Jimma University

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Department of Epidemiology

Assessment of human papillomavirus vaccination uptake and its associated factors among female adolescent students in Mettu town, Southwest Ethiopia, 2022

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A research thesis submitted to Jimma University, faculty of public health, department of epidemiology in partial fulfillment of the requirement for a Masters degree in field epidemiology.

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Abstract

Background: Worldwide, more than 70% of cervical cancer is caused by persistent infection with human papillomavirus (HPV) which is vaccine-preventable. Based on the findings from the previous studies the maximum uptake of HPV vaccination was 66.5% in Ethiopia. This indicates that there is a gap in achieving the 90% global HPV vaccination target coverage.

Objective: To assess the uptake of human papillomavirus vaccination and its associated factors among female adolescent students in Mettu town, Southwest Ethiopia, 2022.

Methods: A school-based cross-sectional study was conducted among female adolescent students in Mettu town from February 05 to March 10, 2022. We used a simple random sampling to select 681 study participants. We collected data on socio-demographics, knowledge of cervical cancer, HPV and its vaccination, attitude toward vaccination, uptake, and other factors that may influence the uptake of HPV vaccination using a pre-tested and structured questionnaire administered through a face-to-face interview. We entered the data into Epi Data version 3.1 and exported to SPSS version 26 for analysis. Descriptive analysis was done using frequency, proportion, and summary statistics. Bivariate logistic regression was done, and the variables with a p-value less than 0.25 were entered into a multivariable logistic regression model. The findings from the model were presented using adjusted odds ratios and 95% CI, and declared statistically significant at a p-value <0.05.

Results: A total of 667(97.9%) female adolescent students participated in the study. The median age of the participants was 16 years, with a minimum and maximum age of 14 and 18 years. The uptake of the vaccination was 324(48.6%), 95%CI (45%-52%). Being in the 16 to 18-year age group (AOR=2.68,95%CI= 1.50-4.80), having good knowledge (AOR=2.14, 95%CI=1.29-3.52), positive attitude (AOR=5.86, 95%CI=3.51-9.76) and getting encouragement from health care workers (AOR=3.04, 95%CI=1.36-6.79), teachers (AOR=2.14, 95%CI=1.05-4.34) and their parents (AOR=2.39, 95%CI=1.02-5.64) were statistically significantly associated with the uptake of the vaccination.

Conclusion: The uptake of the vaccination was low. Being in the 16 to 18-year age group, having good knowledge, a positive attitude, and encouragement from parents, health care workers, and teachers associated with the vaccination uptake. Improving students' knowledge of cervical cancer, HPV infection, and its vaccination, as well as encouragement from healthcare workers, teachers, and parents, is key to enhance the uptake of the vaccination.

Key word: Uptake, HPV vaccination, female adolescent, students, Mettu town, Ethiopia

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List of abbreviation and acronomy

ACS	American Cancer Society
AOR	Adjusted Odds Ratio
CI	Confidence Interval
COR	Crude Odds Ratio
ETB	Ethiopia Birr
GAVI	Global Alliance for Vaccine and Immunization
HPV	Human Papilloma Virus
hr-HPV	high-risk HPV
IQR	Interquartile Range
LMIC	Low and Middle-Income Countries
NGO	Non Governmental Organization
OR	Odds Ratio
RHE	Reproductive Health Education
SD	Standard Deviation
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization
HCW	Health Care Workers

1. Introduction

1.1. Background

Human papillomavirus (HPV) is a group of more than 170 viruses, of which 15 are recognized as high-risk HPV types (hr-HPV) and are involved in HPV-related cancer development. Persistent infections with HPV can cause anogenital warts and precancerous lesions of the cervix, vulva, vagina, anus, penis, head, and neck, which, if untreated, may sometimes progress to cancer. Approximately 75% of sexually active men and women are exposed to human Papillomavirus during their lifetime. The prevalence and genotype distribution of HPV vary significantly in several nation-states, and data on the distribution of individual HPV sorts in several geographical areas is important for the improvement of preventive strategies(1, 2). The HPV distribution in Ethiopia by genotypes and proportion was HPV sixteen (45.3%), HPV 52 (9.4%), HPV 18 (8.2%), HPV 58 (6.9%) and HPV 45 (5.2%), HPV 31 (3.9%), HPV 33 (2.8%), HPV 39 (2.4%), HPV 51 (1.1%), HPV 56 (3.7%) , HPV 68 (2.4%) and the left HPV genotype thirty-nine, fifty one, fifty six and sixty eight counts up to 0.9%(3).HPV types 6 and 11 cause 90% of genital warts and types 16 and 18 are considered to contribute to 70% of cases of cervical cancer(4).

Cervical cancer is the most common cancer that arises from the cervical area that is at risk of human papillomavirus-induced malignancy changes. Early stages may be asymptomatic, but symptoms that can be seen in advanced stages include unexplained weight loss, persistent pelvic pain, unusual bleeding periods, and pain and bleeding after sexual intercourse(5, 6). The risk factors for HPV infections and progression are having multiple sexual partners, early marriage, younger age at first sexual intercourse, poor dietary habits, cigarette smoking, and immune suppression(7).

HPV vaccination is the most commonly used public health strategy to reduce the risk and prevalence of the disease caused by HPV.There are three approved HPV immunization agents: bivalent (Cervarix®) which protects against HPV types sixteen and eighteen; quadrivalent (Gardasil®) which protects against HPV types sixteen and eighteen as well as types six and eleven; and a nonavalent HPV immunization agent (Gardasil 9®) which protects against HPV serotypes 6, 11, 16, 18, 31, 33, 45, 52, and 58. Once the total of three-course doses is given over six months, scheduled at zero, 1-2, and six months, it is over 95% effective in preventing vaccine-preventable HPV infection (8, 9, 10) .

According to American Cancer Society (ACS) guidelines, HPV vaccination should start at the age of 9 years and be recommended through age 26. The effectiveness of HPV vaccination is high if routinely administered at the age of 9-12 years (11). Ethiopia launched the HPV vaccination with the support of the Global Alliance for Vaccine and Immunization (GAVI) in 2018, which was delivered through a school-based approach for 14-year-old female students in two dose schedules over six months(12).

1.2. Statement of the problem

About 99% of cervical cancers are due to HPV infection(3). Globally, cervical cancer affects 500,000 women annually. More than 4% of all cancer cases diagnosed worldwide occur in high-income countries, and 8% occur in low-income countries associated with high-risk HPV, especially in Sub-Saharan Africa(13, 14). HPV is responsible for approximately two-thirds of cervical cancer cases, which occur in low and middle-income countries, with the highest morbidity rates in South-Eastern and South Central Asia, South America, and Sub-Saharan Africa (15). The disease burden of cervical cancer is estimated at nearly 79, 000 new cases occurring in Africa each year. The risk of dying from cervical cancer before the age of 75 is three times higher in low-income countries than in more developed countries, and cervical cancer mortality remains high among African women(6, 16).

In Ethiopia, cervical cancer ranks as the second cause of cancer death next to breast cancer and is common among 15-to 44-year-old women (17) . More than 4648 women are diagnosed with cervical cancer each year; among them, 3235 die annually. An estimated 33.6% of Ethiopian women harbor cervical HPV infection, which is vaccine preventable(18).

The uptake of HPV vaccination varies from country to country, ranging from 0.5% in Benin City to 99% in Malaysia(19, 13). In Ethiopia, the uptake of HPV vaccination among female students was 44.4% in Ambo town and 66.5% in Minjar Shonkora, North Shoa (20, 21). There is a gap in achieving the global HPV vaccination target coverage of 90% of female adolescents by the age of fifteen years to eliminate cervical cancer by 2030(22).The incidence of cervical cancer depends on the proportion of the population vaccinated against HPV infection. The greater the proportion of the population vaccinated against HPV infection, the greater the HPV infection prevented (23).

Mettu town has been providing school-based HPV vaccination in campaign form for female adolescent students. Prior to the HPV vaccination campaign, the town has been providing community sensitization through Dame Mettu, Mettu University community radio, and school-based information dissemination for the students. Despite the town providing the vaccination, the uptake of HPV vaccination among female adolescent students in Mettu town was not assessed. Therefore, this study aimed to assess the uptake of human papillomavirus vaccination and its associated factors among female adolescent students in Mettu town, Southwest Ethiopia, 2022.

1.3. Significance of the study

The findings of this study will provide evidence-based information on the uptake of HPV vaccination and factors associated with the uptake of vaccination among female adolescent students in Mettu town. This information can help Mettu town and Ilu Aba Bor zone health office to develop interventions that improve the uptake of the vaccination and meet the global cervical cancer elimination target. The findings from this study may also be used by policymakers and other stakeholders to develop the strategies to improve the uptake of the HPV vaccine nationally. In addition, the findings from this study also may serve as baseline information for other researchers.

2. Literature review

2.1. Over view of the uptake of HPV vaccination

The uptake of HPV vaccination varied with the country according to the findings from a systematic study which included twenty-eight studies and showed that the uptake of the first dose of HPV vaccination ranged from 2.4% to 94.4%, with the highest uptake reported from Scotland at 94.4% and the lowest from Hong Kong at 2.4% to 9.1% (24). The findings from another study including 17 studies conducted in low and middle-income countries (LMIC) revealed that the median uptake for the second dose of the dose two schedule was 79%, ranging from 65 to 93%, and the third dose for the dose three schedule was 81.6%, ranging from 52 to 96%(9). Another study suggested that the uptake of HPV vaccination among 9–14 female students in Hong Kong was 81.4% for the first dose and 80.8% for the second dose (25) . According to a study conducted in the Lira district, Uganda, the proportion of female adolescents aged 12–17 years who received doses one, two, and three of the HPV vaccine was 18%, 14.8%, and 17.6%, respectively(26). The uptake of HPV vaccination among female students varied from country to country, as mentioned earlier. For example, the proportion of female students who received at least one dose of the human papillomavirus vaccination was 75% in South Africa(27), 99% in Malaysia(13), 2.5% in Lebanon (28), 14% in in Mbale district, Uganda (29) , 0.5% in Benin city(19) and 4.1% in Ibadan Nigeria(30). A recently published study conducted in Ethiopia showed that the uptake of the vaccination was 66.5% in Mijar Shenkora, North shoa(21), and 44.4% in Ambo town(20). As indicated by different studies conducted so far, there are different factors that associated with the uptake of HPV vaccination. Among those, a few important factors will be reviewed below.

2.2. Factors Associated with the uptake of HPV vaccination

2.2.1. Socio-economic and demographic factors

According to a study conducted in various countries, the uptake of HPV vaccination has strong associations with increased levels of education of the students(31), increased age (older) of the students, medium and higher maternal levels of education(32), the income of their parents (high income), because the vaccine is too expensive and received by payment in some countries (4, 25, 28) and place of residence of the students, with urban residents being more likely to receive the vaccination(21).

2.2.2. Individual factors

2.2.2.1. Knowledge of cervical cancer, HPV and HPV vaccination

According to the study conducted among secondary school female students in Benin City, Nigeria, more than 97 percent of the students did not hear about cervical cancer, HPV, and its vaccination(19). In contrast, another similar study showed that among the students who participated in the study, 66.3%, 50.3%, and 50.8% of them had heard about cervical cancer, HPV, and its vaccination. Among them, 52.8% knew that infection with HPV leads to cervical cancer, 65.4% knew that HPV infection can be asymptomatic, and 79.8% of them knew that the HPV vaccine protects against cervical cancer, but only 19.4% of them knew the route of transmission of HPV infection(33). Another study showed that among female adolescent students who participated in the study, 75.9% knew the route of transmission of HPV and 77.6% knew the risk factor for acquiring HPV infections(34). Another study suggested that among the study participants only 16.3% of them reported that HPV Vaccine used to prevent cervical cancer(35). A study conducted in North Ethiopia showed that 74.4% of the study participants had good knowledge of HPV infection and its vaccination, and those who were knowledgeable were eight times more likely to receive the vaccination compared to those who were not knowledgeable(21). Another study showed that the uptake of HPV vaccination decreased by 13.3% among female students who have poor knowledge of HPV vaccination, compared to students who have good knowledge of the vaccination(32). Another similar study conducted in Uganda also revealed that the low level of knowledge of the students about the vaccination led to low uptake of the vaccination(36).

2.2.2.2. Attitude toward HPV vaccine

According to the study conducted in Jimma town among high school female students, only 31.4% of them had a positive attitude toward the vaccination(12). Another study conducted in Uganda suggested that the uptake of HPV vaccination was three times higher among female students who had a positive attitude toward the vaccination compared to those with a negative attitude toward the vaccination(26). Another similar study showed that 49% of the study participants had a positive attitude toward the vaccination and those who had a positive attitude were 1.85 times more likely to receive the vaccination compared to those who had a negative attitude toward the vaccination(21).

2.2.3. Other possible factors that may influence uptake of HPV vaccination

Different studies showed that the uptake of HPV vaccination is influenced by several factors. The study conducted in Uganda showed that the availability of the vaccine at the vaccination site, receiving full information about the vaccination, encouragement from health care workers, and conducting community outreach enhance the uptake of the vaccination(26). In Victoria, encouragement from the teachers and health workers increased the uptake of the vaccination by 49.3% as well as from the parent and friends by 28.6% and 0.2% respectively. In addition, the study showed that the uptake of the vaccination is influenced by parental decisions and concern about the safety of a vaccine (37). A comparative quasi-experimental study conducted in Texas showed that the students from community-based education on HPV and school-based onsite vaccination were 3.6 more likely to initiate or complete HPV vaccination compared to the students from community-based HPV-related education only(38). Other factors that contributed to low uptake of HPV vaccination were inconsistency in vaccine supply and the lack of a clear target for HPV vaccination coverage(27, 29). Moreover, school absenteeism, dropout, fear of injection pain, discouragement from caregivers or peers, limited social mobilization and community engagement, un-friendly behavior of healthcare workers, negative religious and cultural beliefs against vaccination, rumors, and misconceptions about the vaccine are other additional factors influencing vaccine uptake(36).

