



Assessment of Knowledge and Attitude towards Human Papilloma Virus Vaccination and Associated Factors among High School Female Students in Geddo Zone, Southern Ethiopia: Institution Based Cross Sectional Study

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Abstract

Introduction: With 528,000 new instances of cervical cancer reported in 2012, it is one of the most common cancers in women worldwide and is linked to the human papilloma virus.

The most prevalent virus that affects the reproductive system is the human papillomavirus, or HPV. For both men and women, the peak period for infection occurs soon after the onset of sexual activity. Although penetrative intercourse is not necessary for HPV transmission, it is sexually transmitted. Genital contact between skin cells is a well-known mechanism of transfer.

Materials and methods: A quantitative cross-sectional study with an institution base was carried out. The data was gathered through self-administered questioner. After the questionnaire's consistency and completeness were verified, it was imported into the Epi Data version 4.6.0.2 statistical program and exported into SPSS window version 25. To calculate the frequency of dependent and independent variables, descriptive statistics were used. The original logistic model had all explanatory variables whose p-value in bivariate logistic regression analysis was less than 0.25. In multivariable logistic regression analysis, a p-value of less than 0.05 with a 95% confidence interval is considered significant. Ultimately, the statistical association between knowledge and attitudes regarding human papilloma virus vaccine and both crude and adjusted odds ratios were ascertained.

Result: A total of 350 respondents participated in this study making the response rate of 92%. Based on the study, 204 (58.3%) had good knowledge towards human papilloma virus vaccination among female high school students. In multivariable analyses, those student's fathers who can able to read and write were about 3.45 times more likely to have good knowledge about human papilloma virus vaccination as compared to those who were unable to read and write (AOR=3.45, 95% CI: (1.26-9.47)). Regarding attitude, 184 (52.6%) had favorable attitude towards human papilloma virus vaccination among female high school students. Those students who get health education on human papilloma virus vaccination were about 2.08 times more likely to have good attitude as compared to those who were not get health education (AOR=2.08, 95% CI: (1.06-3.45)).

Conclusion: There is a relatively high level of knowledge and average level of attitude toward human papilloma virus vaccination among the respondents. There are still opportunities for further education, advocacy, and support to improve knowledge and attitude.

Keywords: Knowledge, Attitude, Human papilloma virus, Vaccine, Geddo zone

Abbreviations: CC: Cervical Cancer; CI: Confidence Interval; ETB: Ethiopian Birr; HEPI: Health Professionals Education Partnership Initiative; HPV: Human Papilloma Virus; NGO: Non-governmental Organizations; WHO: World Health Organization

INTRODUCTION

Globally, cervical cancer is one of the most common cancer in the women which is human papilloma virus related disease with an estimated 528,000 new cases reported in 2012 (Okunade KS, 2020). HPV strains 16 and 18 are linked to genital infections in more than 99% of instances of cervical cancer (Mattiuzzi C et al., 2020). The most prevalent virus that affects the reproductive system is the human papillomavirus, or HPV (Castle PE et al., 2021). For both men and women, the peak time for infection happens soon after the onset of sexual activity (Biyazin T et al., 2022). Although penetrative sexual contact is not necessary for HPV transmission, it is sexually transmitted. Genital contact between skin cells is a well-known mechanism of transfer (Barnabas RV et al., 2021).

In low-income countries, the primary cause of cancer-related illness and mortality happens to be cervical cancer (Geneti HB et al., 2016). Due to an inadequate immune system, women who have HIV/AIDS or acquired immunodeficiency syndrome are especially vulnerable to cervical cancer (Adejuyigbe FF et al., 2015). Human papillomavirus is the primary cause of almost all cervical malignancies. Approximately one in twenty cervical malignancies worldwide are linked to HIV (Lakneh EA et al., 2022).

Providing HPV vaccine for individuals who are eligible provides exceptional value for prevention, and minimizing the burden of cervical cancer (Ukumo EY et al., 2022). HPV vaccines aimed against high-risk HPV (types 16 and 18) have an improved capacity to remove approximately 0% of invasive cervical cancer in women (Songthap A et al., 2012).

