

## Multilevel Analysis on the Biosocial and Economic Determinants of Exclusive Breastfeeding

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### ABSTRACT

**Background:** Exclusive breastfeeding is provided to infants from birth to 6 months of age without supplementary or substitution food and drink. Breastmilk contains nutrients and protective factors that can reduce morbidity and mortality risks of children. This study aimed to determine the effect of maternal nutritional status, parity, employment status, family income, health personnel support, subjective norm, and stratification status of community health center (posyandu), on exclusive breastfeeding in Banjarsari Sub-District, Surakarta.

**Subjects and Method:** This was an analytic observational study with cross sectional design. The study was conducted in Banjarsari sub-district, Surakarta, Central Java, from October 17 to November 7, 2017. Twenty five posyandus were selected by stratified random sampling. Of the posyandus selected, 200 lactating mothers were selected by simple random sampling. The dependent variable was exclusive breastfeeding. The independent variables were maternal nutritional status, parity, employment status, family income, subjective norm, and health personnel support. The data were collected using a set of questionnaire and analyzed by multilevel logistic regression in Stata 13.

**Results:** The likelihood of exclusive breastfeeding increased with better maternal nutritional status ( $b= 1.65$ ; 95% CI= 0.14 to 3.17;  $p= 0.032$ ), multi parity ( $b= 1.72$ ; 95% CI= 0.57 to 2.86;  $p= 0.003$ ), working outside the house ( $b= -2.94$ ; 95% CI= -3.99 to -1.88;  $p= 0.001$ ), higher family income ( $b= -1.94$ ; 95% CI= -3.13 to -0.76;  $p= 0.001$ ), strong health personnel support ( $b= 1.13$ ; 95% CI= 0.02 to 2.25;  $p= 0.046$ ), and positive subjective norm ( $b= 1.20$ ; 95% CI= 0.14 to 2.25;  $p= 0.025$ ). Posyandu showed strong contextual effect on exclusive breastfeeding with intra-class correlation (ICC)= 28.87%.

**Conclusion:** The likelihood of exclusive breastfeeding increases with better maternal nutritional status, multi parity, working outside the house, higher family income, strong health personnel support, and positive subjective norm.

**Keyword:** exclusive breastfeeding, multilevel analysis, maternal nutritional status, parity, employment status, family income, health personnel support, subjective norm, and posyandu

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### BACKGROUND

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The United Nations Children's Fund (UNICEF) estimates that exclusive breastfeeding until infants aged 6 months can prevent the death of children under 5 years by 1.3 million. A study in Ghana published in the journal Pediatrics shows that 16% of infant deaths can be prevented by breast-

feeding since the first birth. The number increased to 22% if the breastfeeding started in the first hour after birth (Prasetyono, 2009).

The World Health Organization (WHO) and UNICEF recommend exclusive breastfeeding until the infants are 6 months old and then later it is followed by comple-

mentary feeding and the breastfeeding is still given until the child is 2 years old. Suitable protective and nutrient factors for infant nutrition are contained in breast milk where these factors can reduce the risk of childhood morbidity and mortality. Some epidemiological studies suggest that breast milk can protect infants and children from infectious diseases, such as diarrhea, ear infections, and lower acute respiratory infections (Basic Health Research, 2013).

Infant Mortality Rate (IMR) in Indonesia has decreased in recent years from 68 per 1,000 live births in 1991 to 34 per 1,000 live births in 2007 (BAPPENAS, 2011). Based on data from the Indonesian Demographic and Health Survey (IDHS), it is shown that infant mortality has fallen by half from 68 deaths per 1,000 live births for the period 1987-1991 to 32 deaths per 1,000 live births for the period 2008-2012 (SDKI, 2012). One of the strategies and efforts of the government to reduce the IMR is to promote exclusive breastfeeding (BAPPENAS, 2011). Health Act no. 36 of 2009 has determined that every infant is entitled to exclusive breast milk since birth for 6 months, except for those who have particular medical indications. During the provision of breast milk, the family, the central government, local government, and the community must fully support infant mothers with the provision of time and special facilities (Health Act 2009). Exclusive breastfeeding is also regulated in Government Regulation no. 33 of 2012 stating that families, communities, local governments and central government are responsible for the success of exclusive breastfeeding programs (Government Regulation No. 33, 2012).

