ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

DEPARTMENT OF NURSING

HUMAN PAPILLOMAVIRUS SECOND DOSE VACCINE UPTAKE AND ITS ASSOCIATED FACTORS AMONG ADOLESCENT GIRLS IN WORABE,2023.

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TSION ALEMU (BSC, MSC)

ATHESIS SUBMITTED TO THE NURSING DEPARTMENT, SCHOOL OF NURSING AND MIDWIFERY, COLLEGE OF HEALTH SCIENCES, ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN PEDIATRICS AND CHILD HEALTH NURSING.

JUNE, 2023

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APPROVAL SHEET

ADDIS ABABA UNIVERSITY

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DEPARTMENT OF NURSING

I am the undersigned MSc student, declare that I have submitted my original work on the title Human Papillomavirus second dose vaccine uptake and its associated factors among adolescent girls in Worabe,2023. Mixed study.

Submitted by:

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This thesis work has been submitted for examination with my approval as an advisor.

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Name of Major Advisor	Signature	Date
1. Mr. Berhanu Wordofa (Associate Professor)	_____	_____
Name of Co -Advisor	Signature	Date
2. Mrs. Tsion Alemu (Lecturer)	_____	_____

APPROVAL BY THE BOARD OF EXAMINATION

This thesis by Ephrem Mamuye is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of masters in Pediatrics and Child health nursing.

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STATEMENT OF DECLARATION

By my signature below, I declare and affirm that this thesis is my own work. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every effort has been made to avoid plagiarism in the preparation of this thesis. This thesis is submitted in partial fulfillment of the requirement for a graduate degree from the Addis Ababa University at College of Health Sciences, School of Nursing and Midwifery, Department of Nursing. The thesis is deposited in the Addis Ababa University Digital Library and is made available to local, national and international scientific community. I solemnly declare that this thesis has not been submitted to any other institution anywhere for the award of any academic degree, diploma or certificate.

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Ephrem Mamuye (BSc) _____ _____

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ABBREVIATIONS AND ACRONYMS

AOR	Adjusted Odds Ratio
CI	Confidence Interval
CC	Cervical Cancer
DNA	Deoxyribose Nucleic Acid
GLOBOCAN	Global Cancer Incidence, Mortality, and Prevalence
HICs	High-Income Countries
HPV	Human Papilloma Virus
HPV-1	The First Dose of The Human papilloma Virus Vaccine
HPV-2	The Second Dose of The Human papilloma Virus vaccine
LMICs	Low and Middle-Income Countries
PI	Principal Investigator
PS	Primary School
PSS	Primary and Secondary School
SNNPR	Southern Nations, Nationalities, and Peoples' Region
SPSS	Statistical Packages for Social Science
SSA	Sub- Saharan Africa
TV	Television
USA	United States of America
WHO	World Health Organization

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ABSTRACT

Background; Cervical cancer is caused by HPV and it is the primary cause of illness and mortality in females around the globe. It ranks the second most common cancer-related cause of death for women in Ethiopia. Although ministry of Health recommends two doses of HPV vaccine, the uptake status of HPV-2 is very low as compared to HPV-1 that hinder of the full protection from HPV Infection.

Objectives: To assess the uptake of second dose HPV vaccine and factors associated with it among adolescent girls in Worabe town, Southern Ethiopia, 2023.

Methods: Institution-based mixed study design was conducted from February 20 to March 20, 2023. A total of 406 female students were recruited by computer generated simple random sampling for quantitative study and 8 female students were recruited by purposive sampling method for qualitative study and data saturation was used as a guide to decide number of participants. The data was entered into Epi Data version 4.6. and analyzed by the use of SPSS version 26 for quantitative data and manual thematic analysis was done for qualitative data. To find associations, both bivariate and multivariate logistic regression analysis were used.

Result: At all a lower level 128(31.5%) of adolescent girls had received second dose HPV vaccine. Primary educational level of adolescents[AOR =3.70, 95%CI:(1.58-8.68)], fathers who had no formal education[AOR=0.12,95%CI:(0.03-0.52)], fathers attended primary educational level [AOR=0.30,95%CI:(0.14-0.67)], not aware towards HPV-2[AOR=0.46,95%CI:(0.24-0.89)], poor knowledge of HPV and its vaccine[AOR=0.57,95%CI:(0.33-0.99)] and negative attitude towards HPV vaccine[AOR =0.37,95%CI:(0.21-0.65)] were the factors associated with the uptake of HPV-2 in the quantitative study. In addition to this poor perception of severity, lack of pre-information, lack of awareness of the gap between HPV-1 and HPV-2, absence of health worker for the second vaccine, fear of injection, fear of side effects, misunderstanding about HPV vaccine and poor awareness of HPV-2 were the explored factors in the qualitative study.

Conclusion and Recommendation; Generally, there was low uptake of second dose HPV vaccine in the study area. Therefore, in order to increase second dose HPV vaccination uptake level, awareness raising and behavior modification education are essential in the community.

Keywords: - HPV, HPV vaccine, HPV-2 Uptake, Worabe town

1. INTRODUCTION

1.1. Background

Globally, cervical cancer affects 500,000 women annually, making it a significant public health issue which 60% pass away. Human papillomavirus infection is a major contributor to cervical cancer. The majority of cervical cancer cases are estimated to be found in developing countries. There is an incidence of 85% worldwide. Every year, nearly 90% of newly diagnosed cases of cervical cancer are fatal(1).

HPV is a type of virus that contains essentially bare DNA in its genome, which is circular in shape. There are currently more than 100 HPV types, which are divided into high-risk and low-risk(2).The HPV types 6 and 11 are low risk viruses that cause 90% of genital warts, while the HPV types 16 and 18 are high risk virus which account for 70% of cervical cancer cases(3).Men can develop penis cancer from HPV, while women can develop cervical cancer from it. HPV can lead to oral and anal cancer in both men and women(4).

First coitus before the age of 15, an increase in pregnancies, an increase in sexual partners, the use of contraceptives, chewing or smoking habit, and an early marriage age are significant risk factor for HPV infection(5). Sexually active people are more likely to get the infection, and females are more likely to get it than males(2).

Health concerns about HPV infection outcomes still exist and mostly causes genital warts and cancer(2, 6).Studies have shown that cervical, genital, anal, canal and oropharyngeal cancers have been found to occur more frequently as a result of HPV infections.(7, 8).The risk of contracting HPV can be decreased by abstinence, limiting sex partners, using condoms correctly, and having the male genitalia circumcision(9).

The CDC states that there is no cure for HPV, but it does acknowledge that certain health issues brought on by HPV can be treated with medication if they are discovered early on, like genital warts and pre-cancers(10). However, at the tertiary stage, therapeutic approaches like radiation therapy, surgery, and chemotherapy could treat HPV-related cancers(11). Nevertheless, thought that vaccination was a good way to stop HPV infections(12).

HPV vaccination is a key factor in preventing cervical cancer. In 2006, the first HPV vaccine that was both secure and effective was created. The Cervarix vaccine is bivalent and safeguards from HPV type 16 and 18, while Gardasil/Silgard(quadrivalent), that introduced in 2007 targets against 4 types (HPV-6, 11, 16, and 18), and the nonavalent targets against nine types (6, 11, 16, 18, 31, 33, 45, 52, 58) introduced in 2014(13).School based programs are more cost-effective due the fact that all adolescents gathered there. Schools also haves a great roles in an HPV vaccination program for effectively disseminating vaccine information and increasing vaccine uptake(1, 14).

According to WHO, adolescents should receive the HPV vaccine twice, and especially to females between the ages of 9 and 14, with the second dose given six to twelve months after the first(15, 16).On the other hand, male recipients of the HPV vaccine also benefit from a decrease in HPV-associated diseases. (17, 18).

Ethiopia launched the HPV vaccine in 2018 with a focus on 14-year-old girls, supported by GAVI. The vaccines were administered through schools in two doses spaced six months apart(19). However, the vaccination was started one year later after its introduction (2019) by giving two doses with six months interval every year for 14 years old adolescents in Worabe town.

1.2. Statement of the Problem

According to GLOBOCAN report, cervical cancer was estimated to be the fourth most common cancer in women, with an approximate of 604,127 new cases and 341,831 deaths globally in 2020.It has the second-highest incidence and mortality rates of all cancers in Africa, with a total of about 117,316 new cases and 76,745 deaths. According to estimates, 90% of all cervical cancer deaths occur in LMICs(20, 21).

In 2020, 88% of Cervical Cancer cases (which make up 17% of all female cancers) were reported in LMICs, vs. just 2% in HICs. Mortality rates vary by 50 times amongst nations, with certain HICs having mortality rates of less than 2 per 100,000 women and others in sub-Saharan Africa having mortality rates of more than 40 per 100,000(23).

The WHO predicts that cervical cancer will cause 443,000 female deaths worldwide by 2030. According to estimates, there are 69.2% cases of invasive cervical cancer (ICC) linked to HPV 16/18 infection overall in SSA, which is consistent with the global estimate of 70%(22).In Ethiopia, Cervical became a major public health problem affecting thousands of women (23). The risk of cervical cancer is high among 33.7 million women aged 15 and above. Presently, 7445 women are diagnosed with cervical carcinoma annually, and 5338 of them pass away due to the disease.(24). It is the second most common cancer killer among women in Ethiopia. (19).

To ensure the highest level of protection for adolescent girls aged 9 -14, the World Health Organization (WHO) recommends receiving two doses of the HPV vaccine six months apart. Without dual doses, fully preventing cancer and safeguarding against it in the future remains difficult(25). The incidence of cervical cancer is expected to be significantly reduced with the use of primary preventive vaccinations, particularly where screening is insufficient, inadequate, or of low quality(26).

In Ethiopia, there are several barriers to HPV vaccination such as inadequate vaccine supplies, insufficient delivery facilities, widespread misconceptions about the vaccine, and a lack of community involvement in raising awareness and early detection methods.

In this context, Adolescents, who are the immunization's target population, must recognize the value of immunization and finish the two HPV vaccination doses. Also, known that adolescents are a group with a high vulnerability to STIs like HPV due to early sexual maturation, the diversity of partners, greater sexual freedom, the need for group affirmation, combined with resistance to condom use(27).

In Ethiopia, Although Previous studies reported HPV vaccine up take level, we can't know how dose 2 effectively taken by adolescents, which hinder the evaluation and intervention given to the problem. For example, study reported in Ambo was 44.4%(24),in the Minjar Shenkora of Amhara region66.5% (28).

The effectiveness of HPV vaccinations in reducing the risk of infection and cervical cancer-related mortality is dependent on taking only the recommended dose, even though two doses were not considered as a measurement. This suggests that there is a significant gap in their study. The eradication of cervical cancer has thus been extremely challenging. However, due to this insufficient dose, the population of the country still has a high risk of HPV infection. Additionally, there are no published standard reports that show the prevalence of HPV-2 uptake since the vaccine's introduction in 2018.Furthermore, there is no study that came before this one, in either in this study area or elsewhere in the country.

Therefore, this study assessed the prevalence of second dose HPV vaccine uptake and its associated factors among adolescent girls in schools of Worabe town, Southern Ethiopia. This study's findings provide valuable information for health program planners, including those working to reduce the incidence of cervical cancer and future researchers.

1.3. Significance of the Study

Female adolescents are the ones who become mothers and if well informed about HPV related infection and received the recommended doses of the vaccine at the appropriate times, they can play a crucial role in deciding whether to vaccinate their children and contribute to the reduction of cervical disease at the future.

The study's conclusions raised concern about adolescents' uptake status of two doses of the HPV vaccine that link them to preventive and promotion health services. They would then have a better chance of pursuing further education and finding better employment opportunities in the future. It also offers suggestions to policymakers and other stakeholders for improving second dose coverage strategies to fully protect women from cervical cancer.

The outcomes of this study may also act as a benchmark for future scientific investigation and offer fundamental understanding for additional interventions. Therefore, it is necessary to conduct a study on the recommended dose of HPV vaccine and related factors in order to evaluate the efficacy of the initiative to eradicate HPV related disease and in order to achieve the stated objectives.

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2. LITERATURE REVIEW

For girls in their adolescent years, complete and effective HPV vaccinations are advised; however, the uptake status is lower than advised, Therefore, this part gives review of literature on the magnitude of HPV infection, level of HPV-2 vaccine uptake, factors associated with the uptake of HPV-2 and the barriers that influences adolescents to be vaccinated with HPV-2globally, regionally, and locally among adolescent girls respectively. Socio-demographic characteristics, awareness towards HPV-2, knowledge of HPV and its vaccine, attitude of HPV vaccine, source of information for HPV vaccine were the reviewed factors that associated with the uptake of HPV-2. Finally, barriers related factors to the uptake of HPV-2were discussed in the as a qualitative part.

2.1. Prevalence of HPV Infection

Among Women in the US between the ages of 14 and 59 had an overall HPV level of 26.8%.The prevalence of HPV among females between the ages of 14 and 19 was 24.5%(29).According to the region-specific estimates, Eastern Asia (China) had the highest prevalence of HPV infection at about 57.7%.Less developed nations had a higher incidence of HPV (42.2%) than more developed ones (22.6%)(5).

