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A Cross Sectional Analysis on Knowledge and Attitudes towards HPV Vaccines among Female Youth in Jakarta, Indonesia

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Aims: This research aims to obtain an overview of the knowledge and attitudes of female students at SMAN 14 Jakarta regarding the HPV vaccine as a prevention of cervical cancer.
Methodology: This research used descriptive analytical cross-sectional data analysis with a quantitative approach. It was conducted at SMAN 14 Jakarta using a sample survey technique. Questionnaires based on the Slovin formula were distributed via g-form to 81 respondents, and the data was processed using univariate analysis.
Results: 1) An overview of the knowledge of female students at SMAN 14 Jakarta regarding the HPV vaccine as a prevention of cervical cancer is that four respondents (4.9%) are in a good category, 63 respondents (77.8%) are in the sufficient category, and 14 respondents (17.3%) are in the poor category; 2) An overview of the knowledge of female students at SMAN 14 Jakarta regarding cervical cancer is that 13 respondents (16.05%) are in the excellent category, 66

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respondents (81.48%) are in the sufficient category, and two respondents (2.47%) are in the poor category.; 3) An overview of the knowledge of female students at SMAN 14 Jakarta regarding risk factors for cervical cancer is that 31 respondents (38.27%) are in the excellent category, 39 respondents (48.15%) are in the sufficient category, and 11 respondents (13.58%) are in the poor category; 4) An overview of the knowledge of female students at SMAN 14 Jakarta regarding the benefits and timing of giving the HPV vaccine is that five respondents (6.17%) are in the excellent category, 49 respondents (60.49%) are in the sufficient category, and 27 respondents (33.34%) are in the poor category; 5) The description of the attitude of female students at SMAN 14 Jakarta regarding the HPV vaccine as a prevention of cervical cancer is that 42 people (51.85%) were in the excellent category and 39 respondents (48.15%) were in the fair category.

Conclusion: From the research results, it was found that in terms of knowledge about the HPV vaccine as a prevention of cervical cancer, the majority of students were still in the sufficient category (77.8%), while in terms of attitudes, only half of the students had good attitudes or views regarding vaccines. HPV as prevention of cervical cancer. So it can be concluded that efforts are still needed to disseminate information and increase awareness among female students about the importance of preventing cervical cancer, one of which is through vaccination activities.

Keywords: Cervical cancer; HPV vaccine; knowledge; attitudes.

1. INTRODUCTION

Nowadays, cancer is still a scourge for most people, in addition to the fear of being infected with Covid-19 during the pandemic. [1] This is triggered by the multifactorial causes of cancer, more expensive treatment costs (almost 4x compared to other diseases), and life expectancy. Which is low (depending on the type and stage of cancer). [2], according to a report from the Institute for Health Metrics and Evaluation in Our World in Data in 2017, cancer is the second leading cause of death in the world (after cardiovascular disease) in the non-communicable disease category. (PTM) with an accumulation of 9.56 million deaths.[3] Based on data from the Global Burden of Cancer (GLOBOCAN), new cancer cases worldwide in 2012 were recorded at 14.1 million and increased to 19.3 million new cases in 2020. [4,5] Indonesia itself recorded 396,914 cancer cases with 234,511 deaths. In 2020 [6]. Data from Riskesdas in 2018 also shows an increase in cancer prevalence in 2013 and 2018, namely from 1.4‰ to 1.49‰ [7].

The risk factors of cancer are 22% caused by smoking, 15% caused by viral infections (such as HIV, hepatitis B, HPV), 10% genetics, and 10% caused by lifestyle patterns such as obesity, unhealthy eating patterns, and alcohol consumption. Radiation exposure, and many more [8,9-11]. Risk factors are important to relate to the Generation Z population, namely the generation born in 1997-2021. The 2020 population census results show that Generation Z dominates 27.94% of Indonesia's total population, or 74.93 million people [12]. The findings show that one of Gen Z's characteristics is a reduced ability to manage stress and live a healthy lifestyle. This ability decreases with each generation, and the worst peak is in Generation Z [13]. This is what causes concern that when, in a few years, Generation Z enters a productive age, various threats of disease will come, including the incidence of cancer. The highest incidence of cancer in women in the world is caused by breast cancer, followed by colorectal cancer, lung cancer, and cervical cancer [14]. GLOBOCAN reports that in Indonesia itself, cervical cancer is the second cause of cancer deaths in women (after breast cancer). Namely 21,003 people in 2020 [7].