According to Basic Health Research (2013), the percentage of breastfeeding in the last 24 hours and have no history of *prelakteal* food at 6 months old (30.2%).

(Ministry of Health, 2016) stated that the coverage of exclusive breastfeeding for infants aged less than 6 months was 55.7% meaning that nationally, it has reached the target of Strategic Plan of 2015 by 39%. The highest coverage of exclusive breastfeeding was in West Nusa Tenggara (86.9%) and the lowest one was in North Sulawesi (26.3%). Of the 33 provinces reporting, 29 of them (88%) have successfully reached the target in 2015.

The percentage of exclusive breastfeeding in infants aged 0-6 months in Central Java in 2015 was 61.6%. The number is slightly increased compared to the year 2014 that was equal to 60.7% but still far from the Ministry of Health target of 80% (Central Java DHO, 2015). Based on the result of report of public health service in Surakarta in 2011, it was recorded that from 2,885, the number of babies aged from 0-6 months old age was 1,401 or 48.6% exclusively breastfed, in 2012, there were 2,336 babies (45.8%), in 2013 (55.7%), in 2014, there were 3,591 (67.7%), in 2015, there were 3,717 (72.9%), and in 2016, there were 4,212 babies (76.7%). The highest percentage of exclusive breastfeeding in 2016 in Surakarta was in Laweyan district (87%) and the lowest one was in Banjarsari district (74.6%) (Surakarta Health Office, 2011-2016).

In this study, the researchers want to know the influence of individual level and integrated health service post level or contextual influence on exclusive breastfeeding in Banjarsari District, Surakarta.

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## SUBJECTS AND METHOD

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The research design used in this study was analytic observational study with cross sectional approach using multilevel analysis. This study was conducted in Banjarsari district considering the low coverage of exclusive breastfeeding from

national targets. This study was conducted for eight weeks from 17 October to 7 November 2017.

The source population was 6-12 months old infants in Banjarsari district, Surakarta who had six public health centers, namely Nusukan, Manahan, Gilingan, Banyuanyar, Setabelan and Gambirsari.

The number of samples chosen was 200 with the consideration that the number of samples were more representative and the sampling technique used was stratified random sampling at *posyandu* level. This technique was chosen because the researchers divided the population in strata according to certain characteristics that were considered important, namely *posyandu* strata such as *madya*, *purnama*, and *mandiri*. The selected sample technique was simple random sampling at the individual level. This technique was chosen because the researcher selected the samples at each *posyandu* randomly. Samples were selected from 25 *posyandu* units spread in all strata and then selected 8 subjects from each *posyandu*.

The independent variables in this study were maternal nutrition status, parity, occupation, family income, support from health personnel, and subjective norms. The dependent variable was exclusive breastfeeding.

The operational definition of maternal nutritional status variable is a factor at the individual (micro) level that is directly influenced by food intake and is measured using the LILA metline when the mother exclusively breast feeds her baby at 0-6 months and was measured by looking at the subject's KIA book. Parity is the number of pregnancies that produce a fetus that can survive outside the uterus and it was measured by looking at the subject's KIA book. Occupation is a set of positions that have the same liability or duties at the age

of infants 0 to 6 months measured by questionnaires. Family income is the amount of fixed and additional income from heads of households, mothers, and other family members in one month at the age of infants 0-6 months and it was measured using questionnaires. The support of health personnel is an effort to improve the quality of the maximum health service to the community so that the public is able to improve health and was measured using questionnaires. The subjective norm is an individual's perception of the existing social pressures to perform or not to perform a behavior and it was measured using a questionnaire. Exclusive breastfeeding is breastfeeding activity to the baby without any food or other beverages except drugs/medicines and vitamins in infants aged 0-6 months.

The research instruments used for the data collection were questionnaires, medical records from Public health centers and KIA books. The validity test was conducted on 20 babies aged 6-12 months in working area of Gilingan PHC, Surakarta with the consideration that the area have exclusive coverage of ASI which was still low compared to the national target. The content validity is done by removing items of questions that have a total item-correlation coefficient  $<0.20$ . The face validity was done by having consultation to Dr. Eti Poncorini, dr., M.Pd and Prof. Bhisma Murti, dr., M.Ph., M.Sc., Ph.D. The reliability test was performed by measuring variables using the SPSS 22 statistical program which can calculate the total-item correlation and Cronbach alpha.

