

## Factors Affecting Exclusive Breastfeeding Practice using Social Cognitive Theory Constructs: A Multilevel Evidence from Madiun, East Java

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### ABSTRACT

**Background:** Exclusive breastfeeding for infants up to 6 months of age is the most effective way to ensure the health and the viability of the child. Exclusive breastfeeding coverage still does not meet the target due to various factors. This study aimed to determine the effectiveness level of health promotion of exclusive breastfeeding program in the integrated health service in Madiun, East Java.

**Subjects and Method:** This was an a cross-sectional study conducted in Madiun, East Java, from February to May 2020. A sample of 200 lactating mother who had infants aged 6 to 24 months was selected randomly. The dependent variable was exclusive breastfeeding practice. The independent variables were health promotion program, observational learning, role model, vicarious learning, imitation, attitude, outcome expectation, self regulation, self-efficacy, reinforcement, and integrated health post contextual. The data were collected using questionnaire and analyzed by a multilevel multiple logistic regression run on Stata 13.

**Results:** Exclusive breastfeeding practice increased with adequate health promotion program (OR= 3.08; 95% CI= 1.06 to 8.94; p= 0.038), high observational learning (OR= 3.86; 95% CI= 1.31 to 11.39; p= 0.014), strong role model (OR= 4.01; 95% CI= 1.12 to 14.29; p= 0.033), vicarious learning (OR= 4.46; 95% CI=

1.34 to 14.82; p= 0.015), strong imitation (OR= 2.74; 95% CI= 1.02 to 7.35; p= 0.045), positive attitude (OR= 3.51; 95% CI= 1.04 to 11.88; p= 0.043), positive outcome expectation (OR= 4.04; 95% CI= 1.32 to 12.38; p= 0.014), strong self-regulation (OR= 2.36; 95% CI= 0.93 to 5.99; p= 0.068), strong self-efficacy (OR= 5.35; 95% CI= 1.81 to 15.77; p= 0.002), and strong reinforcement (OR= 3.90; 95% CI= 1.21 to 12.57; p= 0.022). There was a contextual effect of integrated health post on exclusive breastfeeding practice with intraclass correlation (ICC)= 10.97%.

**Conclusion:** Exclusive breastfeeding practice is affected by health promotion program, observational learning, role model, vicarious learning, imitation, attitude, outcome expectation, self regulation, self-efficacy, and reinforcement. Integrated health post has a contextual effect on exclusive breastfeeding practice.

**Keywords:** exclusive breastfeeding, health promotion, social cognitive theory.

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### BACKGROUND

Exclusive breastfeeding promotion is carried out through the World Breastfeeding Week which is celebrated every year from 1 to 7

August to encourage breastfeeding and improve the health of babies around the world (WHO, 2016). This promotion program provides education and information about breastfeeding to women during treat-

ment before and after birth and offering to counsel from health care providers or trained volunteers, and from support groups for breastfeeding mothers (CDC Breastfeeding, 2013).

This program often establishes breastfeeding policies and support in clinical settings such as hospitals and maternity clinics, as well as community settings such as workplaces and child care centers. Breastfeeding promotion program could also provide information and education through doctors, nurses, midwives, nurse practitioners, nutritionists, lactation consultants, and other health care professionals (CDC Breastfeeding, 2013).

Breastfeeding is the best way to provide the nutrition the baby needs. Breastfeeding is one of the most effective ways to ensure the health and viability of the child. WHO recommends exclusive breastfeeding starting from one hour after birth until 6 months of age. Nutritious complementary foods should be added while breastfeeding for up to 2 years or more (WHO, 2016). Around 820,000 children's lives would be saved each year if breastfeeding practice was increased to the universal level (Victora et al., 2016). Globally, only 40% of babies under six months were exclusively breastfed (UNICEF, 2018).