Based on 2019 data from the Research and Development Agency for Health, cervical cancer also contributed to the second-highest incidence of cancer (10.69% after breast cancer) among all residents [8]. In Southeast Asia, Indonesia is in first place with the highest number of cases and mortality due to cervical cancer in 2018 [15]. Cervical cancer can be detected as early as possible, routinely using the Pap smear method and Visual Inspection with Acetic Acid (IVA). Still, almost 70% of patients who come to the hospital have entered an advanced stage [16,17,18-20]. Cervical cancer can be prevented by HPV vaccination, which can be given starting at age nine or before sexual intercourse. This is because one of the risk factors that has been proven to be related to the occurrence of cervical cancer is early sexual intercourse (before 18 years) and unsafe (multiple partners) [21]. However, it is miserable that HPV vaccination

has not yet become a national program, so cases of cervical cancer are still very high in Indonesia [22]. In contrast to the United Kingdom, which has made HPV vaccination a national immunization program since 2008, the number of cervical cancers in the UK was recorded at 3,152 in 2015- 2017 [23]. This figure is very far compared to the number of cervical cancers in Indonesia, namely 36,633 cases [7]. Added to this are the facts showing that 5.6% of Indonesian teenagers have had premarital sex based on data from Health Research and Development and UNESCO [24,25,26].

Lack of knowledge about the dangers, risk factors, and especially prevention of cervical cancer is the main problem with the high number of cervical cancer cases in Indonesia [27]. Moreover, it takes years for the HPV virus infection to cause cervical cancer, so the clinical manifestations do not appear at that time. This is where the importance of good knowledge about cervical cancer in Generation Z, which will later be able to raise awareness and attitude to want to carry out prevention, one of which is HPV vaccination. Therefore, researchers want to examine the level of knowledge and attitudes of female high school students as Generation Z teenagers regarding HPV vaccination as a prevention of cervical cancer.

General purpose: To obtain information regarding the knowledge and attitudes of female students at SMAN 14 Jakarta regarding the HPV vaccine as a prevention of cervical cancer

Special purpose:

a. To obtain information about high school students' knowledge regarding cervical cancer and risk factors for cervical cancer
b. To obtain information about female high school students' knowledge regarding the benefits and timing of giving the HPV vaccine to prevent cervical cancer.
c. To determine the attitudes of high school students towards receiving HPV vaccination.

2. MATERIALS AND METHODS

The method used in this research is a descriptive-analytical cross-sectional research method with a quantitative approach. This analytical descriptive method describes reports and the current real situation from the data collection results to draw a general conclusion. Then, an analysis of the description of knowledge and attitudes was also carried out simultaneously based on the respondents' major category and class level. Data collection in this study used a random sample survey method for things that are not actual/cannot be observed directly, namely a description of knowledge and attitudes [28]. This research was conducted at SMAN 14 Jakarta, Cawang, in 2021. The population in this study was female students at SMAN 14 Jakarta. The research sample consisted of 81 people who were determined using the Slovin formula from a total population of 442 people and meet the following criteria:

Inclusion criteria: All female students of SMAN 14 Jakarta who were willing to become respondents

2.1 Exclusion Criteria

a. A Male Student at SMAN 14 Jakarta
b. A female student at SMAN 14 Jakarta who was not willing to be a respondent

2.2 Method of Collecting Data

How to collect data: This research uses primary data, namely data obtained directly from research subjects through observation, interviews, and questionnaires. This research used primary data from a questionnaire filled out by a sample of female students at SMAN 14 Jakarta.