The characteristics of sample data on maternal, parity, occupational, family income, health personnel support, and subjective norms were described in n and %. The bivariate analysis used Chi-Square test with CI and the significance level p

<0.05. The relationship of variables studied was then analyzed by multilevel analysis model. Variables located at level one that directly affect the individual included maternal nutritional status, parity, occupation, family income, support of health workers, and subjective norms, while the variable located at level two was *posyandu*. The magnitude of influence on

level one was indicated by the regression coefficient (b). The magnitude of influence on level two was shown by the Intra Class Corelation (ICC) parameter.

## RESULTS

### 1. Sample characteristics

Characteristics of study subjects are displayed in Table 1.

**Table 1. The Description of research variables**

Variable	n	%
<b>Maternal nutrition status</b>		
MUAC (< 23.5)	20	10%
MUAC (≥ 23.5)	180	90%
<b>Parity</b>		
Primiparous	90	45%
Multiparous	110	55%
<b>Occupation</b>		
Working at house	126	63%
Working outside the house	74	37%
<b>Family Income</b>		
Low (<Rp 2,600,000 )	95	47.5%
High (≥Rp 2,600,000)	105	52.5%
<b>Support of health personnel</b>		
Low (<15)	64	32%
High (≥ 15)	136	68%
<b>Subjective Norms</b>		
Low (< 12)	97	48.5%
High (≥ 12)	103	51.5%

The multivariate influence showed the greater impact of the dependent variables of maternal nutritional status, parity, employment, family income, health personnel support, and subjective norms which are attached to the dependent variable which is exclusive breastfeeding. There was a relationship between maternal nutritional status and exclusive breastfeeding and it is stated as statistically significant. Mothers with normal nutritional status may increase the possibility of exclusive breastfeeding rather than mothers who have less nutritional status (b = 1.65; 95% CI = 0.14 to 3.17; p = 0.032).

There was a relationship between parity and the exclusive breastfeeding and

it was stated as statistically significant. The multiparous mothers increased the likelihood of exclusive breastfeeding compared to the primiparous mothers (b = 1.72; 95% CI = 0.57 to 2.86; p = 0.003).

There was a relationship between occupation and the exclusive breastfeeding and was stated as statistically significant. Working mothers decreased the possibility of giving exclusive breastfeeding compared to non-working mothers (b = -2.94; 95% CI = -3.99 to -1.88; p = 0.001).

There was a relationship between the family income and the exclusive breastfeeding and was stated as statistically significant. Mothers with high family income have higher possibility to provide exclusive

breastfeeding rather than mothers with low family income (b = -1.94; 95% CI = -3.13 to -0.76; p = 0.001).

There was a relationship between the health personnel support and the exclusive breastfeeding and was stated as statistically significant. Mothers who get high support from health personnel are likely to give exclusive breastfeeding rather than mothers with low support from health

personnel (b = 1.13; 95% CI = 0.02 to 2.25; p = 0.046).

There was a relationship between subjective norms and the exclusive breastfeeding and was stated as statically significant. Mothers living on the society with high subjective norms have greater the possibility to give exclusive breastfeeding rather than mothers living in a society with low subjective norms (b = 1.20; CI 95% = 0.14 to 2.25; p = 0.025).

**Table 2. Chi-Square analysis of the influence of mother's nutritional status, parity, occupation, family income, support of health personnel, and subjective norms on the exclusive breastfeeding**

