

Patients' Perception Using Digital Documentation In Visual Inspection With Acetic Acid For Cervical Cancer Screening

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Abstract

Background: Digital images of the cervix with or without magnification can be used for better visualization of cervix so that it can improve the accuracy at the time of examination. This study aims to determine the patients' perception using digital documentation in VIA for cervical cancer screening.

Methods: The cross-sectional study was conducted in Dr. Cipto Mangunkusumo General Hospital Jakarta from October to November 2021 to determine the patients' perception after using digital documentation in VIA. A validated questionnaire was given to subjects before and after digital documentation for cervical cancer screening. The data were distributed descriptively for characteristic demography and paired T-test was used for the ordinal variables in the pre- and post- IVA screening questionnaires. All p-values were 2-tailed, and the significance level was set to <0.05.

Results: The 958 participants were included as the sample. There were significant improvements observed on patients' perceptions after seeing digital documentation during visual acetic acid inspection. Most subjects never had previous cervical cancer screening because they did not know about cervical cancer screening.

Conclusion: With the documented VIA, subjects' perception toward cervical cancer screening is increasing in good manner. The most frequent causes of subjects did not undergo cervical cancer screening due to unknown information about cervical cancer screening, do not know the location of cervical cancer screening place, and do not know the benefit of cervical cancer screening.

Keywords: Cervical cancer screening; documented; perception; prevention

Introduction

High incidence and mortality rate of cervical cancer in the world (13.3 and 7.3 per 100,000) impacts to clinical and economic burden¹. In Indonesia, there are 99.8 million-women aged 15 years and older who are at risk of developing cervical cancer. Cervical cancer ranks as the second most frequent cancer among women in Indonesia and also among women between 15 and 44 years old². In 2011, the Indonesian government spent about US\$2.5 million for cervical cancer treatment only for low and middle social economic population which are covered by Universal Health Coverage (UHC)³. In India, a significant reduction in cervical cancer mortality was shown after single round of HPV testing or visual inspection with acetic acid (VIA) screening⁴.

Visual inspection with acetic acid (VIA) is a simple, inexpensive test with moderate sensitivity and specificity for screening that can be continued into simple treatment procedures for early cervical lesions. It is feasible in many low-resource areas where it is difficult to sustain high-quality cytology programs⁵. Actually, VIA has important limitation namely subjectivity and lack of quality control. Quality of healthcare workers' training is important for the success of method. Therefore, developing strategies to facilitate training and supervision is important to reduce false-positive rates and increase detection of real positive cases^{5,6}.

Digital imaging after VIA can be an alternative to increase the quality control. Digital images of the cervix with or without magnification can be used for better visualization of cervix so that it can improve the accuracy at the time of examination. Besides, digital images can be used as quality control, teaching material for students to practice in interpretation of VIA, and device to explain to the patients⁷. This study aims to determine the patients' perception using digital documentation in VIA for cervical cancer screening.

Methods

The cross-sectional study was conducted in Dr. Cipto Mangunkusumo General Hospital Jakarta

from October to November 2021 to determine the patients' perception after using digital documentation in VIA. A validated questionnaire was given to subjects before and after digital documentation for cervical cancer screening. We included women who voluntary registering to VIA screening during the period and willing to participate in this study. Incomplete questionnaire for pre- and post- VIA screening and no cervical digital documentation were excluded from this study.

The questionnaire consisted of 5 characteristics demography and 6 questions focused on patients' perception before and after VIA for cervical cancer screening. Characteristic demography consisted of age, level of education, origin of patients, number of previous pregnancies, and history of cervical cancer screening. Meanwhile, 6 questions focused on patients' perception were distributed into ordinal scales. They were 1 for not necessary, 2 for maybe necessary, 3 for necessary, and 4 for very necessary.

A sample size of 97 was expected to have a confidence interval of 95% and power of 90%. All participants were recruited by consecutive sampling. The data were distributed descriptively for characteristic demography and paired T-test was used for the ordinal variables in the pre- and post- IVA screening questionnaires. All p-values were 2-tailed, and the significance level was set to <0.05. SPSS 21.0 for Windows was used for all analyses. This study has been approved by The Ethics Committee of Faculty of Medicine, University of Indonesia under number KET-1195/UN2.F1/ETIK/PPM.00.02/2021.