Conceptual Framework

The conceptual frame was developed by reviewing similar studies conducted in different countries on the uptake of human papillomavirus vaccination and associated factors among female students (4, 9, 12, 19-21, 24-38). Among these factors, the main ones, such as socioeconomic and demographic factors, individual factors (such as knowledge of cervical cancer, HPV infection, and vaccination), and attitude toward vaccination, as well as other possible factors that may influence vaccination uptake, were developed after reviewing various literature in order to indicate relationships between variables and guide our study. The relationship between the independent variables and the dependent variable indicated using arrows as in the following figure (Figure 1).

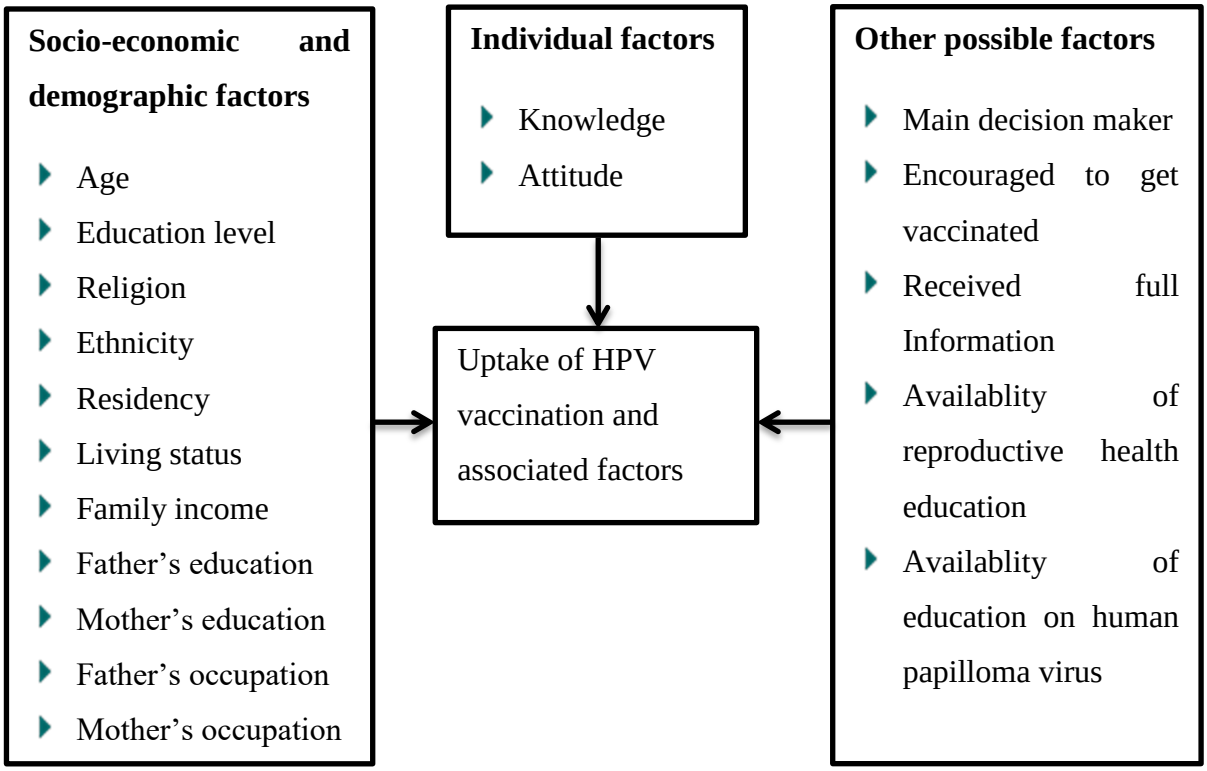

Figure 1: A conceptual framework for the uptake of human papillomavirus vaccination and associated factors among female adolescent students in Mettu town, Oromia Region, Southwest Ethiopia, 2022.

3. Objective of the study

3.1. General objective

- To assess uptake of human papillomavirus vaccination and its associated factors among female adolescent students in Mettu town, Southwest Ethiopia, 2022.

3.2. Specific objectives

- To determine the proportion of the uptake of human papillomavirus vaccination among female adolescent students in Mettu town, Southwest Ethiopia, 2022
- To identify factors associated with the uptake of human papillomavirus vaccination among female adolescent students in Mettu town, Southwest Ethiopia, 2022.

4. Methods and materials

4.1. Study area and Period

Mettu town is the administrative center of the Ilu Aba Bor zone and is located 606 kilometers from the capital city of Ethiopia, Addis Ababa, in the southwest direction. It has an altitude of 1605 meters and is found between a latitude and longitude of 8°18'N and 35°35'E. Its estimated total population was 46,810, of whom 23,786 (50.8%) were male and 23,024 (49.2%) were female in 2021, as projected from the 2007 census. It has three kebeles, one health center, three health posts, and one specialized referral hospital. It has three public secondary schools, seven public, and three private primary schools, which have a total of 7582 students, of which 4082 (54%) of them were female and 3500 (46%) were male. The study was conducted from February 5 to March 10, 2022.

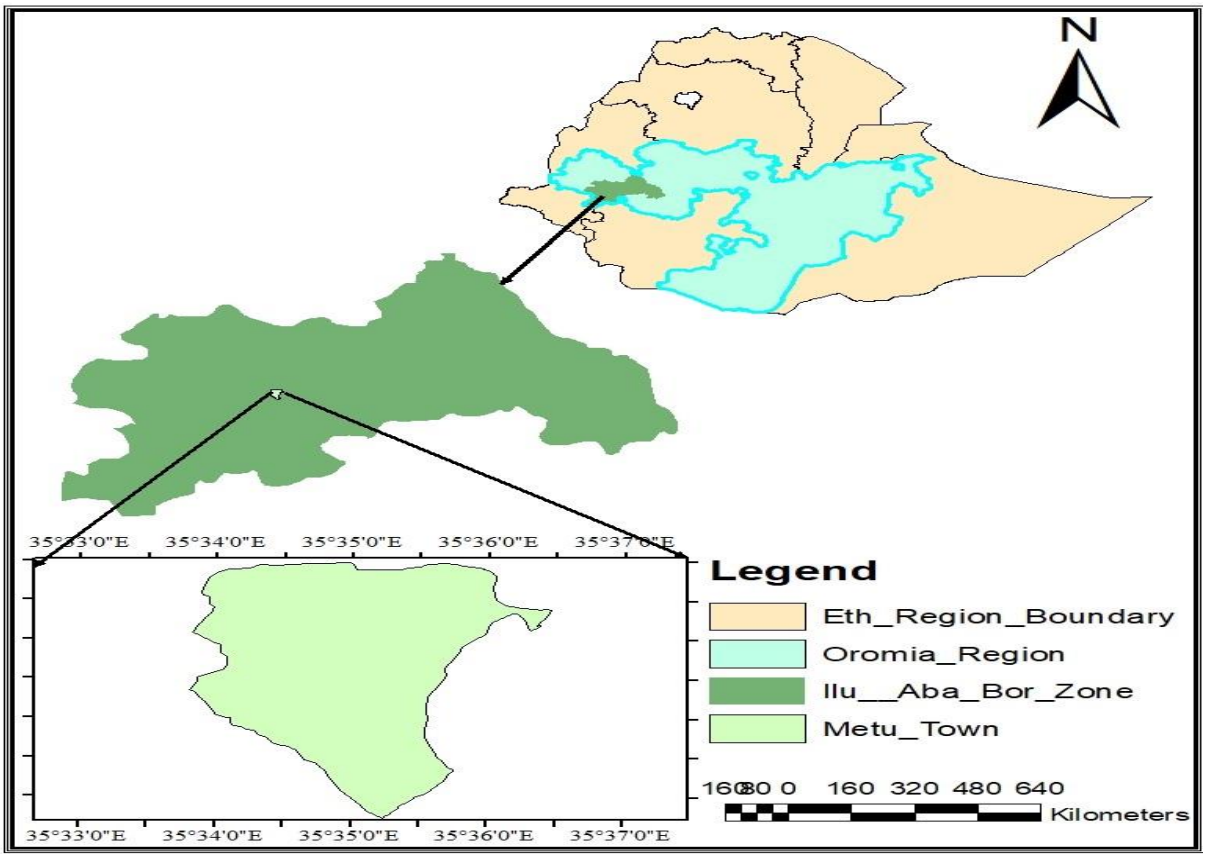

Figure 2: The map of Mettu town, Ilu Aba Bor zone, Oromia regional state, Southwest Ethiopia, 2022.

4.2. Study design

A school-based cross-sectional study was conducted.

4.3. Population

4.3.1. Source population

All 14 to 18 years female adolescent students who were attending grade five to twelve in Mettu town in 2022.

4.3.2. Study Population

All randomly selected 14 to 18 years old female adolescent students who were attending grade five to twelve in Mettu town in 2022

4.3.3. Study unit

A randomly selected 14 to 18 years old female adolescent student who was attending grade five to twelve in Mettu town in 2022.

4.3.4. Inclusion and exclusion criteria

Inclusion criteria

- Female adolescent students aged 14 to 18 years old attending public or private schools in Mettu town from grades five to twelve.

Exclusion criteria

- Female adolescent students who were on the data base of the town education office but relocated to other parts of the country for various reasons and critically ill female students

4.4. Sample size determination and sampling techniques

4.4.1. Sample size determination

For the first specific objective, the sample size was determined using a single population proportion formula by considering a 95% confidence interval (CI) with a 0.03 margin of error and a prevalence of 17.6% from the previous study (26).

Sample size for the first objective

$$n = \frac{(z\alpha/2)^2 p(1-p)}{d^2}$$

- Where n = minimum sample size
- Z=statistics for a level of confidence and its conventional value is 1.96 at 95% level of confidence.
- P= the proportion of the students who received HPV vaccination.
- d = Marginal error (0.03)
- $n = \frac{(1.96)^2 0.176(0.82)}{0.03^2}$ =619

Our source population was less than 10,000, but we didn't use population correction formulas to increase our sample size, which may, later on, increase the precision of the estimate.

For the second specific objective, the sample size was determined using Epi Info 7 software by using the double population proportion formula, assuming a power of 80 and 95% confidence interval and odds ratios for the variables such as knowledge, attitude, and living areas of the respondents, which had an association with uptake of HPV vaccination and taken from the previous study(21).

Table 1: Sample size determination for the second objective of HPV vaccination uptake among female adolescent students in Mettu town, Ilu Aba Bor, Oromia region, Southwest Ethiopia, 2022.

Factors	CI	Power	OR	% of HPV vaccination practice in unexposed	% of HPV vaccination practice in exposed	Sample size
Knowledgeable	95	80	7.21	33.1	78.1	57
Positive attitude	95	80	2.27	57.66	75.6	238
Rural residents	95	80	0.16	75.7	33.8	72

Since the sample size of the first objective was larger than the sample size of the second objective, it was more representative of the population under the study. By adding 10% non-response rates, the final sample size was 681.

4.4.2. Sampling technique

The study covered ten primary and three secondary schools found in Mettu town. The Mettu town education office informed us that, in addition to primary schools, the majority of 14–18-year-old female students who received HPV vaccination passed to secondary schools. Based on this information and the database of primary and secondary schools found in Mettu town, we employed the following step to reach the required sample size (681).

Step 1: The list of all female students aged 14 to 18 years who were attending grades five to twelve in Mettu town was obtained from the Mettu town education office, and then the sample size was allocated proportionally to each school.

Step 2: The sample size of each school is again proportionally allocated to each grade (grades 5, 6, 7, 8, 9, 10, 11, and 12). Again, the sample size of each grade was allocated to each section, and the required samples were selected from each section using simple random sampling through computer generated random numbers (Figure 3).

Where N is the calculated proportion of female adolescent students from the source population(from the total eligible female adolescent students in Mettu town) to allocate the sample size proportionaly to each school, and n is the sample size proportionally allocated to each school based on the calculated proportion from the source population.

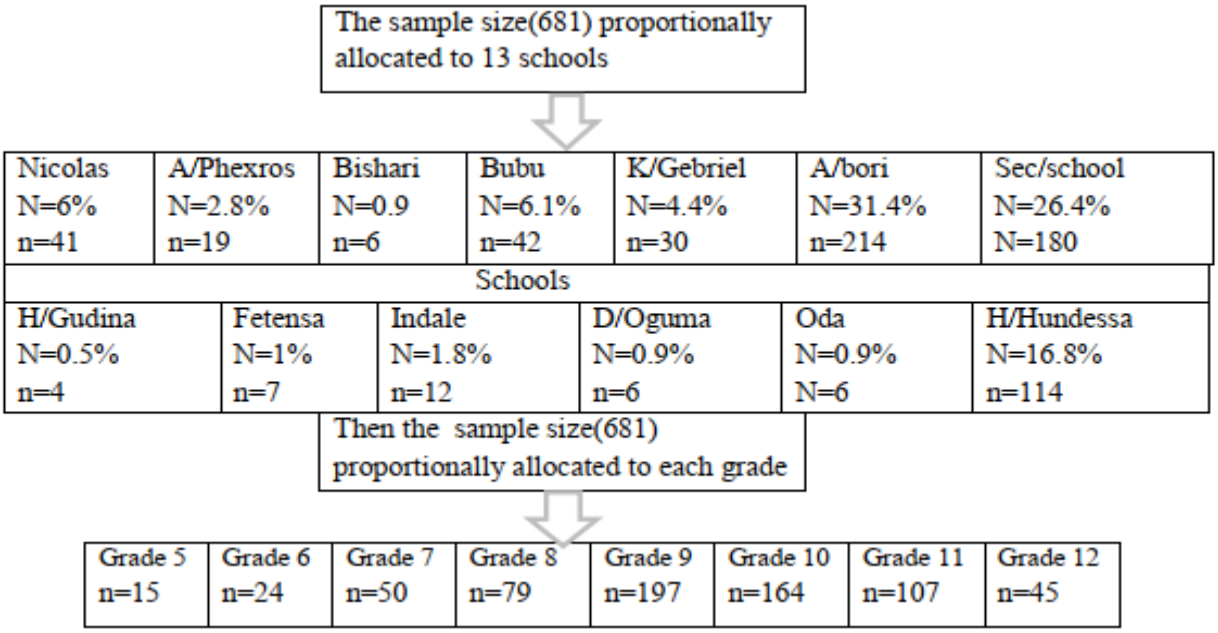

Figure 3: Schematic representation of sampling techniques of female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia.

