

Original Article

IMPACT OF HEAD AND NECK CANCER (HNC) EDUCATION ON HNC KNOWLEDGE AND ATTITUDES TOWARD HNC PEER AND NON-PEER EDUCATION: A SCHOOL-BASED PILOT STUDY.

Kehinde Kazeem Kanmodi^{1,2,3,4,5*}, Kolawole Siyanbola Osunro¹, Njideka Jacob Nwafor^{2,3,4}, Precious Ayomide Kanmodi^{2,3,4,6}

¹National Teachers' Institute, Birnin Kebbi Study Centre, Birnin Kebbi, Nigeria.

²Campaign for Head and Neck Cancer Education (CHANCE) Program, Cephas Health Research Initiative Inc, Ibadan, Nigeria.

³Tobacco Research & Advocacy Group, Cephas Health Research Initiative Inc, Ibadan, Nigeria.

⁴Mental and Oral Health Development Organization Inc, Birnin Kebbi, Nigeria.

⁵Department of Community Health, Aminu Musa Habib College of Health Science & Technology, Yauri, Nigeria.

⁶Department of Statistics, Federal University of Technology, Akure, Nigeria.

*Correspondence: Dr. Kehinde Kazeem Kanmodi; +2347032329156; kanmodikehinde@yahoo.com

Abstract

Background: The rising prevalence of head and neck cancer (HNC) risk factors among secondary school students in Nigeria is alarming. Whilst most school-based health education programmes are focused on reproductive health and infectious disease prevention, only little attention is paid to HNC education.

Aim: To assess the impact of HNC education on Nigerian secondary school students': knowledge on HNC; and attitudes toward HNC peer and non-peer education.

Materials and Method: This study was a pilot interventional study conducted among 40 students in two secondary schools in Birnin Kebbi, North-Western Nigeria. A health talk on HNC was given to the participants, using teaching aids. Before and after the health talk, a pre-test and a post-test questionnaire was given to each participant, respectively, to assess their baseline and end-line: knowledge on HNC; and attitudes toward HNC peer and non-peer education. Collected data was analysed using the SPSS Version 20 Software.

Results: The mean (\pm SD) age of the 40 participants was 17.13 (\pm 1.604) years. After a health talk on HNC was given, our end-line survey showed a significant general increase in the participants' knowledge on HNC aetiological/risk factors and its symptoms. Also, our survey data shows that the HNC health talk was very educative, very interesting, and also a source of motivation, significantly motivating the participants in educating their schoolmates, friends, and distant relatives on HNC (p -values $<$ 0.05).

Conclusion: School-based HNC education programme is a potential tool that can be used for creating awareness and modifying attitudes and behaviours of Nigerian secondary school students towards HNC prevention.

Keywords: Head and neck cancer, Risk factors, School health, Health education, Prevention.

Cite this article: Kanmodi KK, Osunro KS, Nwafor NJ, Kanmodi PA. Impact of head and neck cancer (HNC) education on HNC knowledge and attitudes toward HNC peer and non-peer education: A school-based pilot study. Yen Med J. 2020;2(2):47 – 55.

INTRODUCTION

Head and neck cancer is a malignant neoplastic lesion affecting the mucosa of the upper aero-digestive tract; this tract is made up of the nasal cavity, para-nasal sinuses, pharynx, mouth, larynx, trachea, and oesophagus.^{1,2} The aetiology/risk factors of HNC include tobacco, alcohol, poor nutrition and diets,

poor oral health, oral sex, ultraviolet radiation, and exposure to harmful chemical substances.¹⁻⁹ However, among these aetiological/risk factors, tobacco, alcohol, and oral sex are the three major ones.¹⁰ Head and neck cancer is a killer disease and it is the tenth most common cancer worldwide,¹¹ as well as the sixth most common cause of cancer-related deaths

globally.^{10,12} Every year, more than 500,000 cases of HNC are newly diagnosed¹³; also HNC incidence rate varies by sex, age, race, subtype, country, and anatomic site.¹⁴ Pertinently, the incidence rate of HNC among young people is rising over the years, and more and more able-bodied youths are dying from HNC disease globally.^{15,16}

