



DAUGHTERS' INTENTION FACTORS TO HUMAN PAPILLOMAVIRUS VACCINATION (HPV) IN ELEMENTARY SCHOOLS

Mamat Mamat ^{1*}, Lia Komalasari ¹, Rahayu Dwkanthi ¹

¹ Politeknik Kesehatan Kemenkes Bandung , Indonesia

*Email: mamat.researcher@gmail.com

Abstract **Background:** Mothers' death by cervical Cancer is still high. Coverage of HPV vaccination on target (Daughter aged 11-12) was deficient; it was related to the intention of vaccination.

Objectives: This study aims to identify factors related to HPV vaccination among elementary school daughters. The design study was cross-sectional.

Method: The study design was cross-sectional. The variables were demographics, knowledge, attitudes, and intentions regarding HPV vaccination. The sample is daughters in some elementary schools. G.power calculated the sample size of 172 daughters, and a proportional random sampling technique was used. Statistical analysis used univariate distribution frequency, bivariate analysis with *logistic regression*.

Results: The study found that 85.5% of the participants had not yet received information about the HPV vaccine, and among the 25 daughters who had received information, 40% were sourced from the teacher. The intention for vaccines was only 48.3%, with 95.1% reasonably wanting to avoid disease, while 51.7% were not intended to receive vaccines. The reasons were that 73% had no understanding, and 47% feared being injected with the vaccine. Others found that the age of group parents, the education level of parents, vaccine information, knowledge, and attitudes were related to the intention factors of daughters to receive HPV vaccination.

Conclusion: This study concluded that daughters' intention to receive HPV vaccination in elementary schools remains low. Identified as associated with HPV vaccination coverage, such as the age group of the parents, the level of economic status (parents' monthly income), the parents' educational attainment, information about HPV vaccination and cancer services, the parents' level of knowledge and attitude toward HPV vaccination.

Keywords: Factors, Daughter, intention, HPV, Vaccination.

BACKGROUND

Mother death as a consequence of cancer in Indonesia has the highest number, which is one of the death consequences of cancer occupying the cervix order second after breast cancer. Incident of cervix cancers, in a way general start, occurs in adolescents who have an active life sexual nature and increase in line with sexual activity¹. In a study, it is concluded that HPV is an infection, and infectious sexual encounters occur in a way common throughout the world; this is also annoying to everyday social life and has consequences enough to turn off². If there are no special practical efforts, HPV infection will continue to spread everywhere, so this can increase the morbidity rate of the HPV virus. One of the challenges of effective programming is to give vaccines for Cancer cervix³.

In 2020, WHO declared action to eliminate the cancer cervix by providing the HPV vaccine to girls⁴. The Indonesian Government has a program to counter the spreading of HPV infection by vaccinating HPV, and its policy started in 2022 in 8 provinces; it was expected to reduce the number of consequential maternal deaths in disease cancer of the cervix. This is a line of opinion presented by Portnoy et al. (2021) that The HPV (Human Papilloma Virus) vaccine can reduce incident cancer cervix and maternal death. The Indonesian government has been Giving free vaccines to the target children or women aged (daughters) in school grades (class) five to six in elementary school. This policy is taken to ensure the effectiveness and suitability of vaccines. However, the results show that about 49% of respondents agree that fifth grade (class of 10–12) is the right age for HPV vaccination⁵. Vaccine cancer of the cervix was more effective when given to young girls and yet do sexual activity⁶. HPV vaccination is linked with protecting secret substances from cancer cervix in children vaccinated girls at age 19 or younger⁶. Necessity vaccination HPV age looks from the prevalence cases of cancer cervix show as much as 26.6% of HPV virus reach a peak in active women in a way sex at the age of 14 or more (26.6%)⁷. In effort prevention, it's necessary to know several factors related to the intention of HPV vaccination. An excellent opportunity to connect young adolescents with preventive and promotional health services is provided by HPV vaccination⁸. The high cost of the HPV vaccine and inadequate information were significant deterrents to HPV vaccination among parents who chose not to vaccinate their children. Understanding the factors associated with intention in vaccination among elementary school-aged girls can facilitate efforts to overcome the low HPV vaccination coverage.

