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The Relationship between Knowledge with Attitudes of College Students towards the HPV Vaccine

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ABSTRACT

Cervical cancer is the second-deadliest disease in the world for women after breast cancer. Many women who have cervical cancer, when found, have already entered the final stage, making it difficult to cure. Cervical cancer can prevented by using the human papilloma vaccine, but many women do not vaccinate because they lack knowledge and information. Based on the results of interviews with 20 female students, 18 did not know about the human papilloma vaccine, and 4 had a history of cervical cancer in their family. This study aimed to determine the relationship between the knowledge and attitude of female students towards the human papillomavirus vaccine at faculty teachers college Pelita Harapan University. This research method uses a cross-sectional approach with 101 students as a sample, and the sampling technique used is purposive sampling. The results of data analysis using the Chi-Square test showed a p-value of 0.002 ($p<0.005$). In conclusion, there is a relationship between the knowledge and attitude of female students toward the human papillomavirus vaccine. Further research will research factors related to attitudes towards the human papillomavirus vaccine other than knowledge.

Keywords: attitude, humanpapilloma virus, knowledge

INTRODUCTION

Cervical cancer is a malignant disease that is very frightening for women who attack the female reproductive organs precisely in the cervix. Cervical cancer is caused by the HPV virus (Human Papilloma Virus) which is transmitted through sexual intercourse (Murray, S. McKinney, 2014). According to the World Health Organization in 2020 cervical cancer in the world ranks second after breast cancer as the leading cause of death in women, and ranks fifth of all types of cancer in the world today (WHO, 2021). Based on data in the world there are 13.3% of cervical cancer diseases with a mortality rate of 7.3% (WHO, 2021). The incidence of cervical cancer is highest in the African kingdom of Estawini, where 6.5% of the female population has cervical cancer. China and India also account for more than a third of cancer cases globally with 106,000 cervical cancer cases occurring in China and 97,000 cervical cancer cases occurring in India (Arbyn et al., 2020), while for the region in Southeast Asia, Indonesia is ranked first for cervical cancer cases (Bruni et al., 2021).

Cervical cancer in Indonesia is second only to breast cancer with 36,633 cervical cancer cases or 9.2% of the total cancer cases (Handayani, 2022). Patients with cervical cancer at Cipto Mangunkusumo Hospital 94% die within two years, this happens because patients complain of symptoms at an advanced stage (Susilawati & Dwinanda, 2022) resulting in the chances of life that patients with cervical cancer have become increasingly small because the condition is already severe when cervical cancer is known (Murray, S. McKinney, 2014). Data in Banten province shows 248 women diagnosed with cervical cancer (Kementerian Kesehatan RI, 2022). In Tangerang, out of 8,478 women who had cervical cancer early detection, 55 (0.3%) were positive for cervical cancer (Banten, 2021). This is due to lack of knowledge about HPV (Spagnoletti et al., 2019) so it is necessary to educate about HPV (Brahmana, 2021) and HPV vaccination as a form of early prevention of cervical cancer (Putra & Putra, 2021).

Cervical cancer can be caused by the behavior of frequent change of partners, having sexual intercourse before the age of 20, low level of knowledge, low economic level, not doing early detection, smokers, parity, use of combined oral pills and HIV patients (Werner et al., 2012). Cervical cancer can be prevented by HPV vaccine immunization. The HPV vaccine is effective before a woman's sexual activity begins (Murray, S. McKinney, 2014), that can be given to girls aged 9-13 years old (WHO, 2014) and the age range is 15-26 years old, for women aged 26 years and over, the HPV vaccine must first consult a doctor because many women have been exposed to the HPV virus when they are over 26 years old (Nurgaheni, 2022).

The study showed that 94.3% of medical students in China had low awareness, low knowledge of HPV, vaccine and cervical cancer, and 44% of students were willing to get HPV vaccine (Gu et al., 2015) and 96 (41.7%) female students in Singapore did not intend to receive the vaccine and 62 of them cited lack of information as the main reason for HPV vaccination (Zhuang et al., 2016). Research in Indonesia also shows that 50% of respondents have sufficient knowledge and 33.1% have insufficient knowledge, there are 68.8% of respondents do not know about the virus that causes cervical cancer, in this study there are also 50.6% of respondents have a negative attitude towards cervical cancer and 52.6% have a negative attitude towards the HPV vaccine (Dethan & Suariyani, 2017). According to Simanjuntak and Sugiharto (2023) there were 54% of respondents who had insufficient knowledge of cervical cancer and 51% of respondents' attitudes were still hesitant in receiving the vaccine.

