

## Path Analysis on the Determinants of the Use of Integrated Health Post and the Application of Theory of Planned Behavior

Yuni Fitriani<sup>1)</sup>, Didik Tamtomo<sup>2)</sup>, Endang Sutisna Sulaeman<sup>2)</sup>

<sup>1)</sup>School of Health Sciences Bhakti Mandala Husada, Slawi

<sup>2)</sup>Faculty of Medicine, Universitas Sebelas Maret, Surakarta

### ABSTRACT

**Background:** Integrated health post (Posyandu) is a strategy for community empowerment. It has an important role to reduce maternal mortality rate (MMR) and infant mortality rate (IMR). The integrated health post monitors the health of infants, children, pregnant women, lactating women, and women of reproductive age. Weighing coverage of children under five was only 80.4% in Central Java, in 2014. Weighing coverage of children under five was only 78.4 % in Tegal District, in 2015, which was lower than the expected target of 80%. This study aimed to investigate the determinant of the use of integrated health post and the application of Theory of Planned Behavior (TPB).

**Subjects and method:** This was an analytic observational study with case control design. This study was conducted in Tegal District, Central Java, from 25 September to 25 October 2016. A total sample of 135 mothers with their respective children aged 6-59 months were selected for this study by fixed disease sampling. The dependent variables were intention and use of the integrated health post. The independent variables were constructs of TPB, including attitude toward behavior, subjective norm, and perceived behavior control. The data were collected by a pre-tested set of questionnaire. The data were analyzed by path analysis using IBM SPSS AMOS 22.

**Results:** The path model showed goodness of fit with CMIN=4.24;  $p=0.120$ ; GFI=0.99; NFI=0.99; CFI=0.99; and RMSEA=0.09. Intention had direct positive and statistically significant effect on the use of the integrated health post ( $b=0.29$ ;  $p<0.001$ ). All of the three TPB constructs, including attitude toward behavior ( $b=0.27$ ;  $p<0.001$ ), subjective norm ( $b=0.27$ ;  $p=0.046$ ), and perceived behavior control ( $b=0.34$ ;  $p=0.007$ ) had indirect positive and statistically significant effect on the use of the integrated health post.

**Conclusion:** Intention has direct positive effect on the use of the integrated health post. All of the three TPB constructs, i.e. attitude toward behavior, subjective norm, and perceived behavior control has positive and indirect effect on the use of the integrated health post.

**Keywords:** integrated health post, theory of planned behavior

### Correspondence:

Yuni Fitriani. School of Health Sciences Bhakti Mandala Husada, Slawi, East Java. Email: yfitriani85@yahoo.co.id.

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### BACKGROUND

The health status of a country is not only affected by health factors such as health services and the availability of health facilities and infrastructure, but also affected by economic, educational, social, hereditary, and other factors. The public health status can be reflected through Maternal Mortality Rate (MMR), Infant Mortality Rate (IMR), Under-five Mortality Rate (UMR), morbi-

dity rates of several diseases, and nutritional status of a community (Ministry of Health, 2014; Central Java Health Office, 2014).

UMR in Indonesia is currently experiencing a significant decrease. In 1990, there were 84 per 1000 live births, while in 2015, it was 27 per 1000 live births. This decrease has saved more than five million Indonesian children who might die if the

mortality rate remained at the level in 1990 (UNICEF, 2015).

Efforts to improve public health are carried out through various forms of approaches, such as engaging various kinds of community potential. This is in line with the concept of community empowerment. It is reflected in the development of community-based healthcare efforts (*Upaya Kesehatan Bersumber daya Masyarakat*). It includes integrated health post (Posyandu), Village Health Post (Poskesdes), family medicinal plant (Toga), and Village Drug Posts (POD) (Ministry of Health, 2011a).

Integrated health post is one form of the community-based healthcare efforts which is managed and organized from, by, for and with the community in organizing health development for community empowerment and providing convenience to the community in obtaining basic health services to accelerate the reduction of maternal and infant mortality (Ministry of Health, 2011b). Integrated health post is greatly needed in the approach of promotive and preventive efforts to the community, especially related to efforts to improve the nutritional status of the community, as well as efforts to improve maternal and child health in decreasing MMR and IMR (Adisasmito, 2008).