Results

Between October and November 2021, there were 1,481 participants of cervical cancer screening by VIA held by Dr. Cipto Mangunkusumo General Hospital (RSCM). From the 1,481 participants, 523 participants were excluded because they either did not complete pre and post questionnaire or did not have their cervix visualized using digital documentation.

The remaining 958 participant included as the sample in this study has a mean age of 44.43 ± 10.99 years old. As many as 79.0 % of the samples had graduate degree and 19.2 % had high school degree. Meanwhile, only 1.1 % of the samples whose last degree was junior high school, 0.5 % only graduated from elementary school, and 0.1 % did not have any formal education. Majority of the samples were from the community (76.2 %), while 21.7 % of the samples were employee of RSCM and 2.1% were the wives of RSCM employee.

Most of the subjects had multiple pregnancy, with as many as 571 (59.6 %) subjects had been pregnant for 2 to 4 times and 48 (5%) had more than 4 pregnancies. On the other hand, 169 (17.6 %) only had one pregnancy and 170 (17.7) subjects had never been pregnant. Almost half of the subjects (50.2%) had never had any cervical screening previously. The detailed characteristics can be seen in table 1.

Table 1. Characteristics Demographic of Respondents

Characteristics	Subjects (n=958)
Mean age \pm std dev (years)	44.43 ± 10.99
Age range	
15 – 25 (%)	33 (3.4)
26 – 35 (%)	67 (6.9)
36 – 45 (%)	239 (24.9)
46 – 55 (%)	483 (50.4)
>55 (%)	136 (14.2)
Level of education	
None (%)	1 (0.1)
Elementary school (%)	5 (0.5)
Junior high school (%)	11 (1.1)
Senior high school (%)	184 (19.2)
University (%)	757 (79.0)
Origin of patients	
RSCM employee (%)	208 (21.7)
Wives of RSCM employee (%)	20 (2.1)
Community (%)	730 (76.2)
Number of previous pregnancies	
Never (%)	170 (17.7)
1 time (%)	169 (17.6)

2-4 times (%)	571 (59.6)
>4 times (%)	48 (5.0)
History of cervical cancer screening	
No (%)	481 (50.2)
Yes (%)	464 (48.4)
VIA result	
Positive (%)	52 (5.4)
Negative (%)	906 (94.6)

There were significant improvements observed on patients' perceptions after seeing digital documentation during visual acetic acid inspection. Ordinal scale between 1 to 4 was implemented to rate patients' perceptions. For the questionnaire of "in my opinion cervical cancer screening is ...", subjects' perceptions increased from 3.48 to 3.64 after seeing cervix documentation (p value <0.05). Meanwhile, for the questionnaire of "visual acetic acid inspection can detect abnormalities in cervix", subjects' perceptions increased from 3.30 to 3.58 after seeing cervix documentation (p value <0.05). Furthermore, for the questionnaire of "in my opinion, visual acetic acid inspection to screen for cervical cancer is ...", subjects' perceptions increased from 3.47 to 3.65 after seeing cervix documentation (p value <0.05). Similarly, for the questionnaire of "the explanation given regarding cervical cancer screening make me understand its

benefits", subjects' perceptions increased from 3.34 to 3.57 after seeing cervix documentation (p value <0.05).

For the questionnaire of "the explanation given regarding cervical cancer screening make me think that it is important and make me willing to regularly screen for cervical cancer", subjects' perceptions increased from 3.32 to 3.57 after seeing cervix documentation (p value <0.05). Lastly, for the questionnaire of "if next year I am invited for cervical cancer screening, I will definitely come", subjects' perceptions increased from 3.35 to 3.52 after seeing cervix documentation (p value <0.05). The results of the perception can be seen in table 2.

