

Intention towards the Early Detection of Cervical Cancer Uptake among University Students

Intensi Terhadap Deteksi Dini Kanker Serviks Pada Mahasiswa

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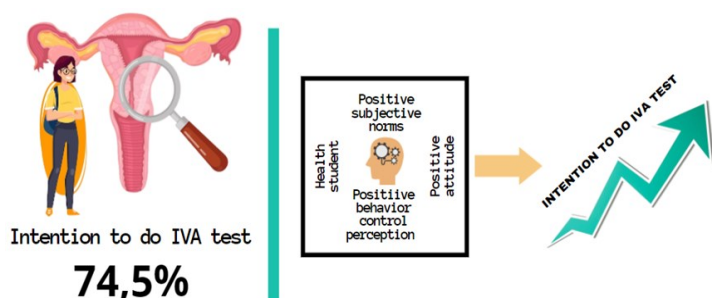
ABSTRACT

The intention to take the Visual Inspection of Acetic Acid (VIA) test, an early detection method for cervical cancer, in Indonesia is considerably still low due to the lack of both awareness and intention of cancer screening using the VIA test. In fact, the VIA test is a government's program aimed to prevent and to suppress the increasing number of cervical cancer. The purpose of this study was to determine the factors associated with the intention to take the VIA test among university students. This study applied a cross-sectional design with a sample size of 314 respondents. The respondents in this study were university students selected using a voluntary sampling technique. The data were collected by an online questionnaire (i.e., Google Form). Multivariate analysis used a logistic regression test. The proportion of respondents who had the intention to utilize the VIA test was 74.5%. The results of the multivariate analysis depicted that the intention to take the VIA test was associated with the health field of study (p -value: <0.001 ; $OR=3.09$; $95\%CI=1.72-5.54$) and positive attitude towards early detection of cervical cancer (p -value: <0.001 ; $OR=2.73$; $95\%CI=1.55-4.79$). The intention to take the VIA test was associated with the field of health studies, positive subjective norms, positive attitudes, and perceptions of positive behavioral control. Therefore, there should be a necessity for education, especially for non-health students onto the importance of taking the VIA test by utilizing educational facilities at their home universities.

ABSTRAK

Cakupan tes Inspeksi Visual Asam Asetat (IVA), suatu metode untuk deteksi dini kanker serviks, di Indonesia yang masih rendah dikarenakan kurangnya kesadaran dan intensi terhadap skrining dengan tes IVA. Padahal tes IVA merupakan program yang disediakan pemerintah untuk mencegah dan menekan angka kanker serviks yang terus meningkat. Tujuan penelitian ini untuk mengetahui faktor yang berhubungan dengan intensi dalam melakukan tes IVA pada mahasiswa. Penelitian ini menggunakan desain studi cross-sectional dengan besar sampel sebanyak 314 responden. Responden dalam penelitian adalah mahasiswa yang dipilih dengan teknik volunteer sampling. Pengumpulan data menggunakan kuesioner online (Google Form). Data dianalisis dengan analisis multivariat menggunakan uji regresi logistik. Proporsi responden yang memiliki intensi untuk melakukan tes IVA sebesar 74,5%. Hasil analisis multivariat menunjukkan bahwa intensi melakukan tes IVA pada mahasiswa dipengaruhi oleh bidang studi yang ditempuh yaitu bidang studi kesehatan (p -value: $<0,001$; $OR=3,09$; $95\%CI=1,72-5,54$) dan sikap positif terhadap deteksi dini kanker serviks (p -value: $<0,001$; $OR=2,73$; $95\%CI=1,55-4,79$). Intensi melakukan tes IVA pada mahasiswa berhubungan dengan bidang studi kesehatan, norma subjektif positif, sikap positif, dan persepsi kontrol perilaku positif. Oleh karena itu, perlu adanya edukasi khususnya kepada mahasiswa bidang studi non-kesehatan tentang pentingnya melakukan tes IVA dengan memanfaatkan sarana edukasi di lingkungan kampus.

