

Health Belief Model on the Factors Associated with the Use of HPV Vaccine for the Prevention of Cervical Cancer among Women in Kediri, East Java

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ABSTRACT

Background: Cervical cancer is a deadly disease with high incidence rates in the world and in Indonesia. In Kediri, East Java, there were 33 women who had cervical cancer in 2016, 3 of them died. Cervical cancer is caused by type 16 and type 18 Human Papilloma Viruses (HPV). This disease can be prevented by the application of HPV vaccine. This study aimed to examine factors associated with the use of HPV vaccine for the prevention of cervical cancer among women in Kediri, East Java, using health belief model (HBM).

Subjects and Method: This was an analytic observational study with case control design. This study was conducted in Kediri, East Java, from February 10 to March 10, 2017. A sample of 120 women consisting of 40 women who had used HPV vaccine and 80 women who had not used HPV vaccine, were selected for this study by fixed disease sampling. The dependent variable was use of HPV vaccine. The independent variables were perceived susceptibility, perceived severity, perceived benefit, perceived threat, perceived barrier, and cues to action. The data were collected by a set of pre-tested questionnaire. Logistic regression was employed for data analysis.

Results: The use of HPV vaccine was associated with perceived susceptibility (OR= 0.79; 95% CI= 0.23 to 2.70; p= 0.710), perceived severity (OR= 5.19; 95% CI= 1.30 to 20.66; p= 0.019), perceived threat (OR= 1.04; 95% CI= 0.32 to 3.35; p= 0.942), perceived benefit (OR= 1.33; 95% CI= 0.40 to 4.38; p= 0.638), perceived barrier (OR= 0.42; 95% CI= 0.14 to 1.27; p= 0.126), and cues to action (OR= 5.90; 95% CI= 1.30 to 26.74; p = 0.021).

Conclusion: The use of HPV vaccine is associated with perceived susceptibility, perceived severity, perceived threat, perceived benefit, perceived barrier, and cues to action. Constructs in health belief model can be used to predict the use of HPV vaccine.

Keywords: health belief model, use of HPV vaccine

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BACKGROUND

Cervical cancer is excessive and uncontrolled cell growth around the cervix (Rasjidi, 2010). Cervical cancer can come from cells around the cervix. Some cervical cancers begin at the transformation zone which is the transition from squamous cell type to cylindrical cell type. This cell does not immediately turn into cervical cancer. Normal cervical cells because of the influence of

carcinogens can develop gradually into pre-cancerous cells and then become cancer cells (Nurwijaya et al., 2010). The trigger for the appearance of cervical cancer is an infection of several types of Human Papilloma Virus (HPV). The types of HPV that are often encountered in cervical cancer cases are types 16 and 18 over about 70% of cervical cancer cases occur (Hoque et al., 2014).

Cervical cancer is a deadly disease that has a high prevalence rate both in the world and in Indonesia. To overcome this disease, it is necessary to change the behavior from individuals to improve health and reduce the number of deaths due to cervical cancer. Many theories are used as a basis for changes in health behavior in individuals, one of them is the Health Belief Model theory developed by Stretcher & Rosenstock. In health belief theory, there are several variables underlying the change in health behavior, including, the perceived susceptibility variable due to cervical cancer is a personal perception of the possibility of developing cervical cancer.

Perceived seriousness variable due to cervical cancer is the seriousness felt by the diagnosis of cervical cancer. Perceived threat variable due to cervical cancer is a belief based on the perceived susceptibility and severity of cervical cancer. Perceived benefits variable due to cervical cancer is one of the beliefs in the perceived action to reduce the risk of cervical cancer. The variable of perceived resistance due to cervical cancer is a suggested belief and negative potential of actions caused by cervical cancer. Variable of perceived cues due to cervical cancer is a strategy for prevention of cervical cancer (Urrutia, 2009).

Cervical cancer is the second most common type of cancer affecting women worldwide after breast cancer. More than 270,000 women die of cervical cancer each year, more than 85% of these deaths are in low-income countries (Shobeiri et al., 2016). According to Urrutia's research (2009) data on cervical cancer susceptibility, cervical cancer in women is 88% of women go to health facilities when they have symptoms. Seriousness due to cervical cancer reported that 77% of women died of cervical cancer. Barriers to prevention of cervical cancer 84% are caused by fear in women

due to cervical cancer 50% of the shame in women due to cervical cancer. The benefits of preventing cervical cancer 89.9% early examination is that it can prevent death from cervical cancer. Cues to act to prevent cervical cancer 58% due to recommendations from health personnel, 30% recommendations from friends.