HPV infection is the primary cause of cervical cancer, a leading cause of cancer among women in Kenya and many sub-Saharan African nations (Voidazan S et al., 2016). High coverage of HPV vaccination is a World Health Organization priority to eliminate cervical cancer globally, but vaccine availability and logistics restrict widespread implementation of the current two or three dose HPV vaccine schedule (Cocchio S et al., 2020).

The negative thoughts and attitudes and lack of understanding about HPV vaccination can decrease HPV vaccine coverage (Kassa HN et al., 2021). As a result, this study aimed to fill the vacuum by giving information regarding degree of awareness and attitude of human papilloma virus vaccination and its associated factors among high school female students in the study area (Najafi-Sharjabad F et al., 2019).

MATERIALS AND METHODS

Study setting and design

School based cross-sectional study design was carried out in selected high schools of female students in Gedeo zone from April, 2023 to June, 2023 (Onowhakpor A et al., 2016). This zone is named for the Gedeo people; whose homelands lie in this zone. Dilla is the administrative center; located 362 km south of Addis Ababa (the capital city of

Ethiopia and the main road from Addis Ababa to Nairobi Kenya crosses the center of the town) and 100 km from Hawassa the capital city of SNNPR. A zone is a home of 10 (four towns and eight woredas) districts and 148 kebeles (Trucchi C et al., 2020). According to the 2007 Census conducted by the Ethiopian Central Statistical Agency a total population of 847,434 of whom 424,742 are men and 422,692 women of which 239,053 were reproductive age women (15–49) (Rashwan H et al., 2011).

Study populations

All selected female students in selected high schools for academic year of 2022/23 during the study period were the participants in the study (Mihretie GN et al., 2023). Female students who were available at the day of data collection at the selected high schools were included in the study. Female students who were seriously ill not included. Using data from a study conducted in Jimma, Ethiopia, the statistical program Open Epi version 3 computed the sample size based on the following assumptions: α level of significance of 0.05, and taking the prevalence of knowledge 52.7%. After accounting for a 10% non-response rate, the total sample size was 363 (Yohannes E et al., 2023).

Data collection tools and procedures

Structured questionnaire was used to collect the data. It contains socio-demographic variables, information related factors, etc. The questionnaires have been adapted through a review of different literature and similar previous studies. The data collection instrument was prepared in English and translated into the Amharic and Gedeofa language by expert who is fluent in both languages and back translated to English by another expert to ensure consistency and accuracy.

Interviewer administered questioner was used for data collection. The data was collected by 12 graduated BSc midwives. Six supervisors who is responsible to continuously monitor the data collection with principal investigator was recruited. Training was given for data collectors and supervisors concerning the research objectives, data collection tools and technique, and interview methods that was applied during data collection.

Data processing and analysis

The pre coded responses was entered into epi data version 3.1 software and then it was exported to SPSS for window version 25 for statistical analysis. The descriptive data was presented using frequency, tables, figures, mean and standard deviation. A binary logistic regression was used to identify the association of the independent variables with the dependent variable. Each variable which have p-value less than 0.25 will be added to the final model to control the confounders. Variables which have a p-value < 0.05 with 95% confidence interval in the final model was declared statistically significant by multiple logistic regressions.

RESULTS

Socio-demographic characteristics

A total of 350 respondents participated in this study, making the response rate of 92%. The mean age of the

respondents was 17.19 years with a standard deviation of 1.93. Among the overall participants 179 (51.1%) were protestant, and followed by 99 (28.3%) were orthodox. Regarding place of participant's residence 181 (51.7%) of respondents were living in urban areas (**Table 1**).

Table 1. Socio demographic characteristics of participants for assessment of knowledge and attitude towards human papilloma virus vaccination among female high school students in Gedeo zone, 2023.