GRAPHICAL ABSTRACT



Keyword

cancer screening
cancer early detection
cervical cancer detection
intention of screening
visual inspection of acetic acid

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INTRODUCTION

The lack of awareness on various risk factors and symptoms of cervical cancer may lead to both late diagnosis and poor prognosis. This would certainly affect the intention and participation in cervical cancer screening program which could have a long impact on the increase of the prevalence of cervical cancer (Majidi et al., 2017). In some developing countries, women's knowledge about cervical cancer and its prevention was still limited. The low uptake of screening was also regarded to be a problem in cervical cancer prevention program in developing countries (Touch & Oh, 2018). Previous studies, for instance, reported that merely 15% of women in India (Hussain et al., 2014) and 32% of women in Nepal (Johnson et al., 2014) were aware of Human Papillomavirus (HPV) screenings and vaccines.

The increased prevalence of cervical cancer in developing countries is owing to various obstacles in detecting cervical cancer at the pre-cancerous stage as well as inadequate cervical cancer treatment (Junita, 2020). These difficulties included inadequate in health facilities or interpersonal factors of the community within a country (Toliman et al., 2018). In addition, the increase in the prevalence of cervical cancer also occurs due to the lack of participation or concern for women of reproductive age in early detection of cervical cancer (Aprilla, 2019). In fact, the early detection of cervical cancer is a secondary prevention for cervical cancer (Bongaerts et al., 2021).

The early detection of cervical cancer recommended by World Health Organi-

zation (WHO) for developing countries is the Visual Inspection of Acetic Acid (VIA) test. The test has been known for its ease and simplicity in terms of equipment and methods, and the results obtained from the test are quick. The VIA test, in this case, was effective in reducing mortality and morbidity associated with cervical cancer because the VIA test could provide a clinical sensitivity ranging from 41%-92% (Karyus et al., 2020). However, the uptake of early detection with the VIA test in Indonesia was still considerably low (12.2%), and 84,185 women had been identified as positive VIA (Parapat et al., 2016). In 2018, the proportion of cervical cancer noticeably plunged from 1.3% to 1.8%. In addition, the high proportion of cervical cancer surgery (61.8%) indicates that cervical cancer is one of the most common cases of cancer (Globocan, 2020).

In Indonesia, the youngest age of cancer patients ranges between age of 20-39 years (Kamariyah et al., 2019). As precancerous lesions for cancer development may take 10-20 years (Oktem et al., 2018), the detection of cervical cancer needs to be as early as possible in order to identify such presence of the abnormal precancerous cells (de Rycke et al., 2020). Thus, the target of VIA test is highly recommended for women of reproductive age with minimum age of 20 years (Damayanti & Permatasari, 2021). In fact, a previous study revealed that cervical cancer screening was associated with age among university students. The reproductive age of 15-50 years is more likely to be infected with the HPV, the most important risk factor for cervical cancer

(Hirani et al., 2020). Another study suggested that the optimal age for cervical cancer screening was during women's reproductive periods, starting from the age of 20 years (Sukmawati et al., 2020). Thus, a low VIA screening could increase the risk of undetected cervical cancer at an early stage. Furthermore, the risk of cervical cancer increased up to six times particularly among women who did not routinely screen for cervical cancer (Castle et al., 2017).

The behavior to take the VIA test could be predicted by the intention to take the VIA test. The stronger the intention or desire of a person is, the more likely it is to perform the behavior (Dhaneswara, 2017). Decision making in the early detection of cervical cancer was considerably simple. However, there were some challenges from various factors in the cervical cancer early detection test (Sawaya et al., 2019). The determinants of a person's intentions towards the VIA test in the previous study showed that there were associations of the intentions, attitudes, and subjective norms with a woman's intention for VIA examination test (Anggraeni & Putriningrum, 2018). Moreover, previous study on association between the family support and the intention to uptake the VIA test found that there was a relationship between family support, included in the subjective norm, and the intention of a childbearing age woman (WUS) for cervical cancer screening with VIA test (Adyani & Realita, 2020).

In addition to the determinants of intention included in *Theory of Planned*

Behavior, knowledge also plays a role in decision making in VIA test screening (Sidabutar et al., 2017). The results of another study also showed a relationship between the level of individual knowledge and the intention to take the VIA test (Sundari & Setiawati, 2018). Knowledge regarding cervical cancer was not beneficial, even in higher education level. In line with this, a previous study suggested that 60% of the total 98.2% respondents who had higher education level did not know information about cervical cancer or the type of screening. The respondents in the study were not from the field of health studies which later caused a lack of information related to early detection of cervical cancer (Nwabichie et al., 2018).

