

ARSI UNIVERSITY
COLLEGE OF HEALTH SCIENCES
DEPARTMENT OF MIDWIFERY



Willingness to Accept Human Papillomavirus Vaccine and its Associated Factors Among Parents with Eligible Daughters in Asella Town. A Community-Based Cross-Sectional Study, 2024

Tigist Benti Fufa (BSc Midwifery)

A Thesis submitted to Arsi University, College of Health Sciences, Department of Midwifery for partial fulfillment of Master of Science in Maternity and Reproductive Health Nursing

February 2025

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ACRONYMS

4vHPV	Quadrivalent Human Papilloma Virus
AOR	Adjusted Odds Ratio
COR	Crude Odds Ratio
COVID 19	Corona Virus Disease
DNA	Deoxyribonucleic Acid
GAVI	Global Alliance for Vaccine and Immunization
HIC	High Income Countries
HPV	Human Papilloma Virus
HR	High Risk
IQR	Inter-quartile Range
MIC	Middle Income Countries
LMICs	Low- and Middle-Income Countries
LR	Low Risk
PHR	Probable High Risk
SDGs	Sustainable Development Goals
SPSS	Statistical Package for Social Science
SSA	Sub-Sahara Africa
USA	United States of America
WHO	World Health Organization

Abstract

Background: Human Papillomavirus, is the most widespread viral infection affecting the reproductive system and can lead to various conditions, such as precancerous lesions that might advance to cancer. Even though these vaccines are available free of charge, the level of acceptance is not uniform across different population groups.

Objective: the main objective of this study was to assess the level of willingness to accept Human papillomavirus vaccine among parents for their eligible daughters and its associated factors in Asella town, Arsi Zone, Oromia, Ethiopia.

Methods: a community-based cross-sectional study was conducted from October 31 to November 09/2024 in selected Kebeles of Asella town. A total of 500 study participants were selected from randomly selected kebeles. Three trained data collectors collected the data by using Kobo ToolBox and they were supervised by the principal investigator. The collected data were exported to statistical package for social science version 25 for analysis. Bivariate and multivariable logistic regression analysis were made. Variables having p-value ≤ 0.25 in bivariable analysis were selected as a candidate variable for multivariable analysis. Level of significance was declared using p-value ≤ 0.05 , crude and adjusted odds ratios along with their 95% confidence interval.

Results: the level of parental willingness to accept HPV vaccine for their daughters was 69.6%, (95% CI, 65.3, 73.6%). Father being private employee 7.24(AOR 95% CI, 1.74, 30.11) and government employee 3.81(AOR 95% CI, 1.73, 8.40), occupation of the mother being private employee 2.61 (AOR 95% CI, 1.04, 6.58) and merchant 4.94 (AOR 95% CI, 1.77, 13.79), having good level of knowledge 2.45 (AOR 95% CI, 1.11, 5.53) and positive attitude 12.73 (AOR 95% CI, 3.21, 50.57) were significantly and independently associated with parental willingness to accept HPV vaccine for their daughters.

Conclusion and recommendations: the level of parental willingness to accept HPV vaccine for their daughters was suboptimal in the study area. Mother and fathers occupation, having positive attitude and good level of knowledge were associated with parental willingness to accept HPV vaccine for their daughters. Awareness creation and targeted interventions are needed to increase the level of parental willingness to accept human papillomavirus vaccine for their daughters.

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1. INTRODUCTION

1.1. Background

Human Papilloma-Virus (HPV) is the most common viral infection that impacts the female reproductive system and can result in various conditions, including precancerous lesions that have the potential to progress into cervical cancer (1). There are more than 400 types of HPVs have been identified, with HPV types 16 and 18 causing approximately 70% of cervical cancers and pre-cancerous cervical lesions (1). Although most HPV infections are symptomless and tend to clear up on their own, persistent infections can lead to disease. In women persistent infection may lead to cervical intraepithelial neoplasia, if untreated this condition may progress to invasive cervical cancer (1, 2).

Cervical cancer can be prevented and treated successfully if detected early and managed properly. However, it remains the fourth most common cancer among women globally, with nearly 350,000 women dying from the disease in 2022 (3). The HPV can be grouped into three categories based on their epidemiological association with cervical cancer, high-risk (HR), probable high-risk (PHR), and low-risk (LR) (4). Thirty of these target the genitalia and approximately 15 types are cancer-causing (high-risk HPV) (4). Among the subtypes, HPV 16 and 18 are the most commonly observed high-risk serotypes with oncogenic properties and cause 70% of cervical cancers globally, even though the distribution is varied among the population by age, region and breed (4, 5).

The advent of vaccines marked a pivotal shift in medicine, becoming one of the most effective tools in public health for preventing infectious diseases (6). The HPV vaccine, in particular, plays a crucial role in preventing cancers associated with HPV infection. It is recommended for preteens, boys and girls, aged 11 to 12 years, although it can be administered as early as age 9 and up to age 26 for females and age 21 for males (7). The primary focus of HPV vaccination is on girls before they become sexually active. The vaccine is typically administered in a series of either two or three doses, depending on the recipient's age and after an HPV Deoxyribonucleic acid (DNA) test screening (6, 7). The HPV vaccines that have been available since 2006 and recommended by the World Health Organization (WHO) since 2009 (8) were a quadrivalent

Gardasil/Silgard, that targets HPV-6, 11, 16, and 18, and the bivalent Cervarix vaccine targeting HPV-16 and 18 (9-11).

The HPV vaccination has the potential to reduce the global incidence of cervical cancer by 70%. Regular cervical cancer screening can prevent the remaining 30% of cases (7). The vaccine's success would depend on levels of acceptability and uptake, which heavily rely on parents' willingness to vaccinate their eligible daughters (12). Ethiopia launched the quadrivalent human papillomavirus (4vHPV) vaccine for the first time in December 2018. The vaccine is currently being delivered primarily through a school-based approach to reach all eligible girls (13).

In Ethiopia, even though the vaccine was introduced eight years back the uptake has increased steadily. Hence, assessment of willingness to accept HPV vaccination among parents with eligible daughters will have an input for what is hindering the service uptake behind.

1.2. Statement of the problem

Globally, cervical cancer is the fourth most common cancer in women, with around 660,000 new cases in 2022. In the same year, about 94% of the 350,000 deaths caused by cervical cancer occurred in low- and middle-income countries. The highest rates of cervical cancer incidence and mortality are in sub-Saharan Africa (SSA), Central America and South-East Asia (14). Few diseases illustrate global inequities as starkly as cervical cancer. Low and middle-income countries account for an estimated 94% of cervical cancer deaths and the regions bear the greatest disease burden due to limited access to public health services and a lack of widespread screening and treatment approaches (3). Reports from multiple studies indicate a reduced HPV prevalence of 73–85% and 41–57% decline in high-grade cervical lesions from countries with high coverage of HPV vaccination (9-11) and these vaccines also can cut cervical cancer cases by 90% (15).

In the beginning, the high cost of the vaccine has hindered its uptake in low- and middle-income countries (LMICs). The Global Alliance for Vaccine and Immunization (GAVI) is working to bridge the equity gap by securing low, sustainable prices. However, nearly half of LMICs still struggle to introduce HPV vaccinations due to the inability to afford the negotiated price of \$4.50 per dose (16). Even though vaccines have been progressively introduced in many national

immunization schedules, several studies and international agencies have reported that both vaccine introduction and coverages achieved are still sub-optimal (8, 17, 18).

The WHO Cervical Cancer Elimination strategy sets ambitious coverage targets for 2030, aiming for 90% of adolescent girls to receive HPV vaccination, 70% of women to undergo cervical screening twice in their lifetime, and 90% of pre-invasive lesions and invasive cancers to be treated (19). This target is aligned with the Immunization Agenda 2030 and the Sustainable Development Goals (SDGs) and this global strategy could serve as the catalyst needed to expand the HPV vaccine's introduction worldwide and enhance global coverage (20, 21).

In June 2020, 107 (55%) of the 194 WHO Member States introduced HPV vaccination nationwide or partially as per the WHO definition and the extent of introduction is not equally distributed geographically, the Americas and Europe are by far the WHO regions with the most introductions, with 85% and 77% of their countries having already introduced, respectively (3). It took less than a decade for 80% of high-income countries (HICs) to introduce the HPV vaccine and LMICs not only started introducing it later, but they introduced it at a slower pace, and they are also more than twice as many LMICs than HICs, so they still lag far behind with only 41% of LMICs have introduced by the end of 2019 (3, 8, 19).

After more than a decade, implementation strategies of HPV vaccine have produced key lessons learned in terms of increasing vaccination coverage in many LMICs, nevertheless, compared to other regions of the world, SSA has made limited progress in the implementation and performance of nationwide HPV vaccination programs. Rwanda was the first SSA country to introduce HPV vaccination in 2011 (22-24).

Ethiopia since 2018 when HPV vaccine was launched for all 14 year old girls through a school-based approach and in health centers, studies reported that unsubstantiated rumors about side effects or adverse outcomes that are not related to the vaccine negatively impacted public trust and have led to mistrust of the HPV vaccination program (25-27).

Parents' willingness to accept the HPV vaccine for their eligible daughters is shaped by a complex mix of factors, including their knowledge about the vaccine, socio-demographic characteristics, the influence of healthcare providers, and cultural beliefs. Addressing the identified research gaps could offer valuable insights and help develop more effective strategies

to boost vaccine uptake across various populations and groups. Hence, as part of an initiative toward 90% HPV vaccine uptake in 2030 (3), an assessment of willingness to accept the HPV vaccine by parents for daughters of the target group will add a significant contribution towards the factors hindering the utilization. Besides, to the best knowledge of the researchers, there is inadequate evidence on the topic in the zone and Asella town in particular.