In Nigeria, the prevalence of the three major HNC risk factors (oral sex, tobacco use, and alcohol use) among youth in secondary schools is on the alarming side.¹⁷⁻¹⁹ For instance, available studies on the prevalence of oral sexual practices among secondary school students in Nigeria showed that as high as 65.5% of secondary school students in one of the Nigeria major cities have positive lifetime history of oral sexual practices.¹⁸ Similarly, lifetime prevalence rates of tobacco use and alcohol drinking among secondary schools students in some places in Nigeria is as high as 32.5% and 66%, respectively.^{17,19} Based on the above, it can be concluded that many Nigerian youth, more especially the senior secondary school students, are at risk of developing HNC disease later in life should they continue in their risky behaviours.

The knowledge of secondary school students in Nigeria on HNC aetiological/risk factors is very crucial to future HNC prevention, as many of them are at risk of developing the disease later in life if they continue in their risky behaviours. Unfortunately, the knowledge of HNC aetiological/risk factors among secondary school students in Nigeria is still very poor.^{20,21} However, the only available Nigerian study on school-based HNC education had it documented that HNC education can have significant positive impact on the knowledge and attitude of Nigerian secondary school students towards HNC disease and HNC prevention strategies.²⁰ Also, in the study, it was reported that HNC education can effectively motivate secondary school students in becoming HNC peer educators. However, this aforementioned study did not explore the impact of HNC education on the attitudes of Nigerian secondary school students towards non-peer education on HNC; the study was also delimited to a South-Western Nigerian group of students only.²⁰

In light of the above, there is a need to conduct a scientific research to explore the knowledge of secondary school students in other parts of Nigeria on HNC risk factors/aetiology and symptoms and also evaluate the impact of HNC education on their knowledge of HNC aetiological/risk factors and

symptoms, and also its impact on their attitudes towards HNC peer and non-peer education. Hence, this (pilot) study aims to assess the impact of HNC education on secondary school students in Birnin Kebbi, North-Western Nigeria, on their knowledge of HNC and attitudes towards HNC peer and non-peer education.

MATERIALS AND METHODS

This pilot study was an interventional study conducted among senior secondary school students in two conveniently selected secondary schools in Birnin Kebbi, Kebbi State, North-Western Nigeria: Nagari College and Army Day Girls Secondary School. Nagari College is a boys-only school while Army Day Girls Secondary School is a girls-only school. However, both schools were public schools. A total of 20 students in the senior classes were recruited from each of the participating schools; hence a total of 40 students were used as the study sample.

The instruments used for data collection in this study were a pre-test and a post-test paper questionnaire developed from review of online literatures^{20,21}. The pre-test questionnaire obtained information on the participants': socio-demographic characteristics, knowledge of HNC, and attitudes toward HNC peer and non-peer education. However, the post-test questionnaire obtained information on the participants': socio-demographic characteristics, knowledge of HNC, assessment of the HNC education activity, and attitudes toward HNC peer and non-peer education.

Importantly, visual teaching aids were also used in the course of the HNC educational activity (i.e. health talk). These teaching aids include white board, marker, and cleaner. A well-labelled annotated diagram of the cross-section of the head and neck region of the human body was drawn on the white board to aid the educational activity.

The data collection process was done in a classroom. Prior to the conduction of the study, permission to carry out the study in the selected schools was officially obtained from the management of the respective schools. Also, the study was approved by the National Teachers' Institute Birnin Kebbi Study Centre, Birnin Kebbi, Nigeria. The data was collected separately from the participating schools; i.e. the schools were visited separately. On the day the study was carried out in each of the schools, the students in the most senior class, designated "Senior Secondary class (SS) 3", were gathered together and they were informed about the purpose and benefits of the study.

They were also informed that their participation was strictly confidential, and voluntary.