In 2011, 32.1 percent of all females (576,281) tested positive for HPV, with the highest prevalence rates in Asia and Africa at 45.5% and 29.6%, respectively. The prevalence of HPV was higher in SSA (24%), particularly in Eastern Africa (33.6%)(30).The region of Sub-Saharan Africa has been found to have the highest prevalence of HPV infection, with Guinea and Mozambique reporting rates of 48% and 41%, respectively, while Senegal and Ethiopia had prevalence rates of 43.7 and 90.2%, respectively, for HPV 16 and 18(22)

2.2. Level of Second Dose HPV Vaccine Up-Take

It is strongly advised for adolescent girls to receive the prescribed amount of HPV immunization to ensure complete prevention against Hpv infection, specifically in regards to cervical cancer. Nevertheless, there remains a disparity in the worldwide administration of the HPV vaccine, resulting in the loss of countless female lives.

According to study done in the Ilala municipality, Dares salaam revealed that the uptake of HPV-2 among the 389 study participants was only 21.3%, which is lower than the uptake of HPV-1(35.2%)(25).The study done among 2017 school girls in Manchester indicates68.5% of them vaccinated with HPV-2(31).

The study done among Female dolecents in Ambo town indicates 87(21%) had received two doses(24).The study conducted in Gulu Municipality, Northern of Uganda also indicates 22% of adolescents had received HPV-2(32).As the result of study in Lira District, Uganda, from 460 respondents, only 14.8% had received HPV-2(33).According to study done in Rongai and Nakuru in Kenya uptake level of dose two HPV vaccine were 13% and 11% respectively which does not match with those received one dose of HPV vaccine(20).

Another study from Kampala, Uganda of 550 adolescent girls who had received HPV-1 were recruited into the study and total of respondents A different study from Kampala, Uganda involved 550 adolescents girls who had received the HPV-1 and found that 245(44.6%) of them had received HPV-2 vaccine(1).There is also study from the same city indicates that is the prevalence of HPV-2 which was taken after 6 month of first dose HPV vaccine was 43.3%(34).

According to research conducted in Eldoret, Kenya in 2018, 63.8% of 3000 primary school students were given a second dose of the HPV vaccine(35).

The study conducted among schoolgirls in KwaZulu-Natal, South Africa, revealed a high uptake of HPV-2(97.9%). Prior to the start of vaccination, all stakeholders received extensive education, which may have contributed to the high uptake of the second dose of the HPV vaccine(36).

The study from Barretos, Brazil, indicated that the uptake of HPV-2 was 86.3%.A week before the vaccination exercise, parents and guardians of the study participants were contacted to provide answers to any questions or concerns, which was the primary reason for the high uptake(14).

In a mixed-methods study (quantitative and qualitative) of 407 adolescent females in the Mbale District of Uganda, 49% (200/407) of adolescents had started the HPV vaccine; uptake of the vaccine was operationalized as receiving second dose HPV vaccine and the uptake level was 14%(37).

A cross-sectional survey of teenagers in Uganda's Gulu Municipality, aged 15 to 18, was carried out among adolescents, and only 22%(55)of them vaccinated with the second dose HPV vaccine(32).Another cross-sectional study conducted at a school in Dares Salaam, Tanzania, only 21.3% of the 389 teenagers received the HPV-2, which was less percentage than that of the initial dose HPV vaccine(35.2%)(25).

2.3. Factors Associated with Second Dose of HPV Vaccine Uptake

The worldwide gap in HPV vaccine coverage highlights the importance of extending the program for the HPV vaccination. Socio demographic, awareness and knowledge, attitude, perception and information related factors influence adolescent's outlook on the uptake of two dose HPV vaccine that might affect their decision making which hinder successful HPV vaccine delivery.

2.3.1. Socio-Demographic Related Factors

The review of different literatures indicated that, adolescent's grade levels, father's educational level, mothers' educational level, residence of adolescents and with whom adolescents living with were the identified socio-demographic factors that are associated with the take of HPV vaccination.

In Uganda, a study conducted in Kampala found that adolescents with secondary school education are 78% more likely to have HPV-2 than those with only primary education. Additionally, there was statistically significant association between HPV-2 uptake and the fathers' educational background (secondary and tertiary)(1).A study conducted in Lira, Uganda also revealed that receiving the HPV-2 vaccine was associated with having a secondary education level(33).The founding of the study done among adolescents girls in Gulu Municipality, Northern Uganda showed that adolescents who only lived with their mothers had a 23% lower HPV vaccination uptake(32).

The recent study conducted among adolescent school girls in Nekemte, Oromia region, Ethiopia, indicated that study participants whose mothers had higher education level (College and above) were 5.47 more likely than their counterparts to have received HPV vaccination. When compared to students from rural areas, urban students had a 4.12 higher HPV vaccination uptake(38).

2.3.2. Knowledge Related Factors

According to study from Kampala, Uganda the prevalence ofHPV-2uptake was 44.6%. Uptake of the HPV-2 was significantly associated with knowledge of HPV vaccination. The likelihood of receiving HPV-2 was almost twice as high for those who had knowledge, as compared to those without knowledge of cervical cancer and HPV vaccines. The majority of adolescents 388 (70.5%) and greater than half 287 (52.2%) of study participants were knew by what cervical cancer caused and the fact that vaccination can prevent it(1).

Another study conducted in western Uganda found that girls with knowledge of the HPV vaccines were five times more likely to receive it than those without(39).Research done on 472 randomly selected 15-year-olds in Munuciplay, Brazil, there is a statistically significant association between having a sufficient degree of knowledge related to HPV and its vaccine as well as the recommended dose of the vaccine to be received.(27).

2.3.3. Awareness Related Factors

Adolescents in the Mbale of Uganda reportedly received the HPV-2 vaccine at a 14% rate. It was discovered that the primary cause of the low uptake of the HPV vaccine was a lack of awareness about it(37).

A study conducted in Dar es Salaam, Tanzania found that study participant's awareness of the HPV-2 was an independent predictor of HPV-2 uptake. In comparison to those who were unaware, respondents who had heard of the HPV-2 vaccine were 9.16 times more likely to vaccinate a second dose(25).

2.3.4. Attitude Related Factors

Study conducted in the municipality of Ilala in the Tanzanian city of Dares Salaam, indicated that the uptake of HPV-2 vaccine was positively associated with positive attitudes, and those who received the vaccine were 2.04 times more likely to receive it than those experiencing negative attitudes(25).

2.3.5. Information Related Factors

According to a USA study, the internet was the primary sources of information regarding the vaccine for the adolescents(40).Research founding's also revealed that social medias became an important source of health information at global level(41, 42, 43).

A study conducted in Switzerland using mixed methods revealed that participants' social networks (20%), healthcare providers (23%), and health programs at school (53%) were the three most frequently mentioned sources of information for HPV vaccine uptake(43).Increasing coverage of HPV-2 vaccine has been achieved through the promotion of vaccination knowledge by the media, medical professionals, educators, and parents(2).

2.3.6. Barriers towards Second Dose HPV Vaccine Uptake

According to qualitative research conducted among adolescent girls in Kampala of Uganda, the obstacles to finishing the second dose of the HPV vaccine were: inadequate knowledge about the HPV and its vaccines, concerns about its effectiveness and safety, lack of clear communication with healthcare professionals, and reluctance to obtain the vaccination (which is part of an out-of-the-pack method)(34).

A mixed study done in Ambo, Oromia region of Ethiopia, among adolescent girls regarding HPV vaccine uptake revealed that factors such as fear of side effects, poor perception and misunderstanding about the vaccination were the identified barriers towards HPV vaccine uptake(24).

2.3.7. Conceptual Frame Work

Various literature sources were reviewed to create the conceptual framework (1, 25, 27, 32, 33, 34, 37, 38, 39, 40)

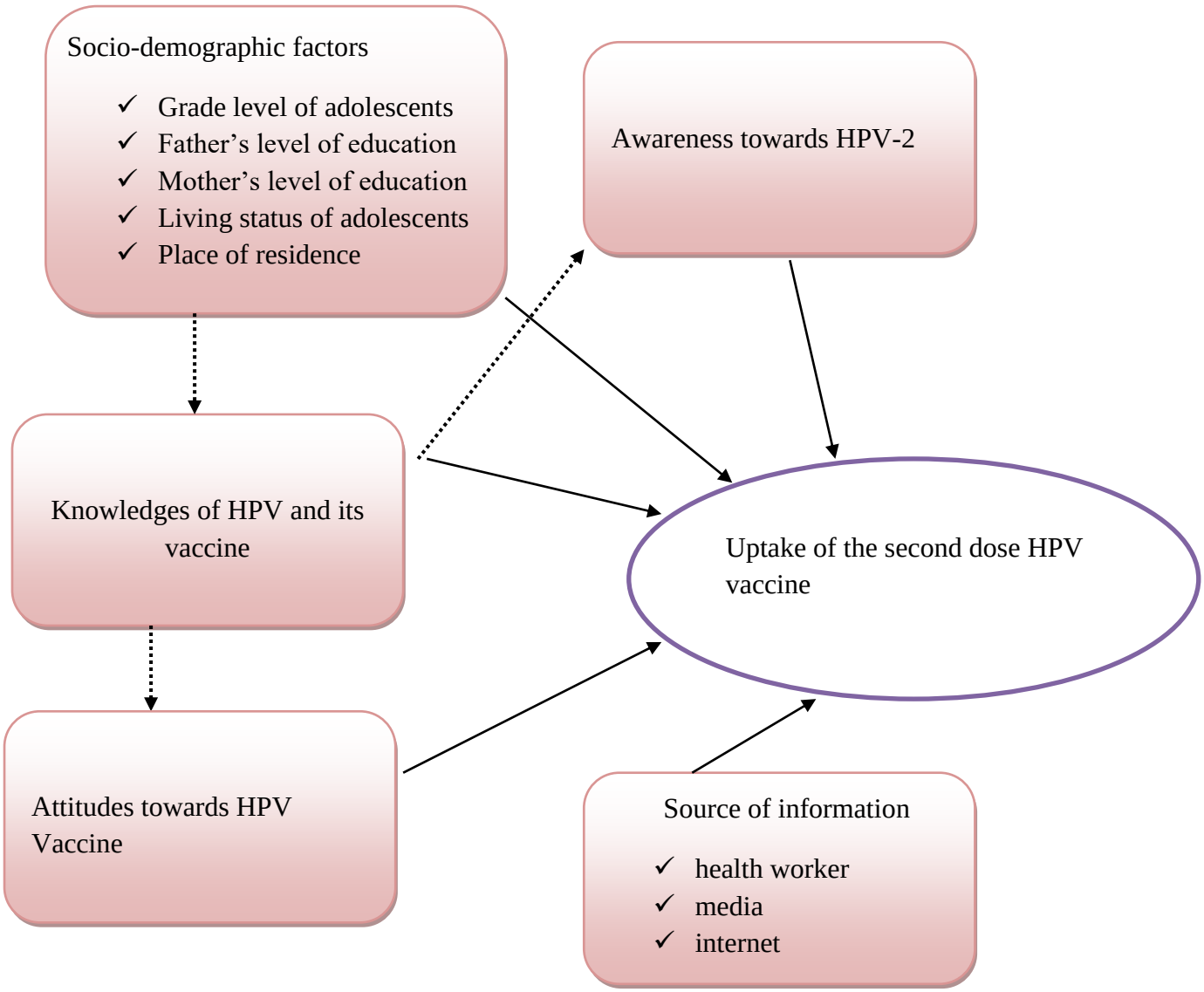

Figure 1**:** Conceptual Framework for Prevalence and Associated Factors with the Uptake of the Second Dose of the HPV Vaccine among Adolescent Girls in Worabe town, South Ethiopia, 2023.

3. OBJECTIVES

3.1. General Objective

To assess the uptake of second dose HPV vaccine and factors associated with it among adolescent girls in Worabe town, South Ethiopia, 2023.

3.2. Specific Objectives

1. To determine the level of second dose HPV vaccine uptake among adolescent girls in Worabe town, South, Ethiopia, 2023.
2. To identify factors associated with second dose HPV vaccine uptake among adolescent girls in Worabe town, South Ethiopia, 2023.
3. To explore the barriers towards second dose HPV vaccine uptake among adolescent girls in Worabe town, South Ethiopia, 2023.

4. METHODOLOGY

4.1. Study Area and Period

In SNNPR of Ethiopia, Silte is a Zone that is 172 kilometers (km) to the southwest of Addis Ababa, (the capital city of Ethiopia) and 107 kilometers (km) from Hawassa (Sidama Regional States' seat). The town has six kebeles, which are Ethiopia's smallest units of government, according to the town administration report.

The town is located at 8°1′N 38°20′E latitude and longitude, and its elevation above sea level is 2,113 meters (6,932 feet). Worabe town has 12primary schools (grades one up to eight), of which 9 are governmental and 3 are privates, and 3 secondary and preparatory schools are governmental.