Several studies have suggested regarding the intention of early detection of cervical cancer. For instance, a study conducted by Getahun et al. (2020) in Debre Berhan Town, Ethiopia showed that the intention to uptake the VIA test in women of childbearing age was still low by 71,3%. Additionally, the results of the previous study indicated that women with positive intentions had a higher VIA screening test (Jufri & Katmini, 2021). In 2018, the statistics of cervical cancer screening in Indonesia only reached 7.3% out of the target of approximately 37 million women aged 30-50 years (Aoki et al., 2020). To increase the target of early detection with the VIA test, sufficient information about the intentions of adolescents regarding the VIA test is necessary. In this study, the relationship of early cervical cancer intentions was investigated using the Theory of Planned Be-

havior (i.e., subjective norms, behavioral control perspectives, and attitudes in female students). Furthermore, this study was aimed at assessing the factors associated with the intention to take the VIA test among university students.

METHODS

This study applied a descriptive quantitative analysis method with a cross-sectional study design. The respondents in this study were students of Universitas Islam Negeri Syarif Hidayatullah (Islamic State University of Syarif Hidayatullah) Jakarta selected by a non-probability voluntary sampling technique. The sample size in this study was calculated using the two-proportion difference test formula, with a test power of 95% and a degree of significance value of 5%. Based on this calculation, the required minimum sample size was 314 respondents. The inclusion criteria for this study were active students of UIN Syarif Hidayatullah Jakarta aged 20 years and over, with no experience of taking a VIA test, and more importantly their willingness to be involved as respondents.

The data in this study were collected utilizing a google form questionnaire distributed online via social media from 12th to 26th October, 2021. The questionnaire used in this study was tested for its validity and reliability. The reliability tests were 0.689 for attitude variable, 0.624 for subjective norms, 0.612 for perceived behavioural control, and 0.651 for knowledge. This study was approved by the Research Ethics Committee of FIKES UIN Syarif Hidayatullah Jakarta under the letter number Un.01/F.10/

KP.01.1/KE.SP/10.08.016/2021. The respondents gave informed consent before participating in the study. The information collected included the characteristics and various factors that may influence the intention to take the VIA test. Information on respondent characteristics included age, average income of mothers and fathers, and field of study.

The independent variables in this study were the field of study, subjective norms, attitudes, perceptions of behavioral control, knowledge, and the average income of mothers and fathers. The dependent variable in this study was the intention to take the VIA test. The intention to the VIA test was categorized into both intentional and non-intentional. Respondents whose answers were “*really do not want to*”, “*do not want to*”, “*maybe do not want to*”, and “*maybe want to*” were categorized as having no intention to the IVA test. Respondents whose answers were “*want to*” and “*really want to*” were then categorized as having the intention to the IVA test.

The variables of subjective norms, attitudes, and perceptions of behavioral control were divided into two categories. It was considered as positive if it had a Likert scale measurement score $>$ mean and negative if the score was \leq mean. The variables of the average income of mothers and fathers were divided into three categories, namely low, medium, and high. Low category if the average income of father and mother is around $<$ IDR 2,000,000, medium category if the average income of father and mother is IDR 2,000,001 - IDR 4,000,000, and further high category if the average in-

Table 1*Distribution of Factors Associated With The Intention To Take The VIA Test*

Variables	n	%
Field of study		
Health	150	47.8
Non-health	164	52.2
Subjective Norms		
Positive	196	62.4
Negative	118	37.6
Attitude		
Positive	168	53.5
Negative	146	46.5
Behavioral control perception		
Positive	224	71.3
Negative	90	28.7
Knowledge		
Good	259	82.5
Bad	55	17.5
Average income of mother and father		
High	68	21.7
Medium	132	42.0
Low	114	36.3
Intention to IVA test uptake		
Yes	234	74.5
No	80	25.5

come of father and mother is IDR 4,000,000 (Badan Pusat Statistik, 2020).