Table 2. Change of patients' perception after seeing cervix documentation by femicam during visual acetic acid inspection

Questionnaire	Study group (n=958)		
	Pre	Post	P value
In my opinion, cervical cancer screening is:			
1 = not necessary	1	0	
2 = maybe necessary	25	2	
3 = necessary	442	345	
4 = very necessary	490	611	

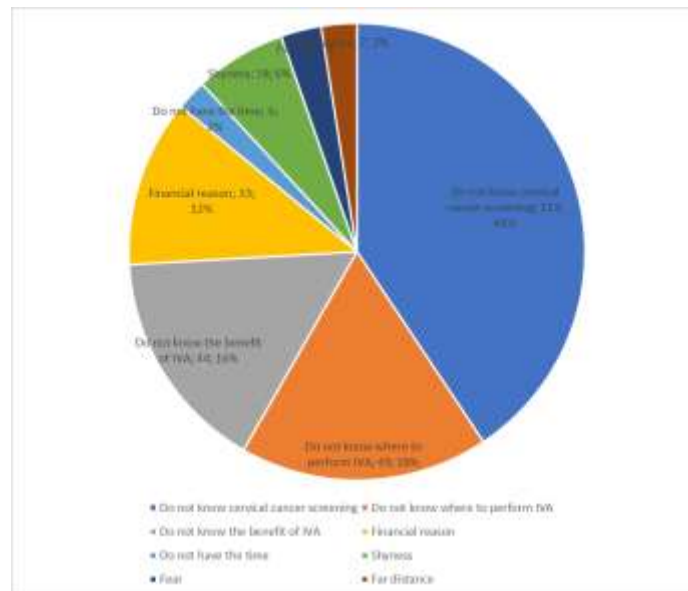
Mean	3.48	3.64	<0.05*
Visual acetic acid inspection can detect abnormalities in cervix:			
1 = not true	1	1	
2 = maybe true	40	3	
3 = true	584	394	
4 = very true	333	560	
Mean	3.30	3.58	<0.05*
In my opinion, visual acetic acid inspection to screen for cervical cancer is:			
1 = not important			
2 = maybe important	0	0	
3 = important	20	1	
4 = very important	466	331	
Mean	472	626	
The explanation given regarding cervical cancer screening make me understand its benefits:			
1 = not true			
2 = maybe true			
3 = true	0	2	
4 = very true	24	7	
Mean	581	391	
The explanation given regarding cervical cancer screening make me think that it is important and make me willing to regularly screen for cervical cancer:			
1 = not true	353	558	
2 = maybe true	3.34	3.57	<0.05*
3 = true			
4 = very true			
Mean	1	0	
If next year I am invited for cervical cancer screening, I will definitely come:			
1 = not true	29	3	
	590	408	
	338	547	

2 = maybe true	3.32	3.57	<0.05*
3 = true			
4 = very true			
Mean	0	0	
	43	18	
	537	424	
	378	516	
	3.35	3.52	<0.05*

The reasons on why subjects never had cervical cancer screening previously was answered by 278 out of 481 subjects who has no history of cervical cancer screening can be seen in graphic 1. As many as 113 (41%) subjects never had previous cervical cancer screening because they did not know about cervical cancer screening. Meanwhile, the second most common cause was not knowing where to perform cervical cancer

screening with 49 answers (18%), followed by not knowing the benefit of cervical cancer screening with 44 answers (16%). Other reasons include financial reasons with 33 answers (12%), shyness with 18 answers (6%), fear with 8 answers (3%), far distance with 7 answers (2%), and no time with 6 answers (2%).

Graphic 1. Reasons on why subjects never had cervical cancer screening previously



Discussion

Cervical cancer is a preventable disease which still has a high prevalence and high mortality. Because of this condition, the reduction of cervical cancer especially in developing country need an

important strategy such as strengthening the screening and early detection process. The screening can be achieved in women at risk such as already had sexual intercourse in early age, in mid age (30-40 years old).The current condition in

Indonesia shows that screening and early detection number is still low under targeted number by WHO and caused by low of awareness about cervical cancer. Based of this problem, we conducted a study to assess the patient's perception using digital documentation in visual inspection with acetate.

Based on Study in Kenya, understanding what woman think and know about the screening of cervical cancer is important as primary and secondary prevention strategies. There is a previous study across the world stated that the knowledge of HPV, HPV vaccination, cervical screening, and cervical cancer risk factors is need to be increased. Intention to get screened by using VIA and receive HPV vaccine has also associated with knowledge of cervical screening and cervical cancer risk factors. Strategy of health promotion and prevention should be focussed on understanding women's knowledge of risk factors, symptoms of cervical cancer and also increasing patient's awareness to receive health control by providing more information about cervical cancer.⁸

From this study results, the patients who received direct explanations and descriptions of the documented VIA had a better perception of taking cervical cancer prevention measures by screening. The result shows that participant knowledge of the definition of cervical cancer (increase to 3.64 from 3.48), what kind of lesion or abnormalities can be detect by visual inspection acetate (increase to 3.58 from 3.30), the purpose of VIA which is screening cervical cancer (increase to 3.65 from 3.47), and the benefit of VIA screening (increase to 3.57 from 3.44). The explanation given by showing the result of examination from digital device makes participant understand the importance of VIA screening. It is also seen that they are more willing to undergo re-screening examinations in the following years.