The role and support of the government for integrated health post through community health center is very important to facilitate the implementation of various health activities in the integrated health post. In addition, community support is also important, such as participation in activities carried out in community health center and integrated health post in weighing children under five (Ministry of Health, 2011b).

Achievement of the activities result of nutrition program can be seen through SKDN chart ( $S$  = number of children under

five in a particular integrated health post working area,  $K$  = number of children under five who have Growth Chart (Kartu Menuju Sehat),  $D$  = number of children under five who come to be weighed),  $N$  = number of children under five that show weight gain). Data on SKDN chart, according to their functions can be divided into two groups, such as groups of data that can be used to monitor the growth of children under five in an area, namely  $N/D$ , the other group is groups of data which is used for managing the program/activities in integrated health post, namely  $D/S$ . The  $D/S$  as a benchmark for participation levels (the number of children under five who come to integrated health post every month to be weighed compared to the number of all children under five in the integrated health post area) gives an overview of the level of community participation in monthly weighing activities. The minimum target or standard for  $D/S$  is 85% (Ministry of Health, 2012).

The result of Basic Health Research in 2013 showed that only 44.6% of children under five are monitoring growth  $\geq 4$  times a year at integrated health post. In Central Java, 2014, the level of community participation in doing activities in integrated health post reached 80.4% (Central Java Health Profile, 2014). The coverage of children under five weighing in integrated health post in Tegal District in 2015 was 78.4%. This coverage is lower than in 2014 which was 78.9%. Achievements in 2015 have not met the Strategic Plan target in 2015 by 80%. A total number of 14 community health centers have reached the target and 14 community health centers have not met the target. One of the community health centers which has reached the target is Penusupan community health center (85.4%), while one of the community health centers which is still below the target is

Dukuhturi community health center (73.3%). The lowest achievement is in Kesambi community health center (48.3%) (Tegal District Health Office, 2015).

Based on the description above, the author conducted an analysis on the determinants of the use of integrated health post and the application of theory of planned behavior.

## SUBJECTS AND METHOD

### 1. Study Design

This study used an analytic observational study with case control design. This study was conducted in Tegal District, from September 25 to October 25, 2016.

### 2. Population and Sampling

Population of the study was mothers with their respective children aged 6 to 59 mon-

ths. This study used fixed disease sampling for collecting the samples.

### 3. Study Variables

The dependent variables were intention and use of the integrated health post. The independent variables were constructs of TPB, including attitude toward behavior, subjective norm, and perceived behavior control.

### 4. Study Instrument

The data were collected by a set of questionnaire.

### 5. Data Analysis

This study used path analysis using IBM SPSS AMOS 22 for analyzing the data.

## RESULTS

### 1. Sample characteristics

The result of the characteristic of the subject of the study in Table 1.

**Table 1. The Characteristic of the Subject of the Study**

| Variables  |                     | Frequency | Percentage |
|--|---------------------|-----------|------------|
| <b>Maternal Age</b>                                      | < 20 years          | 1         | 0.70       |
|  | 20-35 years         | 98        | 72.60      |
|  | > 35 years          | 36        | 26.70      |
| <b>Children under five age</b>                           | Infant              | 34        | 25.20      |
|  | Children under five | 101       | 74.80      |
| <b>Number of children</b>                                | > 2 children        | 40        | 29.60      |
|  | ≤ 2 children        | 95        | 70.40      |
| <b>Education</b>   | Elementary School   | 45        | 33.30      |
|  | Junior High School  | 49        | 36.30      |
|  | Senior High School  | 32        | 23.70      |
|  | College             | 9         | 6.70       |
| <b>Occupation</b>  | Housewife           | 109       | 80.70      |
|  | Employee            | 26        | 19.30      |
| <b>Distance between house and integrated health post</b> | Far                 | 29        | 21.50      |
|  | Near                | 106       | 78.50      |

The results of the characteristics of the subjects of the study in Table 1 show that most of 135 subjects of the study aged 20-35 years (72.60%). Most of the subjects of the study had children under five (74.80%). Most of the subjects of the study had ≤ 2 children (70.40%). Most of the subjects of the study graduated from junior high school (36.30%). Most of the subjects of the study did not work and only did housework

(80.70%). Most of the subjects of the study had short distance from the house to the integrated health post (78.50%).

