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BAHIRDAR UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES SCHOOL OF PUBLIC HEALTH DEPARTMENT OF EPIDEMIOLOGY AND BIOSTATISTICS

Parents Acceptance Of Human Papilloma Virus Vaccination For Their Daugthers In Adet Town, North Gojjam Zone, Northwest Ethiopia, 2024. A Community Based Crossectional Study Design, Mixed Method Study.

By Bezawit Kassa (BSc)

FINAL THESIS SUBMITTED TO THE DEPARTMENT OF EPIDEMIOLOGY AND BIOSTATISTICS, SCHOOL OF PUBLIC HEALTH, COLLEGE OF MEDICINE AND HEALTH SCIENCES, BAHIRDAR UNIVERSTY IN PARTIAL FULLFILLMENT OF THE REQUIRMENTS FOR THE DEGREE OF MASTERS IN EPIDEMIOLOGY.

JULAY, 2024

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INVESTIGATOR NAME& ADRESSE	BEZAWIT KASSA (BSc) MOBILE:0919165597 EMAIL:bezakassa27@gmail.com
ADEVISORS NAME& ADRESSE	MR. GIZACHEW TADESSE (MPH, ASSISTANCE PROFESSOR OF EPIDEMIOLOGY). MOBILE:0918134416 EMAIL:leulgzat@gmail.com MRS. ASIYA MOHAMMED (MSc IN BIOSTATISTICS). MOBILE:0918308554 EMAIL:asiya.m2261@gmail.com
TITTLE OF THE RESEARCH	PARENTS ACCEPTANCE OF HUMAN PAPILLOMA VIRUS VACCINATION FOR THEIR DAUGTHERS IN ADET TOWN, NORTH GOJJAM ZONE, NORTHWEST ETHIOPIA, 2024.
DURATION OF THE STUDY	MAY 24 to JUNE 27, 2024.
STUDY AREA	ADET TOWN, NORTH GOJJAM ZONE, NORTHWEST ETHIOPIA.
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ABSTRACT

Background: Human papilloma virus vaccination is an effective way to reduce cervical cancer, a threat to women's life particularly adolescent's. Although the health of adolescent's is the priority goal across the globe and in Ethiopia as well, parent's acceptance of Human papilloma virus vaccination for their daughters becomes a big challenge in developing countries which is worse in Ethiopia.

Objectives: To assess parent's acceptance of human papilloma virus vaccination for their daughters and associated factors in Adet town, northwest Ethiopia, 2024.

Methods: Community based mixed method study was employed from May 24 to June 27, 2024. For quantitative data, the sample size was 319 and systematic random sampling technique was used to select study participants. Interviewer administered structured questioners for quantitative data and interview guide for qualitative data were used. The data was coded, entered and cleaned using epi info software and exported to SPSS version 25 for analysis. Descriptive statistics, bivariable and multivariable logistic regression analysis was used. Variables with p -value of< 0.25 in the bivariable analysis were entered into the multivariable analysis to identify possible confounding variables. Variables with p-value of <0.05 with 95% confidence interval and adjusted odds ratio in multivariable analysis were statistically significant factor for the outcome variable. Results were presented in tables, texts, charts and graphs.

Results: In this study, 249(78.1%) 95%CI, (73-82.4) of parents accept HPV vaccination for their daughters. Knowledge (AOR =2.957, 95% CI (1.433-6.101), Attitude (AOR= 3.47, 95%CI (1.71-7.041), Subjective norms (AOR= 3.189, 95% CI (1.561-6.514) and Safety concern (AOR= 8.202, 95%CI (3.451-19.491) were significantly associated factors for parents acceptance of HPV vaccine. Qualitative result revealed that fear of side effects (false rumors, infertility, contraceptive method), lack of knowledge about HPV infection (exposure to sunlight (MECH), lack of hygiene), lack of responsibility (fear of vaccine shortage, access not fixed) were barriers whereas, Influential stakeholders (healthcare providers, religious leaders, peer pressure), perception of HPV infection (early marriage, unsafe sex(rape) and benefit of HPV vaccine(Precancer prevention and to be healthy) and belief about HPV vaccine(HPV vaccine is safe and effective) were facilitators towards parents acceptance of HPV vaccine for their daughters.

Conclusion and recommendations: The result of this study seems promising to reach the global strategy that 90% of adolescent's to be immunize at the end of 2030. By addressing the above factors, health professional counseling in collaboration with other stakeholders should be given by emphasizing parents to reduce vaccination safety concerns, to increase their level of knowledge and to build positive attitude towards HPV vaccinations of their daughters.

Key words: Human papilloma virus, vaccine acceptance, vaccine preventable disease, cervical cancer prevention, Ethiopia.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACS=American cancer society

AOR=Adjusted odds ratio

BSc=Bachelors of Science

COR=Crude odds ratio

EPI=Expanded program on immunization

GAVI=Global Alliance for vaccination and immunization

HPV=Human papilloma virus

SPSS=Statistical package for social science

OR=Odds ratio

VIA=Visual inspection by acetic acid

VILI=Visual inspection by using lugols iodine

WHO=World health organization

1. Introduction

1.1 Background:

Human papilloma virus vaccination is the target against cervical cancer, a treat to women's life particularly adolescent's which is the second leading cause of mortality and morbidity next to breast cancer in which around 70% of cases are caused by Human papilloma virus type16 and 18(6, 8, 11-14). Human papilloma virus(HPV) is highly contagious virus and transmitted sexually, which is major public health concern both nationally and internationally (1, 15). Most HPV infections are asymptomatic in both males and females, which makes it the worst virus among sexually active adolescent's(4). It is estimated that more than 75% of sexually active individuals are infected by HPV during their life time (3, 8, 16).

Human papilloma virus vaccine has the capacity in reducing cervical cancer incidence globally by 70% while 30% can be prevented through cervical cancer screening(1).Two vaccines introduced in 2006,the bivalent named (Ceravix®), which immunize against strain16 and 18 and the quadrivalent called (Gardasil®),which gives additional immunity against two genital wart strains, HPV 6and11(2-5). Both vaccines are effective and safe administered intramuscularly, but not used for those who are already infected with HPV and the vaccine is given for adolescent's before they became sexually active to increase its effectiveness(4, 6). Gardasil 9,which is the latest version of HPV vaccine introduced in 2016(7). According to WHO recommendation, two doses of HPV vaccination for girls between 9-14 years is administered(5, 8). In Ethiopia, HPV vaccine was introduced in 2018 with the aid of global alliance for vaccination and immunization (GAVI), which is administered with the age of 9-14 adolescent females through school based approach (8-10).

Regarding vaccinations against HPV, there is "global strategy to accelerate elimination of cervical cancer as public health problem", 90% of 15 years old adolescent's to be vaccinated at the end of 2030"(17, 18). Studies show that about 2.1 million deaths were prevented by vaccinations(19). For vaccinations to be effective, high uptake is mandatory. In addition, with a 50% and above HPV vaccination coverage, HPV infections should decrease by 68% through herd immunity and cross-protection(4).

Primary protections have an important role in reduction of mortality and morbidity due to HPV infections by reducing sexual risk factors and using prophylactic vaccination(20), among these human papilloma virus vaccination, delaying first sexual intercourse, limiting number of sexual partners and avoiding sexual intercourse with those who have multiple sexual partner's (1). Screening method involves observing cell abnormalities through microscope sampled from the cervix. Visual inspection by using acetic acid(VIA) and visual inspection using lugols iodine(VILI), where there is "see and treat" approach for a single visit is available in developing countries(2).

Currently, global vaccination efforts have been focused on female adolescents(4). The level of HPV vaccine acceptability of parents and uptake of the vaccine for their daughter's plays great role for the effectiveness of the vaccine (1, 20, 21). Since, HPV vaccine is administered for those adolescents girls 9-14 years, considering parental consent for the acceptance of HPV vaccination to be administered to their daughter is important(1, 22).

1.2. Statement of the problem

The quality and coverage of HPV vaccination targeting young adolescent's 9_14 years as primary preventive strategy as recommended by WHO results geographical disparity in the burden of cervical cancer(23). Program for vaccination of HPV and vaccine acceptance differ from country to country and also from place to place (13, 14, 16).

The health of adolescent is one of the public health priorities of the globe and in our country Ethiopia as well. Adolescent immunization programs are the most challenging in the world to be effectively implemented due to parents vaccine hesitancy as parents are the main decision makers for their adolescent's to be vaccinated(4). According to WHO, vaccine hesitancy were listed among the top10 treat to global health during the early 2019 (24).

Colombia was the first country to implement HPV vaccine in South America and reaching uptake of 97.5% and 96.7% of first dose and second dose of this vaccine respectively in 2012, but in 2016 the uptake of the vaccine decline by 14% and 5% for the first and second dose respectively due to vaccine hesitancy. But by 2021 this vaccine uptake raised by 34.9% for the first dose and 11.8% for the second dose. This crisis was consistent with Denmark, Australia and Japan(26). In addition, a study conducted in Saudi Arabia, Jeddah shows that about 94% of parents were not volunteer to accept HPV vaccination for their daughters(15). Moreover, study's from Poland shows that about 43.1% of parents are concerned about safety of HPV vaccine(27).

The data from south Africa campaign shows that the vaccination uptake decrease by 21.4% and 26% during 2014 and 2016 respectively and vaccine uptake among adolescent girls was low which is only 32.2%(4). In this study, about 65.3% of the parents have daughters who are not vaccinated against HPV. In Nigeria HPV vaccine was introduced in 2009, but still utilization is poor even though there was high prevalence of cervical cancer and HPV infection(28). Another study conducted in south Africa shows majority of the respondent's (91.2%) did not indicate to accept HPV vaccination for their daughters(29). A study conducted in Tanzania shows that only 6.9% had immunized their daughter's against HPV(6). Similarly, a study conducted in Zambia shows that eligible daughters do not vaccinated against HPV due to non-consent of their parents(18). Another study conducted in Keniya also shows that 30% of parents were not willing to accept HPV vaccination for their daughters (5).

In Ethiopia, a study conducted in Jimma town shows the prevalence of HPV vaccine hesitancy was about 39.02%(30). Another study done in Ambo town also shows that general assessment from Sub-Saharan nations, HPV vaccine awareness among parents was as low as 20%, which affects the choice not to accept HPV vaccination (31). A study conducted in Debremarkos town shows that parents acceptability of HPV vaccination for their daughter is not granted as parents are against it due to different reasons(32). Similarly, a study done in debretabore town shows that only 44.8% of participants were willing to vaccinate their daughters and only 35.4% had knowledge of HPV vaccination(22). In addition, a study conducted in Addiszemen town shows that about more than half of the study participant had fear of side effects about HPV vaccination for their daughters(33). This study also shows that lack of trust about safety of HPV vaccination was the reason to refuse the vaccination for their daughters.

American cancer society(ACS) shows that vaccination of daughter's 9-12 years prevents more than 90% of cervical, oropharengial, anal ,vaginal, vulvar and penile cancer that is caused by HPV(34).

A study in Johannesburg(South Africa) shows that if HPV vaccination coverage reach's about 70% of adolescents, three million females was prevented from cervical cancer death in ten years(4). If vaccinated against HPV, adolescent's girls 9-12 years will reduce the risk of cervical cancer by 43% during their life time(4). If HPV immunization coverage reaches 90%, cervical cancer morbidity and mortality will decline by 23% and 21% respectively(35)

Despite these facts, HPV vaccination uptake among adolescent girls remains limited, mainly parents misconception about the cause and prevention of cervical cancer and poor acceptability of HPV vaccination, which becomes an obstacle in developing country which is worse in Ethiopia (4, 9, 12, 36).

For the acceptability of HPV vaccination program to be successful, nationwide understanding of parental HPV vaccine misconception, assessment of the barriers for the acceptance of HPV vaccination and use of the service through community level studies was important (4, 12).Parents acceptance of HPV vaccination for their daughters was crucial, as parents are the key in decision making regarding their daughters uptake of HPV vaccination(37). In Ethiopia, studies on parent's acceptance of HPV vaccination for their adolescent girls were still limited

(10). In addition, no study was conducted using mixed method study in Ethiopia regarding this tittle as far as my reading concerned. Therefore, it was necessary to assess parent's acceptance of human papilloma virus vaccination for their daughter's and associated factors using mixed method study in Adet town, northwest Ethiopia, 2024.

1.3 Significance of the study

This study highlights parent's acceptance of HPV vaccination for their daughters. Besides, it helps to have deep insight and to develop possible healthcare strategies to address parental HPV vaccine misconceptions. It was used as recommendation for health care providers. Furthermore, it could be used by policy makers to develop appropriate guideline and protocol for parental acceptance of HPV vaccination for their daughters in Ethiopia context. Moreover, it could be used as source of information for future investigator's to study the topic further as parental acceptability of HPV vaccination for their daughter's needs much exploiting.

2. Literature review

2.1 Acceptance of HPV vaccination

A study conducted in the united states shows that black mothers were intended by 48% to vaccinate their daughters(38). A study conducted in Indonesia show that parental acceptability of HPV vaccine was high (96.1%)(39). According to a study conducted in Thailand, parental acceptability of HPV vaccination for their daughters was 77% under their close supervision(37). A study done in Poland also shows that parental acceptance of HPV vaccination for their daughters was about 85% although only 56% of parents were ever heard of HPV(27). A study conducted in Turkey shows that parental acceptability of HPV vaccine to be lower(20). In this study about 31.9% of mothers wish to be vaccinated against HPV for their adolescent girls. Another study done in Turkey also shows that parents acceptance of HPV vaccination for their daughters was 45% of mothers and 44.9% of fathers(20). Furthermore, a study done in India shows that parental acceptability of HPV vaccine was 78%(16).