1.3. Significance of the study

The outcome of this research will help inform the public about the importance of increase vaccine uptake among parents of eligible daughters to decrease HPV related cervical cancer. Besides this, the increase in HPV vaccine uptake will also have a paramount importance in establishing herd immunity in the community. The findings of this research; barriers and facilitators to vaccine acceptance, will allow public health campaigns and interventions to be tailored to address these issues more effectively.

The finding of this research highlights disparities in vaccine acceptance across different socio-demographic groups, such as those based on education, attitude and level of knowledge which will be crucial for developing interventions that ensure equitable access to vaccination. Understanding which factors most strongly influence vaccine acceptance can help in prioritizing resources and designing targeted educational and outreach programs. Insights from this research can guide the development of more effective communication strategies that address common concerns and misconceptions about the HPV vaccine.

2. LITERATURE REVIEW

2.1 Willingness to accept HPV Vaccine among parents of eligible daughters

Willingness of parents to vaccinate their daughters for HPV varies across the globe based on sex, race and ethnicity. In United States of America (USA) the prevalence of HPV vaccination initiation increased over time, but parental intent to vaccinate against HPV for unvaccinated teens remained consistently low ($\leq 45\%$) (28). A nation wide survey in USA indicates among socioeconomically advantaged group (income/education, material/social capital), 64.7% of parents of unvaccinated adolescents (equating to 2.4 million US adolescents) had no intention to initiate the HPV vaccine compared to 40.9% of parents in the deprived group (29). Another nation-wide study from the same country also indicates that 58% of parents of unvaccinated adolescents, had no intention to initiate the HPV vaccine series. More than 65% of parents of unvaccinated adolescents in Idaho, Kansas, Michigan, Montana, Nebraska, North Dakota, Oklahoma, and Utah had no intention to initiate the HPV vaccine series. Parents of 23.5% of initiators had no intention to complete the HPV vaccine series. More than 30% of parents in Arkansas, Florida, Georgia, Hawaii, Idaho, Utah, and West Virginia did not intend to complete the HPV vaccine series (30).

A study conducted in Fujian, Mainland and south china indicates 83.3% - 91.7% of parents are willing to vaccinate their children against HPV vaccine, which is offered by the government (31) (32, 33). While a study conducted in Mysore India indicates 79.9% of parents are willing to vaccinate their daughter with HPV vaccine sometime soon if they were invited to receive it (34).

A study conducted in districts of West Java Indonesia, where cervical cancer prevalence is high, shows as low as 30.07% of parents are willing to accept HPV vaccine. Other study conducted in the same country, indicates 96.1% of willingness of parents to vaccinate their female children against HPV, which shows disproportionate level of acceptance of HPV vaccine among different population groups (35, 36). A study conducted in France indicates, among girls who are unvaccinated or with unknown HPV vaccination status, 29.9 % of parents declared that they would have vaccinated them if they had the opportunity today (37), while a study conducted in Netherlands indicates 45% of mothers would like or certainly like to receive the HPV vaccination if they were to decide in the future (38).

In Africa following late introduction of the vaccine, willingness of parents to offer their young daughters with HPV remains low. In Nigeria, willingness of parents to vaccinate their daughter ranges from 88.6 to 89.9% (39-41). A considerably higher proportion (90.4%) of mother in Uganda were found to be willing to vaccinate their daughter against cancer (12). In Ethiopia, studies across different parts of the country indicate the proportion of parental willingness to vaccinate their daughters against HPV is variable that ranges between 44.8% and 94.3% (26, 27, 42-47). A lower proportion, 44.8%, of parental willingness to vaccinate a daughter against HPV was found in Debra Tabor town (42) and the highest was documented among parents in Addis Ababa (47).

Hence, this study will add another milestone to the existing data in Ethiopia, particularly in Oromia where data on parental willingness to accept HPV vaccine for daughters is scarce to the best knowledge of the researcher.

2.2 Factors Associated with willingness to accept HPV Vaccine

2.2.1 Socio-demographic factors

A study conducted in USA among socioeconomically advantaged versus deprived households indicates middle and upper income educated families, non-Hispanic whites from advantaged households are less likely to initiate HPV vaccine for their children (29). While a study conducted in Fijian, China, Korea and Indonesia indicates parents having highest level of education are willing to accept HPV for their daughters (32, 35, 48).

A study from India and Korea reported that parental age (younger parents) is associated with willing to accept HPV vaccine for daughters (34, 48). Studies across African countries indicate that; level of income (highest level of income and rich family), cost of vaccine purchase were found to be significantly associated with parental willingness to accept HPV vaccine for their daughters (12, 40).

In Ethiopia factors like; level of education (secondary, college and above, diploma and above), male parent being the respondent, and monthly income (moderate and rich wealth index) were reported to be associated with parental willingness to accept HPV vaccine (26, 27, 42-45, 47)

2.2.2 Knowledge and attitude toward HPV vaccine

Having heard about HPV vaccine, Knowledge (moderate and good level of knowledge) related to HPV vaccine, health belief towards cervical cancer, safety of HPV vaccine, infection with HPV may cause severe problem, HPV injection may cause pain, respondents history of cervical cancer screening were some of the factors associated with willingness to accept HPV vaccine among parents of daughters in China, India, Indonesia and Korea (31, 32, 34, 35).

Studies from Nigeria and Uganda indicates that lack of awareness about HPV, parental genital discharge history and knowledge about cervical cancer were found to be associated with willingness to accept HPV vaccine for daughters (12, 39, 40). While studies from different parts of Ethiopia reports that knowledge about HPV vaccine, having positive or favorable attitude towards HPV vaccine and fear of vaccine side effects were associated with parental willingness to accept HPV vaccine for daughters (26, 27, 42-45, 47).

2.3 Conceptual framework

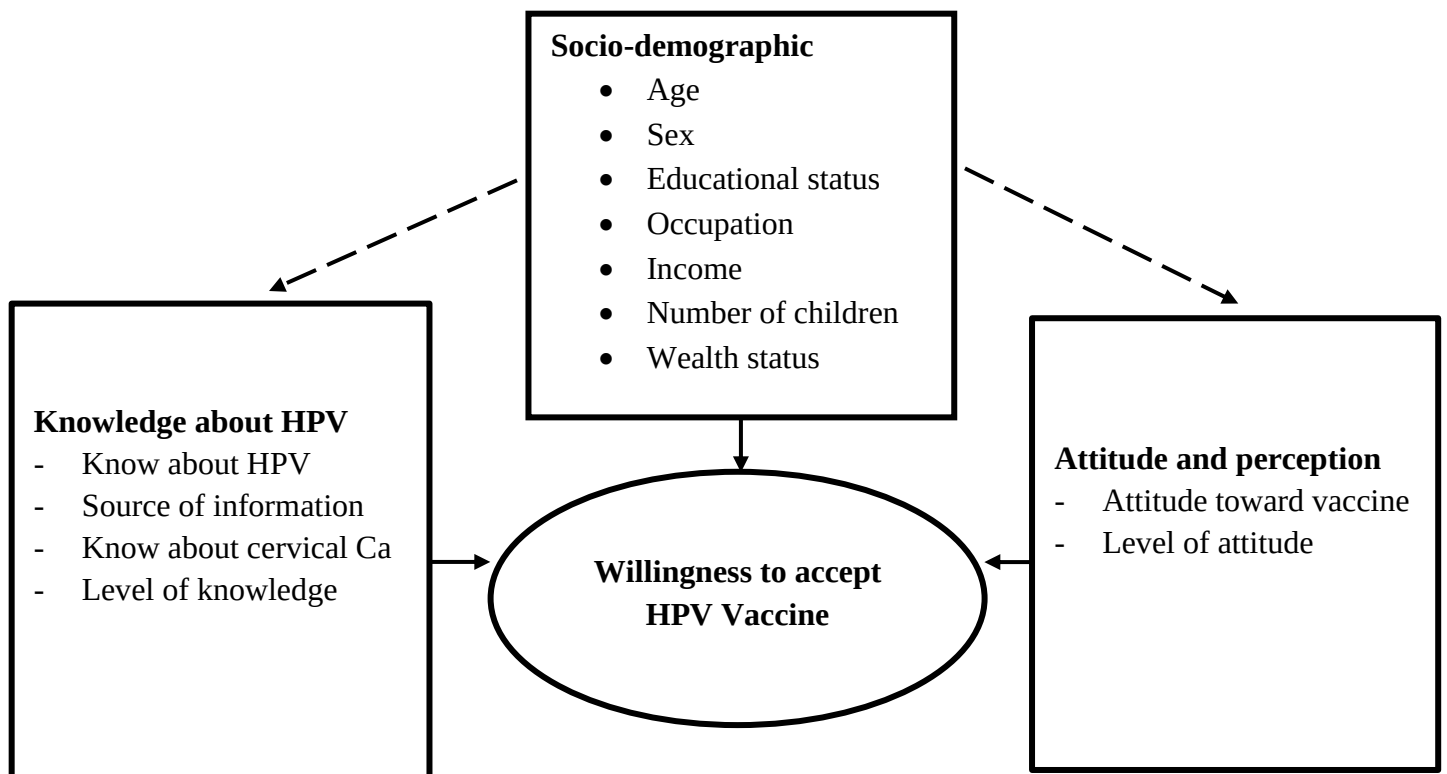


Figure 1: Conceptual framework for assessment of willingness to accept HPV vaccine among parents of eligible daughters in Asella tow, Ethiopia 2024 (Developed from literatures (27, 42, 43, 49))

3. OBJECTIVES

3.1 General objective

To assess the parental willingness to accept HPV vaccination and its associated factors among parents with eligible daughters in Asella Town, Ethiopia.

3.2 Specific objectives

- To determine magnitude of willingness to accept HPV vaccine among parents of eligible daughters in Asella town
- To identify factors associated with willingness to accept HPV vaccine among parents of eligible daughters in Asella town.

3.3 Research Questions/Hypothesis

- Is parental willingness to accept HPV vaccine to their daughters related with parent's socio-demographic factors?
- How does parental knowledge and attitude of HPV and the HPV vaccine influence their willingness to vaccinate their daughters?

