

PERCEPTION OF VULNERABILITY TO LUNG CANCER AMONG MALE STUDENTS IN SELECTED SECONDARY SCHOOLS IN IBADAN NORTH LOCAL GOVERNMENT AREA, OYO STATE

Beatrice M. Ohaeri and Gift O. Nwachukwu

ABSTRACT

Lung cancer is the most common cause of cancer-related deaths worldwide with an overall survival rate less than 15% and poor prognosis due to delay in clinical manifestations. However, it is probably one of the most behaviour-controlled diseases in the world with an obvious environmental etiology and therefore the potential for risk reduction. Hence, this study assessed the perception of secondary school students, selected from two schools in Ibadan North Local Government Area towards vulnerability to lung cancer and its associated risk factors. A descriptive cross-sectional design was adopted and through simple random sampling, a total number of 265 male students were recruited into the study. Data were collected using a self-structured questionnaire with a Cronbach Alpha of 0.85. Analysis was done with the aid of SPSS, using descriptive statistic and Chi-square test at $p < 0.05$. The study revealed that the age range was 12 to 24 years, and a mean age of 15.87 ± 16 years. Further findings show that the level of knowledge about lung cancer is average (54%) and awareness of signs and symptoms is average (50%). The result also revealed that the perception about the risk factor of cancer is average (50%) and perception about the preventive strategies is high (67.8%). Also, a significant positive relationship was seen between knowledge of lung cancer and perception toward vulnerability among students [$N = 263$, $r = 0.524$, $p < 0.01$]. There is need to further educate the youths on risk factors of lung cancer, symptoms, early detection and treatment in order to increase their perception towards vulnerability to lung cancer. This will reduce the mortality, late presentation with a subsequent improvement in prognosis and quality of life.

Keywords: Smoking, Youth, Risk Factors, Prognosis.

INTRODUCTION

In recent times, lung cancer has been a major concern in the society and in the world. Despite the implementation of health policy on cigarette smoking and siting of industries far away from residential building, many individuals tend to be at risk of lung cancer. Cancer is a term for diseases in which abnormal cells divide without control and can invade nearby tissues. Lung Cancer is the uncontrolled growth of abnormal cells that start in one or both lungs; usually in the cells that line the air passages (Hanahan & Weinber 2000).

Incidence and mortality attributed to lung cancer has risen steadily since the 1930s predominantly due to the popularity of cigarette smoking. In the past 100 years, lung cancer has therefore been transformed from a rare disease into a global problem. It is the most common cause of death for cancer worldwide, estimated to be responsible for nearly one in five deaths and with an overall survival rate less than 15%. The geographical patterns in mortality closely follow those in incidence because of its high fatality and the relative lack of variability in survival in different world regions (Ridge, McErlean and Ginsberg 2008).

Lung cancer disease is usually complicated, common and lethal with outcomes heavily dependent on the stage of disease (Helmut & Popper, 2016). One key factor contributing to poor prognosis for some individuals with the disease is delay in clinical manifestation (Corner, Hopkinson, Roffe 2006). In some individuals, they remain asymptomatic until metastasis, whereas in others they may fail to recognize the manifestation of the symptoms.

Lack of public awareness of lung cancer and recognition of the right intervention can contribute to exacerbation of ailment (Barrett & Hamilton 2008). It was observed that in Sub-Saharan Africa population-based data on lung cancer incidence or mortality are not available, except South Africa with a mortality rate of 31% among adult males and smaller island states. For 22 African countries, the incidence estimates represent simply those of neighbouring countries. Therefore, since smoking prevalence is similar in many other African countries, and smoking is the dominant factor for lung cancer, similar rates should be expected (Winkler, Ott, Cowan & Becher 2013).

