

Relationship between Knowledge Level of Teenage Girl Regarding Cervical Cancer and Motivation to Undergo HPV (Human Papillomavirus) Vaccination in Tuban District, East Java

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Abstract

Cervical cancer is a malignant tumor that develops in the cervix and is one of the cancers with the highest incidence in Indonesia. In East Java, in 2020 there were 1,498 women (1.8%) who experienced signs of cervical cancer, such as a lump or other symptoms. The latest cases in Tuban District in 2017 were recorded at 87 cases. Human Papillomavirus (HPV) infection, especially types 16 and 18, is the main cause of cervical cancer. One of the effective prevention efforts is HPV vaccination. This study aimed to determine the relationship between the level of knowledge of teenage girls about cervical cancer and motivation to do HPV vaccination in Tuban District, East Java. This study used an observational quantitative design. The number of samples used was 97 adolescent girls in Tuban sub-district. The results showed that there was no significant relationship between knowledge about cervical cancer and motivation to do HPV vaccination ($p=0.051$). There is no relationship between the level of knowledge of teenage girl about cervical cancer and motivation to do HPV (Human Papillomavirus) vaccination in Tuban District, East Java.

Keywords: Cervical Cancer; HPV; HPV Vaccine; Knowledge; Motivation; Teenage Girl

1. Introduction

Cervical cancer is a deadly disease that ranks fourth in the world with the status of the most common disease suffered by women [1]. Indonesia ranks fourth in Southeast Asia with the most cases of cervical cancer [2]. Middle and low-income countries are one of the factors for the increase in this disease [3].

Cervical cancer is the growth of abnormal cells or malignant tumors in the female reproductive organs in the form of the entrance to the uterus, located between the uterus and vagina [4]. The main factor causing cervical cancer is the HPV (Human Papillomavirus) virus. HPV viruses that often cause the growth of cervical cancer are types 16 and 18 [5]. Various kinds of hazard factors for the malignancy of this disease are sexual behavior at a young age, frequent change of sexual partners, smoking, having many children, low income, contraceptive users, STIs, and weak immunity [6].

In 2017, 87 cases of cervical cancer were found in Tuban District, East Java [7]. Other data regarding cervical cancer is about cervical cancer screening in Tuban, this has been done with the target being women aged 30-50 years [7]. It was found that 13,517 women out of a total target of 188,526 people were screened for cervical and breast cancer [7].

WHO has a cervical cancer prevention program that has been included in the WHO Best Buy program [8]. In 2022, WHO provides recommendations regarding the dose of HPV vaccination into three schedules, namely the first in women aged 9-14 years, the second given one or two doses to women aged 15-20 years, and the third given to women over 21 years

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of age [9]. Reported from Radar Tuban in 2025 that the HPV vaccine has been given to 16,000 5th and 6th grade students [10]. The results of interviews with the person in charge of the School Medical Room at Junior High School 3 and Junior High School 4 Tuban, found that the number of students at Junior High School 3 Tuban who received the vaccine was 121 out of a total of 129 students, while Junior High School 4 Tuban there were 127 students.

This figure still does not meet the target given by the government. WHO encourages the success of HPV vaccination in Indonesia with a target of 90% [11]. The HPV vaccine program is the government's goal in preventing preventable morbidity, mortality, and disability using immunization in accordance with the achievements of the 2030 SDGs [12]. Therefore, this study relates the relationship between teenage girl knowledge level and motivation to vaccinate against HPV.

2. Material and Methods

This study was an analytic observational study with a cross-sectional approach conducted in two schools in Tuban District, East Java. The purpose of this study was to analyze the relationship between the level of knowledge of teenage girls about cervical cancer and motivation to do HPV vaccination. The population taken in this study were all teenage girls aged 13-19 years who were at Junior High School 3 Tuban and Vocational High School PGRI 2 Tuban. The sampling technique was simple random sampling. The total sample was 97 female students who had met the inclusion criteria such as, young women aged 13-19 years and available to be respondents through research approval. While the exclusion criteria are already doing HPV vaccination and students outside of the two schools used as research sites.

