

Gender Differences on Human Papillomavirus (HPV) Knowledge among Secondary School Students in Nsukka Local Government Area, Enugu State

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Abstract

The study investigated gender differences on human papillomavirus (HPV) knowledge among secondary school students in Nsukka LGA, Enugu State. Two research questions and one null hypothesis guided the study. Cross-sectional survey research design was adopted for the study. The population for the study consisted of 14,627 secondary school students in Nsukka LGA, Enugu State. The sample size for the study was 600 respondents which was determined using Taro Yamane's formula. The multi-stage sampling technique was used to draw the sample size for the study. The instrument used for data collection was researcher-designed questionnaire titled "HPV Knowledge Questionnaire" (HPVKQ). Five experts validated the HPVKQ. The Kuder-Richardson 20 was used to determine the reliability coefficient (internal consistency) of the HPVKQ and 0.78 was obtained. The Statistical Package for the Social Sciences (SPSS) version 25 was utilized for data analyses. Frequencies, percentages, mean and standard deviation (SD) were used for answering the research questions while independent sample t-test was used to test the null hypothesis at 0.05 level of significance. The findings of the study showed that secondary school students had moderate level of knowledge of HPV knowledge (\bar{x} = 13.1; SD= 8.60). The result further indicated that significant difference existed in the level of knowledge of HPV among secondary school students based on gender ($t=3.08$; $df=595$; $p=0.000$). The study recommended among others that public health educators should create more awareness of HPV among adolescents including secondary school students so as to enhance their knowledge.

Keywords: Human Papillomavirus (HPV), Knowledge, Secondary School Students.

Introduction

Human Papillomavirus (HPV) is a major cause of cervical cancer and morbidities among females globally. Human papillomavirus is one of the most common sexually transmitted infections in sexually active adolescent females (Centers for Disease Control and Prevention [CDC], 2021); however, HPV can occur in females of all age groups. Though the incidence of HPV infection is not precisely known, yet it is estimated that globally 75 per cent of individuals (males and females) will experience an HPV infection at least once in their lifetime, with the highest rates of infection occurring in individuals under the age of 25 (Bray et al., 2018); over 50 per cent of sexually active adolescent females are exposed to at least one HPV type during their lifetime.

Human Papillomavirus is also prevalent in many regions of the world. For instance, Satterwhite et al. (2013) reported that HPV is prevalent in the United States. In 2017, only 53 per cent and 46 per cent of females and males aged 13–17 years in the United States were up to date with the HPV vaccine as recommended (Walker et al., 2018). In China, the prevalence of HPV

and cervical cancer increased from 6.78/100,000 females in year 2008 to 10.31/100,000 females in year 2013 (Chen et al., 2017).

The prevalence of HPV is increasing in Africa. The prevalence of HPV in Africa was estimated at 21.1 per cent with sub-Saharan Africa topping the list at 24 per cent (Ezenwa, Balogun, & Okafor, 2013). The prevalence of HPV in the region with respect to countries indicate 23.7 per cent in Benin, 45.1 per cent in Burkina Faso, 20.5 per cent in Cape Verde, 28.6 per cent in Côte d'Ivoire, 29.0 per cent in Gambia, 32.9 per cent in Ghana, 45.5 per cent in Guinea, 32.7 per cent in Guinea-Bissau, 37.2 per cent in Liberia, 43.9 per cent in Mali, 32.9 per cent in Mauritania, 37.8 per cent in Senegal and 23.8 per cent in Togo (Ferlay et al. 2018).

In Nigeria, HPV prevalence is high across all ages especially among the females. It is highest among persons aged 15–23 year olds (World Health Organization [WHO], 2012). Ferlay et al. (2018) reported the prevalence of HPV in the country to be 27.2 per cent. Furthermore, Odunyemi, Ndikom and Oluwatosin (2018) reported that HPV-related cancers are the second most common killer cancers among Nigeria women, and about 9,659 die annually. The relative high prevalence of HPV in Nigeria is a wakeup call for all individuals to adopt regular screening and vaccination so as to reduce it emphasizes the need for the barest minimum (WHO, 2014).

