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Risk factors for common cancers in Nigeria: Knowledge, attitudes and practice among secondary school students in Kaduna, Nigeria

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Cancer is an important cause of morbidity and mortality worldwide and is increasingly becoming a major public health issue in developing countries including Nigeria. The objective of this study was to assess the knowledge, attitudes and practice of cancer risk factors among secondary school students with the aim of promoting healthy lifestyles. A structured self questionnaire was administered to 405 senior secondary school students who consented to participate. Data obtained were analysed using MINITAB and Statistical Package for Social Sciences (SPSS) statistical packages. A significant proportion (27.9%) did not know that cancer can result from habits learned in youth and there was poor knowledge about sexually related risk factors (early sexual exposure, repeated sexually transmitted infections, promiscuity). There was inaccurate knowledge about causes of cancer with 18.8% believing that cancer is caused by evil spirits. The commonest cancer risk factors practiced by the students were early sexual exposure (11.6%), smoking (9.6%), alcohol ingestion (6.9%), and promiscuity (6.4%). There is room for improvement of knowledge and attitudes about cancer risk factors among adolescents in order to minimize adoption of risky lifestyles. There is a need to educate adolescents on cancer risk factors and integrate promotion of healthy lifestyles in health-related activities targeted at young people.

Key words: Cancer risks, factors, lifestyles, adolescents, Kaduna.

INTRODUCTION

Cancer is an important cause of morbidity and mortality worldwide and is increasingly becoming a major public health issue in developing countries including Nigeria. Cancer morbidity and mortality are increased by human immunodeficiency virus (HIV) which is associated with higher incidences of various types of cancer. The most common types in Nigeria include cancer of the cervix and breast among women and cancer of the urinary bladder and prostate among men, while malignant lymphoma is common in both sexes. (Afolayan, 2004).

The risk factors for various types of cancer are well documented and include many habits or lifestyles which are commonly adopted in youth. General risk factors for cancer include a diet high in saturated fat and low in fresh fruit and vegetables, physical inactivity, tobacco use and alcohol consumption especially in excessive quantities. (National Cancer Institute, 2007; Unwin and Alberti, 2006). Specific risk factors for various cancers include tobacco use including smoking and chewing tobacco for cancers of the lung, mouth, bladder, cervix, oesophagus, pancreas, kidney and larynx; skin bleaching for skin cancer; alcohol consumption for cancers of the liver, breast, oesophagus, mouth and throat; poor diet especially low roughage and high fat diets for cancers of

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Table 1. General knowledge about cancer among the students.

Statement	True (%)	False (%)	Don't know (%)
Cancer is a disease of old people only	2.0	91.8	6.2
Cancer can affect any group including babies	66.8	6.5	26.8
Cancer affects only White people, not Africans	2.0	94.4	3.6
Some habits learned in youth can lead to cancer later in life	72.1	5.4	22.5

the colon, uterus and prostate; exposure to radiation or harmful chemicals for leukemia, and cancers of the thyroid, breast, lung, skin and stomach; some viruses and bacteria are also risk factors for cancer including human papilloma virus for cervical cancer, hepatitis B or C for liver cancer, human T-cell leukemia/lymphoma virus for leukemia or lymphoma, and helicobacter pylori for stomach cancer or lymphoma in the stomach; oestrogens used for hormone replacement therapy may increase the of breast cancer; and genetic predispositions as occur with cancers of the breast, ovary, prostate and colon and melanomas (National Cancer Institute, 2007). Recreational/hard drugs have also been implicated in causation of cancer e.g. marijuana and lung cancer (Han et al., 2010), cocaine, amphetamines (and a few other drugs) and non-Hodgkin's Lymphoma (Nelson et al., 1997). There has also been a report that cocaine and marijuana use by parents significantly increases the risk of rhabdomyosarcoma in their children (Grufferman et al., 1993).