4.5. Study Variables

Dependent variables

Uptake of HPV vaccination

Independent variables

Socio-economic and demographic factors

Age, educational level, religion, ethnicity, residency, living area, living status (living with parent or not), family income, father educational status, mother educational status, mother occupation, father occupation

Individual factors

Knowledge of cervical cancer, HPV infection and its vaccination

Attitude toward HPV vaccination

Other possible factors that may influence uptake of HPV vaccination: Main decision maker to get vaccinated**,** encouraged to get vaccinated, received full Information about the vaccine, availability of school based reproductive health education and education on HPV.

4.6. Data collection procedure

Data were collected using structured and pre-tested questionnaires adapted from a similar studies conducted in different countries in the English language(4, 30, 39, 40). It covers socio-economic and demographic factors, individual factors (knowledge and attitude), uptake of HPV vaccination, and other possible factors that may influence the uptake of the vaccination. It was collected by eight diploma holder teachers through face-to-face interviews and supervised by two health officers. We measured the uptake of HPV vaccination using the phrase "have you ever received an HPV vaccination?". It has a yes-or-no option. The participants who replied yes were considered exposed to the HPV vaccine and those who replied no were considered as not exposed to the vaccine.The overall knowledge of cervical cancer, HPV, and its vaccination was measured using 18 knowledge statements (six knowledge statements about cervical cancer, six knowledge statements about HPV infection, and six knowledge statements about HPV vaccination). Except from the three questions ("do you know about cervical cancer; have you ever heard about HPV vaccination; and do you know HPV infection has a vaccine"), which we used to assess whether our participants were aware of cervical cancer, HPV infection, and its vaccination, the remaining 18 knowledge statements, which were found in the result sections, were included in the analysis to measure the overall knowledge of our participants. We incorporated into this knowledge statement about risk factors for HPV infections, route of transmission, and prevention methods, which have yes or no options. During analysis, the correct answer was coded as one and zero for the wrong answer. The score added up and it ranged from 1-18. Based on the mean score, we categorized the overall knowledge of our respondents into good and poor. The attitude of our study participants toward HPV vaccination was measured using the Likert five scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, and 5-strongly agree), which is composed of five attitude statements. Using their mean score, the attitude was categorized into positive and negative attitudes.

4.7. Operational definition

HPV vaccine uptake: The proportion of eligible female adolescent students who were received at least one dose of the human papillomavirus vaccine.

Individual factors: Personal factors such as knowledge and attitude that may influence the uptake of the HPV vaccination.

Knowledge:

Good knowledge: Respondents who scored greater than or equal to the mean score of knowledge questions.

Poor knowledge: respondents who scored less than the mean score of knowledge questions.

Attitude:

Positive attitude: The respondents who scored greater than or equal to the mean score on attitude-related questions

Negative attitude: The respondents who scored less than the mean score on attitude-related questions

Full information: The information provided for the female students regarding the benefit of the vaccination, target age group for the vaccination, required number of doses, the interval between the doses, and the date and place of the vaccination.

4.8. Data quality assurance

The questionnaire was translated from English to Afan Oromo and Amharic language and then retranslated into English by a language expert to check its consistency. Then the questionnaire was pre-tested among 5% of the total sample size in Gore town who were not included in the main study to check the clarity of the language, accuracy of the responses, and appropriateness of the questionnaires. Based on the pretest result, data collection tools were modified. From the item used to measure the attitudes of our respondents, if the variable which says "I feel embraced to receive the vaccine" is removed, the internal consistency of the item or the value of Cronbach's alpha, which was 0.69, becomes 0.84. Therefore, we removed the variable and modified the questionnaire. We trained the data collectors and supervisors for one day before the actual data collection on the objective of the study, data collection procedure, and ethics. After training, they were evaluated and deployed for data collection.During data collection, the data was checked for completeness and consistency by our supervisors. We checked the internal consistency of the items used to measure the attitude using Cronbach's alpha (it was = 0.89).

4.9. Data analysis procedure

We entered the data into Epi Data version 3.1 and exported it to SPSS version 26 for analysis. Descriptive analysis was done using frequency, proportion, and other summary statistics, and the result was presented in the form of a table, graph, and narrative summary. Bivariate logistic regression analysis was done to identify the candidates for the multivariable logistic regression model, and variables with a p-value less than 0.25 were entered into the multivariable logistic regression model. During multivariable analysis, we checked the independent variables for multi-collinearities using variance inflation factors (VIF), and the highest value of VIF was 1.48. The goodness of the fitness of the model was also checked using the Hosmer and Lemeshow model of test of fitness (P-value was 0.92). The findings from multivariable regression were presented using an adjusted odds ratio (AOR) along with its corresponding 95% confidence interval (CI). Variable with p-value < 0.05 declared statistically significant.

4.10. Ethical consideration

We obtained ethical clearance from the institutional review board of Jimma University and a supportive letter from Jimma University's department of epidemiology to Ilu Aba Bor zone and Mettu town educational office and also to each school to obtain permission to undertake the study. Written informed consent was obtained from the students and their parents by the data collectors after they were well informed about the objective of the study, data handling, and their right to participate or not, including their right to terminate the study at any point. After the interview was completed, health education was provided on cervical cancer, HPV infection, and its vaccination for the students.

4.11. Dissemination plan

The finding of this study will be disseminated to all relevant stakeholders through presentation and publication. Copies of the thesis will be submitted to the Epidemiology department, Jimma University research and dissemination office, Ilu Aba Bor zone educational office, Mettu town educational office, Ilu Aba Bor zone health office, Mettu town health office, and all concerned bodies for possible applications of the study findings and the manuscript will be prepared and will be sent to reputable public and medical Journals for publication.

5. Results

5.1. Socio-economic and demographic factors

A total of 667 female students participated in the study, with a 97.9% response rate. The median age of the respondents was 16 years, with a minimum and maximum age of 14 and 18 years respectively. Of the respondents, 502 (75.3%) were attending secondary school, 228 (34.2%) were orthodox religion followers, 448 (67.2%) were Oromo in ethnicity, and 589 (88.3%) were urban residents. Regarding family income per month, 385 (57.7%) earn less than 2000 Ethiopian Birr (Table2).

Table 2: Socio-demographic characteristics of the study participants, Mettu town, Ilu Aba Bor, Oromia region, Southwest Ethiopia, 2022

Variables	Category	Frequency	Percent
Age	14 and 15 years	326	48.9
	16 to 18 years	341	51.1
Educational level	Grade 5-8(primary school)	165	24.7
	Grade 9-12(secondary school)	502	75.3
Religion	Orthodox	228	34.2
	Protestant	220	33.0
	Muslim	199	29.8
	Catholic	20	3.0
Ethnicity	Oromo	448	67.2
	Amhara	128	19.2
	Tigre	41	6.1
	Gurage	35	5.2
	Others[a]	15	2.2
Living area	Urban	589	88.3
	Rular	78	11.7
Monthly family income in Ethiopian Birr (ETB)	< 2000 ETB birr per month	385	57.7
	2000 to 4000ETB birr per month	123	18.4
	>4000ETB birr per month	159	23.8
Father's educational level	No formal education	80	12.0
	Primary education	210	31.5
	Secondary education	226	33.9
	Collage and above	151	22.6
Mother's education level	No formal education	110	16.5
	Primary education	213	31.9
	Secondary education	202	30.3
	Collage and above	142	21.3
Mother's occupation	House wife	266	39.9
	Merchant	173	25.9
	Government employee	109	16.3
	Non governmental organization (NGO) or Private employee	93	13.9
	Farmer	26	3.9
Father's occupation	Merchant	278	41.7
	NGO /Private employee	159	23.8
	Government employee	136	20.4
	Farmer	85	12.7
	Other[b]	9	1.3

Note: a: Silte, Kefa, walayita, **b:** Religious leader, Unemployed

5.2. Individual factors

5.2.1. Knowledge of cervical cancer, HPV infection and its vaccination

Knowledge of cervical cancer

Of 667 participants, 591(88.6%) knew cervical cancer, 401 (67.9%) knew that all women are at risk of cervical cancer (Table 3).

Table 3: Cervical cancer related knowledge of female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022

Variables	Category	Frequency	Percent
Know about cervical cancer	Yes	591	88.6
	No	76	11.4
Cervical cancer is common cancer in women	Yes	384	65
	No	207	35
All women are at risk of developing cervical cancer	Yes	401	67.9
	No	190	32.1
Cervical cancer is a sexually transmitted disease	Yes	343	58
	No	248	42
Symptoms of cervical cancer could not be recognized at an early stage	Yes	384	65
	No	207	35
Cervical cancer is preventable	Yes	392	66.3
	No	199	33.7
Early-stage cervical cancer is treatable.	Yes	328	55.5
	No	263	44.5

Knowledge of HPV infections

Among the study participants, 574(86.1%) ever heard about HPV infection, 267 (46.5%) knew that HPV causes cervical cancer (Table 4).

Table 4: HPV infection related knowledge of female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022

Variables	Category	Frequency	Percent
Ever heard about HPV infection	Yes	574	86.1
	No	93	13.9
HPV causes cervical cancer	Yes	267	46.5
	No	307	53.5
HPV infection is a sexually transmitted infection	Yes	463	80.7
	No	111	19.3
Sex at an early age increases the risk of HPV infection	Yes	318	55.4
	No	256	44.6
Having multiple sexual partners reduces the risk of HPV infection	Yes	141	24.6
	No	433	75.4
People can get HPV infection for a long time without knowing it	Yes	426	74.2
	No	148	25.8
HPV virus can be cleared from the body without treatment in some individuals.	Yes	345	60.1
	No	229	39.9

Knowledge of HPV vaccination

Of 667 study participants, 566(84.9%) knew that HPV infection has a vaccine, 417 (73.7%) knew that the vaccine can effectively prevent cervical cancer (Table 5).

Table 5: HPV vaccination related knowledge of female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022

Variables	**Category**	**Frequency**	**Percent**
Knew that HPV infection has a vaccine	Yes	566	84.9
	No	101	15.1
HPV vaccination effectively prevents cervical cancer	Yes	417	73.7
	No	149	26.3
Screening for cervical cancer is necessary after receiving the HPV vaccination	Yes	303	53.5
	No	263	46.5
HPV vaccine should be given before the first sexual intercourse	Yes	271	47.9
	No	295	52.1
HPV vaccine can be offered to female children ≥ 9 years	Yes	353	62.4
	No	213	37.6
Complete HPV vaccination requires three injections	Yes	399	70.5
	No	167	29.5
The HPV vaccine is delivered over a 6-month schedule	Yes	338	59.7
	No	228	40.3

Overall knowledge of the students about cervical cancer, HPV infection and its vaccination

The overall mean score and standard deviation (SD) of knowledge of our respondents was 11.11±3.22. Among our respondents, 293(49.6%) have good knowledge of cervical cancer, HPV, and its vaccination (Figure 4).

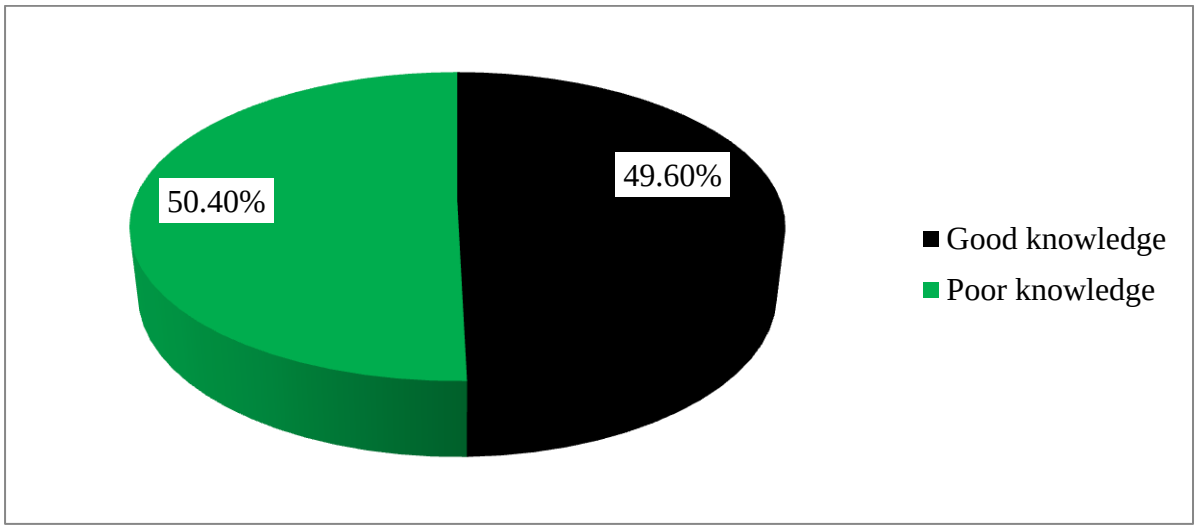

Figure 4: Overall knowledge of cervical cancer, HPV infection, and its vaccination among female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022.