In Indonesia, 2.3 million girls aged 10 years have received the HPV vaccine (Sankaranarayanan et al., 2016). Low knowledge and lack of confidence in the vaccine can make people refuse the HPV vaccine as well as the high price of the vaccine, ignorance of the HPV transmission

process and lack of support from health workers can also reduce the intention to vaccinate (Santhanes et al., 2018). Lack of information is also one of the causes of low knowledge where knowledge is related to attitudes about HPV vaccination. Low knowledge will result in a negative attitude towards the HPV vaccine, in addition to lack of knowledge, cost, unavailability of the vaccine, lack of support from parents or because they feel they are not at risk so they consider the HPV vaccine unnecessary are also obstacles to HPV vaccination (Dethan & Suariyani, 2017).

Based on the results of an initial survey through interviews with 20 female students at a private university in Tangerang, it was found that 18 people (90%) did not know about the HPV vaccine and 4 people (20%) had a history of cervical cancer in their family. Students who do not know about HPV are vulnerable to the risk of cervical cancer because they do not know how to prevent it through vaccination, and students who have a family history of cervical cancer are at greater risk of developing cervical cancer. The purpose of this study was to determine the knowledge and attitudes of female students regarding the HPV vaccine and to determine the relationship between knowledge and attitudes of female students towards the HPV vaccine. So based on the above phenomenon, the authors are interested in further research on the relationship between knowledge with attitudes of college students towards the HPV vaccine.

METHODS

This study is a quantitative research method using a correlational type with a cross sectional design, which aims to see the relationship between knowledge (independent variable) and the attitude of female students (dependent variable) towards the HPV vaccine. The population in this study were 2021 female students enrolled in the faculty of teacher college Pelita Harapan University. Sample collection in this study used purposive sampling technique where sampling was in accordance with the criteria determined by the researcher. The number of samples in this study were 101 respondents who were calculated using the Slovin formula, and the inclusion criteria in this study were teacher college female students aged 19-22 years who were willing to become respondents.

This study uses a research questionare by Nasrullah (2017) entitled The relationship between knowledge level and attitude towards the Human Papillomavirus vaccine which has been tested for validity and reliability. The validity test value on the knowledge questionnaire shows that the question is declared valid, because the r count obtained on average is greater than the r table (0.196) and the Cronbach alpha value on the knowledge variable is (0.623) declared reliable.

The validity test value of the attitude questionnaire shows that the question is declared valid, because the r value obtained on average is greater than the r table (0.196) and the Cronbach alpha value on the attitude variable is (0.841) declared reliable. This research has passed the ethical review of the Ethics Commission of the Faculty of Nursing, Pelita Harapan University with number 001/KEPFON/IX/2023. This study used univariate and bivariate analysis. This univariate analysis aims to describe the characteristics of each variable while bivariate analysis to determine the relationship between two variables used statistical testing and hypothesized the relationship between knowledge and attitude between independent and dependent variables using using the chi-square test.

RESULTS

Data distribution based on respondent characteristics

Tabel 1. Data Distribution of Respondent Characteristics

Category	Frequency (f)	Percentage (%)
Age		
19-22 years	101	100
Study Program		
Economics Education	9	8.9
Physics Education	3	2.9
Chemistry Education	4	3.9
Mathematics Education	5	4.9
Biology Education	11	10.9
Indonesian Language Education	7	6.9
Social Studies Education	4	3.9
Elementary School Teacher Education	47	46.5
Christian Religious Education	11	10.9
Father's Education		
Not in School	1	0.9
Elementary	3	2.97
Junior High School	9	8.9
High School	45	44.6
College	43	42.6
Mother's Education		
Not in School	1	0.9
Elementary	8	7.9
Junior High School	11	10.9
High School	50	49.5
College	31	30.7
Father's Occupation		
Self-employed	21	20.8
Entrepreneur	13	12.9
Civil Servant	23	22.8

