Jurnal Kesehatan
Vol. 18, No. 3, December 2025, pp. 269~279
p-ISSN: 1979-7621, e-ISSN: 2620-7761, DOI: 10.23917/jk.v18i3.7860

Relationship Between Knowledge Level with Attitude and Decision Making Towards HPV Vaccination in Junior High School Students in Surakarta City

Radi Tia Sintia Dewi[1*], Yuli Kusumawati[2]

[1,2]Prodi Kesehatan Masyarakat, Fakultas Ilmu Kesehatan, Universitas Muhammadiyah Surakarta

How to Cite: Dewi, R. T. S., & Kusumawati, Y. Relationship Between Knowledge Level with Attitude and Decision Making Towards HPV Vaccination in Junior High School Students in Surakarta City. Jurnal Kesehatan, 18(3), 269–279. https://doi.org/10.23917/jk.v18i3.7860

Article Information

Article History:
Submission: 25 December 2024
Revision: 2 January 2025
Reception: 16 May 2025

Keywords: Knowledge, attitudes, decision making, HPV vaccination, cervical cancer.

ABSTRACT

Background: Cervical cancer in Indonesia is still a public health problem, government efforts to protect against HPV infection have begun to be given in early adolescence. This study is to analyze the relationship between knowledge level and attitudes and decision-making towards HPV vaccination in junior high school students in Surakarta City. **Method:** This type of analytical observational study with a cross-sectional design. The research sample was junior high school students who represented all students in Surakarta City sampling using the cluster sampling technique. The locations of schools that were skilled as samples were SMP Negeri 20 Surakarta, SMP Muhammadiyah 4 Surakarta, SMP Warga, and SMP Al-Isryad. Data collection activities took place from July to August 2024 using a questionnaire. Hypothesis testing was carried out using the Spearman rho correlation test. **Results:** Showed that there was a significant relationship between knowledge level and attitudes towards HPV vaccination in junior high school students in Surakarta City (p-value = 0.015) with a correlation coefficient value (r) = 0.173. **Conclusion:** There is a significant relationship between knowledge level and attitudes towards HPV vaccination in junior high school students in Surakarta City. Meanwhile, female students' knowledge level is not related to decision-making regarding HPV vaccination.

Corresponding Authors: (*)
Prodi Kesehatan Masyarakat, Fakultas Ilmu Kesehatan, Universitas Muhammadiyah Surakarta, Jl. A. Yani Tromol Pos I, Pabelan Kartasura, Sukoharjo 57169, Indonesia
Email: raditiasintiadewi@gmail.com

INTRODUCTION

The results of early detection of cervical cancer in Central Java Province in 2021-2023 in women aged 30-50 years showed positive IVA results for 227,928 people, and from WUS, 19,639 positive IVAs were found (Badan Statistik Provinsi Jawa Tengah, 2023). Meanwhile, in Surakarta City, the morbidity and mortality rates due to cervical cancer are also exceptionally high. Namely, the results of early detection in women aged 30-50 years, 20 people (0.48%) were declared positive IVA, suspected cancer as many as 3 people

(0.07%), and as many as 13 people (56.52%) received positive IVA and suspected cervical cancer were referred (Dinas Kesehatan Kota Surakarta, 2023).

Ikatan Dokter Anak Indonesia (IDAI) includes the HPV vaccine in the complete basic immunization program so that the public knows that the HPV vaccine is one of the essential immunizations given to children (Geopal & Mantu, 2022). The decree of the Minister of Health of the Republic of Indonesia, number HK.01.07/MENKES/1930/2022, concerning the HPV immunization program emphasizes that to reduce the risk of cervical cancer, primary prevention is needed through the implementation of national vaccination. The HPV immunization program was included in the Bulan Imunisasi Anak Sekolah (BIAS) (Keputusan Menteri Kesehatan Republik Indonesia, 2022). This is a real action of the government to reduce morbidity and mortality due to cervical cancer. However, this program has several obstacles that make HPV vaccination coverage in Indonesia still low, namely, lack of vaccine logistics, lack of socialization, and rumours that make people afraid to get vaccinated. The rumours circulating is not accurate and have been clarified, but people still refuse and are reluctant to get HPV vaccination (Geopal & Mantu, 2022).