A group of researchers observed that the lung cancer incidence rates are lower in Africa compared to incidence rates elsewhere, possibly due to a true lack of cases or detection biases. There is limited data on risk factors in Africa, especially Central, Eastern and Western Africa, pointing out the need for more research, prior to considering targeted prevention policies (Alexandra, Sowmya, Alex, David, Thomas & Dean 2016). Lung cancer is the deadliest of all cancers in the United States and the world. It is the most common cancer in men, and the third most common cancer in women in both developed and developing countries (WHO World Cancer Report 2008)

One of the curative techniques for the condition is surgery, which is mostly associated with reduced lung functioning. This is a problem in patients with pre-existing lung problems due to smoking. In addition, there is damage to the respiratory system from chemotherapy and radiation for many types of cancer and may progress without symptoms before manifesting as shortness of breath or other breathing problems long after treatment has ended (Liles, Blatt, Morris 2008). The detection of lung cancer at an earlier stage is often incidental during a chest x-ray for pneumonia, following an accident, or other event (American Cancer Society, 2014)

Much of the burden could be prevented through tobacco control but risk increases with both quality and duration of smoking. Cigar and pipe smoking also increase risk. Exposure to radon gas released from soil and building materials is thought to be the second leading cause of lung cancer in the US. Other risk factors include occupational or environmental exposure to second hand smoke, asbestos, certain metals, some organic chemicals, radiation, air pollution and diesel exhaust. Additional occupational exposures that increase risk include rubber manufacturing, paving, roofing, painting and chimney sweeping. Risk is also probably increased among people with a history of tuberculosis. Genetic susceptibility also plays a role in the development of lung cancer especially in those who develop the disease at a young age.

The link of causality between lung cancer and smoking habits is well known in the general population. Nevertheless, there are observed notable differences in the knowledge of other risk factors, the potential carcinogenicity of occupational exposure, air pollution, and ionizing radiation are important (Park, Streck, Gareen, Ostroff, Hyland, Rigotti, Pajolek, Nichter 2014). These risk factors have been extensively studied and are known to cause lung cancer, though their relationship is weaker than active smoking (Dresler 2013).

Mazieres (2015) observed that a major proportion considered lung cancer to be a tobacco-induced, life-threatening disease that involved major treatment, and a minor proportion considered it to be an environmentally induced disease. They also identified knowledge gaps in the perception of lung cancer and have highlighted a need for a public information campaign on lung-cancer screening to promote the good survival rate from early-stage disease and the progress achieved with new therapeutic strategies (Julien, Jean-Louis, Nikos, Diane, Elisabeth, Thomas, Nathalie, Denise, Julie, Bernard, 2015).

In a study carried out among secondary school students, it was noted that perceived susceptibility to lung cancer was significantly associated with sex, perceived seriousness of lung cancer and school location. Students' gender, socio-economic status and the family environment were important factors that influenced students' smoking behaviour and risk perceptions and these findings have significant policy implications. On knowledge about cancer, it was found that the mean score for knowledge about lung cancer was 46.3%. Knowledge of lung cancer was significantly higher among those who started smoking at a younger age compared with those started at an older age. On perceived susceptibility to lung cancer, it was found that a small proportion (10.1%), of the surveyed students believed that their susceptibility to lung cancer was high, while more than half (52.0%) of the students saw their susceptibility as low and the remainder (37.9%) were unsure. On perceived seriousness of lung cancer, it was found that the mean score for perceived seriousness of lung cancer was 61.8% (Shadid, & Hossain, 2015).

Lung Cancer is indeed a significant problem in the world. However, the irony remains that, it is probably one of the most behaviour-controlled diseases in the world. It is unique among leading cancers in that it has an obvious environmental etiology and therefore the potential for risk reduction. The question this research seeks to answer about is what exactly is the perceived vulnerability to cancer of male students in Methodist Grammar School and Immanuel High College Senior Secondary School?

OBJECTIVES OF THE STUDY

1. To assess the knowledge of secondary school students about lung cancer.
2. To determine the level of awareness of common signs and symptoms of lung cancer among male students.
3. To identify the perceived risk factors associated with lung cancer among secondary school students.
4. To assess the perception of preventing strategies of lung cancer among male students.
5. To assess the relationship between knowledge and perception of vulnerability to lung cancer.