Category	Frequency (f)	Percentage (%)
Military/Police	9	8.9
Farmer	23	22.8
Fisherman	4	4.9
Driver	2	1.9
Others	6	5.9
Mother's Occupation		
Self-employed	54	53.5
Entrepreneur	16	15.8
Civil Servant	1	0.9
Military/Police	7	6.9
Farmer	7	6.9
Fisherman	10	9.9
Driver	3	2.9
Others	3	2.9
Parent's Income		
<1.000.000 IDR	17	16.8
1.000.000 – 3.000.000 IDR	45	44.6
> 3000.000 IDR	39	38.6
Family History of Cancer		
Have History	3	2.9
No history	98	97
Source of Information		
Parents/family	2	1.9
Teacher/Lecturer	1	0.9
Print media/Newspaper	1	0.9
Internet/Social Media	4	3.9
Health worker	3	2.9
Have not received information	90	89.1

Based on Table 1 shows that 101 (100%) respondents were in the age range of 19-22 years, and 47 (46.5%) of the respondents came from elementary school teacher education study programs. In this study, it can find that the respondent's father and mother have the latest high school education, namely 45 (44.6%) and (49.55%). Most of the 23 (22.8) respondents' fathers worked as civil servants and as farmers, while the respondents' mothers, as many as 54 (54.3%), worked as housewives, with the respondents' family income of 45 (44.6%) between 1,000,000-3,000,000 IDR per month. It was also found that the majority of 98 (97%) respondents did not have a history of cervical cancer in their family, and 90 (89.1%) respondents had never received information about the HPV vaccine.

Tabel 2. Data Distribution of Knowledge

Category of Knowledge	Frequency (f)	Percentage (%)
Good	43	42.6
Moderate	49	48.5
Poor	9	8.9

Based on Table 2 shows the results of female students' knowledge about the HPV vaccine. The majority of 49 (48.5%) respondents had knowledge in the moderate category.

Tabel 3. Data Distribution of HPV Vaccine Prevention Attitudes

Category of Attitude	Frequency (f)	Percentage (%)
Positive	55	54.5
Negative	46	45.5

Based on Table 3, the majority of female students, as many as 55 (54.5%) respondents, had a positive attitude.

Tabel 4. Relationship between Knowledge and Attitude toward HPV Vaccine

Knowledge	Attitude towards HPV vaccine						*P-value*
	Positive		Negative		Total		
	f	%	f	%	f	%	
Good	27	26.7	16	15.8	43	42.6	
Moderate	28	27.7	21	20.8	49	48.5	0.002
Poor	0	0	9	8.9	9	8.9	

2 cells (33.3%) have expected count less than 5. The minimum expected count is 4,10.

Based on Table 4 shows the analysis data using the Chi-Square test, which shows that the P value is 0.002 ($p < 0.05$), which means H1 is accepted; from these results, it is interpreted that there is a relationship between knowledge and attitude toward the HPV vaccine.

DISCUSSION

All respondents in this study were in the age range of 19-22 years. According to Hulukati and Djibran (2018), ages 18-25 years are at the stage of development or transition from late adolescence to early adulthood, where at this time adolescents learn to strengthen their own attitudes towards life, this is in line with the research of Rahmadini et al. (2022) which explains the level of maturity in thinking is influenced by one's age. Age influences how a person thinks and knows.

The majority of respondents came from the primary education teacher study program, namely there were 47 (46.5%) female students. The last education of the father and mother of the respondents was also a high school graduate as many as 45 (44.6%) and 50 (49.5%) respondents This research is also in line with the research of Strbac et al. (2023), where the majority of 53.9% of parents have a high school education, even though they have a high school education, 20.2% of parents still agree for their children to be vaccinated against HPV. According to Notoatmodjo (2014), the level of education will affect a person's knowledge. The

higher one's level of education, the more it will certainly affect one's knowledge and way of acting in life.

The majority of respondents' fathers' occupations were civil servants 23 (22.85%) and farmers 23 (22.85%), while for mothers' occupations there were 54 (53.5%), namely as housewives. This study is in line with the research of Nahak et al. (2018) where 62.86% of respondents work as housewives, where this job has more time to find out and get information from peers who have knowledge and experience in the world of health, while mothers who work outside the home have less time to get information because they focus on working so they don't have much time. Work affects a person's ability to obtain information related to their knowledge.