In Africa, a study conducted in Nigeria shows that parental acceptance of HPV vaccination was 88.9% and about 91% of the parents recommended HPV vaccination to others(6). Another study conducted in Zambia also shows that about 53.8% of parents accept HPV vaccination for their daughters but lower than the recommended 70% population heard immunity to be implemented(18). Similarly, a study conducted in western Kenya also shows that about 70% of parents accept HPV vaccination for their daughters(5).

In Ethiopia, a study conducted in Hadiya town shows that parental acceptance of HPV vaccination was about 84.9%(8), in bench shako zone (79.5%)(40) and in Addis Ababa (94.3%)(10). Another study done in Gondar town also shows that parental acceptability of HPV vaccination for their daughters was 81.3%(12). Another study conducted in debretabore town also shows that parental acceptance of HPV vaccination was 44.8% which was lower than recent study done in similar area 79.1% (13, 22). Recent study done in Addiszemen town also shows that parental acceptance of HPV vaccination was about 80.3%(33).

2.2 Factors associated with parent's acceptance of Human papilloma virus vaccination for their daughters.

2.2.1 Socio demographic factors

A study conducted in Poland shows that being employed was associated with parental acceptance of HPV vaccination for their daughters(27). A study conducted in Jeddah also shows that married parents were more likely to accept HPV vaccination when compared with single parents(15).

Study conducted in Nigeria shows that parental acceptance of HPV vaccination depends on educational status of parents (1, 6, 32).

In Ethiopia ,a study conducted in Hadiya town shows that male parents was 59.3% less likely to accept HPV vaccination for their daughters when compared with female parents(8). To the reverse, a study conducted in Addiszemen town shows that male parents was 3.5 times more likely to accept HPV vaccination for their daughters when compared with female parents(33). A study done in bench shako zone shows that parents education(primary and above) was more likely to accept HPV vaccination when compared with parents with no formal education(9, 40). Other studies done in Ethiopia shows that there was no association between parental acceptance of HPV vaccination with age, sex, religion, marital status, Occupation and relationship of the parents (12, 13, 32).

Parents with lower socioeconomic status in Colombia shows HPV prevalence of 35.4 % to 36% among teenagers(41). In this study the prevalence of HPV16 and HPV 18 increased from 2.6% to 6.1% in a cohort of 576 low socioeconomic status Chilean females(41). Consistently, from 2012 to 2016 HPV 16 and HPV18 prevalence increased from 3.2% to 7.6% in seven centers in Santiago(41).

A study done in South Africa, Johannesburg shows that parents with low socio economic status like income and level of education were less likely to vaccinate their daughters (4, 9, 12).

In Ethiopia, study's conducted in Gondar town shows that parents who have high income were more likely to accept HPV vaccination when compared with low income parents (9, 12, 15, 18). Another study done in Debretabore town shows that there was no association between HPV vaccination acceptance and monthly income(13, 32).

Study's conducted in debretabore town shows that media exposure(information) like television, magazine and newspaper about HPV infection and vaccination have significant effect for the acceptance of HPV vaccination(13, 33).

2.2.2 Parental behavior related factors

Knowledge

According to a study done in Poland, there was no association between parental HPV acceptance and parental knowledge(27).

In Africa, a study conducted in Johannesburg show that parents who have moderate knowledge was more likely to accept HPV vaccination for their daughters when compared with those parents who have low level of knowledge(4). Another study conducted in western Nigeria shows that parental knowledge about cervical cancer prevention was associated with parental acceptance of HPV vaccination for their daughters(1).

In Ethiopia, a study done in ambo town shows that only 39.1% of parents were knowledgeable(31). A study conducted in Hadiya zone shows parents who have poor knowledge was about 46.8% less likely to accept HPV vaccination when compared with those parents who have good knowledge(8). Similarly, a study done in Addis Ababa shows that parents who have good knowledge of HPV was more likely to accept HPV vaccination when compared with parents with poor knowledge of HPV(10). A study conducted in Gondar town also shows that parents who have good knowledge about risk of cervical cancer was more likely to accept HPV vaccination when compared with poor knowledge(12). Another study conducted in debretabore town also shows that parents who have good knowledge was more likely to accept HPV vaccination when compared with their counter parts(13).

Attitude

Positive attitude for HPV vaccine is predictors of adolescent vaccination (4, 40, 42). A study in Indonesia shows maternal attitude and belief were significant factors for decision making of parental HPV vaccine acceptance for their daughters(43).

A study conducted in western Kenya shows that parents with positive attitude were willing to vaccinate their daughter's (4, 5, 27, 44).

In Ethiopia, a study done in Hadiya town show that parents who have negative attitude was 46% less likely to accept HPV vaccination when compared with positive attitude(8). A study done in Addis Ababa shows that parents with positive attitude for HPV vaccine was more likely to accept HPV vaccination when compared with parents with negative attitude(10). Likewise, a study conducted in Gondar town shows that parents who have positive attitude was volunteers to accept HPV vaccination than those who have negative attitude(9, 12). According to a study done in debretabore town, parents who have positive attitude was more likely to accept HPV vaccination when compared with those parents who have negative attitude about HPV vaccination and HPV infection(5, 13). Similarly, a study conducted in Debremarkos town also shows that parents with negative attitude about HPV vaccination refuse their daughters to take HPV vaccine(32).

Safety concern about HPV vaccine

Human papilloma virus vaccine safety concern was significantly associated with parents willingness to accept HPV vaccination for their daughters(38). Studies shows that 72% of parents were concerned about vaccine side effects and 20% were afraid of vaccine for their daughters(19). Parents who have high concern about HPV vaccine side effects were less likely to accept HPV vaccination for their daughters when compared with those parents who have low concern about HPV vaccination (19, 27, 33). A study conducted in Addiszemen town shows that parents who have fear of side effects about HPV vaccine was 61.5% less likely to accept HPV vaccination when compared with parents with no fear of side effects on HPV vaccine(33).

Subjective norm and perceived behavioral control

A study done in Thailand shows that the major source of information (about 66%) were health care providers(37). A study conducted in Poland shows that parents trust information from health care providers and those parents who received information from health professionals were more likely to accept HPV vaccination when compared with those who didn't get information from health care providers (15, 27, 29). Mixed method study conducted in Colombia also shows that awareness creation and public health education by health care providers had major role for parental acceptance of HPV vaccination(26). According to study done in Saudi Arabia, about 85.2% of parents reported that the main reason to refuse HPV vaccination was lack of information about importance of HPV vaccination(15).

In Africa, a study conducted in western Nigeria shows that 96% of the participants have not vaccinated their daughters among these about 75% vaccinate their adolescent's by following health professional request, only one parent(25%) vaccinate voluntarily(1).

In Ethiopia, a study conducted in Gondar town shows that only 28.6% of parents was informed by health workers(12). Another study done in debretabore town shows that about 68.4% of the respondents have positive subjective norms while 62.1% of the respondents have positive perceived behavior(13).

2.2.4 Reproductive and health related factors

A study done in Hadiya town shows that parents who have one daughter were more likely to accept HPV vaccination when compared with more than one daughters(8). Another study done in Ethiopia shows that there was no association between parental acceptance of HPV vaccination with number of daughters and family history of cervical cancer (12, 13, 27, 32).

3. Conceptual framework

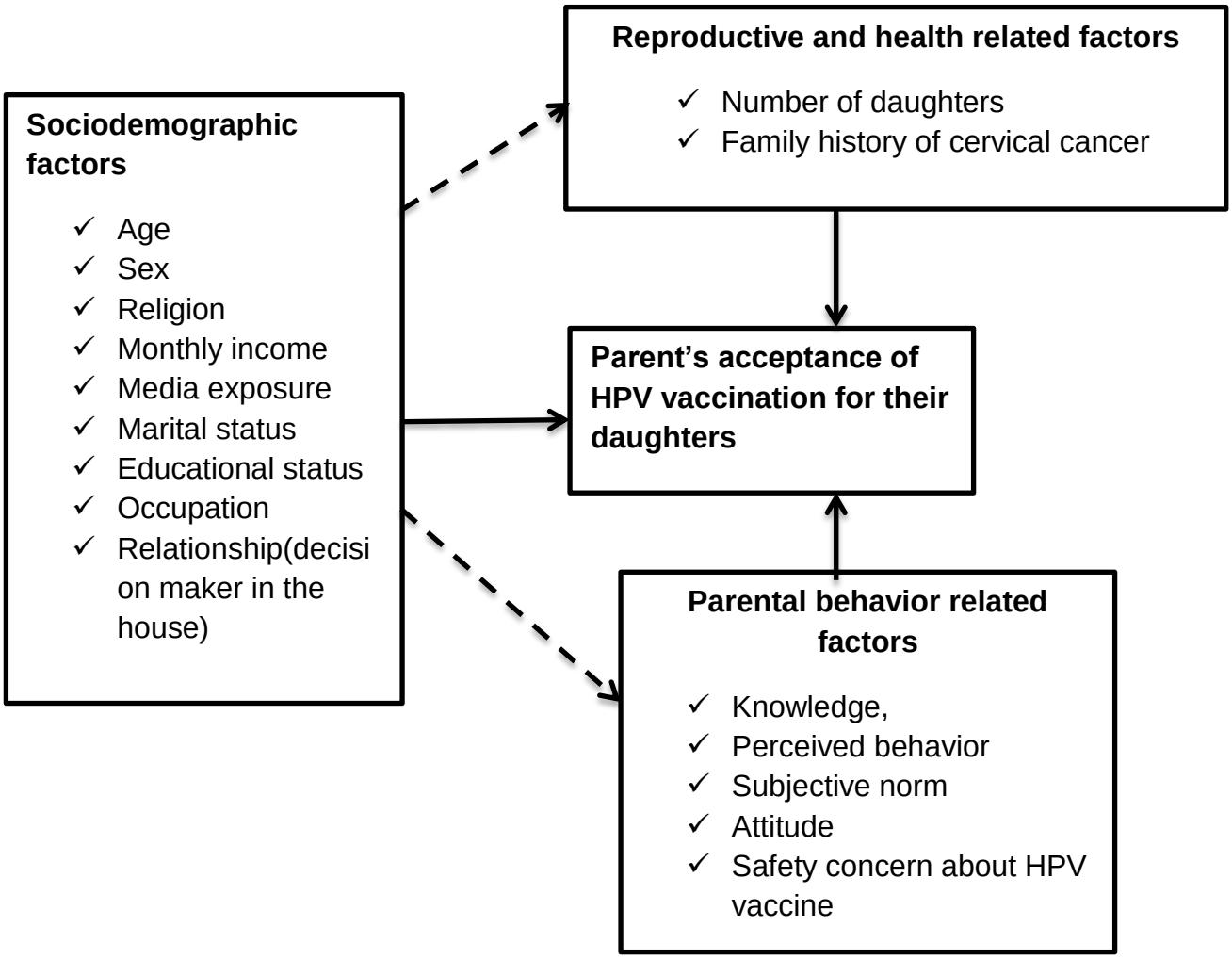


Figure1: Conceptual framework adapted from different literatures (8-10, 12, 13, 33) to assess parent's acceptance of human papilloma virus vaccination for their daughters and asssociated factors in Adet town,north gojjam zone,north west,Ethiopia,2024.

4. Objectives

4.1 General objective

- To assess parents acceptance of human papilloma virus vaccination for their daughters and associated factors in Adet town, north Gojjam zone, northwest Ethiopia, 2024.

4.2 Specific objectives

- ❖ To determine the prevalence of parent's acceptance of human papilloma virus vaccination for their daughters in Adet town, north Gojjam zone, northwest Ethiopia, 2024.
- ❖ To identify factors associated with parent's acceptance of human papilloma virus vaccination for their daughters in Adet town, north Gojjam zone, northwest Ethiopia, 2024.
- ❖ To explore facilitators and barriers towards parent's acceptance of human papilloma virus vaccination for their daughters in Adet town, north Gojjam zone, northwest Ethiopia, 2024.

5. Methods and materials

5.1 Study area and period

The study was conducted in Adet town, north Gojjam zone, northwest Ethiopia. Adet town is found in 43 km due East from Bahir Dar, the main town of Amhara Region. The town has 5 urban kebeles (the smallest administrative unit in the country) with a total population of 59,470 as of 2015 E.C. Based on the health profile of Adet town administrative health office, the town has one health center with five health posts, one primary government hospital and 5 private primary clinics, 4 private medium clinics, 1 pharmacy and 5 drug stores which delivers routine preventive and curative health services to the community. The town has seven primaries, two secondary and one preparatory school which gives routine service for the community. The study was conducted in Adet town from May 24 to June 27, 2024.

5.2 Study design

Community based Cross-sectional concurrent mixed method was used to assess parent's acceptance of human papilloma virus vaccination for their daughters and associated factors in Adet town, north Gojjam zone, northwest Ethiopia. For qualitative part, phenomenological research design was applied.

5.3 Source population

All parents who have daughters from 9-14 years old living in Adet town.

5.4 Study population

Parents who have daughters from 9-14 years and who were included in the data collection period for this particular study. For qualitative part, study participants were purposively selected parents with different backgrounds like level of education and economic status.