Variables	Frequency (n)	Percentage (%)
Age		
14-15	22	6.3
16-18	260	74.3
>18	68	19.4
Religion		
Orthodox	99	28.3
Muslim	54	15.4
Protestant	179	51.1
Catholic	18	5.1
Mother's educational level		
Unable to read and write	81	23.1
Able to read and write	106	30.3
Primary (1-8)	61	17.4
Secondary (9-12)	53	15.1
Higher education	49	14
Father's educational level		
Unable to read and write	74	21.1
Able to read and write	61	17.4
Primary (1-8)	51	14.6
Secondary (9-12)	36	10.3
College and above	128	36.6
Mother's occupation		
Government employee	56	16
Non-government employee	28	8
Farmer	101	28.9
Merchant	102	29.1
Daily laborer	26	7.4
Housewife	37	10.6
Father's occupation		
Government employee	134	38.3
Non-government employee	10	2.9
Farmer	112	32
Merchant	75	21.4
Daily laborer	12	3.4
Have no work	7	2
Marital status of student		
Single	325	92.9
Married	25	7.1

Residence		
Rural	181	51.7
Urban	169	48.3

Information related factors

virus vaccination (**Table 2**).

Out of the 350 participants in our study, 196 (or 56%) were getting health education regarding the human papilloma

Table 2. Information related factors of participants for assessment of knowledge and attitude towards human papilloma virus vaccination among female high school students in Geddo zone, 2023.

Variable	Frequency (n)	Percentage (%)
Have you TV or radio		
Yes	182	52
No	168	48
Have you mobile phone		
Yes	303	86.6
No	47	13.4
Do you use social media?		
Yes	194	55.4
No	156	44.6
Do you have information on HPV vaccine?		
Yes	233	66.6
No	117	33.4
Do you get health education on HPV vaccine?		
Yes	196	56
No	154	44
Do you participate in your school mine media club?		
Yes	180	51.4
No	170	48.6

Social life

had good relation with their friends (**Table 3**).

In this study out of the 350 participants 81.4% of students

Table 3. Social life characteristics towards human papilloma virus vaccination among female high school students in Geddo Zone, 2023.

Variable	Frequency (n)	Percentage (%)
Do you have good relation with your friends?		
Yes	285	81.4
No	65	18.6
Do you have substance addiction?		
Yes	27	7.7
No	323	92.3
Family's substance addiction status		
Yes	34	9.7
No	316	90.3

Knowledge characteristics

Around 68.9% (241) of the participant were heard about the human papilloma virus vaccination. Among the sampled population, considering nine knowledge assessing questions

204 (58.3%) had good knowledge towards human papilloma virus vaccination among female high school students (**Table 4**).

Table 4. Knowledge characteristics towards human papilloma virus vaccination among female high school students in Gedeo Zone, 2023.

Variables	Category	Frequency	Percentage
Did you hear about HPV vaccine?	Yes	241	68.9
	No	109	31.1
Why HPV vaccine given?	Prevent cervical cancer	286	78.8
	Other	77	21.2
Did you know about use of HPV vaccine?	Yes	193	55.1
	No	157	44.9
Who should get HPV vaccine?	Female	305	87.1
	Male	45	12.9
Did you know at what age should HPV vaccine started?	Yes	165	47.1
	No	185	52.9
Did you know how many times HPV vaccine given?	Yes	170	48.6
	No	180	51.4
Did you know HPV vaccine given in Ethiopia?	Yes	193	55.1
	No	157	44.9
Did you know HPV vaccine given freely for female students?	Yes	205	58.6
	No	145	41.4
Did you know HPV vaccine given better for not started sex?	Yes	221	63.1
	No	129	36.9
The composite score of knowledge on HPV vaccine	Good knowledge	204	58.3
	Poor knowledge	146	41.7

Attitude characteristics

Among the sampled population, taking seven attitude assessing questions into consideration, 184 (52.6%) had favorable attitude towards human papilloma virus

vaccination among female high school students. Majority of students 232 (66.3%) think that HPV vaccine reduce cervical cancer (**Table 5**).

