The Socio-cultural Context of Barriers to Exclusive Breastfeeding Practices among Mothers in Karanganyar District Central Java Province

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ABSTRACT

***Background**: Exclusive breastfeeding has an important role in preventing stunting among children due to chronic malnutrition. According to Indonesia Health Profile 2020, approximately 33.9% of children under six months were not exclusively breastfed. One of the challenges to achieving successful exclusive breastfeeding comes from socio-cultural aspects. **Method**: This mixed-methods study examined the socio-cultural context of barriers to exclusive breastfeeding among mothers. For a cross-sectional study in Karanganyar District, Central Java Province, a total of 706 participating mothers with children aged between 6-59 months were interviewed using a structured questionnaire in 2021. In addition, in-depth interviews with mothers were conducted to enrich the findings related to the obstacles in giving exclusive breastfeeding. **Result**: The binary logistic regression found that male children (AOR= 1.64, 95%CI (1.06, 2.56), children living in low-income households (AOR= 2.48, 1.25, 4.92), children with low-educated mothers (AOR= 8.84, 95%CI (3.83, 20.36), children with working mothers (AOR= 6.45, 95%CI (3.79, 10.98), children with pre lacteal feeding (AOR= 5.67, 95%CI (2.33, 13.75) were more likely to have nonexclusive breastfeeding. This study also revealed that 36,1% of mothers in Karanganyar District gave honey as pre-lacteal feeding to the newborn, which hindered exclusive breastfeeding practices. The qualitative approach also confirms this finding. **Conclusion**: Therefore, it is important to strengthen health promotion programs related to exclusive breastfeeding to mothers and the family through the life cycle approach based on the local context.*

***Keywords**: Exclusive breastfeeding, Inter-generation health problems, Mixed-methods study, Socio-cultural, Stunting.*

INTRODUCTION

The World Health Organization (WHO) mentioned breastfeeding as a cost-effective investment to increase child health and survival (Gayatri & Dasvarma, 2020; WHO, 2017). Infants should be exclusively breastfed for the first six months of life in addition to their continuation with the addition of complementary foods for two years (Asemahagn, 2016; Kandeel et al., 2018). Exclusive breastfeeding is when an infant receives only breast milk without additional water or solid food in the first six months of life, except for vitamins, mineral supplements and medicine (Motee & Jeewon, 2014; WHO, 2017).

Breast milk has been shown to contain the necessary nutritional needs of the infant with immunological and anti-inflammatory properties that protect children against various infections and diseases (Godfrey & Lawrence, 2010; Islam et al., 2018; James & Lessen, 2009). There has been growing evidence that nonexclusive breastfeeding increases the risk of child mortality due to diarrhea and pneumonia more than twofold among infants aged 0-5 months (Kandeel et al., 2018). Furthermore, previous studies revealed that children who received exclusive breastfeeding for less than six months were more likely to be stunted than children who received exclusive breastfeeding for six months (Aguayo & Menon, 2016; Berhe et al., 2019; Bukusuba et al., 2018; Chirande et al., 2015). For short- and long-term consequences, stunting among children due to chronic malnutrition was related to a lower immune system in infants and an increased risk of chronic diseases during adulthood, such as diabetes and

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cardiovascular disease (Aguayo & Menon, 2016; Black et al., 2008; Black et al., 2013). Thus, evidence suggests long-term health benefits of breastfeeding, including reduced risks of non-communicable diseases and increased benefits to human capital in adulthood (Bhattacharjee et al., 2021).