There were 77 subjects of the study had positive attitude (57.00%). There were 78 subjects of the study had high subjective norm (57.80%). There were 87 subjects of the study had good perceived behavioral control (64.40%). There were 72 subjects of the study had high intention (53.30%).

There were 74 subjects of the study used integrated health post (54.80%).

## 2. Path Analysis

### a. Model Specification

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

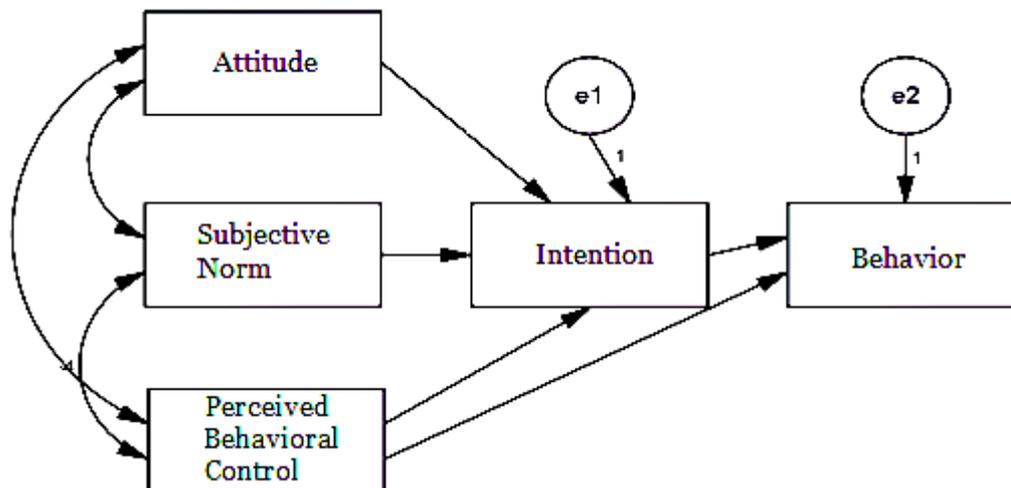


Figure 1. The structural model of path analysis

Degree of freedom (df)= 2. The model identification in path analysis got an over-identified df value which means that path analysis can be conducted.

### c. Fit model and parameter estimation

The suitability of path analysis model made by authors based on the theory has been checked with the best variable correlation model by computer (SPSS) called the saturation model based on sample data collected by authors. Figure 2 shows the structural model after estimation using IBM SPSS AMOS 22. Indicators which indicated the suitability of the path analysis model were shown in table 2. It also shows that Goodness of Fit Measure got CMIN fit index by 4.24 with  $p= 0.120 (>0.05)$ ; GFI= 0.99 ( $>0.90$ ); NFI= 0.99 ( $>0.90$ ); CFI= 1.00 ( $>0.90$ ); RMSEA= 0.09 ( $\leq 0.08$ ) which means that the empirical model met the criteria specified and in accordance with empirical data.

The non-standardized path coefficient showed the correlation between indepen-

### b. Model Identification

A number of measurement variables were 5, a number of endogenous variables were 2, a number of exogenous variables were 3, and a number of parameters were 8.

dent and dependent variables in the original unit of measurement. Table 2 shows the calculation results using IBM SPSS AMOS 22 computer software program. The non-standardized path coefficient value (b) between attitude and intention was positive by 0.27, the SE value was 0.08, the p value was  $<0.001$ , and the standardized path coefficient value ( $\beta$ ) was 0.29. These result were significant. These results indicated that each increase in 1 unit of attitude score would increase intention score by 0.27. The non-standardized path coefficient value (b) between subjective norm and intention was positive ( $b= 0.27$ ,  $SE= 0.13$ ;  $p= 0.046$ ), and the standardized path coefficient value ( $\beta$ ) was 0.21. These results indicated that each increase in 1 unit score of subjective norm would increase intention score by 0.27.