Source of information on HPV

From study participants, 574 (86.1%) heard about HPV, of which 279 (48.6%) heard from health care workers (HCW), 171 (29.8%) from the mass media (Figure 5).

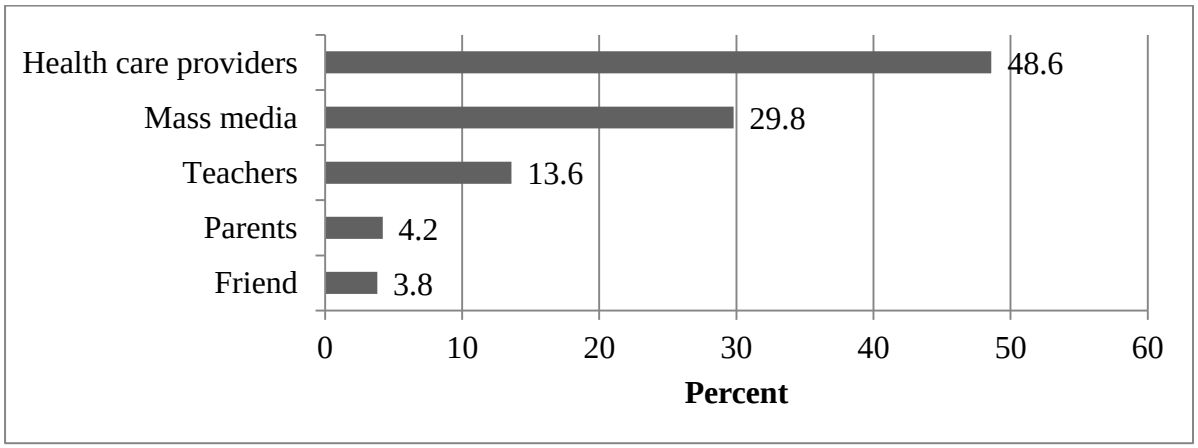

Figure 5: Source of information on HPV for female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022.

5.2.2. Attitude toward HPV vaccination

Among study participants, 202 (30.3%) agreed that they are at risk of HPV infection and would like to be vaccinated; 242(36.3%) agreed on the severity of HPV infections; and 252(37.8%) agreed that the vaccine would keep them safe and healthy (Table 6).

Table 6: Attitude of female adolescent students in Mettu town toward HPV vaccinations, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022

Variable	Category	Frequency	Percent
Because I feel at risk of getting HPV, I will take the vaccine	Strongly disagree	47	7
	Disagree	94	14.1
	Neutral	130	19.5
	Agree	202	30.3
	Strongly agree	194	29.1
I feel being infected with HPV is very deadly and can lead to death	Strongly disagree	19	2.8
	Disagree	80	12
	Neutral	144	21.6
	Agree	242	36.3
	Strongly agree	182	27.3
I think it is not easy to find a place to receive the HPV vaccination	Strongly disagree	22	3.3
	Disagree	79	11.8
	Neutral	155	23.2
	Agree	258	38.7
	Strongly agree	153	22.9
I think taking the vaccine will keep me safe and healthy	Strongly disagree	22	3.3
	Disagree	84	12.6
	Neutral	121	18.1
	Agree	252	37.8
	Strongly agree	188	28.2
I would need the HPV vaccine if I had multiple sexual partners	Strongly disagree	31	4.6
	Disagree	77	11.5
	Neutral	126	18.9
	Agree	210	31.5
	Strongly agree	223	33.4

Overall attitude of the students toward HPV vaccination

The mean score and SD of the attitude of our respondents was 3.70±0.94. Thus, among our respondents, 388(58.2%) have a positive attitude toward the vaccination (Figure 6).

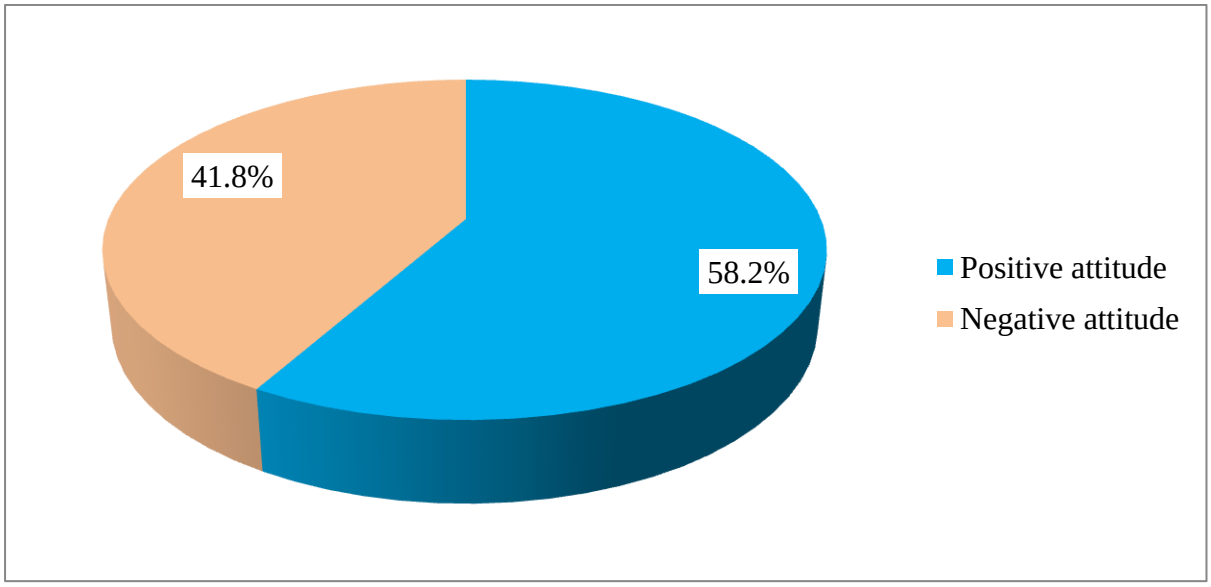

Figure 6: The overall attitudes of female adolescent students in Mettu town toward HPV vaccination, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022.

5.3. Uptake of HPV vaccination

The uptake of HPV vaccination among female adolescent students in Mettu town was 324(48.6%), 95%CI (0.45-0.52), of which 183(56.5%) received one dose and 141(43.5%) received two doses.

Reason for not receiving HPV vaccination

Of our respondents, 343(51.4%) did not receive the vaccination. The most common reasons for not getting vaccinated against HPV infection were being not informed by the healthcare worker during the vaccination 99(28.9%), unavailability of sufficient vaccine on their visit 82(23.9%)(Figure7).

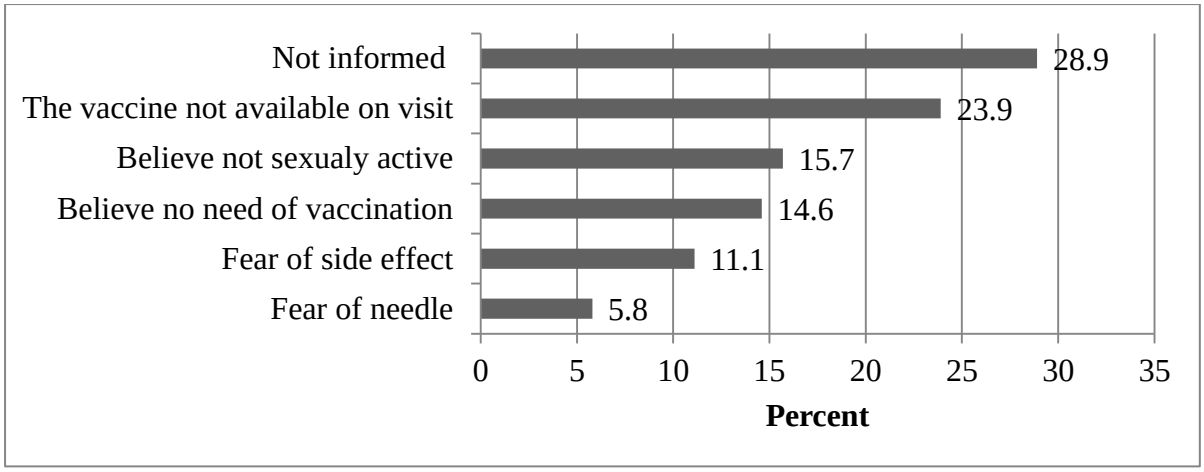

Figure 7: Reason for not uptake of HPV vaccination among female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022

5.4. Other possible factors that may influence the uptake of HPV vaccination

Of our participants, 348(52.2%) made the decision to get vaccinated by themselves, 385(57.7%) were encouraged to receive the vaccination, 335(50.2%) participants received full information about the vaccination prior to the vaccination day, and 313(46.9%) reported the availability of school-based reproductive health education (Table 7).

Table 7: Other possible factors that may influence the uptake of HPV vaccination among female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022

Variable	Category	Frequency	Percent
The Main decision maker to receive the vaccination	Self	348	52.2
	One or both parents	319	47.8
Encouraged to get vaccinated	Yes	385	57.7
	No	282	42.3
Encouraged by	Teachers	171	44.4
	Health care workers	90	23.4
	Parents	67	17.4
	Friends	57	14.8
Received full information about vaccine prior to the vaccinations day	Yes	335	50.2
	No	332	49.8
Availability of school-based reproductive health education(RHE)	Yes	313	46.9
	No	354	53.1
Availability of school-based education on HPV	Yes	60	19.2
	No	253	80.8

5.5. Factors associated with the uptake of HPV vaccine among female adolescent students in Mettu town.

The respondent's age, level of education, knowledge of cervical cancer, HPV and its vaccination, attitude toward HPV vaccination, encouragement to get vaccinated, received full information about the vaccine prior to the vaccination day and availability of school based health education were factors significantly associated with the uptake of HPV vaccination on bivariate analysis (Table 8).

Table 8: Bivariate analysis of factors associated with the uptake of HPV vaccination among female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022.

Variable	Category	Get vaccinated		COR(95%CI)	P-value
		Yes n (%)	No n (%)		
Age	14 and 15 years	118(36.2)	208(63.8)	1	
	16 to 18 years	206(60.4)	135(39.6)	2.69(1.97-3.68)	<0.001*
Educational level	Primary school	54(32.7)	111(67.3)	1	
	Secondary school	270 (53.8)	232 (46.2)	2.39(1.6-3.46)	<0.001*
Religion	Orthodox	117(51.3)	111(48.7)	1.58(0.62-4.01)	0.335
	Protestant	100(45.5)	120(54.5)	1.25(0.49-3.18)	0.639
	Muslim	99(49.7)	100(50.3)	1.48(0.58-3.79)	0.408
	Catholic	8(40)	12(60)	1	
Ethnicity	Oromo	227(50.7)	221(49.3)	1.17(0.42-3.29)	0.761
	Amhara	61(61)	67(52.3)	1.04(0.35-3.04)	0.942
	Tigre	14(34.1)	27(65.9)	0.59(0.18-1.97)	0.394
	Gurage	15(42.9)	20(57.1)	0.86(0.25-2.89)	0.804
	Others	7(46.7)	8(53.3)	1	
Living area	Urban	288(48.9)	301(51.1)	1.12(0.69-1.79)	0.649
	Rular	36(46.2)	42(53.8)	1	
Monthly family income in ETB	< 2000 ETB	192(49.9)	193(50.1)	1	
	2000 to 4000ETB	55(44.7)	68(55.3)	0.81(0.54-1.22)	0.320
	>4000ETB	77(48.4)	82(51.6)	0.94(0.65-1.36)	0.760
Father's educational level	No formal education	42(52.5)	38(47.5)	1	
	Primary education	97(46.2)	113(53.8)	0.78(0.46-1.30)	0.337
	Secondary education	110(48.7)	116(51.3)	0.86(0.52-1.43)	0.556
	Collage and above	75(49.7)	76(50.3)	0.89(0.52-1.54)	0.682
Mother's education level	No formal education	57(51.8)	53(48.2)	1	
	Primary education	100(46.9)	113(53.1)	0.82(0.52-1.30)	0.407
	Secondary education	97(48)	105(52)	0.86(0.54-1.38)	0.522
	Collage and above	70(49.3)	72(50.7)	0.90(0.55-1.49)	0.691

Table 8 is continued.