Among five Schools namely Worabe primary school, Duna primary school, Zemo Bate Secondary and Preparatory school, and Worabe Secondary and Preparatory school and Hayrarzi Secondary and Preparatory school.; each of them has 190, 111, 356, 725 and 522 number of female adolescents whose ages are ranges including or between 15 and 18 respectively. The study was conducted from February 20 to March 20, 2023.

4.2.Study Design

For Quantitative Study

Institutional based cross-sectional study was conducted among adolescent school girls in Worabe town.

For Qualitative Study

A descriptive qualitative approach was conducted to explore the barriers towards the uptake of second dose of HPV vaccine.

4.2. Population

4.2.1. Source Population

All adolescent girls aged 15-18who had received HPV vaccine from 2019 to 2022 in Worabe town of primary, secondary and preparatory schools.

4.2.2. Study Population

For quantitative study

Randomly selected adolescent girls aged 15-18 who had received at least one dose of HPV vaccine from 2019 to 2022 in Worabe town of primary, secondary and preparatory school.

For qualitative study

Purposely selected adolescent girls aged 15-18 who had received dose one of HPV vaccine to study barriers related factors who vaccinated from 2019 to 2022 in Worabe town of primary, secondary and preparatory schools.

4.2.3. Inclusion Criteria

The vaccine was given only for 14 years old females every year from 2019-2022, adolescent girls those had taken the vaccine at 2019 their age is 18 years old now and those had taken last year (2022) is 15 years old now. Therefore, female adolescents aged 15-18 and attending the class at the time of study period were included.

4.2.4. Exclusion Criteria

Those have no HPV vaccination card were excluded from the study

For qualitative study

Those have no willingness to participate were excluded.

4.3. Sample Size Determination and Sampling Technique

4.3.1. Sample Size Determination

For quantitative study

The sample size was calculated, by using a prevalence(**p**) estimate of 50% for HPV vaccination, a margin of error (**d**) of 5%, and a confidence level of 95%.

$$n = \frac{(z_{\alpha/2})^2 \cdot pq}{d^2}$$

Where**,**

n =Required sample size

z=Standard score corresponding to 95% confidence interval (1.96)

d=Marginal error 5%

P = 50 % proportion

$$n = \frac{(1.96)2\ 0.5(1-0.5)}{(0.05)2} = 384$$

The final sample size was calculated by adding 10% as a non-response rate:

=384+0.1(384)

= **422**

For qualitative Study

The sample size was determined based on data saturation and until no new data founded during an in-depth interview. There was eight in depth interview were conducted among eligible female adolescents who were selected from primary, secondary and preparatory schools.

4.3.2. Sampling Methods

For quantitative study

Study participants were taken proportionately from each school. To select a study unit computer generated simple random sampling technique was used.

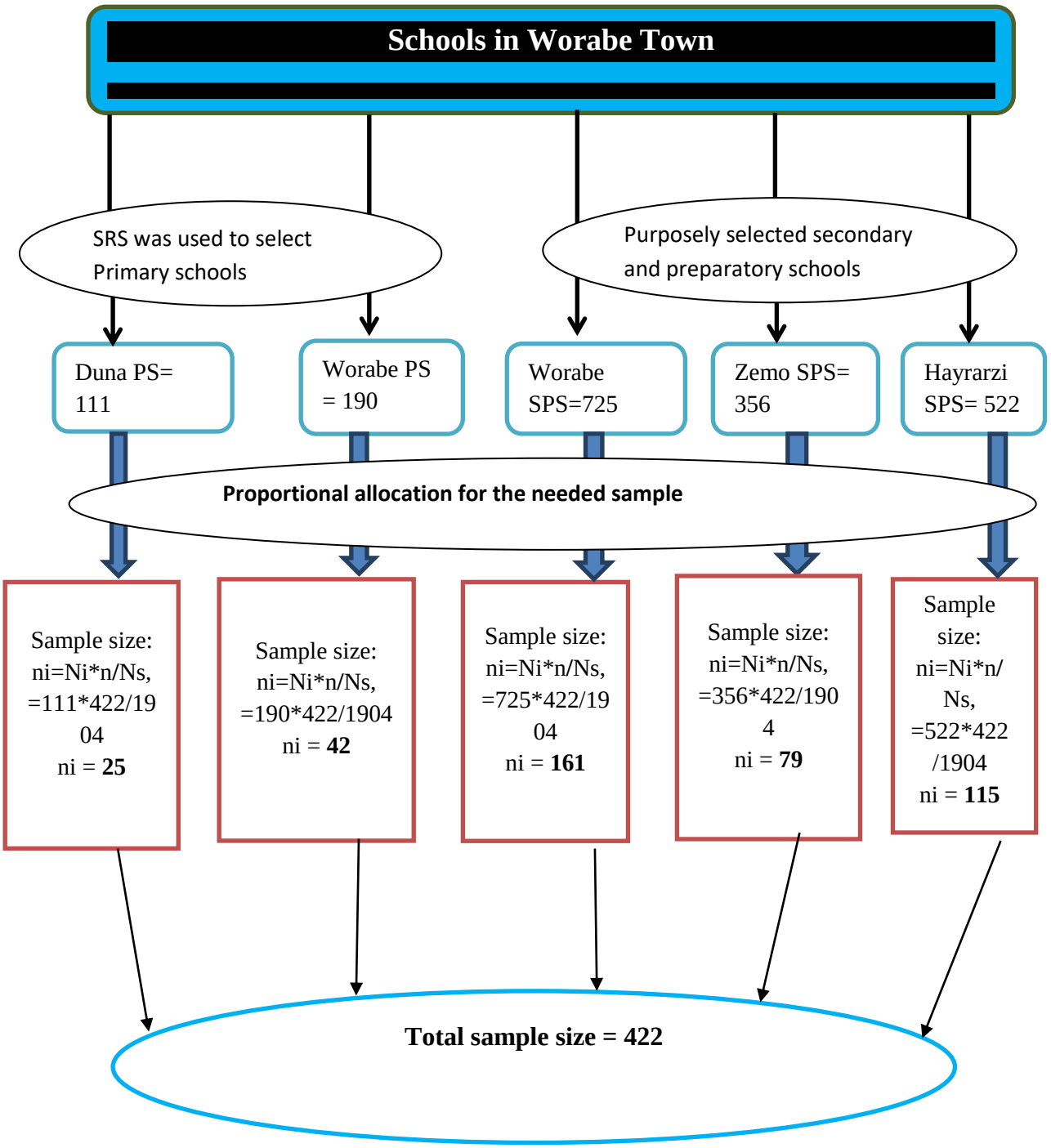

Figure 2:Sampling Procedure for Prevalence and Associated Factors with Uptake of the HPV-2 among Adolescent Girls in Worabe town, South Ethiopia, 2023.

All three secondary and preparatory schools were selected due to most of the study participant's age 355(84.1%) fall in this range and 67(15.89%) of these ages was found in the primary schools. The 2 primary schools were selected by lottery method of simple random. The sample size for each chosen school was calculated proportionally to the number of adolescent girls enrolled there, including or between the ages of 15 and 18. The study participants who have HPV vaccination card was selected from each school by simple random sampling using lottery methods.

For the qualitative Study

Adolescent girls in schools who had received HPV-1were purposively selected to give an in-depth interview during the study. An in-depth interview process was carried out with participants, until they reached saturation, and no new information was gathered.

4.4. Variables

4.4.1. Dependent Variable

- Uptake of second dose of HPV vaccine

4.4.2. Independent Variables

- Socio-demographic factors
  - Grade level
  - Fathers educational level
  - Mothers educational level
  - Living status of adolescents
  - Place of residence
- Awareness towards HPV-2
- Knowledge of HPV and its vaccine
- Attitudes towards the vaccine
- Source of information

4.5. Operational Definitions

Adolescents: For this study purpose, adolescents were female students who aged 15 -18 years old.

Uptake of the HPV vaccine: is defined as the targeted females receiving two doses of the vaccine, after six months receiving the HPV-1(1, 20).

Good knowledge: Study participants who answered ≥50% from knowledge assessing questions(knowledgeable about HPV and its vaccine)(27).

Poor Knowledge: Study participants who answered < 50% from knowledge question regarding HPV and its vaccine(27).

Awareness; Study participants who know(heard) about HPV-2 vaccine were regarded as being aware of HPV-2(25).

Positive attitude: a female adolescents who scores≥60% was have a positive attitude towards HPV vaccine(25).

Negative attitude: a female adolescents who scores < 60% was have a negative attitude towards HPV vaccine(25).

4.6. Data Collection Tools and Procedure

For Quantitative Study

To ensure consistency, a semi-structured questionnaire was adapted in English versions before, and then translated into Amharic and back into English. The questionnaires was taken and modified from earlier, comparable investigations(25).The data was collected by two data collectors (BSc Nurses) who experienced prior with data collection managed by one supervisor. This semi-structured questionnaire had four parts.

The **first part** involved questions about socio demographic status. The questions included age, grade level, education and occupation status of the family, living status and place of residence of adolescents.

The **second part** assessed the knowledge of HPV and its vaccine. To evaluate the level of understanding of the HPV vaccine among the respondents, there was administered a set of fifteen questions. The questions covered various aspects such as to what HPV leads to, the advantages of the HPV vaccine, and the ways in which HPV infection can be transmitted and prevented. Questions with "yes" or "no" responses were used to gauge respondents' knowledge of the HPV vaccine, with one point awarded for each response that was accurate. It was assumed that respondents were aware of HPV-2 if they knew the recommended dose of the HPV vaccine (given twice).

Thirdly, it is about attitude towards the completion of the HPV vaccine. The participants' attitudes toward the HPV vaccine were gauged using ten questions about attitude by Likert scale with a mean score of 5 (strongly agree) to 1 (strongly disagree). Strongly agree and agree were viewed as showing a positive attitude, whereas strongly disagree, disagree, and neutral were viewed as showing a negative attitude. The **final section** looked into their HPV vaccination status.

A self-administered Amharic version questionnaire was used to gather the data. For data collectors, one day of instruction was provided on the study's purpose, its applicability, how to conduct an effective interview, how to keep respondents' information private, how to obtain their informed permission, and other topics. The students were informed to come with their previous HPV vaccination card and they were strictly informed that it is mandatory for the study purpose.

For the qualitative Study

Face to face in-depth interview by using open-ended question was conducted with adolescent girls aged 15 to 18 in schools who had received one doses of HPV vaccine were used to gather the information. The interview was conducted by PI and one another data collector who experienced in qualitative data collection. The audio was recorded by assistant and the notes were taken carefully by PI to capture interviewee's response.

4.7. Data Processing and Analysis

For Quantitative Study

Following the collection of the data, each questionnaire was reviewed for accuracy before being coded, recorded into the Epi data version 4.6, and exported to the SPSS version 26 software program for analysis. Data exploration, editing and cleaning was undertaken before analysis. Descriptive statistics included mean and standard deviation values for continuous data; percentage, frequency and tables for categorical data were used. Binary logistic regression analysis was conducted to see factor associated with uptake of HPV vaccine and select candidate variables with P value less than 0.25 for multivariable logistic regression to control the effect of confounders. Then, multivariable analysis was performed in order to identify the independent predictors of the dependent variable.

Final model fitness was checked by Hosmer and Lemeshow test and model adequacy was declared when the p-value > 0.05. Multicollinearity was checked by using VIF and it was less than 10. The significance was checked and declared using p-value less than 0.05 and 95% confidence interval in the final model. Strength of association was interpreted by using AOR with 95% CI. Goodness of fit was checked by using Hosmer-Lemeshow goodness of fit.

For qualitative Study

Firstly, audio recorded data were heard repeatedly until the principal investigator became intimately familiar with the contents. The qualitative data that was audio-taped was translated into English. Following that, codes or terms were found and added together to create some categories, which were later used to establish themes based on the study's objectives. Unique concepts were identified and trials were made to elaborate more and reported on the final result. Finally, thematic analysis was done manually and the findings were triangulated with the quantitative one.

4.8. Data Quality and Assurance

The questionnaire was translated into the Amharic language by linguists in order to guarantee the accuracy of the data. The translation was then redone in English to ensure consistency before data was collected. The data collectors and supervisors received one day of training before beginning the actual data collection. At Bunar Primary School, data collectors administered a pre-test to 21(5%) adolescent females of the total sample size and made the necessary adjustments. Through the use of SPSS, the knowledge and attitude questions' reliability index measurements, which demonstrated adequate internal consistency were examined.

For Qualitative Study

Ensuring dependability, credibility, transferability, and conformability helped with the accuracy of the qualitative component. The reliability of the data was further increased by allotting enough time for data collection and by maintaining an impartial, unbiased viewpoint.

Trust worthiness

Credibility

Data coding, analysis, and interpretation were continuously discussed with instructors and researchers who have a good experience of conducting qualitative researches during the study process.

Dependability

Instructors and other researchers with expertise in qualitative research looked at the data and audited and verified the study's findings. The recorded audio and data analysis procedure available as evidence to be checked.