The non-standardized path coefficient value (b) between perceived behavioral control and intention was positive by 0.34, the SE value was 0.13, the p value was 0.007, and the standardized path

coefficient ( $\beta$ ) was 0.32. These results were significant. These results indicated that each increase in 1 unit of perceived behavioral control score would increase intention score by 0.32. The non-standardized path coefficient value (b) between perceived behavioral control and behavior was 0.18,

the SE value was 0.06, the p value was 0.004, and the standardized path coefficient ( $\beta$ ) value was 0.26. These results were significant. These results indicated that each increase in 1 unit of perceived behavioral control score would increase behavior score by 0.18.

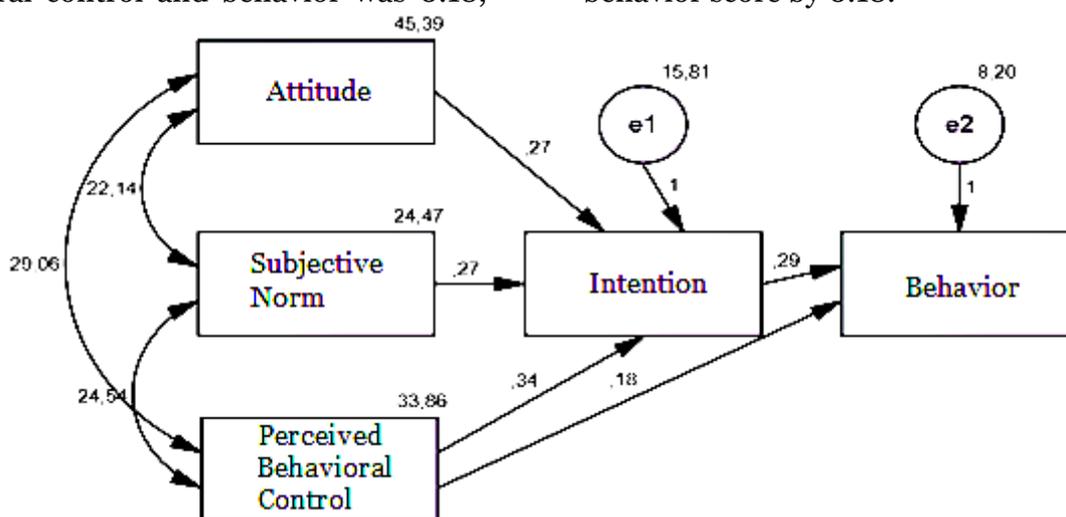


Figure 2. The structural model of path analysis using unstandardized solution

Table 2. The result of path analysis on the determinants of the use of integrated health post and the application of theory of planned behavior

| Dependent Variables             | Independent Variables | b    | SE   | p      | $\beta$ |
|---------------------------------|-----------------------|------|------|--------|---------|
| <b>Direct Effect</b>            |                       |      |      |        |         |
| Behavior                        | ← PBC                 | 0.18 | 0.06 | 0.004  | 0.26    |
| Behavior                        | ← Intention           | 0.29 | 0.06 | <0.001 | 0.46    |
| <b>Indirect Effect</b>          |                       |      |      |        |         |
| Intention                       | ← Attitude            | 0.27 | 0.08 | <0.001 | 0.29    |
| Intention                       | ← Subjective Norm     | 0.27 | 0.13 | 0.046  | 0.21    |
| Intention                       | ← PBC                 | 0.34 | 0.13 | 0.007  | 0.32    |
| N Observation = 135             |                       |      |      |        |         |
| <b>Fit Model</b>                |                       |      |      |        |         |
| CMIN = 4.24 p = 0.120 ( ≥ 0.05) |                       |      |      |        |         |
| GFI = 0.99 ( ≥ 0.90)            |                       |      |      |        |         |
| NFI = 0.99 ( ≥ 0.90)            |                       |      |      |        |         |
| CFI = 0.99 ( ≥ 0.90)            |                       |      |      |        |         |
| RMSEA = 0.09 ( ≤ 0.08)          |                       |      |      |        |         |