Cervical cancer attacks Indonesian women aged 15-44 years. Indonesia is the country with the highest number of cervical cancer incidence in Southeast Asia. The incidence of cervical cancer per year in Indonesia is estimated at 20,998 cases and the number of deaths from cervical cancer is 9,498 people (ICO, 2016). Cervical cancer is the highest prevalence of cancer in Indonesia in 2013 at 0.8%. Based on estimation of the number of patients with cervical cancer, there are 21,313 patients in East Java province (Infodatin, 2015). In 2015, cervical cancer patients in Kediri City were 33 patients and 3 died in patients (Kediri City Government, 2016).

Minister of Health Decree No. 769 of 2010 concerning technical guidelines for controlling cervical cancer and breast cancer, there are four important components that become pillars in the treatment of cervical cancer. The component consists of prevention of HPV infection by avoiding risk factors and HPV vaccination, early detection through increased awareness and organized screening programs, diagnosis and management, and palliative care for advanced cases (Sari et al., 2014). Currently, secondary prevention is still the main focus to reduce the incidence of cervical cancer. Cervical cancer screening can be done through several methods including Visual Acetate Acid Inspection (IVA) method and pap smear test and performed on people who have had sexual contact (Nurwijaya et al., 2010).

Cervical cancer can be treated early through screening but people are reluctant to check it out so that the incidence of cervical cancer continues to increase. So other efforts are made to prevent cervical cancer by primary prevention using HPV vaccination. The HPV vaccine is a preventative vaccine against HPV types 16 and 18 that cause cervical cancer (Pratamaningtyas, 2013).

There are two types of HPV vaccines that can prevent HPV infection, namely the bivalent and quadrivalent vaccines. Bivalent vaccines can only prevent HPV infections types 16 and 18 that provide protection and reduce the risk of cervical cancer, vaginal cancer, vulvar cancer. Several studies using bivalent vaccines show that vaccine effectiveness is quite high, reaching more than 90%. Quadrivalent vaccine is a vaccine that can prevent HPV infection types 16 and type 18 and types 6 and 11 infections that can cause genital warts or condyloma akuminata. The effectiveness of quadrivalent vaccine is estimated to be around 70-100% can reduce the incidence of cervical cancer cases to 90% (Radji, 2009).

The effort to prevent cervical cancer is by using HPV vaccination. In Kediri, it is still rare to find women who do the HPV vaccine. In 2013, there were only 45 women who carried out the HPV vaccine through the Indonesian Midwives Association (IBI) in Kediri. Based on the phenomenon of the low number of women who carry out the HPV vaccine and the still high incidence of cervical cancer, and still limited research related to the theory of health belief health model behavior on the use of HPV vaccine by women in Indonesia, this study is needed.

The purpose of this study was to analyze the application of health belief models about factors that influence the use of HPV vaccination to prevent cervical cancer in women in Kediri.

SUBJECTS AND METHOD

1. Study Design

This was an observational analytic study, with a case control approach conducted on 10 February to 10 March 2017 in the area of Kediri, East Java Province.

2. Population and Sampling

The population in this study was women in Kediri. Total of 120 women were selected for this study by fixed disease sampling and divided into two groups including 40 women who had used HPV vaccine as case group and 80 women who had not used HPV vaccine as control group.

3. Study Variables

The dependent variable was use of HPV vaccine. The independent variables were perceived susceptibility, perceived severity, perceived benefit, perceived threat, perceived barrier, and cues to action.

4. Operational Definitions of Variable
Susceptibility perception was someone's subjective belief about the risk of contracting the disease, the perceived possibility refers to someone's risk of having a particular disease or adverse health effects.

Perceptions of seriousness was evaluations of medical, clinical and social consequences that may arise according to actions in preventing diseases. Perception of threat is an individual's urge to take action to prevent or cure diseases caused by susceptibility and seriousness.

Perception of benefits was the effectiveness of strategies to reduce the threat of a disease that aims to improve a person's quality of life. Perceptions of barriers are negative consequences that arise when taking action both physically, psychologically, and financially. Signal perception acts as a factor that moves people to change their behavior in health behavior.

The use of HPV vaccine is a person's action to prevent cervical cancer by inserting a

drug containing protein antibodies that can kill the virus that causes cervical cancer.