5.5 Eligibility criteria

5.*5.1 Inclusion criteria*

All participants who have daughters from 9-14 years who live for more than 6 months and voluntary to give response during the data collection period.

5.5.2 Exclusion criteria

Participants with severe illness and unable to give response during the data collection period.

5.6 Sample size and sampling procedure

For quantitative part the sample size was calculated by using both single population and double population proportion formula. The sample size for the first objective was calculated by using single population proportion formula by considering 95% confidence interval,5% margin of error,80.3% expected acceptance from similar study conducted in Addis zemen town (33).

$$n = \frac{(Z\ a/2)^2 * P\ (1-P)}{(d)^2}$$

$$= 1.96 * 1.96 * 0.8(1-0.8)/0.0025$$

$$= 246.$$

Sample size for the second objectives was determined by using double population formula using Epi-Info TM 7 software by using 95%CI, power 80%, exposed to unexposed ratio of 1 and the corresponding COR of each significantly associated predictor variables from similar studies(12, 22, 33).

Table1: Sample size determination using OR of explanatory variables for parent's acceptance of human papilloma virus vaccination for their daughters in Adet town, north gojjam zone, northwest Ethiopia, 2024.

Variables	Confidence level By%	Power By %	OR	Ratio of exposed To Unexposed	%of Outcome in unexposed	Final Sample Size	p-Value	Refe Rences
Fear of HPV infection	95	80	2.32	1	15.68	264	0.001	(22)
Fear of side effects	95	80	0.34	1	71.74	116	0.03	(33)
Sex of parents	95	80	2.69	1	69.63	200	0.01	(33)
Information on HPV vaccine	95	80	0.34	1	86.58	168	0.022	(33)
Wealth status	95	80	2.2	1	69.28	290	<0.001	(12)

Accordingly, the second objectives had the largest sample size; using wealth status, the sample size was 290. Then by adding 10% non-response rate, the final sample size was 319.

Whereas, for qualitative part sample size was determined by the level of information saturation to be explored and 13 participants with different background were participated. A person was asked to participate in the interview until additional interviews did not provide new evidence about the main themes of interest.

5.6.2 Sampling techniques and procedures

Systematic random sampling technique was used to select study participants from the total kebele of Adet town. The town has 5 urban kebeles and proportional allocation was done for each kebele. Finally, using systematic random sampling techniques, 319 households were selected every (K=6) from parents who have eligible daughter of 9_14 years. List of parents who have eligible daughter was obtained from list of registration book for HPV vaccination. From the parents, the household head who give decision about their daughter was interviewed during the data collection period. The data collectors revisit two times if parents were absent during data collection period to reduce non response rate.

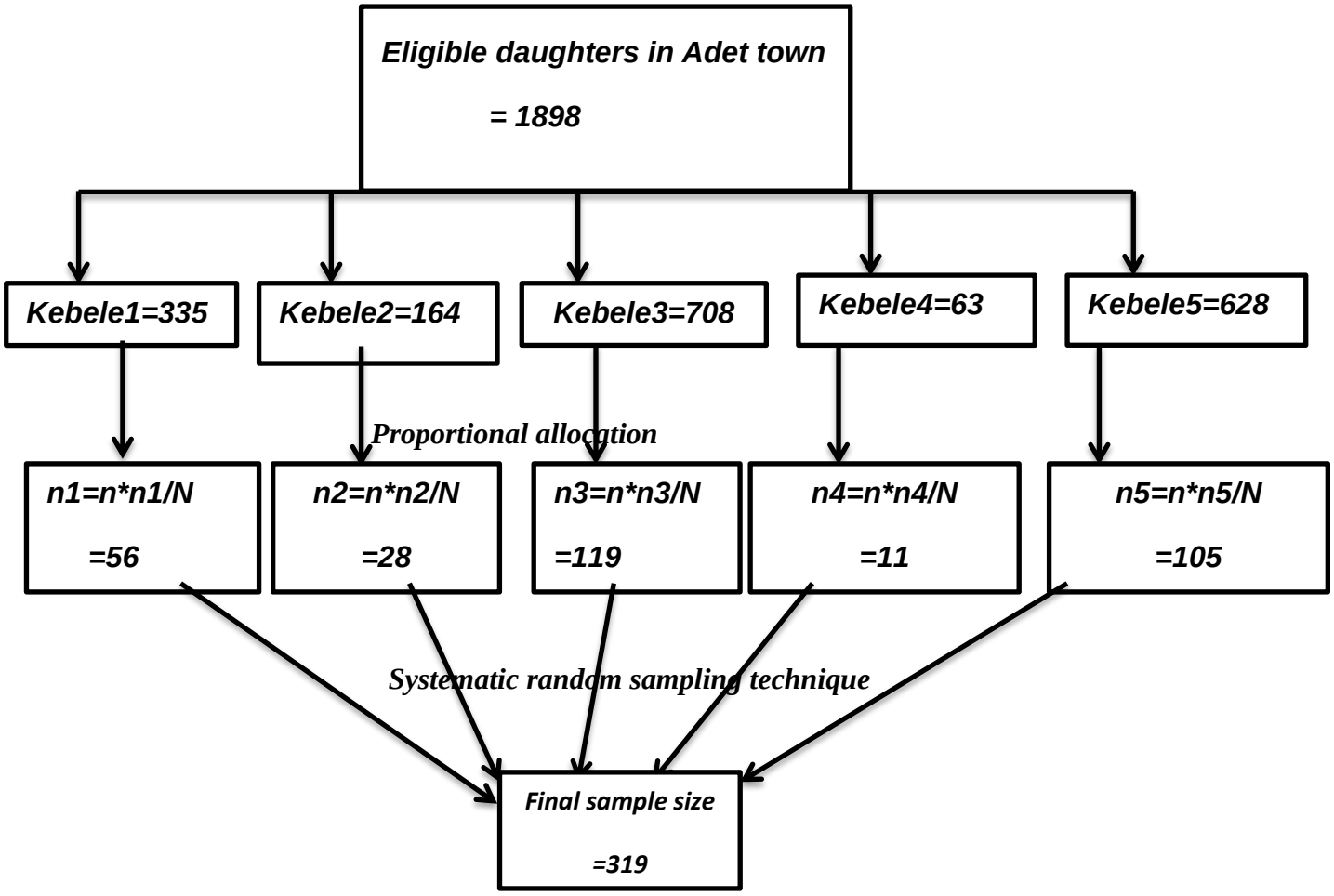


Figure2: Schematic presentation of sampling techniques to assess parent's acceptance of HPV vaccination for their daughters and associated factors in Adet town, north gojjam zone, northwest Ethiopia, 2024.

For qualitative part, heterogeneous purposive sampling was used to recruit participants through in-depth interview.

5.8 Study Variables

5.8.1 Dependent variable

Parent's acceptance of human papilloma virus vaccination for their daughters.

5.8.2 Independent variables

Sociodemographic variables (sex, age, relationship, religion, educational status, occupation, average monthly income, marital status and media exposure).

Reproductive and other health related factors (No of daughters and family history of cervical cancer), parental behavior related factors (knowledge, perceived behavior, subjective norm, safety concern and attitude towards HPV infection and vaccination).

5.9 Operational definitions

Acceptance of HPV vaccination: was assessed with 6 yes or no questions. Parents who scores the mean and above designed to assess the acceptance of HPV vaccination were considered as accept HPV vaccination (Yes) and below the mean was considered as not accept HPV vaccination (No)(13, 22).

Knowledge: Was assessed with 7 yes or no responses. Parents who scores at the mean and above were considered as having good knowledge, if not poor knowledge (8, 10, 13).

Attitude: was measured with 5 likert scale from strongly disagree to strongly agree. Those who scores the mean and above were considered as positive attitude, if not negative attitude (8, 13).

Subjective norms: The expectation from significant others or powerful persons related to perform the behavior or not. They have significant impact upon the society's attention to accept or reject vaccination. It was measured with 5 likert scale from strongly agree to strongly disagree. Response at mean and above were considered as positive subjective norms otherwise negative subjective norms(13).

Perceived behavioral control: The capability to perform a behavior, the participant's self-rule and intension of difficulty or ease to take HPV vaccination. It was measured with 5 likert scale from strongly agree to strongly disagree and those who score the mean above have positive perceived behavior, otherwise negative perceived behavior(13).

Safety Concern about HPV vaccine: was assessed with 5 likert scale from strongly disagree to strongly agree. Participants who scores the mean and above were considered as having high safety concern otherwise low safety concern(38).

Media exposure: Participants who answers at least once per week for one of these (newspaper, radio, television) were exposed to media(13).

For qualitative data, semi structured open ended in-depth interview was applied.

5.10 Data collection Tools

The questionnaires were adapted from different literatures from similar studies. For quantitative part, Amharic version interviewer administered questionaries' was used. The first was Socio-demographic variables (15 items), the second part was knowledge related question(12 items) and then attitude questions(8 items) that measures about HPV infection and vaccination, subjective norm(4 items) and perceived behavioral control questions (4 items), Safety concern about HPV vaccine(4items). The other section was reproductive and other health related questions (2 items). For qualitative data semi structured in-depth interview was used. Participants were purposively selected parents who have different background like educational status and economic status and two key informants were asked. The principal investigator was the data collector. Interviews were initiated by general questions followed by probing questions, then to be more focus as the data collection progress.

5.11 Data collection methods

Data were collected using structured face to face interviewer administered questionaries' adapted from different literatures (8, 12, 13). First the questioners were prepared in English and then translated to local language (Amharic) and back to English to ensure consistency. Three diplomas and one BSc nurse who were familiar with the local language were participated as the data collectors and supervisor respectively. Two days training was given for data collectors and supervisor to ensure clarity during the data collection period, about the content of the questionnaires, techniques of interview and how to keep confidentiality of the participants by the principal investigator. The principal investigator checks for missed values and completeness of the collected data on daily basis.

For qualitative part, semi-structured face to face in-depth interview having open ended questions using a guide, tape recorder and note book was employed among participants. The modulator and the principal investigator introduced the purpose of the study, assured them about confidentiality and informed verbal consent was taken. The study setting was chosen in which the privacy of the participant could maintained, the location was comfortable, noisy area was avoided and the location was easily accessible.

5.12 Data quality control

Two days training was given for data collectors and supervisors. The internal reliability of the questionnaires was checked by Cronbachs @, which were acceptable ,0.797, 0.809, 0.776, 0.745 and 0.792 for Safety concern, perceived behavior, Subjective norm, Attitude and Knowledge respectively. Pretest was conducted on 5% of the sample size prior to the actual data collection in other study area (debremawi), to check consistency and clarity of the questionnaires. The result of the pretest was used to make modification for the questionnaires. The investigator and supervisor supervised and review every data collection procedure and completeness of the questionnaires, logical consistency and correction was made. The principal investigator collected the completed questionaries' daily and was responsible for the coordination and on spot supervision of overall data collection process. The principal investigator performed data coding, entry and cleaning.

5.13. Rigor of the study

For qualitative data, the guides were originally developed in English then translated for local language Amharic for data collection. After data collection, verbatim transcription was made to transcribe the audio record interview in Amharic and again translated into English. When necessary the transcripts were supplemented by field notes to clarify issues. In the meantime, I read English transcripts many times to develop codes that identify important and common concepts related to the main themes of the study. The investigator used MS-WORD for coding. Each transcript was screen, quoted and code. The codes in turn group into sub-themes and then into main themes.

A. Credibility

In-depth interview questions were evaluated by experts. All of the participants take orientation about the purpose of the study and responsibility to avoid unnecessary interruption and to keep the right of the participants before the data collection.

B. Transferability

Interview was conducted through digital audio record and field notes for observational data. The study setting, sample and method of data collection procedure was described clearly and in detail.

C. Dependability

This was obtained through prolong engagement with the participants to build trust on interview which helps to enhance the consistency of the study.

D. Conformability

This was ensured by detail recording of each activity of the participant in the time of interview and every procedure of the study. The principal investigator participated from starting to the end of the study.

5.14. Data processing and analysis

Data were checked, coded and entered into epi-info and exported to SPSS version25 for analysis. Descriptive statistics were used to show the characteristics of the study participants. Binary logistic regression model was fitted to identify statistically significant explanatory variables. Those variables with p-value of <0.25 were entered to multivariable logistic regression model to identify possible confounding variables. The adjusted odds ratio (AOR) with 95% CI and p-value of<0.05 was used to determine statistically significant association of explanatory variables. Hosmer and Lem show goodness of fit test was checked and it was well fitted (0.871). Results were presented in texts, tables, charts and graphs.

Quantitative data was triangulated with qualitative data. The qualitative data was analyzed through thematic approach. Major and subthemes was created from the text itself through repeated reading. After reading the transcripts, the investigator identified emergent themes and then coded each theme to delineate individual topics. Statements were group by code to the corresponding themes. The findings were presented in narratives by thematic areas and support the quantitative part.

5.15. Ethical consideration

Ethical clearance and approval was approved by the ethical review board of Bahirdar University, college of medicine and health sciences at 13/9/2016 and RDD/1977/2016 with protocol number 931/2024. At all levels letter of cooperation was given to the relevant administrative officials and informed consent was obtained from the study participants to confirm their willingness after explaining the objective of the study. They were informed that they have the right whether to participate in the study or not. They also informed that they have the right to withdraw at any time from the study for any inconvenience and have the right to ask any thing about the study. All information obtained from the study was kept privacy and confidential. To ensure confidentiality of the participant the name and address of the participants were not recorded during the data collection period. No one other than the investigator was accessed the collected data. The investigator used the collected data to answer the stated objectives.