Data collection instrument: The instrument used in this research was a Google Form media questionnaire, which contained statements about the knowledge and attitudes of female students at SMAN 14 Jakarta regarding the HPV vaccine as a prevention of cervical cancer.

Data collection technique: The technique used in collecting data is randomly filling out questionnaires for the population. A questionnaire is a list of questions filled in by respondents to obtain written information from them. The questionnaire in this research will be distributed via a link containing a Google form. The questions used were dichotomous closed-ended questions (answer options in the form of yes/no for the knowledge aspect and a 1-4 Likert scale for the attitude aspect) to shorten the questionnaire completion by respondents. The assessment scale used is the Guttman scale (yes=1, no=0) for the knowledge category and the Likert scale (4=strongly agree, 3=agree,

2=disagree, and 1=strongly disagree) for the attitude category. There are 25 questions consisting of 15 knowledge questions and ten attitude questions, with an estimate that filling out the questionnaire takes around 7-10 minutes. This is done to maintain the respondent's focus and interest in filling out the questionnaire.

The questionnaire that has been designed must first be ascertained whether it is suitable to be used as a research measuring tool and whether the measurement results are consistent if the questionnaire is used repeatedly. Validity validis a test that measures an instrument's suitability level with what it wants to measure. The validity test tested the research questionnaire on 20-30 respondents. This research tested the questionnaire on 30 female students from SMAN 1 Kepanjen, SMAN 71 Jakarta, Sekolah Pelita Bangsa Lampung, and SMA Regina Pacis Bogor. The test results must show that r calculated > r table with a significance level/α of 0.1. This study's r table with the two-way test significance level for 30 respondents was 0.3061. So, the question item is valid if the calculated r is > 0.3061.

After that, a reliability/reliability test measures the extent to which the measurement results and instruments can be replicated/used repeatedly. Reliability measurement uses the Alpha Cronbach formula, which can be made more accessible by managing the SPSS application. A questionnaire is declared reliable if it has an α value >0.7. After the question items are proven valid and reliable, the questionnaire is distributed to respondents to analyze the data results using the statistical product and service solution (SPSS) computer application [29,30].

Data processing: Data processing in this research went through 4 stages: editing, coding, processing, and cleaning. Editing is checking/rechecking the survey data by looking at the completeness of filling in the answers, clarity of the meaning, and suitability between the answers. After that, it is essential to specify whether or not the variables studied have been included in the data. Continuing with the coding process, namely, changing data/classifying questionnaire answer data into numbers to make it easier for researchers to analyze data and speed up data entry into the SPSS application. This coding must be carried out carefully to avoid errors in entering the code from the answer.

Third is the processing stage, namely a stage of calculating/processing data so that it can later be tabulated/presented. Apart from that, this process also includes data storage with the SPSS computer program. The final stage is data cleaning. Namely, the process of re-checking the data entered so that missing data or extreme and undefined values can be handled immediately [31,32].

Data analysis: The data obtained will be processed using the SPSS version 25 statistical software program, and univariate data analysis will be carried out. Univariate analysis analyzes each variable (knowledge and attitudes) by summarizing the data and presenting it in tabular form. So, from this analysis, we get a picture of the knowledge and attitudes of female students at SMAN 14 Jakarta regarding the HPV vaccine as a prevention of cervical cancer [33].

3. RESULTS AND DISCUSSION

3.1 Validity and Reliability Test

This questionnaire was tested on 30 female student respondents from several high schools outside SMAN 14 Jakarta to test whether each question item was valid. This study's r table with the two-way test significance level for 30 respondents was 0.3061. The test results must show that the calculated r is >0.3061 to be said to be valid.

Based on the validation test results Table 1, it was found that question item number 1 (P1) to question item number 15 (P15) had a calculated r > 0.3061. So that the 15 research knowledge questions were declared valid and suitable for use as questionnaire measurement instruments.