Previous research by (Dethan et al., 2017) in Bandung Regency showed that female adolescents' knowledge level about cervical cancer is still low. One factor that influences this lack of understanding is their lack of exposure to health information. Female adolescent knowledge level is related to attitudes towards HPV vaccination; if knowledge is low, it will result in negative attitudes about HPV vaccination. Due to the lack of knowledge among junior high school students about cervical cancer and HPV, it is suspected that this is the cause of many young women who consider it unnecessary to get HPV vaccination. Ultimately, the morbidity and mortality rates from cervical cancer are difficult to reduce (Setiawati & Novita, 2023). There are still many factors that contribute to a person's knowledge. Health workers need this as basic information in determining the proper education, adequate health program strategies, and measuring readiness in implementing HPV vaccination (Rahayu et al., 2018).

Based on a preliminary study conducted at SD Muhammadiyah Macanan and SMPN 1 Berbah, Sleman, in 2019, it was found that 120 respondents had low knowledge (94.5%). However, as many as 114 respondents had attitudes in the positive category (89.8%), which indicates that young women know the importance of getting HPV vaccination from an early age and consider HPV vaccination essential for themselves, too. Judging from the respondents' considerations in making decisions for HPV vaccination, the majority (89.9%) considered vaccine safety, and the second factor was the halalness of the vaccine (73.2%). From the figures above, it can be seen that the motivation of young women to prevent cervical cancer through HPV vaccination is still low related to knowledge, which is still in the low category even though they already have a positive attitude.

There is no coverage data on HPV vaccination in Surakarta City. In addition, to the best of the researcher's knowledge, there has been no similar research on the description of knowledge related to cervical cancer in junior high school students in Surakarta City. Knowledge related to cervical cancer is essential as additional information for health workers to determine the proper education and design effective health programs. Based on the problems above, the researcher is interested in examining the relationship between knowledge, attitudes and decision-making towards HPV vaccination in adolescent girls. Therefore, this study was conducted on junior high school students in Surakarta City because junior high school students are the right age for adolescents and are included in the main target of HPV vaccination to prevent cervical cancer and help measure readiness in implementing HPV vaccination in Surakarta City.

LITERATURE REVIEW

Cervical cancer originates from cells that grow uncontrollably in the female reproductive organs, namely the entrance to the uterus, precisely between the uterus and the vagina (Martina et al., 2023). The primary etiology of cervical cancer is Human papillomavirus (HPV) infection; as many as 80% of women will be infected with at least one of more than 100 HPV genotypes (Samaria et al., 2023). It is estimated that 70% of cervical cancers that attack humans are caused by HPV genotypes 16 and 18.. In addition, several factors can increase a person's exposure to the HPV virus, namely low socioeconomic status, weak immunity, exposure to cigarette smoke or smoking habits, organ transplants, changing sexual partners, and use of birth control pills for more than 10 years (Di Giuseppe et al., 2022).

The World Health Organization (2024) report estimates that in 2022, there will be 662,000 women diagnosed with cervical cancer, and 349,000 women will die from the disease. More than 90% of deaths from cervical cancer occur in low- and middle-income countries. Most of this happens due to unequal access to effective prevention and treatment (World Health Organization, 2024). Cervical cancer in Indonesia has a high mortality rate; this is due to late diagnosis and management of cervical cancer. In 2023, the results of the IVA test of 3,114,505 women aged 30-50 found positive results of 31,236 (1%) (Kementerian Kesehatan Indonesia, 2023). Where almost 70% of cervical cancer patients are only detected when they have entered an advanced stage, cervical cancer should be found at the precancerous lesion stage so that therapy can be carried out before it becomes cancer (Kementerian Kesehatan Indonesia, 2023).

The World Health Organization has launched the Sustainable Development Goals (SDGs) program as an acceleration of cervical cancer eradication to save more than 62 million lives with three main targets that must be achieved by 2030, namely: HPV vaccination coverage reaches 90%, screening for cervical cancer with high-performance tests twice in a lifetime reaches 705, and treatment with cervical precancer and invasive cancer reaches 90%. HPV vaccination is a primary prevention step to overcome cervical cancer, so each country is advised to make a one or two-dose HPV vaccination schedule for girls aged 9-14 years and women aged 15-21 years (World Health Organization, 2024).

The HPV vaccination program is expected to control the development of cancer cells, especially in countries that still have difficulty implementing screening programs. The main target of the HPV vaccine is women who are not yet sexually active, namely before they are at risk of being exposed to HPV. Meanwhile, the secondary target of the HPV vaccine is women who are already sexually active (Dewi et al., 2021).

