

Original Research

The Precede-Proceed Model Concept Analysis on The Uptake of Visual Inspection with Acetic Acid Method (VIA) Test



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Article Info	Abstract
Article history: Received: 20 May 2023 Accepted: 29 July 2023	<p><i>Introduction:</i> Despite being well-exposed to information about cervical cancer, poor awareness and attitude toward the disease and its screening tests, especially VIA, has broadly been linked to a higher prevalence of late-stage cervical cancer occurrence, which could result in its high death rates. This study aimed to explore the association between the precede-proceed model concept on the VIA test uptake in the cervical cancer early detection program.</p> <p><i>Methods:</i> This was a descriptive-analytical study using a cross-sectional approach. The study population was all women cadres in the Public Health Center of the Jagir area. A purposive sampling technique was applied to recruit 70 eligible participants who met the study inclusion criteria. The independent variable was the educational background, occupation, income, knowledge, and attitude. The VIA test uptake in the cervical cancer early detection program was measured as the dependent variable.</p> <p><i>Results:</i> The Chi-square statistical test revealed that the knowledge and attitude did not significantly correlate with the VIA test uptake in the cervical cancer early detection program, with the p-value of 0.241 and 0.208, respectively. Further, the alternative statistical test for Chi-square, Fisher-Exact test, also revealed no correlation between the demography variables: educational background, occupation, and income and the VIA test uptake, with the p-value of 1.000, 0.677, and 1.000, respectively.</p> <p><i>Conclusion:</i> The statistical analysis revealed that all independent variables in the Precede-Proceed Model did not significantly correlate with VIA test uptake in the cervical cancer early detection program, with a p-value of >0.05.</p>
Keywords: VIA, cervical cancer, Precede-Proceed Model	

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INTRODUCTION

Cervical cancer is the second leading cause of cancer-related death among women worldwide. The Visual Inspection with Acetic Acid Method (VIA) test has been constantly introduced to the public for early cervical cancer screening methods. Unfortunately, the uptake of this method among women of reproductive age remains poor [1]. A qualitative study exploring the perception of cervical cancer screening among women of reproductive age discovered that some informants strongly exhibited negative attitudes toward the screening programs. Despite having a decent level of knowledge about cervical cancer and its prevention efforts, they unhesitatingly expressed their reluctance to participate in the screening programs [2]. Individuals who are interested in VIA Screening Test commonly possess a decent level of knowledge about its benefits for their health [3]. Apparently, several studies have underlined the anomaly between the knowledge level and VIA screening practices. A high level of knowledge about VIA screening, most of the time, did not go hand in hand with better screening practices. This situation was confirmed by a study that revealed that knowledge level did not significantly associate with VIA and pap-smear screening test uptakes [4]. Further, a preliminary survey conducted in the working area of the Public Health Center of Jagir revealed that the women cadres who were perceived as local figures with higher levels of health literacy did not necessarily demonstrate or make better health choices. The Public Health Center of Jagir also offers

cervical cancer early detection program through VIA screening test. However, nurses stated that the program uptakes are remarkably low, including among the women cadres.

Data from the Global Burden of Cancer (GLOBOCAN) released by the World Health Organization (WHO) showed the occurrence of 18.1 million cases of cancer in 2018, and 9.6 million of them, unfortunately, were not able to survive. The mortality figure due to cancer is forecasted would be escalated, touching 13.1 million additional cases in 2030. Indonesia bears a high risk of new cancer cases, especially when hind sighting the poor cervical cancer screening uptakes situation. Only five percent of Indonesian women participated in this screening test program [6], which made the proportion for the early detection program through the VIA test only 40% [1].

It has been broadly documented that the burden of cervical cancer falls on those with poor awareness to participate in early detection programs, especially through screening tests [7]. A study reported the cultural taboos that strongly attached to the VIA test, fear of medical examinations, and did not feel ill as primary factors of low VIA screening test uptakes among the community members [8]. Refusal to partake in screening programs would delay the diagnosis of the disease, raise the risk of the poorest prognosis because detected in the advanced-stage of cancer, and reasonably leave the survivor with little opportunity to recover [9].