Human papillomavirus is a viral infection that affects the cervix. HPV is a highly contagious viral disease which causes anogenital warts, anogenital cancers (cervical, vaginal, vulvar, penile, and anal) and oropharyngeal cancers (Centers for Disease Control and Prevention [CDC], 2015). HPV is a viral infection that commonly causes skin or mucous membrane growths (warts) as well as precancerous lesions (Ljubojevic, & Skerlev, 2014). These lesions, depending on the site affected, increase the risk of cancer of the cervix, vulva, vagina, penis, anus, mouth, or throat (Ljubojevic, & Skerlev, 2014; WHO, 2016).

Nearly all cervical cancers is due to HPV and two types, HPV16 and HPV18 account for 70 per cent of the cases (Burk, Harari, & Chen, 2013). The HPV also causes many types of warts including genital warts, common warts, plantar warts and flat warts. The risk factors for HPV are numerous. Common risk factors for HPV infection include having multiple sexual partners, age, weakened immune system and personal contact (WHO, 2016). Some measures applicable in preventing HPV infections have been explored. For instance, having HPV vaccine, practicing safe sex, abstinence or being in a monogamous sexual relationship as well as not having sex had been documented (CDC, 2015).

Having adequate knowledge of HPV infection, types, risk factors and its adverse outcomes on sexual and reproductive health could be a major step in reducing its prevalence among individuals. Knowledge is important to man's quality of life because many preventive health behaviours depend on the quality of knowledge a person possesses. Odo, Ojiaku and Okpala (2015) viewed knowledge as information, facts or ranges of what has been perceived, discovered or learned. Adequate knowledge of HPV could help reduce its prevalence among secondary school students.

A secondary school student is a person who is enrolled in the secondary education system in Nigeria. In the broader sense, a secondary school student is a person who applies themselves to the intensive intellectual engagement with some matter necessary to master it as part of some practical event in which such mastery is basic or decisive (Masino, & Niño-Zarazúa, 2016). In this study, secondary school students are individuals currently enrolled at the secondary education level of educational system in Nsukka LGA, Enugu State, Nigeria. The knowledge of these students can be influenced by socio-demographic variables.

The socio-demographic variable of interest in this study is gender. Gender is the range of characteristics pertaining to, and differentiating between, masculinity and femininity. Borlu et al. (2016) reported that females exhibited higher level of knowledge (82.1%) of HPV and its vaccination than their male counterparts (70.8%). Widjaja (2019) reported that males showed lower level of knowledge (35.0%) of HPV while females showed higher level of knowledge (65.0%). In this study, secondary school students were classified into male and female.

Literature has it that HPV knowledge varies among adolescents of diverse populations and cultures in Nigeria and beyond (Ezenwa et al., 2013; Hashemipour et al., 2019; Heena et al., 2019). These studies do not precisely reflect the case of the present location, Nsukka LGA of Enugu State. It is because of this reason that the researcher deemed it fit to ascertain HPV knowledge among secondary school students in Nsukka LGA, Enugu State.

Secondary school students are expected to possess good knowledge of HPV through their participation in Biology and other health-related subjects in the school. HPV knowledge among secondary school students can as well be enhanced through sex education by parents and caregivers in the home.

Unfortunately, there is still high prevalence of HPV in the society today. It has earlier been stated that the prevalence of HPV among women in Nigeria is more than 30 per cent. Could it be that adolescents expose themselves to the risk factors of HPV and fail to seek medical attention? Or could it be due to difference in gender?

All these questions lead to the problem of this study. Hence, the researcher finds it very necessary to conduct this study with a view to determine the level of knowledge of HPV among secondary school students in Nsukka LGA, Enugu State.