Variable	Category	Exclusive Breastfeeding				OR	95% CI		P
		No		Yes			Lower Limit	Upper Limit	
		n	%	n	%				
Maternal MUAC	<23.5 cm	15	75	5	25	6.81	2.36	19.69	0.001
	≥23.5 cm	55	30.6	125	69.4				
Parity	Primiparous	41	45.6	49	54.4	2.33	1.29	4.23	0.005
	Multiparous	29	26.4	81	73.6				
Occupation	Working at home	11	8.7	115	91.3	0.02	0.11	0.56	0.001
	Working outside the house	59	79.7	15	20.3				
Family Income	Low	14	14.7	81	85.3	0.15	0.07	0.30	0.001
	High	56	53.3	49	46.7				
Health Personnel support	Weak	44	68.8	20	31.3	9.30	4.71	18.36	0.001
	Strong	26	19.1	110	80.9				
Subjective Norms	Low	51	52.6	46	47.4	4.90	2.59	9.27	0.001
	High	19	18.4	84	81.6				

**Table 3. Results of logistic regression analysis of biososioeconomic and posyandu determinants on the exclusive breastfeeding**

Independent Variables	b	95% CI		p
		Lower limit	Upper limit	
<b>Fixed Effect</b>				
Mothers' Nutrition status	1.65	0.14	3.17	0.032
Parity	1.72	0.57	2.86	0.003
Occupation	-2.94	-3.99	-1.88	0.001
Family Income	-1.94	-3.13	-0.76	0.001
Health Personnel support	1.13	0.02	2.25	0.046
Subjective norms	1.20	0.14	2.25	0.025
<b>Random Effect</b>				
Posyandu	1.33	0.14	12.38	
Var (Konstanta)				
ICC= 28.87%				
Likelihood Ratio Test p = 0.016				

Table 3 shows the result of ICC = 28.87%. The indicator shows that *posyandu* condition in each strata has a contextual influence on exclusive breastfeeding variation of 28.87%. The number is greater than the standard role of thumb size of 8-10%, so the contextual influence of *posyandu* shown from multilevel analysis is very important to note. In the table, it also indicated the likelihood ratio = 0.016. This means that there is a statistically significant difference between models regardless of contextual influences and models that take account of contextual influences. *Posyandu* with independent stratum increases the possibility to give exclusive breastfeeding rather than *posyandu* with *purnama* and *madya* strata.

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## DISCUSSIONS

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### 1. The influence of maternal nutritional status on the exclusive breastfeeding

The result of this study showed that there was an influence of mother's nutritional status on the exclusive breastfeeding and was stated as statistically significant. Mothers with normal nutritional status increased the likelihood of exclusive breastfeeding compared to mothers with less nutritional status ( $b = 1.65$ ; 95% CI = 0.14 to 3.17;  $p = 0.032$ ). The results are in line with Wahyuni's (2015) study, which states that maternal nutritional status has a significant relationship with exclusive breastfeeding (OR = 0.49). Mothers with good nutritional status are more likely to give exclusive breastfeeding than mothers with less nutritional status. The better a person's nutritional status, the better the person will be in giving exclusive breastfeeding.

The results of Permatasari's (2015) study shows that there was a statistically significant relationship between nutritional

intake and milk production. Mothers who breastfed with normal nutritional status then the breast milk production will be better than mothers with less nutritional status. The better nutrient intake the mother consumes during breastfeeding will have an effect on the smoothness of breast milk.

Proverawati (2010) explained that the maternal nutritional status affects the composition and amount of milk produced so that it needs balanced nutrition in order for the needs of mother and baby can be fulfilled. Haryani (2010), also states that mothers with less nutritional status still can breastfeed, but if the mother's nutritional improvement is not handled then it can have an impact on the nutrient content contained in breast milk.

In this study, most of the nutritional status of mothers belong to normal nutritional status. This shows that the community has been paying attention to the balanced nutrition intake. Adequate breastfeeding nutrition can produce more milk in terms of quantity and quality so that it can meet the needs of the baby.

UNICEF Indonesia (2012), explains that the national data on maternal nutritional status was poorly reported. However, the presence of low birth weight cases was an indication that the weight of the child at birth was a direct result of the mother's nutritional status before and during pregnancy. The nutritional status of mothers lacking before and during pregnancy also affects the mother's nutritional status during breastfeeding so that it can affect the milk production.

Segura, et al (2016), says that breast milk is the best food for babies. Nutrition during breastfeeding mothers is very important. Increasing the production of breast milk is highly recommended for breastfeeding mothers to meet the nutria-

tional needs of infants so that there will be no malnutrition. It can be done by consuming nutrients not less than 1,800 calories per day.

