Path Analysis on the Effectiveness of Exclusive Breastfeeding Advocacy Program on Breastfeeding Practice using Theory of Planned Behavior

Valentina Dili Ariwati, Didik Tamtomo, Endang Sutisna Sulaeman

ABSTRACT

Background: Exclusive breastfeeding coverage was 52.30% in 2015, which was below the national target of 80%. For the past few years Klaten local government has launched the Exclusive Breastfeeding Advocacy Program with the objective to increase exclusive breastfeeding coverage. This study aimed to determine the effectiveness of Exclusive Breastfeeding Advocacy Program using Theory of Planned Behaviour framework.

Subjects and Method: This was an analytic observational study with retrospective cohort design. This study was conducted from 2 August to 16 September 2016 in Klaten and Magelang, Central Java, Indonesia. A total of 200 lactating mothers of infants aged 6 to 12 months was selected for this study by multi-stage random sampling. The dependent variables were exclusive breastfeeding and intention. The independent variables were exclusive breastfeeding advocacy program, attitude, subjective norm, and perceived behavior control. The data were collected using a set of questionnaire, and analyzed by path analysis.

Results: The path model showed Goodness of Fit indices as follows: CMIN=4.24, p=0.374, GFI=0.99, NFI=0.99, CFI=1.00, RMSEA=0.017. Strong intention (b=0.15; p <0.001) had direct effect on exclusive breastfeeding. Positive attitude (b = 0.27; p<0.001), positive subjective norm (b=0.26; p <0.001), strong perception of behavior control (b=0.25; p<0.001), and exclusive breastfeeding advocacy program (b=0.36; p<0.001), had positive effects on intention.

Conclusion: Intention has direct effect on exclusive breastfeeding. Attitude toward exclusive breastfeeding, subjective norm, and perception of behavior control, have positive effects on intention. Exclusive breastfeeding advocacy program is effective in increasing the likelihood of providing exclusive breastfeeding.

Keywords: exclusive breastfeeding advocacy program, attitude, subjective norm, perceived behavior control, intention, exclusive breastfeeding behavior.

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The benefit for the family is saving household expenses. The benefit for the country is saving foreign exchange expenditure (Indonesian Perinatology Association, 2011).

Based on Basic Health Research in 2013, exclusive breastfeeding coverage was 38%. It decreased compared to 2012, which was 61.50%. The exclusive breastfeeding coverage in Indonesia in 2015 was 52.30% which was below the national target of 80% (Ministry of Health, 2014). Based on Indonesia Health Profile in 2012, Infant Mortality Rate (IMR) reached 34/1000 live births, while the target of decreasing IMR by Ministry of Health was 23/1000 live births. The main causes of infant mortality are acute respiratory infections (ARI), fever, and diarrhea which can be prevented by exclusive breastfeeding (Ministry of Health, 2013; Ministry of Women Empowerment and Child Protection No.3 of 2010).

The Central Java Provincial Health Office (2013) stated that one of three babies under six months was given exclusive breastfeeding. Exclusive breastfeeding in Central Java decreased in 2012 by 25.60% and in 2011 by 45.18% (Central Java Provincial Health Office, 2012).

The exclusive breastfeeding coverage in Klaten Regency in 2007 was 22.70% (Klaten Regency Health Office, 2008). Natural disasters had several impacts, including 3 out of 4 families with babies under 2 years of age got baby formula and porridge; the consumption of formula milk increased from 27.80% to 42.60%; the incidence of diarrhea increased twice; and breast milk was not a priority for emergency and disaster management programs (Roekminto, 2014).

The Regional Government of Klaten Regency responded to the effect of natural disasters on exclusive breastfeeding by conducting Exclusive Breastfeeding Advocacy Program. Exclusive Breastfeeding Advocacy Program was pioneered by Gantiwarno Community Health Center through the Decision of the Head of Gantiwarno Health Center Number 440/110/14/12 regarding Exclusive Breastfeeding Advocacy Program. Exclusive Breastfeeding Advocacy Program involves husbands, families, communities, community leaders, and religious leaders. The Regional Government of Klaten Regency determined the The Regional Government of Klaten Regency Number 7 of 2008 about initiation of early initiation of exclusive breastfeeding, and implemented Exclusive Breastfeeding Advocacy Program in Klaten Regency (Klaten Regency Health Office, 2013; Roekminto, 2014).