The achievement of exclusive breastfeeding in Indonesia has not reached the expected rate that was 65.16% (Ministry of Health, 2019). The highest achievement was 80.28% in West Sulawesi. In addition, East Java was in the top fifth rank in 2018 which was 76.98%. This achievement has increased compared to the achievement in 2017 (75.7%) (East Java Health Office, 2017). Madiun City is one of the cities in East Java with increasing achievements each year. The achievement of exclusive breastfeeding in Madiun was 76.74% (Madiun Health Office, 2018). This figure was still under the target for

babies to get exclusive breastfeeding from the Ministry of Health, which was 80%.

Health promotion efforts are closely related to the health promotion media provided. According to a study that discussed the effect of health promotion media conducted by Suhertusi et al., (2015), there was an increase in maternal knowledge before and after being given health promotion using leaflets and film media. Film media was more effective in increasing knowledge than leaflet media. According to a study conducted by Hapitria et al. (2017), there was a significant difference in knowledge and attitude before and after health promotion using multimedia.

## SUBJECTS AND METHOD

### 1. Study Design

This was an observational study with a cross-sectional design. This study was conducted in 25 integrated health posts in Madiun, East Java, from February to May 2020.

### 2. Population and Sample

The population of the study was breastfeeding mothers with babies aged 6 to 24 months in Madiun City. The sample of the study was collected using a stratified random sampling of the community level. There were 200 study subjects selected by simple random sampling as the sample of this study. The criteria were breastfeeding mothers with babies aged 6 months to 24 months.

### 3. Study Variables

The dependent variable was exclusive breastfeeding practice. The independent variables were health promotion program, observational learning, role model, vicarious learning, imitation, attitude, outcome expectation, self regulation, self-efficacy, reinforcement, and integrated health post contextual.

### 4. Operational Definition of Variables

**Health promotion program** was a program implemented by Community health center in Madiun city to improve the practice

of giving exclusive breastfeeding such as counseling, Integrated health post visit, as well as pregnancy and children under five classes. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= did not participate (score <4) and 1= participated (score  $\geq$ 4).

**Observational learning** was someone's observation of another person's behavior. The person imitated and repeated the behavior. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= low (score <3) and 1= high (score  $\geq$ 3).

**Role model** was the process of imitating someone's behavior by paying attention to the behavior of people around, such as friends, family, or surroundings. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= weak (score <5) and 1= strong (score  $\geq$ 5).

**Vicarious learning** was someone's observation of other people's behavior indirectly through medium such as media, television, news, and advertisements; therefore, the individual would imitate the behavior. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= low (score <6) and 1= high (score  $\geq$ 6).

**Imitation** was how far someone imitated the behavior of others with the consequences of a positive or negative response. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= weak (score <3) and 1= strong (score  $\geq$ 3).

**Attitude** was the tendency of a person's response which was behavior towards events in the form of beliefs, feelings, or behavior towards an event. The data were collected by questionnaire. The measurement scale was

continuous, but it was transformed into dichotomous, coded 0= positive (score <10) and 1= negative (score  $\geq$ 10).

**Outcome expectation** was the outcome expectation of a behavior in the form of a consequence if the behavior would be carried out according to what the individual wanted. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= negative (score <11) and 1= positive (score  $\geq$ 11).

**Self regulation** was the ability to keep a commitment to a health goal, related to exclusive breastfeeding practice. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= weak (score <6) and 1= strong (score  $\geq$ 6).

**Self-efficacy** was the self-confidence and positive ability of a breastfeeding mother to keep providing exclusive breastfeeding for the baby. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= weak (score <7) and 1= strong (score  $\geq$ 7).

**Reinforcement** was an external response or stimulus. If it was obtained, it could increase the likelihood of repeating positive or negative behavior. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= weak (score <4) and 1= strong (score  $\geq$ 4).

**Exclusive breastfeeding practice** was the process of breastfeeding as early as possible until the baby aged 6 months old, without any additional food. The data were collected by questionnaire. The measurement scale was continuous, but it was transformed into dichotomous, coded 0= non-exclusive breastfeeding (score <3) and 1= exclusive breastfeeding (score  $\geq$ 3).

### 5. Data Analysis

Univariate analysis was used to describe each dependent variable and the independent variable. The data were classified according to the data type. The continuous data were presented with mean, standard deviation, minimum, and maximum values. The dichotomous data were included in the frequency distribution table.