The study aims to determine the factors related to the daughter's intention to get vaccinated against Human Papillomavirus (HPV). Girls' acceptance of HPV vaccination was influenced by age, mothers' educational level, positive outlook, knowledge of HPV vaccination, and having received childhood vaccinations⁹. Knowing the determining factors for intention in HPV vaccination is important. In line with the results of a study, it is stated that overcoming the prevalence of cervical cancer among women requires an understanding of the factors that influence the use of HPV vaccination among adolescents¹⁰.

The theory underlying this research is the Theory of Reasoned Action (TRA), where, according to Adventus in his book entitled Health Promotion, it is stated that before a person carries out a behavior, in this case, for example, carrying out HPV vaccination, an intention (intention) must be formed, where the existence of attitudes and subjective norms precede this intention¹¹. This study has implications for increasing vaccination coverage for daughters, which is effective in preventing cervical cancer in the future through a factor approach that can influence intention in HPV vaccination.

METHODS

Study setting and design

The research design used cross-sectional, where all independent variables (intention factors) and

Human Papillomavirus vaccination as dependent variables were collected simultaneously to determine vaccination factors.

Study population and sampling procedure

The sample in this study is a student class 5-6 school-based manifold sex woman (daughters). Determination of significant sample using G*Power 3.1 with determinate parameters; effect size w 0.3, α err probability 0.05, Power(1- β err probability) 0.85 and df 5 obtained sum 160 samples + 10% n (16)=176 but when conducting process, the data 4 samples lost, result selection amount existing samples of 172 students girls class of 5-6 in elementary schools. The research location was done in a way purposive, i.e., in 12 schools based in the area urban and rural with their respective amount as many as six primary schools. The research location was not a trial location for the HPV vaccine. The significant sample in each grade 5 class is based on proportional sampling because every school of daughters in grades five and Grade 6 is different. The number of samples of each school base is depicted (see Table 1). Data was collected in a way that was directly sampled at school using a simple random technique.

Table 1. Distribution of samples

Place	Elementary School						Total
	X1	X2	X3	X4	X5	X6	
Rular	14	19	33	7	5	7	85
Urban	14	18	14	11	11	19	87

X= name of elementary school

Variable, instrument, and data collection.

Data Collection and Variable measurement

Data was collected primarily in 12 elementary schools where children aged 11-12 collaborated with the homeroom teacher. Elementary schools are divided into 2 clusters, namely six groups of schools in rural areas and six groups of schools in urban areas.

Whereas the independent variables consist of characteristic variables demographics such as place residence, parental occupation (father), parental education, parental income, parental age, information about vaccine HPV and source information, media sources information, intention to vaccine HPV, and reason for intention nor no intentioned to HPV vaccine. In particular, before being used in research, the knowledge and attitude variables were tested for validity and reliability on a sample group with the same characteristics as the sample of 20. All item variables, knowledge, and attitude, showed validity and reliability as reflected in the calculated values above the critical value. Knowledge and attitude are variables that determine the intention of HPV vaccination.

Data was analyzed with univariate data, where the categorical variable was depicted in distribution frequency. Knowledge variables consist of 10 items with alternative answers: positive and negative. Each item has the thru answer with a score =1 and a false answer = 0. The total score was correct x 100: number of knowledge items. The highest score is 100 % points, and the lowest is 0. The category of knowledge value is good if the score is above or identical to the median value (40%) and the knowledge value is not enough to score under the median value (40%). Attitude consists of 10 items, each with chosen categories: strongly agree, agree, neutral, no agree, and agree. Score each category with a statement positive strongly agree score of 5, settle score of 4, neutral score of 3, no agree score of 2, and strongly agree score of 1. Meanwhile, on statement very negative, agree score 1, agree score 2, neutral score 3, no agree score four, and agree score 5. The highest score is 50, and the lowest score is 5. Attitude is stated as good if the score is above the median value (34), and attitude is declared if the score is standard under the median value (34). To find out the related factors of intention in the HPV vaccine, the analysis used logistic regression with α of 5% deviation and a confidence Interval level of 95%, and to see the Risk ratio was used analysis the Odds Ratio (OR).