Random sampling technique was then used in the selection of 20 participants per school. After the selection, participants were asked if they were willing to participate in the study. All participants agreed to participate and they all gave verbal informed consent. After the above had been done, the participants were moved to a classroom where they were given a re-briefing about the purpose of the study. Thereafter, they were given a pre-test questionnaire to fill. After all the participants had filled their pre-test questionnaires, they were given a health talk (average duration: 35 minutes) on HNC by the primary investigator (a dentist), using teaching aids. The content of the health talk was drafted from the public information on HNC provided on the official website of Cancer.Net²². In the health talk on HNC, the participants were educated, using simple terms, on the meaning of HNC, the aetiology/risk factors of HNC, as well as HNC symptoms. They were also advised to always visit a dentist/physician in case they have any oral health-related problem that persists for more than three days. After the health talk had been given, they were asked to ask questions on issues related to HNC and the health talk, of which some asked questions. All relevant questions were answered and treated appropriately. After the question-and-answer session, they were all issued a post-test questionnaire to fill.

All issued questionnaires were returned filled. No questionnaire was discarded because all were properly filled out. Data obtained was computed into the SPSS version 20 Software for analysis. Frequency distributions of all variables were determined and bivariate analyses, using Chi Square test was done to compare relevant variables; a p-value of <0.05 was used to determine the level of statistical significance.

RESULTS

The mean (\pm SD) age of the participants was 17.13 (\pm 1.604) years. Half (50%) of them were students of Nagari College, 50% were females, 75% were from the Hausa tribe, and 77.5% were Moslems (Table 1).

Our baseline survey showed that the majority (82.5%) of the participants were aware of HNC, of which a higher proportion of them were females (Table 2). After a health talk on HNC was given, our end-line surveyed showed a general increase in the participants' knowledge on HNC aetiological/risk factors and its symptoms (Tables 3 & 4).

Furthermore, our survey data shows that the HNC health talk was very educative (Figure 1), very interesting (Figure 2), and also a source of motivation, significantly motivating the participants in educating their schoolmates, friends, and distant relatives (Table 5).

Table 1. Socio-demographic characteristics of the participants

Characteristics	Frequency/Value	%
Gender		
Male	20	50.0
Female	20	50.0
Mean age (\pmSD) in years	17.13 (\pm 1.604)	N/A
School		
ADGSS*	20	50.0
NC**	20	50.0
Tribe		
Hausa	30	75.0
Yoruba	5	12.5
Igbo	2	5.0
Others	2	5.0
Not specified	1	2.5
Religion		
Christianity	9	22.5
Islam	31	77.5
Mode of studentship		
Day student	20	50.0
Boarding student	20	50.0

*Army Day Girls Secondary School; **Nagari College; "N/A" – Not applicable

Table 2. Comparison between school of participants and awareness on HNC

School [#]	Are you aware that cancer can occur in the head and neck region of an individual? [#]			Total	p-value
	Yes	No	I am not sure		
ADGSS* [n=20] (%)	18 (90.0)	1 (5.0)	0 (0.0)	19 (95.0)	0.454
NC** [n=20] (%)	15 (75.0)	2 (10.0)	1 (5.0)	18 (90.0)	
Total [n=40] (%)	33 (82.5)	3 (7.5)	1 (2.5)	37 (92.5)	

[#]Only the data of the participants that responded to the cross-tabulated variables were computed in this statistics;
 *Army Day Girls Secondary School; **Nagari College; “n” – Total number of eligible respondents per category

Table 3. Comparison of responses of participants on HNC aetiological/risk factors, before and after the health talk on HNC

