RESEARCH ARTICLE

Factors Influencing Decisionsto Conduct Early Detection of Cervical Cancer

Sondang Sidabutar[1(CA)], Tjipto Suwandi[2], Santi Martini[3], Rachmat Hargono[4]
[1(CA)]Faculty of Health, Efarina University, Simalungun / Faculty of Public Health, Airlangga University, Indonesia; sondang_sidabutar73@yahoo.com (Corresponding Author)
[2]Faculty of Public Health, Airlangga University, Indonesia; tjiptosuwandi@gmail.com
[3]Faculty of Public Health, Airlangga University, Indonesia; santi279@yahoo.com
[4]Faculty of Public Health, Airlangga University, Indonesia; rhargono2001@yahoo.com

ABSTRACT

The Visual Inspection with Acetic Acid (VIA) is one of the methods to perform cervical cancer test by applying acetic acid. The huge number of cervical cancer cases in Indonesia has worsened because more than 80% of the cases that have been brought to hospitals were already in an advanced stage. The aim of the research is to analyse the variable influence: projection, self efficacy and intention toward the decision to perform early detection of cervical cancer with the VIA test. The research design was cross sectional. The population were women of childbearing age in Pematangsiantar and the samples size were 245 respondents selected by multistage random sampling. The variables were projection, self efficacy intention and decision. The statistical analysis was Structural Equation Modelling. The results of the study were: 1) self efficacy affects intention (p= 0.000), 2) projection affects intention (p= 0.000), 3) intention affects decision (p= 0.000). The models of projection, self efficacy and intention take effect on the decision to perform early detection of cervical cancer with the VIA.

Keywords: Self efficacy, Intention, Decision, Visual Inspection with Acetic Acid

INTRODUCTION

Cervical cancer is one of the profound causes of women's morbidity and mortality in developing countries. Death that is caused by cervical cancer has been projected to raise almost 25% for the next 10 years. Based on the estimation of Globocan, International Agency for Research on Cancer (IARC) in 2012, cancer cases in Indonesia are 134 per 100,000 citizens with the highest incidents on women are breast cancer, which reaches 40 per 100,000, followed by cervical cancer that reaches 17 per 100,000 citizens. The VIA is one of the methods to perform cervical cancer test by applying acetic acid. The huge number of cervical cancer cases in Indonesia has worsened because more than 80% of the cases that have been brought to hospitals were already in an advanced stage.

According to Green in Notoatmodjo[1], there are some factors which influence early detection of cervical cancer using VIA, namely behavioral factors, which include predisposition factors (knowledge of women of childbearing age), the behaviors of women of childbearing age, perception of women of childbearing age, economical status of women of childbearing age, situational awareness of women of childbearing age, self efficacy of women of childbearing age, subjective norms of women of childbearing age, and the intention of women of childbearing age; supporting factors (facilitating means, mileage to health services, traveling time to health services and motivating factors: the number of health workers, attitude of health workers, motivation, perception).

Besides those factors mentioned above, there is an individual factor which influences women of childbearing age to perform early detection of cervical cancer, which is Situation Awareness. Situation Awareness is a continual process which involves assessment of events in the environment so that it provides meaning about the decision-making information. Situation Awareness (SA) is a perception of various aspects in the environment within certain time and space, comprehension, and projection in the future. It is also one of the main theoretical approaches which posits the connection between intention and action within implementation of health services, which is known as Theory of Planned behavior (TPB). Understanding the danger of cervical cancer and screening purpose, helping the decision toward screening, is a crucial factor in determining whether participants would make a choice regarding screening information. The varied comprehension of participants in understanding and integrating risk information about the benefit and danger of screening in their decision-making. Some participants agreed to their own screening decision, while others refused because they did not believe in themselves.