4. METHODOLOGY

4.1 Study Area and Period

The study was conducted in Asella town, Arsi zone, Oromia regional state, Ethiopia from October to December 30/2024. Arsi Zone is one of the twenty zones found in the Oromia Regional State, having 25 Woredas and 4 urban administrations. Asella town, the capital of the Zone, is situated 175 kilometers far from the capital city Addis Ababa towards the southeastern part of Ethiopia. Asella town is administratively structured into 8 kebeles. The town has one referral and teaching hospital, two Health Centers, two private hospitals and twenty-five medium-private clinics.

The population of Asella town is projected to be 146,655 of whom 72,984 were male and 73,671 were females (50)

4.2 Study design

Community-based cross-sectional study design was used to assess parental willingness to accept HPV vaccination for their eligible daughters.

4.3 Source population

The source population for the study was all parents with daughters aged 9-14 years residing in Asella town, Arsi Zone.

4.4 Study population

The study population was parents of daughters aged 9-14 who were selected by systematic sampling technique residing in Asella town, Arsi Zone.

4.5 Inclusion and Exclusion Criteria

Inclusion criteria: parent and their daughter aged 9-14 years old who were available during data collection and who resided in the selected kebele for six months and more were included

Exclusion criteria: a parent who was critically ill and unable to answer a question was excluded

4.6 Sample Size

The sample size was determined based on the specific objectives of the research.

For the first specific objective single population proportion formula was used. Accordingly a study conducted by Bittew *et al*, reported 72.9% of mothers have positive attitude and willing to vaccinate their daughter with HPV vaccine (43).

Based on the following assumptions: 95% confidence interval, margin of error 5% and proportion of parents willingness to vaccinate their daughters with HPV vaccine (72.9%) (p)

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

$$n = \frac{(1.96)^2 0.729(1-0.729)}{(0.05)(0.05)} = 303$$

By considering a design effect of 1.5 the sample size was 455

By adding 10% non-response rate the final sample size for the first specific objective was **500**

For the second specific objective, we used two-population proportion formula with the following assumptions, 80% power, 5% type I error a case to control ration of one and to approximate an acceptable population parameter a 10% non-response rate was considered. The factors were used from the same study used for single population proportion calculation (43).

Table 1: Sample size determination for assessment of willingness to accept human papillomavirus (HPV) vaccination and associated factors among parents with eligible daughters in Asella Town, Ethiopia 2024

Variables	Proportion of cases exposed	Proportion of controls exposed	Sample size including 10%
Parental educational status (secondary education and above)	35.5	16.5	186+18 =204 n ₁ =102, n ₂ =102
Knowledge of HPV Vaccination	80.3	41.5	58+6=64 n ₁ =32, n ₂ =32
Attitude towards HPV vaccine	85.3	42.4	46+4=50 n ₁ =25, n ₂ =25

$$n_1 = \frac{\left[Z_{\frac{\alpha}{2}} \sqrt{\left(1 + \frac{1}{r}\right) P(1-P)} + Z_{\beta} \sqrt{P_1(1-P_1) + \frac{P_2(1-P_2)}{r}} \right]^2}{(P_1 - P_2)^2}$$

Where: P1= the proportion of exposure among cases

P2 = the proportion of exposure among controls

$Z_{1-\alpha/2}$ = value of standard normal distribution corresponding to a significance level of alpha (1.96 for a two-sided test at the 0.05 alpha level)

$Z_{1-\beta/2}$ = value of standard normal distribution corresponding to the desired level of power (0.84 for a power of 80%) and

r= a case to control ratio of 1

Since the largest sample size was generated from the sample size calculated for the first specific objective, we used 500 as the final sample size for this study.

4.7 Sampling Technique

The study participants were selected using a multi-stage sampling technique. The first stage is the kebeles and the second stage is the households where parents and their eligible daughters were found. Asella town has eight kebeles, and three kebeles were selected by simple random sampling. The study participants from each kebele were allocated based on the proportional size of the households in the kebeles, with the assumption of atleast one girl aged between 9-14 years would be found. The available parent during data collection time was interviewed and the mother was selected preferably than father/male (with the assumption these young female children discuss sexual and other issues reproductive issues with their mother) unless otherwise the father is the sole parent. Two revisits were done for households with eligible daughter whose parent was not available during data collection.

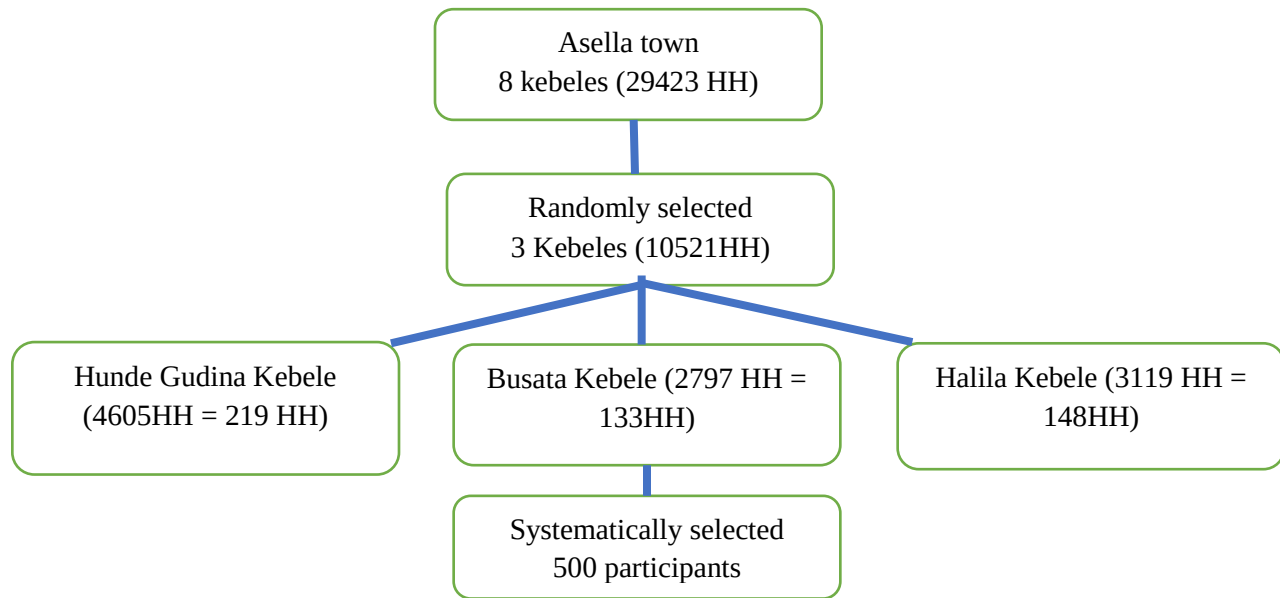


Figure 2: Schematic Sampling presentation for assessment of Willingness to accept HPV vaccine among parents and their eligible daughters in Asella town, Arsi Zone, Ethiopia 2024

4.8 Data collection tool and procedure

The questionnaire was developed by reviewing different literatures and modified according to the objective of the study (27, 42, 43, 49). A questionnaire that was prepared in Afan Oromo and Amharic language was used for data collection. The questionnaires contains; Age, Sex, Relationship, Religion, Educational Status, Occupation, Average monthly income, Marital status, Media exposure, reproductive, and other health-related factors (Number of daughters, and Family history of cervical cancer), knowledge status, subjective norm.

Three data collectors were recruited. Two days of training was given to them focusing on the objective of the study and the value of collecting the actual data and brief description on Koto ToolBox. The structured questionnaire was discussed in detail going through every question and clarification was provided. The sampling interval for selecting a household was determined by dividing the total number of households in the selected kebele by the sample size required from that kebele (N/n) and that was calculated to be 21. Accordingly, we have used lottery method to select the first household in each kebele; standing facing north between the block of a selected kebele moving toward the right direction until the required sample size is reached.

4.9 Study Variables

4.9.1 Dependent Variable

Parental willingness to accept HPV vaccine for daughter (Yes or No)

4.9.2 Independent variables

The independent variables were socio-demographic variables (Age, Sex, marital status, Religion, Educational Status, Occupation, Average monthly income, age of eligible daughter, and cell phone ownership), reproductive, and other health-related factors (Number of daughters, and Family history of cervical cancer), knowledge status, attitude toward HPV)

4.10 Data Processing and Analysis

Data collection and cleaning was done by Kobo ToolBox and exported to SPSS for analysis. Results were presented by tables and pie chart. Binary logistic regression model was fitted to identify statistically significant independent variables and variables having a p-value of less than 0.25 in the bivariate analysis were selected as a candidate variable for multivariable logistic regression to handle the effect of possible confounders. Model fitness was checked using the Hosmer-Lemeshow test and multicollinearity was checked by . Variables were chosen using the enter method in the multivariable logistic regression analysis, and the Adjusted Odds Ratio (AOR) with its 95% CI at a p-value of ≤ 0.05 was used to determine statistically significant association.

4.11 Data Quality Control

A questionnaire pre-test for clarity and consistency was conducted on 5% of the sample among eligible parents in Kulumsa town one week before the actual data collection. No major defect was encountered and the Afan Oromo and Amharic language version of the questionnaire was used for final data collection.

Data quality was checked daily for; accuracy, clarity and consistency by the principal investigator and necessary corrections and changes were made in the next day of data collection.

4.12 Ethical Consideration

Ethical clearance and permission letter were obtained from IRB of Arsi University, College of Health Sciences (A/CHS/RC/115/2024), Asella town health office (WEFA/80/16). Informed

verbal consent was obtained from parents of children aged 9-14 years. Participants were informed that privacy and confidentiality will be maintained.

The study participants' culture, language and values were respected and the study subjects were informed that the study process will have no harm to them and confidentiality will be kept. Any study participants who were not willing to be included were not forced to be included to take part in the study.