Table 5. Attitude characteristics towards human papilloma virus vaccination among female high school students in Gedeo Zone, 2023.

Variables	Category	Frequency	Percentage
Do you think the vaccination is given to minimize cervical cancer?	No	118	33.7
	Yes	232	66.3
Do you think vaccination helps to prevent HPV infection?	No	174	49.7
	Yes	176	50.3
Do you think HPV vaccine saves life and improve health?	No	160	45.7
	Yes	190	54.3
Do think you recommend the vaccine to others or not?	No	185	52.9
	Yes	165	47.1
Do you think having the HPV vaccine may become sexually promiscuous?	No	263	75.1
	Yes	87	24.9

Do you think your family should decide whether you take the vaccine or not?	No	192	54.9
	Yes	158	45.1
Do think you take HPV vaccine if it will started given in your school?	No	123	35.1
	Yes	227	64.9
The composite score of attitude on HPV vaccine	Unfavorable	166	47.4
	Favorable	184	52.6

Factors associated with knowledge

Both bivariate and multivariable logistic regression analyses were done to see the effect of the selected characteristics on knowledge level towards human papilloma virus vaccination among female high school students. Age of student, mothers educational level, fathers educational level, using social media, etc., were found to have an association with knowledge level towards human papilloma virus vaccination among female high school students in the bivariate analyses at p-value less than 0.25.

In multivariable analyses, residence of student, father's education, having information on HPV vaccine, receiving health education on HPV vaccine and student's substance addiction status were significantly associated with knowledge towards human papilloma virus vaccination among female high school students. Those student's fathers who can able to read and write were about 3.45 times more likely to have good knowledge about human papilloma virus vaccination as compared to those who were unable to read and write (AOR=3.45, 95% CI: (1.26-9.47)) (Table 6).

Table 6. Bivariate and multivariate analysis of knowledge towards human papilloma virus vaccination among female high school students in Gedeo Zone, 2023.

Variable	Frequency		COR (95% CI)	AOR (95% CI)
	Good kge	Poor kge		
Age (in years)				
14-15	13	9	1 st	1 st
16-18	168	92	0.79 (0.33-1.92)	0.61 (0.18-2.03)
>18	23	45	2.83 (1.05-7.59)	0.39 (0.1-1.57)
Place residence				
Urban	170	76	1 st	1 st
Rural	34	70	4.61 (2.82-7.52)*	3.59 (1.67-7.74)**
Grade level				
9 th	98	51	1 st	1 st
10 th	106	95	1.72 (1.11-2.67)	1.56 (0.81-3.01)
Mother's educational level				
Unable to read and write	38	43	1 st	1 st
Able to read and write	50	56	1 (0.55-1.77)	1.14 (0.51-2.58)
Primary school (1-8)	34	27	0.7 (0.36-1.37)	1.85 (0.71-4.85)
Secondary school (9-12)	42	11	0.23 (0.11-0.51)	0.52 (0.18,-.47)
College and above	40	9	0.2 (0.09-0.46)	0.49 (0.16-1.51)
Father's educational level				
Unable to read and write	35	39	1 st	1 st
Able to read and write	29	32	0.99 (0.5-1.95)*	3.45 (1.26-9.47)**
Primary school (1-8)	21	30	1.28 (0.62-2.64)	1.6 (0.61-4.25)
Secondary school (9-12)	20	16	0.72 (0.32-1.6)	2.5 (0.79-7.93)
College and above	99	29	0.26 (0.14-0.49))	0.92 (0.35-2.44)
Students boyfriend status				
Yes	122	71	1 st	1 st
No	82	75	1.57 (1.02-2.4)	1 (0.54-1.87)
Do you have TV or radio?				