This study used IBM SPSS Statistics Version 25 software to perform univariate, bivariate and multivariate analysis. The frequency distribution of the variables was assessed by univariate analysis. Furthermore, bivariate analysis was carried out using the chi-square test to observe the relationship between variables, as well as the initial stage of conducting multivariate analysis. Meanwhile, multivariate analysis used logistic regression test to examine the relationship of two or more variables simultaneously and to determine which variables had the most influence on the intention to the VIA test uptake.

RESULTS

Table 1 illustrates the distribution of factors associated with the respondents'

intention to the VIA test from the univariate analysis. Out of the 314 respondents, there were 52.2% respondents with non-health field of study. There were a total of 62.4% of respondents with positive subjective norms, 53.5% respondents had a positive attitude, 71.3% respondents had a positive behavioral control perception, 82.5% respondents had good knowledge related to the VIA test, 42% respondents had an average maternal income and moderate fathers, and 74.5% respondents had the intention to take the VIA test.

Table 2 of the results of the bivariate analysis depicts that the field of study, subjective norms, attitudes, and perceptions of behavioral control were statistically significant associated with the intention to take the VIA test. Most of the respondents in the field of health studies had the intention to take the VIA test as much as 55.1%

Table 2
Results of Bivariate Analysis

Variables	Intention to Take VIA Test				<i>p-value</i>
	Yes, n = 234		No, n = 80		
	n	%	n	%	
Field of study					
Health	129	55.1	21	26.3	<0.001
Non health	105	44.9	59	73.8	
Subjective Norms					
Positive	155	66.2	41	51.2	0.023
Negative	79	33.8	39	48.8	
Attitude					
Positive	143	61.1	25	31.3	<0.001
Negative	91	38.9	55	68.8	
Behavioral Control Perception					
Positive	174	74.4	50	62.5	0.046
Negative	60	25.6	30	37.5	
Knowledge					
Good	195	83.3	64	80.0	0.499
Bad	39	16.7	16	20.0	
Average income of mother and father					
High	81	34.6	33	41.3	0.536
Medium	100	42.7	32	40.0	
Low	53	22.6	15	18.8	

with a *p-value* <0.001. This indicated that there was a significant relationship between the field of study and the intention to take the VIA test. Most of the respondents with positive subjective norms had the intention to take the VIA test as much as 66.2% with *p-value* of 0.023, which indicated that there was significant relationship between positive subjective norms and the intention to take the VIA test. Most of the respondents with a positive attitude had the intention to take the VIA test as much as 61.1% with *p-value* <0.001 indicating that there was significant relationship between a positive attitude and the intention to take the VIA test. Most of the respondents with positive behavioral control perceptions had the intention to take the VIA test as much as 74.4% with a *p-value* of 0.046 indicating that there was a significant relationship between the positive behavioral control perception and the intention to take the VIA test. In addition, most of the respondents with good

knowledge had the intention to take the VIA test as much as 83.3% with *p-value* of 0.499 indicating that there was no significant relationship between knowledge and the intention to take the VIA test. The variable of the average income of the father and mother did not have a significant relationship with the intention to take the VIA test with a *p-value* of 0.536.

The multivariate analysis in Table 3 shows that the field of health studies and positive attitudes have significant relationships with the intention to take the VIA test. The variable in the field of health studies had a *p-value* <0.001 with an OR = 3.09 (95% CI: 1.72–5.54). These results suggested that respondents with health studies had a 3,09 times chance of having the intention to take the VIA test as compared to non-health students. The positive attitude variable had the *p-value* <0.001 with OR = 2.73 (95% CI: 1.55-4.79). These results indicated that respondents with a positive atti-

Table 3
Results of Multivariate Analysis

Variables	S.E	OR (95% CI)	<i>p-value</i>
Field of study			
Health		3.09 (1.72–5.54)	<0.001
Non Health	0.29	1.00 (Reference)	
Attitude			
Positive		2.73 (1.55–4.79)	<0.001
Negative	0.29	1.00 (Reference)	
Subjective norms			
Positive		1.68 (0.84–3.35)	0.144
Negative	0.35	1.00 (Reference)	
Behavioral control perception			
Positive		1.09 (0.53–2.24)	0.819
Negative	0.34	1.00 (Reference)	

tude had 2,73 times the opportunity to have the intention to take the VIA test as compared to respondents with a negative attitude. In the positive subjective norm variable, the *p-value* was 0.144 with OR = 1.68 (95% CI: 0.84-3.35). This showed that respondents with positive subjective norms were 1,68 times more likely to have the intention to take the VIA test as compared to respondents with negative subjective norms. In the positive behavior control perception variable, the *p-value* was 0.819 with OR = 1.09 (95% CI: 0.53-2.24). This showed that respondents with positive behavior control perceptions had a 1,09 times chance of having the intention to take the VIA test as compared to respondents with negative behavioral control perceptions.