4.13 Operational Definition

Willingness: is measured by a response of **YES or NO** of a mother/father to a question are you willing to accept HPV vaccine for your daughter

Knowledge: knowledge about HPV and Cervical cancer was assessed using 14 yes or no items. Knowledge score was categorized into two categories; **good knowledge** (if the participants answered above median score) and **poor knowledge** (if the participants answered less than or equal to median score) (26, 43, 44)

Attitude: Attitude about HPV and Cervical cancer was assessed using 10 Yes No items. It was categorized into two categories; **good Attitude** (if the participants answered above median) and **poor Attitude** (if the participants answered less than or equal to median score) (26, 43, 44)

4.14 Dissemination of results

The findings of this study were submitted to Arsi University, College of Health Sciences, department of Midwifery and Asella town health office. Presentation in scientific conferences and publication in reputable journal will be considered once approved by the examining board.

5. Result

5.1 Socio demographic characteristics of study participants

A total of 189(37.8%) of male and 311(62.2%) of female parents of children aged 9-14 participated in the study. The mean age of eligible children was 11.08 years with ± 1.54 standard deviation, while the median (age of the respondents was found not normally distributed) age of the respondent was 39 years with an interquartile range of 7 years.

Two hundred twelve (42.4%) of eligible daughters were aged 9-10 years and less than quarter, 21.3% of mother have no formal education (Table 2)

Table 2: Socio-demographic characteristics of parents of children aged 9-14 years regarding willingness to accept HPV vaccine in Asella town, Arsi, Ethiopia 2024

Variables	Categories	Frequency (Percentage)
Sex of the respondent	Male	189 (37.8)
	Female	311 (62.2)
Age of the respondent	<=30	43 (8.6)
	31-40	274 (54.8)
	41-50	150 (30)
	>50	33 (6.6)
Age of the eligible daughter	9-10	212 (42.4)
	10-14	288 (57.6)
Religion	Orthodox	225 (45)
	Muslim	209 (41.8)
	Others*	66 (13.2)
Marital status of the respondent	Single mom/dad	16 (3.2)
	Married	446 (89.2)
	Divorced	28 (5.6)
	Widowed	10 (2)
Level of education of the mother	No formal education	103 (21.3)
	Primary and Secondary	254 (52.5)
	College and above	127 (26.2)
Level of education of the father	Nor formal education	60 (12.9)
	Primary and Secondary	229 (49.5)
	College and above	173 (37.4)
Occupation of the father	Government Employ	107 (23.2)
	Private employ	147 (31.8)
	Farmer	53 (11.5)
	Merchant	67 (14.5)
	Other***	88 (19)
Occupation of the mother	Private employ	62 (12.8)
	Government Employ	83 (17.1)
	Merchant	112 (23.1)
	Farmer	29 (6)
	Other****	198 (40.9)
Number of daughters	1	152 (30.4)
	2	238 (47.6)
	>=3	110 (22)
Average monthly income (ETB)	<=4500	175 (35)
	4501-9000	264 (52.8)
	>9000	61 (12.2)

* (Protestant, Waqefata), *** (daily laborer, unemployed, retired), **** (housewife, un employed)

5.2 Knowledge of study participants regarding HPV

From a total of study participants, 192(38.4%) and 404 (80.8%) of them have heard about HPV and cervical cancer respectively. The major source of information was Television/Radio followed by social media.

A total of fourteen questions were used to assess level of knowledge of respondents towards HPV and HPV vaccine. Since the knowledge score was found to be not normally distributed a median was used as a cut-off point which was 1 with an IQR (inter-quartile range) of 10. Accordingly, respondents who scored >1 were categorized as having good knowledge. Two hundred forty-one respondents (48.2%) (95% CI 43.8, 52.6%) were found to have good knowledge (Table 3)

Table 3: Knowledge of parents of children aged 9-14 years regarding willingness to accept HPV vaccine in Asella town, Arsi, Ethiopia 2024

Variables	Categories	Frequency (Percentage)
Heard about HPV	Yes	192 (38.4)
	No	308(61.6)
Source of information (Multiple answer, n=405)	TV/Radio	140 (34.65)
	Social media	125 (30.94)
	Health professionals	87 (21.53)
	Friends/families/Others	53(13.11)
Heard about cervical cancer	Yes	404(80.8)
	No	96(19.2)
HPV can cause cervical cancer	Yes	171(89.1)
	No	21(10.9)
HPV infections are preventable	Yes	182(94.8)
	No	10(5.2)
HPV is a sexual transmitted disease	Yes	160(83.3)
	No	32(6.7)
Condom use can prevent HPV infection	Yes	180(93.8)
	No	12(6.2)
HPV last for years	Yes	156(81.3)
	No	36(8.7)
Cervical cancer is caused by persistent HPV infection?	Yes	159(82.8)
	No	33(7.2)
HPV may infect both men and women	Yes	57(29.7)
	No	135 (70.3)
Most HPV infection resolves spontaneously	Yes	74(38.5)
	No	118(61.5)
HPV can infect you without symptoms	Yes	152(79.2)
	No	40(20.8)
HPV can cause other anogenital cancer	Yes	65(33.9)
	No	127(66.1)
HPV vaccine prevents around 70% cervical cancer	Yes	156(81.2)
	No	36(18.8)
Pap-smear can screen cervical cancer	Yes	242(59.9)
	No	162(40.1)
Pap-smear is very/relatively effective in screening cervical cancer	Yes	187(46.3)
	No	217(53.7)
Pap-smear should be done every 3 years	Yes	191(47.3)
	No	213(52.7)
Pap-smear can be done by the age of 35 and above	Yes	160(39.6)
	No	244(60.4)
Overall knowledge	Good	241(48.2)
	Poor	259(52.8)

5.3 Attitude of the respondent toward HPV

Four hundred twenty-five (93.6%) of study participants thought that cervical cancer is a severe disease, while less than one-third (31.3%) of them think that their daughters are susceptible to HPV infection. A total of ten questions were used to assess the attitude and a median value of 2 with IQR of 2 was used as a cut-off point. Respondents who scored greater than 2 were categorized as having a positive attitude toward HPV vaccine. One hundred eighty-nine (37.8%), (95% CI, 33.6, 42.2%) of them were found to have good attitude towards HPV (Table 4).

Table 4: Attitude of parents of children aged 9-14 years regarding willingness to accept HPV vaccine in Asella town, Arsi, Ethiopia 2024

Questions	Categories	Frequency (Percentage)
Do you think cervical cancer is a severe disease?	Yes	378(93.6)
	No	26(6.4)
Do you think cervical cancer is a preventable disease?	Yes	331(81.9)
	No	73(18.1)
Do you think your daughter is susceptible to HPV infection?	Yes	60(31.3)
	No	132(68.7)
Do you think HPV vaccine helps prevent cervical cancer?	Yes	185(96.4)
	No	7(3.6)
Do you think HPV vaccine is safe?	Yes	182(94.8)
	No	10(5.2)
There is less risk involved in being vaccinated than in having HPV infection?	Yes	167(87)
	No	25(13)
HPV vaccine will not lead to complicated sexual activities	Yes	168(87.5)
	No	24(12.5)
I would not want my children to be infected with HPV	Yes	165(85.9)
	No	27(14.1)
I would have my children vaccinated against HPV if the vaccination is freely available.	Yes	183(95.3)
	No	9(4.7)
Information on HPV helps me to decide whether my children should be vaccinated against HPV	Yes	175(91.1)
	No	17(8.9)
Over all attitude	Good Poor	189(37.8) 311(62.2)

5.4 Level of willingness to accept HP Vaccine

Among the respondents, 384(69.6%, 95% CI, 65.3, 73.6%) of them were willing to accept HPV vaccine for their daughters.

Percentage of willingness to accept HPV vaccine

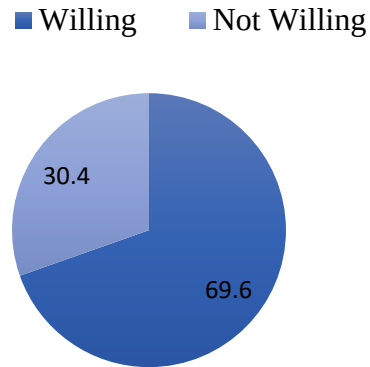


Figure 3: Willingness to accept HPV vaccine among parents of children aged 9-14 years in Asella town, Arsi, Ethiopia 2024

5.5 Factors associated with willingness to accept HPV Vaccine

To assess factors associated with willingness to accept HPV vaccine among parents of eligible daughters; socio-demographic variables like sex, age, religion, marital status, number of children, having phone and smart phone by daughter were removed from multivariate table as their p-value was >0.25 to be a candidate variable for multivariate analysis.

Accordingly, the odds of willingness to accept HPV vaccine for their daughter among fathers who have primary/secondary level of education and college/above level of education was 2.98(COR 95% CI, 1.65, 5.38) and 14.87(COR 95% CI, 7.26, 30.46) respectively as compared to fathers who do not have formal education.

The odds of willingness to accept HPV vaccine among parents who have good level of knowledge regarding HP vaccine was 15.55 (COR 95% CI, 8.86, 27.30) times higher as compared to those having low level of knowledge. Study participants who have positive attitude towards HPV vaccine have 41.99(COR 95% CI, 15.21, 115.90) higher level of willingness to accept HPV vaccine for their daughters as compared to those having negative attitude toward HPV vaccine (Table 5).