Transferability

The research sample, setting, and procedure have all been made explicit. Direct quotations from participant comments were used to create a thorough definition that linked the study's objective.

Conformability

Field notes were written down and audio was recorded during the interview. In order to remove personal biases from the analysis, the data were coded, categorized, and then major themes was formed from the coded data.

4.9. Ethical Consideration

The Institutional Review Board (IRB) of the Addis Ababa University, School of Nursing and Midwifery was consulted for authorization prior to any data collection. Following acceptance, the Department of Nursing of AAU was sending an official letter of cooperation to the concerned bodies. The necessity of this study was explained to the school directors and students, and the confidentiality of all the data submitted was guaranteed. The study was not forcing any students who have no interest to take part.

4.10. Dissemination of the Result

The findings of this investigation will be delivered to Addis Ababa University. School of Nursing &Midwifery, Department of Nursing as well as distributed to the schools where the study was done and to the Health Bureau of Worabe town. Final publication of this finding in scholarly journals also allows it, to serve as a baseline for decision-makers and those conducting subsequent research

5. RESULT

5.1. Quantitative Result

There were eight sections that explained the results of this study. The initial section deals with the socio-demographic characteristics of adolescent girls. The second part addressed prevalence of second dose HPV vaccine and the third part explain about source of the information for cervical cancer and HPV vaccine. Awareness of adolescents towards HPV-2 vaccine, knowledge's and attitudes of HPV and its vaccine, associated factors with uptake of HPV-2 also explained respectively. The findings of the qualitative study were presented in the last section.

5.1.1. Socio-Demographic Characteristics of the Study Participants

A total of 406 adolescent girls participated in the study, and their response rate was 96.2%. The study participant's mean age was 16.29 (±1.40) ranging from 15-18 years. More than half of the respondents 244(60.1%) were those aged 15 and 16yearsold. Most of study participants grade level was Secondary and preparatory schools (71.7%). The majority 379(96.4%) of them were Muslims. Regarding to parent's educational status 20% of adolescent's father have no formal education and almost half of them was attended secondary and above, while 31.5% and 35% of the mothers have no formal education and attended secondary(above)respectively. The majority of adolescents (85.5%) were live with both parents.

Table 1:The Socio-demographic Characteristics of the Study Participants among Adolescent Girls in Worabe town, South Ethiopia, 2023. (406)

Variables	Category	Frequency	Percent (%)
Age	15-16	244	60.1
	17-18	162	39.9
Grade level	7-8	62	15.3
	9-10	234	57.6
	11-12	110	27.1
Religion	Orthodox	38	9.4
	Protestant	21	5.2
	Muslims	347	85.5
Father's educational level	No formal education	55	13.5
	Primary education	127	31.3
	Secondary or above	224	55.2
Mother's educational level	No formal education	106	26.1
	Primary education	146	36
	Secondary or above	154	37.9
Occupation of father	Merchant	83	20.4
	Government employee	165	40.6
	Private employee	88	21.7
	Farmer	57	14
	Other	13	3.2
Occupation of mother	Merchant	21	5.2
	Government employee	117	28.8
	Private employee	76	18.7
	House mother	174	42.9
	Other	18	4.4
Living with	One parent	36	8.9
	Both parent	347	85.5
	Others	23	5.7
Place of residence	Urban	339	83.5
	Rural	67	16.5

5.1.2. Prevalence of Second Dose HPV Vaccine Uptake

In the study, 406 adolescent girls who had received at least the first dose of the HPV vaccine took part. At all,128 study participants reported receiving the second dose of the HPV vaccine, resulting in a prevalence of 31.5%.

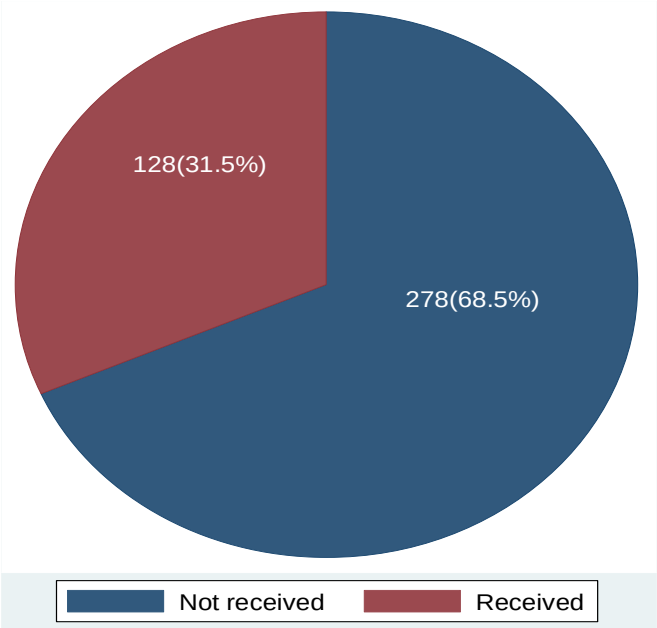

Figure 3: Prevalence of Second Dose HPV Vaccine Uptake among Adolescent Girls in Worabe town, South Ethiopia, 2023.

5.1.3. Sources of Information for HPV vaccine

Among respondents less than half of them 189(46.6%) heard about Cervical Cancer, however the majority of respondents 362(89.2) have heard about HPV vaccine. Health workers 174(48.1%), teachers 86(23.8%), TV(18%) were the major sources of information for HPV vaccine respectively.

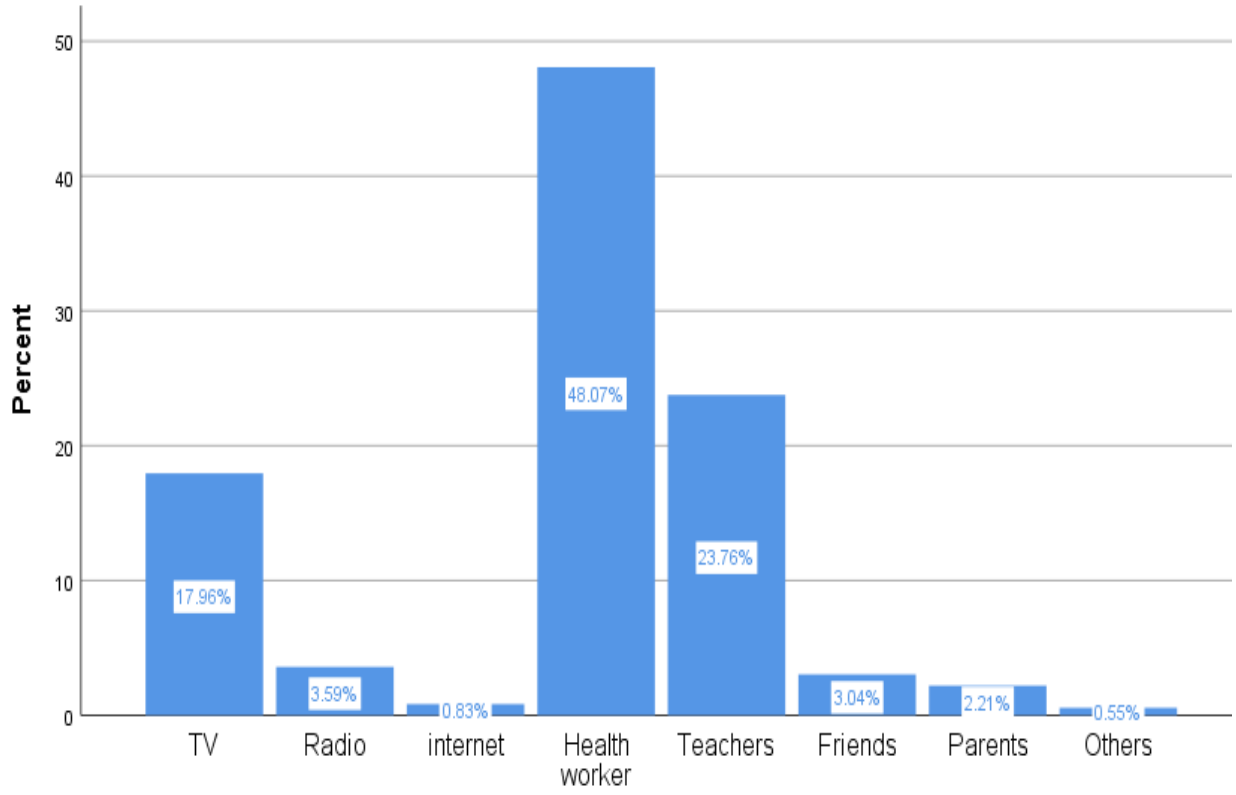

Figure 4: Distribution of sources of information for HPV vaccine among adolescent girls in Worabe town, South Ethiopia, 2023.

5.1.4. Awareness of Adolescents towards Second dose HPV vaccine

At all only 102(25.1%) of adolescent females aware(knew) the recommended dose HPV vaccine (given twice) while, the majority of them 304(74.9%) knew that the vaccine only given once.

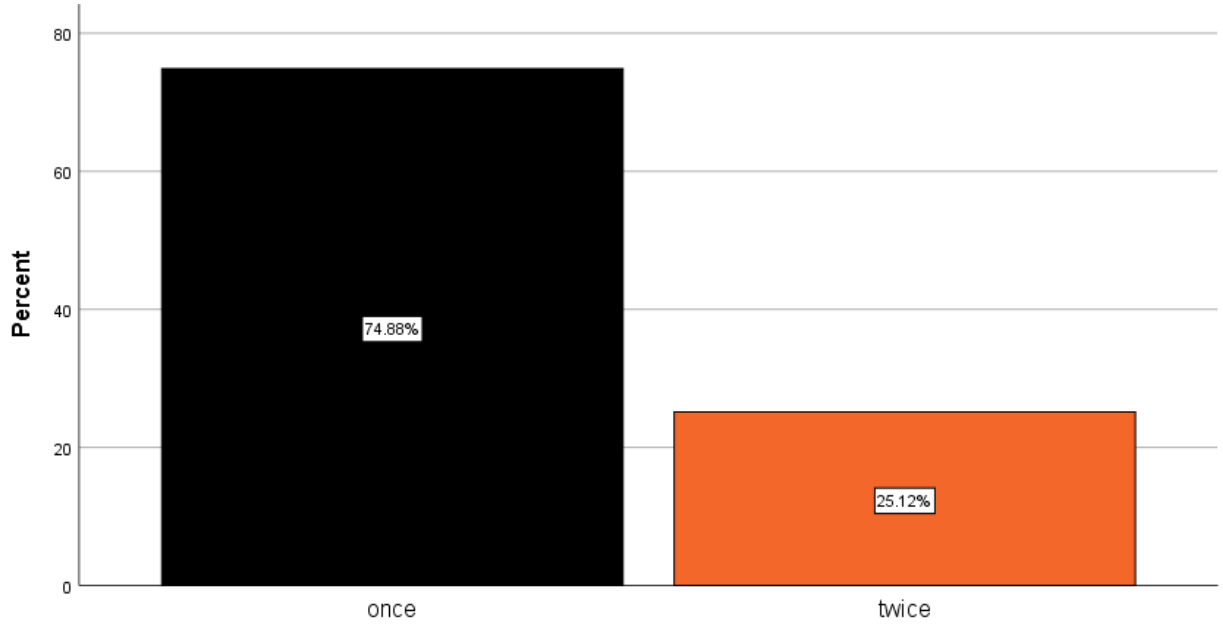

Figure 5: Awareness of adolescent girls towards second dose HPV vaccine in Worabe town, South Ethiopia, 2023

5.1.5. Knowledge of HPV and Its Vaccination

Using 15 questions, this study assessed participants' knowledge of HPV and its vaccine. The maximum score was 15, and the minimum score was 0. Participants with scores below 50% were considered to have poor knowledge, while those with scores above or equal 50% were considered to have good knowledge. The majority of respondents 302 (74.4%) of them knew that HPV is causative agent for cervical cancer, 313(77.1%) of them knew that cervical cancer is prevented by HPV vaccine, 121(29.8%) of them knew that HPV is sexually transmitted and 338(83.3%) of them knew that HPV infection can be prevented with vaccine. Generally, **195(48%)** of study participants has poor knowledge and **211(52%)** of them has good knowledge.

Table 2:Knowledge of HPV and its vaccination among adolescent girls in Worabe town, South Ethiopia,2023 (n=406).