Based on the Table 2 of validation test results, it was found that attitude question item number 1 (S1) to question item number 10 (S10) had a calculated r > 0.3061. So, the ten attitude aspect questions were declared valid and suitable for use as questionnaire measurement instruments. Next, a reliability test was carried out to measure consistency and the extent to which the existing questionnaire instruments/questions could be replicated/used repeatedly. Reliability measurement uses the Alpha Cronbach formula, and management uses the SPSS application. A questionnaire is declared reliable if it has an α value >0.7. The following are the results of the reliability test for the knowledge aspect questions:

Table 1. Knowledge validity test results

Instrument	r count value	r table value	Interpretation
P1	0,524	0,3061	Valid
P2	0,535	0,3061	Valid
P3	0,431	0,3061	Valid
P4	0,699	0,3061	Valid
P5	0,430	0,3061	Valid
P6	0,493	0,3061	Valid
P7	0,479	0,3061	Valid
P8	0,517	0,3061	Valid
P9	0,636	0,3061	Valid
P10	0,653	0,3061	Valid
P11	0,659	0,3061	Valid
P12	0,450	0,3061	Valid
P13	0,489	0,3061	Valid
P14	0,436	0,3061	Valid
P15	0,457	0,3061	Valid

Table 2. Attitude validity test results

Instrument	r count value	r table value	Interpretation
S1	0,577	0,3061	Valid
S2	0,844	0,3061	Valid
S3	0,737	0,3061	Valid
S4	0,660	0,3061	Valid
S5	0,708	0,3061	Valid
S6	0,539	0,3061	Valid
S7	0,746	0,3061	Valid
S8	0,428	0,3061	Valid
S9	0,365	0,3061	Valid
S10	0,441	0,3061	Valid

Table 3. Knowledge reliability test

Cronbach's Alpha	Number of Question Items
0,847	15

Table 4. Attitude reliability test

Cronbach's Alpha	Number of Question Items
0,814	10

Based on the reliability test results of 15 knowledge question items and 10 attitude question items, the α value was >0.7. Thus, it can be concluded that the 25 question items in this questionnaire are reliable and consistent.

3.2 Respondent Characteristics

The characteristics of this study's respondents are based on age, class, and major. The following describes the characteristics of 81 female respondents from SMAN 14 Jakarta.

Based on Table 5, it can be seen that the majority of respondents are 16-17 years old, with the highest percentage being 16 years old, namely 38.3%. Then, 28 people (34.6%) aged 17 years, 20 people aged 15 years (24.7%), and the remaining one person each aged 18-19 years (1.2%). This data is in accordance with the initial aim of this research which focused on generation Z, namely the generation born between 1997-2012. For class origin, most respondents came from class X with 44 people (54.3%) followed by 19 people from class XI (23.5%), and class and class XII, namely 18 people (22.2%).

The third characteristic is department, respondents were divided into sixty two science/mipa majors (76.5%) and nineteen social

studies/social science majors (23.5%). This is in accordance with student data at SMAN 14 Jakarta, namely that the science department has a larger percentage of students who are divided into 15 classes, while the social sciences department only consists of 6 classes for the entire class X-XII.

3.3 Knowledge of Female Students at SMAN 14 Jakarta Regarding Cervical Cancer and the HPV Vaccine

The knowledge aspect regarding cervical cancer and the HPV vaccine consists of 15 questions and details of the frequency distribution of answers regarding cervical cancer, risk factors for cervical cancer, and the benefits and timing of giving the HPV vaccine were obtained from 81 respondents as in Table 6.

Based on Table 6, in the aspect of knowledge about cervical cancer, there are 3 questions which the majority of respondents answered correctly, namely regarding the virus that causes it, the nature of disease progression, and complications from cervical cancer for sufferers.77 respondents (95.1%) answered correctly regarding the human papillomavirus as an agent that causes cervical cancer. These results are similar to the results of Rahayu's research on junior high school students in Yogyakarta and Chandra on high school students in Medan, where the majority of respondents knew that the cause of cervical cancer was HPV [34,35]. The Human Papilloma Virus can infect through direct skin and mucous membrane contact, including sexual contact. sexual. There are various types of HPV itself; the low-risk category of HPV causes the growth of warts, especially in the genital area, which is often called condyloma acuminata. Meanwhile, for the high-risk HPV category, especially types 16 and 18 and 11 other types, it can cause progression towards cervical cancer [36,37].