The intention to perform early detection of cervical cancer has been supported by the existence of self efficacy, perceived barriers and benefits of the early detection of cervical cancer[2]. The threats perceived

(vulnerability and severity), self-efficacy, and the benefits of interaction and obstacle are significant predictors which influence women of childbearing age's decision to perform early detection (screening) of cervical cancer[3]. The perceived consequences in achieving protection against cervical cancer is the main determiner which influences the intention to obtain VIA. The health service of mother and child perceived by participants influences their vaccination decision. Self efficacy is one's convinction about his ability in organizing and completing one neccessary task to achieve certain result[4]. Self efficacy is the conviction that one can handle any kind of situation and get positive results. Some dimensions from self efficacy are magnitude, generality, and strength. The adding of self-efficacy increases the predictability of TPB (Theory of Planned Behavior) conceptual model. Self-efficacy is the strongest predictor of intention[5]. Arelis Moore de Peralta say that perceived threats (vulnerability and severity), self-efficacy, and benefits of interaction and obstacle are significant predictors which influence the decision of Hispanic women to perform early detection (screening) of cervical cancer[3]. The intention to perform early detection of cervical cancer is supported by the existence of self efficacy, perceived barriers and benefits of early detection of cervical cancer[2]

The aim of the study is to analyze the variable influence of: projection, self efficacy and intention toward the decision to perform early detection of cervical cancer with the VIA test.

METHODS

The study applied the cross sectional design to organize the model of decision upgrading of women of childbearing age by looking at the projection, self efficacy, intention, toward decision making to perform VIA within such specific period. The data of the study consists of primary and secondary data. The primary data had obtained from interviews with spreading questionnaires. The obtained data through interview consists of data of projection, self efficacy, intention, toward decision to perform VIA. Before the instruments were used to measure each variable, then the necessary act would include performing an instrument test, which had performed validity test and questionnaire reliability.

The study was conducted after an assessment had been done by the Commission on Health Research Ethics, Faculty of Public Health, Airlangga University. The multivariat analysis of the study applied Structural Equation Modeling (SEM) to predict the path and test the empirical models and hypothesis proposed by the researcher.

RESULTS

Research Variable Description

The projection variable had measured by 3 indicators. The result of the study showed that most of the participants possess a higher score for the indicator of eagerness to preserve reproduction health (74.3 %) and awareness toward the occurrence of cervical cancer (64.9 %). While for the indicator of understanding early detection of cervical cancer, most participants possess an average score (65.3 %). Each indicator possesses high, average, and low score indicator categories. This meaned that the projection of respondents in this study had represented three existing categories. The depiction of comprehension variable can be seen in table 1.

Table 1. The description of projection variable of women of childbearing age at health centres at the working area of Health Office of Pematangsiantar (n = 245)

No.	Projection	High		Average		Low	
		n	%	n	%	n	%
1.	The intention to maintain reproduction health	182	74.3	49	20.0	14	5.7
2.	Awareness toward cervical cancer	159	64.9	72	29.4	14	5.7
3.	Understanding early detection of cervical cancer	54	22	160	65.3	31	12.7

The self efficacy variable was measured by 3 indicators. The result of the study showed that most participants received higher score for those 3 indicators, which were magnitude (71.4 %), generality (65.7 %) and strength (69.4 %). Each indicator possesses high, average and low score categories. This means that participants' self efficacy in the study has represented the three existing categories. The depiction of self efficacy variable can be viewed from table 2.

Table 2. Description of self efficacy variable of women of childbearing age at health centres at the working area of Health Office of Pematangsiantar (n = 245)

No.	Self efficacy	High		Average		Low	
		n	%	N	%	n	%
1.	Magnitude	175	71.4	41	16.7	29	11.8
2.	Generality	161	65.7	59	24.1	25	10.2
3.	Strength	170	69.4	54	22	21	8.6

The intention variable had measured by 3 indicators. The result of the study showed that most participants achieved higher score for intention indicator to perform early detection of cervical cancer with VIA (60.8 %). Meanwhile, based on another indicator, participants would try to perform early detection of cervical cancer with VIA, most participants have average score (70.2 %), and the indicator showed that participants were reluctant to perform early detection of cervical cancer with VIA inspection have average score (55.9 %). Each indicator has high, average, and low indicator categories. This means that the participants' intention in this study has represented the three existing categories. The depiction of intention variable could be seen in table 3.