Knowledge statements	**yes**	No
HPV can lead to anal warts	122(30%)	284(70%)
HPV can lead to oral cancer	95(23.4%)	311(76.6%)
HPV can lead to genital warts	204(50.2%)	202(49.8%)
HPV can lead to cervical cancer	302(74.4%)	104(25.6%)
HPV vaccine prevents from anal cancer	130(32%)	276(68%)
HPV vaccine prevents from oral cancer	96(23.6%)	310(76.4%)
HPV vaccine prevents from cervical cancer	313(77.1%)	93(22.9%)
HPV vaccine prevents from genital warts	195(48%)	211(52%)
HPV is transmitted by air droplets	296(72.9%)	110(27.1%)
HPV is transmitted through contact with body fluids	265(65.3%)	141(34.7%)
HPV is transmitted through sexual intercourse	121(29.8%)	285(70.2%)
HPV infection prevented with vaccine	338(83.3%)	68(16.7%)
HPV infection prevented with use of condom	193(47.5%)	213(52.5%)
HPV infection prevented by antibiotics	178(43.8%)	228(56.2%)
HPV infection prevented by sexual abstinence	239(58.9%)	167(41.1%)

5.1.6. Attitudes towards HPV-2 Vaccine

Using 10 items, the participants' attitudes towards HPV and its vaccine were evaluated. The highest attitude score was10, while the lowest recorded score was 0. Participants who scores < (60%) were regarded as having negative attitude whereas those who scores ≥(60%) were taken as having positive attitude. At all, **235 (57.9%)** of the study participants had positive attitude while **171(42.1%)** of them had negative attitude.

Table 3:Attitude towards HPV vaccine among adolescent girls in Worabe town, South Ethiopia, 2023 (n=406).

Attitude Statement	**Strongly disagree n (%)**	**Dis agree n (%)**	**Neutral n (%)**	**Agree n (%)**	**Strongly agree n (%)**
Vaccine is important for the health of girls/women	37(9.1)	29(7.1)	21(5.2)	91(22.4)	228(56.2)
I do not plan to receive HPV vaccine	74(18.2)	134(33)	65(16)	69(17)	64(15.8)
HPV vaccine is effective in preventing genital cancers	56(13.8)	80(19.7)	74(18.2)	99(24.4)	97(23.9)
Receiving HPV vaccine will change my sexual behaviors	110(27.1)	132(32.5)	87(21.4)	47(11.6)	30(7.4)
HPV vaccine is unnecessary	122(30)	148(36.5)	72(17.7)	30(7.4)	34(8.4)
It is hard to find time to get all doses of HPV vaccine	82(20.2)	128(31.5)	96(23.6)	69(17)	31(7.6)
I don’t know much about the vaccine so will not take it	92(22.7)	159(39.2)	80(19.7)	39(9.6)	36(8.9)
I plan to complete the HPV vaccine series	31(7.6)	64(15.8)	58(14.3)	125(30.8)	128(31.5)
I have already completed the HPV vaccine series	78(19.2)	117(28.8)	45(11.1)	93(22.9)	73(18)
HPV vaccine is not safe	129(31.8)	145(35.7)	72(17.7)	32(7.9)	28(6.9)

5.1.7. Factors Associated with the Uptake of Second Dose HPV Vaccine

To see their independent impact on the second dose HPV vaccine uptake, thirteen (13) predictor variables were independently entered in to bivariate logistic regression.

In the analysis of bivariate logistic regression, all candidate variables with **p-valve ≤ 0.25** were entered in the final model. Among entered variables grade level of adolescents, mother's education, father's education, mother's occupation, living status, birth place, awareness of recommended dose, attitude and knowledge of HPV and its vaccine were discovered to have significant association with second dose HPV vaccine uptake and were putted in to multiple logistic analysis model for further analysis.

In multivariate analysis, grade level (7-8), father's education (primary education), awareness towards HPV-2, knowledge and attitude towards the vaccine were associated significantly with receiving second dose HPV vaccine. Adolescents who were in grade 7-8 were 3.70 more likely to receiveHPV-2 than those who were in the preparatory school (AOR =3.70; 95% CI=1.58-8.68; P= .003). Additionally, adolescent's fathers who had no formal education (AOR =0.12; 95% CI=0.03- 0.52; P= .004) and whose father attended primary educational level (AOR =0.31; 95% CI=0.14- 0.67; P= .003) were0.12 and 0.31 times less likely to receive second dose HPV vaccine than those whose father attended secondary or above educational level respectively.

Similarly, adolescents those not aware the recommended dose of HPV vaccine were 46% times less likely to receive HPV-2 vaccine than those knows the second dose Hpv vaccine (AOR =0.46; 95% CI=0.24-0.89; P=.021).

Furthermore, adolescents with poor knowledge 57% less likely to receive HPV-2 than with those had good knowledges (AOR =0.57; 95% CI=0.33-0.99), while adolescents with negative attitudes 37% less likely to receive HPV-2 when compared with those had positive attitudes (AOR :0.37; 95% CI=0.21, 0.65).

Table 4:Bivariate and multivariate regression analysis of associated factors with the uptake of second dose HPV vaccine among adolescent girls in Worabe town, Ethiopia, 2023.

Predictors		Uptake of HPV-2 vaccine		COR (95% CI)	AOR (95% CI)	P-value
		Yes	No			
Grade level	7-8	35	27	6.61(3.25,13.51) *	**3.70(1.58, 8.68) ** **	**.003**
	9-10	75	159	2.41(1.36,4.28) *	1.89(0.96,3.68)	.068
	11-12	18	92	1	1	
Father's education	no formal education	5	50	0.12(0.05,0.32) *	**0.12(0.03, 0.52) ** **	**.004**
	primary education	23	104	0.27(0.16,0.46) *	**0.31(0.14, 0.67) ** **	**.003**
	secondary or above	100	124	1	1	
Mothers educational level	no formal education	23	83	0.36(0.21,0.63) *	0.63(0.19, 2.10)	.454
	primary education	38	108	0.46(0.28,0.74)	0.46(1.00, 1.05)	.067
	secondary or above	67	87	1	1	
Living status	With one parent	17	19	4.25(1.20,15.00) *	2.36(0.52, 10.77)	.269
	With both parent	107	240	2.12(0.70,6.38) *	1.19(0.31, 4.59)	.801
	With relatives	4	19	1	1	
Residence place	urban	113	226	1.73(0.91,3.21) *	1.44(0.52, 3.97)	.481
	rural	15	52	1	1	

Table 4Continued.

Awareness of HPV-2	Once	64	240	0.16(0.10,0.26) *	**0.46(0.24, 0.89)** **	**.021**
	twice	64	38	1	1	
Knowledge	Poor knowledge	37	158	0.31(0.20,0.48) *	**0.57(0.33, 0.99)** **	**.044**
	Good knowledge	91	120	1	1	
Attitude	Negative attitude	28	143	0.26(0.16,0.43) *	**0.37(0.21,0.65)** **	**.001**
	Positive attitude	100	135	1	1	

Keys: * P <0.25, ** P<.05 **COR**: Crude Odds Ratio; **AOR**: Adjusted Odds Ratio; **CI**: Confidence Interval; 1: as reference

5.2. Result of Qualitative study

5.2.1. The socio-demographic characteristics of Study participants

The qualitative study was done among 8 adolescent girls whose ages were ranges from 15-18years. Regarding their schools: 2 students from Worabe and Duna primary school, 2 students from Worabe Secondary and Preparatory school, 2 students from Zemo Bate Secondary and Preparatory school and 2 students from Hayrarzi Secondary and Preparatory school. Generally, two students from primary school, four students from Secondary school and two students from preparatory school were participated in the in-depth interview.

Table 5:Socio-demographic characteristics of the study participants among adolescent girls in Worabe town, Ethiopia, 2023(Qualitative) (8).

Participant Code	Age	Grade level	Residence
Participant One	15	7	Worabe town
Participant Two	16	8	Worabe town
Participant Three	16	9	Worabe town
Participant Four	16	10	Worabe town
Participant Five	15	10	Worabe town
Participant Six	16	10	Worabe town
Participant Seven	17	11	Worabe town
Participant Eight	18	12	Worabe town

Themes

An In-depth interview was conducted among 8 female students to explore the factors affecting HPV-2 uptake. The saturation was achieved with eight participants. Generally, the themes are categorized in to **six main themes** which included nine subthemes (categories) in it.

Table 6:Themes and categories identified from in-depth interviewed study participants among adolescent girls in Worabe town, Ethiopia, 2023. (8)

Themes	Sub-themes
Perception towards cervical cancer severity	Lack of perception towards Cervical cancer severity
Knowledge related to HPV and its vaccine	Lack of knowledge towards HPV and its vaccine
Awareness towards HPV-2	Poor awareness towards recommended dose
	Lack of awareness about the gap between HPV-1 and HPV-2
Health workers related concern	Lack of pre-information
	Absence of health worker for the second vaccine
Individual related concerns	Fear of injection
	Fear of side effects
Misconception About the vaccine	Misunderstanding about HPV vaccine

Theme 1: Perception towards Cervical Cancer Severity

Fear of the disease may increase if one has previously experienced its effects or one has a high perception of the disease's seriousness, which can have a significant effect on one's opinion of to be vaccinated and used as enforcement towards the prevention of this disease. It was the first theme to be identified during in-depth interview and it has one sub-theme (Lack of perception towards Cervical Cancer severity).

Sub-theme: Lack of Perception towards Cervical Cancer Severity

It is known that that the Cervical Cancer is one of the cancers that need a great concern at the right time in the country. However, having less concern towards its severity forced them not to give their attention towards it. This evidenced with following quotes;

"As I heard from my aunt, who is a doctor, it is not expanding more in the country and is not a great concern. It invades only little in number. Hmm, 5% or 10% are caught with the disease. So, it is not an immediate concern." (Participant 1)

Theme 2: Knowledge related to HPV and its vaccine

This was the second them identified from the thematic analysis and included one sub theme (poor knowledge towards HPV and its vaccine).

Sub-theme: Lack of knowledge towards HPV and its vaccine

According participants response, poor knowledge towards transmission of Cervical Cancer is one of the hindering factors towards second dose vaccine uptake. One of the participants stated that she knows the cervical cancer only by name and confused with the causative agent as well as its transmission way. Her sample quotes supported this idea as;

"… *I heard about Cervical cancer, but I know nothing what it causes and its transmission way. …I have no idea whether transmitted by sexual intercourse or not,"* (Participant 6)

Among the participants, one gave her idea that heard HPV on interview day and evidenced as;

"… I heard the word HPV for the first time from you…. When you pronounce it, I understood it as HIV…in my opinion" (participant 1*)*

Another study participant aware that body fluids is the major way of transmission and quoted as:

"I think the primary cause is body fluid; secondly, it transmits through sexual intercourse. Body fluids are the major means of transmission." (Participant 4)

She also explained that the HPV Vaccine is also given after caught with the disease which evidenced as the following.

"It is given both before and after the disease is caused" (Participant 4)

Theme 3: Awareness towards HPV-2

The third major theme that was identified from the in-depth interview was awareness towards second dose HPV vaccine. This major theme included two sub categories.

Sub-theme: Poor Awareness towards Recommended Dose HPV Vaccine

According to participants view being vaccinated once is fully protective against cervical cancer that influence her not to take again. Therefore, before or after giving vaccination, creating awareness is mandatory to increase the prevalence of second dose uptake. The following participant's response supported this finding;

"…I did not get enough information about the second dose vaccine and its importance…" (Participant 5)

"I know many students who have not received a second dose of the vaccine because they have no good awareness of the benefits of the vaccine…" (Participant 2)

According to response of one study participant indicated that the vaccine uptake is continued even after being caught with the disease. Therefore, this might affect their vaccine uptake since they have trust in vaccinating again after the disease and seems them to be cured. The quote is as follow;

"It is given both before and after the disease is caused…" (Participant 4)

Sub-theme: Lack of Awareness about the Gap between HPV-1 and HPV-2

The study participants do not know the gap available between the uptake of HPV-1 and the second dose that should be six months apart from the first uptake.

"they must receive it once a year and it is according to their willingness to be vaccinated." (Participant 6)

Theme 4: Health Workers Related Concern

From in depth interview, the theme identified as major was the communication with the health workers that indicated how health workers communicated with adolescents at the time of vaccination and it emerged two sub themes.

Sub-theme: Lack of pre-information

According to some study participant's suggestion, health workers' concern is only giving the vaccine. These indicate no any information delivered towards them. Therefore, vaccination and adequate pre-information should be balanced during vaccination campaign. The following quote express this founding;

*"They started vaccination as soon as they reached, and they were not giving enough information. I had received many vaccinations, and more concern was given to the giving of the vaccinations than the information." (*Participant 7)

Other participant also gave the clue that should be expected from health workers to give some reading material for students in order to raise awareness towards second dose HPV vaccine. This evidenced as;

"…it is better to prepare a little magazine to give to all vaccinated females after vaccination. This helps them raise awareness about the second dose vaccine and getting vaccinated again." (Participant 8)

Sub-theme: Absence of Heath Worker for the Second Vaccine

Health workers have responsibility to avail according to the vaccine schedule, unless and otherwise is difficult to prevent disease those needs more than one vaccine like cervical and others to guarantee the health of the community at all to build productive nation. There are quotes as evidence;

*"…They told us…hmm, they told us that they would come back, and lastly, they gave us a little card. But they have not come back until now." (*Participant 3)

"…because, they did not come to the school again after they gave the first dose." (Participant 1)

Theme 5: Individual Related Concerns

Individual related concern was one of the major them that was identified during analysis of in-depth interview data as a fifth major theme and incorporated the two sub categories under it. This theme assessed adolescents' own factor that hinder them from taking the HPV vaccine.