Other risk factors include early sexual exposure, multiple sex partners and repeated or poorly treated sexually transmitted infections which increase the risk of developing cervical cancer (Emembolu and Ekwempu, 1988). Promiscuity is also a risk factor for HIV which increases the risk of developing various types of cancer in both men and women. Early menarche and late menopause, low parity, late age at first full term pregnancy and non-breastfeeding are important risk factors for breast cancer (Okobia and Bunker, 2005; Okobia et al., 2006). Although cigarette smoking is the main risk factor for bladder cancer, it is also associated with schistosoma haematobium infestation (Jankovic and Radosavljevic, 2007) which is endemic in some parts of Nigeria (Ochicha et al., 2003).

Most of the risk factors for common cancers in Nigeria are avoidable habits or lifestyles which are commonly adopted during adolescence. This study was carried out to assess the knowledge, attitudes and practice of adolescents in a secondary school in Nigeria with regard to cancer risk factor. There is anecdotal evidence that risky lifestyles are increasingly being adopted by youth in the country and the study aimed to document this in the study population, with a view to minimizing the problem thus reducing risk of cancers. This information will provide a guide for developing health promotion and education activities targeted at young people with a view to preventing cancers later in life and promoting healthy lifestyles.

METHODOLOGY

A structured questionnaire was administered to senior secondary school (4 to 6th year) students in Kaduna, Northern Nigeria by one of their teachers between September 2006 and March 2007. The school authority had given permission for the study to be carried out. The sample was one of convenience and only students who had consented to take part in the study were included. Information was obtained about their age and other biosocial characteristics, their knowledge about, and attitudes towards cancer and cancer risk factors, and their practice of any cancer risk factors. Rates and comparative analyses including student's t-tests and χ^2 tests were carried out on the data obtained using MINITAB and Statistical Package for Social Sciences (SPSS) statistical software packages. Statistical tests were two-sided and an association was considered statistically significant with p values of < 0.05.

RESULTS

The total number of questionnaires that were distributed was 500, out of which 405 (81%) were completed and returned. The mean age of the students was 16.22 years with a range of 12 to 22 years, and a standard deviation of 1.43. They were all senior secondary school students; 153 (38.1%) were in their 4th year, 152 (37.8%) in their 5th year, 97 (24.1%) were in their 6th (final) year while 3 did not respond to the question. There were 126 girls (33.3%) and 253 boys (66.8%).

Knowledge and attitude

Only 2.7% said they had never heard of cancer. Table 1 shows the general knowledge about cancer among the students.

There was no significant difference in knowledge between boys and girls in terms of having ever heard of cancer, knowledge that cancer is not restricted to any race, and knowledge that habits learned in youth can lead to cancer later in life. However, more girls (3.2% compared to 0.8% of boys) did not know that cancer is not just a disease of old people only ($\chi^2 = 6.4$, $p = 0.04$), and more girls (9.2% compared to 0.8% of boys) did not know that cancer can occur in any age group including babies ($\chi^2 = 10.55$, $p = <0.01$). Similarly, there was no