Table 5: Bivariate analysis of factors associated with willingness to accept HPV vaccine among parents of children aged 9-14 years in Asella town, Arsi, Ethiopia 2024

Variables	Categories	Willingness		COR (95% CI)
		Yes	No	
Sex	Male	132	57	1
	Female	219	95	0.98(0.66, 1.45)
Age	<=30	29	14	0.90(0.34, 2.41)
	31-40	192	82	1.02(0.46, 2.23)
	41-50	104	46	0.98(0.43, 2.23)
	>50	23	10	1
Age of eligible daughter	9-10	146	66	1
	>10	202	86	1.06(0.73, 1.56)
Religion	Orthodox	160	65	1.21(0.68, 2.21)
	Muslim	144	65	1.11(0.61, 2.01)
	Others (Protestant, Wakefata)	44	22	1
Marital status	Married	315	131	1.53(0.85, 2.74)
	Others (Single/Divorce/Widowed)	33	21	1
Mothers level of education	No formal education	57	46	1
	Primary & Secondary	174	80	1.75(1.10, 2.81)
	College & above	110	17	5.22(2.75, 9.92)
Fathers level of education	No formal education	22	38	1
	Primary & Secondary	145	84	2.98(1.65, 5.38)
	College & above	155	18	14.87(7.26, 30.46)
Occupation of the father	Government Employ	86	21	4.91(2.60, 9.27)
	Private employ	138	9	18.40(8.31, 40.71)
	Farmer	31	22	1.69(0.85, 3.37)
	Merchant	27	40	0.81(0.43, 1.54)
	Other (daily laborer, tenure, unemployed)	40	48	1
Occupation of the mother	Private employ	47	15	2.46(1.29, 4.68)
	Government Employ	82	1	64.27(8.77, 470.99)
	Merchant	89	23	3.03(1.77, 5.19)
	Farmer	12	17	0.55(0.25, 1.22)
	Other (daily laborer/housewife)	111	87	1
Number of daughters	1	101	51	0.85(0.50, 1.44)
	2	170	68	1.07(0.65, 1.76)
	>=3	77	33	1
Average monthly income	<=4500	113	62	0.59(0.31, 1.15)
	4501-9000	189	75	0.82(0.43, 1.56)
	>9000	46	15	1
Level of knowledge	Poor	123	136	1
	Good	225	16	15.55(8.86, 27.30)
Level of attitude	Poor	165	148	1
	Good	185	4	41.99(15.21, 115.90)

After controlling for potential confounders, variables like occupation of the father being private employee, occupation of the mother being merchant, good level of knowledge and positive attitude towards HPV vaccine were found to be independent predictors of parental willingness to accept HPV vaccine for their daughters.

The odds of willingness to accept HPV vaccine for daughters among fathers who were private employ was 7.24 (COR 95% CI, 1.74, 30.11) times higher and it was 3.81(COR 95% CI, 1.73, 8.40) for government-employed fathers as compared to fathers who are daily laborers/retired/unemployed respectively.

The odds of willingness to accept HPV vaccine among parents who have good level of knowledge regarding HP vaccine was 2.45(AOR 95% CI, 1.11, 5.53) times higher as compared to those having low level of knowledge. Study participants who have positive attitude towards HPV vaccine were found to have 12.73(AOR 95% CI, 3.21, 50.57) higher odds of willingness to accept HPV vaccine for their daughters as compared to those having negative attitude toward HPV vaccine (Table 6).

Table 6: Multivariate analysis of factors associated with willingness to accept HPV vaccine among parents of children aged 9-14 years in Asella town, Arsi, Ethiopia 2024.

Variables	Categories	Willingness		COR (95% CI)	AOR (95% CI)
		Yes	No		
Mothers level of education	No formal education	35	39	1	1
	Primary & Secondary	105	52	1.75(1.10, 2.81)	0.81(0.41, 1.53)
	College & above	76	4	5.22(2.75, 9.92)	1.54(0.62, 3.85)
Fathers level of education	No formal education	21	35	1	1
	Primary & Secondary	142	81	2.98(1.65, 5.38)	1.86(0.90, 3.85)
	College & above	152	15	14.87(7.26, 30.46)	1.81(0.31, 4.43)
Occupation of the father	Government Employ	84	21	4.91(2.60, 9.27)	3.81(1.73, 8.40)
	Private employ	137	8	18.40(8.31, 40.71)	7.24(1.74, 30.11)
	Farmer	31	21	1.69(0.85, 3.37)	0.78(0.31, 2.03)
	Merchant	27	40	0.81(0.43, 1.54)	1.40(0.63, 3.11)
	Other(daily laborer, tenure, unemployed)	38	47	1	1
Occupation of the mother	Private employ	47	15	2.46(1.29, 4.68)	2.61(1.04, 6.58)
	Government Employ	82	1	64.27(8.77, 470.99)	7.77(0.80, 75.62)
	Merchant	89	23	3.03(1.77, 5.19)	4.94(1.77, 13.79)
	Farmer	12	17	0.55(0.25, 1.22)	6.80(1.14, 40.57)
	Other(daily laborer/housewife)	111	87	1	1
Level of knowledge	Poor	147	147	1	1
	Good	201	5	15.55(8.86, 27.30)	2.45(1.11, 5.53)
Level of attitude	Poor	88	142	1	1
	Good	260	10	41.99(15.21, 115.90)	12.73(3.21, 50.57)

6. Discussion

The level of willingness to accept HPV vaccine for daughters in the study area is suboptimal and factors like occupation of the father being private employ, mother being merchant and farmer, good level of knowledge and positive attitude towards HPV vaccine were found to be significantly associated with willingness to accept HPV vaccine.

Although it's believed much has been done on HPV related issues, the proportion of parents willing to accept vaccine for their daughter is still suboptimal. In this study 69.6% (95% CI, 65.3, 73.6%) of parents of eligible daughter were willing to accept HPV vaccine which is comparable with findings from Woldia town, Northeast Ethiopia (72.9) (43). Studies conducted in Debretabor town 44.8% (42), Korea 58.9% (48) and Turkey 39.9% (51) reported lower level of willingness. Possible reason for the difference could be related to the population sampled; study conducted in Korea was population based census smaller prevalence may be expected while the one conducted in Turkey was conducted among volunteered online sampled population. Another possible reason for the difference could be related to concerns and negative rumors surrounding the potential side effects of the vaccine, lack of awareness regarding the personal risk of developing cervical cancer.

However the proportion of willingness to accept HPV vaccine by parents to their daughter in the study area was lower compared to findings from Addis Ababa (94.3%) (47), Addis Zemen town (80.3%) (45), Hadiya (84.9%) (46), Bench-Sheko Zone (79.5%) (27), Uganda (90.4%) (12), Nigeria (88.6%) (39). Possible reason for the disparity could be related to study population (in some of the studies the population were pregnant women, who might have exposure to information regarding HPV during ANC visits), study area (results from Addis Ababa, Uganda and Nigeria was higher because of access and exposure to information among respondents) and the time data collected (the study in Addis Ababa was conducted amid HPV vaccination campaigns). Another possible reason could be; as demonstrated in knowledge assessment; low level of knowledge about HPV might have contributed to lower level of willingness to accept HPV vaccine for daughters in the study area.

Private employed fathers were found to have 7.24 times higher odds of willingness to accept HPV vaccine for their daughters as compared to fathers who are daily

laborers/retired/unemployed which is consistent with the findings from Debreabor (42). Possible reason could be related to exposure to medias (print and social media), difference in socio-economic status and other communications regarding HPV vaccines. Mothers who were merchant were found to have five times higher odds of willingness to accept HPV vaccine for their daughters as compared to housewife/daily laborers. This finding is in line with study from Uganda where business women were more likely willing to vaccinate their daughters (12). Possible reason may be related to mobility of merchant women that might expose them to information regarding HPV vaccine and their involvement with their partner and daughter in decision making regarding HPV vaccination.

Study participants having good knowledge were 2.45 times higher odds of willing to accept HPV vaccine for their daughters as compared to their counter parts and Having positive attitude was associated with 12.73 more odds of willing to accept HPV vaccine as compared to those having good/positive attitude. Consistent findings were reported from Debreabor, Bench-Sheko, Gondar, Addis Zamen, Addis Ababa, Uganda (12, 26, 27, 42, 45, 52). This consistent finding could highlights that parental willingness to vaccinate their daughters against HPV is affected by their overall knowledge and positive attitude of HPV vaccination. This shows that good knowledge and positive attitude towards HPV and its vaccination triggers the participants to read and understand about cervical cancer that may lead to behavioral change, which leads them to accept the HPV vaccination for their daughters.

7. Strength and limitations

Being a community-based study design with representative sample can be taken as strength. Temporal ambiguity of the design and not including qualitative aspect could be possible limitations.

8. Conclusions

Parental level of willingness to accept HPV vaccine for their daughters was suboptimal. Private employed fathers and mothers being merchant were found statistically associated with willingness to accept HPV vaccine for their daughters. Positive attitude and good level of knowledge were associated with willingness to accept HPV vaccine for their daughters.

9. Recommendations

Town health office have to focus on awareness creation using reachable media platform would increase the low level of willingness to accept HPV vaccine for daughters in the study area. Mass campaigns could also help in addressing the low level of knowledge regarding HPV vaccine in the study area.

Targeted interventions (focusing on lower level of education) using health extension workers or through other means may reach those who didn't heard about HPV and those who are not willing to vaccinate their daughters.

Mass media messages are considered as reliable source of information by the community in Ethiopia. Hence, there is a need for intensive efforts to design appropriate mass media messages concerning HPV vaccination to address the gap in knowledge and attitudes towards HPV vaccination for daughters.

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ANNEX 1: ENGLISH VERSION INFORMATION SHEET AND CONSENT FORM

A. Participant Information sheet

My name is _____. I am working with Tigist Benti, who is doing research as partial fulfillment for the requirement of a master's degree in Maternity and Reproductive Health Nursing at Arsi University. Today, I came to visit your home to collect data related to assessment of willingness to accept HPV vaccine among parents of eligible daughters in Asella town, Oromia, Ethiopia.

Title of the study

Assessment of willingness to accept HPV vaccine among parents of eligible daughters in Asella town, Oromia, Ethiopia, 2024

Procedure and duration

Today, I will be here to collect data on willingness to accept HPV vaccine among parents of eligible daughters in Asella town. The completion time of the data collection is about 30 to 40 minutes. I do not want to write your name. We would expect you to answer the entire questionnaire. I am going to ask you.

Risk and benefit of the study.