From the results of the research conducted, it was found that 45 (44.6%) parents of respondents had an income of 1,000,000 - 3,000,000 IDR per month. Research by Chiang et al. (2016), stated that sufficient family finances can affect students' knowledge and attitudes about the HPV vaccine. In the research of Zulfa et al. (2023) as many as 40% of parents were not willing to do the HPV vaccine for their children because the cost was too expensive, while in the research of Dethan and Suariyani (2017) there were 41.6% of respondents who did not vaccinate against HPV due to the high cost of the vaccine and the lack of support from parents. Parents' jobs greatly affect the family economy, thus affecting the ability to pay for vaccinations. The price of vaccination is difficult to reach and the lack of information makes respondents unwilling to vaccinate (Rahmayanti et al., 2019).

The majority of 90 (89.1%) respondents had not received information about the HPV vaccine. In line with research conducted by Fentia (2018) that as many as 55 (60.4%) respondents have never received information about HPV immunization. According to Fitri & Elviany (2018) the lack of information results in respondents being misperceived because the information obtained may not be complete and comes from less reliable sources. Not in line with research from Zulfa et al. (2023) which states that as many as 96.7% of respondents have been exposed to information from electronic media and medical personnel regarding cervical cancer, thus increasing understanding and knowledge about the HPV vaccine. From the above research, it can be seen that a lack of information can affect the attitude of respondents because they doubt what they know as well as if they have never received information about the HPV vaccine.

The majority of 98 (97%) respondents did not have a family history of cervical cancer and only 2 (3%) respondents had a history of cervical cancer in their family. Research conducted by Mihretie et al. (2022) states that respondents who have a family history of sexually transmitted

diseases are more aware of the HPV vaccine because they have received exposure to information about the HPV vaccine than respondents who do not have a family history of infectious diseases, because if they already have risk factors for cervical cancer, someone will consciously be more careful and carry out checks to the nearest health facility regularly as a preventive measure and cancer treatment (Kementerian Kesehatan RI, 2021).

Knowledge

The majority of 49 (48.5%) respondents had moderate knowledge. This research is in line with the research of Hary et al. (2023) which shows 51 (51%) of respondents are female students of the economics faculty aged 19-24 years and have sufficient knowledge so that they influence the search for information, the level of education is also able to increase one's knowledge, this is evidenced by 95 (95%) respondents have received information about cervical cancer and 47 people (47.1%) respondents have obtained HPV vaccine information. Research by Fengzhi et al. (2022) states that the higher the education, the more knowledge reserves are obtained, on the contrary, those who do not study have a limited approach in accessing knowledge or knowledge.

Riawati (2020) research stated that age can affect knowledge, but the research conducted by Sulistyowati & Trisnawati (2020) stated that age is not related to a person's knowledge about the HPV vaccine. According to research conducted by Wantini dan Indrayani (2020) states that parental education greatly affects the level of knowledge and the ability of parents to receive new information about the HPV vaccine. Research by Fengzhi et al. (2022) states that parents' jobs affect family income, including the ability to pay for vaccines, because the expensive vaccine costs resulted in respondents not doing the HPV vaccine. According to Junyong and Lixia (2018), family health history also affects a person's level of knowledge about the HPV vaccine, women who have a history of cervical cancer in their family tend to have better knowledge about HPV because they have received information from family members who have a history of cervical cancer.

This study is not in line with research conducted by Rawung et al. (2022) which states that education and information media do not affect a person's knowledge, where high education cannot change a person's mindset. In research conducted by Sari and Syahrul (2014) stated that knowledge is not influenced by family income or finances.

Based on this study, it is found that factors that influence knowledge about the HPV vaccine are sources of information, education and family history. This is because the source of

information can influence the mindset and decision making that will be carried out by female students in order to provide the right knowledge. Sources of information and family history can also increase the knowledge of female students in preventing cervical cancer, and parents' education and income can influence female students in getting information about the HPV vaccine. The majority of respondents (89.1%) have not received information about HPV knowledge, this can be seen by respondents who still do not know what HPV stands for, do not know about the HPV injection route, and do not know who can provide the HPV vaccine, Therefore, respondents need the right source of information that will affect their knowledge.

Attitude toward HPV Vaccine

From the results of research conducted on the relationship between knowledge and attitudes of female students towards the HPV vaccine at one of the private universities in Tanggerang Regency, it is known that the majority of respondents have a positive attitude towards the HPV vaccine as many as 55 (54.4%). In line with research conducted by Putri and Harahap (2022), it is known that 100% of female students have a positive attitude towards the female HPV vaccine, namely 74% are well informed. Good knowledge about cervical cancer prevention can influence a person to have a positive attitude towards vaccines.