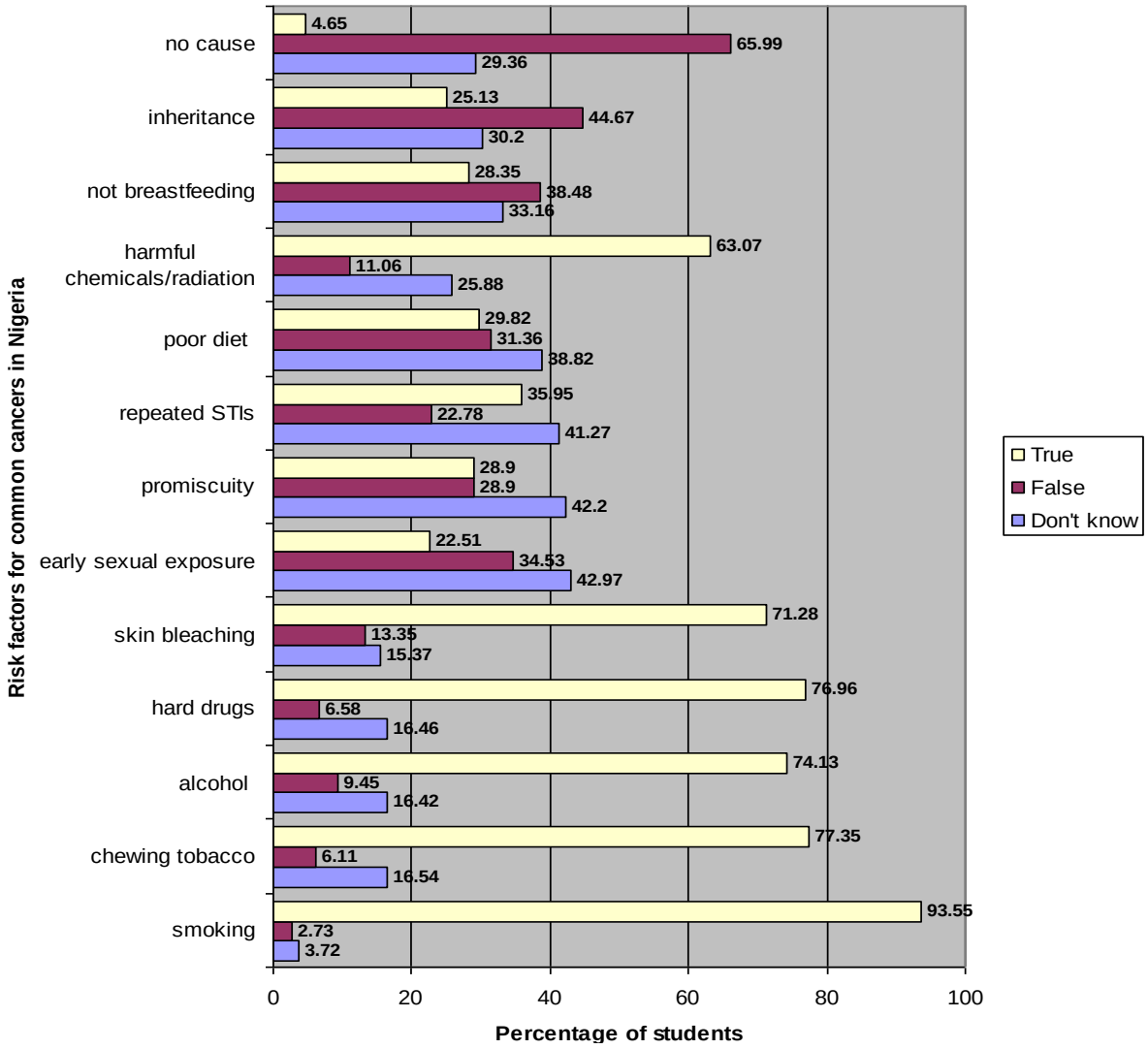

Figure 1. Knowledge of cancer risk factors.

significant knowledge between students in the different classes in terms of having ever heard of cancer, knowledge that cancer is not just a disease of old people and knowledge that cancer is not restricted to any race. However, knowledge that cancer can affect any age group including babies was significantly higher (χ^2 = 6.6, p = 0.04) in the higher classes (77.7% in 6th year, 65.1% in 5th year, 62.3% in 4th year). Knowledge that habits learned in youth can lead to cancer later in life was also significantly higher (χ^2 = 10.34, p = <0.01) in the higher classes (82.8% in 6th year, 73.7% in 5th year, 64% in 4th year).

There was no significant association between mean age of the students and their general knowledge about cancer and their knowledge of cancer risk factors.

The occupation of the students' parents was medical (doctor, pharmacist, nurse) among 15 (4%) of the fathers and 37 of the mothers (9.7%). Knowledge of about cancer and cancer risk factors was not significantly associated with the father's occupation or the mother's occupation (medical or non-medical). The knowledge of risk factors for common cancers in Nigeria among the students is as shown in Figure 1.