VIA and pap-smear tests are widely-known cervical cancer screening methods. To predict the prevention actions taken by an

individual, several approaches or HBM are commonly applied [2]. Further, other factors such as occupation, knowledge, and attitude of cervical cancer early screening programs are also required to be assessed to forecast the prevention practices [10][11]. In fact, these factors have been described by the Theory of Precede and Proceed Model. Green (1980) explained that the Precede and Proceed Model Theory incorporated the influence of the predisposing, enabling, and reinforcing factors that affected health-related behaviors. Occupation, knowledge, and attitude portray the predisposing factor element [12]. Thus, we aimed to explore the correlation between the Precede-Proceed Model concept analysis on the VIA test uptake among the community cadres.

METHODS

This was an analytic observational design study with a cross-sectional approach. This study was conducted in January 2023 in Jagir, enrolling all women cadres who were working in the area of the Public Health Center of Jagir Surabaya as the study population. Subsequently, seventy eligible participants who met the study inclusion criteria: ever-married women or at least have had sexual intercourse experience and voluntarily willing to participate, were recruited. The educational background, occupation, income, knowledge, and attitude were measured as the independent variables. The dependent variable was VIA test uptake in the cervical cancer early detection program. Valid and reliable study instruments were then applied to collect the study data.

The data from the dependent variable was gathered using 23 close-ended question items in a questionnaire arranged based on the Precede and Proceed Model. The research ethical obligations have been fulfilled by obtaining consent from the study participants by asking them to voluntarily sign the informed consent sheets, anonymity, and confidentiality. The Ethical Committee of the Faculty of Medicine, Widya Mandala Surabaya Catholic University through the issuance of the letter number 0336/WM12/KEPK/DSN/T/2022 has granted the ethical clearance of the recent study. This study protected the research data confidentiality, data access was only granted to the research team members.

RESULTS

The majority of participants were graduated from higher formal education institutions (89%), unemployed (91%), earned monthly income under the regional minimum wage rate (97%), demonstrated a high level of general cervical cancer knowledge (100%), and showed a positive attitude toward cervical cancer detection programs (100%). A bivariate statistical analysis of the Chi-square test was applied to examine the variable correlations. There was no significant correlation between the VIA test uptake in the cervical cancer early detection program and knowledge with a p-value of 0.241. Statistical analysis also yielded no significant link between the VIA test uptake in the cervical cancer early detection program and attitude (p-value: 0.208, >0.05). The correlation between the independent variable of

educational background, occupation, and income and the VIA test uptake in the cervical cancer early detection program was statistically assessed using the Fisher Exact, the alternative statistical test of Chi-square. The Fisher Exact test showed no significant

correlation between the independent variable of educational background, occupation, and income and VIA test uptake in the cervical cancer early detection program with a p-value of 1.000, 0.677, and 1.000 ($p>0.05$), respectively.

Table 1
Demography Characteristics

No	Characteristic	n	%
1.	Age (Years)		
	17-25	1	1%
	26-35	4	6%
	36-45	20	29%
	46-55	31	44%
	56-65	13	19%
	> 65	1	1%
2.	Marital Status		
	Married	56	80%
	Divorced	4	6%
	Widow	10	14%
3.	Age at First Sexual Intercourse (Years)		
	<16	0	0%
	16-20	8	11%
	>20	62	89%
4.	Family History of Cancer		
	Yes	7	10%
	No	63	90%

Table 2
Findings from the Univariate Analysis

No	Characteristic	n	%
The Precede-Proceed Model			
1.	Formal Educational Background		
	Primary education	8	11%
	Higher education	62	89%
2.	Occupation		
	No	64	91%
	Yes	6	9%
3.	Monthly Income		
	< Minimum wage rate	68	97%
	> Minimum wage rate	2	3%
4.	Knowledge Level		
	Poor	0	0%
	Good	100	100%
5.	Attitude		
	Negative	31	44%
	Positive	39	56%
VIA Test Uptake in the Cervical Cancer Early Detection Program			
	No	37	53%
	Yes	33	47%