This knowledge data was then compared with the results of research by Jalani et al. regarding the description of knowledge, attitudes, and actions of junior high school students in rural areas of Negeri Sembilan, Malaysia, and similar results were obtained. As many as 52.8% of respondents knew that HPV infection can cause cervical cancer [38]. Even though the vaccination coverage rate in Malaysia is much higher (84% for the second dose) than in Indonesia (7% for the second dose) [39], the knowledge of high school girls in Jakarta is superior. This is also supported by female students at SMAN 14 Jakarta who live in urban areas so that access to information is more accessible. In contrast to the question regarding the prevalence of cervical cancer in Indonesia [40], respondents (65.4%) answered incorrectly and considered cervical cancer to be the first cause of death. Cervical cancer should be in second place after breast cancer, with a death toll of 21,003 people in 2020 [7]. This quite high number of deaths is because cervical cancer is a silent killer. Almost all respondents (97.5%) knew and agreed with this statement. The progression of HPV infection to cervical cancer is quite slow, namely 3-20 years. However, at the stage of development of CIN to stage II of cervical cancer, only minor symptoms appear without even clinical symptoms or are asymptomatic. Therefore, almost 70% of new cases of cervical cancer discovered have already entered an advanced stage [41]. The results of a research study by Sulistyawati et al. also reveal a similar fact that 64.1% of patients who came and were diagnosed with cervical cancer turned out to have entered stage IIIB. 63 Indonesia also became the number 1 country with the highest number of cases and deaths due to cervical cancer in Southeast Asia in 2018 [15].

This is what causes cervical cancer to be called one of the silent killers in women. The good news is that female students at SMAN 14 Jakarta already understand and are aware of the dangers of cervical cancer and are not taking it lightly. Talking about the symptoms that appear in the early stages of cervical cancer, it turns out that 75 respondents (92.6%) answered wrong. The majority of respondents thought that in the early stages symptoms of foul-smelling vaginal discharge would appear which should appear in the later stages. In the early stages, cervical cancer is usually asymptomatic. There are only a few complaints such as abnormal bleeding or recurring vaginal discharge [41,42]. This is similar to the results of Dethan and Suariyani's research on female high school students in Badung where the respondents did not know that in the early stages of cervical cancer no significant symptoms appeared [27].

Continuing to the fifth question regarding symptoms of cervical cancer that are easy to observe, it turned out that 46 respondents (56.8%) answered incorrectly. This data is in line with the results of Rahayu, et al's research on junior high school students in Yogyakarta where the majority of respondents did not know that the symptoms of cervical cancer are difficult to

see/observe. However, Jalani, et al's research data on junior high school students in Malaysia actually showed that 65.4% respondents already know that the symptoms of cervical cancer can be asymptomatic [35].

As explained in the previous paragraph, cervical cancer, especially in the early stages, is often asymptomatic, making initial treatment difficult. Therefore, the American Cancer Society recommends that women aged at least 25 years

Table 5. Characteristics of 81 female student respondents at SMAN 14 jakarta

Characteristics (n=81)	Frequency (f)	Percentage (%)
Age		
15 year	20	24,7%
16 year	31	38,3%
17 year	28	34,6%
18 year	1	1,2%
19 year	1	1,2%
Grade		
X	44	54,3%
XI	19	23,5%
XII	18	22,2%
Major		
Natural Sciences	62	76,5%
Social Sciences	19	23,5%

Table 6. Frequency distribution of respondents' answers regarding cervical cancer and the HPV vaccine