Majority of the students (46.7%) knew that cancer was not caused by evil spirits but many (34.5%) did not know whether or not evil spirits were involved in the aetiology of cancer while some (18.8%) felt that evil spirits cause cancer.

Many of the students (51.9%) said they knew someone who had cancer and the commonest types of cancer mentioned included those of the breast (59.5%), lungs (18.5%), skin (8.3%), and leukaemia (4.9%). Others included cancers affecting the liver, brain, kidney (1% each), bone, leg, scrotum, intestine, stomach, vagina, ear (0.5% each), heart (1.5%), and umbilicus (0.5%). One student (0.5%) also named fibroid as a type of cancer.

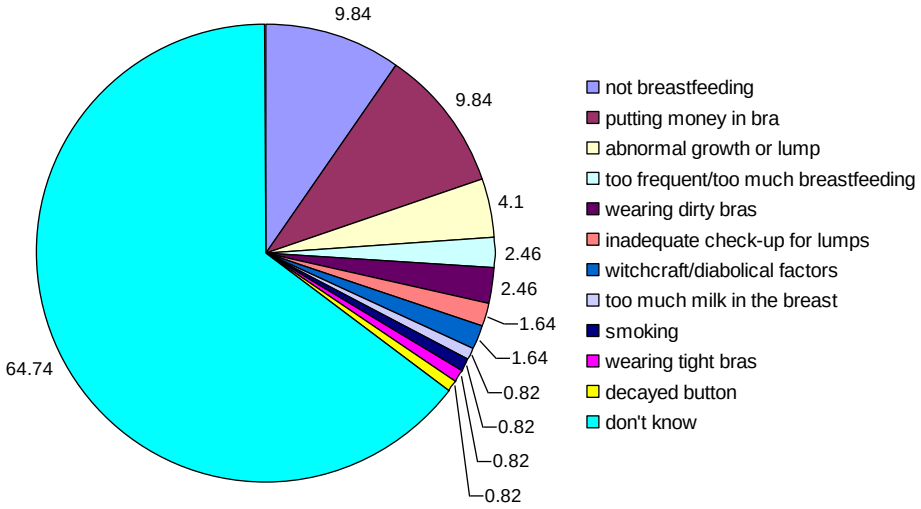

Figure 2. Perceived causes of breast cancer among the students (percentages)

Table 2. Association between mean age and attitude towards cancer risk factors.

Variable	Yes	No	Difference	95% CI for difference	t-value (p-value)
Lifestyle choices	16.3	16.0	0.3	-0.2, 0.7	1.2 (0.23)
Cancer treatment	16.1	16.2	-0.2	-0.5, 0.2	-0.9 (0.39)
Early treatment	16.3	15.8	0.5	0.2, 0.9	2.8 (0.01)
Why can't I do the same as others	16.2	16.2	-0.1	-0.4, 0.3	-0.3 (0.75)
Family history	16.1	16.3	-0.2	-0.5, 0.1	-1.6 (0.12)

CI = Confidence intervals.

Knowing a cancer victim was not significantly associated with the sex or class of the student.

Many of those who said they knew someone who had cancer said they did not know what caused it (30.6%). Figure 2 shows the perceived causes of breast cancer which was the most commonest type mentioned by students who said they knew someone who had cancer.

The perceived causes of other types of cancer included menstruation and adultery for vaginal cancer, transfusion of infected blood for leukaemia, radiation from mobile phones and use of sharp objects in the ear for ear cancer, excess salt intake and ingestion of maggi (bullion cubes) for stomach and intestinal cancer, and using an affected person's clothes for skin cancer. Skin bleaching, smoking and excessive alcohol ingestion were correctly perceived to cause cancer in the skin, lungs and liver, respectively.

Majority of the students (89.5%) felt that it was possible to minimize the risk of cancer by making the right lifestyle choices, while 3.6% felt that this was not possible and 6.9% did not know. The attitude towards lifestyle choices was not significantly associated with the sex or class of the student.