By participating in this study and answering our questions, you will not receive any direct benefit. However, this will help us to improve to know parents' willingness to accept HPV vaccine for their daughters in Asella town. Your participation in this study will not involve any known or minimal risk to you.

Confidentiality

Your participation in this study is based on your voluntary will; at any time, you may have the right to discontinue or withdraw from the data collection process. However, all the data you will be giving me will be kept confidential and placed in a secure place. Hence, in this respect, you should not have to worry about it.

Rights

Your participation in this study is on a voluntary basis, and you have the right to refuse to participate in this study or not to answer my question if you feel uncomfortable with the data collection process. You have the full right to stop the data collection process at any time. If you have any questions or concerns about the research, you can contact the concerned person at the following address:

Principal investigator

Address

Name Tigist Benti

Arsi University

Address Asella

Po. Box _____

Tel: 09 17 09 40 67

Tel _____

E-mail: tigistbenti2020@gmail.com
Midwifery

College of Health Sciences, Department of

B. Declaration of Voluntary Consent

I have understood that the purpose of the study is to collect information regarding parents' willingness to accept HPV vaccine for their eligible daughters in Asella town, Oromia, Ethiopia. I have read the above information, or it has been read to me. I have had the opportunity to ask questions about it, and any questions that I have asked to have been answered to my satisfaction. I give my consent voluntarily to participate as a participant in this study and understand that I have the right to withdraw from the study at any time.

Signature of the data provider _____ Date_____

Signature of the data collector _____ Date_____

Part I. Socio-demographic characteristics

Question codes	Questions	Filters	Skip/description
101	Age of the respondent	_____years	
102	Sex of the respondent	1.Male 2.Female	
103	Age of the eligible daughter	_____years	
104	Level of education of the respondent		write highest level of education
105	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Others	
106	Marital status of the respondent	1.Single mom 2.Married 3.Widowed 4.Divorced	
107	Level of education of the mother/ father		
108	Occupation of the father	1. Government Employ 2. Private employ 3. Farmer 4. Merchant 5. Other (specify)	
109	Number of family members	_____	
110	Occupation of the mother	1. Government Employ 2. Private employ 3. Farmer 4. Merchant Other (specify)	
111	Number of children		
112	Average monthly income	_____ETB	

Part II. Knowledge of the respondent about HPV

Codes	Questions	Filters	Skip/description
201	Heard about HPV	1. Yes 2. No	No skip top 203
202	Source of information	1. TV/Radio 2. Social media 3. Health professionals 4. Friends/families 5. Others	
203	Heard about cervical cancer	1. Yes 2. No	If no skip to 204
204	HPV can cause cervical cancer	1. Yes 2. No	
205	HPV infections are preventable	1. Yes 2. No	
206	HPV is sexual transmitted disease	1. Yes 2. No	
207	Condom use can prevent HPV infection	1. Yes 2. No	
208	HPV last for years	1. Yes 2. No	
209	Cervical cancer is caused by persistent HPV infection?	1. Yes 2. No	
210	HPV may infect both men and women	1. Yes 2. No	
211	Most HPV infection resolves spontaneously	1. Yes 2. No	
212	HPV can infect you without symptoms	1. Yes 2. No	
213	HPV can cause other anogenital cancer	1. Yes 2. No	
214	HPV vaccine prevents around 70% cervical cancer	1. Yes 2. No	
215	Pap-smear can screen cervical cancer	1. Yes 2. No	
216	Pap-smear is very or relatively effective in screening cervical cancer	1. Yes 2. No	
217	Pap-smear should be done every 3 years	1. Yes 2. No	
218	Pap-smear can be done at age of 35 & above	1. Yes 2. No	

Part III. Attitude of the respondent toward HPV

Question codes	Questions	Filters	Skip/description
301	Do you think cervical cancer is a sever disease	1. Yes 2. No	
302	Do you think cervical cancer is preventable disease	1. Yes 2. No	
303	Do you think your daughter is susceptible to HPV infection	1. Yes 2. No	
304	Do you think HPV vaccine is helpful to prevent cervical cancer?	1. Yes 2. No	
305	Do you think HPV vaccine is safe?	1. Yes 2. No	
306	There is less risk involved in being vaccinated than in having HPV infection?	1. Yes 2. No	
307	HPV vaccine will not lead to complicated sexual activities	1. Yes 2. No	
308	I would not want my children to be infected with HPV	1. Yes 2. No	
309	I would have my children vaccinated against HPV if the vaccination is freely available.	1. Yes 2. No	
310	Information on HPV helps me to decide whether my children should be vaccinated against HPV	1. Yes 2. No	
400	Are you willing to accept HPV vaccine for your daughter?	1. Yes 2. No	

Annex 2: Afan Oromo version information sheet and consent form

Waraqaa Odeeffannoo fi Uunka Hayyamaa

Waraqaa Odeeffannoo fi Unka hayyamummaa maatii ijoolleen isaanii umrii 9-14 ta'an kittibaata HPV fudhachuu fi wantoota kanaan walqabatan irratti hirmaachuuf deemaniif kan qophaa'e.

Mata duree Pirojektii Qorannoo:

Hayyamummaa maatii ijoolleen isaanii umrii 9-14 ta'an kittibaata HPV fudhachuu fi wantoota kanaan walqabatan magaalaa Asallaa keessatti

Maqaa Qorataa : Tigist Bantii

Maqaa Dhaabbatichaa : Yuunivarsiitii Arsii

Maqaa Ispoonsara : Yuunivarsiitii Arsii

Seensa:

Waraqaan odeeffannoo fi uunkaan hayyamaa kun qo'annoo kanatti irratti akka hirmaattu sii ibsuuf kan qophaa'edha. Mee sirriitti dhaggeeffadhaa, gaaffii yoo qabaattan osoo itti makamuuf walii hin galle dura waa'ee qorannichaa gaafadhaa. Qo'annaatti erga makamtaniin booda yeroo barbaaddanitti gaaffii gaafachuu dandeessu. Gareen qorannoo kun qorataa muummee tokko, walitti qabdoota odeeffannoo shan fii supparvaayizara tokkoo kan hammateedha.

Kaayyoo Pirojektii Qorannoo

Kaayyoon qorannoo kanaa maattin ijoollee umriin isaanii 9-14 ta'aniif kittibaata HPV akka fudhatani hayyamaa ta'uu fii wantoota kanaan walqabatan qoratuudha. Qorannoon kum maatiin ijoolleen umriin isaanii 9-14 ta'e waa'ee kittibaata HPV hubannoo, ilaalchaafi fii faayida kittibaata HPV ilaalchisee kan qo'atu yoo ta'u, dhukkuba HPV kan kaansarii balbala gadaamessaa dubartoota qabsiisu ittisuu keessatti faayidaa olaanaa qaba. Akkasumas qorannoowwan itti aanan kan naannoo sanatti gaggeeffamuuf odeeffannoo bu'uuraa ta'ee ni tajaajila.

Adeemsa

Hayyamummaa maatii ijoolleen isaanii umrii 9-14 ta'an kittibaata HPV fudhachuu fi dhimma kanaan walqabatu madaaluuf qorannoo kana irratti akka tasaa akka hirmaattan isin afeerra. Qorannoo kana irratti hirmaachuuf fedhii yoo qabaattan uunkaa waliigaltee hubachuu fii mallatteessuu qabdu. Sana booda, gaaffileen isiniif dhiyaataniif isinis deebii beektan ni kennitu. Maqaa kee nama odeeffannoo walitti qabuuf himuu ykn waraqaa gaaffii irratti barreessuu isin hin barbaachisu deebii kee fi bu'aan argatte hundi sirna koodii fayyadamuun namni deebii kee tokkollee akka hin arganne iccitiidhaan ni eegna.

Balaa/ Mijachuu dhabuu

Qorannoo kana irratti hirmaachuudhaan keessumaa yeroo kee gara daqiiqaa 30 qisaasuu irratti hamma tokko miira tasgabbii dhabuu akka qabu sitti dhaga'amuu danda'a. Faayidaa bu'aa qorannoo kanaaf jecha qorannicha irratti akka hirmaattan abdii qabna. Qorannoo kana irratti hirmaachuu keessaniif balaan isin mudatu hin jiru.

Faayidaalee

Yoo qorannoo kana irratti hirmaattan, faayidaan kallattiin isiniif jiraachuu dhiisuu danda'a garuu hirmaannaan keessan haala Hayyamummaa maatii ijoolleen isaanii umrii 9-14 ta'an kittibaata HPV fudhachuu fi sababoota balaa kanaan walqabatan madaaluu keessatti nu gargaaruu hin oolu.

Onnachiiftuu/Kaffaltii Hirmaachuuf

Qorannoo kana irratti hirmaachuuf kaka'umsa ykn kaffaltii tokkollee hin kennitu.

Iccitii eeguu

Odeeffannoon qorannoo kana irraa walitti qabame iccitii ta'ee kan eegamu yoo ta'u, odeeffannoon waa'ee kee qorannoo kanaan walitti qabamu faayila keessatti, maqaa kee malee, garuu, lakkoofsa koodii itti ramadame keessatti kan kuufamu yoo ta'e malee eenyuufuu kan hin ibsamne ta'a.

Mirga diduu ykn ofirraa baasuu

Qorannoo kana irratti hirmaachuu diduudhaaf mirga guutuu qabda. Deebii kee kennuu yoo hin barbaanne gaaffii tokko tokkoof ykn hundaaf deebii kennuu dhiisuu filachuu dandeessa.

Akkasumas yeroo barbaaddetti, mirga kee tokkollee osoo hin dhabin, qo'annoo kana keessaa ba'uuf mirga guutuu qabda.