Table 3. The description of intention variable of women of childbearing age at health centres at health centres at the working area of Health Office of Pematangsiantar (n = 245)

No.	Intention	High		Average		Low	
		n	%	n	%	n	%
1.	The intention to perform early detection of cervical cancer with IVA	149	60.8	75	30.6	21	8.6
2.	Willing to try to perform early detection of cervical cancer with IVA	50	20.4	172	70.2	23	9.4
3.	Reluctant to perform early detection of cervical cancer with IVA inspection	63	25.7	137	55.9	45	18.4

The decision variable was measured by 5 indicators. The result of the study showed that most participants possess the average score for the 5 decision indicators, namely: problem recognition indicator (58.8%), information seeker indicator (69.0%), alternative evaluation indicator (71.8%), early detection performance indicator (65.7%) and behavioral after deciding indicator (69.8%). Each indicator has high, average and low score categories. This meaned that the decision of participants in the study has represented the three existing categories. The depiction of the decision variable could be seen in table 4.

Table 4. The description of decision variable of women of childbearing age at health centres at the working area of Health Office of Pematangsiantar (n = 245)

No.	Decision	High		Average		Low	
		n	%	n	%	n	%
1.	Problem recognition (necessity)	85	34.7	144	58.8	16	6.5
2.	Information seeking	64	26.1	169	69.0	12	4.9
3.	Alternative evaluation	47	19.2	176	71.8	22	9.0
4.	Performing early detection	63	25.7	161	65.7	21	8.6
5.	Behavior after deciding	58	23.7	171	69.8	16	6.5

Measurement Model (Confirmatory Factor Analysis)

Table 5. The Analysis Resulf of Confirmatory Factor of Latent Variable

Latent variable and indicator	Coefficiency of loading factor	SE	Critical ratio	P-value	Information
Projection (X1)					
The will to maintain health (X1.1)	0.633	0.138	7.731	0.000	Significant/valid
Awareness toward cervical cancer (X1.2)	0.871	0.196	7.146	0.000	Significant/valid
Understanding early detection of cervical cancer (X1.3)	0.620				Significant/valid
Self efficacy (X2)					
Magnitude (X2.1)	0.836	0.058	17.458	0.000	Significant/valid
Generality (X2.2)	0.884	0.052	18.978	0.000	Significant/valid
Strength (X2.3)	0.915				Significant/valid
Intention (X3)					
Eager to perform early detection of cervical cancer with the IVA method. (X3.1)	0.530	0.156	6.610	0.000	Significant/valid
Trying to perform early detection of cervical cancer with the IVA method. (X3.2)	1.027	0.328	4.574	0.000	Significant/valid
Planning to perform early detection of cervical cancer with the IVA method. (X3.3)	0.481				Significant/valid
Decision (Y1)					
Problem recognition (necessity) (Y1.1)	0.523	0.161	6.061	0.000	Significant/valid
Information seeking (Y1.2)	0.763	0.159	7.641	0.000	Significant/valid
Alternative evaluation (Y1.3)	0.522				Significant/valid
Performing early detection (Y1.4)	0.830	0.190	7.933	0.000	Significant/valid
Behavior after deciding (Y1.5)	0.765	0.170	7.706	0.000	Significant/valid

Theoretically, indicators which exceed limitation could be known from the standardized score which was less than 0.4 or CR which was twice as big as error standard score and probability of each indicator, which was less than 0.05. In CFA analysis, there were also reliability testings of constructs and extract variant. The suggested score for reliability and extract variant was 0.6. to ensure whether the indicator exceeds limitation could be seen from the result of measurement model testing for exogen and endogen variables in Table 5.