6. Results

6.1 Sociodemographic characteristics of the participant

In this study, a total of 319 study participants were included with a response rate of 100%. The mean ages of the participants' were (44.67, SD ±9.09565) year and 67.4% were above 40 year. More than half (51.1%) were females and all most all (97.5%) were their parents. Most of the participants (91.8%) were Christian by religion and about 90.6% of participants were married. About 44.8% of the participants were completed college and above among these about 38.6% of the participants were government employees. More than half (55.2%) had average monthly income above 4000ETB. From the participants, three fourth (87.8%) were exposed to media (Table 2).

Table 2: Sociodemographic related characteristics of study participants in Adet town, northwest Ethiopia, 2024, (n=319).

Variables	Category	Frequency	Percent(%)
Age in year	<=29	9	2.8

	30-39	95	29.8
	>=40	215	67.4
Sex	Male	156	48.9
	Female	163	51.1
Religion	Christian	293	91.8
	Muslim	26	8.2
Relationship	Father	153	48
	Mother	158	49.5
	Guardian/caregiver	8	2.5
Current marital status	Single	30	9.4
	Married	289	90.6
Educational status	Unable to read and write	34	10.7
	Able to read and write	60	18.8
	Primary education	29	9.1
	Secondary education	53	16.6
	College and above	143	44.8
Monthly income	Less than 2000ETB	37	11.6
	2000-4000ETB	106	33.2
	Above 4000ETB	176	55.2
Occupation	Housewife	61	19.1
	Merchant	94	29.5
	Government employed	123	38.6
	Self-employed	41	12.9
Media exposure	Unexposed	39	12.2

	Exposed	280	87.8

6.2 Knowledge about HPV infection and vaccination

The mean score of the study participants was (10.47, SD ±2.22593) and majority of the participants 169 (53%) had good knowledge, while 150 (47%) participants had poor knowledge (Table 3).

Table 3: knowledge of parents to accept HPV vaccination for their daughters in Adet town, northwest Ethiopia, 2024, (n=319).

Variables	Responses	Frequency	Percent
Have you ever heard about	Yes	248	77.7%
cervical cancer	No	71	22.3%
Do you know the risk factors	Yes	153	48.0%
of cervical cancer	No	166	52.0%
Have you ever heard of Human	Yes	141	44.2%
Papilloma virus (HPV)	No	178	55.8%
Do you think HPV can be transmitted	Yes	172	53.9%
through sexual contact	No	147	46.1%
People can transmit HPV to their partner	Yes	139	43.6%
Even if they have no symptoms of infection.	No	180	56.4%
Do you think HPV can heal by itself	Yes	78	24.5%
without any treatment	No	241	75.5%
Do you know cervical cancer has a vaccine?	Yes	192	60.2%
	No	127	39.8%

6.4 Attitude of parents towards HPV vaccination

The mean score of the study participants was (21.88, SD±6.00627), and the majority of the study participants 185 (58%) had positive attitude, whereas 134 (42%) had negative attitude towards HPV vaccine (Table 4).

6.5 Subjective norm

The mean score of the participants was (14.19, SD±3.78592), majority of the study participants 199(62.4%) had positive subjective norm, whereas 120 (37.6%) had negative subjective norm. About half of the respondent's 162(50%) were agree that professional counseling was influential for parents acceptance of HPV vaccinations for their daughters (Table 4).

6.6 Perceived behavior of parents

The mean score of the participants was (15.14, SD±3.391). The majority of the participants173 (54.2%) had positive perceived behavior whereas, 146(45.8%) had negative perceived behavior. The majority of the participants 165(51.7%) agreed that the vaccination of their daughter against HPV were possible (Table 4).

6.7 Safety concern about HPV vaccine

The mean score of the participants was (9.75, SD±3.54083). The majority of the participants 176(55.2%) had low safety concern for HPV vaccine whereas, 153(44.8%) had high safety concern for HPV vaccine (Table 4).

Table 4: Attitude, subjective norm, perceived behavior and safety concern about HPV vaccine of parents to accept HPV vaccine for their daughters in Adet town, northwest Ethiopia, 2024,(n=319).

Attitude					
Variables	Strongly Dis Agree (N %)	Disagree (N %)	Neutral (N %)	Agree (N %)	Strongly Agree(N%)
There is a risk for young women to contract HPV infection	28 (8.8%)	71 (22.3%)	27 (8.5%)	143 (44.8%)	50 (15.7%)
My daughter/s may have cervical cancer in the future	52 (16.3%)	100 (31.3%)	60 (18.8%)	96 (30.1%)	11 (3.4%)
Cervical cancer is a severe disease	14 (4.4%)	32 (10.0%)	72 (22.6%)	60 (18.8%)	140 (43.9%)
Cervical cancer causing virus(HPV) vaccines can effectively prevent cervical cancer	40 (12.5%)	79 (24.8%)	50 (15.7%)	110 (34.5%)	40 (12.5%)
I am afraid of the side effects of HPV vaccination to my daughter/s	67 (21%)	112 (35.1%)	57 (17.9%)	79 (24.8%)	4 (1.3%)
I consider HPV vaccine is harmful	107 (33.5%)	131 (41.1%)	43 (13.5%)	35 (11%)	3 (0.9%)
I am afraid of being HPV vaccination cause my daughter to be sexually active early	127 (39.8%)	117 (36.7%)	50 (15.7%)	23 (7.2%)	2 (0.6%)
Girls who have the HPV vaccination might be more likely to have unprotected sex	94 (29.5%)	110 (34.5%)	60 (18.8%)	48 (15%)	7 (2.2%)
Subjective norm of participants					
Health professional counseling to vaccinate for HPV is influential	17 (5.3%)	15 (4.7%)	16 (5.0)	162 (50%)	109 (34.2%)
Teacher’s or principal’s recommendation to vaccinate for HPV is influential	44 (13.8%)	48 (15%)	30 (9.4%)	151 (47.3%)	46 (14.4%)

Recommendations of friends or families to vaccinate for HPV are influential	41 (12.9%)	45 (14.1%)	38 (11.9%)	148 (46.4%)	47 (14.7%)
Spiritual leader's recommendation to vaccinate for HPV is influential	49 (15.4%)	16 (5%)	61 (19.1%)	125 (39.2%)	68 (21.3%)
Perceived behavior of participants					
For me, the vaccination of my child against HPV is possible	8 (2.5%)	34 (10.7%)	15 (4.7%)	165 (51.7%)	97 (30.4%)
If I wanted to vaccinate my daughters against HPV, it would be easy	8 (2.5%)	45 (14.1%)	27 (8.5%)	157 (49.2%)	82 (25.7%)
It depends entirely on me to vaccinate my child against HPV	17 (5.3%)	56 (17.6%)	52 (16.3%)	133 (41.7%)	61 (19.1%)
I feel control on vaccinating of my child against HPV	7 (2.2%)	45 (14.1%)	29 (9.1%)	149 (46.7%)	89 (27.9)
Safety concern about HPV vaccine					
I feel that giving my daughter HPV vaccine could be like performing an experiment on her.	85 (26.6%)	138 (43.3%)	27 (8.5%)	41 (12.9%)	28 (8.8%)
I feel that HPV vaccine may cause problems getting pregnant in the future	62 (19.4%)	160 (50.2%)	53 (16.6%)	35 (11%)	9 (2.8%)
I am afraid of vaccination of my daughters	66 (20.7%)	170 (53.3%)	25 (7.8%)	43 (13.5%)	15 (4.7%)
I am concerned about HPV vaccination side effects.	40 (12.5%)	98 (30.7%)	69 (21.6%)	91 (28.5%)	21 (6.6%

6.8. Parent's acceptance of HPV vaccine for their daughters

In this study overall, about 78.1 % (95%CI, 73-82.4) of parents accept HPV vaccination for their daughters. More than two third (90.3%) of the participants believe that HPV vaccine was important for health and 85.6% of parents were willing to vaccinate their daughters against HPV infection if it is safe. The majority (88.4%) of the participants claim that they will make effort to have their daughters to get HPV vaccination. More than two third (75.5%) of the participants also claim that they will regret if their daughter does not get HPV vaccine. The majority (75.9%) of the participants also think that daughters should get HPV vaccine before they start sexual contact. In addition, 78.4% of the participants recommended HPV vaccine for others.

The main reason of parents unwillingness to accept HPV vaccination for their daughters were worried about safety of the vaccine followed by not informed by health professionals and may expose adolescent's to risky of sexual behaviors.

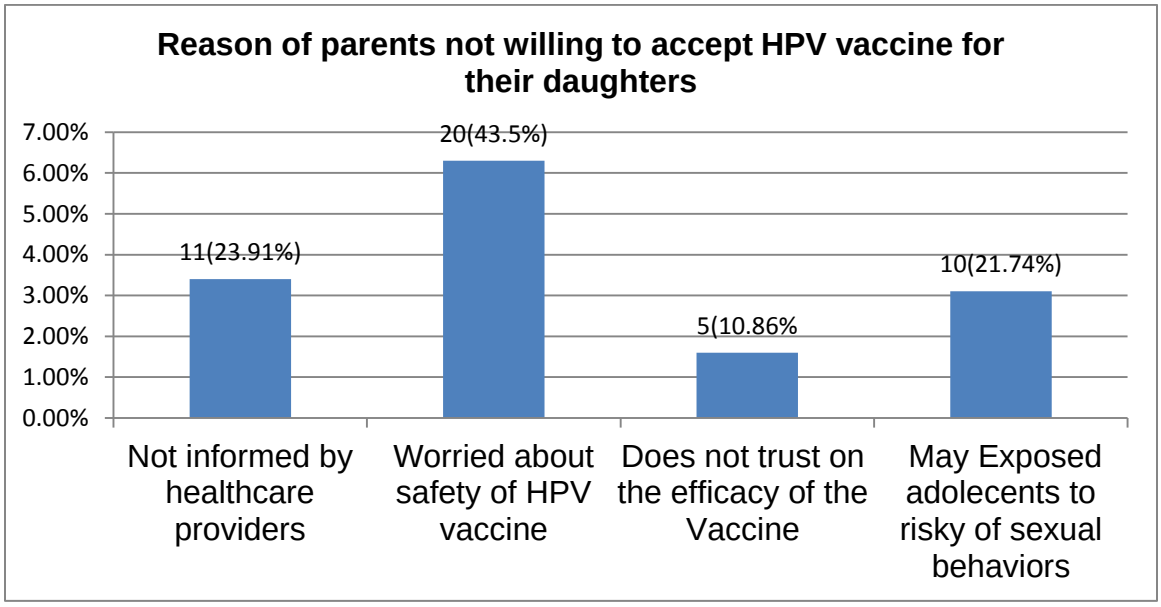


Figure 3: Reason of parent's unwillingness to accept HPV vaccination for their daughters in Adet town, northwest Ethiopia, 2024, (n=46).

6.9 Factors associated with parent's acceptance of HPV vaccination for their daughters.

In the bivariable analysis relationship, educational status, current marital status, knowledge ,attitude, perceived behavior, subjective norm, safety concern about HPV vaccine and media exposure were candidates for multivariable analysis at p- value <0.25.

In the multivariable analysis, knowledge, attitude, subjective norm and safety concern about HPV vaccine were significantly associated with the outcome variable at p-value <0.05.

In this study, parents who have good knowledge of HPV infection and HPV vaccination were 2.957 times more likely to accept HPV vaccination for their daughters when compared with parents with poor knowledge (AOR =2.957, 95%CI ,(1.433- 6.101).

Besides, parents who have positive attitude towards HPV vaccination were 3.47 times more likely to accept HPV vaccination for their daughters when compared with parents who have negative attitude towards HPV vaccination (AOR= 3.47,95%CI, (1.71-7.041).

Among participants, parents who have positive subjective norm were 3.189 times more likely to accept HPV vaccination for their daughters when compared with parents who have negative subjective norms (AOR= 3.189, 95% CI, (1.561-6.514).

In addition**,** parents who have low safety concern about HPV vaccination were 8.202 times more likely to accept HPV vaccination for their daughters when compared with parents who have high safety concern about HPV vaccination (AOR=8.202, 95%CI, (3.451-19.491).

Table 5: Binary and multiple logistic regression analysis of factors associated with parents acceptance of HPV vaccinations for their daughters in Adet town, northwest Ethiopia, 2024, (n=319).