Ethic Consideration

The studies involving human participants were reviewed and approved by the Research Ethic Committee from Poltekkes Kemenkes Bandung (No. No. 65/EC/II/2024). The participants provided their written informed consent to participate in this study.

RESULT AND DISCUSSION

Result : The total existing sample is 172, which was assessed during the study. The variables evaluated were the characteristics and demographics of the place, parents, students, information and resources related to the HPV vaccine, knowledge, attitudes, and daughters' intentions to HPV vaccination. The result showed that the proportions of place stay are almost the same, the parents' job was no work (13.7%), and the highest level of education is Senior High schools, namely 43%. of the respondents who work, the majority earn 2 million – 4 million per month, 39.5%, with a group age 69.8% > = 25 years. Most (85.5%) have not once gotten information about the HPV vaccine, and only 25 daughters (14.5%) have had it. Only 25 daughters have obtained information about the vaccines; as much as 40% were sourced from the teacher, with most media being Android comics. Of the 172 elementary school students in grades 5-6 who wish to the vaccine, only 48.3%, with the majority reason amounting to 95.1%, avoid the disease. In contrast, those who were not intentioned, namely 51.7% did not understand the HPV vaccine (73%) and fear Sick moment injected (47%).44,7% of daughters have good knowledge about HPV vaccination and an excellent attitude to HPV vaccination, 50,5 %. (see table 2)

Characteristics overview socio-demographics, knowledge, attitudes, and intentions vaccine explained in the following table :

Table 2. Distribution of sociodemographics and characteristic respondents

Variable (n=172)	demographics	Frequency	Percent (%)
Residence			
-	Rular	85	49.4
-	Urban	87	50.6
Parents job			
-	Laborer	32	18.6
-	Farmer	4	2.3
-	self-employed	40	23.3
-	Employee	52	30.2
-	Employee government	18	10.5
-	Trader	3	10.7
-	No Work	23	13.4
Parental Education			
-	Elementary schools	41	23.8
-	Junior high school	27	15.7
-	Senior High schools	74	43.0
-	University	30	17.4
Parents Income			
-	< 2 million	49	28.5
-	2 million – 4 million	68	39.5
-	> 4 million	55	32.0
Parents' age			
-	>= 25 years	120	69.2
-	< 25 years	52	30.2
Information vaccine			
-	Yes	25	14.5
-	No	147	85.5
Source information (n=25)*			

- Health workers	7	28
- Teacher	10	40
- Parents	7	28
- Friend	1	4
Information media sources (n=25)*		
- Television	9	38
- Newspaper	12	48
- Magazine	11	44
- Paper comic	2	8
- Book comics	6	24
- Android comics	16	64
Intention HPV Vaccination		
- Intention	83	48.3
- Not intentioned	89	51.7
Reason Intention (n=83)*		
- Avoid disease	79	95.1
- Join the school program	32	38.5
- Follow parental will _	5	6.0
Reason No intentioned (n=89)*		
- No understand	65	73
- Afraid sick	42	47
- Afraid of complications	19	21
- Reason other: lazy to queue	12	13
Knowledge		
- Good	77	44.7
- Not good	95	55.3
Attitude		
- Good	87	50.5
- Not good	85	49.5

*Answers more than one choosing

Eight factors are considered related to attracting daughters to HPV vaccination in elementary school. The research found six independent variables with significant proportions of intention doubters regarding HPV vaccination. They are: 1) In the Parents aged group ≥ 25 years, 54.2% of their daughters were intentioned in HPV vaccination, while, in the group of parents aged < 25 years, only 34.6% were intentioned in HPV vaccination; the p-value was obtained in 0.028, that's mean parent's age group has related to the intention HPV vaccination. An Odds Ratio (OR) value of 2.23 indicates that in the group of parents aged ≥ 25 years old, their daughters can be interested in HPV vaccination 2.23 times compared to their parent group aged < 25 years. 2) In The group where students' parents earn an income of more than 4 million per month, 59.2 % of their daughters are interested in HPV vaccination. In contrast, in the group with income of 2 million to 4 million per month, only 38.2% are intentioned to HPV vaccination, the p-value obtained of 0.02 indicating parents' earnings per month are related to their intention to HPV vaccination. The Odds Ratio (OR) value of 2.34 shows that the people producing > 4 million per month have the opportunity to have daughters interested in HPV vaccination, which was 2.34 times compared to their parents with group incomes between 2 million and 3 million. 3) The education level of parents: For high-level education, 59.6 % of their daughters are interested