Valentine and Wagner (2013) explain that an exclusive breastfeeding is recommended for the first 6 months of life. Breastfeeding mothers are expected to provide good and adequate nutrition to support the growth of the baby to grow optimally. Nutritional substances in breast milk from food sources containing vitamin A, B1, B2, B3, B6, B12, C, and D, fatty acids, and iodine are determined from the diet of breastfeeding mothers every day. Foods consumed by breastfeeding mothers should be greater than the adult portion of food in terms of quantity and variety.

## **2. Parity's effect on the exclusive breastfeeding**

The results showed that parity had an effect on exclusive breast feeding. Multiparous mothers increased the likelihood of exclusive breastfeeding rather than primiparous mothers ( $b = 1.72$ ; 95% CI = 0.57 hinga 2.86;  $p = 0.003$ ). The results of this study are consistent with the study of (Draman et al., 2017), which states that mothers with parity more than 1 time have 29.13 times greater likelihood of exclusive breastfeeding than mothers with parity less than once (OR = 29.13; CI 95 % = 9.63 to 88.12). Mothers who have parity more than 1 time have previous breastfeeding experience that tends to be better in giving exclusive breastfeeding to their babies.

The results of this study are also in accordance with the study conducted by Kitano et al. (2016), which states that multiparous mothers are likely to exclusively breastfeed their babies rather than primiparous mothers. Multiparous mothers aged  $\geq 35$  years have the possibility of exclusive breast feeding of 5.9 times greater (OR = 5.91; 95% CI = 2.95 to 11.86) than

primiparous mothers, whereas multiparous mothers aged  $< 35$  years have the possibility of exclusive breastfeeding of 2.20 times (OR = 2.20; 95% CI = 1.53 to 3.16).

This is in accordance with a study conducted by Awaliyah et al. (2014), which states that there is a relationship between parity and exclusive breastfeeding. Multiparous mothers were 8.76 times more likely to give exclusive breastfeeding than primiparous mothers (OR = 8.76;  $p = 0.003$ ).

A study of Judge (2012), statistically shows the relationship between parity and exclusive breastfeeding. Mothers with multiparous parity status were 3.57 times more likely to give exclusive breastfeeding than primiparous mothers (OR = 3.57; 95% CI = 1.35 to 9.42).

This is in line with Ida's (2012) study showing that parity has a meaningful relationship with exclusive breastfeeding. Mothers with parity  $> 1$  times were 2.33 times more likely to exclusively breastfeed than mothers with a parity of 1 (OR = 2.33; 95% CI = 1.08 to 5.02).

The results of this study indicate that most of the subjects who gave exclusive breastfeeding were multiparous. This further strengthens the finding that multiparous mothers have higher possibility to give exclusive breastfeeding than primiparous mothers. Multiparous mothers have had previous breastfeeding experiences rather than primiparous moms, so they are better at giving exclusive breastfeeding.

Green theory in the study of Awaliyah (2014), states that parity is one of the factors that can determine health behavior. Determination of maternal and child health has been largely determined by the level of parity. High-priority mothers tend to have better health behaviors than low-income mothers. A mother who has both lactation and her chances is better than the first lactation.

### 3. The Effect of Employment on Exclusive Breastfeeding

The result of this study showed that there was an effect of employment on exclusive breastfeeding which is stated as statistically significant. Working mothers decreased the possibility of exclusive breastfeeding compared to non-working mothers ( $b = -2.94$ ;  $CI\ 95\% = -3.99$  up to  $-1.88$ ;  $p = 0.001$ ). The result of a study by Draman *et al.* (2017) stated that working mothers are 0.12 times less likely to give exclusive breastfeeding than non-working mothers ( $OR = 0.12$ ;  $CI\ 95\% = 0.05$  up to  $0.28$ ).

The result of this study is in line with a study by Sariyanti (2015), which stated that there is a relationship between employment and exclusive breastfeeding. Working mothers tend to stop the exclusive breastfeeding because they do not have more time to breastfeed and they have less breast milk.

This is in line with a study from Danso (2014), which stated that there is a significant relationship between employment and exclusive breastfeeding. Working mothers in Ghana have difficulty in providing exclusive breastfeeding due to the limited time. Working mothers spend their time at work and they do not get adequate facilities to pump the breast milk so they cannot give exclusive breastfeeding to their babies.