METHOD

This type of research is observational analytic with a *cross-sectional design*. This study examines the relationship between knowledge, attitude and decision-making in junior high school students who were observed at the same time. The population in this study were all junior high school students in the Surakarta City area. The sample in this study was junior high school students who represented all students in Surakarta City. The sample size in this study was determined using the Slovin formula (95% significance value = 0.05). The sampling technique used cluster sampling, with the criteria respondents selected being female adolescents in junior high schools in the Surakarta City area. The entire population that had been collected was then selected randomly using a *random name-picker website*. The schools chosen as sample groups were SMP Negeri 20 Surakarta, SMP Muhammadiyah 4 Surakarta, SMP Warga, and SMP Al-Isryad.

The respondents were 196 female students from 4 junior high schools in Surakarta City. The instrument in this study was a questionnaire covering the characteristics of respondents, knowledge level of female adolescents about cervical cancer, and attitudes and decision-making of female adolescents about HPV vaccination as one of the prevention of cervical cancer. In this study, the validity test was analyzed using *Pearson Correlation*. Of the 10 items tested on 30 respondents, there were 6 valid items. Then, a reliability test was carried out, and the Cronbach Alpha (α) value was obtained at 0.516. A research instrument is said to be reasonably reliable if the Cronbach Alpha (α) value ranges from 0.400 - 0.599. The knowledge variable related to cervical cancer question items is declared quite reliable.

The research period occurred from July to August 2024 after obtaining approval from the FIK UMS ethics commission with number 417/KEPK-FIK/VI/2024. The research was conducted when permission was obtained from the school, and an appointment was determined according to the school's agreement and the researcher's agreement. This research activity began with an opening, self-introduction, and explaining the purpose of the research. After receiving an explanation, students were asked to fill out an informed consent. Furthermore, students willing to participate in the study were asked to fill out a questionnaire consisting of knowledge, attitudes, and decision-making regarding HPV vaccination as a prevention of cervical cancer. The scale assessment for the knowledge variable uses multiple-choice answers. The scale assessment for the attitude variable is categorized into two answer choices: agree and disagree. The decision-making variable uses a scale assessment that is categorized into five answer choices, namely strongly agree, agree, neutral, disagree, and strongly disagree.

The results of the data obtained were then processed, which included editing, scoring, coding, entry, and cleaning. The data was tested for normality using the *One-Sample Kolmogorov-Smirnov Test.* The analysis results show that the data on knowledge, attitudes, and decision-making have a value of 0.000 (<0.05), so data is not normally distributed. The hypothesis testing was carried out using the *Spearman-Rho* correlation test because the independent and dependent variables were measured using a numeric data scale. Still, in its interpretation, it was changed into several categories. The results are seen based on the p-value ≤ 0.05 (there is a significant relationship between the independent variables and the dependent variables) with the correlation coefficient (r) assessed from the direction of the positive relationship; if the higher the x value, the higher the y value. Likewise, the correlation coefficient is also evaluated from the direction of the negative relationship, where the lower the x value, the higher the y value. In this study, all data processing was done using SPSS for Windows version 25 in the FIK UMS laboratory.

RESULT AND DISCUSSION

This study has 196 female students from four junior high schools in Surakarta City. The characteristics of the respondents are shown in Table 1. Based on the data on the characteristics of the respondents, it shows that the number of respondents from SMP Muhammadiyah 4 Surakarta is 47 female students (24.0%), SMP Al-Irsyad is 55 students (28.1%), SMP Negeri 20 Surakarta is 44 female students (22.4%). SMP Warga has 50 female students (25.5%). It can be seen that most of the respondents are in grade 8 of junior high school (56.4%), followed by respondents from grade 7 (29.1%) and grade 9 (14.3%). Then, as many as 168 (85.7%) respondents are Muslim, there are a small number of students who are Buddhist (0.5%) and Christian (1.5%).

It is known from the education of the parents of the respondents almost all of the father's last education was at the high school/vocational school level, as many as 95 people (48.9%) and the mother's previous education was mainly at the high school/vocational

school level as many as 105 (53.6%). Meanwhile, most respondents' parents' jobs were as private workers, namely 76 people (38.8%), and most mothers' jobs were as other jobs, namely 108% (55.1%).