Nama qunnamuu qabdan:

Adeemsi qorannoo kun kutaa naamusa qorannoff qorannoo Yunivarsiitii Arsii kolleejjii fayyaatiin kan mirkan'ee yoo ta'u, af-gaafiin akka adeemsifamuuf waajirri fayyaa magaalaa Asallaa hayyama kenneera. Odeeffannoo dabalataa baruu yoo barbaaddan karaa teessoo armaan gadii kanaan koree kana qunnamuu dandeessu. Gaaffii yoo qabaattan namoota dhuunfaa armaan gadii keessaa kamiyyuu (Qorannoo fi Gorsitoota) qunnamuu dandeessu yeroo barbaaddanitti gaafachuu dandeessu.

Qorannoo kana irratti hirmaachuudhaaf walii galee jira

1. Eeyyee
2. Lakki

Mallattoo: _____

Yunivarsiitii Arsii Kolleejjii Saayinsii Fayyaa, Damee barnoota Miidwaayifarii:

Qorataa Muummee: Tigist Bantii

Bilbila harkaa: +251917094067

Imeelii: tigistbenti2020@gmail.com irratti ergaa

Gorsaa (wwan): .

1. Mr Eeliyaas Baqqalaa:
2. Mr Geetuu Magarsaa:

Part 1: Gaaffilee haala jireenya fi Haawasummaa

Koodii Gaafii	Gaafiwwan	Deebii/Ibsa	Gara Gaafii itti aanutti darbi
101	Umrii maatii deebii kennuu	waggaa_____	
102	Saala maatii deebii kennuu	1. Dhiira 2. Dhalaa	
103	Umrii mucattii	waggaa_____	
104	Sadarkaa barnoota maatii deebii kennuu		
105	Amantii	1. Ortodooksii 2. Musliima 3. Pirotetantii 4. Kan biraa_____	
106	Haala fuudhaaf heerumaa	1. Haadha/Abbaa intalaa 2. Kan fuudhe/herumte 3. Kan jalaa du'e/duute 4. Kan hike/hiikte	Deebiin kee 1, 3 fii 4 yoo ta'e gara gaara 109 tti darbi
107	Sadarkaa barnoota maatii (haadha ykn Abbaa)		
108	Gosa hojii abbaa ykn haadhaa	1. Hojjataa mootumma 2. Hojjataa dhuunfaa 3. Qotee bulaa 4. Daldalaa 5. Kan biraa_____	
109	Lakkoofsa maatii	_____	
110	Gosa hojii abbaa ykn haadhaa	1. Hojjataa mootumma 2. Hojjataa dhuunfaa 3. Qotee bulaa 4. Daldalaa 5. Kan biraa_____	
111	Lakkofsa ijoollee		
112	Galii maatii kan ji'aa	_____ETB	

Part II. Hubannoo/beekumsa waa'ee HPV

Koodii Gaafii	Gaafiwwan	Deebii/Ibsa	Gara Gaafii itti aanutti darbi
201	Waa'ee HPV dhageessee beektaa	1. Eeyyee 2. Lakki	Yoo deebiin kee 2 ta'e gara gaafii 203
202	Eessaa dhageessan?	1. TV/Raadiyoo 2. Miidiyaa hawaasummaa 3. Ogeessota fayyaa 4. Maatii/Hiriyyoota 5. Kan biraa _____	
203	Waa'ee kaansarii balabala gadaamessaa dhageessee beektaa?	1. Eeyyee 2. Lakki	Yoo deebiin kee lakkii ta'e gara ggaafii 204 darbi
204	HPV 'n kaansarii balbala gadaamessa nama qabsiisaa?	1. Eeyyee 2. Lakki	
205	Dhukkubbii HPV ittisuun ni danda'amaa?	1. Eeyyee 2. Lakki	
206	HPV dhukkuba walqunnamtii saalaatiin daddarbuudhaa?	1. Eeyyee 2. Lakki	
207	Kondomii fayyadamuun dhukkuba HPV ni ittisaa?	1. Eeyyee 2. Lakki	
208	HPV'n waggootaaf ni turaa?	1. Eeyyee 2. Lakki	
209	Irra deeddeebiidhaan HPV dhaan qabamuun kaansariin balbala gadaamessa nama qabsiisaa?	1. Eeyyee 2. Lakki	
210	HPV'n dhiiras dubartootas qabuu ni danda'aa?	1. Eeyyee 2. Lakki	
211	Dhukkubbootni HPV baayyeen isaanii ofumaan namarraa baduu?	1. Eeyyee 2. Lakki	
212	HPV'n mallattoo utuu hin agarsiisin nama qabuu danda'aa?	1. Eeyyee 2. Lakki	
213	HPV'n kaansarii naannoo qaama saalaa biro nama qabsiisaa?	1. Eeyyee 2. Lakki	
214	Kittibaatni HPV kaansarii balbala gadaamessaa dhibbeentaa 70 dhoorkuu danda'aa?	1. Eeyyee 2. Lakki	

215	Pap-smear'n kaansarii balabala gadaamessaa calaluuf ni fayyadaa?	1. Eeyyee 2. Lakki	
216	Pap-smear'n kaanasarii balabala gadaamessaa calaluuf ga'een isaa guddaadhaa?	1. Eeyyee 2. Lakki	
217	Pap-smear'n waggoota sadi sadiin dalagamu qabaa?	1. Eeyyee 2. Lakki	
218	Pap-smear'n dubartoota wagga 35>= tiif ni hojjatamaa?	1. Eeyyee 2. Lakki	

Part III. Ilaalcha waa'ee HPV

Koodii Gaafii	Gaafiwwan	Deebii/Ibsa	Gara Gaafii itti aanutti darbi
301	Kaansariin balbala gadamessaa dhukkuba cimaadha jettee yaaddaa	1. Eeyyee 2. Lakki	
302	Kaansariin balbala gadamessaa ittisuun ni danda'ama jettee yaaddaa	1. Eeyyee 2. Lakki	
303	Mucaan kee dhukkuba HPV fi saaxilamteerti jettee yaaddaa?	1. Eeyyee 2. Lakki	
304	Kittibaatni HPV Kaansariin balbala gadamessaa ittisuuf ni gargaraa jettee yaaddaa?	1. Eeyyee 2. Lakki	
305	Kittibaatni HPV miidhaa hin qabu jettee yaaddaa?	1. Eeyyee 2. Lakki	
306	Rakkinni kittibaata HPV fudhachuun dhufu rakkina HPV'n qabamuun gadii?	1. Eeyyee 2. Lakki	
307	Kittibaata HPV fudhachuun kara saal-qunnamtii saaxilama ta'etti nama hin geessuu	1. Eeyyee 2. Lakki	
308	Mucaan keessan akka HPV'n qabamtu ni barbaaduu?	1. Eeyyee 2. Lakki	
309	Yoo kittibaatni HPV bilisa ta'e ijoollee keessan ni kattabsiiftuu?	1. Eeyyee 2. Lakki	

310	Odeeffannoon HPV ijollee keessan akka kattabsiiftan murteessuuf dhiisuuf isin gargaaree jiraa?	1. Eeyyee 2. Lakki	
400	Mucaan kee akka kittibaata HPV fudhattuuf hayyamamoodhaa?	1. Eeyyee 2. Lakki	

Annex 3: Study information sheet and verbal consent (Amharic version)

የጥናቱ ርዕሰ ጉዳይ: በአሰላ ከተማ የሚኖሩ እድሜያቸው ከ9-14 ለሚሆኑ ሴት ልጆች የቤተሰብ የሂደቱን ፓፒሎማቫይረስ ክትባት ለማስከተብ ያላቸው ፍቃደኝነት ታቸውን ይዳስሳል፡፡

የጥናቱ መግለጫ

የማጠይቅ ቁጥር _____

ጤና ይስጥሌኝ ስሜ _____ ይባላል **ትዕግስ በንቲ** በምትሰራው ጥናት ውስጥ በሚገኝ ማስተሳሰብ ሂደት ላይ ነው የምሠራው፡፡ ጥናቱን የምስራው በአሰላ ከተማ የሚኖሩ እድሜያቸው ከ9-14 ለሚሆኑ ሴት ልጆች የቤተሰብ የሂደቱን ፓፒሎማቫይረስ ክትባት ለማስከተብ ያላቸው ፍቃደኝነት ታቸውን ሊይ ሲሆን ጥናቱም በአርሲ ዩኒቨርሲቲ የሚኖረው ትምህርት ክፍል የድህረ ምረቃ (የሁለተኛ ደረጃ) ንግግራም መቃብር የሚሆን ነው፡፡ ጥናቱንም ለማካሄድ ከአርሲ ዩኒቨርሲቲ ፈቃድ አግኝታለሁ፡፡ በዚህ ማጠይቅ ውስጥ የተለያዩ ንዑስ ክፍሎች ያሉት ጥያቄዎች የተካተቱ ሲሆን የጥናቱ ዓላማ በአሰላ ከተማ የሚኖሩ እድሜያቸው ከ9-14 ለሚሆኑ ሴት ልጆች የቤተሰብ የሂደቱን ፓፒሎማቫይረስ ክትባት ለማስከተብ ያላቸው ፍቃደኝነት ታቸውን ይዳስሳል፡፡ ተሳትፎአችሁ በፈቃደኝነት ላይ የተመሠረተ ነው፡፡ ያላችሁን ተሞክሮ ብታካፍሉን የዚህ ጥናት ውጤት ስለሂደቱን ፓፒሎማቫይረስ በሽታና ክትባት እውቀት እና ግንዛቤ በመፍጠር በሀገሪቱ ያለውን የሂደቱን ፓፒሎማቫይረስ ክትባት አጠቃቀም ለማሻሻል ያግዛል፡፡

የጥናቱ ሂደት: ጥያቄውን ለመመለስ ከ 20 እስከ 30 ደቂቃ ያህል ሊወስድ ይችላል፡፡

የሚፈቀድ ነገር: በዚህ ጥናት ውስጥ በመሳተፈዎ ምንም አይነት ጉዳት አይኖረውም፡፡ ጥናቱ ውስጥ ያለ መሳተፍ መላ መባት አለዎት፡፡ በዚህ ጥያቄ ላይ ስምዥን መጻፍ አይጠበቅብዎትም፡፡