Purpose of the Study

The purpose of this study was to investigate gender differences on Human Papillomavirus knowledge among secondary school students in Nsukka LGA, Enugu State. Specifically, the study sought to ascertain the:

1. level of knowledge of HPV among secondary school students in Nsukka LGA, Enugu State;
2. level of knowledge of HPV among secondary school students in Nsukka LGA, Enugu State based on gender.

Research Questions

The following research questions were posed to guide the study:

1. What is the level of knowledge of HPV among secondary school students in Nsukka LGA, Enugu State?
2. What is the level of knowledge of HPV among secondary school students in Nsukka LGA, Enugu State based on gender?

Hypothesis

The null hypothesis was postulated and tested at .05 level of significance:

1. There is no significant difference in the level of knowledge of HPV among secondary school students in Nsukka LGA based on gender.

Methods

The study adopted the cross-sectional research design to achieve the purpose of the study. This study was conducted in Nsukka Local Government Area (LGA), Enugu State. The population for the study comprised of fourteen thousand, six hundred and twenty-seven (14,627) secondary school students in the thirty (30) public secondary schools in Nsukka LGA, Enugu State. The sample for the study consisted of 600 respondents. The sample size was computed based on Taro Yamane's (1967) sample size determination formula and design effect of 1.5. Subsequently, 2.5% non-response rate was added to the sample size. The multi-stage sampling procedure was used to draw the sample size for the study. Stage one involved using the simple random sampling technique of balloting without replacement to select fifteen (15) secondary schools out of the thirty (30) public secondary schools in Nsukka LGA. Stage two involved the use of purposive sampling technique to select JSS 1, JSS 2, SS1 and SS2 classes in the selected schools. JSS 3 and SSS 3 students were exempted from the study because of their engagement in external examinations. This stage provided a total of 60 classes in the sampled secondary schools which were used for the study. Also, stage three involved the use of simple random sampling technique of balloting without replacement to select 10 students made up of boys and girls from each of the four classes in the fifteen sampled secondary schools (a total of 60 classes) drawn in stage two. This yielded a total of 600 students that were used for the study. The random selection was conducted using the class registers to ensure adequate representation of both male and female students.

The instrument for data collection was a researcher-developed instrument titled "HPV Knowledge Questionnaire" (HPVKQ). The face validity of the instrument was established by five experts from the Department of Human Kinetics and Health Education, University of Nigeria, Nsukka. The reliability (internal consistency) of the HPVKQ was established using Kuder-Richardson-20 formula. In line with the suggestions of Cohen, Mannion and Morrison (2011), the reliability coefficient of 0.78 obtained was deemed reliable enough for the study. However, the research questions were answered using frequencies, percentages, means and standard deviations while independent sample t-test was used to test the hypothesis at .05 level of significance.

Results

Table 1: Level of Knowledge of HPV among Secondary School Students in Nsukka LGA, Enugu State (n=597)