Variables	Categories	Acceptance		COR(95%CI)	AOR(95%CI)	p-value
		Not Accept	Accept			

Relationship	Father	33	120	1	1	
	Mother	33	125	1.042(.605-1.794)	.998(.498-2.00)	.997
	Caregiver	4	4	.275(.065-1.159)	.387(.059-2.536)	.322
Educational status	Unable to read and write	10	24	1	1	
	Able to read and write	14	46	1.369(.530-3.539)	1.452(.442-4.769)	.539
	Primary education	11	18	.682(.238-1.952)	.463(.115-1.867)	.279
	Secondary education	11	42	1.591(.590-4.292)	.737(.189-2.878)	.661
	College and above	24	119	2.066(.876-4.874)	.1.583(.513-4.881)	.424
Current marital status	Single	4	26	1	1	
	Married	66	223	0.520(.175-1.543)	.442(.117-1.676)	.230
Attitude	Negative	50	84	1	**1**	
	Positive	20	165	4.911(2.746-8.782)	**3.47(1.71-7.041)***	**.001**
Subjective norm	Negative	42	78	1	**1**	
	Positive	28	171	3.288(1.901-5.689)	**3.189(1.561-6.514)***	**.001**
Perceived behavior	Negative	48	98	1	1	
	Positive	22	151	3.362(1.911-5.915)	1.370(.631-2.977)	.426
Safety concern	High	59	84	1	**1**	
	Low	11	165	10.536(5.257-21.115)	**8.202(3.451-19.491)****	**<0.001**
Knowledge	Poor	49	101	1	**1**	
	Good	21	148	3.419(1.933-6.048)	**2.957(1.433-6.101)***	**.003**
Media exposure	Unexposed	5	34	1	1	
	Exposed	65	215	.486(.183-1.295)	.418(.128-1.365)	.148

6.10 Qualitative findings

Qualitative findings were triangulated with quantitative findings to explore parent's acceptance of HPV vaccination for their daughter that were not addressed by quantitative findings.

Sociodemographic characteristics of the participants.

Among 13 participants, the majority(7) were females and all of the participants were age 32 and above (Table 6).

Table 6: Socio demographic characteristics of the study participants

No	Code	Age	Sex	Monthly income	Educational Status	Occupation
1	Participant1	36	F	8000ETB	Degree	Teacher
2	Participant2	32	F	2000ETB	Diploma	Cleaner
3	Participant3	40	M	5000ETB	Primary education	Daily laborer
4	Participant4	39	F	1500ETB	Unable to read and write	Housewife
5	Participant5	39	M	1000ETB	Unable to read and write	Daily laborer
6	Participant6	38	M	13000ETB	Degree	Teacher
7	Participant7	38	F	7072ETB	Degree	Teacher
8	Participant8	43	M	15000ETB	Degree	Banker
9	Participant9	42	F	9000ETB	Diploma	Merchant
10	Participant10	36	F	4690ETB	Diploma	Secretary
11	Participant11	32	M	5373ETB	Degree	Human resource manager
12	KeyInformant1	40	M	10150ETB	Degree	Woreda EPI officer
13	KeyInformant2	35	F	8017ETB	Diploma	Kebele3 health extension worker

Table 7: Theme generation of the study participants.

Codes	Subthemes	Themes
Early sexual intercourse Unsafe sex(Rape) Early marriage	Perception of HPV infection	Lack of knowledge and perception HPV infection
Exposure to sun while urinating Lack of Hygiene Knowledge is partial Lack of understanding	Lack of Knowledge	
From health professionals Radio/TV Never heard of HPV vaccine	Information about HPV vaccine	Information and Benefit of HPV vaccine
To prevent against cervical cancer To became healthy Precancer prevention	Benefit of HPV vaccine	
Spreading false rumors Leads to infertility As a method of contraceptive Afraid of HPV vaccine	Fear of side effect about HPV Vaccine.	Fear of side effects and Belief about HPV vaccine
The generation is lucky 100% sure to vaccinate the daughters HPV vaccine is safe and effective Horrible and deadly disease(cervical cancer)	Belief about HPV vaccine	
Health care providers advise Religious leaders advise In collaboration with other stakeholders Peer pressure	Influential stakeholders	Influential stakeholders and lack of responsibility
Fear of vaccine shortage The access is not fixed	Lack of responsibility	

From the qualitative study's four themes and eight subthemes were generated. Lack of knowledge and perception of HPV infection, source of information and importance of HPV vaccine, fear of side effect and belief about HPV vaccine, Influential stakeholders and lack of responsibility were factors associated with parent's acceptance of HPV vaccination for their daughters.

Theme1: Lack of knowledge and perception of HPV infection

When asked, the participants had lack of knowledge about the risk factors of HPV infection whereas; the majority of the participant's perception about cause of HPV infection was well expressed.

Subtheme 1: perception of HPV infection

When asked, most of the study participants perception of HPV infection were early sexual intercourse, early marriage, unsafe sex (rape).

One of the study participants expressed as follows.

"If childhood marriage or early sexual intercourse is exercised or if sexual intercourse during childhood is done for a long time, cervical cancer can be caused by these reasons." (Participant 7, age 38 female).

The other things that most participants expressed were early marriage, "*when the girl is not reached at puberty stage and she is not ready for marriage, I think that it will have some effect of cervical cancer on her when she has intercourse." (Participant 3, age 40, male).*

In addition, the other participant expressed unsafe sex/ rape as a risk factor of cervical cancer.

"*We don't know what kind of disease men's are infected with, what disease and illness they have, nothing is known about men, when daughters being raped this causes them to bleed...this leads to different diseases like cervical cancer." (Participant 9, age 42, female).*

Subtheme 2: Lack of Knowledge

When asked, most of the participants had lack of knowledge about the risk factors of HPV infection. They think that exposure to sunlight while urinating and lack of hygiene were the risk factor for HPV infection. One of the participants expressed it as follows.

"*We believe that the risk factor of cervical cancer is lack of hygiene. If you don't clean yourself, something that is not good and dirty gets inside and causes this disease". (Participant 10, age 36, female).*

"*Especially when we urinate on this hot soil that has been exposed to the sun, it leads to cervical cancer (2). When we urinate, the soil that you wet rises like steam and it is called (MECH). It is the one that exposes to this disease" (Participant4,Age 39,female).*

Another respondent also expressed the risk factor as follows;

"When you urinate on a hot ground or on a sunny ground, there is steam. Especially now, I am worried about it that may cause cervical cancer. When women use urine in the field, it heats up and when the two collide on the ground, it vaporizes to the uterus, and then it rises there. The hot ground creates steam and this is my first concern. Oh, yes (2) it enters the uterus. It's called (MECH)." (Participant3, age 40, male).

One of the key informant also expressed that the knowledge of the society was still partial.

"It is the idea that many of the views of the society are yet to be understood and the first priority to improve the views is to create a better understanding of the health promotion or the benefits of vaccination...the knowledge is partial." (Key informantI-1, age 40, male).

Theme2; Information and Benefit of HPV vaccine

This theme also contains two subthemes.

Subtheme1; Information about HPV vaccine

In this subthemes majority of the respondent's expressed their source of information about HPV vaccination were health professionals and TV even though there were parents who were never heard about HPV vaccine. One of the respondents expressed this as follows;

"*Yes...we have information, although not complete, because we hear from health professionals sometimes and through advertisements on television and radio" (participant6, age 38, male).*

On the other hand, the other respondent expressed as follows;

"I get information from a doctor and my daughters also take the vaccination, because of the advice what I got from the medical professionals."(participant9, age 42, female).

Subtheme2: Benefit of HPV vaccine

In this subtheme, the respondent's expressed that HPV vaccine is used to prevent against cervical cancer and it was used to become healthy. One of the study participants expressed that;

"This cervical cancer vaccine is about prevention. The vaccine is about prevention. If we prevent Precancer, it means that we prevent cancer." (participant7,age 38, female).

In addition another respondent's also expressed the same thing*; "The reason why I believe the importance of vaccination is that a person should be vaccinated early. It is prevention, right? If the vaccine is early, it will prevent the children or women from getting the disease. It is very important because it protects from cervical cancer." (participant9,age 42, female).*

Theme3: fear of side effect and Belief about HPV vaccine

In this theme, the participants were expressed their misconception about HPV vaccine side effects, to the reverse, most of the participants had good belief about HPV vaccine.

Subtheme1: Fear of side effect about HPV vaccine

In this subtheme, most of the participants were expressed their fear of side effects or concern about HPV vaccinations for their daughters as follows;

"*It's just sexual abuse, because we think the vaccine as pregnancy preventive method...Just to sum up it, we believe that the vaccine is a protection against pregnancy."(participant2,age32, female).*

The other respondent also expressed that HPV vaccine leads to infertility and they consider this as method of birth control.

"I am especially afraid of two things, birth control... because now you know what this is that scares me. When birth control is given only to women, it is women who take a lot of time and get injected. I'm a little disappointed with that and I don't like to pass away without being replaced and I am afraid that my children will be infertile." (*participant4, age 39, female).*

Overall, one of the key informants also expressed the same thing when I asked about is there any rumor among the community towards HPV vaccination of their daughters.

"spreading false rumors about why my daughter was injected, for example...family planning, which I didn't know before was injected, our children are about to suffer...one of these kinds of things is to emphasize the false results(2);leave the best and highlight the bad and it happens".(Key informant-1,age40,male).

Subthem2: Belief about HPV vaccine

In this subtheme, most of the participants expressed their belief about HPV vaccine. One participant expressed this as follows:

"I think it would be better if we vaccinate the daughters on time and protect children from cervical cancer. You can't get the vaccine financially even now we know the current situation. I don't think there is anyone who has such a bad attitude; I think it is good starting from me." (participant8, age 43, male).

"*It is important for a person to prevent the disease before contracting it. I believe that it is very important that this cervical cancer vaccine is given in order to easily solve the problem of our sisters, our children and our mothers."(Participant11, Age, 32.male).*

Theme 4: Influential stakeholders and lack of responsibilities.

This theme expressed the following sub themes.

Subtheme1: Influential stakeholders

In this subtheme, participants expressed that counseling of influential stakeholders was important to change community's behavior towards parent's acceptance of HPV vaccinations for their daughters. One of the study participants expressed like this.

"The starting point for all of this is counseling and after a person trusts it then they come close to that, after that their consent should be asked and the vaccination should be given. Above all, what is needed is professional counseling" (participant6, age 38, male).

Another participant also expressed this thing.

"Yes, counseling services should be given in a broad sense, that is, first of all by the religious leaders, if they give an explanation for people available at the church and give suggestions for us, we will have more knowledge, then the society will accept the vaccine." (Participant2 age 32, female).

One of the key informants also expressed the same thing.

"When a religious father tells them about HPV vaccine for parents who don't have a good attitude towards the vaccine, they think that it's good if counseling comes from religious leaders. Yes, they are listening them very much rather than health professionals. If we work together with them, there will be community's behavioral change towards HPV vaccine. Yes, there is no question" (Key Informant-2 age35, female).

Similarly, the other key informant expressed as follows.

"Different stakeholders will bring a better change for parent's acceptance of HPV vaccine. The combination of each...the influencer, especially now when we see it differently, or when I see it as an officer, especially the religious leaders have a voice." (Key informant1, age40, male).

Subtheme 2: lack of responsibility

In this subtheme key informants expressed their fear of HPV vaccine shortage.

"The more we went, the more it became scarce. So from the top, the federal government wanted us to plan for the 9-14 year olds; it means that the supply is limited. That is why it came from the

top down to prevent them from reaching the stage where they are expected to reach the age of sex before they pass"(Key informant-1,age 40,male).

The other key informant also described as follows.

"The existing supply is still good according to our perception, but it has some problems .The access will never be fixed. Now it is thought that there was a shortage of vaccines, so let's start from 14 years old, it will go down. The vaccine was given from 9-14" (Key informant-2, age 35 female).

7. DISCUSSION

In this study, 78.1 %, (95%CI, 73-82.4) of parents accept HPV vaccinations for their daughters. Having good knowledge, positive attitude, subjective norms and safety concern about HPV vaccinations were significantly associated factors with the outcome variable.

This finding was in line with other studies done in Thailand (77%), India (78%) and London (75%)(16, 19, 37),the consistency might be due to HPV vaccine was given free by the government in Thailand, which was similar with the study setting. This finding was also in line with a study done in western Nigeria(79.2%)(1),which might be similarity in some of Sociodemographic characteristics of the study participant in which the mean age of the respondent's and level of education were almost similar with the current study in western Nigeria. This study was also consistent with other studies done in different parts of Ethiopia, bench shako (79.5%), Gondar (81.3%), Debretabore (79.1%), Addiszemen (80.3%)(12, 13, 33, 40). This could be due to similarity in the data collection method, study settings and most of these studies were community based.

This study was higher than the study done in Turkey (45.5%), United States (48%) and saudiarebia, Jeddah where 94% of parents were unwilling to accept HPV vaccine for their daughters (15, 20, 38). The reason for this discrepancy could be the method of data collection where only parents of nursing students were included and data was collected by their daughters in turkey. In Jeddah, there was online survey and the study was institution based where only parents attending hospital were involved in contrast to the current finding. This finding was also higher than the study done in Nigeria, Abuja (62.8%), Zambia, Lusaka (53.8%) and western Keniya (70%)(5, 18, 28). This discrepancy could be the difference in study period and 92% of the study participants had no any knowledge of HPV vaccine and the participants were only females attending antenatal care in Nigeria. This difference might also be non-availability of HPV vaccine (64.7%) and high cost of HPV vaccine (60.8%) in keniya in contrast to the current study where HPV vaccine was free and the vaccine was available in the study setting. The current finding was also higher than the study done in debretabore (44.8%)(22). This could be due to the difference in study period and slightly higher than the study done in woldia (72.9%)(45).

This finding was lower than the study's done in Poland (85.1%), Indonesia (91%) and China in different periods (87.6% and83.3%)(21, 43, 46), this difference could be the difference in study settings and method of data collection, where study's in Poland shows that the data was collected in parents and teachers meeting, which might be affected by selection of the study participant's. The study conducted in China was snowball sampling technique and convenience sampling technique was used in Indonesia, while the current study was conducted using probability sampling technique and it could be the reason for this difference. This finding was also lower than the study done in Nigeria, Lagos(88.9%)(6), this difference could be routine immunization coverage was high and 97.6% of immunization was compulsory in Lagos. In addition, the study in Nigeria considers only mothers and doesn't consider fathers in contrast to the current study.