This is in accordance with a study in Ghana, that knowledge about cervical cancer, how it is screened, cervical cancer severity and benefits of cervical cancer screening can significantly and positively increase awareness behaviour of cervical cancer screening⁹. The same thing was also shown by other studies which stated the importance of factual knowledge of cervical

cancer for the effectiveness of cervical cancer screening promotion in reproductive age¹⁰⁻¹².

The reasons obtained from the subject who previously had never been screened for cervical cancer were because she did not know about cervical cancer including its screening, followed by not knowing the place where the examination was performed, and what is the benefits of cervical cancer screening. This is similar with previous studies which showed that lack of knowledge of cervical cancer and its screening, did not know where to go for screening, fear of undergoing the examination and fear for the results, and limited funds were obstacles to the success of cervical cancer screening¹³⁻¹⁶

Our study showed majority of respondents having high level of education. According to previous study in India, it is postulated that higher level of education aids in knowledge of cervical cancer, thus promoting awareness for cervical cancer screening. Education regarding cervical cancer should be highlighted as important factor promoting successful cervical cancer screening. It is also stated that majority of respondents who had not performed screening showed fear and misconception towards cervical cancer¹⁷

Contrary to the findings in India, another study in Kenya showed high level of education and knowledge of cervical cancer with low rate of cervical cancer screening. In this study, women who know about cervical cancer and know how the cervical cancer screening is done and where the place should they go are less likely to be screened in the facilities. The explanation of this condition because the patient already know that the screening involve a pelvic examination and they think this pelvic examination is an invasive procedure, possibly painfull and cultural insensitive. Some experience with pelvic exams and screening tests may be reassuring women, since when women have accepted repeated pelvic exams, this concern diminished. Cultural acceptability concerns, however, while diminished are still present and highly variable. We also find from the study that whether a woman accept screening herself is not associated with what the recommendation she would make for her family member. This occurred due to respondents fearing the screening procedure and knowing the

diagnosis. Further education method needs to be tailored to increase the interest in cervical cancer screening⁸

Knowledge is being aware or perceptive, and this occurs once a person or people tend to sense a certain object. Most human knowledge is acquired through eyes and ears and processed to form a person's behaviour. The mother knowledge includes everything and the need to know on cervical cancer and visual inspection acetate test. A people knowledge is not only received from formal education, but it is also acquired through mass media including electronic media, the environment, and individual experience. Women need to have good knowledge of cervical cancer and visual inspection acetate because it is the most common gynecological carcinoma. This aids them to take preventive measures and treatment for those diagnosed with cervical cancer.¹⁸⁻²¹

This study showed majority of respondents in age range 46 – 55 years old. Its very different with a study in Ethiopia stated respondents in age range 21 – 25 years old having significantly broader knowledge of cervical cancer compared to other age groups, being 6 times more knowledgeable than other age groups²².

Study in Surabaya showed that 66.7% respondents had supportive attitude towards the Visual Inspection Acetate examination. Factors such as economic status, education, occupation, and culture tend to affect the knowledge about Visual Inspection Acetate examination and fear of being diagnosed with cervical cancer during the test. It was discovered that this was common among mothers who never participated in the screening examination, so it is become norm in the community not to check or do the cervical cancer screening.^{18,23}

To increase awareness and importance of cervical cancer screening, we need to increase the sensitization of the importance of screening by promotion and education. It is also important to increase access to cervical cancer screening services in the community, and address problems such as long distances to healthcare facilities and high cost of transportation. Hence it is necessary to provide from cervical cancer screening services in primary health care facilities. Integrating

cervical cancer screening services with female services that are already widely spread, such as antenatal care and family planning services¹⁵.