Despite the benefits, the proportion of exclusively breastfed children remains low in many low- and middle-income countries [LMICs] (Bhattacharjee et al., 2021; Olufunlayo et al., 2019). Evidence shows that most mothers started to exclusively breastfeed their babies at birth and the rate declined greatly about two or more months (Mascarenhas et al., 2006; Qasem et al., 2015). A cross-sectional study conducted in southern Brazil showed a 72.5% overall breastfeeding rate and 43.7% exclusive breastfeeding among infants younger than 6 months of age (do Nascimento et al., 2010). Other studies in Tanzania and Uganda showed that 19% and 48% of mothers practiced exclusive breastfeeding of their infants up to the age of four months (Bukusuba et al., 2018; Chirande et al., 2015). In Indonesia, 66.1% of infants were exclusively breastfed in 2020 (Kementerian Kesehatan, 2021). The proportion of exclusive breastfeeding appeared to vary significantly between regions within Indonesia. Specifically, some provinces (e.g., West Papua, Maluku, and North Sumatera) are still have a percentage of exclusive breastfeeding below the national average.

Several studies have identified a variety of factors that may influence the practice of exclusive breastfeeding. Among the socioeconomic factors, household income, mother education, and mother employment status are documented as significant factors of exclusive breastfeeding (Adugna et al., 2017; Kandeel et al., 2018; Swigart et al., 2017). Health-related factors for exclusive breastfeeding, such as mode of delivery, have also been found to be related to the practice of exclusive breastfeeding (Adugna et al., 2017). Furthermore, Indonesia contains rich cultures that could influence breastfeeding practice among mothers. Therefore, it is necessary to identify the socio-cultural context that becomes a barrier to the practice of exclusive breastfeeding.

This mixed methods study aims to examine the socio-cultural context of barriers to exclusive breastfeeding among mothers in Karanganyar District, Central Java Province. Despite this, Indonesia's exclusive breastfeeding percentage remains unsatisfactory. The goals were specifically to: 1) improve exclusive breastfeeding in Indonesia; 2) examine breastfeeding knowledge, including exclusive breastfeeding, among mothers and family, and 3) identify barriers to exclusive breastfeeding in relation to socio-cultural factors.

METHODS

Study Design and Location

This mixed methods study design with primary data was collected in Karanganyar District, Central Java Province, between June to November 2021. The district is approximately 565 kilometers (km) from Jakarta, the capital of Indonesia, with a total area of approximately 773.8 km^2. The estimated population of this district was 931,963 people and approximately 7.56% of them were children under 5 years of age (BPS Kabupaten Karanganyar, 2020). There are 17 subdistricts with 177 villages, of which 53 are rural areas and 124 are urban areas. This district has 21 primary health care units (PHCUs) or *Puskemas* [*Pusat Kesehatan Masyarakat*] distributed in all sub-districts and one type C hospital. The two main sectors that support the district's economy are industry (the food and textile industry) and agriculture (BPS Kabupaten Karanganyar, 2020).

Source of Population and Study Sample

The source of the population of this study was all children aged 6 to 59 months who were registered in medical records in all 21 PHCUs in the 17 sub-districts. However, during the data collection period, 11 subdistricts were designated as red zones due to the Covid-19 pandemic. Therefore, the sample population included children aged 6 to 59 months in 10 PHCUs in 9 sub-districts. A total of 706 children (296 children with exclusive breastfeeding and 410 children with nonexclusive breastfeeding) aged 6 to 59 months were selected as the study sample from medical records using a simple random sampling method.

In addition, in-depth interviews with 10 mothers in Karanganyar District were conducted to enrich the findings related

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to the obstacles in giving exclusive breastfeeding.

Data Source and Population

For a cross-sectional study in Karanganyar District, Central Java Province, a total of 706 participating mothers with children aged between 6–59 months were interviewed using a structured questionnaire from June to November 2021. Furthermore, 10 couples, husband and wife, in the same study area were interviewed for qualitative data.

Variable Selection and Measurement

Exclusive breastfeeding practices, the dependent variable in this study, was measured as a binary variable (yes and no). According to the WHO (2016), infants receiving only breast milk for the first six months were classified into the "yes" group. A total of seven independent variables were included (1) child sex, (2) household income, (3) mother education, (4) mother employment status, (5) place of residence, (6) mode of delivery, and (7) prelacteal feeding.