The non-standardized path coefficient value (b) between intention and behavior was positive by 0.29, the SE value was 0.06, the p value was 0.001, and the standardized path coefficient ( $\beta$ ) was 0.46. These results were significant. These result showed that

each increase in 1 unit of intention score would increase behavior score by 0.29.

The standardized path coefficient ( $\beta$ ) of all variables studied showed that intention was the most influential variable in improving the behavior of using integrated

health post for children under five. Each increase in 1 SD of intention would increase 0.46 SD of behavior of using integrated health post for children under five.

#### d. Model Re-specification

The model in this study is in accordance with the sample data as indicated by the saturation model and the path coefficient which is more than zero and statistically significant, so that it is not necessary to re-create the path analysis model.

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## DISCUSSION

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### 1. The correlation between attitude and behavior of using integrated health post for children under five through intention

There was an indirect correlation between attitude and behavior of using integrated health post for children under five through intention as the intervening variable which was positive and significant. According to Ajzen (2005), attitude is considered as the first cause of behavioral intention. In this case, Ajzen puts attitude as the main factor which forms individual intention to adopt a behavior. According to Fisbein and Ajzen (1975 cit Ismail, 2008), attitude as predisposing factors or factors that exist in an individual is learned to give a response in a consistent way, which describes the likes or dislikes of an individual towards an object given. Attitude is often obtained from individual own experience or the closest person. Attitude makes individual approach or stay away from other people or other objects. Someone will do or not do a behavior based on the consideration previously whether the attitude support or does not support (Fisbein and Ajzen, 1975 cit Ismail, 2008).

The result of this study is in line with a study conducted by Hartanty (2006) and Toad (2013) that there is a significant correlation between maternal attitude and

intention when visiting integrated health post. The formation of attitude is also affected by knowledge, because attitude is a knowledge which is related to a willingness to tend to act according to that knowledge, so that the better the knowledge, the better the attitude. A study conducted by Arum et al (2010), Cheng et al (2011), Rahman et al (2013) and Cooke et al (2014) concluded that attitude positively and significantly affect intention. TPB can be used to predict behavior of an individual, where an individual attitude is closely related to the intention to do behavior.

### 2. The correlation between subjective norm and behavior of using integrated health post for children under five through intention

There was an indirect correlation between subjective norm and behavior of using integrated health post for children under five through intention as the intervening variable which was positive and significant.

Subjective norm is maternal belief regarding agreement or disagreement and the assessment of an individual or group that is important for the mother who affects decisions in using integrated health post for children under five. Subjective norm that comes from significant other or closest people such as parents, partners, siblings, and close friends will affect the individual intention in showing or not showing behavior (Ajzen, 2005). Ajzen argues that subjective norm is determined by normative belief and motivation to comply. If individual believes that the significant other expects or supports these behaviors, the individual will carry out these behaviors and be motivated to do the behavior. Conversely, if the individual believes that the significant other does not support, the individual will not do and stay away from the behavior.

Subjective norm is defined as important influences of others. This is assumed as

something that other people think is important, so that the individual must do it with certain behaviors (Engel, Blackwell, and Miniard, 1995).

This is supported by a study by Cooke et al. (2014) that subjective norm that has a strong urge from the closest person has a great influence in carrying out a behavior. According to Ajzen (2005), generally, an individual who often perceives that social referrals recommend doing a behavior will make the individual tends to feel the social pressure to do the behavior.