	Statement	Answer	
		True f (%)	False f (%)
	Knowledge about cervical cancer		
1.	Cervical cancer is caused by infection with the human papilloma virus	77 (95,1)	4 (4,9)
2.	Cervical cancer is the first cause of death in women in Indonesia	28 (34,6)	53 (65,4)
3.	Cervical cancer is a silent killer	79 (97,5)	2 (2,5)
4.	Symptoms of abnormal, foul-smelling vaginal discharge usually appear in the early stages of cervical cancer	6 (7,4)	75 (92,6)
5.	Symptoms of cervical cancer are easy to observe so immediate treatment can be given	35 (43,2)	46 (56,8)
6.	Complications from cervical cancer and its treatment can cause bleeding and infertility	77 (95,1)	4 (4,9)
	Knowledge about risk factors for cervical cancer		
7.	Having multiple sexual partners does not increase the risk of developing cervical cancer	50 (61,7)	31 (38,3)
8.	Mothers who have given birth 4 times are at risk of developing cervical cancer	51 (63)	30 (37)
	Knowledge about the benefits and timing of giving the HPV vaccine		
9.	HPV vaccination is a primary prevention measure for cervical cancer	80 (98,8)	1 (1,2)
10.	The HPV vaccine can also prevent gonorrhea and syphilis	23 (28,4)	58 (71,6)
11.	Giving HPV vaccination can protect 99% from HPV infection	56 (69,1)	25 (30,9)
12.	The HPV vaccine is given by injection into the lower abdomen	61 (75,3)	20 (24,7)
13.	HPV vaccination is included in the national mandatory immunization	27 (33,3)	54 (66,7)
14.	The HPV vaccine is specifically for adult women or those who are about to get married	63 (77,8)	18 (22,2)
15.	The time interval for administering the first dose of vaccine to the second dose is six months	13 (16)	68 (84)

undergo screening/early detection every 5 years (especially for women who are married/having sexual relations) [29]. This action is important so that precancerous and cancerous lesions at an early stage can be found. as early as possible and treated immediately so that the death rate can decrease.

From the aspect of knowledge about cervical cancer, the majority of female students at SMAN 14 Jakarta already know the dangers, causes and complications of cervical cancer. This is most likely driven by easy access to information about cervical cancer among female students. However, there needs to be increased knowledge about the symptoms and the importance of early detection to diagnose cervical cancer so that treatment can be carried out as early as possible. For the category of knowledge about cervical cancer risk factors, the risk factor of having multiple sexual partners was answered correctly by 50 respondents (61.7%). Apart from that, 51 female students (63%) also knew that multiparity was a risk factor for cervical cancer. These results are similar to Dethan and Suariyani's research on female high school students in Badung and the results of Rahayu, et al. on junior high school students in Yogyakarta where the majority of respondents already knew what the risk factors for cervical cancer were [27,35] However, the knowledge of female students at SMAN 14 Jakarta regarding risk factors was greater. superior to junior high school students in Malaysia in Jalani, et al.'s research where 75-80% of students did not know that HPV was transmitted through direct skin contact, including sexual intercourse and smoking, which also increased risk factors [41].

Knowledge of early detection of cervical cancer is also no less important, considering that Generation Z will now dominate the population in the next few years. Indonesia is also included in the low-middle income country group. What is worrying is that 86% of the burden of cervical cancer comes from this category plus the vaccination rate is still <30% [34] Overall, regarding the knowledge aspect regarding the benefits and timing of giving the HPV vaccine, the majority of female students at SMAN 14 Jakarta already know the main benefits and importance of HPV vaccination. Based on the research results of Dethan and Suariyani. Good knowledge about the importance of the HPV vaccine can increase 13.6 times female students' willingness to be vaccinated against HPV in the future [27]. From the results of the frequency distribution of respondents' answers above, researchers categorized the level of knowledge of female students at SMAN 14 Jakarta into three categories, namely good, sufficient and poor based on the total score of each respondent. For the good knowledge category (76%-100%) with a score of 12-15, sufficient knowledge (56%-75%) with a score of 8-11, and poor knowledge (<56%) with a score of 1-7. It turned out that the results showed that the majority of respondents (77.8%) had sufficient knowledge in understanding cervical cancer and the HPV vaccine. Meanwhile, only 4 respondents (4.9%) had good knowledge about cervical cancer and the HPV vaccine, which is smaller than the percentage of respondents (17.3%) who did not understand and understand about cervical cancer and the HPV vaccine. These results are in line with Dethan and Suariyani's research at Badung Private High School where the majority of respondents' knowledge was sufficient [27].