MATERIALS AND METHOD

A descriptive cross-sectional design was used to assess the perception of vulnerability to lung cancer among males in senior secondary school in Methodist High School and Immanuel College High School Ibadan. A total of 265 male students who consented were randomly selected for this study. Data were collected using validated structured questionnaire with Cronbach's Alpha coefficient of 0.85 to elicit information on: demographic data, level of awareness on lung cancer, individual's awareness on the risk factors of lung cancer, level awareness of clinical manifestation and preventive strategies on lung cancer. Ethical approval was given by the UI/UCH Ethical Review Committee after the due protocols. Respondents consented to participate after the focus and process of the study were explained to them. Participation was voluntary, and responses were made confidential by making submitted information anonymous using serial numbers that cannot be linked to participants. They were equally informed that no negative consequences were attached to participation or non-participation and they could withdraw at any time.

Data obtained were cleaned and sorted to screen for errors and completeness. Analysis was done using IBM-SPSS version 21. Descriptive statistics of frequency counts, simple percentage, mean and standard deviation were used to summarize and present the results. Chi-square test was used to

investigate whether the association between knowledge of lung cancer and perception of vulnerability was statistically significant at $P < 0.05$.

RESULTS

A total number of 280 questionnaires were administered, 15 questionnaires were not returned, therefore only 265 questionnaires were coded and used for the analysis. The return rate 94.6%. Data on the demographic

characteristics of the participants revealed that majority of the participants were 162 (61.1%), were Christians, 97 (36.6%) were Islam faithful's while only 6 (2.3%) were traditional worshippers, most of the participants 193 (72.8%) were from Yoruba origin, 39 (14.9%) were from Hausa (72.8%), 32 (12.1%) were from Igbo while only 1 (0.4%) was from an ethnic group not captioned in the questionnaire. The students' age ranges from 12 years to 24 years, and their mean age was 15.87 16 year

**Table 1:
Demographic Characteristics of Respondents**

Variables		Frequency	Percent (%)
Religion	Christianity	162	61.1
	Islam	97	36.6
	Traditional	6	2.3
	Total	265	100
Ethnicity	Yoruba	193	72.8
	Hausa	39	14.7
	Igbo	32	12.1
	Others	1	0.4
	Total	265	100

The result of table 2 showed the knowledge of secondary school students on lung cancer. It was revealed that 79.25% students agreed that lung cancer is a common cancer in the world; Most respondents (39.25%) agreed that lung cancer does not happen to those who are light smoker, while 17.74% were uncertain. 70.56 of respondents agreed that cancer is common in developing countries while 10.95% were uncertain and 18.5% disagreed. 59.6% of respondents agreed that cancer is common in Nigeria while 25.67% were uncertain and 14.7% disagreed. 63.77% of respondents agreed that the mortality rate of cancer is high while 20% were uncertain and 16.23% disagreed. 64.91% of respondents agreed that cancer commonly occur in old age while 15.85% were uncertain and 19.25% disagreed 55.85% of respondents

agreed that cancer can be inherited from parents while 11.7% were uncertain and 32.45% disagreed. 24.3% agreed that cancer is due to disregarding religious factor, 21.51% were uncertain and 53.96 disagreed. 32.45% of respondent agreed that cancer happens to those who are lazy, 14.72% were uncertain and 15.83% disagreed. 66.79% of respondents agreed that cancer occur to those who are heavy smokers while 9.44% were uncertain, 23.77% disagreed. 39.25% of respondents agreed that cancer does not occur to those who are light smokers while 17.24% were uncertain and 43.02% disagreed. 41.13% of respondents agreed that cancer does not occur to those who are fat while 18.12% were uncertain and 40.76% disagreed.

Also, some (51.70%) contended that some people were immune to lung cancer, while 24.15% disagreed. The average score of this

study is 54%. This implies that the respondents level of knowledge is average.