Some students (22.9%) believed that cancers have no treatment while others (22.1%) did not know, but the majority (55%) knew that cancers can be treated. Significantly, more boys (59.3%) compared to girls (46.6%) knew that cancers can be treated (χ^2 = 6.9, p = 0.03). More students in the 4th year (29.6%) and the 5th year (23.3%) believed that cancers have no treatment compared to those in the 6th year (11.7%) with these differences being statistically significant (χ^2 = 10.3, p ≤ 0.01).

Majority (81.6%) agreed with the statement that cancer treatment is more likely to succeed if started early in the course of the disease while others (13.5%) unsure, and a few (4.9%) felt that the statement was not true. There was no significant difference between boys and girls in terms of knowledge that cancer treatment is more likely to succeed if started early. More students in the 6th year (95.7%) agreed that cancer treatment is more likely to succeed if started early compared to those in the 5th year (80.5%) and the 4th year (74.5%) with these differences being statistically significant (χ^2 = 18.5, p ≤ 0.01).

The mean age of students who felt that cancer treatment was more likely to succeed if started early in the course of the disease was significantly higher than the mean age of those who did not agree with this statement. There was no association between mean age of the students and other attitudes towards cancer as shown in Table 2.

Some students (24.5%) felt that they could indulge in

Table 3. Association between student's sex and class, and knowledge of cancer risk factors.

Variable	Student's sex		Student's class	
	χ^2 value	p-value	χ^2 value	p-value
Smoking	1.3	0.52	13.1	<0.01
Chewing tobacco	2.4	0.31	16.7	<0.001
Alcohol	2.3	0.31	2.2	0.33
Hard drugs	2.1	0.35	2.2	0.34
Skin bleaching	16.1	<0.001	2.3	0.32
Early sexual exposure	10.4	<0.01	4.0	0.14
Promiscuity	15.8	<0.001	0.6	0.73
Repeated/Poorly treated STIs	7.8	0.02	0.1	0.94
Poor diet	0.9	0.63	0.3	0.88
Exposure to chemicals or radiation	3.6	0.16	15.4	<0.001
Not breastfeeding	5.7	0.06	4.3	0.12
Inheritance	2.6	0.27	3.1	0.21
Evil spirits	2.7	0.27	1.7	0.42
No cause	5.6	0.06	1.2	0.56

Table 4. Practice of cancer risk factors among students and duration of such practices.

Risk factor	Number (%)	Mean duration in years (standard deviation)	Range (years)
Smoking	39 (9.6)	3.38 (2.1)	0.3 – 8.0
Chewing tobacco	5 (1.2)	0.5 (*)	0.50– 0.5
Alcohol ingestion	28 (6.9)	2.64 (1.6)	0.3 – 6.0
Hard drugs	9 (2.2)	3.40 (1.5)	2.0 – 5.0
Skin bleaching	5 (1.2)	2.04 (2.8)	0.1 – 4.0
Early sexual exposure	47 (11.6)	4.58 (2.4)	5.0 – 11.0
Promiscuity/multiple sex partners	26 (6.4)	4.60 (2.5)	0.5 – 11.0
Repeated/poorly treated STIs	2 (0.5)	1.00 (0)	1.0 – 1.0

*Only one student gave the duration of this practice so standard deviation could not be calculated.

cancer risk factors, because they knew people who indulged in some of the things that are said to cause cancer and yet did not have cancer; some (16.8%) were neutral; while majority (58.7%) disagreed. This attitude was not significantly associated with sex or class of the student. Many students (47.4%) felt that one only needs to be careful and avoid cancer risk factors, if someone in their family had had cancer while some were neutral (18.9%) and others (33.8%) disagreed with this opinion. This attitude was not significantly associated with the sex of the student but was significantly associated with the class (χ^2 = 15.3, p ≤ 0.001) with less 6th year students (33%) agreeing with this opinion than 5th year (44.6%) and 4th year students (58.4%).