Table 1. Characteristics of Junior High School Student Respondents in Surakarta City (N = 196)

Respondent Characteristics	Categories	Frequency (n)	Percentage (%)
Which school are you from	SMP Muhammadiyah 4 Surakarta	47	24.0
	SMP Al-Irsyad	55	28.1
	SMP Negeri 20 Surakarta	44	22.4
	SMP Warga	50	25.5
Class Level	7	57	29.1
	8	111	56.6
	9	28	14.3
Religion	Islam	168	85.7
	Buddha	1	0.5
	Christian	24	12.2
	Catholic	3	1.5
Father's Education	Elementary School	10	5.1
	Junior High School	23	11.7
	Senior High School	95	48.5
	College	68	34.7
Mother's Education	Elementary School	9	4.6
	Junior High School	17	8.7
	Senior High School	105	53.6
	College	65	33.2
Father's occupation	Civil Servant	6	3.1
	TNI/POLRI	4	2
	Self-employed	68	34.7
	Private sector worker	76	38.8
	Other	42	21.4
Mother's Job	Civil Servant	4	2
	Self-employed	44	22.4
	Private Sector Worker	40	20.4
	Other	108	55.1

Table 2 results of the descriptive analysis show that the knowledge variable has an average value (Mean) of 4.22, a middle value (Median) of 4.00, a standard deviation (±SD) of 1.709, a lowest value (Minimum) of 0 and a highest value (Maximum) of 8. Then, the attitude variable shows an average value (Mean) of 10.68, a middle value (Median) of 11.00, a standard deviation (±SD) of 1.764, a lowest value (Minimum) of 4 and a highest value (Maximum) of 13. For the decision-making variable, the average value (Mean) is 21.02, the middle value (Median) is 20.00, the standard deviation (±SD) is 15.249, the lowest value (Minimum) is 2 and the highest value (Maximum) is 225.

Based on the test results, Data normality is known. Knowledge, attitude, and decision-making data are not normally distributed, so the categorization uses median data. Therefore, the measurement aspect can be categorized into good and less good categories for knowledge and attitude variables, while the decision-making variable is categorized into doubtful and sure.

Table 2. Descriptive Analysis of Knowledge Level with Attitudes and Decision Making Towards HPV Vaccination.

Variables	Mean	±SD	Median	Min-Max
Knowledge	4.22	1,709	4.00	0-8
Attitude	10.68	1,764	11.00	4-13
Decision-making	21.02	15,249	20.00	2-225

Based on Table 3, this study found that more than half of junior high school students in Surakarta City (52.6%) have poor knowledge level about cervical cancer. The results of this study are different from previous studies on junior high school students in Yogyakarta City in 2018 with 97 respondents, where the results of the study showed that the largest category was respondents who had a good level of knowledge, as many as 57 respondents (58.7%) (Rahayu et al., 2018). Similarly, research conducted on junior high school & high school students aged 12-19 years in Bulian Village, Tebing Tinggi City, obtained sufficient knowledge (51.7%) (Fitri & Akbar, 2021). This difference is possible because, in previous studies, they had different levels of education and had received information about cervical cancer either directly or indirectly. Therefore, poor knowledge about cervical cancer can be influenced because students have never received information or learning materials related to cervical cancer at school. Meanwhile, female students' knowledge will tend to be better when they are exposed to information about cervical cancer (Rahayu et al., 2018).

Table 3. Frequency Distribution of Knowledge Level with Attitudes and Decision Making Towards HPV Vaccination

Variables	Categories	Frequency (n)	Percentage (%)
Cervical Cancer Knowledge	Not good	103	52.6
	Good	93	47.4
Attitudes Towards HPV Vaccination	Not good	119	60.7
	Good	77	39.3
HPV Vaccination Decision Making	Hesitant	102	52.0
	Certain	94	48.0

Respondents' knowledge is still relatively low because most respondents are still wrong in answering how to treat cervical cancer (73.0%). Female students are less accurate in answering questions about tertiary prevention of cervical cancer (81.1%). Most (85.7%) female students do not know how to prevent cervical cancer from developing into something worse. More than half of female students (59.7%) do not understand that the HPV vaccine is the primary prevention of cervical cancer.

Table 4. Relationship between Knowledge Level with Attitudes and Decision Making Towards HPV Vaccination.