This study is also in line with research conducted by Winarti and Silitonga (2018) that the majority of female students have a positive attitude in preventing cervical cancer as many as (73.6%) respondents, this is influenced by the higher the knowledge, the better the attitude towards the HPV vaccine. In line with research from Trucchi et al. (2020) that female students with health majors have a positive attitude because they have obtained information about the HPV vaccine, and even become a source of information to prepare themselves to become health workers who provide interventions to their clients.

According to Dethan and Suariyani (2017) he cost of HPV vaccination greatly affects the acceptance of the HPV vaccine, the high cost can reduce the acceptance of the HPV vaccine. In line with research from Wantini and Indrayani (2020) ound that parents who earn below the minimum wage find it difficult to pay for vaccination, this shows that families with low economic status have a negative attitude towards giving the HPV vaccine.

According to research conducted by Trucchi et al. (2020), parents with a health education level and working as health workers have a positive attitude towards the HPV vaccine, this is due to having better access to information exposure regarding HPV vaccination. Good knowledge of the HPV vaccine will increase the chances of respondents to have a positive attitude by ten

times compared to those with less knowledge. This study is not in line with research conducted by Yohannes et al. (2023), respondents with negative knowledge expressed negative attitudes towards the HPV vaccine, therefore it is necessary to increase awareness and perceptions of adolescent girls towards the HPV vaccine through school clubs, mini-media, and health education. Although the respondents' knowledge was in the moderate category, they had a positive attitude towards the HPV vaccine.

Relationship between Knowledge and Attitude

From the results of research conducted on the relationship between knowledge and attitudes of female students towards the HPV vaccine at one of the universities in Tangerang Regency, it is known that the majority of respondents have moderate knowledge with a good attitude towards the HPV vaccine as many as 28 (27.7%). From the results of the chi-square test obtained *p-value* = 0.002, this proves that there is a relationship between knowledge and the attitude of female students towards the HPV vaccine. However, there were also 21 (20.8%) respondents who had sufficient knowledge but had a negative attitude towards the HPV vaccine, and 27 (26.7%) respondents had good knowledge and attitude towards the HPV vaccine. It can be concluded here that in this study, a person's attitude is determined by the knowledge he has, and a person's knowledge is also related to the information he has.

The results of this study are in line with research conducted by Hary et al. (2023) that there are 51 (51%) female students who have sufficient knowledge and 77 (77%) female students who have a positive attitude towards the HPV vaccine, where female students' knowledge about the risk factors of cervical cancer and its prevention affects attitudes towards the HPV vaccine. This is also in accordance with research conducted by Mulia et al. (2021) that there is a significant relationship between knowledge and attitudes towards the HPV vaccine, seen from the p-value = 0.000 where there are 78 (95.1%) respondents who have sufficient knowledge with a positive attitude which is influenced by education and knowledge so that it stimulates a positive attitude within themselves to prevent cervical cancer through the HPV vaccine.

In contrast to this study, research conducted by Jirwanto (2021) that there is no relationship between the level of knowledge and attitudes towards HPV vaccination, in his study showed 80 (54.1%) respondents had a sufficient level of knowledge and 136 respondents had a good attitude towards the HPV vaccine with a *p-value* = 0.403 which means that there is no relationship between the level of knowledge of cervical cancer and interest in HPV vaccination where this is influenced by lack of information, as well as research conducted by Wantini and

Indrayani (2019) found that respondents had low knowledge of 90.3% and a positive attitude towards the HPV vaccine 93.5%, with a p-value = 1.000 which means there is no significant relationship between knowledge and attitudes towards the HPV vaccine, where this is influenced by a lack of information because there has been no counseling in the local environment regarding the HPV vaccine. Lack of information can influence a person's attitude, so it is necessary to conduct health seminars both at school, in the community, and at the health center so that a person's knowledge about health can increase.

CONCLUSION

The research results concluded that there is a relationship between knowledge and attitude towards the HPV vaccine, as evidenced by the chi-square test results (p-value = 0.0002). A person's knowledge will affect the attitude that they will produce. Good knowledge will, of course, make a good attitude. In this study, it is still necessary to provide appropriate information about the HPV vaccine, which health workers can provide through seminars and workshops. For further research, it is recommended to examine the factors associated with the attitude toward the HPV vaccine decision.

LIMITATION

Limitations in this study include respondents who have been scattered to several places to carry out practical tasks and the busyness of respondents in clinical practice, which resulted in the length of time it took to fill out the questionnaire.

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