Data collection was carried out in January-February 2025. The research instrument used to collect data was a google form questionnaire. The questionnaire consisted of two kinds of questions covering knowledge about cervical cancer and HPV vaccine and motivation to do HPV vaccination. The questions in the first questionnaire were adapted by Febriawanfi Raysha Anggraini (2014) and Winda Julita Far-Far (2011). Then the second questionnaire question regarding the motivation to do HPV vaccination adopted from Fawaz Sihab, et al (2023) and has been licensed [13]. Bivariate analysis in this study used the *Spearman* test. It is known that the p -value is $0.051 > \alpha$ (0.05), with a correlation coefficient (r) of 0.199.

3. Results and Discussion

The results of data collection conducted by 97 students of Junior High School 3 Tuban and Vocational High School PGRI 2 Tuban.

Table 1 Age Characteristics of Respondents

No.	Age	Number of Teens	Percentage (%)
Age			
1.	13 years old	9	9,3
2.	14 years old	10	10,3
3.	15 years old	20	20,6
4.	16 years old	11	11,3
5.	17 years old	19	19,6
6.	18 years old	15	15,5
7.	19 years old	13	13,4
	Total	97	100

The distribution of respondents' age range characteristics showed that 20.6% of respondents were 15 years old, 19.6% were 17 years old, 15.5% were 18 years old, 13.4% were 19 years old, 11.3% were 16 years old, 10.3% were 14 years old, and 9.3% were 13 years old.

Table 2 Frequency Distribution of Questions Based on the Knowledge Level of Cervical Cancer Questionnaire

No.	Question	Correct (%)	Wrong (%)
1.	What do you know about cervical cancer?	78 (80,4%)	19(19,6%)
2.	What do you know about the causes of cervical cancer?	89 (91,8%)	9 (9,3%)
3.	What is one of the signs of cervical cancer?	70(72,2%)	27 (27,8%)
4.	What does HPV stand for?	86 (88,7%)	11 (11,3%)
5.	What are some of the factors that cause cervical cancer?	90 (92,7%)	7 (7,2%)
6.	How old are women who are usually susceptible to cervical cancer?	49 (50,5%)	48 (49,5%)
7.	How many stages are there in cervical cancer?	85 (87,6%)	12 (12,4%)
8.	What do you know about how cervical cancer is transmitted?	92 (94,8%)	5 (5,2%)
9.	How can cervical cancer be prevented?	83 (85,6%)	14 (14,4%)
10.	At what age can women be injected with HPV vaccination?	71 (73,2%)	23 (23,7%)
11.	What do you know about the treatment of cervical cancer?	68 (70,1%)	29 (29,9%)

From the results of the distribution of questionnaires, most respondents answered correctly about how cervical cancer is transmitted with a percentage of 94.8%. In addition, they have good knowledge of the factors that cause cervical cancer, this is evidenced in the table above which shows that 90 respondents (92.7%) got the right answer.

Table 3 Knowledge level of teenage girls about cervical cancer

No.	Knowledge	Frequency	Percentage (%)
1.	Good	70	72,2
2.	Enough	14	14,4
3.	Low	13	13,4
	Total	97	100

In the calculation test results, the average value of correct answers is 2.59, the median value is 3, and the mode is 3 with the smallest value of 1 point and the highest value of 3 points. This can be interpreted that most of the teenage girl have good knowledge about cervical cancer with a percentage of 72.2%.

