcare. This encompasses assisting mothers in nursing and actively engaging in domestic matters. Enhancing socialization efforts regarding the significance of well-rounded nutrition is therefore crucial. This entails educating fathers about the potential risks and obstacles associated with introducing supplementary foods too early, which can impede the effectiveness of exclusive breastfeeding. These endeavors will ideally enhance fathers' understanding and drive them to promote mother and child health.

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