5. Reliability Test

Based on the results of item-total correlation reliability test, it was found that the measurement of susceptibility perception, perception of severity, threat perception, perceived usefulness, perception of barrier, cues to action, ie r calculated ≥ 0.20 and Cronbach alpha ≥ 0.60 so that all items were stated as reliable.

Cronbach's alpha value on the instrument of perception of susceptibility is 0.92 and item correlation value is ≥ 0.44 . Cronbach's alpha value on the perception of severity is 0.96 and item correlation value is ≥ 0.69 .

Cronbach's alpha value on the threat perception instrument is 0.91 and the correlation item value is ≥ 0.57 . Cronbach's alpha value on the instrument of perceived usefulness is 0.91 and the item correlation value is ≥ 0.63 .

Cronbach's alpha value on the Cronbach alpha barriers perception instrument is 0.89 and the item correlation value is ≥ 0.47 . Cronbach's alpha value on Cronbach's alpha sign perception instrument is 0.88 and item correlation value is ≥ 0.50 .

6. Data Analysis

Univariate quantitative data analysis was performed to display characteristic data and descriptive research variables, bivariate analysis was conducted using Chi-Square test, and multivariate analysis with logistic regression analysis was used to predict dependent variables from several independent variables.

RESULTS

1. Sample characteristics

The presentation of characteristics of study subjects to women who use or do not use the HPV vaccine consisting of 40 women who use the HPV vaccine and 80 women

who do not use the HPV vaccine or can be abbreviated as 40 women case subjects and 80 women control subjects seen by age, education, marital status, employment, income, number of children and family history of cervical cancer. Table 1 shows that in the case group of 40 study subjects women who used the HPV vaccine, 47.5% of women were 30-50 years old, 37.5% were senior high school graduates, 85% were married, 37.5% were housewives, 62.5% had income <1,500,000, 60% women have 1 child and 100% of women have no history of cervical cancer in the body. The control group consisted of 80 study subjects women who did not use the HPV vaccine. A total of 77.5% of women aged 30-50 years, 52.5% were bachelor graduates, 98.7% were married, 41.25% were private employees, 63.37% of women had income of Rp. 1,500,000, 60% of women had 2 children, and 95% of women did not have history of cervical cancer in the family.

Descriptive results of the study variables include dependent variable of the HPV vaccine use status, as well as the independent variables of susceptibility perception variables, severity perception variables, threat perception variables, benefit perception variables, barrier perception variables, and action signaling variables can be seen in Table 2.

2. Bivariate analysis

Bivariate analysis describes the relationship between independent variables, namely perceptions of susceptibility, severity, threats, benefits, barriers/barriers, action signals and use of the HPV vaccine as the dependent variable. The method used was the chi-square test can be seen in Table 3.

3. Multivariate analysis

Multivariate analysis explained about the relationship between independent variables namely perceived susceptibility, perceived severity, threat, benefit, barrier,

cues to action, and dependent variable which was the use of HPV Vaccine.

Table 1. The Characteristics of study subjects

Characteristics	Criteria	Case		Control	
		n	%	n	%
Age	≤ 30 years	15	37.5	13	16.25
	30-50 years	19	47.5	62	77.5
	≥ 30 years	6	15	5	6.25
Education	PS	4	10	0	0
	JHS	7	17.5	6	7.5
	SHS	15	37.5	23	28.75
	D III	2	5	8	10
	Bachelor	10	25	42	52.5
	Post graduate	2	5	1	1.25
Marital Status	Single	0	0	0	0
	Married	34	85	79	98.75
	Widow/widower	6	15	1	1.25
Occupation	Housewife	15	37.5	17	21.25
	Entrepreneur	7	17.5	23	28.75
	Private employee	14	35	33	41.25
	Civil servant	4	10	7	8.75
Income	<Rp 1,500,000	25	62.5	29	36.25
	≥Rp 1,500,000	15	37.5	51	63.75
The number of children	1	24	60	11	13.75
	2	14	35	48	60
	3	7	17.5	9	11.25
	4	5	12.5	2	2.5
Cancer history	With history	0	0	4	5
	No history	40	100	76	95

Table 2. Univariate analysis of study variables

Variables	Category	n	%
The use of HPV vaccine	No HPV	80	66.7
	Use HPV	40	33.3
Perceived susceptibility	Low < 20	42	35
	High ≥ 20	78	65
Perceived severity	Low < 16	44	36.7
	High ≥ 16	76	63.3
Perceived threats	Low < 16	51	42.5
	High ≥ 16	69	57.5
Perceived benefits	Low < 17	52	43.3
	High ≥ 17	68	56.7
Perceived barriers	Low < 16	75	62.5
	High ≥ 16	45	37.5
Perceived cues to act	Low < 17	49	40.8
	High ≥ 17	71	59.2

There was a relationship between perceived susceptibility and the use of HPV vaccine which was statistically insignificant. Women with high perceived susceptibility were 0.79 time less likely to use HPV vaccine compared to woman who have low

perceived susceptibility (OR= 0.79; 95% CI= 0.23 to 2.70; p= 0.710).