Risk factors/Aetiology*	Pre-test* [n=40] (%)				Post-test* [n=40] (%)				P-value
	SD	D	A	SA	SD	D	A	SA	
Tobacco	0 (0.0)	3 (7.5)	22 (55.0)	14 (35.0)	0 (0.0)	2 (5.0)	16 (40.0)	21 (52.5)	<0.0001
Alcohol	1 (2.5)	11 (27.5)	13 (32.5)	14 (35.0)	0 (0.0)	3 (7.5)	18 (45.0)	18 (45.0)	0.012
Poor nutrition	4 (10.0)	9 (22.5)	20 (50.0)	6 (15.0)	1 (2.5)	3 (7.5)	18 (45.0)	17 (42.5)	0.045
Microorganisms	3 (7.5)	9 (22.5)	21 (52.5)	6 (15.0)	0 (0.0)	2 (5.0)	18 (45.0)	19 (47.5)	0.019
Ultraviolet radiation	1 (2.5)	10 (25.0)	18 (45.0)	10 (25.0)	3 (7.5)	3 (7.5)	17 (42.5)	16 (40.0)	0.005
Formaldehyde	3 (7.5)	11 (27.5)	17 (42.5)	7 (17.5)	0 (0.0)	7 (17.5)	16 (40.0)	15 (37.5)	0.235
Benzene	7 (17.5)	12 (30.0)	12 (30.0)	7 (17.5)	2 (5.0)	0 (0.0)	20 (50.0)	16 (40.0)	0.643
Wood dust	6 (15.0)	15 (37.5)	12 (30.0)	7 (17.5)	0 (0.0)	4 (10.0)	18 (45.0)	18 (45.0)	0.402
Coal dust	1 (2.5)	11 (27.5)	18 (45.0)	9 (22.5)	1 (2.5)	4 (10.0)	19 (47.5)	15 (37.5)	0.789
Cement dust	0 (0.0)	16 (40.0)	10 (25.0)	12 (30.0)	1 (2.5)	4 (10.0)	18 (45.0)	15 (37.5)	0.273
Nickel dust	1 (2.5)	9 (22.5)	18 (45.0)	6 (15.0)	0 (0.0)	4 (10.0)	17 (42.5)	13 (32.5)	0.332
Diesel exhaust	6 (15.0)	4 (10.0)	23 (57.5)	4 (10.0)	2 (5.0)	2 (5.0)	19 (47.5)	14 (35.0)	0.788

*Only the data of the participants that responded to the cross-tabulated variables were computed in these statistics; “n” – Total number of eligible respondents per category; “SD” – Strongly disagree; “D” – Disagree; “Agree”; “SA” – Strongly agree

Table 4. Comparison of responses of participants on HNC symptoms, before and after the health talk on HNC

Symptoms	Pre-test [n=40] (%)			Post-test [n=40] (%)			p-value
	Yes	No	IDK	Yes	No	IDK	
Swelling or sore	30 (75.0)	2 (5.0)	7 (17.5)	34 (85.0)	2 (5.0)	3 (7.5)	0.221
Red or white patch	14 (35.0)	12 (30.0)	13 (32.5)	36 (90.0)	2 (5.0)	1 (2.5)	0.153
Lump bump	17 (42.5)	7 (17.5)	11 (27.5)	29 (72.5)	2 (5.0)	4 (10.0)	0.186
Persistent sore throat	19 (47.5)	6 (15.0)	14 (35.0)	31 (77.5)	5 (12.5)	3 (7.5)	0.074
Foul or mouth odour	18 (45.0)	14 (35.0)	8 (20.0)	31 (77.5)	4 (10.0)	5 (12.5)	0.008
Hoarseness	17 (42.5)	11 (27.5)	11 (27.5)	32 (80.0)	4 (10.0)	3 (7.5)	0.013
Nasal obstruction	12 (30.0)	11 (27.5)	16 (40.0)	26 (65.0)	9 (22.5)	4 (10.0)	0.062
Difficulty in breathing	24 (60.0)	10 (25.0)	6 (15.0)	32 (80.0)	6 (15.0)	2 (5.0)	0.013
Double vision	14 (35.0)	13 (32.5)	9 (22.5)	25 (62.5)	6 (15.0)	5 (12.5)	0.858
Numbness or weakness	28 (70.0)	3 (7.5)	7 (17.5)	33 (82.5)	0 (0.0)	5 (12.5)	0.001
Pain or difficulty chewing	19 (47.5)	13 (32.5)	7 (17.5)	30 (75.5)	6 (15.0)	3 (7.5)	0.007
Jaw pain	16 (40.0)	11 (27.5)	11 (27.5)	26 (65.0)	6 (15.0)	6 (15.0)	0.666
Blood in saliva	21 (52.5)	7 (17.5)	12 (30.0)	37 (92.5)	2 (5.0)	1 (2.5)	0.380
Loosening of teeth	13 (32.5)	17 (42.5)	10 (25.0)	34 (85.0)	5 (12.5)	1 (2.5)	0.526
Dentures no longer fit	17 (32.5)	12 (30.0)	11 (27.5)	34 (85.0)	2 (5.0)	4 (10.0)	0.207
Unexplained weight loss	18 (45.0)	12 (30.0)	10 (25.0)	35 (87.5)	2 (5.0)	3 (7.5)	0.018
Fatigue	17 (32.5)	4 (10.0)	19 (47.5)	32 (80.0)	5 (12.5)	3 (7.5)	0.037
Ear pain or infection	28 (70.0)	7 (17.5)	5 (12.5)	36 (90.0)	3 (7.5)	1 (2.5)	0.209