Variables	N	*p-value*	r
Knowledge – Attitude	196	0.015	0.173
Knowledge – Decision Making	196	0.197	0.093

Based on the Spearman rho correlation test, it was concluded that there was a relationship between the level of knowledge about cervical cancer and attitudes towards HPV vaccination (p-value = 0.015) with a correlation coefficient value (r) = 0.173, meaning that the strength of the relationship between the two variables was weak with a positive relationship direction. This shows that the better the level of knowledge about cervical cancer, the better the attitude towards HPV vaccination. Next, on the decision-making

variable, the results of the Spearman rho test concluded that there was no relationship between knowledge of cervical cancer and decision-making regarding HPV vaccination (p-value = 0.197).

Knowledge is the result obtained by humans who "know" about something or all human actions through sensing to understand a particular object. Sensing is done by using the five human senses, namely the sense of smell, sight, hearing, taste, and touch (Notoatmodjo, 2007). A person's level of knowledge is influenced by several factors, namely the level of education, information, culture, and experience (Rachmawati, 2019). The most influential factor in knowledge is the source of information. Usually, the sources of information are electronic media and print media. The source of information that is widely used in mass communication is broadcasting information, ideas, and attitudes to diverse communities in large numbers using the media. This shows that sources of information are essential in socializing cervical cancer (A. Rahmadini et al., 2022).

In addition, the level of education and advocacy from the school also affects students' knowledge about health, especially cervical cancer. The results of a study conducted by Mastikana et al (2021)showed that high school students have a better ability to receive new information, as seen from the attitudes, interests, and ways these active students explore new knowledge. Then, there is support from school advocacy by providing health socialization, being active in PMR (Palang Merah Remaja) activities, and other constructive activities as an essential reference in increasing good knowledge for students.

The attitude variable shows that more than half of the female students (60.7%) have a negative attitude towards HPV vaccination. This is different from the results of Sagitarini (2019)study on female students of SMK PGRI 3 Denpasar, which showed that more than half of the female students (60.6%) had a positive attitude towards HPV vaccination as an early prevention of cervical cancer. This difference is likely due to differences in respondent sources and education levels; in Sagitarini (2019) study, the respondents were female vocational school students who had a higher awareness to respond or respond to actions related to cervical cancer prevention, such as seeking related information, resulting in a positive attitude.

In theory, attitude is a predisposition to respond to environmental stimuli that can guide a person's behaviour. A person's attitude can show support, favourable, disfavour, or disfavour for a particular object. Each person will have a different attitude in responding to something. This happens because of several factors that can influence the formation of attitudes, including personal experience, other people, culture, mass media, educational institutions, and emotional factors (Rachmawati, 2019).

Attitudes formed towards HPV vaccination as a prevention of cervical cancer can be influenced from within the individual and from outside the individual. Attitudes that originate from within the individual will be difficult to change because they have become the individual's character unless there is encouragement or support from outside parties that influence a person's attitude to change. External influences such as friends, family, and the environment can influence a person's attitude. This is shown by research on students of SMAN 5 Batang, which showed that the majority had attitudes in the good category (90.7%). This happens because of good facilities and infrastructure and guidance from advocates so that good attitudes are formed (Mastikana et al., 2021).

Furthermore, regarding the decision-making variable, it shows that some female students (52%) are still hesitant. Meanwhile, the rest (48.0%) of female students made a confident decision to get an HPV vaccination. Several reasons make them hesitate and unsure in making decisions about HPV vaccination, such as still wanting to get more

information, wanting to discuss with health workers, being afraid of needles, and being fearful of the side effects of the vaccine. In addition, the halalness and safety of the vaccine are other factors that influence adolescents in making decisions about HPV vaccination (Arifah et al., 2017).

When viewed from the question items regarding decision-making regarding HPV vaccination, respondents consider several reasons in making decisions regarding HPV vaccination. It is known that 91.8% of respondents stated that parents play a role in making decisions to get HPV vaccination. This shows that most teenagers consider themselves passive participants in medical decisions because parental approval is the most important and primary thing. Therefore, teenagers tend not to be able to make their own decisions, so they are still very dependent on the direction and decisions of their parents (Arifah et al., 2017). Research by Dethan et al (2017) also provided similar results. Notably, 76.6% of high school students in Bandung City stated that parental approval greatly influenced decision-making in HPV vaccination. Parents' recommendations greatly influence adolescent girls' decision-making regarding HPV vaccination, so parents' role is very much needed in their children's decision-making. Parents have a role in influencing their children's decisions because adolescents are not yet materially productive and still depend on their parents, so they follow their parents' directions (Dethan et al., 2017).