in HPV vaccination, while for low-education parents, only 30.9% of their daughters are interested in HPV vaccination. The p-value is obtained as 0.001 and an Odds Ratio (OR) value of 3.30, which shows that their parents' education level the opportunity for their son to be intentioned in HPV vaccination 3.30 times compared to their parents' low education. 4) Information-related HPV vaccination) where daughters who had information about previous HPV vaccination, as many as 88% were intentioned to HPV vaccination, whereas in those who had previously got information about HPV vaccination, only 41.5% were intentioned in HPV vaccination, the p-value was obtained of 0.001, indicating any related of information to the intention of HPV vaccination. The Odds Ratio (OR) value of 10.33 shows that the daughter who received information about HPV vaccination has an opportunity to make his daughter interested in HPV vaccination as much as 10.33 times if compared to those who didn't get information about previous HPV vaccination. 5) Of the daughters with a good level of knowledge, as many as 64.9% were intentioned in HPV vaccination, while at the not good daughter knowledge, Only 34.7% were intentioned in HPV vaccination. The p-value of 0.001 indicates any relationship between knowledge and intention in HPV vaccination. The Odds Ratio (OR) value of 3.47 shows that the level of douhgters's knowledge can be intentioned in HPV vaccination as much as 3.30 times compared to the level of not good knowledge. 6) The daughters with a non-good attitude to HPV vaccination were 62.1 % intentioned in doing HPV vaccination; meanwhile, their attitude is lacking (not good), and only 34.1% were intentioned in getting an HPV vaccination. The p-value is 0.001, indicating any region of attitude to HPV vaccination. The Odds Ratio (OR) value of 3.16 shows that attitude-negative children _ own opportunity intentioned in HPV vaccination was 3.16 times compared to those with an attitude that vaccination is not good enough (see Table 3)

Table 3. Related factors with intention vaccination child Elementary school age grades 5-6 6 to vaccination Cancer neck cervix (HPV)

	Intention HPV Vaccination		F (%)	Odds Ratio (OR) (95% CI)	p-value
	Intention	No Intention			
idence					
- Rular	46 (54.1 %)	139 (45,9%)	85 (100%)	1.59	0.171
- Urban	37 (42.5%)	50 (57,5) %)	87 (100%)	(0.87-2.91)	
Age of parents group (Father)					
- >= 25 years	65 (54.2%)	55 (45.8%)	120 (100%)	2.23	0.028
- < 25 years	18 (34.6%	34 (65.4%)	52 (100%)	(1.13-4.38)	
Work					
- Worker still	34 (48.6%)	36 (51.4%)	70 (200%)	1.02 (0.55- 1.87)	1.00
- Worker No, still	49 (48.0%)	53 (52.0%)	102 (100%)		
Parents Income _					
- > 4 million	29 (59.2%)	20 (40.8%)	49 (100%)	2.34 (1.10-4.49	0.02
- 2 Million – 4 Million	26 (38.2%)	42 (61.8%)	68 (100%))*	
- < 2 Million	28 (50.9%)	27 (49.1%)	55 (100%)	1.39 (0.64-3.04)	0.39
Parent Level of education					
- Higher education	62 (59.6%)	42 (40.4%)	104 (100%)	3.30 (1.73 – 6.30)	0.001
- Low education	21 (30.9%)	47 (69.1%)	68 (100%)		