The exogen variable in this study was the projection variable which had measured by 3 indicators, self efficacy variable which had measured by 3 indicators, and intention variable which had measured by 3 indicators. The analysis result of confirmatory factor showed that all indicators were significant to measure variables in this study, so there were no indicators which were discarded from the model. Meanwhile, the endogen variable in this study was the decision variable which had measured by 5 indicators. The analysis result of confirmatory factor in table 5 showed that all indicators were significant to measure variables in this study, so there were no indicators discarded from the model. Constructs were deemed reliable if the score of Construct Reliability of the construct was much bigger than 0.6. Table 6 showed that the calculation result of reliabiltiy of all tested constructs was reliable.

Table 6. The analysis result of the reliability of exogen and endogen variables

Latent variable (construct)	Construct reliability	Information
Projection	0.708	Significant
Self efficacy	0.878	Significant
Intention	0.679	Significant
Decision	0.680	Significant

Structural Model Testing

The structural model testing was performed once. There are three tested hypotheses in this study. The analysis resulf of Structural Equation Modeling (SEM) showed the significant and insignificant pathways. The influence among latent variables was deemed significant based on the scores of $p \leq 0.05$ and $CR \geq 1.96$. The complete result of model analysis was presented in Figure 1 and Table 7.
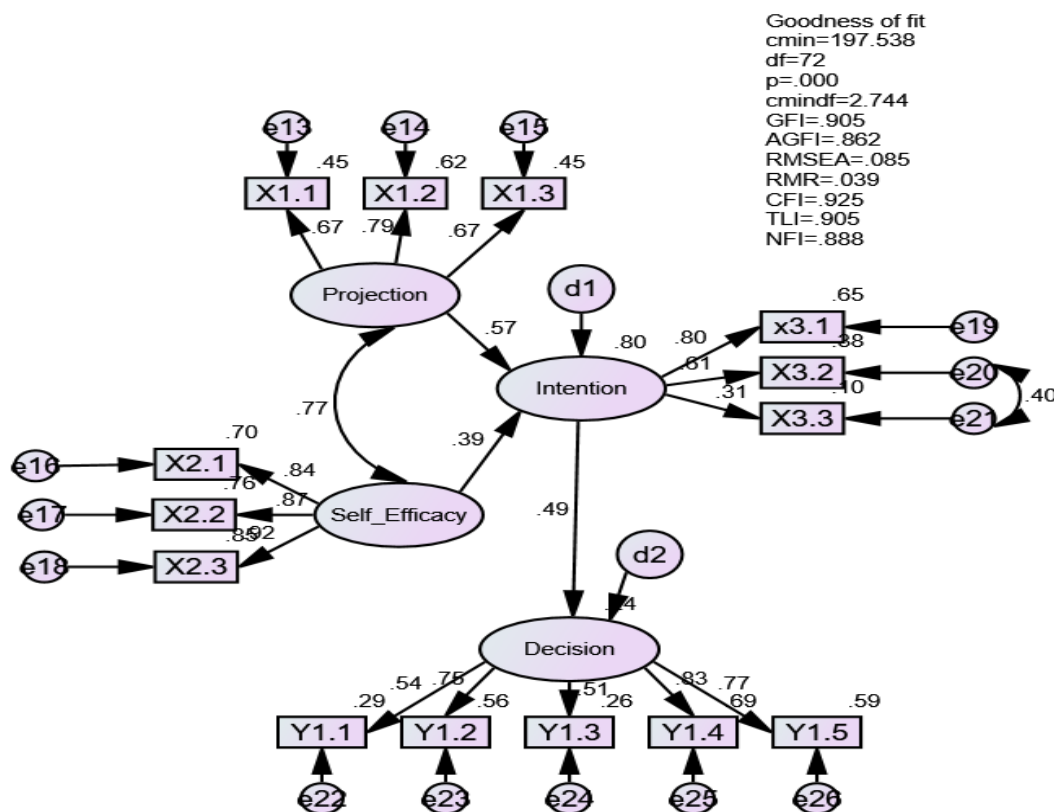

Figure 1. Model of Structural Equation

Figure 1 shows 3 significant pathways in the testing result model, presented in table 7.

Table 7.Influence among variables in the model.