Bivariate analysis was used to determine the relationship between the independent variable and the dependent variable using the Chi-square test.

Multivariate analysis was used to explain the effect of the independent variables on the dependent variable using multi-level analysis techniques. Breastfeeding mothers were at the individual level in this study. Besides, Integrated health posts were at the community level.

**Table 1. The Characteristics of the Sample (a continuous data)**

Characteristic	n	Mean	SD	Min.	Max.
Maternal Age (year)	200	30.88	5.82	15	47
Infant Age (month)	200	14.56	5.51	6	24

**Table 2. Sample Characteristics (dichotomous data)**

Characteristic	N	%
<b>Maternal Age</b>		
< 30 years	86	43.00
≥ 30 years	114	57.00
<b>Infant Age</b>		
6 to 14 months	109	54.50
15 to 24 months	91	45.50
<b>Education</b>		
< Senior High School	27	13.50
≥ Senior High School	173	86.50
<b>Occupation</b>		
Unemployed	134	67.00
Employed	66	33.00

Table 2 shows that most of the mothers were ≥30 years old (57%), had infants aged 6-14 months (54.50%), had education ≥Senior high school education (86.50%), unemployed (67%).

### 2. Univariate Analysis

The univariate analysis was explained in Table 3 and 4. Table 4 shows that most of the

### 6. Research Ethics

This study paid attention to the basic principles of study ethics. This study has applied for ethical clearance from the Health Research Ethics Committee of Dr. Moewardi Hospital with Ethical Eligibility Number: 1473/XII/HREC/2019 on December 27<sup>th</sup>, 2019.

## RESULTS

### 1. Sample Characteristics

The characteristics of the sample were described in Table 1 and 2. Table 1 shows that the mean of maternal age was 30.88 years (Mean=30.88; SD=5.82). The mean of infants age was 14.56 months (Mean=14.56; SD=5.51).

breastfeeding mothers in Madiun carried out exclusive breastfeeding practice, which were 122 (61%). The breastfeeding mothers who participated in the exclusive breastfeeding health promotion program were 124 (62%), high observational learning were 139 (69.50%), strong role model were 163 (81.50%), high vicarious learning were 145

(72.50%), weak imitation were 111 (55.50%), positive attitude were 144 (72%), positive outcome expectation were 132 (66%), strong

self-regulation were 112 (56%), strong self-efficacy were 148 (74%), and weak reinforcement were 122 (61%).

**Table 3. Univariate analysis (a continuous data)**

Variable	N	Mean	SD	Min.	Max.
Health promotion program	200	3.26	1.03	0	4
Observational learning	200	5.10	1.28	0	6
Role model	200	5.24	1.16	0	6
Vicarious learning	200	6.38	2.20	0	8
Imitation	200	3.02	1.63	0	8
Attitude	200	10.21	1.88	3	12
Outcome expectation	200	11.00	1.60	0	12
Self regulation	200	6.34	1.96	0	8
Self-efficacy	200	7.01	1.83	0	8
Reinforcement	200	4.09	1.49	2	6
Exclusive breastfeeding practice	200	2.22	1.10	0	3

**Table 4. Univariate analysis (dichotomous data)**

Variable	N	%
<b>Health promotion of exclusive breastfeeding</b>		
Did not participate	76	38.00
Participated	124	62.00
<b>Observational learning</b>		
Low (<5)	61	30.50
High (≥5)	139	69.50
<b>Role model</b>		
Weak (<5)	37	18.50
Strong (≥5)	163	81.50
<b>Vicarious learning</b>		
Low (<6)	55	27.50
High (≥6)	145	72.50
<b>Imitation</b>		
Weak (<3)	111	55.50
Strong (≥3)	89	44.50
<b>Attitude</b>		
Negative (<10)	56	28.00
Positive (≥10)	144	72.00
<b>Outcome expectation</b>		
Negative (<11)	68	34.00
Positive (≥11)	132	66.00
<b>Self regulation</b>		
Weak (<6)	88	44.00
Strong (≥6)	112	56.00
<b>Self-efficacy</b>		
Weak (<7)	52	26.00
Strong (≥7)	148	74.00
<b>Reinforcement</b>		
Weak (<4)	104	52.00
Strong (≥4)	96	48.00

**3. Bivariate analysis**

Table 5 explained explained the relationship between health promotion of exclusive

breastfeeding, observational learning, role model, vicarious learning, imitation, attitude, outcome expectation, self regulation, self-

efficacy, reinforcement, and exclusive breastfeeding. The result of the bivariate analysis could be seen in Table 5.