Agustina *et al.* (2012) stated that non-working mothers are 1.71 times more likely to give exclusive breastfeeding than working mothers ( $OR = 1.71$ ;  $CI\ 95\% = 0.98$  up to  $3.02$ ). Non-working mothers have more time to take care of their babies compared to working mothers, therefore, non-working mothers can give exclusive breastfeeding to their babies.

In this study, most of the subjects are unemployment so that they have more time to take care of their babies. Non-working

mothers have more chances to give exclusive breastfeeding than working mothers. This is due to the limited time of day off regulations so that the working mothers must provide breast milk substitutes.

Soomro (2015) stated that working mothers cannot provide exclusive breastfeeding because the office does not provide facilities that support breastfeeding such as lactation room, bottles, or refrigerator to keep the breast milk. The day off policy made for mothers is also too short, no more than 3 months and in some companies, they do not give an easy job for the mothers during breastfeeding.

Petry (2013), explains that working mothers do not have more time to breastfeed because of the limited time they have. Mothers who choose to work can be caused of low economic conditions. In order to survive, mothers have to work to fulfill the needs of everyday life.

Awaliyah (2014) stated that employment is one of the factors that can affect health behavior. Working mothers are mothers who do activities outside or inside the house to make money, except for household routine. Working mothers have little chance to give exclusive breastfeeding to their babies compared to non-working mothers.

Handayani *et al.* (2009) explained that the existence of gender equality between men and women increases the participation of women to work in all aspects of work and community needs. This can certainly result in a decreased willingness of women to breastfeed their babies, while non-working mothers have more or enough time to give exclusive breastfeeding compared to working mothers.



#### **4. The Effect of Family Income on Exclusive Breastfeeding**

The result of this study showed that there was an effect of family income on exclusive breastfeeding. Mothers who have high family income are less likely to give exclusive breastfeeding compared to mothers with low family income ( $b = -1.94$ ; CI 95% =  $-3.13$  to  $-0.76$ ;  $p = 0.001$ ). The result of a study by Silva et al. (2017) stated that mothers with low family incomes are 1.23 times more likely to give exclusive breastfeeding than mothers with high family income (OR = 1.23; CI 95% = 0.88 to 1.72).

The result of a study by Saffari *et al.* (2017) stated that there is a correlation between family income and exclusive breastfeeding. Mothers with low family incomes are 1.08 times more likely to give exclusive breastfeeding than mothers with high family incomes (OR = 1.08; CI 95% = 1.03 up to 1.13).

This is also in line with a study by Maulida (2015) which stated that mothers with high economic levels are 0.33 time less likely to provide exclusive breastfeeding than mothers with low economic levels. The result of this study is in line with a study by Agustina et al. (2012) which stated that the level of a maternal wealth affects the exclusive breastfeeding. Mothers with a high level of wealth are 0.36 times less likely to provide exclusive breastfeeding than mothers with low levels of wealth (OR = 0.36; CI 95% = 0.14 up to 0.90). Mothers with high levels of wealth tend to have little chance of exclusive breastfeeding rather than mothers with low levels of wealth.

In this study, most of the subjects have low family income. Low economic levels may encourage mothers to give exclusive breastfeeding. This is because if the mother wants to buy complementary foods before the age of 6 months old, then

they should spend more money, while mothers with high economic levels have more budgets to buy complementary foods, therefore, it reduces the pattern of exclusive breastfeeding.

Every family member has formal and informal roles. A father's formal role is to be responsible for fulfilling the needs, while his informal role is to be a role model and protector of his family. The family structure includes the ability to communicate, the ability of family sharing, the ability of support systems among family members, the ability of self-care, and the ability to solve the problems (Rahmawati *et al.*, 2013).

#### **5. The effect of health personnel support on exclusive breastfeeding**

The result of this study showed that there was an effect of health personnel support on exclusive breastfeeding. Mothers who receive strong support from health personnel increase the possibility of exclusive breastfeeding rather than mothers who have lack of support from health personnel ( $b = 1.13$ ; CI 95% = 0.02 to 2.25;  $p = 0.046$ ).