Based on the research results, it is known that 85.7% of female students stated that their religious beliefs influenced their decision-making regarding HPV vaccination. In this study, most respondents were Muslim (85.7%). This condition is related to the public perception that still considers that vaccines are not allowed in Islam because they contain haram ingredients. Referring to the Fatwa of the Majelis Ulama Indonesia (MUI) in 2016 concerning Immunization, it states that Immunization is permitted (mubah) as a form of effort to maintain immunity and as a prevention against certain diseases. If based on considerations from competent and trusted experts, it is stated that someone who is not immunized can cause death, serious illness, or permanent disability that is life-threatening. In this case, Immunization is mandatory (Majelis Ulama Indonesia, 2016).

In addition, as many as 96.9% of female students were hesitant to get HPV vaccination because they did not believe that the HPV vaccine could protect them from cervical cancer. This happened because most respondents felt that they were not at risk of cervical cancer, so they did not need to defend themselves by getting an HPV vaccination (Dethan et al., 2017). The HPV vaccine is an early prevention that can reduce infection and the risk of cervical cancer. Still, its benefits can only be felt several years later after someone gets an HPV vaccination (Word Helath Organization, 2016). The HPV vaccine has the potential to reduce morbidity and mortality due to cervical cancer infection. In Indonesia, the HPV vaccine is produced using recombinant technology so that it has 96-98% efficacy in preventing cervical cancer caused by HPV types 16 and 18 (Peraturan Menteri Kesehatan Republik Indonesia, 2013).

The results of the study showed a significant relationship between knowledge level and attitudes towards HPV vaccination in junior high school students in Surakarta City (p-value 0.015). The results of this study are in line with the research of Fitri & Akbar (2021) in Tebing Tinggi City on adolescent girls aged 12-19 years, stating that there is a significant relationship between the level of knowledge about cervical cancer and attitudes towards HPV vaccination (p-value = 0.004). The results of this study are also in line with the research of Sagitarini (2019) on female students of SMK PGRI 3 Denpasar, which stated that there is a significant relationship between the level of knowledge about cervical cancer and the attitudes of adolescent girls towards HPV vaccination (p-value = 0.000). This is in line with the theory put forward by Notoadmodjo, which states that a person's positive attitude is

influenced by positive knowledge and vice versa. A person with low knowledge will have a negative attitude about health behavior (Setianingrum et al., 2023).

Therefore, it is necessary to increase knowledge for female students regarding the importance of HPV vaccination as a primary prevention effort for cervical cancer through learning in schools or print and electronic media. In addition, schools are expected to be able to improve learning and counseling related to reproductive health, especially cervical cancer, by collaborating with local health agencies. That way, it is hoped that female students will have good knowledge and attitudes so that they are willing to get the HPV vaccine to protect themselves from cervical cancer infection.

The formation of an attitude begins with an individual knowing in advance about a stimulus regarding a particular material or object. It creates new knowledge in the individual and then makes an inner response in the form of the individual's attitude towards the known object (Notoatmodjo, 2007). This proves that the better a person knows, the better the attitude towards a given object will be and vice versa, including the ability to absorb health messages such as taking preventive measures for cervical cancer through HPV vaccination. The correlation coefficient value obtained from the results of this study, namely r = 0.173, means that the better the knowledge level, the better the attitude towards HPV vaccination will be.

Based on the results of the study show that there is no significant relationship between knowledge level and decision-making regarding HPV vaccination (p-value = 0.197). In line with the research of Wantini & Indrayani (2020) on elementary and junior high school students in Sleman City, it was found that there was no significant relationship between the level of knowledge and the willingness of the HPV vaccine. This can prove that decision-making regarding HPV vaccination is not influenced by the level of knowledge but by other more substantial factors or because young women have several considerations when making decisions regarding HPV vaccination. Based on the research of Wantini & Indrayani (2020), it was found that most respondents considered vaccine safety (89.9%) and halalness (73.2%) in making decisions regarding HPV vaccination (Wantini & Indrayani, 2020).

This study is not in line with the survey results by Rahmadini et al. (2024), which showed a significant relationship between knowledge level related to cervical cancer and decision-making regarding HPV vaccination. Young women who know the dangers of cervical cancer will tend to be motivated to get an HPV vaccination. When young women have sufficient knowledge, they will be encouraged to agree to HPV vaccination. (Rahmadini et al., 2024).