Variable	Category	Get vaccinated		COR(95%CI)	P-value
		Yes n (%)	No n (%)		
Mother's occupation	House wife	132(49.6)	134(50.4)	1.14(0.51-2.57)	0.73
	Merchant	85(49.1)	88(50.9)	1.13(0.49-2.57)	0.77
	Government employee	49(45)	60(55)	0.95(0.40-2.25)	0.91
	NGO/ Private employee	46(49.5)	47(50.5)	1.14(0.48-2.73)	0.76
	Farmer	12(46.2)	14(53.8)	1	
Father's occupation	Merchant	143(51.4)	135(48.6)	1.32(0.35-5.03)	0.680
	NGO/ Private employee	78(49.1)	81(50.9)	1.20(0.31-4.65)	0.788
	Government employee	66(48.5)	70(51.5)	1.18(0.30-4.58)	0.812
	Farmer	33(38.8)	52(61.2)	0.79(0.19-3.17)	0.743
	Other	4(44.4)	5(55.6)	1	
Knowledge	Good	202(68.9)	91(31.1)	3.20(2.28-4.49)	<0.001*
	Poor	122(40.9)	176(59.1)	1	
Attitude	Positive	263(67.8)	125(32.2)	7.52(5.27-10.72)	<0.001*
	Negative	61(21.9)	218(78.1)	1	
Main decision maker	Self	176(50.6)	172(49.4)	1.18(0.87-1.60)	0.281
	One or both parents	148(46.4)	171(53.6)	1	
Encouraged by	Teachers	116(67.8)	55(32.2)	2.90(1.56-5.37)	0.001*
	Health care workers	65(72.2)	25(27.8)	3.57(1.77-7.19)	<0.001*
	Parents	46(68.7)	21(31.3)	3.01(1.44-6.29)	0.003*
	Friends	24(42.1)	33(57.9)	1	
Received full information	Yes	202(60.3)	133(39.7)	2.61(1.91-3.57)	<0.001*
	No	122(36.7)	210(63.3)	1	
School-based RHE	Yes	163(52.1)	150(47.9)	1.30(0.96-1.76)	0.089*
	No	161(45.5)	193(54.5)	1	
Education on HPV	Yes	32(53.3)	28(46.7)	1.06(0.60-1.87)	0.828
	No	131(51.8)	122(48.2)	1	

Note: COR: Crude odd ratio, *****P-value<0.25

The respondent's age, knowledge of cervical cancer, HPV infection and its vaccination, attitude toward HPV vaccination, and encouragement were statistically significantly associated with the uptake of HPV vaccination on multivariable analysis. The odds of HPV vaccination uptake were 2.68 times higher among the students who were in the age group of 16–18 years compared to those in the 14–15 age group (AOR)=2.68,95%CI= 1.50-4.80). The students who had good knowledge of cervical cancer, HPV infection, and its vaccination had 2.14 times higher odds of HPV vaccination uptake than those who had poor knowledge of cervical cancer, HPV infection, and its vaccination (AOR=2.14, 95%CI=1.29-3.52). The students who had a positive attitude toward the vaccination had increased odds of HPV vaccination uptake compared to the students who had a negative attitude toward the vaccination (AOR=5.86, 95%CI=3.51-9.76).

The odds of HPV vaccination uptake were 3.04 (AOR=3.04, 95%CI=1.36-6.79), 2.14 (AOR=2.14, 95%CI=1.05-4.34), and 2.39 (AOR=2.39, 95%CI=1.02-5.64) times higher among the students who were encouraged by health care workers, teachers, and their parents compared to those who were encouraged by their friends (Table 9).

Table 9: Multivariable analysis of factors associated with the uptake of HPV vaccination among female adolescent students in Mettu town, Ilu Aba Bor zone, Oromia region, Southwest Ethiopia, 2022.

Variables	**Get vaccinated**		**COR**	**(AOR (95%CI)**	**p-value**
	Yes n (%)	**No n (%)**			
Age					
14 and 15 years	118(36.2)	208(63.8)	1		
16 to 18 years	206(60.4)	135(39.6)	2.69	2.68(1.50-4.80)	0.001*
Educational levels					
Primary school	54(32.7)	111(67.3)	1		
Secondary school	270 (53.8)	232 (46.2)	2.39	0.70(0.35-1.41)	0.318
Knowledge					
Good	202(68.9)	91(31.1)	3.20	2.14(1.29-3.52)	0.003*
Poor	122(40.9)	176(59.1)	1		
Attitudes					
Positive	263(67.8)	125(32.2)	7.52	5.86(3.51-9.76)	<0.001*
Negative	61(21.9)	218(78.1)	1		
Encouraged by					
Teachers	116(67.8)	55(32.2)	2.90	2.14(1.05-4.34)	0.036*
HCW	65(72.2)	25(27.8)	3.57	3.04(1.36-6.79)	0.007*
Parents	46(68.7)	21(31.3)	3.01	2.39(1.02-5.64)	0.045*
Friends	24(42.1)	33(57.9)	1		
Received full information					
Yes	202(60.3)	133(39.7)	2.61	1.13(0.68-1.86)	0.627
No	122(36.7)	210(63.3)	1		
Availablity RHE					
Yes	163(52.1)	150(47.9)	1.30	1.05(0.64-1.71)	0.843
No	161(45.5)	193(54.5)	1		

Note: *p-value<0.05

6. Discussion

This study assessed the uptake of human papillomavirus vaccination and associated factors among female adolescent students in Mettu town, Oromia Regional State, Southwest Ethiopia. The uptake of HPV vaccination among our respondents was 324(48.6%), 95%CI (45%-52%). Being in the 16 to 18-year age group, having good knowledge (knowledge of cervical, HPV, and vaccination), a positive attitude toward vaccination, and encouragement from health care workers, teachers, and their parents were significantly associated with the uptake of the vaccination.

The uptake of HPV vaccination in our study area was lower than the finding of the study conducted in North Shoa, Ethiopia, which showed that 66.5% of the students had received at least one dose of the human papillomavirus vaccine (21). On the other hand, our finding is higher than the finding of the study conducted in Ambo town, which suggested that 44.4% of the students had received at least one dose of the vaccine (20). The difference could be due to the difference in their level of knowledge of cervical cancer, HPV, and its vaccination. The findings of the study conducted in North Shoa, Ethiopia showed that 74.4% of the study participants had good knowledge of cervical cancer, HPV, and HPV vaccination, whereas only 41% of the study participants in Ambo town had good knowledge of cervical cancer, HPV, and HPV vaccination.

The uptake of the vaccination in our study area was lower compared to the findings of the studies conducted in South Africa and Negeri Sembilan, which suggested that 75% and 89.8% of the respondents had received at least one dose of the HPV vaccine (27, 33). On the other hand, our finding is much higher than the finding of the studies conducted in Benin City of Nigeria, Lebanon, Uganda, and Ibadan of Nigeria, where only 0.5%, 2.5%, 14%, and 4.1% of the respondents had received at least one dose of the vaccine (19, 28, 29, 30). The disparity could be attributed to differences in socio-demographic backgrounds such as religion and culture.

Furthermore, the uptake of the vaccine in our study area was lower compared to the 90% global HPV vaccination targeted coverage (22). It could be due to the unavailability of a sufficient amount of a vaccine, the students' not being informed of the date of vaccination, the student's belief that there is no need for vaccination, fear of side effects, needles, and the belief that they are not sexually active enough to receive the vaccine.

In our setting, the odds of HPV vaccination uptake were 2.68 times higher in the 16 to 18-year-old age group of female adolescent students than in the 14 to 15-years age group. The finding is in line with the finding of a study conducted in Germany (32). This could be due to exposure to different sources of information with age increments. In addition, the majority of these age groups were attending secondary school. As a result, they could gain more information on HPV infection and its vaccination.

The participants who had good knowledge of cervical cancer, HPV infection and its vaccination had increased odds of HPV vaccination uptake than those who had poor knowledge of cervical cancer, HPV infection and its vaccination. This is supported by the finding in another study conducted in North Shoa, Ethiopia; in which the uptake of HPV vaccine among female adolescents students with a good knowledge of cervical cancer, HPV infection and its vaccination is two times higher than those with poor knowledge of cervical cancer, HPV infection and its vaccination (21). It could be due to the previously accumulated information on HPV infection and its vaccine from different sources of information, such as health care workers, the mass media, and teachers, which could lead them to receive the vaccination.

In this study, the students who had a positive attitude toward the vaccination had higher odds of HPV vaccination uptake than the students who had a negative attitude toward the vaccination. This finding agrees with the finding of the study conducted in Uganda, where the students who had a positive attitude toward the vaccination had higher odds of HPV vaccination uptake than the students who had a negative attitude toward the vaccination(26). Our findings are also supported by the findings of another study conducted in Ambo town, Ethiopia, in which the uptake of the HPV vaccine among female students with a positive attitude is two times higher than those with a poor attitude toward the vaccination(20). This could be due to their internal feelings about the severity of HPV infections and the benefit of the vaccine in keeping them safe and healthy from this infection, which might have motivated them to receive the vaccination.

Furthermore, the students who were encouraged by health care workers, teachers, and their parents had increased odds of HPV vaccination uptake than those who were encouraged by their friends. This finding is consistent with the study conducted in the Lira district, Uganda, where the students who were encouraged by health care workers were 1.55 times more likely to receive the vaccine (26). Our findings are supported by other studies conducted in rular

districts of Uganda and Victoria, Australia, which showed that encouragement of the students by teachers, health care workers, and parents enhances the uptake of HPV vaccination (36, 37). This might be due to the students' belief that healthcare workers, teachers, and their parents are trustworthy sources of their health information; they also interact with their teachers and parents on a daily basis and seek healthcare workers for health-related issues. As a result of their encouragement, they might be able to receive the vaccination.

Limitation of the study

The study might be prone to recall bias due to the long time interval between the vaccination day and the study. But we tried to minimize the bias through probing. The generalizability of the study to a population of the same age in the community is limited since our study was an institutional-based study.

7. Conclusion

The uptake of HPV vaccination among female adolescent students in Mettu town was low. Being in the 16 to 18-year age group, having good knowledge, having a positive attitude, and getting encouragement from health care workers, teachers, and their parents were significantly associated with the uptake of the vaccination.The unavailability of a sufficient amount of the vaccine is also the main reason for the low uptake of vaccination in our study area. This low uptake could increase the risk of HPV infection and scale back the cervical cancer elimination target. Healthcare workers, mass media, and teachers were their main sources of information on HPV.

8. Recommendation

- The Mettu town health office should provide health education for the students on cervical cancer, HPV infection, and HPV vaccination through their main sources of information such as mass media, teachers, and healthcare workers.
- The Mettu town health office should incorporate the teachers and parents of the students into the vaccination campaign in addition to the health care workers and encourage the students to enhance the uptake of the vaccination.
- The Federal Ministry of Health should make available a sufficient number of vaccines during the vaccination campaign.
- The Federal Ministry of Education should include education about cervical cancer, HPV infection, and vaccination in the education system of the country, especially for primary and secondary school students.

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Annex I: Data collection tool English version.

Form for parental consent

How are you? I'm fine. My name is _____. I am part of the research team at Jimma University, College of Public Health, Department of Epidemiology, which is conducting a study on the uptake of human papillomavirus vaccination among female students in Mettu town. As your daughter ____ is part of this class, she has been randomly selected to participate in this study. Your permission is necessary to do so. Participation in the study is voluntary and she has the right to terminate at any point if she is not interested in participating in the study. But her cooperation is helpful to address the problem related to the uptake of HPV vaccination. The answer she provides will be kept locked so no one can read it. We will tell you the results of this study in the future. Thank you for giving your daughter permission to take part in this study.

Sign_____ Date_____

Consent form for the students

How are you? I'm fine. My name is _____. I am part of the research team at Jimma University, College of Public Health, Department of Epidemiology, which is conducting a study on the uptake of human papilloma virus (HPV) vaccination among female students in Mettu town. I would like to ask you some questions, and it will take about 15 minutes. Your answers will be kept confidential, and your name will not be written on the questionnaire. Participation in this study is voluntary. You have the right to terminate at any point if you are not interested in participating in the study. But your cooperation and willingness are helpful to address the problem related to the uptake of HPV vaccination. Do you want to ask me any questions about the study? "Would you be willing to have a discussion with me?" "Yes _____Signature_____ No_____

If yes, continue with questions. Start time_____ End time _____Date____/____/____

Name of data collector_____ Signature_____ Code number_____

Name of Supervisor_____ Signature_____ Code number_____

Name of school _____ Grade _____

Questionnaire

Questionnaire code_____ Date of data collection_____

Region_____ Zone _____ Town_____ Name of School_____

Name of data collector_____ Signature_____ Phone number_____

Name of Supervisor_____ Signature_____ Phone number_____

I. Section one: Socio-demographic Characteristics of the Respondents.

Instruction: Please read and encircle any of the responses that apply to you in the option provided or complete the blank spaces provided as applicable.

No	Questions	Coding categories	Skip
101.	How old are you?	_____(In year)	
102.	What is your level of education?	_____	
103.	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others, specify_____	
104	What is your ethnicity?	1. Oromo 2. Amhara 3. Tigre 4. Gurage 5. Others, specify_____	
105	Where do you live?	1. Urban 2. Rural	
106	What is your living status?	1. Stay with parents 2. Do not stay with parents	
107	Family income per month in Ethiopia birr(ETB)	_____ ETB	

Socio-demographic Characteristics of the Respondents is continued

No	Questions	Coding categories	Skip
108	What is your father's level of education?	1. No formal education 2. Primary education 3. Secondary education 4. Collage and above	
109	What is your mother's level of education?	1. No formal education 2. Primary education 3. Secondary education 4. Collage and above	
110	What is the occupation of your mother?	1. House wife 2. Merchant 3. Farmer 4. Government employee 5. Private/NGO employee 6. Other specify_____	
111	What is the occupation of your father?	1. Merchant 2. Farmer 3. Government employee 4. Private/ NGO employee 5. Other specify_____	

II. Section two: Knowledge of Cervical Cancer

Instruction: The table below contains questions and a set of statements to assess your knowledge of cervical cancer. Please read, and encircle as appropriate. Kindly use the following categories: 1. Yes 2.No

S/N	Questions	Coding categories	Skip
201	Do you know cervical cancer?	1. Yes 2. No	If no go to Q 208
202	cervical cancer is a common cancer in women	1. Yes 2. No	
203	All women are at risk of developing cervical cancer.	1. Yes 2. No	
204	Cervical cancer is a sexually transmitted disease.	1. Yes 2. No	
205	Symptoms of cervical cancer could not be recognized at an early stage.	1. Yes 2. No	
206	Cervical cancer is preventable.	1. Yes 2. No	
207	Early-stage cervical cancer is treatable.	1. Yes 2. No	

III. Section three: knowledge of HPV infection

Instruction: The table below contains a set of statements and questions to assess your knowledge of HPV infection. Please read and encircle your answer as appropriate.