*Only the data of the participants that responded to the cross-tabulated variables were computed in these statistics; “n” – Total number of eligible respondents per category; “IDK” – I don’t know;

Table 5. Comparison of attitudes of participants towards HNC peer education, before and after the health talk on HNC

Variables*	If you are educated on HNC, will you be willing to teach others?				Total	p-value
	Yes	No	I am not sure			
Now that you are educated on HNC, will you be willing to teach your friends?	Yes	36	2	1	39	0.002
	No	0	1	0	1	
Total		36	3	1	40	
Now that you are educated on HNC, will you be willing to teach your siblings?	Yes	35	3	0	38	<0.0001
	No	0	0	1	1	
Total		35	3	1	39	
Now that you are educated on HNC, will you be willing to teach your schoolmates?	Yes	35	2	1	38	0.064
	No	1	1	0	2	
Total		36	3	1	40	
Now that you are educated on HNC, will you be willing to teach your parents?	Yes	36	3	1	40	***
	No	0	0	0	0	
Total		36	3	1	40	
Now that you are educated on HNC, will you be willing to teach your distant relatives?	Yes	34	2	0	36	0.023
	No	1	1	0	2	
Total		35	3	0	38	

*Only the data of the participants that responded to the cross-tabulated variables were computed in these statistics; ***No statistics were computed because variables were constant.