Yes	117	65	1 st	1 st
No	87	81	1.68 (1.09-2.57)	0.97 (0.54-1.75)
Do you have mobile phone?				
Yes	184	119	1 st	1 st
No	20	27	2.09 (1.12-3.89)	0.96 (0.39-2.36)
Have you used social media?				
Yes	124	70	1 st	1 st
No	80	76	1.68 (1.1-2.59)	1.38 (0.74-2.58)
Have you participate in school mine media club?				
Yes	112	68	1 st	1 st
No	92	78	1.4 (0.9-2.14)	1.11 (0.61-2.02)
Have you information on HPV vaccine?				
Yes	165	68	1 st	1 st
No	39	78	4.85 (3.02-7.54)***	3.78 (2.08-6.85)***
Do you have good relation with friends?				
Yes	179	106	1 st	1 st
No	25	40	2.7 (1.55-4.7)	1.75 (0.84-3.65)
Did you receive health education on HPV vaccine?				
Yes	144	50	1 st	1 st
No	58	96	4.77 (3.02-7.54)*	4.43 (2.4-8.2)***
Substance addiction status				
Yes	10	17	1 st	1 st
No	194	129	0.39 (0.17-0.88)*	1.32 (1.45-12.5)**
Note: 1 st =Reference category, *=PV<0.25, **=PV<0.05, ***=PV<0.0001, COR: Cruds Odds Ratio; AOR: Adjusted Odds Ratio; CI: Confidence Interval				

Factors associated with attitude

Both bivariate and multivariable logistic regression analyses were done to see the relationship of selected characteristics on attitude level towards human papilloma virus vaccination among female high school students. Age in years, students grade level, place of residence, mother's occupation, receiving health education on HPV vaccine, etc., were found to have an association with attitude towards human papilloma virus vaccination among female high school students in the bivariate analyses at p-value less than 0.25.

In the multivariable analyses, mother's occupation, boyfriend status of student, receiving health education on HPV vaccine and student's relation with friends were significantly associated with attitude toward human papilloma virus vaccination among female high school students. The study revealed that those students who get health education on human papilloma virus vaccination were about 2.08 times more likely to have good attitude as compared to those who were not get health education (AOR=2.08, 95% CI: (1.06-3.45)) (**Table 7**).

Table 7. Bivariate and multivariate analysis of attitude towards human papilloma virus vaccination among female high school students in Gedeo zone, 2023.

Variable	Frequency		COR (95% CI)	AOR (95% CI)
	Unfavorable attitude	Favorable attitude		
Age (in years)				
14-15	9	13	1 st	1 st
16-18	114	146	0.89 (0.37-2.15)	0.81 (0.27-2.41)
>18	43	25	0.4 (0.15-1.08)	0.94 (0.26-3.41)
Students grade level				
9 th	64	85	1 st	1 st