Table 4 Frequency Distribution of Questions Based on the Motivation to Vaccinate HPV (Human Papillomavirus) Questionnaire

No.	Questions	Assesment Score			
		SS	S	KS	TS
1.	HPV vaccine minimizes the risk of developing cervical cancer	46 (47,4%)	43 (44,3%)	6 (6,2%)	2 (2,1%)
2.	Limited information about HPV vaccination prevented me from getting the HPV vaccine.	10 (10,3%)	20 (20,6%)	44 (45,4%)	23 (23,7%)
3.	The price of HPV vaccination prevents me from getting HPV vaccination.	12 (12,4%)	29 (29,9%)	39 (40,2%)	17 (17,5%)
4.	The side effects of HPV vaccination prevent me from getting the HPV vaccination.	16 (16,5%)	38 (39,2%)	30 (30,9%)	13 (13,4%)

5.	I took the initiative to do HPV vaccination in the future to avoid cervical cancer	43 (44,3%)	46 (47,4%)	8 (8,2%)	0 (0%)
6.	My family supports me in getting HPV vaccination	28 (28,9%)	49 (50,5%)	16 (16,5%)	4 (4,1%)
7.	Health workers support me in getting HPV vaccination	30 (30,9%)	51 (52,6%)	16 (16,5%)	0 (0%)
8.	I took the time to get vaccinated against HPV	24 (24,7%)	52 (53,6%)	17 (17,5%)	4 (4,1%)
9.	HPV vaccine is easily accessible as it is available in various places in Tuban	23 (23,7%)	49 (50,5%)	23 (23,7%)	2 (2,1%)
10.	I intend to get HPV vaccination to prevent cervical cancer.	37 (38,1%)	46 (47,4%)	11 (11,3%)	3 (3,1%)

The results of the distribution of questionnaires regarding the motivation to do HPV vaccination found that most respondents had high motivation. This can be seen in the table above where the most strongly agreed answers were found in the statement explaining that the HPV vaccine can reduce the risk of developing cervical cancer. Most respondents had support from parents and health workers to get HPV vaccination. However, it was still found that some of them were afraid of the side effects of the vaccine. This can be shown in the statement regarding "The side effects of HPV vaccination prevent me from getting HPV vaccination" as many as 38 (39.2%) respondents answered in the affirmative.

Table 5 Motivation for HPV (Human Papillomavirus) Vaccination

No.	Motivation Level	Frequency	Percentage (%)
1.	High Motivation	83	85,6
2.	Low Motivation	14	14,4
	Total	97	100

The results of the HPV vaccination motivation questionnaire found that most respondents had high motivation. This is evidenced in the data as many as 83 respondents with a percentage of 85.6% are in the high motivation category for HPV vaccination.

Table 6 Relationship between the level of knowledge of teenage girls about cervical cancer and motivation to vaccinate against HPV (Human Papillomavirus)

Knowledge Level	Motivation for HPV Vaccination						p	r
	High Motivation		Low Motivation		Total			
	F	%	F	%	f	%	0,051	0,199
Good	63	64,9	7	7,2	70	100		
Enough	12	12,4	2	2,1	14	100		
Low	8	8,8	5	5,2	13	100		

The statistical test results using the *Spearman* test obtained a p-value of $0.051 > \alpha (0.05)$, with a correlation coefficient (r) of 0.199. A p-value greater than the significant level indicates that there is no association between the level of knowledge about cervical cancer and the motivation to vaccinate against HPV.

4. Conclusion

This study can be concluded that there is no relationship between the level of knowledge of teenage girls about cervical cancer and motivation to do HPV vaccination. Although the level of knowledge and motivation is in the high category, there is no significant correlation between the two variables. One of the factors that occurred was due to the lack of knowledge of the side effects of the HPV vaccine and the limitations of researchers in exploring other factors that support the low motivation of teenage girls to vaccinate against HPV.

Compliance with ethical standards

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Disclosure of conflict of interest

There is no conflict of interest.

Statement of ethical approval

The Research and Ethics Committee of the Faculty of Medicine, Universitas Airlangga, Indonesia, has approved this study with letter number 40/EC/KEPK/FKUA/2025, which is valid from January 24, 2025 to January 24, 2026.

Statement of informed consent

Informed consent has been done before the research by all the participant and the parent of participant in this study.

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