208	Have you ever heard about human papilloma virus?	1. Yes 2. No	If no go to 216
209	If you answered "yes" to question 208, from where did you hear about HPV?	1. Health care provider 2. Mass media (newspaper, Internet, television, radio) 3. Parents 4. Friends 5. Teachers 6. Other, specify____	
210	HPV causes cervical cancer	1. Yes 2. No	
211	HPV infection is a sexually transmitted infection	1. Yes 2. No	
212	Sex at an early age increases the risk of HPV infection	1. Ye 2. No	
213	Having multiple sexual partners reduces the risk of HPV infection	1. Yes 2. No	
214	People can get HPV infection for a long time without knowing it	1. Yes 2. No	
215	HPV virus can be cleared from the body without treatment in some individuals.	1. Yes 2. No	
216	If you answered no to question 208, what could be the reason you haven't heard about HPV?	1. Lack of source of information 2. Religious influence 3. Cultural influence 4. Not interested to hear 5. Others(specify____)	

IV. Section four: Knowledge of HPV vaccination

Instruction: The table below contains a set of statements to assess your knowledge of the human papilloma virus vaccine. Please read, and encircle as appropriate. Kindly use the following categories: 1. Yes 2.No

217	Do you know HPV infection has a vaccine?	1. Yes 2. No	
218	HPV vaccination effectively prevents cervical cancer	1. Yes 2. No	
219	Screening for cervical cancer is necessary after receiving the HPV vaccination.	1. Yes 2. No	
220	HPV vaccine should be given before the first sexual intercourse.	1. Yes 2. No	
221	HPV vaccine can be offered to female children greater than or equal to 9 years of age	1. Yes 2. No	
222	Complete HPV vaccination requires three injections.	1. Yes 2. No	
223	The HPV vaccine is delivered over a 6-month schedule.	1. Yes 2. No	

V. Section five: Attitude toward HPV vaccination

Instruction: The table below contains a set of statements to examine your attitude towards the human papilloma virus vaccination. Please read and encircle your answer.

No	Questions	Categories
301	Because I feel at risk of getting HPV, I will take the vaccine.	1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
302	I feel being infected with HPV is very deadly and can lead to death.	1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
303	I think it is not easy to find a place to receive the HPV vaccination.	1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
304	I think taking the vaccine will keep me safe and healthy.	1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
305	I would need the HPV vaccine if I had multiple sexual partners.	1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

VI. Section six: Uptake of HPV vaccination

Instruction: The table below contains a set of questions to assess the uptake of human papilloma virus vaccination. Please read and encircle your answer.

S/N	Questions	Coding categories	Skip
401	Have you ever received HPV vaccination?	1. Yes 2. No	If no go to 403
402	If you answered "yes" to question 401, how many doses have you received?	1. One dose 2. Two doses	
403	If no to question number 401, what is the main reason you would not get vaccinated?	1. Not informed the date of the vaccination 2. Do not know where the vaccine is get from 3. Fear of side effects 4. Fear of needles 5. Believe no need of HPV vaccination 6. Believe Not sexually active 7. The vaccine was not available at the vaccination site on my visit 8. Other specify_____	

VII. Section seven: Other possible factors that could influence the uptake of HPV vaccination

Instruction: The table below contains a set of questions to assess other possible factors that may influence the uptake of human papilloma virus vaccination. Please read and encircle your answer.

S/N	Questions	Coding categories	Skip
501	Who is/are the main decision maker for getting vaccinated?	1. Self 2. One or both parents 3. Other, specify____	
502	Did you get encouraged by other people to get vaccinated?	1. Yes 2. No	If no go to 504
503	If you answered "yes" to question 502, who encouraged you to get vaccinated?	1. Parents' 2. Health care workers' 3. Teachers' 4. Friends 5. Other, specify_____	
504	Have you received full information about the vaccine prior to the vaccination date?	1. Yes 2. No	
505	Is there school-based reproductive health education?	1. Yes 2. No	
506	If you answered "yes" to question 505, was HPV infection covered in the education?	1. Yes 2. No	

Annex II: Data collection tools Afan Oromo version

Unka walii galtee kan maatii barattootaa

Fayyaa keessani? Ani fayyaadha. Maqaan koo_____.Ani warra Jimmaa yuuversiiitii koolleejjii saayinsii fayyaa hawaasaa irra qorannoo magaalaa mattuu keessatti talaallii human paappiloomaa viiyiressiitti fayyadamaa jiraachuu barattoota shamarranii ilaalchisee qorannoo geggeessaa jiran keessaa tokkodha.Mucaan keesssan barattuu_____n qorannoo kana ilaalchisee carraan kaafame waan ishee qaqqabeef akka qorannoo kanatti hirmaattuuf immoo eeyyamni keessan murteessaadha.Qorannuchaan walqabatees miidhaan isheerra gahu tokkollee hin jiru. Qorannoo kanatti kan hirmaattus yoo fedhii ishee ta'e qofadha. Qorannichas erga eegaltee booda yoo itti fuftee xumuuruuf fedhii hin qabne bakka fetetti adda kutuuf mirga guutuu qabdi. Garuu hirmaannaan isheen gootu rakkoowwan talaallicha fudhachuun walqabatan furuu keessaatti gahee guddaa qaba. Deebii isheen qorannuchaa irratti kennitus iccitiin isaa kan eegamee fi namni biraa kamiyyuu arguu hin kan dandeenyedha. Bu'aa qorannuchaas gara fuulduraatti isin beeksifna.Waan nuu eyyamtaniif galatoomaa.

Mallattoo_____Guyyaa_____

Unka walii galtee barattootaa waliinii

Fayyaa keessani? Ani fayyaadha. Maqaan koo_____.Ani warra Jimmaa yuuversiiitii koolleejjii saayinsii fayyaa hawaasaa dipaartimentii epidemiolojii talaallii human paappiloomaa vaayiresii ilaalchisee itti fayyama barattoota shamarranii magaalaa Mattuu ilaalchisee qorannoo geggeessaa jiran keessaa tokkodha.Gaaffii muraasa kan daqiiqa kudhan shan keessatti xumuramu si gaafachuufi.Deebii ati naaf kennitus namni biraa kamiyyuu arguu kan hin dandeenyee fi iccitiin kees kan eegemudha. Akkasumas maqaan kees itti hin barreeffamu.Gaaffii kanarratti kan hirmaattus yoo fedhii kee tahe qofadha. Erga hirmaachuu eegaltee boodas yoo xumuruuf fedhii hin qabaanne bakka feteetti adda kutuuf mirga guutuu qabda. Garuu hirmaannaa ati qorannoo kana irratti gootu rakkoo talaallicha fudhachuun walqabatan furuu keessatti gahee guddaa qaba.waa'ee qorannuchaa wanti gaaffii sitti ta'e jira? Jiraannaan nagaafadhu siifin ibsaa.qorannuchatti hirmaachuuf fedhii qabda? Eeyee_____Mallattoo_____

Yeroo itti eegalame_____itti xumurame_____Guyyaa_____

Maqaa nama ragaa funaanee_____Mallattoo_____Koodii_____

Maqaa To'ataa _____Mallattoo_____Koodii_____

Maqaa mana barumsaa_____ kutaa _____ Sekshinii_____

Gaaffilee

Koodii gaaffichaa _____Guyyaa ragaan funaaname_____

Naannoo_____Godina_____Magaalaa_____Maqaa mana barumsaa_____

Maqaa nama ragaa funaanee_____Mallattoo_____Lakk.bilbilaa_____

Maqaa nama ragaa funaanu hordofuu_____Mallattoo_____ Lakk.bilbilaa_____

Qorannoo waa'ee talaallii farra huuman paappiloomaa vaayiresii

I. Kutaa tokko: Ragaalee bu'uuraa barattoota shamarranii magaalaa Mattuu, Godina Ilu Aba Bor, Naannoo Oromia, Kibbalixa Itoophiyaa, bara 2014

Qajeelfama: Gaaffilee gabatee armaan gadii keessaa waa'ee ragaalee bu'uura si gaafataniif deebii siif tahuu kan danda'utti mari akkasumas bakka duwwaa jirus deebii sirrii guuti.

Lakk	Gaaffilee	Filannoo	dar bi
101.	Umuriin kee waggaa meeqa?	_____(Waggaadhaan)	
102.	Kutaa meeqa baratta?	_____	
103.	Amantaan kee maali?	1. Ortodoksii 2. Musliimaa 3. Protestaantii 4. Kaatolikii 5. Kan biraa, ibsi _____	
104	Sabni kee maali?	1. Oromoo 2. Amaaraa 3. Tigree 4. Guraagee 5. Kan biraa, ibsi, _____	
105	Eessa jiraatta?	1. Magaalaa 2. Baadiyyaa	
106	Haalli jireenya kee kami?	1. Maatii wajjin 2. Maatii irraa adda baatee	
107	Maatiin kee giddu-galeessaan ji'atti qarshii Itoophiyaa meeqa argatu?	_____	

Ragaa bu’uuraatu itti fufe

Lakk	Gaaffilee	Filannoo	dar bi
108	Abbaan kee barnootaan sadarkaa kamirra jiru?	1. Barumsa ammayyaa hin baranne 2. Barumsa sadarkaa tokkoffaa barateera (1-8). 3. Barumsa sadarkaa lammaffaa barateera (9-12). 4. Koolleejjii fi isaa olitti barateera.	
109	Haati yookiin aayyoon kee barnootaan sadarkaa kamirra jiru?	1. Barumsa ammayyaa hin baranne. 2. Barumsa sadarkaa tokkoffaa barateetti (1-8). 3. Barumsa sadarkaa lammaffaa baratteetti (9-12). 4. Koolleejjii fi isaa oli barateetti.	
110	Gaheen hojii aayyoo (armee) keetii maali?	1. Haadha manaa 2. Daldaltuu 3. Qonnaan bultuu 4. Hojjettuu mootummaa 5. Hojii dhuunfaa /miti mootummaa 6. Kan biraa ibsi _____	
111	Gaheen hojii abbaa keetii maali?	1. Daldalaa 2. Qonnaan bulaa 3. Hojjetaa mootummaa 4. Hojii dhuunfaa /miti mootummaa 5. Kan biraa ibsi_____	

II. **Kutaa lama: Gaaffilee beekumsa kaanserii ulaa yookiin fiixee gadameessaan walqabatan**

Qajeelfama: Gaaffilee fi himoonni gabatee armaan gadii keessatti argaman beekumsa ati kaanserii fiixee gadameessaa ilaalchisee qabdu beekuuf waan nu gargaaruuf deebii sirrii ta'etti Mari.

Lakk.	Gaaffilee	Filannoo	darbi
201	Kaanserii fiixee gadameessaa beekta?	1. Eeyyee 2. Lakki	Lakki yoo jette 208tti darbi
202	Kaanseriin fiixee gadameessaa dubartoota miidhuun beekama.	1. Eeyyee 2. Lakki	
203	Dubartoonni hunduu carraa kaanserii fiixee gadameessaaf saaxilamuu qabu.	1. Eeyyee 2. Lakki	
204	Kaanseriin fiixee gadameessaa dhibee wal quunnamtii saalaan daddarbudha.	1. Eeyyee 2. Lakki	
205	. Kanseriin fiixee gadameessaa yeroo nu qabu sadarkaa jalqabaa irratti dafnee mallattoo isaa ofirratti hubachuu yookiin adda baafachuu dadhabuu ni dandeenya.	1. Eeyyee 2. Lakki	
206	Kaanserii fiixee gadameessaa ofirraa ittisuun ni danda'ama.	1. Eeyyee 2. Lakki	
207	Kaanserii fiixee gadameessaa sadarkaa jalqabaa irraatti yaalamanii fayyuun ni danda'ama.	1. Eeyyee 2. Lakki	

III. Kutaa sadii: Beekumsa dhibee human paappiloomaa vaayiresii

Qajeelfama: Gaaffilee fi himoonni gabatee armaan gadii keessatti argaman beekumsa ati dhibee human paappiloomaa vaayiresiin ilaalchisee qabdu hubachuuf waan nu gargaaruuf deebii sirrii ta'etti mari.

Lakk.	Gaaffilee	Filannoo	Darbi
208	Ati kanaan duraa waa'ee human paappiloomaa vaayiresii dhageessee beektaa?	1. Eeyyee 2. Lakki.	Lakki yoo jette 216 tti darbi
209	Gaaffii lakkoofsa 208, Eeyyee yoo jette eessaa dhageesse?	1. Ogeessota fayyaa irraa 2. Miidiyaa irraa(Televiziyoonii, Raadiyoo,interneeta fi gaazexaa) 3. Maatii irraa 4. Hiriyaa irraa 5. Barsiisota irraa 6. Kan biraa,ibsi___	
210	Human paappiloomaa vaayiresiin kaanserii fiixee gadameessaaf nama saaxila.	1. Eeyyee 2. Lakki	
211	Human paappiloomaa vaayiresiin wal quunnamtii saalaan darba.	1. Eeyyee 2. Lakki	
212	Umurii ijoollummaan dafanii walquunnamtii saalaa raawwachuun carraa huuman paappiloomaa vaayiresiif saaxilamuu ni dabala	1. Eeyyee 2. Lakkii	

Gaaffilee beekumsa dhibee human paappiloomaa vaayiresiin wal qabatutu itti fufe

Lakk.	Gaaffilee	Filannoo	Darbi
213	Hiriyaa saal-quunnamtii hedduu qabaachuun carraa huuman paappiloomaa vaayiresiif saaxilamuu ni xiqqeessa.	1. Eeyyee 2. Lakki	
214	Dhibee huuman paappiloomaa vaayiresiin qabamuu keenya osoo hin beekin dhibichi waliin yeroo dheeraaf turuu ni dandeenya.	1. Eeyyee 2. Lakki	
215	Namoonni huuman paappiloomaa vaayiresiin qabaman tokko tokko yaalumsa tokko malee fayyanii vaayiresicha irraa bilisa tahuu ni danda'u.	1. Eeyyee 2. Lakki.	
216	Gaafii lakkoofsa 208 ffaa lakki yoo jette sababa maaliif dhagahuu dhabe jettee yaadda?	1. Madda odeeffannoo irraa argattu waanhin qabneef 2. Amantiin waan dhorkuuf 3. Aadaan waan dhorkuuf 4. dhagahuuf fedhii waan hin qabneef 5. Kan biraa, ibsi_____	

IV. Kutaa afur: Gaaffilee beekumsa talaallii human paappiloomaa vaayiresiin walqabatan

Qajeelfama: Gaaffilee fi himoonni gabatee armaan gadii keessatti argaman beekumsa ati talaallii human paappiloomaa vaayiresiin ilaalchisee qabdu beekuuf waan nu gargaaruuf deebii sirrii ta'etti mari.