Sub-Theme: Fear of Injection

Standing on the view of participant's response fear of injection was the most explained barrier to take the second dose Hpv vaccine. If this issue became the major problem to hinder vaccine acceptance, it is better to use anti pain or if not, give clear explanation to adolescents that injection is temporary pain which resolved within minutes. Therefore, is better to give the reality of that risk of pain is not greater than that of this fatal disease. This idea supported by respondent's response as;

*"…I really fear injection even right now. When I was given the first dose vaccine, I think it was my first injection in my life and it was painful. Since then, I didn't vaccinate other vaccine. When they came, I was escape with my friends." (*Participant 6)

Additionally, another participant explained fear of injection as the only factor that hinder her second dose of HPV vaccine *uptake*

"…Hmm, the first is that there are many students in this school who fear and avoid taking the vaccine. Even when they hear the name of the vaccine, they rush to escape from the school compound. Therefore, I want to say why concerns are not given to such students.?" (Participant 1)

Sub-theme: Fear of Side Effects

One of study participant explained that some students assumed that the vaccine has any side effects and hinders them from taking it. The following quote is evidence.

"When they caught as chance with a cough after vaccination, they thought that it is due to vaccine uptakes. I am also very sick one week after I was vaccinated. …Then after, they said, "We told you that you are at risk for other diseases."(Participant 7)

Theme 6: Misconception about the Vaccine

Having un- related information about the Hpv vaccine hinders adolescents not to being vaccinated with the recommended dose of HPV vaccine. Two participants claim that the vaccine is intentionally given for the purpose of infertility. Therefore, in order to disappear such like blurred vision among the community, awareness creation campaign at community level is very important. The hint quote for this summary is as the following;

*"…They talk in the house about its importance and that it used to prevent cancer. But from others in the community, it is told to us, "They are forced to be infertile." In Ethiopia, since the population is scaling up, it is targeted to be reduced with this vaccine." (*Participant 5)

"*People told us, "They inject you in order to make you infertile in the future.'' But we heard this information after we were vaccinated. Thus, we were frightened at that moment*." (Participant 3)

Congruency of Quantitative and Qualitative Result

In the Quantitative study, grade level, Father's educational level, Awareness towards HPV-2 vaccine, poor knowledge towards HPV and its vaccine, poor attitude towards the vaccine were the identified associated factors with the uptake of second dose HPV vaccine.

In the qualitative study, poor perception towards cervical cancer severity, lack of knowledge regarding to Hpv and its vaccine, lack of awareness towards HPV-2 vaccine, lack of pre-information, absence of health worker for the next vaccine (HPV-2), fear of side effects, fear of injection (needle phobia) and misunderstanding about the vaccine were the identified factors as a barrier towards the uptake the vaccine.

The barriers such as poor perception towards Cervical Cancer severity, lack of pre-information toward HPV-2, absence of health worker to come back for HPV-2, Lack of Awareness about the Gap between HPV-1 and fear of injection, fear of side effects, misunderstanding about HPV vaccine, were the explored factors in the qualitative study that were different founding as compared with quantitative study.

In addition to this poor knowledge towards HPV and its vaccine, and lack of awareness towards HPV- 2 vaccine were the explored barriers in the qualitative study and congruent with the result of qualitative study.

6. DISCUSSION

This study's aim was to determine the prevalence of second-dose HPV vaccine uptake and the factors that contribute to it among adolescent schoolgirls in Worabe town, South Ethiopia. At all, 128(31.5%) of them had received HPV-2. This second dose HPV vaccine uptake was found to be significantly associated by factors such as, adolescent grade level, fathers' educational level, awareness towards HPV-2 vaccine, knowledge of HPV and its vaccine and as well as attitude towards HPV vaccine.

The result of this study differs from the study conducted in Mbale District of Uganda in 2018 among of 407 adolescent female adolescents with the 14.8% of second HPV vaccine uptake(37). The possible reason for this could be, that this study was done in urban, while their study done in both countryside and urban. The urban setting has more access towards HPV vaccine information which is not available in the countryside.

However, in our study, the level of HPV-2 was lower compared with the study conducted among school girls in Manchester (Great Britain) in 2017, which indicates 68.5% of them vaccinated with HPV-2(31).This great difference may be, due to shortage of health services, difference in socio-economic level and cultural related belief, as well as poor of knowledge regarding HPV vaccine among adolescent girls and the community.

In the current study, it is higher as compared with study conducted in Dares salaam, Tanzania (21.3%), Gulu Municipality, Northern of Uganda(22%) had received two doses(24, 25, 32). This may be due to the fact that, the increment of Cervical cancer cases in Worabe comprehensive hospital which take the attention of health worker as well as the community to vaccinate all necessary HPV vaccine doses. The Other possible reason may be, more than half of the adolescents (56.2%) had good attitude towards HPV vaccine that encourages them to being vaccinated.

In contrast, there is a great difference between this study and a research conducted among school girls in KwaZulu-Natal, South Africa with the prevalence of 97.9% of HPV-2 uptake(36). This due to the fact, that all stakeholders gave important education prior to starting the vaccination. Similarly, the study done in 2013 in Barretos of Brazil, indicated that the uptake of HPV-2 was 86.3% which is different far from this study(14). The high uptake was achieved due the participants' parents were gathered 1 week before the vaccination given, to be informed more about the vaccine. Another possible reason might be that the majority of adolescents 74.9% were not aware presence of second dose HPV vaccine in the study area which may challenge them to take it.

In the current study, grade level of adolescents (being primary), fathers' educational level (primary level), awareness towards HPV-2 vaccine (know only dose 1), knowledge (poor knowledge) and attitude (negative attitude) towards the HPV vaccine were independently associated with receiving HPV-2. Adolescents those in primary school (7-8), were 3.70 more likely to HPV-2 than those who were in preparatory school (AOR =3.70; 95% CI=1.58-8.68). This finding is not in line with comparable the study conducted in Kampala, Uganda revealed adolescent's level of education being at secondary school were 78% more likely to receive the HPV-2(1) .This might be due to the fact, that most of preparatory schools females lost their HPV immunization card and excluded from the study, while those at primary have a great chance to come with their immunization card since most of them vaccinated recently as compared with preparatory students.

This study also showed adolescents whose fathers had no formal education (AOR =0.12; 95% CI=0.03- 0.52) and attended primary education (AOR =0.31; 95% CI=0.14- 0.67) was 0.12 and 0.31 times less likely to take the second dose of HPV Vaccine than adolescents whose fathers attended secondary or more schools respectively. This finding is contrast with similar study done in Kampala Uganda, which demonstrated that adolescents whose fathers attended secondary or above level of education were less likely to take second dose Hpv vaccine(1). The reason behind this might be, fathers with higher education might gave concerns or education towards the vaccine benefits for their children.

Another most important factor that associated with the uptake of dose two HPV vaccine was awareness towards HPV-2 vaccine. Adolescents those not knew recommended dose of HPV vaccine were 46% times less likely to receive HPV-2 vaccine than those knew the recommended dose of HPV vaccine (AOR =0.46; 95% CI=0.24-0.89). This showed that having awareness towards HPV-2 vaccine encourages them to take second dose vaccine. This finding consistent with comparable study done in Dares Salaam, Tanzania found that awareness towards HPV-2 was an independent predictor of HPV-2 uptake. According to this study, respondent's awareness towards Hpv-2 vaccine (know dose 2) In comparison to those who were unaware, respondents who had heard of the HPV-2 vaccine were 9.16 times more likely to vaccinate a second dose(25).

According to this study, adolescents with poor knowledge (AOR =0.57; 95% CI=0.33-0.99) were 57% less likely to receive second dose of the vaccine than with those good knowledges. This founding also consisted with the following study. The study from Kampala, Uganda, indicated that the likelihood of receiving HPV-2 was almost twice as high for those who had knowledge, as compared to those without knowledge of cervical cancer and HPV vaccines(1). Another study conducted in western Uganda found that girls with knowledge of the HPV vaccines were five times more likely to receive it than those without(39). Additionally, the research done on 472 randomly selected 15-year-olds in Munuciplay, Brazil, showed that having a sufficient degree of knowledge of HPV, the vaccine and about recommended dose of vaccine(27). This reflects the fact that, having good knowledge towards cervical cancer and HPV vaccine mostly important to being vaccinated with second dose HPV vaccine.

Furthermore, adolescents those had negative attitude (AOR =0.37; 95% CI=0.21, 0.65) were 37% less likely to receive second dose of vaccine than those had positive attitude. This finding is consisted with study done in the municipality of Ilala in the Tanzanian city of Dar es Salaam, indicated that the uptake of HPV-2 vaccine was positively associated with positive attitudes, and those who received the vaccine were 2.04 times more likely to receive it than those experiencing negative attitudes(25). Those evidence indicated in both studies gave the reality that having positive attitude related to the vaccine increase the uptake of Hpv-2.

According to founding of Quantitative study, lack of pre-information(poor communication of health worker with students) were the explored barriers towards HPV-2 uptake that agree with the result of study conducted in Uganda that showed the barriers to completion of second dose HPV vaccine were lack of information about the HPV and its vaccines and lack of clear communication with healthcare professionals(34).

The finding of qualitative study also showed that poor perception towards Cervical Cancer severity, fear of side effects, and misunderstanding about HPV vaccine were the barriers that hinders the uptake of HPV-2, which is agree with study done in Ambo, Oromia region of Ethiopia, which revealed that factors such as fear of side effects, poor perception and misunderstanding regarding to the vaccine were the identified barriers towards HPV vaccine uptake(24, 25, 32).

However, factors such as absence of health worker to come back for HPV-2, fear of injection, were the explored factors as a barrier in the qualitative study that were different founding which is in contrast with the same study in Uganda that indicated concerns about its effectiveness and safety, and reluctance to obtain the vaccination (which is part of an out-of-the-pack method) were explored as a barrier that are not discovered in this study(34).

In addition to this, poor knowledge and lack of awareness towards HPV- 2 vaccine were the explored factors in the qualitative study and congruent with the result of qualitative study.

7. STRENGTH AND LIMITATION OF THE STUDY

7.1. Strength

- The study conducted with mixed method. Thus, this research supported with strong evidence that explored by varied factors.
- This study assessed HPV-2 uptake coverage and related barriers for the past four years (2019-2022). This helped in order to dig more influential factors rather than that conducted in a single year.

7.2. Limitation

- Most adolescents did not come with their HPV immunization card and were excluded from the study. This may affect the prevalence that needed to be known.
- The health workers and parents of adolescents were not included in the study.

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8. CONCLUSION AND RECOMMENDATIONS

8.1. Conclusion

Generally, this study indicated that that the prevalence of second dose HPV vaccine uptake among adolescent school girls in Worabe town was low. Grade level of adolescents, fathers' level of education, awareness towards HPV-2, attitude and knowledge of adolescents towards the vaccine are the factors that were significantly associated with HPV-2 uptake respectively. In addition to this, factor such as poor perceived severity of disease, lack of pre-information, absence of health worker for the HPV-2 vaccine, fear of side effects, fear of injection, misunderstanding, lack of awareness towards the gap between the first and second vaccine as well as towards the recommended dose of HPV vaccine, were the explored barriers that hinders the uptake of HPV-2.

8.2. Recommendations

Based on the study's findings, the following recommendations were made to the various relevant bodies: -.

- **To School**

- The study showed that the major source of information for HPV vaccine were health workers and schools. Therefore, school should work with the collaboration of health worker by inviting health worker to give health education and encourages those are members in mini media club to disseminate information regarding Hpv vaccine and cervical cancer.

- **To Researchers**

- It is better to conduct qualitative study by including key informants such as health worker and parents of adolescents to explore the possible reasons that hinder receiving second dose HPV vaccine in the study area.

- **To Health facilities**

- The health workers should give important information prior to the vaccination (vaccine related campaign) particularly to enhance awareness regarding completing the two doses of HPV vaccine.
- They also should give awareness towards the disease and vaccine for the community through campaign.

- **To ministry of Health**

This study also the revealed that the major source information related to cervical cancer were TV/Radio and health workers respectively. Therefore,

- It is better to collaborate with all media holders to provide education regarding HPV and to the awareness that related to Hpv and its vaccine among the community.
- Full fill the necessary funds or the required vaccines that needed during the campaigns.
- This founding also indicates the campaign for dose one is higher while for the second dose is very low. Therefore, it should need equal fund and awareness to give dose one and two of Hpv vaccine.
- The second dose of HPV vaccine should be given six months after dose one of HPV vaccine given. Thus, the Hpv vaccine campaign should be given two times with six months of gap by fulfilling all requirements.

- **To policy makers**

- The necessary concerns should be taken in order to incorporate Hpv vaccine into the countries immunization program which agrees with WHO recommendation (including the ages of 9-16 years old).
- It is also better to include topics related to Cervical Cancer in the related courses for primary and secondary schools.