Information about Vaccine						
- yes	22 (88 %)	3 (12%)	25 (100%)	10.33(2.96-	0.001	
- No	61 (41.5%)	86 (58.5%)	147 (100%)	36.08)		
Knowledge level						
- Good	50 (64.9%)	27 (35.1%)	77 (100%)	3.47 (1.85-8.63)	0.001	
- Not good	33 (34.7%)	62 (65.3%)	95 (100%)			
Attitude against the HPV vaccine						
- Good	54 (62.1%)	33 (37.9%)	87 (00%)	3.16 (1.69-5.89)	0.001	
- Not good	29 (34.1%)	56 (65.9%)	85 (100%)			

* Categories reference: First

Discussion : HPV is an infectious sexual behavior that is common throughout the world, disturbs life and routine society, and consequences in death. Infection results from circumstances, bad behavior, and poor life in some developing countries. It happened genital infection is a factor supporting the risk of development of High HPV in developing countries³. An excellent opportunity to connect young adolescents with preventive and promotional health services is provided by HPV vaccination¹². It is also impacted by low socioeconomic in many cases in some developing countries, as results study show death consequences of cancer cervix related to socioeconomic substances in America¹³. The most significant factor from the cancer cervix is HPV16/18 infection with an adjusted odds ratio (113.7, 95% CI: 40.8–316.9), which means No Because of sexual behavior.⁷ Many factors related to the intention in HPV Vaccination, such as parental factors, factors of Health officers, and results of research, state that there is a lack of awareness and other factors regarding vaccination HPV in preventing cancer cervix^{14,15}. Line on study, a reseach results indicate the participants were willing to vaccinate their daughters for HPV. Higher monthly income, positive attitudes toward the vaccine, and a solid understanding of HPV and its information were all linked to vaccine acceptability¹⁶. Based on research from a survey conducted on parents shows that there is a relationship between parental characteristics and the desire to vaccinate a child's daughter¹⁷. The results of a study in Kenya, including interviews conducted with girls, parents, and teachers, showed a significant proportion of low knowledge among girls.⁴ Therefore, a lack of parental awareness of the importance of vaccination correlates with case infection HP v¹⁸.

The vaccination program is the right step for reducing infection, HPV, and related diseases. In the framework of adequate vaccination, the government program gives free vaccines to children (daughters) aged 11-12 years or in 5th and 6th grade elementary school. This is in line with the conclusion results of research that states the immunization of HPV effectively prevents the attack of cancer cervix at the level population in several girls aged under 20 years old⁶. Research results show, at least or not, the 9v vaccine. HPV gives significant protection in a way that is statistically at least six years old, indicating sustainable effectiveness for up to 8 years¹⁹. The government offers free programs to increase intention in vaccination targets and cause acceptance and compliance with HPV vaccination when available, presented, or accessible²⁰. There are several reasons not to want to be vaccinated, such as the price factor of vaccine²¹ and the need To evaluate in a way routine related to the vaccination program HPV²²

Refers to results of studies where information about the HPV vaccination and disease of cancer, the cervix is still low, including knowledge. Furthermore, support is needed to enhance awareness and understanding of HPV vaccination and strengthen the budget for immunization, which is essential³. Providing accurate information about cervical cancer and the HPV vaccine by health workers is necessary²³. Based on the research study, HPV vaccination was known to be deficient²⁴. Existing results strengthened this

study. Other studies show There is a relationship between limited knowledge and awareness about HPV infection and willingness to do HPV ¹⁴. Other studies also show that some girls, parents, teachers, and leaders who get intervention show significant results. There is an enhancement in knowledge about HPV infection and the HPV vaccine. The critical role in making the decision needs attention because There is a considerable relationship between enhanced knowledge and perceptions of parents to deciding HPV in children and women, with increasing parental acceptability of the HPV vaccine. Level of education and beliefs that people's health old to cancer cervix own meaningful relationship with a reception to HPV ²⁵.

The study's results show a relation between attitudes and knowledge regarding HPV vaccination; the same results conducted on Korean students show that positive attitudes and high knowledge scores increase acceptance of the HPV vaccine²⁶. Therefore, the attitude of parents towards HPV is critical in making a decision and accepting vaccine for HPV child daughters ²⁷, although in the results of the study, parents were concerned about safety when the vaccine is given to their daughters²⁶.however the intervention of education structured on parents can implications in increase reception vaccine HP v ²⁸. Besides, That influence on the economy and public health is seen as a result of research conducted in Japan showing that vaccination against HPV benefits the health of society and the economy ²⁹.