Influence among latent variables (construct)	Structural coefficiency	CR	P	Information
Self efficacy→Intention	0.386	3.413	0.000	Significant
Projection→Intention	0.566	4.397	0.000	Significant
Intention→Decision	0.492	5.756	0.000	Significant

The analysis result in table 7 showed, there was an indirect influence of latent variable toward improvement of decision of performing VIA, such as:
1. Exogen variable of projection affects intention, and intention affects decision.
2. Self efficacy of exogen variable affects intention, intention affects decision.

Based on the hypothesis testing of the study, which is among variables (table 7.), then the hypothesis result of the study could be concluded as such:
1. There was a positive projection toward the intention of women of childbearing age to perform early detection of cervical cancer with VIA test.
2. There was positive influence of self efficacy toward the intention of women of childbearing age to perform early detection of cervical cancer with VIA test.
3. There was positive influence on the intention toward the decision of women of childbearing age to perform early detection of cervical cancer with VIA test.

DISCUSSION

The result of statistical analysis showed that there was positive influence of projection toward the intention of women of childbearing age to perform early detection of cervical cancer with VIA test. The indicator of projection in this study was the desire to maintain reproduction health of women of childbearing age, awareness toward cervical cancer, understanding early detection of cervical cancer with regular VIA. The finding of the study showed that there is less than half (46.3%) of participating women have comprehensive knowledge score from the composite score regarding vulnerable groups, risk factors, signs, symptoms, and methods of preventing cervical cancer.

This finding was lower compared to a similar study performed by Addis Ababa among women officers[6]. This was most probably caused by the participants' exposure to information through health professionals while they undergo regular service follow-up. This finding was also lower than the African cervical cancer study toward Osun and Lagos in Nigeria[7]. In the less-than-haf-society-based cross-sectional study, 254 (43.6%) participants believed that all women are at risk of developing cervical cancer while 216 (37.0%) among them did not know which women who are at risk of developing this disease.

This finding showed that participants with much lower awareness about the risk group if compared to another research finding in Ethiopia[8,9] and other countries[7,10]. This can be linked to the low attention given to media promotion, variation in provision of health information regarding cervical cancer and its exposure.

Furthermore, the difference in the socio-cultural condition, health education in the health facilities and intervention in other behaviors regarding prevention programs and cervical cancer control in Ethiopia. The majority of women of childbearing age were unable to mention the factors of cervical cancer risk. This misunderstanding was more reflected in this study compared to the study done in the North West of Ethiopia[9]. This can even become the impact of selection bias toward health information when they were attending health service regarding other contagious sexual infections. This finding was much more difficult compared to other research findings because the different measurement in some responses among studies. The difference between women's knowledge regarding citing early detection and medication and low health seeking behavior for screening can be explained by their inability to bring a behavioral change.

The result of statistical analysis showed that there was positive self efficacy toward the intention of women of childbearing age to perform early detection of cervical cancer with the VIA test. The indicators of self efficacy in this research were magnitude, generality, and strength.

In this research, there are only 32.7% of participants who have heard about cervical cancer and early detection of cervical cancer with the VIA test which detects cervical cancer, and only 15.5% of research participants have undergone an early detection on cervical cancer. Prevalence of the intention to perform early detection of cervical cancer was higher among those who reported risk perceptions toward cervical cancer, those who are not afraid to be diagnosed of having cervical cancer. One of the main findings of the research was the low women proportion who have undergone early detection of cervical cancer. The low proportion of service use, although with professional background can be linked to the risk perception of cervical cancer among qualified service users, just as it is shown in this study and was also similar to other findings from other places[11,12]. Another reason which probably explains the low desire to perform early detection of cervical cancer was the fear of cervical cancer diagnosis.

Based on the strategic plan of cervical cancer prevention and control in Uganda, 2010-2014, it was suggested that sexually active women have to undergo early detection of cervical cancer at least once in two years.