Lakk.	Gaaffilee	Filannoo	darbi
217	Dhibeen huuman paappiloomaa vaayiresii dhufu talaallii qabaachuu beekta?	1. Eeyyee 2. Lakki	
218	Tallaalliin huuman paappiloomaa vaayiresii kaanserii fiixee gadameessaa isirriitti ittisuu ni danda'a.	1. Eeyyee 2. Lakki	
219	Erga talaallii huuman paappiloomaa vaayiresii fudhatanii booda kanserii ulaa gadameessaaf sakatta'amuun barbaachisaadha.	1. Eeyyee 2. Lakki	
220	Tallaalliin huuman paappiloomaa vaayiresii wal quunnamtii saalaa osoo hin eegalin wal quunnamtii saalaa isa jalqbaa dursee kennamuu qaba.	1. Eeyyee 2. Lakki	
221	Talaalliin huuman paappiloomaa vaayiresii shamarran umuriin isaanii waggaa sagalii fi isaa ol tahaniif kennuun ni danda'ama.	1. Eeyyee 2. Lakki	
222	Talaalliin huuman paappiloomaa vaayiresii marsaa guutuu fudhanne kan jedhamu marsaa sadii yoo lilmoo isaa dirannedha.	1. Eeyyee 2. Lakki	
223	Talaalliin huuman paappiloomaa vaayiresii marsaa guutuun yeroo ji'a jaha kessatti kennamuu xumuramuu qaba.	1. Eeyyee 2. Lakki	

V. Kutaa shan: Himoota ilaalcha barattoonni talaallii huuman paappiloomaa vaayiresiif qabaniin walqabatan

Qajeelfama: Himoonni gabatee armaan gadii keessatti argaman talaallii human paappiloomaa vaayiresii ilaalchisee ilaalcha ati qabdu beekuuf waan nu gargaaruuf deebii sirrii ta'etti mari.

Lakk.	Gaaffilee	Filannoo
301	Huuman paappiloomaa vaayiresiidhaaf saaxilamuu akkan danda'u waan natti dhaga'amaa jruuf, talaallii isaa fudhachuun qaba.	1. Tasayyuu itti walii hin gallu 2. Itti Walii hin gallu 3. Hin mormus itti walii hin galus 4. Itti Walii galla, 5. Baay'ee itti walii galla
302	Huuman paappiloomaa vaayiresiin dhibamuun hamaa fi du'aaf kan nama saaxilu ta'ee natti dhaga'ama.	1. Tasayyuu itti walii hin gallu 2. Itti Walii hin gallu 3. Hin mormus itti walii hin galus 4. Itti Walii galla, 5. Baay'ee itti walii galla
303	Talaallichi eessaa (bakka kamii) akka fudhatamu beekuun salphaa miti jedheen yaada.	1. Tasayyuu itti walii hin gallu 2. Itti Walii hin gallu 3. Hin mormus itti walii hin galus 4. Itti Walii galla, 5. Baay'ee itti walii galla
304	Talallii HPV fudhachun dhibicharraa bilisaa fi fayya qabassa nagodha jedheen yaada.	1. Tasayyuu itti walii hin gallu 2. Itti Walii hin gallu 3. Hin mormus itti walii hin galus 4. Itti Walii galla, 5. Baay'ee itti walii galla
305	Tallaalli farra huuman paappiloomaa vaayiresii kan na barbaachisu hiriyaa saal-quunnamtii hedduu yoo ani qabaadhedha.	1. Tasayyuu itti walii hin gallu 2. Itti Walii hin gallu 3. Hin mormus itti walii hin galus 4. Itti Walii galla, 5. Baay'ee itti walii galla

VI. Kutaa jaha: Gaaffile talaallii huuman paappiloomaa vaayiresii fudhachuun walqabatan **Qajeelfama:** Gaaffileen gabatee armaan gadii keessatti argaman fudhannaan talaallii human paappiloomaa vaayiresii sadarkaa kamirra akka jiru beekuuf waan nu gargaaruuf deebii sirrii ta'etti mari.

Lakk	Gaaffilee	Filannoo	Darbi
401	Ati kanan dura tallaallii farra huuman paappiloomaa vaayiresii diratteettee/fudhatteettee beektaa?	1. Eeyyee 2. Lakki	Lakki yoo jette 403 tti darbi
402	Gaaffii lakk.401 eeyyee yoo jette talaallicha marsaa(yeroo) meeqa diratte /fudhatte?	1. Yeroo tokko 2. Yeroo lama	
403	Gaaffii lakkoofsa 401 lakki yoo jette, sababni ijoon talaallicha akka hin fudhanne/diranne si dhorke maali?	1. Guyyaa talaallichi kenname waan hin dhageenyeef 2. Talaallichi eessa akka fudhatamu waan hin beekneef 3. Qorichi talaalliif kennamu miidhaa cinaa(biraa) narraan gahaa sodaattee 4. Lilmoo dirachuu yookiin waraannachuu sodaattee 5. Talaallichi hin barbaachisu jettee waan amantuuf 6. Wal quunnamtii saalaaf hin geenye jettee yaaduun 7. Qoricha talallif kennamu dhabamuu 8. Kan biraa, ibsi _____	

VII. Kutaa torba: Sababoota biraa talaallii human paappiloomaa vaayiresii waliin wal qabatan.

Qajeelfama: Gaaffileen gabatee armaan gadii keessatti argaman sirriitti erga dubbistee booda deebii sirriitti mari

Lakk	Gaaffilee	Filannoo	Darbi
501	Tallaallii huuman paappiloomaa vaayiresii akka fudhattu/dirattu kan murteessu inni ijoon eenyudha?	1. Ofii keetii murteessita 2. Abbaa yookiin haadha keetu murteessa. 3. Kan bira,ibsi____	
502	Tallaallicha akka fudhattu/dirattu namni sijajjabeesse jiraa?	1. Eeyyee 2. Lakki	Lakki yoo jette lakk. 504 tti darbi
503	Gaaffii lakk. 502 eeyyee yoo jette eenyutu si jajjabeesse?	1. Maatii 2. Ogeessota fayyaa 3. Barsiisota 4. Hiriyoota kee 5. Kan biraa, ibsi__	
504	Waa'ee talaallichaa guyyaa talaalliin kennamu dura odeeffannoo guutuu argatteetta?	1. Eeyyee 2. Lakki	
505	Akka mana barumsaa keessanitti barnoonni fayyaa wal hormaata isiniif ni kennama?	1. Eeyyee 2. Lakki	
506	Gaaffii lakkoofsa 505 eeyyee yoo jette, barumsi kennamaa jiru kun waa'ee dhibee human pappiloomaa vaayirasii of keessaatti kan haammatedha?	1. Eeyyee 2. Lakki	

Annex III: Data collection tool Amharic version.

ለወላጆች የስምምነት ቅጽ

እንዴት ናችሁ? ደህና ነኝ. ስሜ _____. ነው በሞቱ ከተማ በሴት ተማሪዎች ላይ የሚደረገውን የሂውማን ፓፒሎማ ቫይረስ ክትባትን በተመለከተ ጥናት በማካሄድ ላይ የሚገኘው የጅማ ዩኒቨርሲቲ የህዝብ ጤና ኮሌጅ የምርምር ቡድን አካል ነኝ። ሴት ልጃችሁ _____እነዚህ ተማሪዎች እንደመሆኗ መጠን በዚህ ጥናት ላይ እንድትሳተፍ በዘፈቀደ ተመርጣ የአንተ ፈቃድ አስፈላጊ ነው። በጥናቱ ውስጥ መሳተፍ በፈቃደኝነት ነው እና በጥናቱ ላይ ለመሳተፍ ፍላጎት ከሌለው በማንኛውም ጊዜ የማቋረጥ መብት አላት. ነገር ግን የእሷ ትብብር ከ HPV ክትባት መውሰድ ጋር የተያያዘውን ችግር ለመፍታት ይረዳል. የምትሰጠው መልስ ተቆልፎ ይቆያል ማንም ማንበብ አይችልም። የዚህን ጥናት ውጤት ወደፊት እንነግራችኋለን። በዚህ ጥናት ላይ እንድትሳተፍ ሴት ልጅዎን ስለፈቀዱለት እናመሰግናለን። ፊርማ _____ ቀን_____

ለተማሪዎቹ የስምምነት ቅጽ

እንዴት ነሽ? ደህና ነኝ. ስሜ _____. ነው በሞቱ ከተማ በሴት ተማሪዎች ላይ የሂውማን ፓፒሎማ ቫይረስ (HPV) ክትባት መውሰድ ላይ ጥናት በማካሄድ ላይ የጅማ ዩኒቨርሲቲ የህዝብ ጤና ኮሌጅ የምርምር ቡድን አካል ነኝ። አንዳንድ ጥያቄዎችን ልጠይቅሽ እፈልጋለሁ እና 15 ደቂቃ ያህል ይወስዳል። መልሶችዎ በሚስጥር ይጠበቃሉ፣ እና ስምሽም በጥያቄ ላይም አልተጻፈም። በዚህ ጥናት ውስጥ የሚሳተፍ በፈቃደኝነት ነው. በጥናቱ ውስጥ ለመሳተፍ ፍላጎት ከሌለሽ በማንኛውም ጊዜ የማቋረጥ መብት አለሽ. ነገር ግን የእርስዎ ትብብር እና ፈቃደኝነት ከ HPV ክትባት መውሰድ ጋር የተያያዘውን ችግር ለመፍታት ጠቃሚ ነው። ስለ ጥናቱ ማንኛውንም ጥያቄ ልትጠይቅኝ ትፈልጋለሽ? ከእኔ ጋር ለመወያየት ፈቃደኛ ትሆናለሽ? አዎ _____ፊርማ_____ አይ_____

አዎ ከሆነ፣ በጥያቄዎች ይቀጥሉ።

የመጀመሪያ ጊዜ _____ የማብቂያ ጊዜ _____ቀን____/____/____

የመረጃ ሰብሳቢ ስም _____ ፊርማ _____ ኮድ ቁጥር_____

የሱፐርቫይዘሩ ስም_____ ፊርማ _____ ኮድ ቁጥር_____

የትምህርት ቤት ስም _____ ክፍል _____

መጠይቅ

መጠይቅ ኮድ _____ የውሂብ መሰብሰቢያ ቀን _____

ክልል _____ ዞን _____ ከተማ _____ የትምህርት ቤት ስም _____

የመረጃ ሰብሳቢው ስም_____ ፊርማ _____ ስልክ ቁጥር _____

የሱፐርቫይዘሩ ስም _____ ፊርማ _____ ስልክ ቁጥር _____

I. ክፍል አንድ፡ የመላሾች ማህበረ-ሕዝብ ባህሪያት።

መመሪያ፡ እባክህ በቀረበው አማራጭ ላይ አንተን የሚመለከተውን ማንኛውንም ምላሽ አንብብና ከበው ወይም እንደ አስፈላጊነቱ የቀረቡትን ባዶ ቦታዎችን ሙሉ።

ተ. ቁጥር	ጥያቄዎች	ኮድ ማድረጊያ ምድቦች	ዝለል
101.	ስንት አመትሽ ነው?	_____(በአመት)	
102.	የትምህርት ደረጃሽ ስንት ነው?	_____	
103.	ሃይማኖትሽ ምንድን ነው?	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌሎች፣ ይግለጹ_____	
104	ብሄርሽ ምንድን ነው?	1. ኦሮሞ 2. አማራ 3. ትግሬ 4. ጉራጌ 5. ሌሎች፣ ይግለጹ_____	
105	የት ነው የሚኖሪዉ?	1. ከተማ 2. rular	

ተ. ቁጥር	ጥያቄዎች	ኮድ ማድረጊያ ምድቦች	ዝለል
106	የኑሮ ደረጃሽ ምን ያህል ነው?	1. ከወላጆች ጋር ይቆዩ 2. ከወላጆች ጋር አትቆይ	
107	በወር የቤተሰብ ገቢሽ በኢትዮጵያ ብር (ኢ.ቲ.ቢ.)	_____ ኢ.ቲ.ቢ	
108	የአባትሽ የትምህርት ደረጃ ስንት ነው?	1. መደበኛ ትምህርት የለም 2. የመጀመሪያ ደረጃ ትምህርት 3. የሁለተኛ ደረጃ ትምህርት 4. ኮላጅ እና ከዚያ በላይ	
109	የእናትሽ የትምህርት ደረጃ ስንት ነው?	1. መደበኛ ትምህርት የለም 2. የመጀመሪያ ደረጃ ትምህርት 3. የሁለተኛ ደረጃ ትምህርት 4. ኮላጅ እና ከዚያ በላይ	
110	የእናትሽ ሥራ ምንድን ነው?	1. የቤት ሚስት 2. ነጋዴ 3. ገበሬ 4. የመንግስት ሰራተኛ 5. የግል/የመንግስታዊ ያልሆነ ድርጅት ሰራተኛ 6. ሌላ ይግለጹ____	
111	የአባትሽ ሥራ ምንድን ነው?	1. ነጋዴ 2. ገበሬ 3. የመንግስት ሰራተኛ 4. የግል/ መንግሥታዊ ያልሆነ ድርጅት ሠራተኛ 5. ሌላ ይግለጹ____	