The current finding was also lower than the study done in Hadiya (84.9%), Addis Ababa (94.3%) (8, 10). This difference could be due to the difference in study setting and participant's level of knowledge and Attitude towards HPV vaccinations, where high level of literacy and access to better health care service about HPV vaccine to the community was expected to be high in Addis Ababa.

This finding revealed that knowledge on HPV vaccine and HPV infection was significantly associated with parent's acceptance of HPV vaccinations for their daughters. The reason for this could be parents know that cervical cancer is horrible and deadly disease. This finding was supported by other similar studies done in Poland(27),Keniya(5),western Nigeria(1) and In Ethiopia, Gondar, Debretabore and woldia in different periods(12, 13, 22, 45). This finding was also supported by qualitative findings.

When asked, majority of the respondents were aware of the severity of cervical cancer and they know that this disease was the main cause of maternal death.

"Yes... cancer is one of the main causes of death of mothers. Cancer is a disease that has no cure. Therefore, it is very important for young girls to take preventive measures to prevent maternal death." (participant 7, age 38, female").

Knowledge of HPV infection and HPV vaccination could be the target for parents acceptance of HPV vaccination for their daughter's to be effective(13). Therefore, comprehensive educational campaign and awareness creation about HPV infection, its link with cervical cancer and the

effectiveness of HPV vaccine targeting those parents who had poor knowledge should be the focus area to increase parent's acceptance of HPV vaccination for their daughters and to ensure the health of adolescent's.

In addition, this finding also revealed that parents who have positive attitudes about HPV vaccine have significantly associated with parent's acceptance of HPV vaccinations for their daughters. This finding was also supported by other similar studies done in keniya and in different parts of Ethiopia, Adissababa, Gondar, debretabore, bench shako zone and woldia (5, 10, 12, 13, 40, 45). This could be due to parents view and support that HPV vaccine is beneficial like other childhood vaccines or it may be due to parent's belief that cervical cancer is very deadly disease.

This is also supported by qualitative findings, when asked, most of the participants expressed positive attitude towards HPV vaccine.

"This generation is lucky and the vaccination should not be stopped and I have cool attitude towards HPV vaccine. For this most important thing to prevent the disease, the vaccine is the best strategy. This should continue. Let the vaccination continue."(Participant 7, age 36, female).

"It is important to vaccinate the daughters one time to protect them against cervical cancer. I don't think there is anyone who has such a bad attitude." (participant8, age 38, male).

The attitude of parents had great role to accept or reject HPV vaccine for their daughters. Therefore, to build positive attitude towards HPV vaccine among the community we have to emphasize the long-term health benefits of HPV vaccination in reducing the risk of cervical cancer and showcase testimonials from healthcare professionals and parents who support HPV vaccination targeting parents who had negative attitude towards HPV vaccine.

Moreover, parents who have positive subjective norms were significantly associated with parent's acceptance of HPV vaccinations for their daughters. This finding was also supported by other similar studies done in Poland, Colombia, Jeddah, South Africa and western Nigeria (1, 15, 26, 27, 29). This could be the reason that parents were influenced by peer pressure, health professionals and religious leaders counseling. Another explanation for this could be parents may

have vaccine hesitancy for that matter they might need influential persons for decision making to accept or reject HPV vaccinations for their daughters.

This was supported by qualitative parts, when asked, almost all of the participants expressed that counseling is influential for parents acceptance of HPV vaccine for their daughters. One of the key informant expressed that for parents acceptance of HPV vaccine to be effective, not only health workers but also the involvement of religious leaders were important.

"*It is necessary, especially the members of the religious leaders who we believe to be influential gives a better opinion, when a thoughtful person speaks the parents will return to a good track. Healthcare providers in collaboration with religious leaders counseling will bring behavioral change for parent's acceptance of HPV vaccine for their daughters to be effective."(Key informant1, age 40, male).*

The other participant also expressed that engagement of different stakeholders for counseling was influential for parent's acceptance of HPV vaccine for their daughters to be effective.

"*Because cancer is affecting us and we are losing many of our sisters and children, it is important to provide counseling services and create awareness. I feel that each of us has a role to play, but in order to have a greater voice; I have the idea that if the relevant governmental and non-governmental organizations and religious organizations take this role, they will be more audible. There is no doubt."(participant11, age 32, male).*

Therefore, health care providers in collaboration with other influential stakeholders should give deep counseling service about the importance of HPV vaccine and foster discussions among parents within social networks or parent groups about their decisions regarding HPV vaccination. Encourage positive peer influence by sharing experiences of parents who have chosen to vaccinate their daughter's targeting for those who have negative subjective norm.

Lastly, safety concern about HPV vaccination was significantly associated with parent's acceptance of HPV vaccinations for their daughters. This finding was supported with other studies done in Poland, London (UK), United States and Addiszemen (19, 27, 33, 38). This could be the reason that parents who had low safety concern were less hesitant to HPV vaccines or they might have no fear of side effect about HPV vaccine. In addition, this could be parents who had

low safety concern about HPV vaccine may understand safety and effectiveness of HPV vaccination to prevent against cervical cancer. In contrast to this, parents with high safety concern for HPV vaccine might not had sufficient information towards HPV vaccine safety concern. This was supported by a study in Saudi, Jeddah ,which shows that about 83.8% of participants think that there were no enough information towards HPV vaccine safety concern and efficacy(15).

This was also supported by qualitative findings. When asked about community's safety concern of HPV vaccine towards vaccination of their daughters, one of the key informants expressed that there were false rumors towards HPV vaccine among the community. Most of the study participants think that their daughters will became infertile while vaccinated against HPV infection. In addition, participants also think that HPV vaccine was like contraceptive or birth control method and they suspected that it may expose their daughters to risk of sexual behavior. In contrast to this parent with low safety concern expressed that there was no HPV vaccine side effects.

"I don't think that there was any side effect, I don't think that there was that much damage because we think that the vaccine was useful to them. Because we think that it has come, we recommend that our daughters should get vaccinated" (participant10, age 36, female).

"There is absolutely no risk to the vaccine. Because this has been studied and tested by the Ministry of Health, I have no doubts. Because the first vaccine is given by a professional and it is being given by health professionals and it is not given randomly, I do not believe that it will cause collateral damage. It's only the importance that stands out to me" (participant11, age 32, male).

Therefore, to increase HPV vaccine acceptance among parent's transparent information about the safety profile of the HPV vaccine based on scientific evidence, address common myths and misconceptions about HPV vaccine safety, communicate the risks of HPV infection and associated diseases compared to the extremely low risks associated with the vaccine and highlight the rigorous safety testing and monitoring processes vaccines undergo before approval by targeting those parents who had high safety concern for HPV vaccine should be important.

8. STRENGTH AND LIMITATION OF THE STUDY

8.1 STRENGTH

This study used community based mixed method study which explored factors not addressed by the quantitative part. This dual approach also enabled us to have a more comprehensive understanding and deeper insight of the factors influencing parental acceptance of HPV vaccine for their daughters.

8.2 LIMITATION OF THE STUDY

Since this study was related with sexual health, the finding of this study could be influenced by social desirability bias.

9. CONCLUSION

The result of this study seems promising to reach the global strategy that 90% of adolescent's to be immunized at the end of 2030. Quantitative findings, knowledge, attitude, safety concern and subjective norm were factors associated with parent's acceptance of HPV vaccine for their daughters. The qualitative finding revealed that fear of side effects (false rumors, infertility, contraceptive method), lack of knowledge about HPV infection (exposure to sun (MECH), lack of hygiene), lack of responsibility (fear of vaccine shortage, access not fixed) were the barriers whereas, influential stakeholders (healthcare providers, religious leaders, peer pressure), perception of HPV infection (early marriage, unsafe sex(rape), and information, benefit of HPV vaccine(Precancer prevention and to be healthy) and belief about HPV vaccine(HPV vaccine is safe and effective) were facilitators towards parents acceptance of HPV vaccine for their daughters.

10. RECOMMENDATIONS

Based on the above factors associated with parent's acceptance of HPV vaccination for their daughters, the following recommendations were forwarded.

For Policy makers

To enhance parental acceptance of HPV vaccine and to ensure better adolescent health, policy makers should advocate policies that support HPV vaccination, such as including the vaccine in national immunization programs, ensuring its availability and also focus on improving access.

For Adet town EPI officers

They should focus on implementing comprehensive educational programs aimed at enhancing parental knowledge about HPV infection, cervical cancer risks and build confidence about safety and efficacy of the HPV vaccine. These campaigns should address common misconceptions and provide clear, evidence-based information.

For health care providers

Health care providers should engage with influential religious leaders to influence the community to promote positive subjective norms and encourage vaccine acceptance among parents. It is also recommended that they should give routine and ongoing counseling service for the community in order to reduce parents misunderstanding and their misconception about safety concern of HPV vaccine towards vaccination of their daughters. Encourage proactive discussions during routine healthcare visits to address vaccine misconceptions and promote informed decision-making and build positive attitude towards HPV vaccine.

For researchers

Future investigators should study parent's acceptance of HPV vaccine for their daughters further by considering parents in rural parts of the community.

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12. ANNEXS

12.1 Annex 1: Information sheet

How are you? My name is _____. I am here on behalf of Bezawit kassa, student in Bahir Dar University, college of medicine and health sciences, school of public health, department of Epidemiology and Biostatics. She is conducting a research on acceptance of Human papilloma virus vaccination and associated factors among parents for their daughters in Adet town for the partial fulfillment of master's degree. She has received permission from school of public health at Bahir Dar University and Adet town kebele administrators to conduct the study starting from April 22, to June 17, 2024. Your contribution has a great input for the study and I would greatly appreciate your participation. There is no possible risk associated with participating in this study. Your name is not written in the questionnaires and please assures that all the information you were kept strictly confidential. If you choose not to answer a particular question that is your right. You were also permitted to withdraw any time from the study when you feel uncomfortable with it. If you have any idea and question in this study, you can contact the principal investigator or advisors by the following address.

Principal investigator name; Bezawit kassa

Phone No. =0919165597

Advisors; Mr. Gizachew Taddese (Assistant professor of Epidemiology)

Phone No. =0918134416

Mrs. Asiya Mohammed (MSc in Biostatistics)

Phone No. =0918308554

Therefore to participate in this studies,

A. Agree B. Disagree

Interviewer Name_____Signature_____Date of interview_____

Supervisor Name_____ Date_____Signature_____.

12.2 Annex II: English version of the questionnaires

Encircle the responses in the options column if it is a choice question or write their answer in the blank space if it is an open-ended question.

Part-I Socio-demographic characteristics of participants			
Code	Questions	Possible responses	Skip to
101	How old are you?	----------years	
102	Sex of the respondant.	1. Male 2. Female	
103	Relationship	1. Father 2. Mother 3. Guardian/caregiver	
104	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catolic 5. Other--------	
105	What is your educational status?	1. Unable to read and write 2. Able to read and write 3. Primary education 4. Secondary education 5. College and above	
106	What is your current marital status?	1. Single 2. Married 3. Divorced 4. Widowed	
107	What is your occupation?	1. House wife 2. Merchant 3. Government employee 4. Self employed 5. Student	

		6. Others	
108	How much is the average monthly income of your family?	----------	
109	Do you read newspapers?	1. Yes 2. No	If No, skip to Q 111
110	If yes, how often did you read?	1. Every day 2. One times per week 3. Two times per week 4. Three and more per week	
111	Do you listen to the radio?	1. Yes 2. No	If No, skip to Q 113
112	If yes, how often did you hear?	1. Every day 2. One times per week 3. Two times per week 4. Three and more per week	
113	Do you watch television?	1. Yes 2. No	If No, skip to Q part II
114	If yes, how often did you watch?	1. Every day 2. One times per week 3. two times per week 4. Three and more per week	
Part -II Reproductive and other health-related characteristics			
201	How many young daughters(between the age group of 9-14 years) do you have?	1. One 2. More than one	
202	Have you any family members who have been infected with cervical cancer?	1. Yes 2. No 3. I dont know	
Part -III Parental knowledge related questions			
301	Have you ever heard about cervical cancer?	1. Yes 2. No	If No, skip to Q # 303
302	If yes, from Where have you heard about it?	1. Leaflets/Newspapers 2. Radio/TV	

		3. Health professionals 4. School teachers 5. Relative/Peers 6. Social medias 7. Others	
303	Do you know the risk factors of cervical cancer?	1. Yes 2. No	If No,skip to Q#305
304	If yes, what are the risk factors for cervical cancer?	1. Early sexual intercourse 2. HPV infection 3. Multiple sexual partners 4. Cigarette smoking 5. Others(spacify)-------	
305	Have you ever heard of Human Papiloma virus(HPV))?	1. Yes 2. No	If No, skip to Q#307
306	If yes, from Where have you heard about it?	1. Leaflets/Newspapers 2. Radio/TV 3. Health professionals 4. School teachers 5. Relative/Peers 6. Social medias 7. Others(spacify)-------	
307	Do you think HPV can be transmited through sexual contact?	1. Yes 2. No	
308	People can transmit HPV to their partner even if they have no symptoms of infection.	1. Yes 2. No	
309	Do you think HPV can heal by itself without any treatment?	1. Yes 2. No	
310	Do you know cervical cancer has a vaccine?	1. Yes 2. No	If No, skip to Q312
311	If yes, for whom do you think the	1. For daughters	

	vaccine should be given?	2. For sons 3. For mothers 4. I am not sure for whom	
312	At what age do you think HPV vaccine should be given?	1. 9-14 2. 9-18 3. 9-26 4. I do not know	

Part –IV Attitude related questions: encercle the respone(1= strongly disagree,2=disagree,3=neutral,4=Agree 5=Strongly agree).