Regarding the measurement of independent variables, child sex was treated as a binary variable (male and female). Household income is defined as entire income of all family members in a household and will be measured as ordinal variable with three levels (low= ≤2 million IDR, middle= >2 million-<3.5 million IDR, high= (≥3.5 million IDR). Mother education was measured as an ordinal variable with three levels (1 = junior high school or below, 2 = high school, and 3 = college or above). Mother employment status was treated as a binary variable (working and non-working). This study measured place of residence as a binary variable (urban and rural). The classification of urban and rural areas is identified following the BPS-Statistics Indonesia (BPS, 2010). The mode of delivery was measured as a binary variable (normal delivery and caesarean section). Lastly, prelacteal feeding practice was treated as a binary variable (yes and no). If mothers gave prelacteal feeding to the newborn (e.g., honey, sugar), they were categorized in the "yes" group.

Statistical Analysis

For statistical analysis, descriptive statistical analysis was performed to summary the study sample and variables. Since the dependent variable, exclusive breastfeeding was a binary variable (yes and no), binary logistic regression (BLR) was performed to analyse the association between selected independent variables and exclusive breastfeeding (Hosmer & Lemeshow, 2020). The statistical significant level was set at *p*-value <0.05 and IBM SPSS Statistics Version 26 software was utilized for all statistical analyses conducted in this study.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

The result of descriptive statistical analysis for a summary of the study sample and variables are shown in Table 1.

Table 1. Descriptive statistics analysis for the study variables and exclusive breastfeeding practice.

Variables	Overall group		Exclusive breastfeeding group		Nonexclusive breastfeeding group		*p*-value
	n	%	n	%	n	%	
Child sex							
Male	367	52	134	36.5	233	63.5	0.002*
Female	339	48	162	47.8	177	52.2	
Household income							
Low (≤2 million IDR)	286	40.5	66	23.1	220	76.9	
Middle (>2 million-<3.5 million IDR)	213	30.2	107	50.2	106	49.8	0.000*
High (≥3.5 million	207	29.3	59.4	123	40.6	84	

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IDR)							
Mother education							
Low (junior high school level or below)	212	30.0	24	11.3	188	88.7	0.000*
Middle (high school level)	299	42.4	141	47.2	158	52.8	
High (college level or above)	195	27.6	131	67.2	64	32.8	
Mother employment status							
Working	342	48.4	103	30.1	239	69.9	0.000*
Non-working	364	51.6	193	53.0	171	47.0	
Place of residence							
Rural	275	39.0	74	26.9	201	73.1	0.000*
Urban	431	61.0	222	51.5	209	48.5	
Mode of delivery							
Normal	494	70.0	235	47.6	259	52.4	0.000*
Caesarean section	212	30.0	61	28.8	151	71.2	
Prelacteal feeding							
Yes	255	36.1	6	2.40	249	97.6	0.000*
No	451	63.9	290	64.3	161	35.7	

Note: *= statistically significant at p-value <0.05.

The proportion of exclusive breastfeeding and nonexclusive breastfeeding was 41.9% and 58.1% respectively. From the total sample of 706 children aged between 6–59 months, male (52%) and female (48%) children were almost equally represented in the sample. For household income, 40.5% of children belonged to low-income households, 30.2% and 29.3% were middle- and high-income households, respectively.

Regarding the education of mothers, the majority (42.4%) of mothers had completed middle level (high school), while 30.0% and 27.6% of mothers had completed junior high school or below and high level (college or above), respectively. For mother employment status, of the total, 48.4% of mothers were working and more than half (51.6%) of mothers were non-working. Approximately three-fifths (61%) of the children lived in urban areas, while the other two-fifths (39%) were in rural areas. One in 3 (30%) had caesarean section in the delivery mode. Regarding prelacteal feeding, 36.1% of mothers gave prelacteal food to their children.