II. ክፍል ሁለት: የማኅጸን በር ካንሰር እውቀት

መመሪያ፡ ከታች ያለው ሰንጠረዥ ስለ የማኅጸን በር ካንሰር ያለዎትን እውቀት ለመገምገም ጥያቄዎችን እና መግለጫዎችን ይዟል። እባኮትን አንብቡ እና እንደአግባቡ ከበቡ። በደግነት የሚከተሉትን ምድቦች ተጠቀም 1. አዎ 2. አይደለም

ተ. ቁጥር	ጥያቄዎች	ኮድ ማድረጊያ ምድቦች	ዝለል
201	የማኅጸን በር ካንሰሪን ታውቅያሌሽ?	3. አዎ 4. አላዉቅ ም	አላዉቅም ካልሽ ወደ 208 ይሂዱ
202	የማህፀን በር ካንሰር በሴቶች ላይ የተለመደ ካንሰር ነው	1. አዎ 2. አይደለ ም	
203	ሁሉም ሴቶች የማኅጸን በር ካንሰር ሊያዙ ይችላሉ	1. አዎ 2. አይደለ ም	
204	የማህፀን በር ካንሰር በግብረ ሥጋ ግንኙነት የሚተላለፍ በሽታ ነው።	1. አዎ 2. አይደለ ም	
205	የማኅጸን በር ካንሰር ምልክቶች በመጀመሪያ ደረጃ ላይ ሊታወቁ አልቻሉም	1. አዎ 2. አይደለ ም	
206	የማህፀን በር ካንሰርን መከላከል ይቻላል	1. አዎ 2. አይደለ ም	
207	የመጀመርያ ደረጃ የማህፀን በር ካንሰር መታከም ይቻላል	1. አዎ 2. አይደለ ም	

III. ክፍል ሶስት፡ የሂውማን ፓፒሎማ ቫይረስ ኢንፌክሽን እውቀት

መመሪያ፡ ከዚህ በታች ያለው ሰንጠረዥ ስለ ሂውማን ፓፒሎማ ቫይረስ ኢንፌክሽን ያለዎትን እውቀት ለመገምገም መግለጫዎችን እና ጥያቄዎችን ይዟል። እባኮትን አንብበው መልስዎን እንደአግባቡ ያዙሩት።

ተ. ቁጥር	ጥያቄዎች	ኮድ ማድረጊያ ምድቦች	ዝለል
208	ስለ ሂውማን ፓፒሎማ ቫይረስ ሰምተሽ ታውቃለሽ?	1. አዎ 2. አይደለም	አይ ከሆነ ወደ 216 ይሂዱ
209	ለጥያቄ ቁጥር 208 አዎ ካልሽ፣ ከየት ሰማሽ?	1. ከጤና ባለሞያዎች 2. የመገናኛ ብዙሃን (ጋዜጣ, ኢንተርኔት, ቴሌቪዥን, ሬዲዮ) 3. ወላጆች 4. ጓደኞች 5. አስተማሪዎች 6. ሌላ፣ ይግለጹ____	
210	ሂውማን ፓፒሎማ ቫይረስ የማኅጸን በር ካንሰር ያስከትላል	1. አዎ 2. አይደለም	
211	የሂውማን ፓፒሎማ ቫይረስ ኢንፌክሽን በግብረ ሥጋ ግንኙነት የሚተላለፍ ኢንፌክሽን	1. አዎ 2. አይደለም	
212	ገና በለጋ እድሜ ወሲብ በሂውማን ፓፒሎማ ቫይረስ ኢንፌክሽን የመያዝ እድልን ይጨምራል	1. አዎ 2. አይደለም	

ተ. ቁጥር	ጥያቄዎች	ኮድ ማድረጊያ ምድቦች	ዝለል
213	ብዙ የወሲብ ጓደኛ መኖሩ የሂውማን ፓፒሎማ ቫይረስ ኢንፌክሽን አደጋን ይቀንሳል	1. አዎ 2. አይደለም	
214	ሰዎች በሂውማን ፓፒሎማ ቫይረስ በሽታ ሳያውቁ ለረጅም ጊዜ ሊያዙ ይችላሉ	1. አዎ 2. አይደለም	
215	ሂውማን ፓፒሎማ ቫይረስቫይረስ በአንዳንድ ግለሰቦች ላይ ህክምና ሳይደረግለት ከሰውነት ሊጸዳ ይችላል	1. አዎ 2. አይደለም	
216	ለጥያቄ ቁጥር 208 አይደለም ካልሽ፣ ስለ ሂውማን ፓፒሎማ ቫይረስ እንዳይሰሙ የሚያደርግሽ ምን ሊሆን ይችላል?	1. የመረጃ ምንጭ እጥረት 2. ሃይማኖታዊ ተጽእኖ 3. የባህል ተጽእኖ 4. ለመስማት ፍላጎት የለኝም 5. ሌሎች (____ ይግለጹ)	

IV. ክፍል አራት፡ የሂውማን ፓፒሎማ ቫይረስ ክትባት እውቀት

መመሪያ፡ ከዚህ በታች ያለው ሰንጠረዥ በሂውማን ፓፒሎማ ቫይረስ ክትባት ላይ ያለዎትን እውቀት ለመገምገም የአረፍተ ነገር ስብስብ ይዟል። እባኮትን አንብቡ እና እንደአግባቡ ከበቡ። በደግነት የሚከተሉትን ምድቦች ተጠቀም 1. አዎ 2. አይደለም

ተ. ቁጥር	ጥያቄዎች	ኮድ ማድረጊያ ምድቦች	ዝለል
217	የሂውማን ፓፒሎማ ቫይረስኢንፌክሽን ክትባት እንዳለው ታዉቅያሌሽ?	1. አዎ 2. አይ	
218	የሂውማን ፓፒሎማ ቫይረስ ክትባት የማህፀን በር ካንሰርን በብቃት ይከላከላል	1. አዎ 2. አይደለም	
219	የሂውማን ፓፒሎማ ቫይረስ ክትባት ከተከተቡ በኋላ የማህፀን በር ካንሰርን መመርመር አስፈላጊ ነው።	1. አዎ 2. አይደለም	
220	የሂውማን ፓፒሎማ ቫይረስ ክትባት ከመጀመሪያው የግብረ ሥጋ ግንኙነት በፊት መሰጠት አለበት	1. አዎ 2. አይደለም	
221	የሂውማን ፓፒሎማ ቫይረስ ክትባት ለዘጠኝ አመት እና ከዛ በላይ ላሉ ለሴት ልጆች ሊሰጥ ይችላል	1. አዎ 2. አይደለም	
222	ሙሉ የሂውማን ፓፒሎማ ቫይረስ ክትባት ሶስት መርፌዎችን ይፈልጋል	1. አዎ 2. አይደለም	
223	የሂውማን ፓፒሎማ ቫይረስ ክትባት ሙሉ ዶዝ በ6 ወራት ዉስጥ ይሰጣል	1. አዎ 2. አይደለም	

V. ክፍል አምስት፡ ለሂውማን ፓፒሎማ ቫይረስ ክትባት ያለሽ አመለካከት

መመሪያ፡ ከዚህ በታች ያለው ሰንጠረዥ ስለ ሂውማን ፓፒሎማ ቫይረስ ክትባት ያለሽን አመለካከት ለመመርመር መግለጫዎችን ይዟል። እባክህ አንብብ እና መልስሽን አስከብብ።

ተ. ቁጥር	ጥያቄዎች	ኮድ ማድረጊያ ምድቦች
301	በሂውማን ፓፒሎማ ቫይረስ የመያዝ ስጋት ስለተሰማኝ ክትባቱን እወስዳለሁ	1. በጣም አልስማማም 2. አልስማማም 3. ገለልተኛ 4. እስማማለሁ 5. በጠንካራ ሁኔታ እስማማለሁ
302	በሂውማን ፓፒሎማ ቫይረስ መያዙ በጣም ገዳይ እና ለሞት ሊዳርግ እንደሚችል ይሰማኛል	1. 1. በጣም አልስማማም 2. አልስማማም 3. ገለልተኛ 4. እስማማለሁ 5. በጠንካራ ሁኔታ እስማማለሁ
303	የሂውማን ፓፒሎማ ቫይረስ ክትባት የሚወስዱበት ቦታ ማግኘት ቀላል አይደለም ብዬ አስባለሁ።	1. በጣም አልስማማም 2. አልስማማም 3. ገለልተኛ 4. እስማማለሁ 5. በጠንካራ ሁኔታ እስማማለሁ
304	ክትባቱን መውሰድ ደህንነቴንና ጤንነቴን ይጠብቀኛል ብዬ አስባለሁ	1. በጣም አልስማማም 2. አልስማማም 3. ገለልተኛ 4. እስማማለሁ 5. በጠንካራ ሁኔታ እስማማለሁ
305	ብዙ የግብረ ሥጋ አጋሮች ካሉኝ የሂውማን ፓፒሎማ ቫይረስ ክትባት ያስፈልገኛል	1. በጣም አልስማማም 2. አልስማማም 3. ገለልተኛ 4. እስማማለሁ 5. በጠንካራ ሁኔታ እስማማለሁ

VI. ክፍል ስድስት፡ የሂውማን ፓፒሎማ ቫይረስ ክትባት መውሰድ

መመሪያ፡ ከዚህ በታች ያለው ሰንጠረዥ የሰው ፓፒሎማ ቫይረስ ክትባት መውሰድን ለመገምገም የጥያቄ ስብስብ ይዟል። እባክህ አንብብ እና መልስህን አስከብብ።

ተ. ቁጥር	ጥያቄዎች	ኮድ ማድረጊያ ምድቦች	ዝለል
401	የሂውማን ፓፒሎማ ቫይረስ ክትባት ወስደሽ ታውቃለሽ?	1. አዎ 2. አይ	አይ ከሆነ ወደ 403 ይሂዱ
402	ለጥያቄ ቁጥር 401 አዎ ካልሽ፣ ስንት ዙር ወስደሻል?	1. አንድ መጠን 2. ሁለት መጠን	
403	ለጥያቄ ቁጥር 401 አይ ካልሽ፣ የማትከተብበት ዋና ምክንያት ምንድን ነው?	1. ክትባቱ ምሰጥበትን ቀን ስላለሰማዉ 2. ክትባቱ ከየት እንደምሰጥ ስለማላቅ ። 3. የጎንዮሽ ጉዳቶችን መፍራት 4. መርፌ መወጋት ፈርቼ ነዉ 5. የሂውማን ፓፒሎማ ቫይረስ ክትባት አያስፈልግም ብለው ያምናሉ 6. የግብረ ሥጋ ግንኙነት አለመፈጸምን ማመን 7. የክትባቱ መድሃኒት ማለቁ/ማጣት 8. ሌላ ይግለጹ_____	

VII. ክፍል ሰባት፡ የሂውማን ፓፒሎማ ቫይረስ ክትባት መውሰድ ላይ ተጽእኖ ሊያሳድሩ የሚችሉ ሌሎች ሊሆኑ የሚችሉ ነገሮች

መመሪያ፡ ከዚህ በታች ያለው ሰንጠረዥ የሰው ፓፒሎማ ቫይረስ ክትባት መውሰድ ላይ ተጽእኖ ሊያሳድሩ የሚችሉ ሌሎች ሁኔታዎችን ለመገምገም የጥያቄዎች ስብስብ ይዟል። እባክህ አንብብ እና መልስህን አስከብብ።

ተ. ቁጥር	ጥያቄዎች	ኮድ ማድረጊያ ምድቦች	ዝለል
501	ክትባት ለመውሰድ ዋናው ውሳኔ ሰጪ ማን ነው?	1. ራስሽ 2. አንድ ወይም ሁለቱም ወላጆች 3. ሌላ፣ ይግለጹ____	
502	በሌሎች ሰዎች እንዲከተቢ አበረታቶሻል?	1. አዎ 2. አይ	አይ ከሆነ ወደ 504 ይሂዱ
503	ለጥያቄ ቁጥር 502 አዎ ካልሽ፣ በሂውማን ፓፒሎማ ቫይረስ ክትባት እንድትከተቢ ያበረታታሽ ማን ነዉ?	1. ወላጆች 2. የጤና ባለሙያዎች 3. መምህራን 4. ጓደኞች 5. ሌላ፣ ይግለጹ_____	
504	ከክትባቱ ቀን በፊት ስለ ሂውማን ፓፒሎማ ቫይረስ ክትባት ሙሉ መረጃ ደርሶሻል?	1. አዎ 2. አይ	
505	ትምህርት ቤትን መሰረት ያደረገ የስነ ተዋልዶ ጤና ትምህርት አለ?	3. አዎ 4. አይ	
506	ለጥያቄ ቁጥር 505 አዎ ካልሽ፣ ሂውማን ፓፒሎማ ቫይረስ ኢንፌክሽን በትምህርቱ ውስጥ ይካተታል?	3. አዎ 4. አይ	

ASSURANCE OF PRINCIPAL INVESTIGATOR

I the undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of the Faculty of Public Health in effect at the time of grant is forwarded as the result of this application.

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Date._____ Signature _____

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This thesis has been submitted with my approval as University advisor.

Name of the first advisor: **Mr. Desta Hiko (MPH, In Epidemiology Associate professor)**

Date._____ Signature _____

APPROVAL OF THE SECOND ADVISOR:

This thesis has been submitted with my approval as University advisor.

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