The findings show that exposure to vaccine information, attitudes, and knowledge is still low in children's schools in grades 5-6, then required to improve awareness and understanding. Important role communication and information relate tightly with intention in vaccines, as results studies show There is a correlation level of information or strong promotion with the arrival of women For vaccine cancer (HPV ²⁰, proven efforts improve Education, provide guarantees and promotions HPV awareness can increase achievements screening in China ³⁰. In the circumstances such as the countryside approach, culture, and language need to be paid attention to, as the results show the conclusion from A study that culture and language are the right things to help new immigrants decide on vaccination. Consideration of the economy becomes important in vaccine program considerations of cancer cervix because, in a way, substance effect benefits the economy and the health public ²⁹. Enhancement of understanding and involvement of parents in education is significant, as the study results show knowledge, more perception optimism, and predicted HPV vaccine reception ²⁸. While language may be an obstacle in increasing understanding of HPV, for those who have just learned about HPV, there is still a strong desire to receive the vaccine³¹.

Vaccination of HPV to teenage girls can be practical for HPV use of various strategies ³². Some methods for increasing scope, including the HPV vaccine with appropriate and precise media use and easy understanding, influence improvement intention. Study results show that media use with good design can significantly increase intention ³³. With system reminders through the phone, results research shows an average increase in the scope of vaccines on several women who have risk ²¹. Approach socio-psychological, which refers to habits child age school base is very important to remember they are no age _ easy For influenced If No by desires and habits. One medium is required to increase knowledge, attitudes, and intentions. Even action to vaccine HPV is an exciting medium. One of them is in Android form or a website ³⁴. Ability children aged 11-12 are very familiar with HP conditions. This can be directed to a positive activity, such as one's mark education. Besides deep media development, the form of the game has also been developed, and knowledge of the themes has increased ³⁵. Besides effort, proper information media improvement is also necessary. To ensure effective delivery of information, it is essential to disseminate sufficient information and orientation targets, such as where the target is, in the surroundings, and with whom they stay

CONCLUSION

Research has shown that daughters' intention to HPV vaccination in elementary schools remains low. Several factors have been identified as associated with HPV vaccination

coverage, including the age group of the parents, the level of comic (parents' monthly income), the parents' educational attainment, information about HPV vaccination and cancer services, and the parents' level of knowledge and attitude toward HPV vaccination. In addition, fear of illness is one of the main reasons why girls are not interested in immunisation. In contrast, many reasons girls are interested in HPV vaccination are related to avoiding disease.