**Table 5. The Chi-square test of factors affecting exclusive breastfeeding practice**

Independent variables	Exclusive breastfeeding practice				OR	95% CI		p
	Non-Exclusive		Exclusive			Lower limit	Upper limit	
	N	%	N	%				
<b>Health promotion program</b>								
Did not participate	51	67.11	25	32.89	7.32	3.68	14.65	<0.001
Participated	27	21.77	97	78.23				
<b>Observational learning</b>								
Low	38	62.30	23	37.70	4.08	2.06	8.12	<0.001
High	40	28.78	99	71.22				
<b>Role model</b>								
Weak	27	72.97	10	27.03	5.92	2.52	14.67	<0.001
Strong	51	31.29	112	68.71				
<b>Vicarious learning</b>								
Low	39	70.91	16	29.09	6.62	3.16	14.07	<0.001
High	39	26.90	106	73.10				
<b>Imitation</b>								
Weak	51	45.95	60	54.05	1.95	1.04	3.67	0.025
Strong	27	30.34	62	69.66				
<b>Attitude</b>								
Negative	44	78.57	12	21.43	11.86	5.34	27.23	<0.001
Positive	34	23.61	110	76.39				
<b>Outcome expectation</b>								
Negative	47	69.12	21	30.88	7.29	3.61	14.80	<0.001
Positive	31	23.48	101	76.52				
<b>Self regulation</b>								
Weak	50	56.82	38	43.18	3.94	2.07	7.53	<0.001
Strong	28	25.00	84	75.00				
<b>Self-efficacy</b>								
Weak	36	69.23	16	30.77	5.67	2.71	12.09	<0.001
Strong	42	28.38	106	71.62				
<b>Reinforcement</b>								
Weak	37	35.58	67	64.42	0.74	0.40	1.36	0.302
Strong	41	42.71	55	57.29				

Table 5 shows that the results of the Chi-square test of the relationship between exclusive breastfeeding practice and health promotion of exclusive breastfeeding, observational learning, role model, vicarious learning, imitation, attitude, outcome expectation, self-regulation, self-efficacy, and reinforcement were statistically significant. The mothers who participated in the health promotion program were 7.32 times more likely

to give exclusive breastfeeding than the mothers who did not participate in health promotion programs (OR=7.32; p <0.001). The mothers who had high observational learning were 4.08 times more likely to give exclusive breastfeeding than the mothers who did not have observational learning (OR= 4.08; p<0.001). The mothers who had a strong role model were 5.92 times more likely to give exclusive breastfeeding than the

mothers without a role model (OR=5.92;  $p < 0.001$ ). The mothers who had high vicarious learning were 6.62 times more likely to give exclusive breastfeeding than the mothers who did not have vicarious learning (OR=6.62;  $p < 0.001$ ). The mothers who had a strong imitation were 1.95 times more likely to give exclusive breastfeeding than the mothers who did not have imitation (OR=1.95;  $p = 0.025$ ). The mothers who had a positive attitude were 11.86 times more likely to give exclusive breastfeeding than the mothers who did not have an attitude (OR=11.86;  $p < 0.001$ ). The mothers who had a positive outcome expectation were 7.29 times more likely to give exclusive breastfeeding than the mothers who did not have the outcome expectation (OR=7.29;  $p < 0.001$ ). The mothers who had strong self-regulation were 3.94 times more likely to give exclusive breastfeeding than the mothers who did not have self-regulation (OR = 3.94;  $p < 0.001$ ). The mothers who had strong self-efficacy were 5.67 times more likely to give exclusive breastfeeding than the mothers who did not have self-efficacy (OR=5.67;  $p < 0.001$ ). The mothers who had a strong reinforcement were only 0.74 times more likely to give exclusive breastfeeding than the mothers who did not have reinforcement (OR=0.74;  $p = 0.302$ ).