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10. ANNEXES

10.1. Annex- I Study information sheet and verbal consent (English version)

Addis Ababa University

School of Nursing and Midwifery

Department of Nursing

Information Sheet

Title: Human Papilloma Virus second dose vaccine uptake and its associated factors among adolescent girls in Worabe,2023.

My name is ……. I am here on behalf of Ephrem Mamuye student of Addis Ababa University, school of Nursing and Midwifery. Currently, he is conducting research on "Human Papilloma Virus second dose vaccine uptake and its associated factors among adolescent girls in Worabe, Ethiopia,2023.", for the partial fulfillment of master's degree in Pediatrics and Child Health Nursing. He had received permission from Addis Ababa university school of Nursing and Midwifery.

The aim of this study is to assess prevalence and factors associated with the uptake of the second dose of the human papilloma virus vaccine among adolescent girls in Worabe town**.** I kindly ask you to participate in this study and give me genuine answers.

Study Procedure: Your estimated time commitment for this study is 15-20 minutes.

Risks: There is no risk by participating in this study but some of the questions are very personal questions that some people find it difficult to answer. Your responses are completely confidential. You are not required to write your name on this questioner. You are not obligated to answer any question that you are not willing to respond. If you feel any discomfort with the question, it is your right to drop it at any time you want. You may even decide not to engage in this study from the very beginning.

Benefits: There will be no direct benefit to you for your participation in this study. However, your participation in this study is greatly helpful as basis to improve HPV vaccine completion levels in the country.

Confidentiality: All information given by you will be kept confidential and no one except the research team members will have access to the information. Your honest and genuine response to each question will play a major role in the attainment of the objective of the study. Therefore, we thank you in advance and greatly appreciate your help. If you have, questions regarding this study please contact the principal investigator.

Contact person

Name of principal investigator: Ephrem Mamuye
Cell phone No: +251910436555/+251919455752
E-mail: ephremmamuye38@gmail.com

Informed Consent

I selected participant heard the information in the study information sheet & understood the purpose, benefit and what is required from me if I take part in the study. I understood that not all the information regarding me like name and all answers given by me transferred to a third party. I also understand that I can decide whether to take part in the study or even withdraw from the study at any time. Therefore, I am willing to participate in the study.

Participant signature_____

10.2. Annex-II Questionnaire for quantitative study (English version)

Addis Ababa University

School of Nursing and Midwifery

Department of Nursing

Questionnaire No_____

Date: _____

Supervisor _____ sign _____

The questionnaire has four parts and for each question; there is column for the response.

Thank you for your participation!

Please tick ☑ in the box as it applies to the following statements.

Section A: Information about your socio-demographic characteristics			
S.N	**Question and filters**	**Coding categories**	**Skip to**
101	How old are you?	In years_____	
102	What is your level of education?	In Grade _____	
103	What is your religion?	☐ Orthodox ☐ Protestant ☐ Catholic ☐ Muslim ☐ No religion ☐ if other, specify_____	

104	What is your fathers' level of education?	☐No formal education ☐Primary education ☐Secondary education or more	
105	What is your mothers' level of education?	☐No formal education ☐Primary education ☐Secondary education or more	
106	What is the occupation of your father?	☐Merchant ☐Governmental employee ☐Private-employee ☐Farmer If other, specify_____	
107	What is the occupation of your mother?	☐Merchant ☐Governmental employee ☐Private-employee ☐Farmer ☐House wife If other, specify_____	
108	With whom you are living?	☐one parent ☐both parents ☐relatives	
109	Your place of residence	☐Urban ☐Rural	

Please tick as ☑ "**Yes**" or "***No***" as it applies to the following statements.

Section B: Awareness and knowledge about HPV vaccine and cervical cancer			
110	Have you heard about cervical cancer?	☐Yes ☐No	
111	Are you previously exposed to any educational materials about cervical cancer?	☐Yes ☐No	If no (skip to Q-113)
112	What are those materials?	☐TV ☐ Magazine/newspapers ☐Lecture notices ☐ Others, specify	
113	Have you heard about HPV vaccine?	☐Yes ☐No	If no, skip to Q-115
114	Where did you get information?	☐ Television ☐Radio ☐The internet ☐ Magazine/newspapers ☐Doctor or nurse ☐Teachers ☐Friends/peers ☐Parents ☐Relatives other than parents ☐Church/synagogue/mosque	

115	HPV can lead to:	Yes No (a) Anal warts ☐ ☐ (b) Oral cancer ☐ ☐ (c) Genital warts ☐ ☐ (d) Cervical cancer ☐ ☐	
116	HPV vaccine prevents from	Yes No (a) Anal cancer ☐ ☐ (b) Oral cancer ☐ ☐ (c) Cervical cancer ☐ ☐ (d) Genital warts ☐ ☐	
117	HPV is transmitted through:	Yes No (a) Air droplets? ☐ ☐ (b) Contact with body fluids ☐ ☐ (c) Sexual intercourse ☐ ☐	
118	HPV infection can be prevented with:	Yes No (a) Vaccine ☐ ☐ (b) Use of condom ☐ ☐ (c) Antibiotics ☐ ☐ (d) Sexual Abstinence ☐ ☐	

Section C: Attitude about HPV vaccine completion						
S.no	**Questions**	**Likert scale Range**				
		strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
119	HPV vaccine is important for the health of girls/women	☐	☐	☐	☐	☐
120	I do not plan to receive HPV vaccine	☐	☐	☐	☐	☐
121	HPV vaccine is effective in preventing genital cancers	☐	☐	☐	☐	☐
122	Receiving HPV vaccine will change my sexual behaviors	☐	☐	☐	☐	☐
123	HPV vaccine is unnecessary	☐	☐	☐	☐	☐
124	It is hard to find time to get all doses of HPV vaccine	☐	☐	☐	☐	☐
125	I don't know much about the vaccine so will not take it	☐	☐	☐	☐	☐
126	I plan to complete the HPV vaccine series	☐	☐	☐	☐	☐
127	. I have already completed the HPV vaccine series	☐	☐	☐	☐	☐
128	HPV vaccine is not safe	☐	☐	☐	☐	☐

Key: HPV- Human papillomavirus infection

HPV Vaccine Coverage

129	Have you received the second dose of HPV vaccine shot?	**Yes** **No** ☐ ☐	

10.3. Annex III: Interview guide for qualitative study (English version)

In-Depth Interview Questions

Participant Information and Informed Consent Form

Thank you for taking time to participate in this interview.

My name is Ephrem Mamuye and I am MSc student in the college of Health Sciences, school of Nursing and Midwifery. Currently I am working on my thesis. My research is titled, **"Human Papilloma Virus second dose vaccine uptake and its associated factors among adolescent girls in Worabe, Ethiopia,2023."**. This research will attempt to identify adolescent school girls' uptake status of two dose HPV vaccine s or barriers towards uptake of this vaccine.

Please remember that you have no obligation to participate in this interview. You can withdraw from the study at this point or end the interview at any point during the interview without explanation or consequences. You do not have to answer any question that makes you uncomfortable. Should we come to any question that you do not want to answer, just let me know and we will go to the next question?

I promise to treat all information collected from this interview as highly confidential and it shall not be reported in a manner that identifies or links you with the results of the study. The interview should take about fifteen to thirty minutes. I will do the interview and take some notes; I will record this interview because I do not want to miss any of your important responses.

Do you have any questions regarding what I have just explained to you?

1. Have you ever heard about cervical cancer?
    - If yes, what have you heard about it? *(Probe for causes, transmission and prevention as well as severity of cervical cancer if not mentioned)*
2. Have you ever heard about the HPV-2 vaccine?
3. *If yes, what are your sources and what have you heard about it? (Probe for importance of the vaccine, why recommended for adolescents, recommended dose of HPV vaccine)*
4. Have you received second dose of HPV vaccination?
    - If no, what barriers do you think that prevents you from taking second dose of HPV vaccine? *(Probe for parental concern, fear of side effects, inadequate information/not informed about vaccine by HCW, thinking first dose is enough, dissatisfaction with first dose/needle phobia,)*
5. What do you think would be necessarily before vaccination?
6. What do you recommend to improve the uptake and completion of HPV vaccine?

10.4. Annex-IV Study information sheet and verbal consent (Amharic version)

የጥናቱ ርዕሰ ጉዳይ፡በወራቤ ከተማ በጉርምስና ዕድሜ ላይ ከሚገኙ ልጃገረዶች መካከል የሁለተኛውን የሂውማን ፓፒሎማ ቫይረስ ክትባት መውሰድ እና እንዲሁም ተዛማጅ ምክንያቶች፡፡

የጥናቱ መግለጫ

የመጠይ ቅቁጥር_____

ጤና ይስጥሌኝ ስሜ__**ኤፍሬም ማሙዬ** ይባ**ለል በ**ምሰራው ጥናት ውስጥ በመረጃ መሰብሰብ ሂደት ላይ አስተባባሪ ሆኜ ነው የምሠራው፡፡ጥናቱን የምሰራው **በወራቤ ከተማ በጉርምስና ዕድሜ ላይ ከሚገኙል ጃገረዶች መካከል የሁለተኛውን የሂውማን ፓፒሎማ ቫይረስ ክትባት መውሰድ እናእንዲሁም ተዛማጅ ምክንያቶች** ሲሆን ጥናቱም በአድስ አበባ ዩኒቨርሲቲ የነርሲንግና ሚድዊፈሪ ትምህርት ክፍል የድህረምረቃ(የሁለተኛዲግሪ) ኘሮግራም ማሟያ የሚሆንነው፡፡ጥናቱንም ለማካሄድ ከአድስ አበባ ዩንቨርስቲ ፈቃድ አግኝታዋል፡፡

በዚህ መጠይቅ ውስጥ የተለያዩ ንዑስ ክፍልች ያሉት ጥያቄዎች የተካተቱ ሲሆን የጥናቱ ዓላማ፡የሁለተኛ ደረጃ የHPV ክትባት መውሰድን ለመገምገም ከሱ ጋር ተያይዘው የሚመጡ ሁኔታዎችን ለይተው ማወቅ እና እንቅፋቶችን ይዳስሳል።

ተሳትፎአችሁ በፈቃዮኝነት ሊይ የተመሠረተ ነው፡፡ያላችሁን ተሞክሮ ብታካፍሉን የዚህ ጥናት ዉጤት ስለ ሂዉማን ፓፒሎማ ቫይረስ በሽታና ክትባት እዉቀት እና ግንዛቤ በመፍጠር በሀገሪቱ ያለዉን የሂዉማን ፓፒሎማቫ ይረስ ክትባት አጠቃቀም ለማሻሻል ያግዛል፡

የጥናቱ ሂደት፡

ጥያቄውን ለመሙለት ከ 15 እስከ 20 ደቂቃ ያህል ሊወስድ ይችላል:

የማይመች ነገር፡

በዚህ ጥናት ውስጥ በመሳተፈዎ ምንም አይነት ጉዳት አይኖረዉም።ጥናቱ ዉስጥ ያለ መሳተፍ ሙሉ መብት አለዎት።በዚህ ጠያቂ ላይ ስምሽን መጻፍ አይጠበቅብሽም።

ጥቅማጥቅም፡

በዚህ ጥናት በመሳተፍዎ ማበረታቻ ወይም ክፍያ አይኖረዉም ሆኖም ግን የናንተ ተሳትፎ ተማሪዎች ስለ ሂውማን ፓፒሎማ ቫይረስ ያላቸውን እውቀት, ግንዛቤ እና የክትባት አወሳሰድ ሁኔታን በመዳሰስ ለበለጠ ምርመራ እና በወጣቶች እናበጉርምስና ዕድሜ ላይ ባሉ የስነተዋልዶ ጤና ችግር ለመፍታት ትልቅ እገዛ ያደርጋል።

ሚስጥራዊነት፡

ጥናቱን አስመሌክቶ እርስዎ የሚሰጡት ማንኛውም መረጃ በሚስጢር የሚጠበቅ በመሆኑ በማንኛውም መንገድ ለሶስተኛ አካል አሳልፎ አይሰጥም ወይም አይጋለጥም። ማንነትዎ እንዲይታወቅም ስምዎ በጥያቄው ወረቀት ላይ አይመዘገብም። በመጨረሻም ለሚሰጡት ለየትኛውም አይነት ምላሽ አመሰግናለሁ።ማናቸዉም ጥያቄ ሲኖረዎት በማንኛዉም ጊዜ ማነጋገር ይችላሉ፡፡

ስም፡ ኤፍሬም ማሙዬ

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የጥናቱ ተሳታፊዎች ፍቃደኝነት ቅፅ

እኔ የጥናቱ ተሳታፊ የሆንኩ ከላይ የተገለጹትን በሙሉ ሰምቼአለሁ፤ አላማውንና ጥቅሙን ምተረድቻለሁ፡፡የምሰጠውም ግላዊ መረጃዬ በሚስጥራዊነት እንደሚጠበቅ እና ለዚህ ጥናት አላማ ብቻ እንደሚውል ተነግሮኛል፡፡ጥናቱ ውስጥ ያለፍላጎት 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 _____

10.5. Annex-V Questionnaire for quantitative study (Amharic version)

መጠይቁ አምስት ክፍሎች አሉት፣ከተጠያቂው መልስ ጋር የሚመሳሰለውን መልስ ላይ የ ☑ ምልክት ያድርጉ።

ለተሳትፎዎ እናመሰግናለን!