401	There is a risk for young women to contract HPV infection	**1**	**2**	**3**	**4**	**5**
402	My daughter/s may have cervical cancer in the future	**1**	**2**	**3**	**4**	**5**
403	Cervical cancer is a severe disease	**1**	**2**	**3**	**4**	**5**
404	Cervical cancer causing virus(HPV) vaccines can effectively prevent cervical cancer	**1**	**2**	**3**	**4**	**5**
405	I am afraid of the side effects of HPV vaccination to my daughter/s	**1**	**2**	**3**	**4**	**5**
406	I consider HPV vaccine is harmful	**1**	**2**	**3**	**4**	**5**
407	I am afraid of being HPV vaccination causes my daughter to be sexually active early	**1**	**2**	**3**	**4**	**5**
408	Girls who have the HPV vaccination might be more likely to have unprotected sex	**1**	**2**	**3**	**4**	**5**

Part V: Subjective norm related questions

501	Health professional counseling to vaccinate for HPV is influential	**1**	**2**	**3**	**4**	**5**
502	Teacher's or principal's recommendation to vaccinate for HPV is influential	**1**	**2**	**3**	**4**	**5**
503	Recommendations of friends or families to vaccinate for HPV are influential	**1**	**2**	**3**	**4**	**5**
504	Spiritual leader's recommendation to vaccinate for HPV is influential	**1**	**2**	**3**	**4**	**5**

Part VI: Perceived behavioral Control related questions

601	For me, the vaccination of my child against HPV is possible	**1**	**2**	**3**	**4**	**5**
602	If I wanted to vaccinate my daughters against HPV, it would be easy	**1**	**2**	**3**	**4**	**5**
603	It depends entirely on me to vaccinate my child against HPV	**1**	**2**	**3**	**4**	**5**

604	I feel control on vaccinating of my child against HPV	**1**	**2**	**3**	**4**	**5**

Part VII-Safety concern related questions

701.	I feel that giving my daughter HPV vaccine could be like performing an experment on her.	**1**	**2**	**3**	**4**	**5**
702	I feel that HPV vaccine may cause problems getting pregnant in the future.	**1**	**2**	**3**	**4**	**5**
703	I am afraid of vaccination of my daughters.	**1**	**2**	**3**	**4**	**5**
704	I am concerned about HPV vaccination side effects.	**1**	**2**	**3**	**4**	**5**

Part VIII- Parental Acceptance to vaccinate their daughters with HPV vaccine

801	Are you willing to vaccinate HPV vaccination for your daughter that can protect againset HPV infection?	1. Yes 2. No	If yes, skip toQ#803.
802	If No, what is/are the main reason you would not want to vaccinate your daughter/s?	1. I am not informed by health care providers 2. Worried about safety of vaccine 3. Does not trust on the efficacy of the vaccine 4. Do not know where or how to access the vaccine 5. May expose adolesents to risky of sexual behavior 6. Believe no need of vaccinating them 7. Others(spacify)-----	
803	For me, it is an important item of health management to have my daughters get the HPV vaccination	1. Yes 2. No	
804	I will make efforts to have my daughters get the HPV vaccination	1.Yes 2.No	
805	I will regrate if my daughters can not get HPV vaccination	1.yes 2.No	

806	Daughters shuold get HPV vaccine before sexual contact	1.yes 2. No	
807	I recommend HPV vaccine to others	1.Yes 2. No	

Question VIII: semi structured questionnaires for qualitative parts.

1.1 interview guide

1. Age_____
2. Sex_____
3. Occupation_____
4. Average monthly income_____
5. Educational Status

-No formal Education

-Primary

-Secondary

-Diploma and above

1.2 Main questions

1. Would you please tell me about cervical cancer and its risk factors? (Probing, is there any family history of cervical cancer?)
2. Do you get any information about HPV vaccination? (Probing, from where? if not why)
3. Please tell me the importance of HPV vaccination? (are you willing to vaccinate your daughters?)
4. Have you ever been vaccinated your daughter with HPV vaccination? (Probing, if not why?).
5. Would you please explain about the attitude towards HPV vaccinations? (are you sure to vaccinate your daughters against HPV).
6. Do you worry about safety and side effects of HPV vaccine regarding vaccination of your daughters? (if so, why?)
7. Do you think that counseling service is important for daughters to uptake HPV vaccination? (if yes, from whom?)

Questions for key informants (Stakeholders)

8. Please tell me about the availability and accessibility of HPV vaccination in the community (probing, is there any HPV vaccine shortage).

9. Please tell me the attitude and knowledge of the community regarding HPV vaccination for their daughters (probing, is there any HPV vaccine rumors? If so, why?).

10. Please tell me the possible barriers of parents acceptability of HPV vaccination for their daughters (probing, what could be the facilitators).

13. Declaration

Date_____. I declared that this is my original work, has never been presented in this or any other university and that all the resources and materials used for the research have been fully acknowledged.

Principal investigator

Bezawit kassa (BSc)

Signature _____

Date 24/12/16

Advisors

1. Mr. Gizachew Taddese (MPH, Assistant professor of Epidemiology)
   Signature _____
   Date 24/12/2016
2. Mrs. Asiya Mohammed (MSc in Biostatistics)
   Signature _____
   Date 24/12/2016 E.C

Internal examiner

1. Abebaw Gedef (Assistant professor of Biostatistics)

Signature _____

Date 24/12/2016 E.C



14.አባሪ

14.1 አባሪ 1፡ የሚጠ ፅ

ጠፍ ይስጥልኝ ወድ የዚህ ጥናት ተሳታፊዎች:- ስሜ_____ እባላለሁ::እኔ ባሁኑ ሰአት በባህርዳር ዩኒቨርሲቲ የህክምና እና ጠፍ ሳይንስ ኮሌጅ የህብረተሰብ ጠፍ ትምህርት በኢፒዲሞሎጂ ትምህርት ክፍል ተማሪ ቤዛዊት ካሳን ወክየ ነው፡ ። እርሷ በአይት ከተማ ወስጥ የሚኙ ወላጆች ለሴቶች ልጆቻቸዉ የሂወማን ፓፒሎማ ቫይረስ ክትባት ተቀባይነት እና ተያያዥ ጉዳዮችን በተመለከተ ለሁለተኛ ድግሪ ጥናት እያካሄደች ነው። ጥናቱን ከሚያዚያ 11 ቀን 2016 ጀምሮ እንድታካሂድ ከባህርዳር ዩኒቨርሲቲ የህብረተሰብ ጠፍ ትምህርት ቤት እና የአይት ከተማ ቀበሌ አስተዳደር ፍቃድ አግኝታለች።የእርስዎ አስተዋፅዖ ለጥናቱ ትልቅ ግብአት አለዉ::ተሳትፏችሁንም በጣም አበርታታልሁ። በዚህ ጥናት ወስጥ ከመሳተፍ ጋር የተያያዘ ምንም አይነት ችግር የለም። ስምዎ በማከይቁ ወስጥ አይፃፍም እንዲሁም ሁሉም መረጃዎች ጥብቅ እና ሚስጥራዊ ናቸዉ። ማከይቁ ወስጥ ያልተመቸዎት ጥያቄ ካለ አለመመለስ መበትዎ ነዉ፡ ። እንዲሁም በማንኛዉም ሰአት ምቾት ከልተሰማዎት ጥናቱን ማቋርጥ ይችላሉ፡ ። በዚህ ጥናት ወስጥ ምንም አይነት ሀሳብ እና ጥያቄ ካለዎት የጥናቱን ባለቤት ወይም አማካሪዎችን በሚከተለው አድራሻ ማግኘት ይችላሉ፡ ።

የጥናቱ ባለቤት፡ - ቤዛዊት ካሳ ስልክ: 0919165597

አማካሪዎች፡ - አቶ ግዛቸውታደሰ (በኢፒዲሞሎጂ ረዳት ፕሮፌሰር)

ስልክ ፡ 0918134416

ወይዘሮ አስያ መሐመድ (በባዮስታቲክስ ሁለተኛ ድግሪ) ስልክ ፡ 0918308554

ስለዚህ በዚህ ጥናት ወስጥ ለመሳተፍ፡ -

ሀ. እስማማለሁ ለ. አልስማማም

የጠየቂውስም _____ፊርማ_____ የቃለ ማጠይቁ ቀን _____

የተቆጣጣሪ ስም_____ ቀን_____ፊርማ___

ክፍል-I የተሳታፊዎች ማህበራዊ ስነ -ሕዝብ ባህሪያት			
ኮድ	ማጠይቆች	ምረጫ	ዝለል
101	እድሜ	----------በአመት	
102	ፆታ	1.ወንድ 2.ሴት	
103	ዝምድና	1.አባት 2.እናት 3. ጠባቂ/ተንከባካቢ	
104	ሀይማኖት	1. አርቶዶክስ 2. ሞኸሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ ካለ (ይግለጹ)---	
105	የትምህርት ደረጃዎ ምን ያህል ነው?	1. ማንበብእና መጻፍ የሚችል 2. ማንበብእና መጻፍ የሚቻል 3. የመጀመሪያ ደረጃ ትምህርት 4. የሁለተኛ ደረጃ ትምህርት 5. ኮሌጅእና ከዚያ በላይ	
106	አሁን ያሉበት የጋብቻ ሁኔታ	1 ያላገባ/ች	

		2. ያገባ/ች 3. የተፋታ/ች 4.ሚስት/ባል የሞተበት/ባት	
107	ስራህ/ሽ ምንድን ነው?	1.የቤት እመቤት 2.ነጋዴ 3.የመንግስት ሰራተኛ 4.የግል ተቀጣሪ 5.ተማሪ 6.ሌሎች	
108	የቤተሰብዎ አማካይ ወርሃዊ ገቢ ምን ያህል ነው?	----------በኢትዮጵያ ብር	
109	ጋዜጦችን አንብበዉያዉቃሉ?	1. አዎ 2. አይደለም	ተ.ቁ 109 ሚልስዎ አይደለም ከሆነ ፣ ወደ ተ.ቁ 111 ይሂዱ
110	ከላይ በተ.ቁ 109 ሚልስዎ አዎ ከሆነ ፣ ምን ያህል ጊዜ አንብበዋል?	1.በየቀኑ 2. በሳምንት አንድ ጊዜ 3. በሳምንት ሁለት ጊዜ 4. በሳምንት ሶስት እና ከዚያ በላይ	
111	ሬዲዮ አዳምጠዉያዉቃሉ?	1. አዎ 2. አይደለም	ተ.ቁ111ሚልስዎ አይደለም ከሆነ ወደ

			ተ.ቁ 113 ይሂዱ
112	ከላይ በተ.ቁ111 ሚዲያ አዎ ከሆነ ለምን ያህል ጊዜ አዳምጠዋል?	1. በየቀኑ 2. በሳምንት አንድ ጊዜ 3. በሳምንት ሁለት ጊዜ 4.በሳምንት ሶስት እና ከዚያ በላይ	
113	ቴሌቪዥን ይመለከታሉ?	1. አዎ 2. አይደለም	ተ.ቁ113 ሚዲያ አይደለም ከሆነ ወደ ክፍል II ይሂዱ
114	ከላይ በተ.ቁ113 ሚዲያ አዎ ከሆነ ፣ ምን ያህል ጊዜ ይመለከታሉ?	1.በየቀኑ 2. በሳምንት አንድ ጊዜ 3.በሳምንት ሁለት ጊዜ 4. በሳምንት ሶስት እና ከዚያ በላይ	
ክፍል -II የመራቢያ እና ሌሎች ከጠፍ ጋር የተያያዙ ባህሪያት			
201	. ስንት ወጣት ሴት ልጆች አላችሁ (ከ9-14 አመት ባለውየዕድሜክልል ወስጥ ያሉ)?	1. አንድ 2. ከአንድ በላይ	
202	በማህፀን በር ካንሰር የተያዙ የቤተሰብ አባላት አለዎት?	1. አዎ 2. አይደለም 3. እርግጠኛ አይደለሁም	
ክፍል -III የወላጅ እውቀትን ማነረት ያደረጉ ጥያቄዎች			
301	ስለ ማህፀን በር ካንሰር ሰምተዉያውቃሉ?	1. አዎ	ተ.ቁ301 ሚዲያ