Table 3.1 also presents the Chi-square test to compare the statistical difference of the community variables between children who received exclusive and nonexclusive breastfeeding. For child sex, male children were more likely not to get exclusive breastfeeding than female children. The prevalence of nonexclusive breastfeeding was significantly higher among children from low-income than high-income households.

This study found that the prevalence of nonexclusive breastfeeding was found higher among children with lower-educated mothers. Specifically, mothers with junior high school or below had a higher chance of not giving exclusive breastfeeding than those with high school or above. For mother employment status, a higher proportion of nonexclusive breastfeeding was found among working mothers than non-working mothers. The results indicated that the prevalence of

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nonexclusive breastfeeding was significantly higher in children who lived in rural areas than children in urban areas. For the mode of delivery, mothers who delivered babies through caesarean section were more likely to practice nonexclusive breastfeeding than mothers who had a normal delivery.

Result of Exclusive Breastfeeding Practice Analysis

The study finding of binary logistic regression (BLR) for factors associated with nonexclusive breastfeeding practice is presented in Table 3.2. In the BLR model, six variables were significantly related to exclusive breastfeeding, which were child sex, household income, mother education, mother employment status, mode of delivery, and prelacteal feeding.

Table 2. Results of BLR on factors associated with nonexclusive breastfeeding practice.

Variables	Nonexclusive breastfeeding children group	
	Adjusted OR	95% CI
Child sex		
Male	1.649	(1.060 – 2.565)*
Female	1.000	
Household income		
Low (≤2 million IDR)	2.483	(1.252 – 4.924)*
Middle (>2 million-<3.5 million IDR)	1.393	(0.765 – 2.536)
Rich (≥3.5 million IDR)	1.000	
Mother education		
Low (junior high school level or below)	8.841	(3.837 – 20.367)*
Middle (high school level)	2.704	(1.522 – 4.805)*
High (college level or above)	1.000	
Mother employment status		
Working	6.454	(3.792 – 10.985)*
Non-working	1.000	
Place of residence		
Rural	1.231	(0.727 – 2.084)
Urban	1.000	
Mode of delivery		
Normal	0.194	(0.119 – 0.316)*
Caesarean section	1.000	
Prelacteal feeding		
Yes	5.672	(2.338 – 13.755)*
No	1.000	

Reference = exclusive breastfeeding children group
OR odd ration, *95% CI* 95% confidence interval
**p* value <0.05

In the final model, child sex was positively associated with nonexclusive breastfeeding. It indicated that male children were more likely not to receive exclusive breastfeeding 1.64 times more than their female counterparts. Household income was positively related to nonexclusive breastfeeding practice. Children living in low-income households were more likely not to receive exclusive breastfeeding than children in high-income households.

Mothers with junior high school or below (low-level) and high school (middle-level) education level were positively related to nonexclusive breastfeeding practice. Specifically, lower-educated mothers were more likely not to practice exclusive breastfeeding than higher-educated mothers. There was a positive correlation between mother's employment status and nonexclusive breastfeeding. Children of working mothers were 6.45 times more likely not to practice exclusive breastfeeding than children of non-working mothers. The model showed that the mode of delivery was negatively related to nonexclusive breastfeeding practice. Mothers with normal delivery were more likely to practice exclusive breastfeeding than those who underwent a caesarean section. Prelacteal feeding was positively related to nonexclusive breastfeeding. Mothers who gave prelacteal feeding were 5.67 times more likely not to give exclusive breastfeeding than mothers who

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did not give prelacteal feeding to their children.

The qualitative findings showed some sociocultural factors during the exclusive breastfeeding practice that potentially influenced the continuation of breastfeeding. There is a common belief that a child's health is determined by their size. Even if the child is obese, the larger his or her physique is deemed healthier. This perspective is common among society in Indonesia and significantly impacts the exclusive breastfeeding practice. Insufficient breast milk is perceived as a problem for the health of babies and they need additional food, such as formula or even solid food, so that the babies do not feel hungry.