Table 3
Findings from Bivariate Analysis

Variable	VIA Test Uptake in the Cervical Cancer Early Detection Program				Total n	p-value	
	No		Yes				
	n	%	n	%			
Precede -Proceed Model							
Formal Educational Background							
Primary education	4	50	4	50	8	100	1.00
Higher education	29	46.8	33	53.2	62	100	
Occupation							
No	31	48.4	33	51.6	64	100	0.677
Yes	2	33.3	4	66.7	6	100	
Monthly Income							
< Minimum wage rate	32	47.1	36	52.9	68	100	1.000
> Minimum wage rate	1	50	1	50	2	100	
Knowledge Level							
Poor	18	54.5	15	45.5	33	100	0.241
Good	15	40.5	22	59.5	37	100	
Attitude							
Negative	12	38.7	19	61.3	31	100	0.208
Positive	21	53.8	18	46.2	39	100	

DISCUSSION

The bivariate analysis of the Chi-square test was conducted to examine the correlation between variables (Table 4). No substantial correlation between the variable of knowledge (p-value: 0.241), attitude (p-value: 0.208), and benefit (p-value: 0.767) on VIA test uptake in the early cervical cancer screening programs were reported. The correlation between educational background, occupation, perceived susceptibility, perceived seriousness, perceived severity, and perceived barrier variable and the VIA test uptake were investigated using the statistical alternative test of Chi-square, the Fisher Exact Test. Statistical findings from the Fisher Exact Test yielded no significant correlation between these variables with the VIA test uptake, with a p-value of 1.000 for educational background, 0,677 for occupation, 1.000 for income, 0.241 for perceived susceptibility, 1.000 for perceived seriousness/severity, and 1.000 for perceived barriers. These statistical findings signified that no further multivariate analysis was required to analyze the correlation between these variables with the VIA test uptake.

Several study variables: educational background, occupation, income, knowledge, and attitude, were derived from the Precede-Proceed Model. A statistical finding from the Fisher Exact Test showed the value of Exact Sig. (2-sided) of 1.000 $>\alpha$ (0.05) for the correlation between the educational background and VIA test uptake. This value confirmed no significant connection between the educational background and VIA test uptake. Table 4 also displays no statistical

difference between cadres who attended school in less or more than nine years with their VIA test participation. Thus, we argued that educational background did not necessarily affect the VIA uptake. However, it was suggested that internal motivation may play a more indispensable role in achieving higher VIA test uptake. Most cadres had no family history of cancer, which may influence their prevention or cancer screening practices. Motivation holds an essential key in driving meaningful preventive or health-seeking behaviors. Individuals tend to ignore or delay health-related practices when they perceive a situation as innocuous or harmless [13]. This was in line with a study conducted among women of reproductive age to explore their VIA screening test practices. Parallel with the recent finding, this study discovered no association between educational background and VIA test practices.

Similarly, no correlation between the occupation variable with the VIA test uptake was discovered. The Chi-square with the Fisher Exact test found a p-value of 0.677 $>\alpha$ (0.05), indicating no correlation between the type of occupation and VIA test uptake among the study participants. Specifically, this finding suggested that whether the cadres were working or unemployed (household wives), no connection between their employment status and engagement in the VIA screening test was statistically established. This situation probably occurred because their surrounding environment did not adequately expose them to VIA test information. Most participants were self-employed, working as dishwashers, or tailors.

These professions did not provide proper access to health information, especially about VIA test. In line with this situation, a study stated that a workplace environment provides access to VIA test-related information [14]. Further, information or knowledge-sharing frequently occurs in the workplaces [15]. Our finding is parallel with a previous study that found no statistical association between the occupation and VIA test uptake among national health insurance participants [16].