The result of a study by Windari *et al.* (2017) stated that there is an effect of health personnel support on exclusive breastfeeding. Mothers who get lack of support from health personnel are 10.5 times less likely to give exclusive breastfeeding than mothers who receive a support from health personnel.

The result of this study is in line with a study by Mamonto *et al.* (2015) which stated that there is a relationship between health personnel and exclusive breastfeeding. Mothers who receive support from health personnel are 4.13 times more likely to give exclusive breastfeeding than mothers with lack of support from health personnel (OR = 4.13; CI 95% = 6.99 up to 10.44).

The result of this study is in line with a study Sabati (2015), which stated that health personnel brings positive impact to the breastfeeding mothers to give exclusive breastfeeding. Health personel do not only provide the counseling about exclusive breastfeeding, they also provide other counseling such as early breastfeeding initiation.

The result of this study is in line with a study by Azriani *et al.* (2014) which stated that mothers who receive support from health personnel are 1.54 times more likely to give exclusive breastfeeding than mothers with lack of support from health personnel (OR= 1.54; CI 95%= 1.08 up to 2.19).

The result of this study is in line with a study by Ariwati *et al.* (2014) which stated that there is a significant relationship between midwife support on exclusive breastfeeding and exclusive breastfeeding behavior. Mothers who receive support from midwife are 2.48 times more likely to give exclusive breastfeeding than mothers with lack of support from midwife.

This is in line with a study by Ida (2012) which explained that mothers who have access to health personnel are 2.14 times more likely to give exclusive breastfeeding than mothers who do not have access to health personnel (OR= 2.14; CI 95%= 0.87 up to 5.25).

There are 19 questions to measure the effect of health personnel support on exclusive breastfeeding. In this study, most of the research subjects receive support from health personnel. Health personnel in Banjarsari Sub-district have a high spirit to help in *Posyandu* activities. In addition to monitoring the health of infants and toddlers in *Posyandu*, health personnel also provide health information and nutrition counseling in detail to the public. Counseling about nutrition conducted by

health workers is very beneficial for the community especially mothers, it is about the importance of providing exclusive breastfeeding until the baby is 6 months old and followed by weaning food afterwards and still give the breast milk until the babies turn 2 years old.

Sabati (2015) mentioned that the information about breast milk given by the midwife greatly affects the mother in giving exclusive breastfeeding. When the mothers check their pregnancies, then midwives provide motivation to the mother to give exclusive breastfeeding to the baby from 0 to 6 months old. Midwives also provide understanding and support to mothers that breastfeeding is not difficult.

#### **6. The Effect of Subjective Norm on Exclusive Breastfeeding**

The result of this study showed that there was an effect of subjective norm on exclusive breastfeeding which is statistically significant. Mothers who live in the environments with high subjective norms are more likely to give exclusive breastfeeding rather than mothers who live in the environments with low subjective norms (b= 1.20; CI 95%= 0.14 up to 2.25; p= 0.025).

This is in line with Jamei (2017) which stated that there is an effect of subjective norm on exclusive breastfeeding (OR= 0.37). The result of this study showed that maternal behaviours to give exclusive breastfeeding are affected by some factors such as attitudes, subjective norms, and perceptions of behavioral control. This is in line with a study by Jatmika (2015) which stated that there is a relationship between important norms and the intention to give exclusive breastfeeding. The norms in the society or the important norms are the influences of socio-cultural factors in the particular society in which the person lives.

The socio-cultural element will affect a person to give the exclusive breastfeeding.

The result of this study is in line with a study conducted by Teklehaymanot *et al.* (2013) which stated that there is a strong correlation between subjective norms and exclusive breastfeeding. Mothers who live in the environments with high subjective norms tend to feel the social pressure to provide exclusive breastfeeding so that mothers exclusively breastfeed their babies. The social pressure comes from the encouragement of parents, husbands, and the community to give exclusive breastfeeding to babies up to 6 months old.