There was a relationship between perceived severity and the use of HPV vaccine which was statistically significant. Women with high perceived severity were 5.19 times

more likely to use HPV vaccine compared to woman who have low perceived severity (OR= 5.19; 95% CI= 1.30 to 20.66; p= 0.019).

There was a relationship between perceived threat and the use of HPV vaccine

which was statistically insignificant. Women with high perceived threat were 1.04 time more likely to use HPV vaccine than woman with low perceived threat (OR= 1.04; 95% CI= 0.32 to 3.35; p= 0.942).

Table 3. Bivariate Analysis of variables.

Independent Variables	OR	p
Perceived Susceptibility	2.96	0.015
Perceived Severity	9.00	0.001
Perceived Threat	2.64	0.019
Perceived Benefit	4.89	0.001
Perceived Barrier	1.88	0.011
Cues to Action	8.56	0.001

Table 4. Multiple Logistic Regression Analysis

Independent Variables	OR	95% CI		p
		Lower limit	Upper limit	
Perceived Susceptibility	0.79	0.23	2.70	0.710
Perceived Severity	5.19	1.30	2066	0.019
Perceived Threat	1.04	0.32	3.35	0.942
Perceived Benefit	1.33	0.40	4.38	0.638
Perceived Barrier	0.42	0.14	1.27	0.126
Cues to Action	5.90	1.30	26.74	0.021
N Observation = 120				
-2 Log Likelihood	121.89			
Nagelkerke R Square	31.5			

There was a relationship between perceived benefit and the use of HPV vaccine which was statistically insignificant. (p= 0.638). Women with high perceived benefit were 1.33 times more likely to use HPV vaccine compared to woman who have low perceived benefit (OR= 1.33; 95% CI= 0.40 to 4.38; p= 0.638).

There was a relationship between perceived barrier and the use of HPV vaccine which was statistically insignificant. Women with high perceived barrier were 0.42 time less likely to use HPV vaccine compared to woman who have low perceived barrier (OR= 0.42; 95% CI= 0.14 to 1.27; p= 0.126).

There was a relationship between perceived cues to action and the use of HPV vaccine which was statistically significant

(p= 0.021). Women with high perceived cues to action were 5.90 times more likely to use HPV vaccine compared to woman who have low perceived cues to action (OR=5.90; 95% CI= 1.30 to 26.74; p = 0.021).

DISCUSSION

1. The Use of HPV Vaccine on Perceived Susceptibility

The result of this study showed that there was an effect of perceived susceptibility on the use of HPV vaccine and it was statistically insignificant. Perceived susceptibility was one of the strongest perceptions for someone to adopt health behavior. This study showed that women who felt themselves susceptible to cervical cancer would

use the HPV vaccine to prevent cervical cancer and vice versa.

The result of this study was in line with a study done by Puri (2016) which stated that there was an effect of perceived susceptibility on the completeness of immunization status. Mothers who felt their children were vulnerable to diseases that can be prevented by immunization would take preventive action by vaccines and vice versa. A study by Wakhida (2016) stated that there was an effect of perceived susceptibility on the use of VCT. Pregnant women who have a high perceived susceptibility to HIV/AIDS would increase the use of VCT. A study by Indrian (2014) showed that there was a relationship between perceived susceptibility of the diseases and health services on health belief model. This showed that if the disease susceptibility was increased, health services in health belief models would also increased.

According to Rosenstock (1980) in Wakhida (2016), perceived susceptibility was a person's subjective perception of the risk of contracting the disease. This would help someone to take preventive and treatment actions, because someone felt vulnerable to the disease. This made the health trust model depended on individual perceptions. This was related to the evaluation of the use of services, whether to receive consequences for medical and clinical services or face the social conditions.