Klaten Regency is the pioneer who created Exclusive Breastfeeding Advocacy Program in Indonesia. Exclusive breastfeeding coverage increased from 43.3% (2008) to 80.2% (2013). Data from Klaten Regency Health Office in 2013 to 2015 and the results of the previous study showed that there was an increase in exclusive breastfeeding coverage in several sub-districts. However, there was a decrease in exclusive breastfeeding coverage in several sub-districts year by year.

Based on the description above, it can be concluded that Exclusive Breastfeeding Advocacy Program is an external factor that affects the exclusive breastfeeding behavior. Meanwhile, the internal factors refer to the theory of planned behavior (TPB), such as attitude, subjective norm, perceived behavioral control, and intention (Ajzen, 1991).

This study aimed to analyze the effectiveness of Exclusive Breastfeeding Advocacy Program on exclusive breastfeeding behavior using Theory of Planned Behavior.
SUBJECTS AND METHOD

1. Study Design
This study used an analytic observational study with retrospective cohort design. This study was conducted from August 2 to September 16, 2016, in Klaten and Magelang.

2. Population and Sampling
The population of the study consisted of 917 lactating mothers of infants aged 6-12 months. A total number of 200 lactating mothers were selected as the sample of this study by multi-stage random sampling.

3. Study Instrument
The study used a set of questionnaire for collecting the data.

4. Data Analysis
This study used path analysis IBM SPSS AMOS 22 for analyzing the data.

RESULTS

1. The characteristic of subject of the study
The result of the characteristic of subject of the study in table 1 shows that most of the 200 subjects of the study aged 20-35 years (84%). Most of the subjects of the study did not work and only did housework (73.50%). Most of the subjects of the study were Senior High School graduate (54.50%). Most of the subjects of the study had ≥minimum wage (58.50%). Most of the subjects of the study had babies aged 9 months (18.50%). Most of the subjects of the study had babies who were the second child (38.50%).

Table 1. The characteristic of subject of the study

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Criteria</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>&lt; 20 years</td>
<td>1</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>20-35 years</td>
<td>168</td>
<td>84.00</td>
</tr>
<tr>
<td></td>
<td>&gt; 35 years</td>
<td>31</td>
<td>15.50</td>
</tr>
<tr>
<td>Occupation</td>
<td>Civil Servant</td>
<td>4</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>Farmer</td>
<td>14</td>
<td>7.00</td>
</tr>
<tr>
<td></td>
<td>Farmer</td>
<td>17</td>
<td>8.50</td>
</tr>
<tr>
<td></td>
<td>Private Employee</td>
<td>147</td>
<td>73.50</td>
</tr>
<tr>
<td></td>
<td>Housewife</td>
<td>17</td>
<td>8.50</td>
</tr>
<tr>
<td></td>
<td>Entrepreneur</td>
<td>17</td>
<td>8.50</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>1</td>
<td>0.50</td>
</tr>
<tr>
<td>Education</td>
<td>Elementary school</td>
<td>16</td>
<td>8.00</td>
</tr>
<tr>
<td></td>
<td>Junior High School</td>
<td>48</td>
<td>24.00</td>
</tr>
<tr>
<td></td>
<td>Senior High School</td>
<td>109</td>
<td>54.50</td>
</tr>
<tr>
<td></td>
<td>Diploma</td>
<td>10</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>Bachelor</td>
<td>16</td>
<td>8.00</td>
</tr>
<tr>
<td></td>
<td>Master/Doctorate Degree</td>
<td>1</td>
<td>0.50</td>
</tr>
<tr>
<td>Family Income</td>
<td>&lt; minimum wage</td>
<td>83</td>
<td>41.50</td>
</tr>
<tr>
<td></td>
<td>≥ minimum wage</td>
<td>117</td>
<td>58.50</td>
</tr>
<tr>
<td>Infant age</td>
<td>6 months</td>
<td>36</td>
<td>18.00</td>
</tr>
<tr>
<td></td>
<td>7 months</td>
<td>27</td>
<td>13.50</td>
</tr>
<tr>
<td></td>
<td>8 months</td>
<td>30</td>
<td>15.00</td>
</tr>
<tr>
<td></td>
<td>9 months</td>
<td>37</td>
<td>18.50</td>
</tr>
<tr>
<td></td>
<td>10 months</td>
<td>28</td>
<td>14.00</td>
</tr>
<tr>
<td></td>
<td>11 months</td>
<td>24</td>
<td>12.00</td>
</tr>
<tr>
<td></td>
<td>12 months</td>
<td>18</td>
<td>9.00</td>
</tr>
<tr>
<td>Infant status</td>
<td>First child</td>
<td>75</td>
<td>37.50</td>
</tr>
<tr>
<td></td>
<td>Second child</td>
<td>77</td>
<td>38.50</td>
</tr>
<tr>
<td></td>
<td>Third child</td>
<td>33</td>
<td>16.50</td>
</tr>
<tr>
<td></td>
<td>Fourth child</td>
<td>11</td>
<td>5.50</td>
</tr>
<tr>
<td></td>
<td>Fifth child</td>
<td>2</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>&gt;5 child</td>
<td>2</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Most of the subjects of the study who received exposure of Exclusive Breastfeeding Advocacy Program were 107 subjects of the study (53.50%). Most of the subjects of the study who had positive attitude were 108 study subjects (54%). Most of the subjects of the study who had high subjective norm were 105 subjects of the study (52.50%). Most of the subjects of the study who had good perceived behavioral control were 103 subjects of the study (51.50%). Most of the subjects of the study who had strong intention were 103 subjects of the study (51.50%). Most of the subjects of the study who gave exclusive breastfeeding were 111 subjects of the study (55.50%).