#### 4. Multivariate Analysis

Multivariate analysis explained the effect of more than one independent variables (health promotion of exclusive breastfeeding, observational learning, role model, vicarious learning, imitation, attitude, outcome expectations, self-regulation, self-efficacy, and reinforcement) and the variables at level 2, namely Integrated health post.

Table 6 shows that there was a significant effect between exclusive breastfeeding health promotion program, observational learning, role model, vicarious learning, imitation, attitude, outcome expectation,

self-regulation, self-efficacy, reinforcement, and contextual Integrated health post and the exclusive breastfeeding practice.

The exclusive breastfeeding practice could be implemented by the breastfeeding mothers if the mothers participated in the exclusive breastfeeding health promotion program (OR= 3.08; 95% CI=1.06 to 8.94;  $p = 0.038$ ), had high observational learning (OR=3.86; 95% CI= 1.31 to 11.39;  $p = 0.014$ ), had strong role model (OR= 4.01; 95% CI=1.12 to 14.29;  $p = 0.033$ ), had high vicarious learning (OR=4.46; 95%CI=1.34 to 14.82;  $p = 0.015$ ), had strong imitation (OR= 2.74; 95% CI= 1.02 to 7.35;  $p = 0.045$ ), had positive breastfeeding attitude (OR=3.51; 95% CI=1.04 to 11.88;  $p = 0.043$ ), had positive outcome expectation (OR=4.04 ; 95%CI=1.32 to 12.38;  $p = 0.014$ ), had strong self-regulation (OR=2.36; 95%CI=0.93 to 5.99;  $p = 0.068$ ), had strong self-efficacy (OR=5.35; 95% CI= 1.81 to 15.77;  $p = 0.002$ ), had reinforcement (OR=3.90; 95%CI=1.21 to 12.57;  $p = 0.022$ ). There were 10.97% of exclusive breastfeeding practices were affected by Integrated health post. The ICC result was greater than the standard size (Rule of Thumb=8 to 10%); therefore, the contextual effect of Integrated health post in this study was important to note.

Integrated health post had a contextual effect with an ICC of 10.97%. It means that 10.97% of the variation in the exclusive breastfeeding practice was affected by factors at the Integrated health post level. This rate was greater than the standard size of rule of thumb of 8-10%. Therefore, the contextual effect of the Integrated health post could not be ignored. Based on the LR test, the  $p = 0.16$ . It indicated a statistically significant difference among the models without calculating the contextual effects and the models that calculated the contextual effects.

**Table 6. The analysis of the multilevel logistic regression of factors affecting exclusive breastfeeding practice**

Independent Variable	OR	95% CI		p
		Lower limit	Upper limit	
<b>Fixed effect</b>				
Health promotion of exclusive breastfeeding program (participated)	3.08	1.06	8.94	0.038
Observational learning (high)	3.86	1.31	11.39	0.014
Role model (strong)	4.01	1.12	14.29	0.033
Vicarious learning (high)	4.46	1.34	14.82	0.015
Imitation (strong)	2.74	1.02	7.35	0.045
Attitude (positive)	3.51	1.04	11.88	0.043
Outcome expectation (positive)	4.04	1.32	12.38	0.014
Self regulation (strong)	2.36	0.93	5.99	0.068
Self-efficacy (strong)	5.35	1.81	15.77	0.002
Reinforcement (strong)	3.90	1.21	12.37	0.022
<b>Random effect</b>				
Integrated health post of Var (Constanta)	0.40	0.02	5.66	
N observation = 200				
N group = 25				
Log likelihood = -72.81				
LR test vs logistic regression, p=0.160				
ICC=10.97%				

**DISCUSSION**

**1. The effect of health promotion program on exclusive breastfeeding practice**

Based on the result of this study, health promotion program affected exclusive breastfeeding practice (OR=3.08; 95%CI=1.06 to 8.94; p=0.038). Breastfeeding mothers who participate in exclusive breastfeeding health program could increase the prevalence of exclusive breastfeeding practice. Breastfeeding mothers who participated in all health promotion programs were 3.08 times more likely to breastfeed for 6 months than mothers who did not participate in health promotion program.