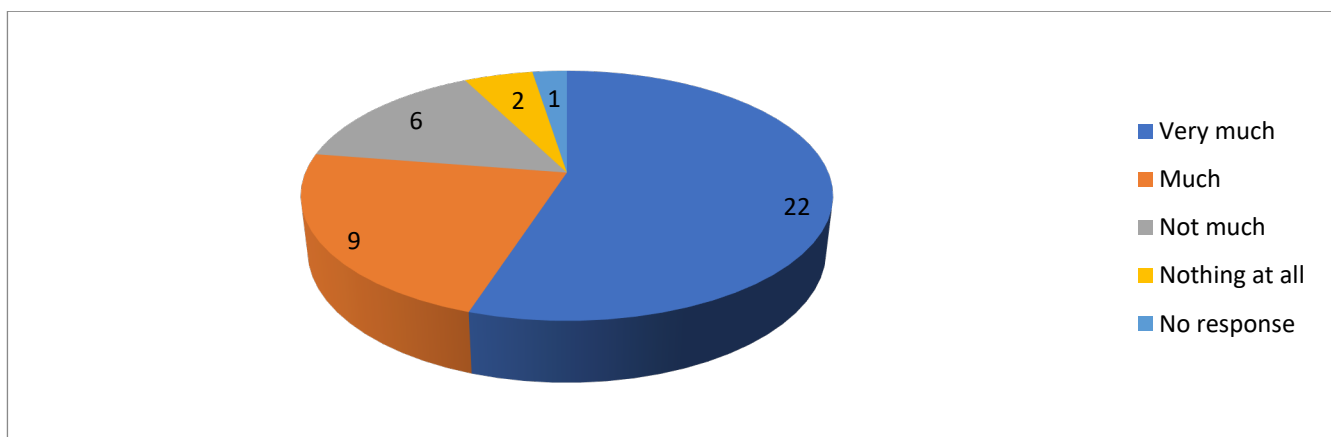


Figure 1. Distribution of responses of the participants to the question: "How much did you gain (i.e. learn) from the HNC health talk you just received?"

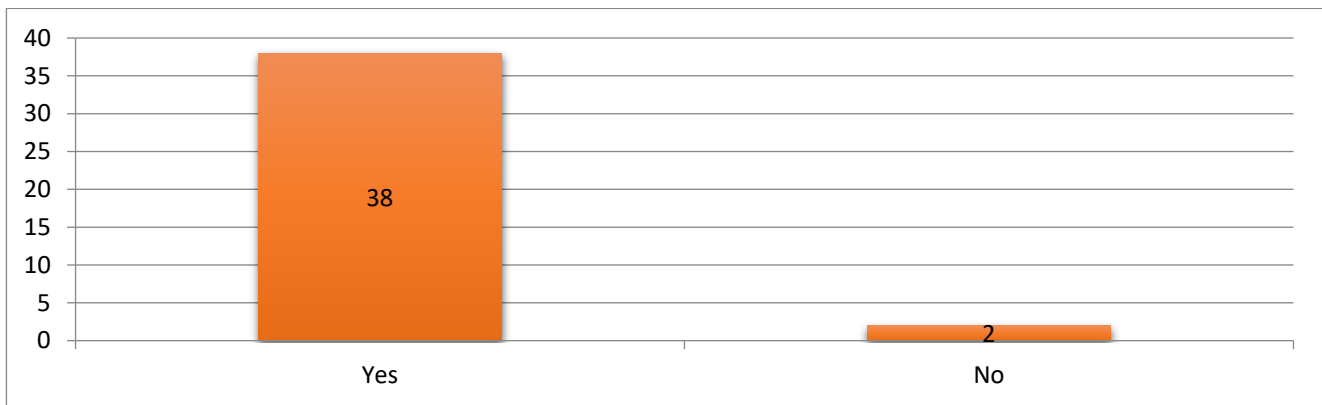


Figure 2. Distribution of responses of the participants to the question: “Will you like to attend the next HNC education program we plan to do in your school in future?”

DISCUSSION

Health education programmes had been found to be very useful in promoting the health of school students.²³⁻²⁵ These programmes are usually incorporated into school activities with the aim of promoting students’ physical, cognitive, and social development, and they are found to be impactful and cost-effective.^{26,27} In fact, these programmes have been reported in literatures to play impactful roles in building and/or modifying students’ knowledge, attitudes, and behaviour towards disease prevention and health promotion.²³⁻²⁸ For instance, school-based health education programmes had been used in time past to: improve knowledge of school children on diarrhoea,²³ sexual health,²⁸ and HNC²⁰; and also modify attitudes and behaviours towards self-health care practices like healthy sexual behaviours,²⁸ frequent hand washing,²⁹ toilet habits,²⁹ and HNC peer education.²⁰

As earlier mentioned, the following are the most commonly practised major HNC risk factors among secondary school students in Nigeria: oral sex, tobacco smoking, and alcohol drinking.¹⁷⁻¹⁹ Interestingly, in October 2017, it was projected by the Oral Cancer Foundation – a non-governmental organization in the USA saddled with the responsibility of creating awareness and preventing HNC disease – that many more young people will develop HNC disease by the year 2020³⁰; this projection was made based on the organization’s observation of the rising risky social behaviours in the society, of which young people (adolescents and young adults) were not excluded from such risky behaviours. This rising prevalence of HNC risk factors among young people is a serious issue that needs serious attention. Since a huge proportion of young people in any organized society are practically in school, acquiring academic and professional skills;

hence, HNC education programmes should be largely done in the school communities. However, most school-based health education programmes in various countries had majorly focused on reproductive health and infectious disease prevention,^{28,29} with only very little attention being paid on non-communicable diseases²⁰ – this is evidenced by the paucity of literatures on the impact of health education on non-communicable diseases (such as HNC) among school children.