Table 2:
Level of knowledge of lung cancer (N=265)

Knowledge of lung cancer	Agree	Uncertain	Disagree
common cancer in the world	210(79.25%)	25(9.44%)	30(11.32%)
common cancer in developing countries	187(70.56%)	29(10.95%)	49(18.499%)
common cancer in Nigeria	158(59.62%)	68(25.67%)	39(14.72%)
high mortality rate	169(63.77%)	53(20%)	43(16.23%)
occurs more commonly in old people	172(64.91%)	42(15.85%)	51(19.25%)
inherited from parents	148(55.85%)	31(11.7%)	86(32.45%)
caused due to disregard in religion factors	65(24.53%)	57(21.51%)	143(53.96%)
occur to those who are lazy	86(32.45%)	39(14.72%)	140(52.83%)
occur to those who are heavy smokers	177(66.79%)	25(9.44%)	63(23.77%)
does not occur to those who are light smokers	104(39.25%)	47(17.74%)	114(43.02%)
does not happen to those who are fat	109(41.13%)	48(18.12%)	108(40.76%)
some people are immune to lung cancer	137(51.70%)	64(24.16%)	64(24.15%)

The result of table 3 showed the awareness of lung cancer. 58.49% of respondents agreed that the signs and symptoms (s&s) of cancer (ca) is unexplained weight loss, while 6.8% were uncertain and 34.72% disagreed. 47.93% of respondents agreed that persistent chest pain is a s&s of cancer while 7.74% were uncertain and 38.11% disagreed. 43.77% of respondents agreed that persistent cough is s&s of ca while 16.99% were uncertain and 39.25% disagreed. 48.68% of respondents agreed that shortness of breath is s&s of ca while 20.76% were uncertain and 30.57% disagreed. 58.11% of respondents agreed that persistent tiredness is S&s of ca while 17.74% were uncertain and 24.16% disagreed. 60.38% of respondents agreed that persistent chest pain is a s&s of ca

while 3.02% were uncertain and 36.60% disagreed. 53.59% of respondents agreed that ache and pain when breathing is a s&s of ca while 15.48% were uncertain and 30.94% disagreed. 55.47% of respondents agreed that loss of appetite is s&s of ca while 5.67% were uncertain and 38.7% disagreed. 38.87% of respondents agreed that change in the shape of the finger nail is s&s of ca, while 15.48% were uncertain and 45.66% disagreed. 46.76% of respondents agreed that change in the existent of curve pattern is s&s of ca, while 15.85% were uncertain and 37.36% disagreed.

The average score is 45.4% which shows that the level of awareness of lung cancer among respondents is low.

Table 3:
Awareness on signs/symptoms of lung cancer

Signs/Symptoms	Agree	Uncertain	Disagree
Unexplained weight loss	155(58.49%)	18(6.8%)	92(34.72%)
Persistent chest pain	127(47.93%)	47(17.74%)	101(38.11%)
Cough that does not stop	116(43.77%)	45(16.99%)	104(39.25%)
Shortness of breath	129(48.68%)	55(20.76%)	81(30.57%)
Persistence tiredness	154(58.11%)	47(17.74%)	64(24.15%)
Persistence chest pain	160(60.38%)	8(3.02%)	97(36.60%)
Coughing up blood	86(32.45%)	36(13.59%)	142(53.59%)
Ache or pain when breathing	142(53.59%)	41(15.48%)	82(30.94%)
Loss of appetite	147(55.47%)	15(5.67%)	103(38.87%)
painful cough	117(44.15%)	47(17.74%)	101(38.11%)
change in the shape of finger (nail)	103(38.87%)	41(15.48%)	121(45.66%)
high-pitched sound when breathing	138(52.08%)	42(15.85%)	85(32.08%)
changing in existing cough pattern	124(46.79%)	42(15.85%)	99(37.36%)

The result of table 4 showed the perception of secondary school students on risk factors of lung cancer. 78.11% of respondents agreed that exposure to cigarette smoke is a risk factor (rf), 13.97% were uncertain, while 7.9% disagreed. 60.76% of respondents agreed that smoking is a rf, while 9.82% were uncertain and 29.42% disagreed. 57.36% of respondents agreed that exposure to radon gas air pollution is a rf, while 21.14% were uncertain and 21.50% disagreed. 41.51% of respondents agreed that past cancer treatment is rf, while 23.4% were uncertain and 35.09% disagreed. 27.17% of

respondents agreed that close relative with lung cancer is rf, while 30.95% were uncertain and 29.81% disagreed. 40.76% of respondents agreed that exposure to chemical like asbestos is rf, while 30.95% were uncertain and 28.30% disagreed. 52.45% of respondents agreed that air pollution is rf, while 16.99% were uncertain and 30.56% disagreed. 40.76% of respondents agreed that history of lung cancer is rf, while 29.44% were uncertain and 29.81% disagreed.