This is supported by a study conducted by Cangöl and Sahin (2017) that mothers who participated in the Breastfeeding Motivation Program (BMP) started breastfeeding earlier than the control group (97.1%). Health promotion programs received by mothers

could help in supporting and keeping breastfeeding for up to 6 months. Exclusive breastfeeding education program such as pregnancy classes and counseling could improve one's ability to increase the duration of breastfeeding. After consulting, the officer suggested the mother to participate in other programs (Ansari et al., 2014). The suitability of material between one program and another had an important effect in increasing exclusive breastfeeding practice (Hitt et al., 2017).

**2. The effect of observational learning on exclusive breastfeeding practice**

Based on the result of this study, there was a significant effect between observational learning and the exclusive breastfeeding practice (OR=3.86; 95%CI=1.31 to 11.39; p=0.014). Breastfeeding mothers with high observational learning were 3.86 times more likely to give exclusive breastfeeding than mothers with low observational learning.

According to Bandura (1986) in Morse (2017), most people also learned through observation. Observational learning was an important field in psychology and the behavioral sciences in general. Behavioral analysts articulated a solid theory of how behavior change occurred through observation. This study states that observational learning was followed by consideration of general behavior analytic conceptualization. The inter-behavioral perspective explained some of the difficulties with the existing behavior analytic approach (Groenendijk et al., 2013). Observation directly involved a learning process where cognitive affected human behavior (Manjarresposada and Onofrerodrí, 2020). Observational learning in breastfeeding mothers was needed because it created an understanding of breastfeeding practice and awareness to try to do this behavior.

### **3. The effect of role model on exclusive breastfeeding practice**

Based on the result of this study, there was a significant effect between role model and exclusive breastfeeding practice (OR=4.01; 95% CI= 1.12 to 14.29; p=0.033). Breastfeeding mothers with strong role model were 4.01 times more likely to fully breastfeed for 6 months than mothers with low role model. Role model was often suggested as a way to motivate individuals to set and achieve ambitious goals (Morgenroth et al., 2015).

Role model served 3 different functions. They affected goals and motivation: acting as a behavior model, representing the possible thing, and being the inspirational strengths of role model (Morgenroth et al., 2015). Through learning experience in observing the role model, it was expected to increase. This increased motivation to behave towards the goal of giving full breastfeeding for 6 months. Generally, most people also enjoyed the good things by looking at role model. This was also likely to increase the role value associated

with aspirants with the intended objectives (Asiodu et al., 2016).

### **4. The effect of vicarious learning on exclusive breastfeeding practice**

Based on the result of this study, vicarious learning had a significant effect on exclusive breastfeeding practice (OR= 4.46; 95% CI= 1.34 to 14.82; p= 0.015). Breastfeeding mothers with high vicarious learning were 4.46 times more likely to fully breastfeed for 6 months than mothers with low vicarious learning.

Based on the result of a study conducted by Alianmoghaddam et al. (2019), most mothers received postnatal information and advice to support breastfeeding through the internet, especially social media. Therefore, social media affected breastfeeding practice for the relational nature of breastfeeding in the real world and virtual social networks as well as the cultural, geographic, and social context of a mother's life.

There were news articles sampled from the 10 most read mainstream newspapers from 2008-2013 covering a wide range of topics related to breastfeeding (p<0.001). Based on the newspapers that contained information about exclusive breastfeeding, breastfeeding mothers who agreed on social norms affected their breastfeeding behavior (Hitt et al., 2017).

### **5. The effect of imitation on exclusive breastfeeding practice**

Based on the result of this study, there was an effect between imitation and exclusive breastfeeding practice (OR=2.74; 95% CI= 1.02 to 7.35; p= 0.045). Breastfeeding mothers with strong imitation were 2.74 times more likely to fully breastfeed for 6 months than mothers with low imitation.