Significantly more girls knew that skin bleaching (83.6% compared to 64.80% of boys), early sexual exposure (25.2% compared to 20% of boys), and promiscuity (30.5% compared to 26.6% of boys) are risk factors for cancer while more girls did not know that repeated or poorly treated sexually transmissible infections (49.2% compared to 37.5% of boys) are risk factors for cancer. Knowledge that smoking (97.4, 96.9 and 88.2% of 6, 5 and 4th year students, respectively), chewing tobacco (87.8, 75.8, and 68.2% of 6, 5 and 4th year students, respectively), and exposure to chemicals and radiation (79.4, 61, and 55.3% of 6, 5 and 4th year students, respectively) are risk factors for cancer, and was significantly higher with higher classes. Details are shown in Table 3.

Practice

The most common cancer risk factors practiced by the students are early sexual exposure, smoking, alcohol ingestion and promiscuity/multiple sex partners as shown in Table 4.

The mean age at first sexual intercourse was 12.9 years with a range of 10 to 19 years, and a standard deviation of 2.5. There was a slight difference in the mean age at first sexual exposure for boys (12.9 years) compared

Table 5. Association between mean age (years) of the students and practice of various cancer risk factors.

Variable	Yes	No	Difference	95% CI for difference	t-value (p-value)
Smoking	16.8	16.2	0.6	0.1, 1.2	2.2 (0.03)
Chewing tobacco	17.8	16.2	1.6	-1.6, 4.8	1.4 (0.24)
Alcohol	17.0	16.2	0.8	0.1, 1.6	2.4 (0.03)
Hard drugs	16.3	16.2	0.1	-0.8, 1.0	0.3 (0.77)
Skin bleaching	16.8	16.2	0.6	-1.3, 2.4	0.9 (0.43)
Early sexual exposure	17.3	16.1	1.2	0.7, 1.7	4.6 (<0.001)
Promiscuity	17.4	16.1	1.3	0.5, 2.0	3.4 (<0.01)
Repeated/Poorly treated STIs	16.5	16.2	0.3	-6.1, 6.7	0.6 (0.68)

CI = Confidence intervals

Table 6. Association between student's sex and class, and practice of cancer risk factors.

Variable	Sex		Class	
	χ^2 value	p-value	χ^2 value	p-value
Smoking	16.6	<0.001	1.9	0.39
Chewing tobacco	*	*	0.1	0.98
Alcohol	10.9	<0.01	5.5	0.06
Hard drugs	*	*	0.16	0.92
Skin bleaching	0.1	0.75	1.0	0.62
Early sexual exposure	18.5	<0.001	7.9	0.02
Promiscuity	10.3	<0.01	1.1	0.56
Repeated/Poorly treated STIs	0.3	0.61	1.4	

*All those that reported that they chewed tobacco (5 students) or used hard drugs (9 students) were boys so there was no basis for analysis of these risk factors between the sexes.

to girls (11 years); though this difference (1.9) was not statistically significant (95% confidence intervals (CI) = -15.4, 11.6; t-value = -1.8, p-value = 0.32).

The mean number of sexual partners was 4.1 with a range of 1 to 12, and a standard deviation of 3.1. There was no significant association between the sex of the student and the mean number of sex partners: girls = 3.5, boys = 4.5 (difference = -1, 95% CI for difference = -33.7, 31.7, t-value = -0.4, p-value = 0.77). Older students were significantly more likely to be involved in smoking, alcohol ingestion, early sexual exposure and sexual promiscuity as shown in Table 5.

Students that reported being promiscuous had slightly lower age at first sexual exposure (12.7 years) compared to those who did not (13.2 years), although the difference of 0.5 years was not statistically significant (95% CI = -1.9, 0.9, t-value = -0.7, p-value = 0.5). Those who were promiscuous also had significantly more sex partners (mean = 7.1) than those who said they were not promiscuous (mean = 1.7), the difference was 5.5 (95% CI = 3.8, 7.1, t-value = 6.9, p-value = <0.01).

Practice of cancer risk factors was not significantly associated with knowledge of cancer risk factors or knowledge of a cancer victim, and mother's or father's occupation (medical or non-medical).