The respondent experienced this situation where the baby was exclusively breastfed and had a relatively small body size. In this case, the mother-in-law or sister-in-law suggested consuming formula milk to make the baby gain weight and become bigger.

> *"The main obstacle was the family. My husband's sister has suggested that I feed the baby formula to make him plump. My husband, on the other hand, has always defended me, claiming that overweight is bad". (Interview with private employee)*

Quantitative findings in Karanganyar District showed that the reasons mothers did not practice exclusive breastfeeding were lack of breast milk supply (58.8%) and crying babies due to hunger even after breastfeeding (51.2%). Interestingly, approximately 41.5% of working mothers reported that a shorter period of maternity leave (three months) affected the exclusive breastfeeding practice of the baby.

Some mothers in the study area revealed that nonexclusive breastfeeding was triggered by the midwife's recommendation for supplementary baby formula milk (26.3%). The lack of support from health providers was also an obstacle to practising exclusive breastfeeding, as found in the qualitative study in Medan City.

> *"I received baby formula milk as a present from the midwife. I knew that the present was not for free. I have paid for it together with the delivery service fee. How could I throw it away when I knew the price of baby formula milk was not cheap? As I said, I have not received this present for free. So, I just decided to give my baby formula milk, which is much easier to prepare for. I do not need to wake up to breastfeed in the middle of the night. I will ask my husband to prepare formula milk and give it to the baby".* (Interview with housewife).

Another mother's perspective also gave the same explanation about the association between formula milk and satiety. The respondent told about the experience during meeting other parents whose babies are not exclusively breastfed.

> *"My baby was insufficient if he had not received formula milk".* (Interview with government officer).

Due to cultural traditions, some respondents reported giving prelacteal feeding (e.g., honey, sugar) to the newborn in the first three days of birth. Interestingly, most mothers who practice prelacteal feeding believed that applying honey and sugar could bring happiness to a newborn's future life.

> "*Her grandma taught me that applying honey or something sweet on the lips of the baby will bring happiness in their future life".* (Interview with housewife)

In addition, some cultures in Indonesia, which come from the old generation, babies need to eat solid food (e.g., bananas or porridge) other than breast milk before the babies reach six months. The old generation usually applied this practice and suggested their children do as they did with their babies in the past.

> *"You ate a banana when you were two weeks old, and you have no problems with it. You are now healthy and growing."* (interview government officer).

This mixed methods study investigated the socio-cultural context of barriers to exclusive breastfeeding among mothers with children aged 6–59 months in Karanganyar District, Central Java Province. The results of this present study showed that various factors determine the

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prevalence of exclusive breastfeeding. Child sex was significantly associated with the practice of exclusive breastfeeding. Specifically, female children were more likely to be exclusively breastfed than their male counterparts. A similar finding was found in a study conducted in Nigeria and India (Agho et al., 2011; Kazmi et al., 2021). This could be due to the fact that male children are more valued among Javanese families. In addition, mothers believed that male children must be strong, as they would become breadwinners in the future. Interestingly, this gendered cultural perception prevents mothers from giving exclusive breastfeeding rather than introducing complementary foods early (Agho et al., 2011), as mothers feel that male children need more foods than breast milk to keep them strong and healthy.