The capacity to imitate friends shows that imitation was a powerful learning mechanism. When mothers imitated their peers' behavior in breastfeeding, it could not be denied that the exact actions they see.

People's observations were influential in terms of imitation so that the existing exposure should be positive, thus creating a strong imitation in mimicking the practice of fully breastfeeding for 6 months (Meltzoff, 2016).

According to a study conducted by Laranjo (2016), after observational learning, a very relevant method in affecting behavior was imitation (imitating the behavior). The imitation process would occur maximally when someone saw the model as someone who was admired (role model). Breastfeeding mothers would imitate these behaviors automatically and reflectively, thus running exclusive breastfeeding practice.

#### **6. The effect of attitude on exclusive breastfeeding practice**

Based on the result of this study, there was an effect of attitude on exclusive breastfeeding practice (OR=3.51; 95%CI=1.04 to 11.88;  $p=0.043$ ). Breastfeeding mothers with a positive attitude were 3.51 times more likely to give exclusive breastfeeding than mothers with a negative attitude. According to a study conducted by Behera and Anil Kumar (2015), there was a relationship between a positive attitude and exclusive breastfeeding practice (OR= 3.18; 95%CI=1.46 to 6.62). The study used a theory of planned behavior focused on exposure to prenatal stage program to increase the intention and exclusive breastfeeding practice.

The beliefs of a positive attitude were more significant than beliefs of negative attitude in breastfeeding ( $p<0.001$ ) (Hitt et al., 2017). According to a qualitative study conducted by Bartle and Harvey (2017), breastfeeding attitude could be obtained from previous experiences (especially personal experiences of breastfeeding). A positive attitude towards breastfeeding and a strong self-efficacy could change mothers to have negative beliefs about using formula milk. In addition, a positive attitude and

belief that are in line with other people's experiences affected the success of exclusive breastfeeding (Sri Widiastuti et al., 2019).

#### **7. The effect of outcome expectation on exclusive breastfeeding practice**

Based on the result of this study, there was a significant effect of outcome expectation on exclusive breastfeeding practice (OR= 4.04; 95% CI= 1.32 to 12.38;  $p= 0.014$ ). Breastfeeding mothers with a positive expectation outcome were 4.04 times more likely to give exclusive breastfeeding than mothers with a negative outcome expectation. According to a study conducted by Minas and Ganga-Limando (2016), there was a relationship between breastfeeding mother as the respondents of the study and outcome expectation and exclusive breastfeeding practices ( $r= 0.38$ ,  $p<0.001$ ).

Based on the outcome expectation of midwives for the first time after postpartum was supporting Early Initiation of Breastfeeding, facilitating the mother to provide skin-to-skin contact between mother and baby could increase the success of exclusive breastfeeding (Edwards et al., 2018). Based on the result of a study conducted by Martinez Brockman et al. al. (2017), in the motivation phase such as behavior of hope that helped a mother considering the pros and cons of breastfeeding as well as beliefs about how risky breastfeeding could affect a mother's decision to give exclusive breastfeeding.

#### **8. The effect of self regulation on exclusive breastfeeding practice**

Based on the result of this study, there was a marginally significant effect between self-regulation and exclusive breastfeeding practice (OR= 2.36; 95% CI= 0.93 to 5.99;  $p= 0.068$ ). Breastfeeding mothers with a high self-regulation were 2.36 times more likely to give exclusive breastfeeding than mothers with a low self-regulation.

According to a study conducted by Sahin et al. (2019) regarding the continuity of breastfeeding was strongly affected by different types of motivation determined from the breastfeeding motivation scale based on the SDT. According to the STD, mothers with independent motivation breastfed their babies for a long period time. This motivation led to strong self-regulation ( $p=0.001$ ). One of the implementations of the SCT in a study conducted by Anjomshoa et al. (2018) such as regulation had a significant effect on breastfeeding ( $p=0.020$ ). The self-regulation intervention guided by the SCT received positive responses from the study subjects. It indicated that it might improve breastfeeding outcomes especially breast milk in breastfeeding mothers who were older, highly educated, with higher income, and who were more motivated to succeed (Liberty and College, 1998).