The average score of this study is 49.9%. This implies that the perception of respondents about the risk factors of lung cancer is average.

Table 4:
Perception about Risk Factors of Lung Cancer

Risk factors	Agree	Uncertain	Disagree
cigarette smoke exposure	207(78.11%)	37(13.97%)	21(7.93%)
Smoking	161(60.76%)	26(9.82%)	78(29.42%)
exposure to radon gas	152(57.36%)	56(21.14%)	57(21.50%)
Past cancer treatment	119(41.51%)	62(23.4%)	93(35.09%)
close relative with lung cancer	72(27.17%)	71(26.8%)	122(46.03%)
exposure to chemical like asbestos	108(40.76%)	82(30.95%)	75(28.30%)
Air pollution	139(52.45%)	45(16.99%)	81(30.56%)
history of lung cancer	108(40.76%)	78(29.44%)	79(29.81%)

71.32% of the respondents agreed that cancer can be detected in early stage while 16.61% were uncertain and 12.07% disagreed. 81.13% of respondents agreed that lung cancer can be treated if detected early, while (14.72%) were uncertain and 14.15% disagreed. 60% of the respondents agreed that reduction of smoking is useful in early detection of cancer while 17.36% were uncertain and 22.6% disagreed. 60.38% of the respondents agreed that surgery is the only treatment available for lung cancer

while 17.36% were uncertain and 22.26% disagreed. 66.79% of the respondents agreed that early detection improves the outcome of treatment while 13.97% were uncertain and 19.25% disagreed. 67.17% of the respondents agreed that there are few oral medications to treat lung cancer while 24.16% were uncertain and 8.68% disagreed.

The average score of this study is 67.8%. It is therefore concluded that the respondent perception about risk strategies is high.

Table 5:
Perception about preventive strategies of lung cancer

Preventive strategies	Agree	Uncertain	Disagree
Cancer can be detected in early stage	189(71.32%)	44(16.61%)	32(12.07%)
Lung cancer can be treated if detected in early stage	215(81.13%)	39(14.72%)	11(4.15%)
Reduction of smoking is useful in early detection of lung cancer	159(60%)	43(16.23%)	63(23.77%)
Surgery is the only treatment available for lung cancer	160(60.38%)	46(17.36%)	59(22.26%)
Early detection improves the outcome of treatment	177(66.79%)	37(13.97%)	51(19.25%)
There are few oral medications to treat lung cancer	178(67.17%)	64(24.16%)	23(8.68%)

Hypothesis 1

In the null form hypothesis, one states thus: there is no significant relationship between the knowledge of lung cancer and perception of vulnerability to lung cancer among secondary school students. The results from Table 6 indicated a significant positive relationship

between knowledge of lung cancer and perception toward vulnerability among students [$r(263) = .524, p < 0.01$]. This indicates that increase in level of knowledge of lung cancer tended to be related with increase in perception toward vulnerability. Hence, the null hypothesis is rejected.

Table 6:

Pearson correlation between knowledge and perception of vulnerability to lung cancer

Variables	Mean	SD	df	R	P-value
Knowledge of lung cancer	40.8189	7.83719	263	.524**	< .001
Perception toward vulnerability	25.1019	4.70744			

**Correlation is significant at the 0.01 level (2-tailed)

DISCUSSION

It was shown in this study that the average age of the students is 15.87 years, which implies that the students are teenagers and at the adolescent stage. They are at the stage of being exposed to peer pressure, juvenile delinquency and substance abuse. This was supported by a study that showed that 90% of people start smoking for the first time at age less than 18 years (Tucker, Ellickson & Klein 2003) It further reiterates the need to improve the awareness of the students on lung cancer at an early age.