10 th	102	99	0.73 (0.48-1.12)	1 (0.56-1.76)
School type				
Private	24	41	1 st	1 st
Government	142	143	0.59 (0.34-1.03)	0.89 (0.42-1.88)
Place of residence				
Urban	110	136	1 st	1 st
Rural	56	48	0.69 (0.44-1.1)	1.16 (0.58-2.33)
Mother's educational level				
Unable to read and write	42	39	1 st	1 st
Able to read and write	60	46	0.83 (0.46-1.48)	0.78 (0.37-1.65)
Primary school (1-8)	27	34	1.36 (0.7-2.64)	0.83 (0.34-2.04)
Secondary school (9-12)	13	40	3.31 (1.55-7.1)	1.91 (0.71-5.1)
College and above	24	25	1.12 (0.55-2.78)	0.35 (0.1-1.24)
Mother's occupation				
Government employee	20	36	1 st	1 st
Nongovernment employee	16	12	0.42 (0.17-1.05)*	1.18 (1.54-25)**
Farmer	61	40	0.36 (0.19-0.72)*	1.3 (1.12-14.29)**
Merchant	46	56	0.68 (0.35-1.32)	0.46 (0.13-1.59)
Daily laborer	8	18	1.25 (0.46-3.39)	0.47 (0.11-2.0)
Housewife	15	22	0.82 (0.35-1.91)	0.38 (0.1-1.48)
Father's educational level				
Unable to read and write	40	34	1 st	1 st
Able to read and write	39	22	0.66 (0.33-1.33)	0.7 (0.28-1.74)
Primary school (1-8)	28	23	0.97 (0.47-1.98)	1.11 (0.45-2.71)
Secondary school (9-12)	10	26	3.06 (1.29-7.23)	2.49 (0.78-7.94)
College and above	49	79	1.9 (1.06-3.39)	1.41 (0.61-3.27)
From whom you live now?				
Single	34	23	1 st	1 st
Family	126	152	1.78 (1.0-3.18)	0.95 (0.46-1.95)
Friends	6	9	2.22 (0.70-7.08)	2.25 (0.57-8.86)
Did you receive health education about HPV?				
Yes	80	85	1 st	1 st
No	114	69	0.57 (0.37-0.87)*	2.08 (1.06-3.45)**
Students boyfriend status				
Yes	103	90	1 st	1 st
No	63	94	1.71 (1.12-2.62)*	2.55 (1.43-4.56)**
Do you have mobile phone?				
Yes	137	166	1 st	1 st
No	29	18	0.51 (0.27-0.96)	0.7 (0.31-1.6)
Do you use social media?				
Yes	78	116	1 st	1 st
No	88	68	0.52 (0.34-0.80)	0.67 (0.38-1.17)
Do you participate in school mini media club?				
Yes	79	101	1 st	1 st
No	87	83	0.75 (0.49-1.14)	0.88 (0.51-1.51)
Do you have good relation with friends?				

Yes	123	162	1 st	1 st
No	43	22	0.39 (0.22-0.68)*	1.79 (1.12-4.55)**
Substance addiction of student				
Yes	17	10	1 st	1 st
No	149	174	1.99(0.88-4.47)	1.67(0.61-4.54)
Note: 1 st =Reference category, *=PV<0.25, **=PV<0.05, ***=PV<0.0001, COR: Cruds Odds Ratio; AOR: Adjusted Odds Ratio; CI: Confidence Interval				

DISCUSSION

A cross-sectional study based on institutions was carried out to assess the knowledge and attitudes of female high school students in Gedeo zone about human papilloma virus vaccination and related issues. The study found a significant association between place of residence of student, father's education, having information on HPV vaccine, receiving health education on HPV vaccine and student's substance addiction status were significantly with knowledge towards human papilloma virus vaccination among female high school students. Additionally, mother's occupation, boyfriend status of student, receiving health education on HPV vaccine and student's relation with friends were significantly associated with attitude toward human papilloma virus vaccination among female high school students.

This study found that 58.3% of study participants had good knowledge of human papilloma virus vaccination among female high school students (95% CI: (36-48)). These result is in line with study conducted in Southwest Ethiopia (43.8%). This result is higher than study conducted in Ambo, Ethiopia (24.6%), Nigeria (21.1%). However, the finding is lower than study conducted in Bahirdar (58.1%), Jimma (52.7%) and Arbaminch (71.7%), Thailand (60%), Romania (85.8%), Italy (69.9%). The possible variation might be due to change in the study setting, study population, and time frame of the study, the availability and distribution of the HPV vaccine in various countries.

From the current study 52.6% of female participants had a positive attitude regarding human papilloma virus vaccination (95% CI: (47-59)). This results are in line with study conducted Ambo town (55.6%) and Minjar shenkora, Ethiopia (50.8%). This result is higher than study conducted in Bahirdar (16%), Southwest Ethiopia (44.4%), Jimma (31.4%), Iran (43%). But, the finding is lower than study conducted in Nigeria (61.8%), Italy (20%). This may be due to differences in socio-demographic factors, educational level, and limited coverage of targeted educational initiatives, low access to information among low-income countries.