#### **9. The effect of self-efficacy on exclusive breastfeeding practice**

Based on the result of this study, self-efficacy affected on exclusive breastfeeding practice ( $OR=5.35$ ;  $95\%CI=1.81$  to  $15.77$ ;  $p=0.002$ ). Breastfeeding mothers with a strong self-efficacy were 5.35 times more likely to fully breastfeed for 6 months than mothers with a weak self-efficacy. According to a study conducted by Ansari et al. (2014), there was a significant relationship between breastfeeding and self-confidence and over-efficacy of breastfeeding ( $p<0.001$ ). The success of exclusive breastfeeding was not only physically but also psychologically healthy, especially about the confidence to breastfeed. One way to predict the success of breastfeeding was by using the Breastfeeding Self-Efficacy Scale (BSES) (Kurniati, 2017).

There was a correlation between self-efficacy in breastfeeding and exclusive breastfeeding practice at least in the fifth month of postpartum ( $r=0.50$ ,  $p<0.01$ ). Self-efficacy could be optimal if the mother

followed a health program. Strong self-efficacy could increase the result of breastfeeding fully for 6 months. Besides, it could increase maternal vigilance in overcoming problems related to breastfeeding (Minas and Ganga-Limando, 2016).

#### **1. The effect of reinforcement on exclusive breastfeeding practice**

Based on the result of this study, there was a significant effect of reinforcement on exclusive breastfeeding practice ( $OR=3.90$ ;  $95\%CI= 1.21$  to  $12.37$ ;  $p= 0.022$ ). Breastfeeding mothers with a strong reinforcement were 3.90 times more likely to give exclusive breastfeeding than mothers with a weak reinforcement. Breastfeeding practices could change in no time. It needed continuous reinforcement to be maintained. Strengthening the commitment and skills of people who supported breastfeeding behavior could be done through reinforcement and training (UNICEF, 2011).

According to the result of a study conducted by McKinley and Turner (2017), the best practice about counseling for reinforcement techniques of breastfeeding was immediately in the postpartum period. It was addressed for mothers and partners or families in WIC-based African American communities. There was a positive association with increased reinforcement motivation to continue breastfeeding until the baby aged 6 months old. Integral self-reinforcement was very important for women to be able to achieve exclusive breastfeeding (Meedya et al., 2015).

#### **10. The contextual effect of integrated health post on exclusive breastfeeding practice**

Based on the result of this study, there was a contextual effect at the Integrated health post level on the exclusive breastfeeding practice ( $ICC=10.97\%$ ). The exclusive breastfeeding practice was 10.97% affected by the Integrated health post. The ICC value of the Integra-

ted health post level in the exclusive breastfeeding practice showed that the ICC value was greater than the rule of thumb by 8 to 10%. Therefore, the contextual effect in this study was the Integrated health post that was quite important to note.

According to a study conducted by Saepuddin et al. (2018), Integrated health post had an important role in improving the quality of maternal and child health through the health service process. Integrated health post showed a strong contextual effect on exclusive breastfeeding with ICC=28.87% (Sinta et al., 2017). The result of a study conducted by Paramita et al. (2015) also showed the contextual effect of Integrated health post with ICC was 29.2%. The role of Integrated health post was as agent of social change. This social change was in the form of change in the mother's perspective on health, especially maternal and child health and exclusive breastfeeding (Saepuddin et al., 2018). Providing counseling at each Integrated health post level was different. The independent level gave a greater effect to the mother to provide exclusive breastfeeding than intermediate and full level. This was what makes the effect of Integrated health post different on exclusive breastfeeding at each level (Sinta et al., 2017).

#### AUTHOR CONTRIBUTION

Rezyana Budi Syahputri was the main researcher who collected the data, formulated the data, designed the study, and conducted the questionnaire reliability tests. Bhisma Murti investigated the data and analyzed the data. Pawito gave suggestions for the discussion of the study and the writing techniques.

#### CONFLICT OF INTEREST

We declare that there was no conflict of interest.

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