REFERENCES

1. González JV, Deluca GD, Liotta DJ, Correa RM, Basiletti JA, Colucci MC, et al. Baseline prevalence and type distribution of Human papillomavirus in sexually active non-vaccinated adolescent girls from Argentina. *Rev Argent Microbiol.* 2021 Jan 1;53(1):11–9.
2. Oliveira CR, Ortiz AM, Sheth SS, Shapiro ED, Niccolai LM. Effectiveness of HPV vaccine by age at vaccination and number of doses: Protocol for a population-based matched case-control study. *BMJ Open.* 2021 Apr 19;11(4).
3. Kombe Kombe AJ, Li B, Zahid A, Mengist HM, Bounda GA, Zhou Y, et al. Epidemiology and Burden of Human Papillomavirus and Related Diseases, Molecular Pathogenesis, and Vaccine Evaluation. *Front Public Heal.* 2021 Jan 20;8.
4. Ueda Y, Miyagi E. Importance of Education about Cervical Cancer and Its Preventive Measures for the Promotion of HPV Vaccine According to the WHO Strategies. *Vaccines [Internet].* 2021 Oct 18 [cited 2022 Apr 24];9(10). Available from: <http://www.ncbi.nlm.nih.gov/pubmed/34696307>
5. Waser M, Heiss R, Borena W. Factors affecting children's HPV vaccination in Austria: Evidence from a parent survey. *Hum Vaccines Immunother [Internet].* 2022;18(6). Available from: <https://doi.org/10.1080/21645515.2022.2126251>
6. Kjaer SK, Dehlendorff C, Belmonte F, Baandrup L. Real-World Effectiveness of Human Papillomavirus Vaccination against Cervical Cancer. *J Natl Cancer Inst.* 2021 Oct 1;113(10):1329–35.
7. Yamaguchi M, Sekine M, Hanley SJB, Kudo R, Hara M, Adachi S, et al. Risk factors for HPV infection and high-grade cervical disease in sexually active Japanese women. *Sci Rep.* 2021 Dec 1;11(1).
8. Manolescu LSC, Zugravu C, Zaharia CN, Dumitrescu AI, Prasacu I, Radu MC, et al. Barriers and Facilitators of Romanian HPV (Human Papillomavirus) Vaccination. *Vaccines [Internet].* 2022 Oct 15 [cited 2024 Mar 9];10(10). Available from: <http://www.ncbi.nlm.nih.gov/pubmed/36298587>
9. Ukumo EY, Weldehawariat FG, Dessalegn SA, Minamo DM, Weldehawaryat HN. Acceptance of Human Papillomavirus Vaccination and Associated Factors among Girls in Arba Minch Town, Southern Ethiopia, 2020. *Infect Dis Obstet Gynecol.* 2022;2022.
10. Whop LJ, Butler TL, Brotherton JML, Anderson K, Cunningham J, Tong A, et al. Study protocol: Yarning about HPV Vaccination: A qualitative study of factors influencing HPV vaccination among Aboriginal and Torres Strait Islander adolescents in Australia. *BMJ Open.* 2021 Aug 3;11(8).
11. Adventus MRL, SKM. MK, I Made Merta Jaya, M. Kes Ns. Donny Mahendra SK. *TEXTBOOKS Writer* : 2019.
12. Karanja-Chege CM. HPV Vaccination in Kenya: The Challenges Faced and Strategies to Increase Uptake. *Front Public Heal.* 2022 Mar 21;10.
13. Priyadarshini M, Prabhu VS, Snedecor SJ, Corman S, Kuter BJ, Nwankwo C, et al. Economic Value of Lost Productivity Attributable to Human Papillomavirus Cancer Mortality in the United States. *Front Public Heal.* 2021 Feb 16;8.
14. Alsous MM, Ali AA, Al-Azzam SI, Abdel Jalil MH, Al-Obaidi HJ, Al-abbadi EI, et al.