		2. አይደለም	አይደለም ከሆነ ፣ ወደ ተ.ቁ 303 ይሂዱ
302	ከላይ በተ.ቁ301 ሚልስዎ አዎ ከሆነ ፣ ከማን ነ ዉሰምተዉየ ሚያወቁት	1. በራሪ ወረቀቶች / ጋዜጦች 2. ሬዲዮ / ቲቪ 3. ከጠፍ ባለሞያዎች 4. ከትምህርት ቤት አስተማሪዎች 5. ከዘመድ /ከጓደኞች 6. ከማህበራዊ ሚዲያዎች 7. ሌላ ካለ (ይጥቀሱ) ----------	
303	ለማህፀን በር ካንሰር የሚያጋልጡነገሮችን ያውቃሉ?	1.አዎ 2. አይደለም	ተ.ቁ303 ሚልስዎ አይደለም ከሆነ ፣ ወደ ተ.ቁ305 ይሂዱ
304	ከላይ በተ.ቁ 303 ሚልስዎ አዎ ከሆነ ፣ ለማህፀን በር ካንሰር የሚያጋልጡነገሮች ምንድን ናቸዉ?	1. ያለእድሜጾታዊ ግንኙነት 2. የማህጸን በር ካንሰር ኢንፌክሽን 3. በርካታ የወሲብ አጋሮች መኖር 4. ሲጋራ ማጨስ 5. ሌላ ካለ(ይጥቀሱ)------	
305	ስለ ለማህፀን በር ካንሰር አምጭቫይረስ (HPV) ሰምተውያወቃሉ?	1. አዎ 2. አይደለም	ተ.ቁ 305 ሚልስዎ አይደለም ከሆነ ወደተ.ቁ

			307 ይሂዱ
306	ተ.ቁ 305 መልሰዎ አዎ ከሆነ ፣ ከየት ነዉ የሰሞት?	1. በራሪ ወረቀቶች / ጋዜጦች 2. ከ ሬዲዮ / ቲቪ 3. ከጠፍ ባለሞያዎች 4. ከትምህርትቤት/ከአስተማሪዎች 5. ከዘመድ /ከጓደኞች 6. በማህበራዊ ሚዲያዎች 7. ሌላካለ (ይጥቀሱ) ----------	
307	የማህፀን በር ካንሰር አምጭቫይርስ (HPV) በግብረ ሥጋ ግንኙነት ሊተላለፍ ይችላል ብለውያስባሉ?	1. አዎ 2. አይደለም	
308	የማህፀን በር ካንሰር አምጭቫይርስ የኢንፌክሽን ምልክት ባይኖርምከሰዉወደ ሰዉይተላለፋል፡ ፡	1. አዎ 2. አይደለም	
309	የማህፀን በር ካንሰር አምጭቫይረስ (HPV) ምንምአይነት ህክምና ሳይደረግ በራሱ ሊፈወስ ይችላል ብለውያስባሉ?	1. አዎ 2. አይደለም	
310	የማህፀን በር ካንሰር ክትባት እንዳለው ያውቃሉ?	1. አዎ 2. አይደለም	ተ.ቁ310 መልስዎ አይደለም ከሆነ ወደ 312 ይሂዱ
311	ከላይ በተ.ቁ 310 መልሰዎ አዎ ከሆነ ፣ ክትባቱ ማነው ያለበት ለማን ይማከልዎታል?	1. ለሴቶች ልጆች 2. ለወንዶች ልጆች 3. ለእናቶች 4.ለማንእንደሚሰጥ እርግጠኛ አይደለሁም	

312	የሚህፀን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባት በየትኛውዕድሜ ክልል ላይ ማጠት አለበት ብለውያስባሉ?	1. 9-14 2. 9-18 3. 9-26 4. አላወቅም	

2. **ክፍል - IV ከወላጆች አማላካከት ጋር የተያያዙ ጥያቄዎች፡ -** ትክክለኛወን መልስ ያክብቡ(1=በጣም አልስማማም፣ 2.=አልስማማም 3= ገለልተኛ 4=እስማማለሁ 5= በጣምእስማማለሁ

401	ወጣት ሴቶች በሚህፀን በር ካንሰር ቫይረስ (HPV) ኢንፌክሽን የመያዝ እድል አላቸዉብለዉያስባሉ	**1**	**2**	**3**	**4**	**5**
402	ሴትልጆ/ጆቼ ወደፊት በሚህፀን በር ካንሰር ሊያዙ ይችላሉ ብለዉያስባሉ?	**1**	**2**	**3**	**4**	**5**
403	የሚህፀን በር ካንሰር ከባድ በሽታ ነውብለዉያስባሉ?	**1**	**2**	**3**	**4**	**5**
404	የሚህፀን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባቶች የሚህፀን በር ካንሰርን የመከላከል አቅም አላቸዉብለዉ ያስባሉ	**1**	**2**	**3**	**4**	**5**
405	የሚህፀን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባት ለልጆ/ልጆቼ የሚያደርሰዉን የጎንዮሽ ጉዳት እፈራለሁ::	**1**	**2**	**3**	**4**	**5**
406	የሚህፀን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባት ጎጂ ነውብለዉያስባሉ?	**1**	**2**	**3**	**4**	**5**
407	የሚህፀን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባት ልጄን ያለእድሜዋ ለጾታዊ ግንኙነ ት ሊያጋልጥ ይችላል ብለዉያስባሉ	**1**	**2**	**3**	**4**	**5**
408	የሚህፀን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባት የተከተቡ ልጃገረዶች ጥንቃቄ የጎደለውጾታዊ ግንኙነ ት የሚድርግ እድላቸዉሰፊነ ዉብለዉያስባሉ?	**1**	**2**	**3**	**4**	**5**

ክፍል V፡ ከምክር ሃሳብ ጋር የተያያዙ ጥያቄዎች

501	የሚህፀን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባት ለሚከተብየጠፍ ባለሞያ ምክር ጠቃሚነ ው ብለዉያስባሉ?	**1**	**2**	**3**	**4**	**5**

502	የመማህር ወይምየርእሰመማህር ምክረ ሃሳብየሚከን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባት ለመከተብ ተፅዕኖ አለው?	**1**	**2**	**3**	**4**	**5**
503	ከጓደኛ ወይምከቤተሰብ የሚቆርቡምክሮች የሚከን በር ካንሰር ቫይረስ (HPV) ክትባት ለመከተብ ተፅዕኖ ፈጣሪ ናቸው?	**1**	**2**	**3**	**4**	**5**
504	የመንፈሳዊ አባቶች ምክር የሚከን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባትን ለመከተብ ተፅዕኖ አለው?	**1**	**2**	**3**	**4**	**5**

ክፍል VI፡ ከስነ -ባህሪ ጋር የተያያዙ ጥያቄዎች

601	እኔ ልጄን የሚከን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባትን መከተብእችላለሁ።	**1**	**2**	**3**	**4**	**5**
602	ሴት ልጆቼን የሚከን በር ካንሰር ቫይረስ (HPV)መከላከያ ክትባትን መከተብ ለእኔ ቀላል ነው።	**1**	**2**	**3**	**4**	**5**
603	ልጄን የሚከን በር ካንሰር ቫይረስ (HPV) መከላከያ ክትባትን መከተብ በእኔ ፍላጎት ላይ የተመሰረተ ነው።	**1**	**2**	**3**	**4**	**5**
604	ልጄን የሚከን በር ካንሰር ቫይረስ መከላከያ (HPV) ክትባትን ለመከተብ እርግጠኛ እንደሆንኩ ይሰማኛል።	**1**	**2**	**3**	**4**	**5**
ክፍል VII: ከክትባት ደህንነት ጋር የተያያዙ ማስይቆች						
701	ልጄን የሚከን በር ካንሰር ቫይረስ መከላከያ ክትባት መሰጠት ቤተ መቅራ እየተካሄደባት ሊሆን እንደሚቻል ይሰማኛል፡ ፡	**1**	**2**	**3**	**4**	**5**
702	የሚከን በር ካንሰር ቫይረስ መከላከያ ክትባት ልጄን ወደፊት ላልተፈለገ እርግዝና ሊያጋልጣት እንደሚቻል ይሰማኛል፡ ፡	**1**	**2**	**3**	**4**	**5**
703	ልጄን የሚከን በር ካንሰር ቫይረስ መከላከያ ክትባትን መከተብእፈራለሁ ፡ ፡	**1**	**2**	**3**	**4**	**5**
704	የሚከን በር ካንሰር ቫይረስ መከላከያ ክትባትን የጎንዮሽ ጉዳት እፈራለሁ ፡ ፡	**1**	**2**	**3**	**4**	**5**
ክፍል VIII: ወላጆች ሴት ልጆቻቸዉ የሚከን በር ካንሰር ቫይረስ (HPV) ክትባትን ለመከተብ ያላቸዉተቀባይነት						

801	ለሴት ልጅዎ የማህፀን በር ካንሰር ቫይረስ (HPV) በሽታን ለመከላከል የሚያስችል የማህፀን በር ካንሰር (HPV) ክትባት ለማስጠት ፍቃደኛ ነዎት?	1. አዎ 2. አይደለም	ተ.ቁ 801 መልስዎ አዎ ከሆነ ወደተ.ቁ 803 ይሂዱ
802	ከላይ በተ.ቁ 801 መልስዎ አይደለም ከሆነ ፣ ሴት ልጅዎን/ልጆቻችሁን ማስከተብ የማትፈልጉበት ዋና ምክንያት ምንድን ነው?	1. በጠፍባለመያዎች አልተነገረኝም። 2. ስለ ክትባቱ ደህንነት ስለምጨነቅ 3. በክትባቱ ወጠጉማት እምነት የለኝም 4. ክትባቱ የት እና እንዴት እንደሚገኝ አላወቅም 5. ወጣት ሴቶችን ለአላስፈላጊ ጾታዊ ግንኙነ ትሊያጋልጥ ይችላል። 6. ክትባቱ አያስፈልጋቸውም ብየ አምናለሁ 7. ሌላ ካለ (ይጥቀሱ) ----	
803	ለእኔ ልጆቼ የማህፀን በር ካንሰር (HPV) መከላከያ ክትባት እንዲወስዱ ሚድረግ ለጠፍ አስፈላጊ ጉዳይ ነው። ፡	1. አዎ 2. አይደለም	
804	ልጄ/ጆቼ የማህፀን በር ካንሰር መከላከያ ክትባት እንድትወስድ ጥርት አደርጋለሁ። ፡	1.አዎ 2.አይደለም	
805	ልጄ/ጆቼ የማህፀን በር ካንሰር መከላከያ ክትባት ካላገኙ ልፀፀት እችላለሁ። ፡	1.አዎ 2 .አይደለም	
806	ልጃገርዶች ፆታዊ ግንኙት ሳይጀምሩ የማህፀን በር ካንሰር መከላከያ ክትባት ማግኘት አለባቸዉ	1.አዎ 2.አይደለም	

807	የማህፀን በር ካንሰር መከላከያ ክትባት እንዲወስዱ ሌሎችን እመክራለሁ	1.አዎ 2.አይደለም	

ጥያቄ VIII: ጥራት (አይነ ታይ) ጥናትን በተመለከተ በከፊል የተዋቀሩ ማጠይቆች፡ -

1.1 የ ቃለ መጠይቅ መመሪያ

1. ዕድሜ_____

2. ፆታ---------

3. ስራ_____

4. አማካይ ወርሃዊ ገቢ_____

5.የ ትምህርት ደረጃ

- ያልተማር/ች

- አንደኛ ደረጃ

- ሁለተኛ ደረጃ

- ዲፕሎማእና ከዚያ በላይ

1.2 ዋና ጥያቄዎች

1. እባክዎትን ስለማህፀን በር ካንሰ እና ለበሽታዉ የሚያጋልጡነ ግሮችን ሊነ ግሩኝ ይችላሉ? (የ ማህፀን በር ካንሰር በቤተሰብ ይኖረ ይሆን?)

2. ስለ ማህፀን በር ካንሰር መከላከያ ክትባት ሚጃ አለዎት? (ከየት? ካልሆነ ለምን?)

3. እባክዎትን የ ማህፀን በር ካንሰር መከላከያ ክትባትን አስፈላጊነ ት ይንገሩኝ?(ልጆችዎን ለማስከትብ ፍቃደኛ ነ ዎት)

4. ሴት ልጆችዎ የ ማህፀን በር ካንሰር መከላከያ ክትባት ወስዳ/ደዉያወቃሉ? (ካልሆነ ለምን?)

5.እባክዎትን ስለማህፀን በር ካንሰር መከላከያ ክትባት ያለዎትን አመለካከት ያብራሩልኝ፡ ፡ (ልጆችዎን ለማስከተብስ እርግጠኛ ነዎት)

6. ለልጆች የማህፀን በር ካንሰር መከላከያ ክትባትን ለማስከተብ ስለ ክትባቱ ደህንነት እና የጎንዮሽ ጉዳት ስጋት አለዎት?(አዎ ከሆነ ለምን)

7.ሴት ልጆችን የማህፀን በር ካንሰር መከላከያ ክትባት ለማስከተብ የምክር አገልግሎት ጠቃሚ ይመስልዎታል(አዎ ከሆነ የማን)

ለባለድርሻ አካላት የተዘጋጁ ማጠይቆች፤

8.እባክዎት የሂወማን ፓፒሎማቫይርስ ክትባት በማህበርሰቡ ዘንድ ያለዉን አቅርቦት እና ተደራሰሽነት ይንገሩኝ (የክትባት እጥረት አለ ወይ?)

9.እባክዎት ስለሂወማን ፓፒሎማቫይርስ መከላከያ ክትባት ማህበርሰቡ ስላለዉአመለካከት እና እወቀት ይንገሩኝ (ስለክትባቱ አሉባልታ አለ ወይ?፣ ከሆነ ለምን?)

10.እባክዎት ወላጆች ለሴት ልጆቻቸዉየሂወማን ፓፒሎማቫይረስ መከላከያ ክትባት ለማስከተብ እንቅፋቶችን ይንገሩኝ (ማጠናከሪያዎችስ ምን ሊሆኑ ይችላሉ?)