The current study indicated that students who live in urban area 3.59 times more likely having good knowledge about human papilloma virus vaccination than who live in rural area (AOR: 3.59, 95% CI: (1.67-7.74)). This is due to students born in towns have relatively easy access to information *via* social and mass media. Participant's fathers who able to read and write were 3.45 times more likely having good knowledge about human papilloma virus vaccination than

unable to read and write (AOR: 3.45, 95% CI: (1.29-9.47)). This result is strengthening by study conducted in Malaysia. The possible reason for this is that the probability of those parents knowing about the HPV vaccine through the media, newspapers, and social media.

Having information about human papilloma virus vaccination is 3.78 times more likely to have good knowledge about human papilloma virus vaccination than who have not information (AOR: 3.78, 95% CI: (2.08-6.85)). This result is in line with study conducted in Debreabor, Ethiopia. This is explained by the fact that students might currently have better access to health extension personnel's information. Students were more likely to possess solid knowledge of the HPV vaccine if they could access sources of information about it. Getting health education about human papilloma virus vaccination is 4.43 times more likely to have good knowledge about human papilloma virus vaccination than who have not (AOR: 4.43, 95% CI: (2.4-8.2)). Participants who are not substance addicted is 1.32 times more likely to have good knowledge about human papilloma virus vaccination than who have not (AOR: 1.32, 95% CI: (1.45-12.5)).

The current study shows that student's mothers who were government employee is 1.18 and 1.3 times more likely to have favorable attitude about human papilloma virus vaccination than nongovernment employee (AOR: 1.18, 95% CI: (1.54-25)) and farmers (AOR: 1.3, 95% CI: (1.12-14.29)) respectively.

Participants who have getting health education about human papilloma virus vaccination were two times more likely having favorable attitude than not getting health education (AOR: 2.08, 95% CI: (1.06-3.45)). This result is in line with study conducted in Ambo Ethiopia.

Participants who have boyfriend were 2.55 times more likely to have favorable attitude about human papilloma virus vaccination than who have not (AOR: 2.55, 95% CI: (1.43-4.56)). They may discuss the probability of getting HPV and vaccines.

Participants who have good relation with their friends were 1.79 times more likely to have favorable attitude about human papilloma virus vaccination than who have not (AOR: 1.79, 95% CI: (1.12-4.55)). Participants may discus in different reproductive issues.

Limitation of the study

The main limitation of this study is that male students weren't included in the study as participants. The second drawback is that some students may be biased since they

were older than the target population when it came to receiving the human papilloma virus vaccination.

CONCLUSION

To assess the knowledge and attitude of female high school students in Gedeo zone about human papilloma virus vaccination and related issues, a cross-sectional survey was conducted. The percentage of female high school students who have good knowledge and positive attitudes about human papilloma virus vaccination was 58.3 and 52.6 percent, respectively. There is a relatively high level of knowledge and average level of attitude toward human papilloma virus vaccination among the respondents. There are still opportunities for further education, advocacy, and support to improve knowledge and attitude.

RECOMMENDATION

- Implement comprehensive education and awareness programmes targeting students.
- Health facilities need to improve their approach to delivering messages and raise student's level of knowledge.
- Applying behavioral change communication tactics and HPV vaccination activities can help students develop a positive attitude.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical clearance was obtained from Dilla university college of medicine and health science Institutional Review Board (IRB). A formal letter of permission and support was provided to Gedeo zone educational office. Explanation about the aims, objectives, benefits and risks of the study was provided. Informed, voluntary, written and signed consent was obtained from each respondent. Participants were communicated about their confidentiality and right to refuse or to answer the questionnaire and stop or withdraw at any time of data collection. Confidentiality will be maintained at all levels of the study through the anonymous data collection.

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AUTHOR'S CONTRIBUTION

Mebirat Ademassu and Melkam Andargie were involved in designed the research, data collection, analysis, and interpretation of the result and drafted the paper, and

participated in preparing all versions of the manuscript. Wagaye Alemu have assisted in the design, and the proposal development, monitored data collection, assisted during analysis, and revised subsequent drafts of the paper. All authors read and approved the final manuscript.

DISCLOSURE

Regarding this paper, the authors disclose no conflicts of interest.

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