DISCUSSION

The results of this study showed that the majority of the respondents had the intention to take the VIA test. This finding was similar to the results from a previous study reporting a higher proportion of intention to take the VIA test among university students (Aprilla & Purwana, 2019).

The intention became the cognitive and conative representation if the individual had an intention regarding specific objective which would affect the behavior towards the intended object or goals. The research conducted by Anggraeni & Putrin-ingrum (2018) showed the relation between the intention and the VIA test, indicating females with a higher intention were willing to take VIA test as compared to those with a lower intention.

The field of study had a dominant link towards the intention to take the VIA test. Individuals coming from health-field of study would be affected by their competent level of health education, consequently affecting their intention to take the VIA test. Prior research had shown that level of education could become a factor affecting an individual in regard to their increased knowledge about health issues (Sidabutar, 2018). In line with this, a higher education level facilitated their easiness to gather information (Widayanti et al, 2020). In contrast, lower education level would hamper the acquisition of information and the understanding of the updated implemented

value (Livana, et al., 2018). The high level of education regarding health would affect health behaviors (Wati & Ridlo, 2020). An individual would be compelled to take VIA testing if the individual realized the importance of VIA test (Mulyati et al., 2015). The finding of this study was in line with the results from a previous study, reporting that a high level of health education had an impact on the individual's decision or choices to take the VIA test (Rachmawati et al., 2020; Sidabutar, 2018). On the other hand, a previous study reported an association with non-health study background might explain that the exposure of information does not only come from knowledge gained through formal education, but mother's knowledge and friends' support can also play a significant role to a person's positive behavior towards disease prevention (Parapat et al., 2016).

The average income of the father and mother in this study suggested that there was no significant relationship with the intention to take the VIA test. A previous study also showed no noticeable relationship between women's participation in the VIA test and their family income (Jessica et al., 2016). There was no relationship between family income and the intention to take the VIA test according to the fact that women's knowledge about cervical cancer is still low. High family income does not always trigger a person to behave well towards his health. Although early cervical cancer detection with the VIA test is relatively easy, inexpensive, and only requires simple tools, the lack of information that women get can be a reason for not having

the intention to carry out an examination (Jessica et al., 2016).

The *Theory of Planned Behavior* is one of theories that combines social influence and personal factors in determining behavior. Social influence is mostly defined as subjective norms where a person's belief is strongly influenced by others. The result of this study showed 66,2% respondents had positive subjective norms and the intention to take the VIA test. This finding was similar to the finding that the majority of respondents had positive subjective norms and associated with cervical cancer in early detection. Moreover, 33,8% respondents in this study had positive subjective norms but they did not have the intention to take the VIA test. This finding supports the result from a previous study showing that 30% respondents had positive subjective norms but did not have the intention to uptake the VIA test (Anggraeni & Putriningrum, 2018).

In this study, many university students had positive attitudes towards the VIA testing which was shown by the proportion of 53,5% and had a dominant relationship with individual's intention to take the VIA test. The results were in line with the previous study reporting a relationship between positive attitudes with the individual's intention to take the VIA test (Indrayani et al., 2018). Positive attitudes in this study had a higher proportion as compared to the negative attitudes, which showed that a large proportion of the respondents knew the benefits of the VIA testing. Based on the Theory of Planned Behavior, a positive attitude was formed by a good past assessment.

Attitude was considered as a significant factor that affected females in their choices to take the VIA test (Jufri & Katmini, 2021). Positive attitude increased the chance of a female to take the VIA testing up to 5 times (Anggraeni & Putrin-grum, 2018). The finding of this study regarding the attitude toward the intention to take the VIA test was in line with the prior study conducted by Monica & Ulfa (2020), reporting that respondents who had negative attitudes had 3,8 times the risk of not taking VIA test. The interpretation and evaluation of one's feeling could be shown by one's attitude. The attitudes towards objects could be disclosed with supporting feelings (favorable) and unsupporting feelings (unfavorable).