This findings of this study showed that the respondents level of knowledge about lung cancer is low, the students agreeing on lung cancer being most common cancer in the world is corroboration by some Jordanian researchers that most (75.3%) of their respondents were aware of the prevalence of lung cancer by (Mariam, Kofahi, Linda & Haddad 2005). This could be worrisome because though the ultimate health implications of smoking are well known by these participants most people still fall prey to it. May be an early awareness creation from the primary school age could be more helpful.

This revealed that the level of awareness of signs and symptoms of lung cancer is average, respondents being aware heavy smokers are more prone to the disease is in line with the view of scholars that former smokers are almost four times more likely to develop lung cancer than people who have never smoked (Gandini, Botteri, Iodice, Boniol, Lowenfels, Maisonneuve 2008 and Desalu, Fawibe & Sanya, 2016). The importance of continuous health information, using various media cannot be overemphasized.

These findings are not unusual as most of them had access to internet which served as one of the main sources of information. This was also seen in a study where the general population perceived lung cancer as a life-threatening

disease associated with a high symptom burden: fatigue, cough, pain, and shortness of breath.

As regarding the risk factor, the respondents knowledge is average because majority of the participant considered lung cancer to be environmentally induced, cigarette smoking, previous cancer experience especially if it had been same site. This is similar to the results of a study where participants were knowledgeable about the risk factors of lung cancer (Julien, Jean-Louis, Nikos, Diane, Elisabeth, Thomas, Nathalie, Targowla, Jodelet, Milia & Milleron 2015), but opposed to a study where the participants identified air pollution as the only risk factor for lung cancer (Mariam, Kofahi, Linda & Haddad 2005 and Desalu, Fawibe & Sanya, 2016).

This study observed that the respondents, perception about the preventive strategies is high. That majority agreed that surgery is the only treatment for lung cancer is likened to a prospective study, where 69% of patients with lung cancer believed that chemotherapy might be curative. However, it is in contrast with a study where respondents were aware of the main cancer treatments, e.g., surgery, radiotherapy, and chemotherapy. However, in recent years, there have revolution lung-cancer treatments, especially concerning improvements in surgical outcome in early disease treatment. Alternative measures for inoperable cases with form have been noted

The results of the hypothesis indicated that there is significant positive relationship between knowledge of lung cancer and perception toward vulnerability among students ($r(263) = .524, p < 0.01$), furthers confirms that increase in level of knowledge of lung cancer tended to increase perception toward vulnerability. Similarly, it was noted that awareness in the general public of the promising developments in lung cancer management should change the pessimistic

approach to lung cancer (Park, Streck, Gareen, Ostroff, Hyland, Rigotti, Pajolek & Nichter 2015). This calls for more enlightenment through social media, jingles and posters especially in primary, secondary and post-secondary schools. The fact that (46.03%), did not perceive close relative with lung cancer is a risk factor, is in line with a study showed that 52.0 % of the students saw that susceptibility to lung cancer was low (Shadid, & Hossain 2015). This also calls for the need for genetic education as part of the awareness issues.

NURSING IMPLICATION

Based on the findings of the study, most of the respondent had a good knowledge about the vulnerability and risk factors to lung cancer but some of them were not aware about the prevention of lung cancer.

Public health nurse should raise an awareness campaign to preventive techniques on lung cancer.

CONCLUSION AND RECOMMENDATION

The study showed that the level of knowledge about lung cancer vulnerability among senior secondary males in selected schools were positive. There was a fair knowledge on prevention and treatment on lung cancer. The is need to empower young men on factors related to lung cancer and smoking at very tender age. This might help in their forming good principles that will prevent getting into smoking thereby reducing morbidity and mortality to lung cancer. It was recommended that, there is a need for educational materials or program regarding awareness on lung cancer among males in Emmanuel High School, Ibadan and Methodist Grammar Secondary School, Ibadan.

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