The result of this study is in line with a study by Ayuni (2012) which stated that the majority of pregnant teenagers have good subjective norms for breastfeeding. Subjective norms are determined by normative beliefs from the point of view of social values on behaviors. The perceptions of the closest people to pregnant teenagers will form the normative beliefs of pregnant teenagers on breastfeeding behavior. The result showed that most research subjects get support from people closest to mothers such as husbands, families, friends, and people around them. The values and behaviors in the environment can affect the maternal psychological condition.

There are 16 questions to measure the effect of subjective norms on exclusive breastfeeding. In this study, most of the study subjects lived in the environments with high subjective norms to provide exclusive breastfeeding. The value of the environment strongly supports exclusive breastfeeding and influences the mothers to give exclusive breastfeeding for their babies. The subjective norm comes from people who are considered important to the mother, such as parents, family, and people around them such as health personnels who are very influential on maternal behavior to

give exclusive breastfeeding. The role of health personnel has a positive impact for the maternal behavior to give exclusive breastfeeding. Health personnels in Banjarsari Sub-district have high enthusiasm in providing health information to their community. In fact, some *Posyandu* in Banjarsari Sub-district have won several healthy-*Posyandu* championships.

### **7. The Effect of Posyandu on Exclusive Breastfeeding**

Multilevel analysis results show ICC = 28.87%. The indicator shows that the *Posyandu* condition in each level has a contextual influence on the exclusive breastfeeding variation by 28.87%. *Posyandu* with independent level increases the possibility to give exclusive breastfeeding rather than *Posyandu* with *purnama* and *madya* levels. Ministry of Health (2012) stated that *Posyandu* has two activities, namely main activities and development activities. The main activities at *Posyandu* include maternal and child health, family planning, immunization, nutrition, and diarrhea prevention and control, while the development activities include Family Development of Toddlers (BKB), Family Medicinal Plants (TOGA), Elderly Family Development (BKL), Early Childhood Education Post (PAUD), and other community development programs. With the routine activities at *Posyandu*, health personnel and health cadres can share information about the importance of exclusive breastfeeding to the community, especially mothers.

Public of Health Service in Surakarta (2015) stated that there are 3 *Posyandu* levels that currently exist in Surakarta namely *madya*, *purnama* and independent levels. Each *Posyandu* level has its own criteria and assessment. According To Khoiri (2008), division or stratification of *Posyandu* is divided into 4 levels including

*pratama Posyandu* (red), *madya Posyandu* (yellow), *purnama Posyandu* (green), and independent *Posyandu* (blue). The grouping is done based on the organizing and program achievement level with a number of indicators that is the frequency of weighing per year, the average number of cadres on *Posyandu* day, the coverage of toddlers who come and weighed (D) divided by the total number of toddlers in *Posyandu* (S) immunization coverage, coverage of pregnant women, family planning coverage (KB/FP), additional programs, and healthy funds.

Based on the Ministry of Health, the determination of *madya*, *purnama*, and independent levels has the same criteria, which is in weighing frequency, mean of cadre's task, average of D/S coverage, cumulative coverage of FP, cumulative coverage of child identity card (CIC), cumulative immunization coverage, and healthy fund coverage. However, there are differences in the number of health personnels and health cadres who are actively present in *Posyandu* activities. In addition, the participants who attend the *Posyandu* activities are not only the mothers who have babies, toddlers or children, but pregnant women also participate to obtain health counseling and get balanced nutrition from the *Posyandu*.

There are some differences between health counseling about balanced nutrition at every stage of age and availability of nutrition at each *posyandu* levels. Independent level of *Posyandu* has adequate nutrient availability and can intervene on an ongoing basis if there is a case of malnutrition experienced by pregnant women, infants, toddlers, and children, whereas the *purnama* and *madya Posyandu* levels have less nutrient availability compared to the independent level. This is the reason of the difference *posyandu*

influence on exclusive breastfeeding in each level. Independent level gives greater impact to the mothers in giving exclusive breastfeeding compared to *purnama* and *madya* levels.

The result of the study by Nurkhayati (2016) stated that the role of cadres in *Posyandu* is associated to the exclusive breastfeeding coverage and was stated as statistically significant. High cadre support, good cadre counseling, and good cadre monitoring can affect the enhancement of exclusive breastfeeding. This means that the role of cadres in *Posyandu* is very important to help the health personnel in creating a healthy and prosperous generation.

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