The females' attitude regarding the VIA test could be affected by a wide range of factors (Monica & Ulfa, 2020), including the perception which affected thought, aspects, belief, and emotion. There all were important in building an individual's perception. Perception was one of the main components to build one's attitude. The formation of belief became the foundation of an individual perception regarding what was hoped from the objects of attitudes. Apart from being affected by perception, the attitudes of females regarding the VIA test could also be affected by their attitude's sources (Monica & Ulfa, 2020). The attitude sources were driven from personal experiences or information experiences that they have obtained. Based on the results of this study, it showed that most respondents already had adequate knowledge regarding the VIA test or cervical cancer, which

could be the reason for the positive attitudes.

A person's positive attitude towards the VIA test could also be influenced by knowledge (Fridayanti & Laksono, 2018), thus development regarding the provision of health information about early detection of cervical cancer was important to increase respondents' knowledge of cervical cancer screening, including the VIA test. At the end, respondents who received health information from mass media could achieve recommended knowledge (Lubis et al., 2021). A research conducted by Titisari et al. (2017) also showed the same result that a positive attitude could be related to knowledge. A person with good knowledge regarding cervical cancer screening and the VIA test had a positive attitude towards cervical cancer screening using the VIA method (Titisari et al., 2017). Some of the advantages of cervical cancer screening using the VIA method included its technical simplicity, which allowed it to be carried out by trained health workers. This case, it provided low cost and efficient results.

Social influences such as from peers, parents, and mass media could be an influence on the formation of personal attitude. Attitude was an important factor in shaping behavior for the VIA examination. The relationship between attitude and behavior referred to an individual's assessment of the benefits and harms obtained when performing certain action. When individuals felt the benefits or advantages of certain behaviors were good for themselves, they could form positive beliefs and

attitudes based on their assessment of carrying out these actions. However, if the individual considered that such behavior could cause harm, then negative beliefs and attitudes would be formed to not perform the action, meaning that attitudes influenced a person in making decisions to perform certain behaviors (Dhaneswara, 2017). Furthermore, this study found that positive attitude was associated with the intention to take the VIA test. This finding was similar with a previous study showing a significant relationship between positive attitude and intention for health behavior, indicating that the more positive a person's attitude, the more positive intentions in carrying out the health behavior (Yzer & Putte, 2014). However, the intention is the result of the interaction between perceived control, attitude, and subjective norms. Thus, there is still a small chance if negative attitude has positive intention, so called 'cross-over' interaction (Yzer & Putte, 2014).

The perception of behavioral control is a person's belief to making decisions based on internal or external factors (Wiranita, 2019). This study showed that 71,3% respondents who had a positive behavioral control perception had the intention to cervical cancer in their early detection. Previous study found that up to 59,6% of the respondents had a positive behavioral control and intention to take the VIA test (Wollancho et al., 2020). The perception on behavioral control is a factor that shapes a person's intention to early detection and it is related to self-confidence to take action (Abamecha et al., 2019).

CONCLUSIONS

The majority of respondents had the intention to take the VIA test. This study showed that the field of study, subjective norms, attitudes, and behavioral control perception were related to the intention to take VIA test. The dominant variables were the field of study and attitude variables. Respondents who took the field of health studies were three times more likely to have the intention to take VIA test. In addition, a positive attitude could affect a respondent's intention to take the VIA test up to 2 times greater than those who had a negative attitude.

This study in fact has some limitations. The cross-sectional design used in this study, for instance, could not explain the cause-effect relationship. Moreover, an online data collection has limitations, such as only participants who had access to social media who could participate in filling out the questionnaires. This study suggest the authorized agencies or universities to improve health promotions regarding the importance of the VIA test for cervical cancer prevention in order to increase the VIA test uptake. Meanwhile, future studies are recommended to use a different study design that could explain the causal relationship, such as a cohort study design. Finally, it is expected that the forthcoming studies can further investigate other factors that influence women's behavior in conducting the VIA test.

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