The social impact from other influential figures such as the couple who played the significant positive role in the intention to perform early detection of cervical cancer in this study. Stressing on the need to improve husbands' involvement in the early detection of cancer service[13,12]. Besides that, the health system in Indonesia has to be adjusted to accommodate men because the current system in many health facilities are oriented on women as far as they become bigger institutional obstacles, men's involvement is bigger[12]. Husbands' influence toward health search by women cannot be overly stressed on developing situation such as Uganda because mostly it is linked to its hierarchical and power influence between men and women which become the basic of some health decision-making aspects[13]..

One of the health-making decision aspects regarding early detection test is that decision was made when someone was well, opposed to the decision regarding medication which was taken while someone was ill. A woman needs to predict its impact if she is ill and the necessities to prevent it from happening. Therefore, belief, perception, and value of women are crucial in influencing their decision to undergo VIA test. The cognitive assessment such as viewing that prevention was better than recuperation, and having a higher risk of cancer were the factors which encourage women to undergo early detection of cervical cancer[14].

On the other hand, studies about obstacles for screening showed that women perceive themselves to have low risk to cervical cancer[8], hence they do not attend screening. Other beliefs and perceptions found significantly related is the belief that early detection of cervical cancer can prevent and detect cervical cancer[9], or can evaluate the general health status of the body[14]. Therefore, women who believe that cervical cancer can be prevented[15] or that they will have this disease if they undergo screening[16], hence they did not attend VIA test examination.

Many women associate VIA test with diagnostic test rather than screening test. Therefore, women who only search for screening while they possess the symptoms they perceive to be caused by reproduction health problems such as abnormal vaginal discharge or abnormal menstrual bleeding[15]. The cultural belief toward health management found to be the factor of women's health seeking behavior[13].

The statistical analysis showed that there was positive influence of intention toward the decision of women of childbearing age to perform early detection of cervical cancer with VIA test. Indicators of the intention in this research are willing to perform early detection of cervical cancer with VIA method, willing to try to perform early detection of cervical cancer with VIA method, reluctant to perform early detection of cervical cancer with VIA method.

Some studies in developing countries have reported that a huge proportion of women do not believe that they have the risk[17]. Although there were some differences in certain measurements, and knowledge insight regarding low early detection, either in villages or cities, groups report acceptance of high early detection if available. The result of the statistical analysis shows that there is positive influence of intention toward the decision of women of childbearing age to perform early detection of cervical cancer with VIA test. Indicators of intention of this study were willing to perform early detection of cervical cancer with VIA method, willing to try to perform early detection of cervical cancer with VIA method, reluctant to perform early detection of cervical cancer with VIA method.

Some studies in developing countries have reported that a large proportion of women do not believe that they have the risk[17]. Although there was difference in some measurements and knowledge findings regarding low early detection, either in villages or cities, groups report high acceptance of early detection if available. This corresponds to other countries with low resources in the sub-Sahara of Africa.

The low knowledge can influence the behavior toward early detection of cervical cancer with VIA or attitude towards cancer prevention[18]. In recent years, there were some references regarding psychosocial aspect of early detection of cervical cancer in countries of sub-Sahara of Africa[19] which reveal that awareness and knowledge regarding early detection of cervical cancer is quite low, but the intention to perform the test is high. Most of the studies had been done in the city or semiurban environments.

The recommendations from the health service and ratification by the government were two crucial requirements in order to undergo IVA test, and perceived obstacles such as cost and accessibility seem substantial[20]. Although women of childbearing age who have reported their own intention to accept the VIA test are high, their husbands / spouse acceptance toward early detection is lower. Women probably do not feel confident to speak on behalf of their partners; However, generally, it is suggested that women make most of the decision for their children's health in this context. However, when asked about decision making, women predicted that the decision to perform VIA test will be done by both the mother and the husband. Similar to other research findings in developing countries[21,22], the main obstacle for someone to undergo screening was the abscence of knowledge that the preventive screening test exists, followed by social economic factors.

CONCLUSION

The study concludes that the models of variable projection, self efficacy, and intention take effect on the decision to perform early detection of cervical cancer with the visual inspection with acetic acid.

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