Knowledge level is not related to adolescent girls' decision-making in getting HPV vaccination because they have several other considerations, including vaccine safety, vaccine halalness, parental permission or support, and vaccine cost issues (Wantini & Indrayani, 2020). This statement is in line with research by Salmahella et al. (2023), which states that there is a significant relationship between parental support and decision-making regarding HPV vaccination, so parental support greatly influences the willingness of adolescent girls to get HPV vaccination. Therefore, good-knowing parents will form positive health behaviors (Salmahella et al., 2023).

CONCLUSION

The level of knowledge of junior high school students in Surakarta City about cervical cancer is still relatively poor, so they do not have a strong attitude regarding the acceptance of HPV vaccination. Then, there is no significant relationship between knowledge level and decision-making regarding HPV vaccination in students. The decision

of junior high school students to get HPV vaccination still depends on parental support. The results of this study have practical implications so that schools can collaborate with health workers and parents to provide information related to reproductive health, especially regarding the prevention of cervical cancer through HPV vaccination, both through learning and counselling.

ACKNOWLEDGEMENT

The researcher would like to express his gratitude for the support given by each party during the implementation of this research to the Principal of SMP Negeri 20 Surakarta, SMP Muhammadiyah 4 Surakarta, SMP Warga, and SMP Al-Isryad and their staff who have provided a place and time for the implementation of this research. Thank you to all the respondents willing to participate in this research that the researcher cannot mention one by one. Thanks to the Research and Innovation Institute of Muhammadiyah University of Surakarta, the research funder of the Tri Dharma integration grant (SK No.1/II/FIK/24).

REFERENCES

Arifah, K., Damayanti, W., & Sitaresmi, M. N. (2017). Kesediaan Mendapat Vaksinasi Human Papilloma Virus pada Remaja Putri Di Yogyakarta. *Sari Pediatri*, *18*(6), 430–435.

Badan Pusat Statistik Provinsi Jawa Tengah. (2023). *Profil Kesehatan Provinsi Jawa Tengah 2023*. https://jateng.bps.go.id/id/publication/2024/05/31/56aabdd7a9151eda1979dd50/profil-kesehatan-provinsi-jawa-tengah-2023.html

Dethan, C. M., Luh, N., & Suariyani, P. (2017). Pengetahuan dan Sikap Tentang Perilaku Vaksinasi HPV Pada Siswi SMA Swasta. *JURNAL MKMI*, *13*(2), 167–175. https://media.neliti.com/media/publications/212618-pengetahuan-dan-sikap-tentang-perilaku-v.pdf

Dewi, P., Purnami, L., & Heri, M. (2021). Sikap Remaja Putri tentang Kanker Serviks dengan Motivasi Remaja Melakukan Vaksinasi HPV. *Jurnal Keperawatan Silampari*, *5*(1), 51–58. https://doi.org/10.31539/jks.v5i1.2377

Di Giuseppe, G., Folcarelli, L., Lanzano, R., Napolitano, F., & Pavia, M. (2022). HPV Vaccination and Cervical Cancer Screening: Assessing Awareness, Attitudes, and Adherence in Detained Women. *Vaccines*, *10*(8), 1. https://doi.org/10.3390/vaccines10081280

Dinas Kesehatan Kota Surakarta. (2023). *Profil Kesehatan Kota Surakarta 2023*. https://solodata.surakarta.go.id/opendata/detail_package/2688

Fatwa Tentang Imunisasi No 04 Tahun 2016, Majelis Ulama Indonesia 1 (2016). https://mui.or.id/baca/fatwa/imunisasi

Fitri, A., & Akbar, A. (2021). Hubungan Pengetahuan dan Sikap Remaja Putri Tentang Infeksi dan Vaksinasi Human Papilloma Virus di Kelurahan Bulian Kota Tebing Tinggi. *Jurnal Implementa Husada*, *2*, 327. https://doi.org/https://doi.org/10.30596/jih.v2i3.11907

Geopal, J. R., & Mantu, M. R. (2022). Gambaran Tingkat Pengetahuan Siswi SMA N 3 Kota Jambi Mengenai Vaksin HPV pada Januari-Maret 2022. *Malahayati Nursing Journal*, *4*(11), 3049–3057. https://doi.org/10.33024/mnj.v4i11.7434

Kementerian Kesehatan Indonesia. (2023). *Profil Kesehatan Indonesia 2023*.

Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.01.07/MENKES/1930/2022 Tentang Program Introduksi Imunisas Human Papilloma Virus Vaccine (HPV)

Tahun 2022-2023, Pub. L. No. HK.01.07/MENKES/1930/2022, 1 (2022). https://regulasi.bkpk.kemkes.go.id/detail/f030760f-3ce0-4004-bddb-b930f9246d35/

Mastikana, I., Program, S., Kebidanan, S., Awal, B., Batam, K., & Riau, I. (2021). Perbandingan Pengetahuan dan Sikap Tentang Imunisasi Vaksin HPV pada Remaja Putri KelasX MAN dengan Remaja Putri Kelas X SMA N 5 Kota Batam. *Jurnal Surya Medika*, *6*, 147–154. https://doi.org/10.33084/jsm.vxix.xxx

Notoatmodjo, S. (2007). *Kesehatan Masyarakat Ilmu Seni*. PT Rineka Cipta.

Peraturan Menteri Kesehatan Republik Indonesia No.42 Tahun 2013 Tentang Penyelenggaraan Imunisasi (2013).

Rachmawati, W. (2019). *Promosi Kesehatan dan Ilmu Perilaku*. Wineka Media.

Rahayu, A., Widyawati, & Lismidiati, W. (2018). Gambaran Pengetahuan Pencegahan Kanker Serviks dengan Vaksin Human Papillomavirus pada Siswi SMP di Yogyakarta Junior High School Students' Knowledge about Cervical Cancer Prevention with Human Papillomavirus Vaccine in Yogyakarta. *Jurnal Keperawatan Klinis dan Komunitas*, *2*(1), 20–29. https://doi.org/https://doi.org/10.22146/jkkk.44282

Rahmadini, A., Zakiah, L., Yusnia, N., Rasyidin, F., & Willia, Y. (2024). Faktor-faktor yang berhubungan dengan siswa-siswi terhadap kesediaan untuk vaksinasi HPV (Human Papilloma Virus). *Journal of Midwifery Care*, *5*(1), 28–34. https://doi.org/10.34305/jmc.v5i1.1323

Rahmadini, A., Kusmiati, M., & Sunarti. (2022). Faktor-Faktor yang Berhubungan dengan Perilaku Remaja Terhadap Pencegahan Kanker Serviks Melalui Vaksinasi HPV. *Jurnal Forum Ilmiah KesMas Respati*, *7*, 317–325. https://doi.org/https://doi.org/10.35842/formil.v7i3.458

Sagitarini. (2019). Hubungan Pengatahuan dan Sikap Remaja Putri Terhadap Pencegahan Kanker Serviks Melalui Vaksinasi Human Papiloma Virus (HPV) di SMK PGRI 3 Denpasar. *Jurnal Kesehatan Medika Udayana*, *05*(02), 60. https://doi.org/https://doi.org/10.47859/jmu.v5i2.152

Setianingrum, P., Nuha, E., Asrori, A., Ubaidillah, A., & Sugiono, A. (2023). *Kesehatan Masyarakat dalam Konteks Budaya, Ilmiah, dan Spiritualitas* (L. Mamlukah, Ed.; 1st ed.). CV. Mitra Edukasi Negeri. https://www.google.co.id/books/edition/Kesehatan_Masyarakat_dalam_Konteks_Buday/d8nsEAAAQBAJ?hl=id&gbpv=1

Setiawati, F., & Novita. (2023). Analisis Tingkat Pengetahuan Dengan Sikap Wus tentang Vaksinasi HPV sebagai Pencegahan Kanker Serviks di Kel. Tigaraksa Wilayah Kerja Puskesmas Tigaraksa – Tangerang. *MAHESA : Malahayati Health Student Journal*, *3*(12), 3888–3897. https://doi.org/10.33024/mahesa.v3i12.11415

Wantini, N. A., & Indrayani, N. (2020). Rendahnya Kesediaan Vaksinasi HPV pada Remaja Putri. *Jurnal Kebidanan Indonesia*, *11*(1), 69–78. https://garuda.kemdikbud.go.id/documents/detail/1761236

Word Helath Organization. (2016). *HPV Vaccine Communication: Special Considerations for a Unique Vaccine* (World Health Organization, Ed.). https://www.who.int/publications/i/item/WHO-IVB-16.02

World Health Organization. (2024). *WHO preferred product characteristics for therapeutic HPV vaccines*. https://www.who.int/publications/i/item/9789240092174