1. Path Analysis
This study used path analysis IBM SPSS AMOS 22 for analyzing the data. The initial model in path analysis consisted of several stages as follows:

a. Model Specification
The initial model in path analysis could be seen in Figure 1.

b. Model Identification
Measurement variables were 6, endogenous variables were 3, exogenous variables were 3, a total number of parameter was 11. Degree of freedom (df) = (a total number of measurement variables x (a total number of measurement variables + 1) / 2 (endogenous variables + exogenous variables + a total number of parameter) = (6x7) / 2 – (2 + 4 + 11) = 4. Model identification in this path analysis produced df value over identified which means that path analysis could be conducted.

c. Fit Model and Estimation of Parameter
The suitability between path analysis model made by authors and the best variable correlation was checked. It was saturation model. This was made based on sample data collected by authors. Figure 2 shows the structural model after estimation using IBM SPSS AMOS 22. The indicator that shows the suitability of the path analysis model, as shown in table 2, also shows that there is a Goodness of Fit Measure. The result of CMIN fit index was 4.24 with p value = 0.374 (>0.05); GFI = 0.99 (>0.90); NFI = 0.99 (>0.90); CFI 1.00 (>0.90); RMSEA = 0.017 (<0.05) which means that the empirical model meets the criteria specified and in accordance with empirical data.
Figure 2. The structural model with unstandardized

Table 2. The result of path analysis on the effectiveness of exclusive breastfeeding advocacy program on breastfeeding practice using theory of planned behavior

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>Unstandardized path coefficient (b)</th>
<th>S.E</th>
<th>p</th>
<th>Standardized path coefficient (β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct effect</td>
<td>Behavior</td>
<td>Intention</td>
<td>0.15</td>
<td>0.00</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attitude</td>
<td>0.37</td>
<td>0.05</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Subjective norm</td>
<td>Attitude</td>
<td>0.35</td>
<td>0.04</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Subjective norm</td>
<td>PBC</td>
<td>0.26</td>
<td>0.04</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Intention</td>
<td>Attitude</td>
<td>0.27</td>
<td>0.04</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Intention</td>
<td>Subjective norm</td>
<td>0.36</td>
<td>0.03</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Intention</td>
<td>Breastfeeding advocacy program</td>
<td>0.25</td>
<td>0.03</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Obervation = 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fit Model:
- $CMIN(x^2) = 4.243$, $p = 0.374$ ($\geq 0.05$)
- $CFI = 1.00$ ($\geq 0.90$)
- $NFI = 0.99$ ($\geq 0.90$)
- $GFI = 0.99$ ($\geq 0.90$)
- $RMSEA = 0.017$ ($\leq 0.08$)

Table 2 shows that the non-standardized path coefficient values were obtained based on the result of calculation using IBM SPSS AMOS 22 computer software program. There was positive association between attitude and subjective norm ($b=0.37$; $SE=0.05$; $p<0.001$). It indicated that...
each increase in 1 unit attitude score would increase subjective norm score by 0.37.

There was positive association between attitude and intention (b= 0.27; SE= 0.04; p<0.001). It indicated that each increase in 1 unit attitude score would increase intention score by 0.25 units.

There was positive association between exclusive breastfeeding advocacy program and intention (b= 0.36; SE= 0.03; p<0.001). These result indicated that each increase in 1 unit exclusive breastfeeding advocacy program score would increase intention score by 0.36. Exclusive breastfeeding advocacy program was effective in increasing exclusive breastfeeding behavior through intention.