Other problems that may affect the reluctance of cervical cancer screening in population is the low capacity of screening services, the length of waiting time that causes distressed in patients and health workers. In addition, the shyness factor may also be a big problem. Hence we need skilled female health workers to perform screening. The various age of health workers from the young to the old may also affect the willingness of patients to undergo cervical cancer screening. This has been proven in several previous studies^{13, 24, 25}

Study in Morocco was participated by 324 womens showed an increasing satisfaction levels on the patients after the cervical cancer screening program. Most of the women (98.6%) said highly satisfied or satisfied with this cancer screening program and this condition encourage them to be screened regularly. Satisfaction level measured by several condition such as the schedule of screening program, the skill of health personel (doctors and nurses) that conduct the visual acetate inspection (97%),reception that received (97.3%), and the duration of the visit (86%). Result said the health professionals used intelligible word in 95.4%. regarding the VIA test procedure, the majority of women (97%) were satisfied with the information provided, and the time allotted to these explanation. In facility aspect, all women satisfied with the examination rooms that offered enough privacy, material and equipment used was clean. According to this study, good perception of the patient influenced by several aspects include health professional skill, time of the screening, facility and material. These factors should be guaranteed in the VIA program to give good experience to the patient and they will regularly undergo the screening.²⁶

Participants in Marocco study said the convenience and comfort while post screening after Visual Acetate Inspection especially those who had the negative result test. The participant felt reassured about the health of their cervix and they were happy to have a free test with quick result. There are no complain that reported in the study participants.^{27,28} Some screened participant reported felt a sensation of stinging or burning in

their vagina caused by diluted acetate acid. But surprisingly there is no report either having vaginal discharge after visual inspection acetate test been demonstrated. This observation may be explained by the provider respect the standards of hygiene and sterilization of the instruments.²⁹ Despite of the high satisfaction result, the participant in Marocco suggest further improvement in the reception conditions (waiting room, Cleanliness chairs), the availability of skilled staff and reduction in the waiting time. Women's satisfaction guarantees trust and greater participation of women in the program³⁰

Study from Kumar et al showed that to promote participation of cervical cancer screening, they may need to know that the most probable outcome of screening is validation of good health and information on how to avoid getting the disease (primary prevention). If the lesion is found, they already know and this condition can be quickly cured and increase the quality of reproductive well-being. Health promotion efforts need to focus on understanding women's knowledge of risk factors and enhancing their perceived health control by providing more information between screening and early detection.³¹

Previous study stated a discordance between knowledge of cervical cancer and interest in cervical cancer screening. Further qualitative study can be conducted to identify factors contributing to cervical cancer screening.

Based on our result, there are several reasons that women did not undergo Visual Inspection Acetat for cervical cancer screening. Most of the answer as many as 41% patient did not know about cervical cancer screening. This condition show that information about cervical cancer is still lacking. This should make health promotor in Indonesia concern about cervical cancer. The Education topic about cervical cancer should be propagate in many community health centre in Indonesia. This can be one of the solution to increase the awareness of women in Indonesia and increase primary prevention about cervical cancer.

The second most common reason is not knowing where the place that conduct the visual inspection acetate. This can be another problem found that is caused by not massively information spread.

Community Health Centre in Indonesia actually already conduct the cervical cancer screening (visual inspection acetate, Pap smear) but the information about it still not spread widely. Only women with already had the concern are seeking for the information where the visual inspection screening is hold. In several medicine Faculties in Indonesia conduct the community empowerment in coordination with government to make a free for community cervical cancer screening include visual inspection acetate and pap smear. This program can be implied in every medicine Faculties in Indonesia. The next reason why women did not undergo cervical cancer screening because they do not realise the importance of visual inspection screening. The cervical cancer screening can detect lesion in cervix (CIN 1 - CIN 3) and this finding can be alarmed for patient to do furthermore examination. Other reason is because financial problem. In developing country such Indonesia, financial is still a burden for their community. People only seek for medication help if they had severe or critical illness. But people do not spending money for preventive medication such as cervical cancer screening. Although this condition, government already decide that primary screening such as cervical cancer detections are covered by National Assurance (BPJS).

Conclusion

From this study we found that 52 subjects (5.4%) were had positive VIA results. With the documented VIA, 958 subjects perception toward cervical cancer screening is increasing in good manner. The most frequent causes of subjects did not undergo cervical cancer screening due to unknown information about cervical cancer screening, do not know the location of cervical cancer screening place, do not know the benefit of cervical cancer screening, and financial reason.

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