A person's beliefs about being susceptible or not susceptible to illness and their perception of the benefits of disease prevention were influenced by someone's readiness to take an action. Resenstock (1982) in Ningrum (2016) stated that people who have perceived susceptibility about the possibility of being affected by a disease would affect their behavior especially to prevent the disease or seek the treatment. Those who felt that they could

be affected by the disease would feel threatened more quickly.

A person would take an action to prevent the disease if he/she felt that it was possible. Perceived susceptibility of an individual in a situation depend on the perceptions about the risks faced in a particular situation. Generally, the susceptibility of cervical cancer that was felt by women did not give much motivation to use the HPV vaccine. Most people acted after experiencing the disease so there were some women who did not use the vaccine.

2. The Use of HPV Vaccine on Perceived Severity

The result of this study showed that there was an effect of perceived severity on the use of HPV vaccine and it was statistically significant. The variable of perceived seriousness in this study was perceptions about the dangers of cervical cancer that can be prevented by using the HPV vaccine. This study showed that women who have a perception that cervical cancer can be prevented early by using the HPV vaccine would use the HPV vaccine, and vice versa.

The result of this study was in line with a study done by Wigati (2016) which revealed that there was an effect of perceived severity by doing an IVA test, the more severe a disease, then someone would make an effort to do prevention, which was the IVA test for early detection of cervical cancer. A study by Sutrisni (2016) showed that there was an effect of perceived severity/perceived seriousness and HIV test, mothers have a perception that a serious illness which was known earlier could be prevented, one of the preventions was by using HIV test to determine the status of transmitted by AIDS.

According to Ningrum (2016) there was a relationship between perceived severity and the use of VCT. Pregnant women

who have high perceived severity about HIV/AIDS would increase the use of VCT.

The results of this study were relevant to the Health Belief Model theory. The perceived severity/seriousness determine whether there was a prevention of the disease or not. Perceived seriousness was often based on medical information and knowledge or belief that he/she would have difficulties due to the diseases (Hyden, 2009).

Perceived severity determined if there was preventive actions for the disease which in this case was cervical cancer, which made the individuals have a willingness to seek information and use the HPV vaccine to prevent cervical cancer. This was because they did not want to be affected by the disease, therefore, they would make an effort to prevent the disease.

3. The Use of HPV Vaccine on Perceived Threat

The result of analysis showed that there was an effect of perceived threat on the use of HPV vaccine and it was statistically non-significant. This study showed that women who have perceived threat that cervical cancer was a threatening disease would take preventive action by using the HPV vaccine.

The result of this study was in line with a study by Sutrisni (2016) which stated that there was an effect of perceived threat and the willingness of HIV test. Mothers who have the perception that HIV/AIDS disease was a threatening disease would take a preventive action which was HIV test. A study by Puri (2016) showed that there was an effect of perceived threat and the completeness of immunization status. Mothers who have a perception that a disease that can be prevented by immunization was a threatening disease, then they would do the immunizations. A study by Wigati (2016) revealed that there was an effect of perceived threat and the imple-

mentation of IVA test. Women who have a perception that cervical cancer was a threatening disease would carry out an IVA test.

According to Rosenstock (1982) in Noorkasiani (2009), individual perceptions about the possibility of being affected by a disease were perceived susceptibility. Those who felt that they can be affected by the disease would feel threatened more quickly. An individual's views of the severity of the disease (perceived seriousness) were the risks and difficulties that would be experienced from the disease. The more severe the risk of a disease, the more likely the individual to be affected by the disease. This leads to the enhancement of the perceived threats. This threat encouraged the individuals to take an action to prevent or cure the diseases.

This study showed that women considered that cervical cancer was a disease that can be prevented by using HPV vaccine and it was a non-self-threatening disease (69%). This was because the understandings of each individual of the threats that can be caused by cervical cancer and can be prevented by the HPV vaccine depend on the knowledge of the disease.

4. The Use of HPV Vaccine on Perceived Benefit

The result of analysis showed that there was an effect of perceived benefit on the use of HPV vaccine and it was statistically non-significant. This study showed that women who felt that conducting the HPV vaccine was useful for preventing cervical cancer would do the vaccination and vice versa.

The result of this study was in line with a study by Wakhida (2016) which revealed that there was an effect of perceived benefit and the use of VCT. Pregnant women who have high perceived benefits about HIV/AIDS would use the VCT test. A study by Ningrum (2016) revealed that

there was an effect of perceived benefits and cadre performance on the control of tuberculosis cases. Cadres who have great perceived benefits would control the tuberculosis cases properly rather than cadres who have small perceived benefits. Wigati (2016) stated that there was an effect of perceived benefit and the implementation of IVA test. Women who felt the benefit of an action in avoiding the disease would prefer to take the actions.