3.4 Attitudes of Female Students at SMAN 14 Jakarta Regarding Receiving the HPV Vaccine

The attitude aspect regarding acceptance of the HPV vaccine consists of 10 questions and details of the frequency distribution of answers from 81 respondents were obtained as in Table 7:

Aspects of a person's knowledge will influence the emergence of a response or a person's response to an object being studied, where this condition is called attitude. Attitude is a stage where a person has a tendency to act, either positively (support) or negatively (reject) towards an object. Attitudes have not yet entered the action stage but can be a factor that triggers a person in making decisions and carrying out actions/behavior [30,32]. In Table 7, there are 17 people (21%) disagree and 25 people (30.9%) strongly disagree about the statement that they have not been vaccinated due to ignorance about the HPV vaccine. There were 75 respondents (92.6%) who chose the disagree and strongly disagree option to the statement that the high price of the HPV vaccine was a reason there was no need to get vaccinated. The results of this data are similar to Dethan and Suariyani's research where the majority of respondents did not mind being vaccinated against HPV even though the price was expensive [27].

Table 7. Frequency distribution of respondents' answers regarding attitudes towards acceptance of the HPV vaccine

No.	Statement	Answer			
		Strong Agree f(%)	Agree f(%)	Disagree f(%)	Strongly Disagree f(%)
1.	I haven't been vaccinated against HPV because I don't know what the HPV vaccine is	16 (19,8))	23 (28,4)	17 (21)	25 (30,9)
2.	In my opinion, there is no need to vaccinate against HPV because it is expensive	2 (2,5)	4 (4,9)	25 (30,9)	50 (61,7)
3.	I don't think the HPV vaccine is important because being vaccinated or not being vaccinated is the same	0 (0)	2 (2,5)	19 (23,5)	60 (74,1)
4.	I'm afraid of getting vaccinated because I'm afraid of being injected with a syringe	1 (1,2)	6 (7,4)	16 (19,8)	58 (71,6)
5.	I am afraid of the side effects that will arise after the vaccine	4 (4,9)	28 (34,6)	23 (28,4)	26 (32,1)
6.	I don't know how to get the HPV vaccine	19 (23,5)	24 (29,6)	22 (27,2)	16 (19,8)
7.	I would rather buy a makeup set than an HPV vaccination	1 (1,2)	4 (4,9)	23 (28,4)	53 (65,4)
8.	I will continue to maintain my reproductive health by not having sexual relations outside of marriage	69 (85,2)	7 (8,6)	2 (2,5)	3 (3,7)
9.	If my parents facilitate it, I am willing to be vaccinated	55 (67,9)	22 (27,2)	2 (2,5)	2 (2,5)
10.	I want to spread information about the HPV vaccine to other relatives/friends	43 (53,1)	33 (40,7)	5 (6,2)	0 (0)

Regarding the statement that vaccination is not important because there is no difference between whether they have been vaccinated or not, seventy-nine respondents (97.6%) chose to disagree and strongly disagree. This data is also the same as the results of Dethan and Suariyani's research where the majority of respondents understand the importance of getting the HPV vaccination [27]. This also indicates a positive mindset and attitude of the majority of respondents regarding the HPV vaccination. Then, as many as 74 people (91.9%) answered disagree and strongly disagree to the statement of reluctance to be vaccinated due to personal fear of needles. Then the statement of reluctance to be vaccinated due to fear of side effects after vaccination, as many as 49 people (60.5%) answered disagree and strongly disagree. This shows that the majority of respondents did not use fear of needles and the side effects of the HPV vaccine as the main reasons for not wanting to get the HPV vaccine. Side effects that often arise due to HPV vaccination include pain and swelling in the vaccine injection area and headaches. Apart from that, fever and weakness can also occur post vaccination. Rare events include urticaria (occurring 1 in 1000 people) and bronchospasm (occurring only <1 in 10,000 people) as allergic reactions due to vaccination [31]. Overall, respondents were positive about receiving the HPV vaccine. This is in line with the results of research by Jalani, et al which stated that 86.6% of junior high school female respondents in rural areas of Malaysia wanted to be vaccinated against HPV. 61 In addition, research by Rashid, et al on female students in India also showed enthusiasm for being vaccinated against HPV. 68 The same thing also comes from Kristina and Permitasari's research where in 10 of 12 developing countries in Southeast Asia the female population showed a positive attitude towards accepting the HPV vaccine [32].