ጥቅማጥቅም በዚህ ጥናት በመሳተፍዎ ማግረታቸው ወይም ክፍያ አይኖረውም ሆኖም ግን የናንተ ተሳትፎ በአሰላ ከተማ የሚኖሩ እድሜያቸው ከ9-14 ለሚሆኑ ሴት ልጆች የቤተሰብ የሂደቱን ፓፒሎማቫይረስ ክትባት ለማስከተብ ያላቸው ፍቃደኝነት ሁኔታን በመጻሰስ ለበለጠ ምርመራ እና በወጣቶች እና በጉርምስና ዕድሜ ላይ ባሉ የስነ ተዋልዶ ጤና ችግር ለመፍታት ትልቅ እገዛ ያደርጋል፡፡

ማስጠንቀቂያ: ጥናቱን አስመልክቶ እርስዎ የሚከፈልዎት ማንኛውም ሚኒስቴር በሚከበር በሚሆኑ በማንኛውም መንገድ ለሶስተኛ አካል ተላልፎ አይሰጥም ወይም አይጋለጥም፡፡ ማንነትዎ እንዲይታወቅም ስንመለስ በጥያቄው ውስጥ ላይ አይመዘገብም፡፡

በመጨረሻም ለሚከፈልዎት ለየትኛውም አይነት ምላሽ አማካኝ አይሆንም፡፡

ማንኛውም ጥያቄ ሲኖረዎት በማንኛውም ጊዜ ማጋገር ይችላሉ፡፡

ስም ትዕግስ በንቲ ስልክ ቁጥር: +251917094067 ኢ-ሜል: tigistbenti2020@gmail.com

የጥናቱ ተሳታፊዎች ፍቃደኝነት ቅፅ እኔ የጥናቱ ተሳታፊ የሆንኩ ከላይ የተገለጹትን በሙሉ ሰምቼ አለሁ፤ አላማውንና ጥቅሙንም ተረድቻለሁ፡፡ የምስጢርነት ግለጽ መረጃዬ በሙከራው ውስጥ እንደሚጠበቅ እና ለዚህ ጥናት አላማብቻ እንደሚውል ተነግሮኛል፡፡

ጥናቱ ውስጥ የላቀላህን ተሳታፊ ሆኜ መቀጠል እንደሌለብኝ እና መቀጠል ባልፈለግሁ ጊዜ ማቆም እንደምችል ተረድቻለሁ፡፡ በአጠቃላይ ከላይ የተዘረዘሩትን መብቶቼን በማወቅና የእኔ በዚህ ጥናት ላይ መሳተፍ ጥቅም አለው ብዬ በማመን በሙሉ ፍቃደኝነት ለመሳተፍ ተስማምቻለሁ፡፡

ፊርማ _____ ቀን _____

Part I. Socio-demographic characteristics

የጥያቄ ኮድ	ጥያቄ	መላያ	እለፍ/ፊ (ምርመራ)
101	እዴሽን/ሀ ስንት ነው?	_____ እዴሜ(በመላ ዓመት)	
102	ፆታ (ቃለ-መጠይቁን የሚሰጠው)	1. ወንድ 2. ሴት	
103	ክትባት መወሰድ ያለባት ሴት እድሜ	_____ እዴሜ(በመላ ዓመት)	
104	የትምህርት ደረጃ (ቃለ-መጠይቁን የሚሰጠው)		ከፍተኛ የትምህርት ደረጃውን መዘግብ
105	የየትኛውም ደረጃ ትምህርት ተከታይ ነሽ/ህ?	1. አርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ሌላ _____ ካለ ይግለጽ	
106	የጋብቻ ሁኔታ	1. ያለገባች እናት/አባት 2. ያገባ/ች 3. የፈታ/ች 4. የሞተችበት/ባት	
107	የትምህርት ደረጃ (የአባት/የእናት)		
108	የአባት የስራ ሁኔታ	1. የመንግስት ሰራተኛ 2. የግል ተቀጣሪ 3. ገበሬ 4. ነጋዴ 5. ሌላ	
109	የቤተሰብ ቁጥር	_____	
110	የእናት የስራ ሁኔታ	1. የመንግስት ሰራተኛ 2. የግል ተቀጣሪ 3. ገበሬ 4. ነጋዴ 5. ሌላ	

111	የልጆች ቁጥር		
112	አመነኝ ወርሃ ዊ ገቢ በብር	_____ብር	

Part II. Knowledge of the respondent about HPV

የጥያቄ ኮድ	ጥያቄ	መለያ	እለፍ/ፊ (ምርመራ)
201	ስለ ኤች ፒ ቪ ሰምተዉያዉቃሉ	1. አዎ 2. አይደለም	አይደለም ከሆነ ወደ 203
202	ሰምተዉከሆነ ሚጀዉን ከየት ነ ዉየሰሙት	1. ቲቪ/ራዲዮ 2. ሶሻል ሜዲያ 3. የጤና ባለሙያ 4. ከጓደኞቼ/ከቤተሰብ 5. ሌላ	
203	ስለ ማክፀን በር ካንሰር ሰምተዉያዉቃሉ	1. አዎ 2. አይደለም	አይደለም ከሆነ ወደ 204
204	ኤች ፒ ቪ ማክፀን በር ካንሰር ያመጣል	1. አዎ 2. አይደለም	
205	ኤች ፒ ቪ እንፌክሽንን መከላከል ይቻላል	1. አዎ 2. አይደለም	
206	ኤች ፒ ቪ በግብረ ስጋ ግንኙነት ይተላለፋል	1. አዎ 2. አይደለም	
207	ከንዶም መጠቀም ኤች ፒ ቪ እንፌክሽንን መከላከል ይቻላል	1. አዎ 2. አይደለም	
208	ኤች ፒ ቪ ለዓመታት ልቆይ ይችላል	1. አዎ 2. አይደለም	
209	ማክፀን በር ካንሰር በተደጋጋሚ የኤች ፒ ቪ እንፌክሽን ይመጣል	1. አዎ 2. አይደለም	
210	ኤች ፒ ቪ ሴቶችንም ወንዶችንም ያጠቃል	1. አዎ 2. አይደለም	
211	አብዛኛዉኤች ፒ ቪ እንፌክሽንን በራሱ ይጠፋል	1. አዎ 2. አይደለም	
212	ኤች ፒ ቪ ምልክት ሰያሳይ ልይዝ ይችላል	1. አዎ 2. አይደለም	
213	ኤች ፒ ቪ ሌሎች የብልትና የፍንጥጣ ካንሰር ልያመጣ ይችላል	1. አዎ 2. አይደለም	
214	የኤች ፒ ቪ ክትባት 70% ገደማ የማክፀን በር	1. አዎ 2. አይደለም	

	ካንሰርን ይከላከላል		
215	Pap-smear የማክፀን በር ካንሰርን ለመረዳት ይረዳል	1. አዎ 2. አይደለም	
216	Pap-smear የማክፀን በር ካንሰርን ለመረዳት በትክክል ወይም በአመካኒ ይረዳል	1. አዎ 2. አይደለም	
217	Pap-smear በየ ሶስት ዓመቱ መደረግ አለበት	1. አዎ 2. አይደለም	
218	Pap-smear ከ35 ዓመት እና ከዚያ በላይ ለሚሆኑት ልሰራ ይችላል	1. አዎ 2. አይደለም	

Part III. Attitude of the respondent toward HPV

የጥያቄ ክፍል	ጥያቄ	መለያ	እለፍ/ፈ (ምርመራ)
301	የማክፀን በር ካንሰር አደገኛ በሽታ ነው ብለህ ታምናለሽ/ህ	1. አዎ 2. አይደለም	
302	የማክፀን በር ካንሰር በሽታን መከላከል ይቻላል ብለህ ታምናለሽ/ህ	1. አዎ 2. አይደለም	
303	ልጅሽ/ህ ለኤች ፒ ቪ እንፌክሽን ተጋለጫ ነች ብለህ/ሽ ታምናለህ/ሽ	1. አዎ 2. አይደለም	
304	የኤች ፒ ቪ ክትባት የማክፀን በር ካንሰርን ለመከላከል ይረዳል ብለህ/ሽ ታስባለህ/ታስብዋለሽ	1. አዎ 2. አይደለም	
305	የኤች ፒ ቪ ክትባት ችግር የለውም ብለው ያስባሉ?	1. አዎ 2. አይደለም	
306	ከክትባት ይልቅ በኤች ፒ ቪ እንፌክሽን መቆየት ችግር ልያመጣ ይችላል	1. አዎ 2. አይደለም	
307	የኤች ፒ ቪ ክትባት ለተጋለጫ ግብረ-ሰው ግንኙነት ላይዳርግ ይችላል	1. አዎ 2. አይደለም	
308	ልጆቼ በኤች ፒ ቪ እንፌክሽን እንዲያዙ አልፈልግም	1. አዎ 2. አይደለም	
309	የኤች ፒ ቪ ክትባት በነፃ የሚሰጥ ከሆነ ልጆቼን አስከትብኝ በረ	1. አዎ 2. አይደለም	
310	ስለ ኤች ፒ ቪ ያለኝ ሚዲያ ሌጆች የኤች ፒ ቪ	1. አዎ 2. አይደለም	

	ክትባት እንደወሰዱ እንዲወስን ረድቶኛል		
400	ልጄን የኤች ፒ ቪ ክትባት ለማስተካከል ፍቃደኛ ኖት	1. አዎ 2. አይደለም	

ASSURANCE OF PRINCIPAL INVESTIGATOR

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 Research Publications Office in effect at the time of
Grant is forwarded as the result of this application.

Name of the student: **Tigist Benti Fufa**

Date. **February 2025** Signature _____

Approval of the primary Advisor

Name of the primary advisor: **Mr Elias Bekele**

Date. _____ Signature _____

Approval of the secondary Advisor

Name of the primary advisor: **Mr Getu Megersa**

Date. _____ Signature _____