Practice of the following risk factors was significantly more common among boys: smoking (13.8% compared to 0.8% of girls), alcohol ingestion (9.9% compared to 0.8% of girls), early sexual exposure (16.6% compared to 1.6%), and promiscuity (9.5% compared to 0.8% of girls). Early sexual exposure was more common among 5 and 6th year students (13.4 and 15.8%, respectively) compared to those in the 4th year (5.9%). Details are in shown in Table 6.

DISCUSSION

Many students did not know that some habits learned in youth can lead to cancer later in life (27.9%) and this lack of information may result in making wrong lifestyle choices. Previous studies from other parts of the world have documented poor cancer knowledge among adolescents and young adults in schools (Makris et al., 1994; Perez-Contreas et al., 2004) and among the general public (Adlard and Hume, 2003; Myhre et al., 1996; Setth et al., 2005). Knowledge that habits learned in youth can lead to cancer later in life, was significantly higher among

students in the higher classes who may have already adopted risky habits or lifestyles. Similarly, knowledge of cancer risk factors was significantly higher among students in higher classes. It is important that students be given information about health-promoting habits and lifestyles at early stages before they make their choices.

There was poor knowledge that early sexual exposure, multiple sex partners, and repeated/poorly treated sexually transmitted infections are cancer risk factors. This is an important gap as cervical cancer is the leading cancer among Nigerian women (Afolayan, 2004) and one of the ways this disease can be prevented is through safer sexual practices. Majority of the students also did not know that cancer can run in families and this is important as even those who are at higher risk due to genetic predisposition may not make the right choices, thus further increasing their risk of developing cancer. More girls knew that skin bleaching, early sexual exposure and promiscuity are cancer risk factors as compared to boys probably resulting from deliberate targeting of women and girls with such information. It is important to include men and boys as target audiences for such information as these risk factors affect both sexes as the men/boys are involved in transmission of sexually transmitted infections and in the use of skin bleaching agents.

Inaccurate knowledge about the aetiology of cancer was common, with many students even believing that cancer is caused by evil spirits (18.8%). Even among those who knew cancer victims, knowledge of its causation was largely inaccurate. However, majority of the students felt that the risk of cancer can be minimized by making the right lifestyle choices. This attitude may form a basis for promotion of healthy lifestyles among these students if they are given accurate information. Accurate information will also help to change the attitude that some students had about indulging in cancer risk factors, because they knew people who indulged in some of the things that are said to cause cancer and yet did not have cancer or that one only needs to be careful and avoid cancer risk factors, if someone in their family had had cancer.

The commonest cancer risk factors practiced by the students were early sexual exposure (11.6%), smoking (9.6%), alcohol ingestion (6.9%), and promiscuity (6.4%). These are of concern as they are risk factors for development of cervical cancer, breast cancer, prostate cancer and liver cancer which are the common cancers in the country.

Older students, students in higher classes and boys were significantly more likely to be involved in habits or lifestyles that increase their risk of developing cancer later in life such as smoking, alcohol ingestion, early sexual exposure and sexual promiscuity. This highlights the need to provide information as early as possible to prevent adoption of these risky lifestyles. Previous studies have reported healthier lifestyles among people who had more knowledge of the risks associated with certain lifestyles (Brown et al., 2006; Fiala and Brazdova, 1996; Schinke et al., 1996).

About 18% of the students reported being sexually active with more boys reporting that they were sexually active. Early age at first sexual exposure and having multiple sexual partners, reported by some students, are important risk factors for development of cervical cancer later in life. Similarly, there is an increased risk of contracting HIV with both early sexual exposure and multiple sexual partners and this may result in development of various types of cancer (National Cancer Institute, 2007).

Secondary school students are increasingly being targeted for health education and promotion activities in the efforts to prevent HIV infection and such activities can be modified to include information on how to live healthy lives and avoid cancer risk factors as much as possible in order to minimize the risk of cancer later in later in life. Adolescents and young adults should be given the opportunity to make informed choices about their life-styles and their health. There is also a need to educate parents, teachers youth leaders and other community leaders on these issues so that they can provide adequate support and information to these young people. School health clubs (consisting of teachers and students), religious organizations, youth-friendly health services and the media, all have important roles to play in promoting healthy lifestyles.