It is also noteworthy that, as observed in our findings, school-based HNC education programs can significantly: improve secondary school students’ knowledge of HNC disease; and motivate them in teaching others, and not necessarily their peers, about the cause and symptoms of the disease. In a similar study conducted among South-Western Nigeria secondary school students, similar experience was also found.²⁰ Overall, this infers that secondary school students’ participation in school-based HNC education programmes is appealing and educative.

However, this study has its limitations. This study is a pilot study; it only explored a limited sample of secondary school students in the. Hence, it will be difficult to make generalizations based on the study data.

Based on the above, it is recommended that HNC education programmes should be introduced into school health education programmes in order to curb the rising prevalence of HNC risk factors among youth in Nigeria.

In conclusion, this pilot study shows that school-based HNC education programme is a potential tool for creating awareness and modifying attitudes and behaviours of Nigerian secondary school students, and also the general public, towards HNC prevention.

CONCLUSION

School-based HNC education programme is a potential tool that can be used for creating awareness and modifying attitudes and behaviours of Nigerian secondary school students towards HNC prevention.

SOURCE OF FUNDING

The research was funded by the authors.

CONFLIT OF INTEREST

The authors declare that there are no conflicts of interest.

REFERENCES

- Pai SI, Westra WH. Molecular pathology of head and neck cancer: implications for diagnosis, prognosis, and treatment. *Annu Rev Pathol.* 2009;4:49-70.
- Tobias JS. Cancer of the head and neck. *Brit Med J.* 1994;308(6934):961-966.
- Becher H, Ramroth H, Ahrens W, Risch A, Schmezer P, Dietz A. Occupation, exposure to polycyclic aromatic hydrocarbons and laryngeal cancer risk. *Int J Cancer.* 2005;116(3):451-457.
- Divaris K, Olshan AF, Smith J, Bell ME, Bradshaw PT, Weissler MC, Funkhouser WK. Oral health and risk for head and neck squamous cell carcinoma: The Carolina head and neck cancer study. *Cancer Causes Control.* 2010;21(4):567-575.
- Goldenberg D, Lee J, Koch WM, Klim MM, Trink B, Sidransky D, et al. Habitual risk factors for head and neck cancer. *Otolaryngol Head Neck Surg.* 2004;131(6):986-993.
- Grobbelaar EJ, Owen S, Torrance AD, Wilson JA. Nutritional challenges in head and neck cancer. *Clin Otolaryngol.* 2004;29(4):307-313.
- Huang C, Hsiao J, Lee W, Lee Y, Ou C, Chang C, et al. Investigating the association between alcohol and risk of head and neck cancer in Taiwan. *Sci Reports.* 2017;7:9701. <https://doi.org/10.1038/s41598-017-08802-4>. Accessed October 1, 2018.
- Kreimer AR, Clifford GM, Boyle P, Franceschi S. Human papillomavirus types in head and neck squamous cell carcinomas worldwide: A systematic review. *Cancer Epidemiol Biomarkers Prev.* 2005;14(2):467-475.
- Rafferty MA, Fenton JE, Jones AS. The history, aetiology and epidemiology of laryngeal carcinoma. *Clin Otolaryngol Allied Sci.* 2001;26(6):442-446.
- Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer.* 2010;127:2893–2917. <https://doi.org/10.1002/ijc.25516>. Accessed October 1, 2018.
- Mehanna H, Paleri V, West CML, Nutting C. Head and neck cancer – part 1: Epidemiology, presentation, and preservation. *Clin Otolaryngol.* 2011;36(1):65-68.
- Torre LA, Bray F, Siegel RL, Ferlay J, Lortet-Tieulent J, Jemal A. Global cancer statistics, 2012. *CA Cancer J Clin.* 2015;65:87-108.
- Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. *CA Cancer J Clin.* 2005;55(2):74-108.
- Simrad EP, Torre LA, Jemal A. International trends in head and neck cancer incidence rates: Differences by country, sex and anatomic site. *Oral Oncol.* 2014;50(5):387-403.
- Macfarlane GJ, Boyle P, Scully C. Oral cancer in Scotland: changing incidence and mortality. *Brit Med J.* 1992;305:1121-1123.
- Schantz SP, Yu G. Head and neck cancer incidence trends in young Americans, 1973-1997, with a special analysis for tongue cancer. *Arch Otolaryngol Head Neck Surg.* 2002;128:268-274.
- Oyewole BK, Animasahun VJ, Chapman HJ. Tobacco use in Nigerian youth: A systematic review. *PLoS ONE* 2018;13(5):e0196362.
- Odeigah L, Rasaki SO, Ajibola AF, Hafsat AA, Sule AG, Musah Y. High risk sexual behavior among adolescent senior secondary school students in Nigeria. *Afr Health Sci.* 2019;19(1):1467-1477.
- Osonuga AA, Ogunmoroti BD, Osonuga A, Da'costa A. Alcohol use among secondary school students in Nigeria: A worrisome trend. *N Niger J Clin Res.* 2019;8:54-59.
- Kanmodi KK, Fagbule FO. Does head and neck cancer (HNC) education have impact on adolescents' knowledge and attitude towards HNC and HNC peer education? An example from Nigeria. *Int J Child Adolesc Health.* 2018;11(3):343-347.