Based on the Health Belief Model theory, Rosenstock (1982) stated that individuals would do a behavior if they believe that their behavior was beneficial for themselves and the environment, but if the benefits were not appropriate, they would not do the behavior. Women were encouraged to conduct HIV vaccine so that they can prevent cervical cancer and they would feel safe after conducting the vaccination of cervical cancer. Perceived benefit was a person's opinion about the usefulness of a new behavior in reducing the risk of disease.

This study showed that women would use the HPV vaccine if it has a benefit to prevent cervical cancer and vice versa, therefore, the presentation of women who did not use the HPV vaccine was still found due to the lack of information about the vaccine. Perceived benefit of using the HPV vaccine has not been felt directly for most women because women in reproductive age should have a pap smear test before conducting a vaccination to find out whether there was a pre-cancerous lesion or not.

5. The Use of HPV Vaccine on Perceived Barrier

The result of analysis showed that there was an effect of perceived barrier on the use of HPV vaccine and it was statistically insignificant. This study showed that most women who felt that there were some barriers in using the HPV vaccine chose not

to do the HPV vaccine as a preventive action for the cervical cancer, and vice versa.

The result of this study was in line with a study done by Puri (2016) which stated that there was an effect of perceived barrier on the completeness of immunization status. Mothers who felt that there were some barriers in immunizing their baby chose not to take preventive action, and vice versa. A study done by Wigati (2016) stated that there was an effect of perceived barrier on the implementation of IVA test. Women who have a perception of a major barrier in doing the behavior were less likely to conduct IVA test.

A study of Sutrisni (2016) revealed that there was an effect of perceived barrier on the willingness to do HIV test. Pregnant women who felt that there were some barriers in doing HIV test chose not to take preventive actions, and vice versa.

The result of this study was in accordance with the Health Belief Model theory by Rosenstock (1982) in Ningrum (2016), which stated that taking an action to prevent a disease or seeking treatment was affected by perceived barrier, which was the barriers that arised in doing an action. A common barrier experienced by a person in determining health actions or utilizing health services was dominated by personal constraints. Perceived barrier was a determinant of behavioral changes.

Perceived barriers experienced by women who want to use the HPV vaccine in this study stated that there were some barriers such as lack of information about HPV vaccine, the high cost of cervatre vaccine which was around Rp. 700,000 for one vaccine, lack of health facilities which provide HPV vaccines, women's fear in conducting vaccines, and there was no government regulation which required the women to con-

duct HPV vaccine so that there were some women who refused to do the HPV vaccine.

6. The Use of HPV Vaccine on Perceived Cues to Action

The result of analysis showed that there was an effect of cues to action on the use of HPV vaccine and it was statistically significant. Women who have high cues to action about cervical cancer would use the HPV vaccine to prevent cervical cancer and vice versa.

The result of this study was in line with a study done by Wakhida (2016) which stated that there was an effect of high cues to action about HIV/AIDS disease on the enhancement of VCT utilization. Pregnant women who have high cues to action would use VCT. A study done by Ningrum (2016) showed that there was an effect of the encouragement to act and cadre performance on tuberculosis control. Cadres who have strong encouragement to act have good performance in controlling tuberculosis cases and vice versa. A study of Wigati (2016) revealed that there was an effect of cues to action perception on the implementation of IVA test. Women who experienced a decrease in cues action were less likely to conduct IVA test.

The result of this study was in accordance with the Health Belief Model theory by Rosenstock (1982) in Ningrum (2016) which stated that in taking an action, there was a motivating factor to accept or ignore the action. Encouragement was consisted of internal and external encouragement.

In this study, women's cues to action in using HPV vaccine to prevent cervical cancer could come from themselves or from outside. Self-encouragement could be in the form of intention to use HPV vaccine in anticipation of cervical cancer in women while outside encouragements were from family history of cervical cancer, friend's invitation, and counseling from health

personnel about HPV vaccine, therefore, most women (59.2%) in this study have high cues to action.

Based on the results of this study, it can be concluded that construct of health belief model consisting of perceived susceptibility, perceived severity, perceived threat, perceived benefits, perceived barriers, and perceived cues to action affected the use of HPV vaccine.

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