REFERENCES

Adlard JW, Hume MJ (2003). Cancer knowledge of the general public in the United Kingdom: survey in a primary care setting and review of the literature. Clin. Oncol. 15(4):174-80.

Afolayan EA (2004). Five years of cancer registration at Zaria (1992 – 1996). Niger Postgrad Med J. 11(3):225-9.

Brown N, Naman P, Homel P, Fraser-White M, Clare R, Browne R (2006). Assessment of preventive health knowledge and behaviours of African-American and Afro-Caribbean women in urban settings. J. Natl. Med. Assoc. 98(10):1644-51.

Emembolu JO, Ekwempu CC (1988). Carcinoma of the cervix uteri in Zaria: etiological factors. Int. J. Gynaecol. Obstet. 26(2):265-9.

Fiala J, Brazdova Z (1996). 'Know and improve your health;': symbiosis of preventive project and preventive medicine education at the medical faculty in Brno. Cent Eur. J. Public Health 4(4):257-62.

Grufferman S, Schwartz AG, Ruymann FB, Maurer HM (1993). Parents' use of cocaine and marijuana and increased risk of rhabdomyosarcoma in their children. Cancer Causes Control 4(3):217-24.

Han B, Gfroerer JC, Colliver JD (2010). Association between duration of illicit drug use and health conditions: results from the 2005-2007 national surveys on drug use and health. Ann. Epidemiol. 20(4):289-97.

Jankovic S, Radosavljevic V (2007). Risk factors for bladder cancer. Tumori 93(1):4-12.

Makris G, Charalampopoulos KA, Athanasiou K (1994). Estimating the level of knowledge of Greek students on cancer aetiology and ways of prevention. Eur. J. Cancer Prev. 3(5):443-50.

Myhre SL, Li VC, Guan JH, Wang ZJ (1996). Cancer knowledge and perceptions among Chinese factory workers: implications for caner control and prevention. Cancer Detect Prev. 20(3):223-33.

National Cancer Institute, US National Institutes of Health (2007). What you need to know about cancer – an overview. www.cancer.gov/cacncertopics/wyntk/overview.

Nelson RA, Levine AM, Marks G, Bernstein L (1997). Alcohol, tobacco, and recreational drug use and the risk of non-Hodgkin's lymphoma. Br. J. Cancer 76(11):1532-7.

Ochicha O, Alhassan S, Mohammed AZ, Edino ST, Nwokedi EE (2003). Bladder cancer in Kano – a histopathological review. West Afr. J. Med. 22(3):202-4.

Okobia MN, Bunker CH (2005). Epidemiological risk factors for breast cancer – a review. Niger. J. Clin. Pract. 8(9):35-42.

Okobia M, Bunker C, Zmuda J, Kammer C, Vogel V, Uche E, Anyanwu S, Ezeome E, Ferrell R, Kuller L (2006). Case-control study of risk factors for breast cancer in Nigerian women. Int. J. Cancer 119(9):2179-85.

Perez-Contreras I, Allen B, Ruiz-Velasco S, Schiavon-Errnani R, Cruz-Valdez A, Hernandez C, Lazcano-Ponce E (2004). Levels and correlates of knowledge about cancer risk factors among 13,293 public school students in Morelos, Mexico. Prev. Med. 39(2):286-99.

Schinke SP, Singer B, Cole K, Contento IR (1996). Reducing cancer risk among Native American adolescents. Prev. Med. 25(2):146-55.

Setth T, Kotwal A, Thakur R, Singh P, Kochupillai V (2005). Common cancers in India: knowledge, attitudes and behaviours of urban slum dwellers in New Delhi. Public Health 119(2):87-96.

Unwin N, Alberti KG (2006). Chronic non-communicable diseases. Ann. Trop. Med. Parasitol. 110(5-6):455-64.