- Knowledge and awareness about human papillomavirus infection and its vaccination among women in Arab communities. *Sci Rep.* 2021 Dec 1;11(1).
15. Chellapandian P, Myneni S, Ravikumar D, Padmanaban P, James KM, Kunasekaran VM, et al. Knowledge on cervical cancer and perceived barriers to the uptake of HPV vaccination among health professionals. *BMC Womens Health.* 2021 Dec 1;21(1).
 16. Dereje N, Ashenafi A, Abera A, Melaku E, Yirgashewa K, Yitna M, et al. Knowledge and acceptance of HPV vaccination and its associated factors among parents of daughters in Addis Ababa, Ethiopia: a community-based cross-sectional study. *Infect Agent Cancer [Internet].* 2021 Sep 3 [cited 2024 Mar 9];16(1):58. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/34479576>
 17. Relacionados F, Padres IDL. Factors Related to Parents ' Intention in Vaccination of Human Papillomavirus for Their Daughter Aged 11-12 Years. 2023;131(Supl 4).
 18. Di Giuseppe G, Folcarelli L, Lanzano R, Napolitano F, Pavia M. HPV Vaccination and Cervical Cancer Screening: Assessing Awareness, Attitudes, and Adherence in Detained Women. *Vaccines.* 2022;10(8).
 19. Kjaer SK, Nygård M, Sundström K, Munk C, Berger S, Dzabic M, et al. Long-term effectiveness of the nine-valent human papillomavirus vaccine in Scandinavian women: interim analysis after 8 years of follow-up. *Hum Vaccines Immunother.* 2021;17(4):943–9.
 20. Robles C, Bruni L, Acera A, Riera JC, Prats L, Poljak M, et al. Determinants of Human Papillomavirus Vaccine Uptake by Adult Women Attending Cervical Cancer Screening in 9 European Countries. *Am J Prev Med.* 2021 Apr 1;60(4):478–87.
 21. Bernard-Genest MP, Ruel-Laliberté J, Lapointe-Milot K. Effect of educative reminder telephone calls on human papillomavirus immunization rate: A randomized controlled trial. *Women's Heal.* 2021;17.
 22. Portnoy A, Sweet S, Desalegn D, Memirie ST, Kim JJ, Verguet S. Health gains and financial protection from human papillomavirus vaccination in Ethiopia: Findings from a modelling study. *Health Policy Plan.* 2021 Jul 1;36(6):891–9.
 23. Kudo R, Sekine M, Yamaguchi M, Hara M, Hanley SJB, Ueda Y, et al. Internet survey of awareness and behavior related to HPV vaccination in Japan. *Vaccines.* 2021;9(2):1–10.
 24. Thanasas I, Lavranos G, Gkogkou P, Paraskevis D. Understanding of Young Adolescents About HPV Infection: How Health Education Can Improve Vaccination Rate. *J Cancer Educ.* 2020 Oct 1;35(5):850–9.
 25. Frianto D, Setiawan D, Diantini A, Suwantika AA. Parental Acceptance of Human Papillomavirus (HPV) Vaccination in Districts with High Prevalence of Cervical Cancer in West Java, Indonesia. *Patient Prefer Adherence.* 2022;16(September):2709–20.
 26. Kim HW, Lee EJ, Lee YJ, Kim SY, Jin YJ, Kim Y, et al. Knowledge, attitudes, and perceptions associated with HPV vaccination among female Korean and Chinese university students. *BMC Womens Health [Internet].* 2022;22(1):1–9. Available from: <https://doi.org/10.1186/s12905-022-01624-1>
 27. Davies C, Stoney T, Hutton H, Parrella A, Kang M, Macartney K, et al. School-based HPV vaccination positively impacts parents' attitudes toward adolescent vaccination. *Vaccine.* 2021;39(30):4190–8.
 28. Sitaresmi MN, Rozanti NM, Simangunsong LB, Wahab A. Improvement of Parent's awareness, knowledge, perception, and acceptability of human papillomavirus vaccination after a structured-educational intervention. *BMC Public Health.* 2020 Dec 1;20(1).
 29. Cody P, Tobe K, Abe M, Elbasha EH. Public health impact and cost effectiveness of routine and catch-up vaccination of girls and women with a nine-valent HPV vaccine in Japan: a model-based study. *BMC Infect Dis.* 2021 Dec 1;21(1).

30. Holt HK, Zhang X, Hu SY, Zhao FH, Smith JS, Qiao YL. Inequalities in Cervical Cancer Screening Uptake Between Chinese Migrant Women and Local Women: A Cross-Sectional Study. *Cancer Control*. 2021;28.
31. Wilson LA, Quan AML, Bota AB, Mithani SS, Paradis M, Jardine C, et al. Newcomer knowledge, attitudes, and beliefs about human papillomavirus (HPV) vaccination. *BMC Fam Pract*. 2021 Dec 1;22(1).
32. Tsu VD, LaMontagne DS, Atuhebwe P, Bloem PN, Ndiaye C. National implementation of HPV vaccination programs in low-resource countries: Lessons, challenges, and future prospects. *Prev Med (Baltim)* [Internet]. 2021;144(March):106335. Available from: <https://doi.org/10.1016/j.ypmed.2020.106335>
33. Kusumawati NI. Acceptance of Health Information System for Public Health Centre in North Borneo , Indonesia. *Int J Public Heal Sci*. 2018;7(3):168–74.
34. <https://kreativv.com/> . Apa itu Webtoon? Ap. 2020.
35. Hasni NHM, Azalian AAM, Kadir TAA, Adib MAHM. Serious “human papillomavirus vaccine” game for Malaysian adolescents: development and preliminary study. *Int J Public Heal Sci*. 2023;12(1):82–90.