ክፍልI፡-ማህበራዊና ስነ-ህዝባዊ መግለጫዎች			
ተ.ቁ	**መጠይቆች**	**አማራጭ/መልስ**	**ይታለፍ**
101	እዴሜሽ ስንት ነው?	(በሙሉ ዓመት) _____	
102	የትምህርት ደረጃሽ ምንድ ነው?	በክፍል _____	
103	የየትኛው ሀይማኖት ተከታይነሽ?	□ኦርቶዶክስ □ፕሮቴስታንት □ካቶሊክ □ሙስሊም □ሃይማኖት የለኝም □ሌላ ካለ ይግለጽ_____	
104	የአባትሽ የትምህርት ደረጃ ምንድን ነው?	□መደበኛ ትምህርት የለውም □የመጀመሪያ ደረጃ ትምህርት □ሁለተኛ ደረጃ ትምህርት ቤት □ኮሌጅ እና ከዚያ በላይ	
105	የእናትሽ የትምህርት ደረጃ ምንድን ነው?	□መደበኛ ትምህርት የላትም □የመጀመሪያ ደረጃ ትምህርት □ሁለተኛ ደረጃ ትምህርት ቤት □ኮሌጅ እና ከዚያ በላይ	

106	የአባትሽ የሥራ ድርሻ ምንድን ነው?	□ነጋዴ □የመንግስት ሰራተኛ □የግል ስራ □ገበሬ □ሌላ ካለ ይግለጽ_____	
107	የእናትሽ የስራ ድርሻ ምንድን ነው?	□ነጋዴ □የመንግስት ሰራተኛ □የግል ስራ □የቤት እማቤት □ሌላ ካለ ይግለጽ_____	
108	ከማን ጋር ነው የምትኖርው?	□ከአንድ ወላጅ ጋር □ከሁለቱም ወላጆች ጋር □ከዘመድ ጋር	
109	የት ነው የምትኖርው ?	□ከተማ □ገጠር	

በሚከተሉት መግለጫዎች ላይ ስለ ሚተገበር እባክዎ ትክክለኛ መልስዎን"አዎ" ወይም "አይ" ላይ ☑ ምልክት ያድርጉ።

ክፍል ሁለት፡ከ HPV ክትባት እና የማህፀን በር ካንሰር ጋር የተያያዘ ግንዛቤ እና እውቀት			
110	ስለ ማህፀን በር ካንሰር ሰምተሽ ታውቃለሽ?	□አዎ □አይደለም	
111	ከዚህ ቀደም ስለ ማኅጸን በር ካንሰር ለማንኛውም የትምህርት ቁሳቁስ ተጋልጠዋል?	□አዎ □አይደለም	አይ ከሆነ (ወደ 113 ይዝለሉ)
112	እነዚህ ቁሳቁሶች ምንድንና ቸው?	□ፖስታ □መጽሔት / ጋዜጦች □የመማሪያ ማስታወሻዎች □ሌላ ካለ ይግለጽ_____	
113	ስለ ሂዩማን ፓፒሎማ ቫይረስ ክትባት ሰምተሽ ታውቃለሽ?	□አዎ □አይደለም	አይ ከሆነ (ወደ 115 ይዝለሉ)
114	መረጃውን ከየት አገኘሽ?	□ከ ቴሌቪዥን □ከ ሬዲዮ □ከ ኢንተርኔት □ከ መጽሔት / ጋዜጦች □ከ ጤናባለሙያ □ከ መምህር □ከ ጓደኞች/ እኩዮች □ከ ወላጆች □ከ ዘመዶች □ከ ቤተክርስቲያን / ምኩራብ / መስጊድ	

115	ሂዩማን ፓፒሎማ ቫይረስ የሚከተሉትን ሊያስከት ል ይችላል: :	**አዎ** **አይደለም** (1) የፊንጢጣ ኪንታሮት ☐ ☐ (2) የአፍ ካንሰር ☐ ☐ (3) የብልት ኪንታሮት ☐ ☐ (4)የማህፀን በር ካንሰር ☐ ☐	
116	የሂዩማን ፓፒሎማ ቫይረስ ክትባት ከዚህ በሽታ ለመከላከል ጥቅም ላይ ይውላል	**አዎ** **አይደለም** (a) የፊንጢጣ ካንሰ ☐ ☐ (b)የአፍ ካንሰር ☐ ☐ (c) የማህፀን በር ካንሰር ☐ ☐ (d) የብልት ኪንታሮት ☐ ☐	
117	የሂዩማን ፓፒሎማ ቫይረስ የሚተላለፈው በ:	**አዎ** **አይደለም** (a) በአየር ጠብታዎች? ☐ ☐ (b) በሰውነት ፈሳሾች መንካት ☐ ☐ (c) ወሲባዊ ግንኙነት ☐ ☐	
118	የሂዩማን ፓፒሎማ ቫይረስ ኢንፌክሽን በሚከተሉት መንገዶች መከላከል ይቻላል:	**አዎ** **አይደለም** (a) ክትባት ☐ ☐ (b) ኮንዶም መጠቀም ☐ ☐ (c) አንቲባዮቲክስ / መድሃኒት ☐ ☐ (d) ከወሲብ መታቀብ ☐ ☐	

ክፍል ሦስት; ስለ ሂዩማን ፓፒሎማ ቫይረስ ክትባት ማጠናቀቅ ያለው አመለካከት

በሚከተሉት መግለጫዎች ላይ ስለ ሚተገበር እባክዎ ትክክለኛ መልስዎ ላይ ☑ ምልክት ያድርጉ።

ተ.ቁ	መጠይቆች	Likert scale Range				
		በጣም አልስማማም	አልስማማም	ገለልተኛ	እስማማለሁ	በጣም እስማማለሁ
119	የሂዩማን ፓፒሎማ ቫይረስ ክትባት ለልጃገረዶች/ሴቶች ጤና ጠቃሚ ነው።	☐	☐	☐	☐	☐
120	የሂዩማን ፓፒሎማ ቫይረስ ክትባት ለመውሰድ እቅድ የለኝም	☐	☐	☐	☐	☐
121	የሂዩማን ፓፒሎማ ቫይረስ ክትባት የብልት ካንሰርን ለመከላከል ውጤታማ ነው።	☐	☐	☐	☐	☐
122	የሂዩማን ፓፒሎማ ቫይረስ ክትባት መውሰድ የጾታ ባህሪዬን ይለውጣል	☐	☐	☐	☐	☐
123	የሂዩማን ፓፒሎማ ቫይረስ ክትባት አስፈላጊ አይደለም	☐	☐	☐	☐	☐

124	ሁሉንም የሂዩማን ፓፒሎማ ቫይረስ ክትባት መጠን ለማግኘት ጊዜ ማግኘት አስቸጋሪ ነው።	☐	☐	☐	☐	☐
125	ስለ ክትባቱ ብዙ አላውቅም ስለዚህ አልወስድም።	☐	☐	☐	☐	☐
126	የሂዩማን ፓፒሎማ ቫይረስ ክትባትን ለማጠናቀቅ እቅድ አለኝ።	☐	☐	☐	☐	☐
127	ተከታታይ የሂዩማን ፓፒሎማ ቫይረስ ክትባትን ወስጄ ጨርሻለሁ።	☐	☐	☐	☐	☐
128	የሂዩማን ፓፒሎማ ቫይረስ ክትባት አስተማማኝ አይደለም	☐	☐	☐	☐	☐

የሂዩማን ፓፒሎማ ቫይረስ ክትባት ተደራሽነት

129	ሁለተኛውን የሂዩማን ፓፒሎማ ቫይረስ ክትባት ወስደሻል?	**አዎ** ☐ **አይ** ☐	

መጨረሻ!

ስለ ጊዜሽ እና ስለ ተሳትፎሽ አመሰግናለሁ!!

ልመልስልሽ የምችለውጥያቄ አለሽ?

10.6. Interview guide for qualitative study (Amharic version)

ዉድ የጥናቱ ተሳታፊዎች! ጤና ይስጥልኝ፣ ስሜ **ኤፍሬም ማሙዬ** ይባላል፡፡በአሁኑ ወቅት በአዲስ አበባ ዩኒቨርሲቲ በነርሲንግና ሚድዊፈሪ ትምህርት ክፍል የሁለተኛ ዲግሪ ትምህርቴን እየተከታተልኩ እገኛለሁ፡፡የሁለተኛ ዲግሪዬን ለመጨረስ ይረዳኝ ዘንድ በወራቤ ከተማ በጉርምስ ናዕድሜ ላይ ከሚገ ኙልጃ ገረዶች መካከል የሁለተኛውን የሂውማን ፓፒሎማ ቫይረስ ክትባት መውሰድ እና እንዲሁም ተዛማጅ ምክንያቶች በሚለዉ ርዕሰ ጉዳይ ላይ ጥናት እያደረኩ እገኛለሁ፡፡

በዚህ ጥናት ላይ የሚኖሮትን ተሳትፎ በማንኛውም ጊዜ ለእርስዎ ምቾት የማይሰጥ ሆኖ ሲያገኙት ማቋረጥ ይችላሉ፡፡እኔም የግል ሚስጢርዎን ለመጠበቅ ቃልእገባለሁ፡፡ውይይቱ በግምት 50 ደቂቃ ይወስዳል፡፡ምንም እንኳን ማስታወሻ ብይዝም ድምጽዎን ግን በመቅረጫ እቀርጻለሁ፡፡ምክንያቱም የሚሰጡኝን የትኛውንም መረጃ ማጣትስለማልፈልግ ነው፡፡ከላይ በተደረገው ገለጻ ላይ ጥያቄአለዎት?

የጥናቱ ተሳታፊዎች ፍቃደኝነት ቅፅ

እኔ ከታች ፊርማዬ የሰፈረው የጥናቱ አይነት፣ ጥቅም፣መብቶቼን መረዳቴን እና በፈቃደኝነት ለመሳተፍ እንዲሁም ሚስጢራዊነቱን በመገንዘብ እና ያለምንም አሉታዊ ውጤት ከጥናቱ መውጣት እንደምችል መረዳቴን እገልፃለሁ፡፡ጥያቄዎችን ለመጠየቅ እድል ተሰጥቶኝ የነበረ ከመሆኑም ባሻገር በበቂ ሁኔታ ምላሽ ተሰጥቶኛል፡፡

በዚህ ጥናት ላይ ለመሳተፍ ስምምነቴን እገልፃለሁ፡፡

የተሳታፊ ፊርማ፡_____ ቀን፡ _____

መጠይቅ ጥያቄዎች (Interview Guide)

1. ስለ ሂዉማን ፓፒሎማ ቫይረስ ኢንፌክሽን ሰምተሽ ታውቃለሽ? አዎ ከሆነ ምን ሰማሽ?

   (ካልተጠቀሰ የመተላለፊያ መንገድ, መንስኤዎች, የመከላከያ መንገዶችን, መርምር)

2. የሂዉማን ፓፒሎማ ቫይረስ ክትባት ለምን ይሰጣል? (ካልተጠቀሰ የክትባቱ አስፈላጊነት መርምር)

   - ስለ ሂዉማን ፓፒሎማ ቫይረስ ክትባት ሰምተሽ ታውቃለሽ? አዎ ከሆነ ከየት ነው የሰማሽው? እና ስለሱ ምን ሰምተሻል?

3. የሂዉማን ፓፒሎማ ቫይረስ ክትባት ያልጀመሩ ወይም ያላጠናቀቁ የምታውቅያቸው ልጃገረዶች አሉ?

   - አዎ ከሆነ ለምን ይመስልሽል?
   - የየሂዉማን ፓፒሎማ ቫይረስ ክትባት እንዳይወሰድ የሚያረርግ እንቅፋት ዕድሜ; የጎንዮሽ ጉዳቶችን፣ ስለ ክትባት በቂ የሆነ መረጃ አለ ማግኘት; የወላጅምኞቶች ወይም የእኩዮች ተጽእኖ; ወሲባዊ ባህሪ;የጤና ሠራተኛ ምክር;የክትባት አለመኖርን መርምር)

4. የሂዉማን ፓፒሎማ ቫይረስ ክትባትን ለምን አላጠናቀቅሽም?

5. የሂዉማን ፓፒሎማ ቫይረስ ክትባትን መውሰድ እና ማጠናቀቅን ለማሻሻል ምን መደረግ አለበት ብለሽ ታስባለሽ?

6. ከ ሂዉማን ፓፒሎማ ቫይረስ ክትባት ጋር በተያያዘ እንድንነጋገርበት የምትፈልጊው ሌላ አስተያየት ወይም ጥያቄ አለሽ?