No correlation between the monthly income variable with VIA test uptake was discovered, with the value of Exact Sig. (2-sided) of $1.000 > \alpha (0.05)$ from Chi-square with Fisher Exact statistical test. Hence, whether the cadres earned monthly income that was lower or higher than the regional minimum wage rates, no association between the incomes earned with their participation in VIA test was documented by the statistical analysis. Contrary to our findings, a study discovered a significant association between income and VIA test uptake [17]. Thus, we assumed that the amount of income may not provide a substantial influence on the test uptake, but the income sources may pose greater impacts. Most participants in this study constantly relied on their spouse's income. This situation indirectly implied that the total income stated was not independently earned by each participant. Participants who were not financially independent tended to gain less opportunity to participate in cervical cancer screening programs, compared to those women who were self-reliant and able to support themselves independently, without heavily relying on their spouses or

other family members' income [18][19]. This finding was in line with a study that found that the economic status evaluated from the monthly income earned based on the minimum wage rates did not correlate to VIA test uptake among reproductive-age couples [20].

No correlation between knowledge and VIA test uptake was discovered in this recent study. The Chi-square test found a p -value of $0.241 > \alpha (0.05)$, which signified the absence of a significant correlation between the knowledge level with the VIA test uptake. Despite having a decent level of general knowledge about cervical cancer and its prevention, the uptake of VIA test among the participants remained poor. A study conducted at the Public Health Center of Sungai Lokal also found no correlation between the level of knowledge and the VIA test participation among reproductive-age women [21]. We speculated that the perception interest may alter the process of knowledge translation into the screening practices. The role of interest has been widely mentioned elsewhere as a component that influenced the formation of health-related behavior. Additionally, Kar stated that behavioral formation could be affected by the combination between behavioral intention, social support, accessibility to information, personal autonomy, and action situation [22]. We presumed that the high level of knowledge unaccompanied by poor interest may result in low screening uptake. This situation apparently was in line with a finding from a study conducted in the Public Health Center of Cisedea. Their findings emphasized that personal interest would provide a greater

impact on VIA test uptake among reproductive-age women [23].

The Chi-square test also reported no correlation between the variable of attitude and the VIA test uptake, with a p-value of $0.208 > \alpha (0.05)$. This finding was in line with a study that also discovered no correlation between attitude and the VIA test uptake among women who were visiting the Public Health Center of Kalasan [24]. We assumed that a positive attitude toward a positive health-related behavior may not straightforwardly indicate the willingness to manifest the attitude into actual practices. Thus, the VIA screening test practice may not associate with the participant's attitude toward the idea of this screening test. Attitude is a mental tendency or state to refuse or accept an activity or action. However, in another context, attitude could be referred to a close reaction (predisposing factor), not an open response (action) to a notion or activity. In 2015, a study conducted in the Central General Hospital of dr. Kariadi Semarang also found no correlation between the attitude and screening practices among cervical cancer survivors with the p-value of 0.061 [25].

STUDY LIMITATION

Our weakness is the limited number of independent variables enrolled in this study. Thus, the future study required to overcome this constraint by incorporating more variables, offering better findings to explain the uptake of VIA Test in cervical cancer early detection programs.

CONCLUSION

The majority of participants were graduated from higher formal education institutions (89%), unemployed (91%), earned monthly income under the regional minimum wage rate (97%), showed a high level of general cervical cancer knowledge (100%), and demonstrated a positive attitude toward cervical cancer detection programs (100%). However, no significant correlation between the VIA test uptake in the cervical cancer early detection programs and all independent variables was discovered, with a p-value of 0.241 for knowledge, 0.208 for attitude, 1.000 for educational background, 0.677 for occupation, and 1.000 for income variable ($p > 0.05$). We suggested employing other model theories to explore factors influencing the decisions to participate in cervical cancer early detection programs with the VIA test.

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