21. Kanmodi KK, Fagbule OF, Aladelusi TO. Prevalence of shisha (waterpipe) smoking and awareness of head and neck cancer among Nigerian secondary school students: A preliminary survey. *Int Public Health J*. 2018;10(2):209-214.
22. Head and neck cancer. *Cancer.Net*. <https://www.cancer.net/cancer-types/head-and-neck-cancer/view-all>. Accessed October 11, 2018.
23. Khatoon R, Sachan B, Khan MA, Srivastava JP. Impact of school health education program on personal hygiene among school children of Lucknow district. *J Family Med Prim Care*. 2017;6:97-100.
24. Siwach M. Impact of health education programme on the knowledge and practices of school children regarding personal hygiene in rural Panipat. *Int J Educ Sci*. 2009;1(2):115-118.
25. Nyandindi U, Milen A, Palin-Palokas T, Robison V. Impact of oral health education on primary school children before and after teachers' training in Tanzania. *Health Prom Int*. 1996;11(3):193-201.
26. Grant C. The impact of school health programmes. K4D Helpdesk Report. Brighton, UK: Institute of Development Studies, 2017.
27. Snilstveit B, Stevenson J, Menon R, Phillips D, Gallagher E, Geleen M, et al. The impact of education programmes on learning and school participation in low- and middle-income countries: a systematic review summary report, 3ie Systematic Review Summary 7. London, UK: International Initiative for Impact Education (3ie), 2016.
28. Aderibigbe SA, Araoye MO. Effect of health education on sexual behaviour of students of public secondary schools in Ilorin, Nigeria. *Eur J Sci Res*. 2008;24(1):33-41.
29. Midzi N, Mtapuri-Zinyowera S, Mutsaka MJ, Ruhanya V, Magwenzi M, Chin'ombe N, et al. Impact of school-based health education on knowledge, attitude and practice of grade three primary school children in Zimbabwe. *J Comm Med Health*. 2014;4:295. doi:10.4172/2161-0711.1000295.
30. Head and neck cancer: An overview of head and neck cancer. Oral Cancer Foundation. <https://oralcancernews.org/wp/tag/alcohol/>. Accessed October 1, 2018.