There was positive association between intention and exclusive breastfeeding behavior (b= 0.15; SE= 0.01; p<0.001). It indicated that each increase in 1 unit perceived behavioral control score would increase intention score by 0.25.

d. Model Respecification
The model in this study was in accordance with the sample data which was shown by the saturation model and the path coefficient which was more than zero and statistically significant. Therefore, it was not necessary to recreate the path analysis model.

DISCUSSION

1. The correlation between exclusive breastfeeding advocacy program and exclusive breastfeeding behavior through intention
There was an indirect correlation between Exclusive Breastfeeding Advocacy Program and exclusive breastfeeding behavior through intention as intervening variable.

According to Asriani and Itriati (2009), exclusive breastfeeding advocacy program is an innovation program that uses health promotion and health education. Exclusive Breastfeeding Advocacy Program can increase exclusive breastfeeding coverage in Klaten Regency. The Ministry of Health (2006) stated that health knowledge can be improved through one effective effort, namely health promotion. Health promotion can involve the role of religious leaders and community leaders, for example, giving health promotion about exclusive breastfeeding as one of the materials provided by the Ministry of Religious Affairs to the bride and groom when giving marriage counseling. Good knowledge will bring good health behavior.

According to Fishbein and Ajzen (1975), intention is a stage of preparation of individuals to conduct behavior. Intention becomes the main predictor of behavior before having an opportunity to conduct behavior in a real way. TPB explains that intention is a direct factor of individual behavior.

Based on the description above, it can be concluded that there is an indirect positive correlation between Exclusive Breastfeeding Advocacy Program and exclusive breastfeeding behavior through intention. Therefore, Exclusive Breastfeeding Advocacy Program is effective to improve exclusive breastfeeding behavior; thus, the result is in accordance with previous studies and existing theories.

2. The correlation between attitude and exclusive breastfeeding behavior through intention
There was an indirect correlation between attitude and exclusive breastfeeding behavior through intention.
Based on a study conducted by Young and Anne (2015), attitude is positively related to the intention in giving exclusive breastfeeding to infants aged 3 months ($\beta = 0.34; p<0.001$) and to infants aged 6 months ($\beta = 0.30; p<0.01$). Attitude also affects the maternal intention in giving exclusive breastfeeding until the baby is 1 year old ($\beta = 0.28; p<0.001$).

Based on a study conducted by Mutuli and Walingo (2014), attitude affects the intention of lactating mothers in giving exclusive breastfeeding ($\beta = 0.86; p<0.001$).

Intention significantly affects exclusive breastfeeding ($\beta = 0.26; p<0.001$). According to Akour et al. (2010), mothers who have positive attitude on breastfeeding tend to have good intentions in breastfeeding their babies exclusively. Lupton and Fenwick (2001) states that lactating mothers need to sacrifice for their children as a challenge. Mothers need strength in the form of positive attitude, high confidence, and high self-confidence to be able to face these challenges. As a result, intention will be formed and will make mother more convinced of her decision to breastfeed her baby. Intention is a form of concern of a mother on the health and safety of her baby. It affects mothers behavior to do the hopes, plans, and challenges of mother in breastfeeding her babies.

Based on the description above, it can be concluded that there is an indirect positive correlation between attitude and exclusive breastfeeding behavior through intention. Therefore, the result is in accordance with previous studies and existing theories.

3. The correlation between attitude and exclusive breastfeeding behavior through subjective norm and intention

There was an indirect correlation between attitude and exclusive breastfeeding behavior through subjective norm and intention as intervening variables.

The result of this study is in accordance with the opinion of IDAI (2009) and Infact Canada (2010) which states that the ability of mothers to breastfeed will increase if mother has positive attitude and high confidence. Mothers who are persistent will be aware of their strengths and weaknesses, but they are able to make decisions honestly and purely.

Based on a study conducted by Kurniawati and Hargono (2014), the positive and negative attitudes of mothers about exclusive breastfeeding will determine the decision of mothers in giving exclusive breastfeeding. Attitude is affected by the mother’s beliefs and perceptions on people around her, such as the influence of friends who give exclusive breastfeeding will make the mother assumes that this friend supports the mother in giving exclusive breastfeeding. Ajzen (1991) states that one’s perception on support and social pressure in the environment is subjective norm.