The result of this study is in line with a study conducted by Rahman et al (2013) that most of mothers use intergrated health post services for children under five due to the social support. Social support is divided into two, namely internal family social support, such as support from a husband, wife, or support from siblings; and external social support, such as support from relatives, peers, health workers, cadres, and community leaders (Friedman, 1998). It is also in line with the result of a study conducted by Arum et al (2010) that subjective norm has a significant influence on women's intention to do Breast Self-Exam (Pemeriksaan Payudara Sendiri). In addition, a study conducted by Cheng et al (2011) shows that subjective norm is the strongest influence towards intention.

Subjective norm will increase individual intention to do behavior. In this study, when subjective norm around individuals support and accept the use of integrated health post services for children under five, the intention will be higher.

### **3. The correlation between perceived behavioral control and behavior of using integrated health post for children under five through intention**

There was an indirect correlation between perceived behavioral control and behavior

of using integrated health post for children under five through intention as the intervening variable which was positive and significant.

Perceived behavioral control is an individual perception of belief about factors that support or do not support showing the behavior whether they are exist or do not exist (Ajzen, 2005). Perceived behavioral control is determined by an individual belief about supporting or inhibiting factors to carry out this behavior and it is determined by how great the control factor affect the individual decision to take or does not take the action. The more factors that facilitate to show behavior such as opportunities or resources, the greater the individual intention to show behavior. According to Achmat (2010) the perceived behavioral control refers to the degree to which an individual feels that the behavior of individual wants or does not want to be showed is under her control. People will not form a strong intention to show certain behaviors if an individual believes that she does not have the ability or opportunity to behave, even though she is supported by positive attitude.

This is in line with a study conducted by Cheng et al. (2011) and Arum et al (2010) that there is perceived behavioral control which significantly predicting intention in behavior. In addition, a study conducted by Mas'ud (2012) shows that perceived behavioral control of an individual has a significant and positive effects on intention.

### **4. The correlation between perceived behavioral control and behavior of using integrated health post for children under five**

There was a direct correlation between perceived behavioral control and behavior of using integrated health post for children

under five which was positive and significant.

According to Ajzen (2005), perceived behavioral control has a direct effect on behavior. This direct effect occurs due to the obvious control conditions in the field. In addition, if an intention to behave in a certain way already exists, that intention will become a behavior when the reality of control in the field is possible to do. There was direct effect of perceived behavioral control on behavior as controllability. The conduct of the behavior depends on the individual belief on how great control she has towards the behavior.

This research is in line with a study conducted by Terry and O'Leary (1995) that perceived behavioral control is influential and capable of predicting behavior.

#### **5. The correlation between intention and behavior of using integrated health post for children under five**

There was a direct correlation between intention and behavior of using integrated health post for children under five which was positive and significant.

According to Schiffman and Kanuk (2007), intention is related to an individual tendency to take certain action or behavior. According to Ajzen (2005), intention is an indication of how strong an individual belief tries a behavior and how great the effort used to conduct behavior. According to Ajzen (1991), intention to behave is an intervening variable in behavior. In addition, individual behavior is generally based on the intention to behave. People do a behavior because they intend to do it.

It is In line with a study conducted by Rizani et al. (2015) that the higher the intention to do Breast Self-Exam, the better the behavior of Breast Self-Exam. Otherwise, the lower the intention to do Breast Self-Exam, the worse the behavior of Breast Self-Exam.

Human behavior is formed from experience, perception, understanding, and interpretation which are affected by perception, motivation, and emotion. In addition, behavior is also affected by outside information as a matter to be considered. In the process, intention to behave will be formed. In terms of health, behavior is affected by an interest in health information. This information will affect an individual in making a decision to look for health services (Ajzen, 2005; Emilia, 2008; Ratna, 2010).

Based on this study, it can be concluded that intention has direct correlation on the behavior of using integrated health post for children under five. Attitudes, subjective norm, and perceived behavioral control have indirect correlation on the behavior of using integrated health post for children under five.

In increasing individual intention, the positive attitude, the high subjective norm, and the good perceived behavioral control are needed. All of them can not be separated from community support, family support, support from religious leaders, and the role of health workers.

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