In contrast to the respondent's statement of ignorance regarding access to the HPV vaccine, the majority of 43 respondents (53.1%) answered agree and strongly agree. Just like the results of Dethan and Suariyani's research, most respondents still don't know and find it difficult to get access to HPV vaccination [27]. This is what needs to be socialized to female students so that

this aspect does not become an obstacle to HPV vaccination in the future.

Continuing with the statement regarding priority allocation of funds for purchasing make-up or HPV vaccination, it turned out that as many as seventy-six female students (93.8%) preferred HPV vaccination. This percentage shows that almost all respondents know the priority and importance of HPV vaccination compared to the need to buy make-up. This data is related to the results of attitude statement number three where respondents already know the priority and importance of HPV vaccination.

A total of 69 respondents (85.2%) strongly agreed not to have sexual relations outside of marriage as a form of maintaining their own reproductive health. This indicates that female students have sufficient knowledge regarding the dangers and consequences of sexual relations outside of marriage which encourages an attitude of rejecting premarital sex. Furthermore, as many as 77 female students (95%) wanted to be vaccinated against HPV, especially if their parents permitted and facilitated it. Parental support is an important factor in implementing HPV vaccination for children and young women. As in Wahidin and Febrianti's research on the Description of the Implementation of the HPV Vaccination Program in Two Community Health Centers in Central Jakarta, it was found that the main factor inhibiting HPV vaccination was permission from parents. Many parents refuse to have their children vaccinated because they do not know the benefits and importance of HPV vaccination and doubt the halalness of the HPV vaccine. Therefore, through this research, it is hoped that female students who have received socialization can provide understanding to their respective parents to support their daughters in getting HPV vaccination.The final statement regarding respondents' willingness to disseminate information about HPV vaccination received 93.8% of the vote. Almost all female students understand the importance of HPV vaccination and are willing to share this important information and educate other relatives or friends. This is a positive signal of acceptance by SMAN 14 Jakarta female students of HPV vaccination to support the dissemination of information related to cervical cancer and HPV vaccination. Dissemination is an important factor in increasing public awareness of the importance of HPV vaccination as an initial step in preventing cervical cancer, especially for generation Z

4. CONCLUSION

The conclusions from this research were: 1) An overview of the knowledge of female students at SMAN 14 Jakarta regarding the HPV vaccine as a prevention of cervical cancer is that 4 respondents (4.9%) are in the good category, 63 respondents (77.8%) are in the sufficient category, and 14 respondents (17.3%) are in the poor category; 2) An overview of the knowledge of female students at SMAN 14 Jakarta regarding cervical cancer is that 13 respondents (16.05%) are in the good category, 66 respondents (81.48%) are in the sufficient category, and 2 respondents (2.47%) are in the poor category; 3) An overview of the knowledge of female students at SMAN 14 Jakarta regarding risk factors for cervical cancer is that 31 respondents (38.27%) are in the good category, 39 respondents (48.15%) are in the sufficient category, and 11 respondents (13.58%) are in the poor category; 4) An overview of the knowledge of female students at SMAN 14 Jakarta regarding the benefits and timing of giving the HPV vaccine is that 5 respondents (6.17%) are in the good category, 49 respondents (60.49%) are in the sufficient category, and 27 respondents (33.34%) are in the poor category; 5) The description of the attitude of female students at SMAN 14 Jakarta regarding the HPV vaccine as a prevention of cervical cancer is that 42 people (51.85%) were in the good category and 39 respondents (48.15%) were in the fair category.]

CONCENT

As per international standards or university standards, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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