Based on the description above, it can be concluded that there is an indirect positive correlation between attitude and exclusive breastfeeding behavior through subjective norm and intention. Therefore, the result is in accordance with previous studies and existing theories.

4. The correlation between subjective norm and exclusive breastfeeding behavior through intention

There was an indirect correlation between subjective norm and exclusive breastfeeding behavior through intention as intervening variable.

Mothers who get influence from people around them for not giving complementary food to babies before 6 months of age, will have a tendency to succeed in giving exclusive breastfeeding. The mother’s assumption on social support and acceptance of
breastfeeding will help her make the decision for giving or not giving exclusive breastfeeding (Hamilton et al, 2011).

Behara and Kumar (2015) state that intention and self-confidence affect the breast milk, which have a greater chance in providing exclusive breastfeeding successfully. This opinion is in accordance with the theory of Ajzen (1991) which states that intention is the main predictor of behavior.

Based on the description above, it can be concluded that there is an indirect positive correlation between subjective norm and exclusive breastfeeding behavior through intention. Therefore, the result is in accordance with previous studies and existing theories.

5. The correlation between perceived behavioral control and exclusive breastfeeding behavior through intention

There was an indirect correlation between perceived behavioral control and exclusive breastfeeding behavior through intention as intervening variable.

Based on a study conducted by Puspi-ta (2015), the increase of maternal perceived behavioral control affects intention of mothers to give exclusive breastfeeding from low intention (20%) and enough intention (80%) to high intention (100%). A study conducted by Mutuli and Walingo (2014) states that perceived behavioral control directly affects the intention to breastfeed with p value by <0.05.

Study conducted by Agumadu et al. (2016), mothers who have good perceptions on breastfeeding have a greater chance in providing exclusive breastfeeding successfully than mothers who have poor perceptions. Mothers who have good perceptions of exclusive breastfeeding have double chance to breastfeed exclusively compared to mothers who do not have good perception of exclusive breastfeeding (OR= 2.29; p <0.001) in lactating mothers with 3-month-old infants; (OR= 2.49; p<0.001) in lactating mothers with 6-month-old infants.

Based on the description above, it can be concluded that there is an indirect positive correlation between perceived behavioral control and exclusive breastfeeding behavior through intention. Therefore, the result is in accordance with previous studies and existing theories.

6. The correlation between perceived behavioral control and exclusive breastfeeding behavior through subjective norm and intention

There was an indirect correlation between perceived behavioral control and exclusive breastfeeding behavior through subjective norm and intention as intervening variables.

The experience of mother in breastfeeding, the observation of mother on her environment, and the information obtained by the mother will affect mother’s perception of breastfeeding. Perception about breastfeeding will determine the mother’s assessment of people around her (Kurniawati and Hargono, 2014). A study conducted by Giles et al. (2007) shows that subjective norm affect the intention of adolescents to give breast milk to their future babies with p value by <0.001, both teenage girls and boys.

According to Fishbein and Ajzen (1975), behavior is based on intention factor which are stages of consideration or planning to take or do not take any action. It refers as individual intentions before doing a behavior. Intention is the main predictor of behavior.

Based on the description above, it can be concluded that there is an indirect positive correlation between perceived behavioral control and exclusive breastfeeding behavior through subjective norm and intentional.
tion. Therefore, the result is in accordance with previous studies and existing theories.

7. The direct correlation between intention and exclusive breastfeeding behavior

There was a direct correlation between intention and exclusive breastfeeding behavior. Based on study conducted by Donnan et al (2013), intentions affect maternal behavior to breastfeed. The mother's intention to breastfeed which appears during pregnancy is the strongest predictor to breastfeed her baby ($p = 0.026$).

According to Compton (2005), the success of breastfeeding is affected by the mother's high self-awareness of the woman's duty, namely breastfeeding. Self-awareness which arises before labor is a strong predictor for successful breastfeeding. This is called intention. Strong intention will increase the chances of successful breastfeeding. According to Ajzen (1991), behavior is preceded by intention as the main predictor of behavior.

Based on the description above, it can be concluded that there is a positive correlation between intention and exclusive breastfeeding behavior. Therefore, the result is in accordance with previous studies and existing theories.

Exclusive breastfeeding advocacy program, attitude, subjective norm, and perceived behavioral control indirectly affected exclusive breastfeeding behavior through intention. Intention directly affects exclusive breastfeeding behavior. As a result, exclusive breastfeeding advocacy program is effective in increasing exclusive breastfeeding behavior using Theory of Planned Behaviour.

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