Our study found that mothers in low-income households were more likely to practice nonexclusive breastfeeding than those in high-income households. Studies conducted in Kenya and Somalia reported similar findings in which household income is positively correlated with exclusive breastfeeding (Jama et al., 2020; Murage et al., 2011). The observed association could be due to the role of household income in improving exposure to various media that can improve mothers' knowledge on exclusive breastfeeding practice. In addition, this evidence from qualitative findings was associated with the socio-cultural aspect. The perception of mothers that they lack breast milk supply and that babies cry after breastfeeding were the common reasons for discontinuing exclusively breastfeeding. This perception led to supplementing infant formula milk, and mothers tended to stop exclusively breastfeeding (Lewallen et al., 2006). Furthermore, this study found that health professionals provided free formula milk in hospitals as a package for maternal discharge after delivery. Although the government has imposed restrictions on the supply of formula milk by health providers and penalties for those who violate the rules, the practice still exists in some health facilities in Indonesia.

This study revealed that mothers who attended high school or lower were less likely to exclusively breastfeed their children than those who attended college or higher. The finding is consistent with the results of studies conducted in Egypt and Ethiopia (Asemahagn, 2016; Kandeel et al., 2018). This could be attributed to the role of education in improving awareness of the importance of exclusive breastfeeding practice for child health (Asemahagn, 2016). In addition, mothers with higher education had better awareness of attending antenatal care (ANC) services, in which mothers had more contact with health professionals and were more aware on the benefits of exclusive breastfeeding (Habtewold et al., 2019).

Regarding mother employment status, non-working mothers practiced relatively better exclusive breastfeeding than working mothers. This finding was similar to the study conducted in Brazil and Ethiopia (Alemayehu et al., 2009; Mascarenhas et al., 2006). Working mothers can be relatively overloaded with their work activities; thus, limiting their contact time with children and hindering exclusive breastfeeding practice (Alemayehu et al., 2009). This finding suggests the importance of providing facilities for breastfeeding mothers in the workplace.

In terms of mode of delivery, nonexclusive breastfeeding was more prevalent in children whose mothers had a caesarean delivery. This could be attributed to attempts to overcome breastfeeding and lactation difficulties within the first hour after caesarean delivery, which can take longer than a normal mother's delivery due to the long recovery period (Llorente-Pulido et al., 2022; UNICEF, 2018). In the present study, cultural differences in rural and urban areas could have hindered the practice of exclusive breastfeeding among mothers, and this is similar to studies done in Ethiopia and Egypt (Adugna et al., 2017; Ghwass & Ahmed, 2011).

Furthermore, particularly in the Indonesian setting, mothers have even more variety of breastfeeding practices due to culture and tradition. This study found that some mothers believed that introducing solid food to their babies before six months could improve their health. At the same time, it is acceptable when mothers apply something sweet (e.g., honey or sugar) on the newborn lips. According to their belief, applying something sweet on a newborn's lips was considered to bring good fortune to the

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newborn's life. Previous studies in Indonesia also found that putting honey on the lips of newborns increases their immunity (Arsyati & Rahayu, 2019). These practices can impede the practice of exclusive breastfeeding.

Families' knowledge and attitudes on breastfeeding may contribute to exclusive breastfeeding success (Alianmoghaddam et al., 2018). Family members, particularly grandmothers, became barriers to exclusive breastfeeding practices among mothers. A study in Malawi indicated that grandmothers often make critical decisions on early introducing complementary foods (Kerr et al., 2008). The finding suggests that grandmothers should be involved in nutrition programs to enhance the knowledge of mothers and promote better practices of exclusive breastfeeding.

There are some limitations to this study. First, the research locations cover only Karanganyar District, Central Java Province; therefore, the culture and tradition are limited to the study area. Furthermore, recall bias is a problem, since it takes a relatively long time for mothers to remember, but we hope the recall problem does not differ.

CONCLUSION

This study found that male children, children living in low-income households, children of mothers with low education levels, children of working mothers, children of mothers with caesarean sections, and children with prelacteal feeding were more likely to have nonexclusive breastfeeding practice. In addition, sociocultural aspects significantly influence the perspective and attitude towards the practice of exclusive breastfeeding among mothers. Therefore, the findings of this study reflect the importance of education for mothers to improve their knowledge and awareness of the importance of exclusive breastfeeding practices for their child's health.

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