s/n	Items	Correct	Incorrect	Mean Scores of	
		f(%)	f(%)	Correct Responses	SD
				\bar{x}	
1.	Have you heard of HPV?	569(95.3)	28(4.7)	0.95	.21
2.	HPV is a viral infection (True)	513(85.9)	84(14.1)	0.86	.35
3.	Weakened immune system is a risk factor for HPV (True)	457(76.5)	140(23.5)	0.77	.42
4.	Skin or mucous membrane growth (warts) can be used by HPV (True)	336(56.3)	261(43.7)	0.56	.50
5.	Itching and burning sensation are signs and symptoms of HPV (True)	452(75.7)	145(24.3)	0.76	.43
6.	HPV cannot lead to precancerous lesions (False)	280(46.9)	317(53.1)	0.47	.50
7.	HPV infection cannot lead to cervical cancer (False)	275(46.1)	322(53.9)	0.46	.50
8.	There are no treatment options for HPV (True)	265(44.4)	332(55.6)	0.44	.50
9.	The more sexual partners an individual possesses, the less vulnerable to HPV infection (False)	351(58.8)	246(41.2)	0.59	.49
10.	Having sex with a person who has multiple sex partners increases the risk of contracting HPV (True)	504(84.4)	93(15.6)	0.84	.36
11.	HPV can be managed with the use of drugs/medications (False)	453(75.9)	144(24.1)	0.76	.43
12.	HPV cannot be detected through screening (False)	314(52.6)	283(47.4)	0.53	.50
13.	Vaccination is one of the preventive practice against HPV infection (True)	413(69.2)	184(30.8)	0.69	.46
14.	HPV infection can be transmitted through unprotected sexual contacts (True)	491(82.2)	106(17.8)	0.82	.38
15.	Only the girls can be infected by HPV (False)	109(18.3)	488(81.7)	0.18	.39
16.	The risk of HPV infection is high among sexually active adolescents (True)	467(78.2)	130(21.8)	0.78	.41
17.	HPV can cause penile cancer in boys and men (True)	461(77.2)	136(22.8)	0.77	.42
18.	A visual inspection of the cervix and application of chemicals by a health worker can help detect the virus (True)	383(64.2)	214(35.8)	0.64	.48
19.	Circumcision can lower the risk of penile HPV infection (True)	338(56.6)	259(43.4)	0.57	.50
20.	HPV can be transferred vertically from infected mother to child during birth (True)	411(68.8)	186(31.2)	0.69	.46
Sum mean knowledge score		65.7	34.3	13.1	8.60

Key for Interpretation/Scoring Protocol

0-7 = low level of knowledge; 8-14 = moderate level of knowledge; 15-20 = High level of knowledge

Results in Table 1 shows that overall, secondary school students have moderate level of knowledge (\bar{x} = 13.1; SD= 8.60) of HPV. Furthermore, Table 1 shows that 65.7 per cent and 34.3 per cent of secondary school students had correct and incorrect responses respectively.

Table 2: Level of Knowledge of HPV among Secondary School Students in Nsukka LGA, Enugu State Based on Gender (n=597)

s/n	Items	Gender			
		Male (n=245) Mean scores of correct responses		Female (n=352) Mean scores of correct responses	
		\bar{x}	SD	\bar{x}	SD
1.	Have you heard of HPV?	0.96	.19	0.95	.23
2.	HPV is a viral infection.	0.79	.41	0.91	.29
3.	Weakened immune system is a risk factor for HPV.	0.78	.41	0.75	.43
4.	Skin or mucous membrane growth (warts) can be used by HPV.	0.56	.50	0.57	.50
5.	Itching and burning sensation are signs and symptoms of HPV.	0.79	.41	0.74	.44
6.	HPV cannot lead to precancerous lesions	0.56	.50	0.40	.50
7.	HPV infection cannot lead to cervical cancer.	0.57	.50	0.39	.49
8.	There are no treatment options for HPV.	0.38	.49	0.49	.50
9.	The more sexual partners an individual possesses, the less vulnerable to HPV infection.	0.69	.46	0.51	.50
10.	Having sex with a person who has multiple sex partners increases the risk of contracting HPV.	0.82	.39	0.86	.34
11.	HPV can be managed with the use of drugs/medications.	0.75	.43	0.76	.43
12.	HPV cannot be detected through screening.	0.64	.48	0.44	.50
13.	Vaccination is one of the preventive practices against HPV infection.	0.71	.46	0.68	.47
14.	HPV infection can be transmitted through unprotected sexual contacts.	0.83	.37	0.82	.39
15.	Only the girls can be infected by HPV.	0.25	.44	0.13	.34
16.	The risk of HPV infection is high among sexually active adolescents.	0.74	.44	0.81	.39
17.	HPV can cause penile cancer in boys and men.	0.79	.41	0.76	.43
18.	A visual inspection of the cervix and application of chemicals by a health worker can help detect the virus.	0.64	.48	0.64	.48
19.	Circumcision can lower the risk of penile HPV infection.	0.64	.48	0.51	.50
20.	HPV can be transferred vertically from infected mother to child during birth.	0.69	.46	0.69	.46
Sum mean knowledge score		13.6	8.70	12.8	8.60

Key for Interpretation

0-7 = low level of knowledge; 8-14 = moderate level of knowledge; 15-20 = High level of knowledge.

Results in Table 2 shows that male (\bar{x} =13.6; SD = 8.71) and female students (\bar{x} =12.8; SD =8.60) have moderate knowledge of HPV.

Table 3: Summary of Independent Sample T-test Showing Difference in Level of Knowledge of HPV among Secondary School Students Based on Gender (n=597)

Gender	\bar{x}	SD	S.E	df	t	<i>p</i> -value
Male (n=245)	13.59	3.33	.218	595	3.08	0.000
Female (n=352)	12.82	2.82	.148			

Note: \bar{x} =Mean; SD= standard deviation; SE=standard error of mean; df=degree of freedom.

Table 3 shows the result of independent sample t-test conducted to examine differences in the HPV knowledge among secondary school students based on gender. The result shows that there are significant differences in the HPV knowledge of secondary school students based on gender, $t(595)=3.08$, $p=0.000$. Since the p -value for gender is less than 0.05 level of significance, the hypothesis was rejected. This implies that the students differed in their HPV knowledge based on gender.

Discussion

Findings in Table 1 showed that secondary school students in Nsukka LGA, Enugu State had moderate level of knowledge of HPV. This finding is expected and not surprising because it shows that secondary school teachers, especially those who teach science subjects such as HPE, Biology and Basic Science might have made efforts in educating secondary school students on concepts of HPV such as risk factors, causes, signs and symptoms. Furthermore, secondary school students in turn might have access to information on HPV, which probably would have improved their knowledge of HPV. Additionally, sexually active adolescents might have heard about the disease, thus, they may have a prior knowledge of HPV before the study. This finding is consistent with the finding of Khan, Buksh, Rehman, and Saleem (2016) who reported moderate level of knowledge of HPV among University students in Pakistan. The consistency in the finding may be attributed to the composition of subjects in both studies. Both studies were made up of adolescents and young adults. Thus, the consistency in findings is logical.

Results in Table 2 showed that male and female secondary school students in Nsukka LGA had moderate knowledge of HPV. This finding implies that gender has no effect on the level of knowledge of HPV among secondary school students. This finding is not expected and hence, very surprising because female secondary school students are expected to possess more knowledge of HPV than male secondary school students because HPV infection affects mostly females than males, and as such these females who are at risk of the infection ought to have more knowledge of the illness than males. Contrastingly, the result in Table 3 showed that there was a significant difference in the mean HPV knowledge scores of male and female secondary school students in Nsukka LGA, Enugu State based on gender. This finding implies that gender has a significant effect on the level of knowledge of HPV among secondary school students. This finding is expected and hence, not surprising because female secondary school students are expected to possess more knowledge of HPV than male secondary school students because HPV infection affects mostly females than males, and as such these females who are at risk of the infection ought to have more knowledge of the illness than males. This finding is in agreement

with those of Cinar, Ozkan, Aslan and Alatas (2019) who reported that gender significantly influenced the level of knowledge of University students towards HPV.

Conclusion

The findings showed that secondary school students had moderate level of knowledge of HPV knowledge. Additionally, a significant difference existed in the level of knowledge of HPV among secondary school students in Nsukka LGA, Enugu State based on gender.

Recommendations

Based on the findings, the following recommendations are made:

1. Public health educators should create more awareness of HPV among adolescents including secondary school students so as to enhance their knowledge.
2. The government should subsidize the cost of preventive health services including HPV screening for adolescents and young adults to enhance early detection of at risk groups or persons.

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