

Level of Awareness Of The Extrinsic Environmental Hazards Associated With Cigarette Smoking Among Various Cadres Of Professionals In F.C.T. Abuja Nigeria

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The research work X-rayed the level of awareness of extrinsic environmental hazards associated with cigarette smoking among various professional in F.C.T. Abuja Nigeria who are active cigarette smokers. Our changing environment deserves serious attention not only locally but globally. Any precipitator /initiator of the phenomena of global warming, needs to be checkmated! To critically appraise the level of awareness of the extrinsic environmental hazards associated with cigarette smoking among; - Automobile Mechanics, Taxi-drivers, Traders, Office workers, Clergymen, Students (both secondary and tertiary institutions), and Prostitutes. The F.C.T. Abuja in Nigeria was used as a case study. Questionnaires were randomly administered to the targeted population of smokers (15-36 years and above) of both sexes. A total of one hundred and forty smokers were surveyed through the stratified sampling technique. The various strata were designated as stated in the research Aim. The percentages of respondents were noted and the one way analysis of variance statistics technique was used to know the level of significance. The level of awareness of the various extrinsic environmental hazards as observed were ; Global warming 0.7%, Desertification 11.3%, Deforestation 10.6%, Flooding 0%, Fire Hazard 69% . There was significant difference in the low level of awareness among the various cadres ($P < 0.05$). The level of awareness of the extrinsic environmental Hazards among the various cadres of smokers in F.C.T. Abuja, Nigeria differ significantly from each other ($P < 0.05$) and was relatively very low.

KEY WORDS; Environment, Hazards, Passive Smokers, Active smokers, Global Warming, Desertification

INTRODUCTION

The concept of environmental awareness is defined as Consciousness of , concern for, and sensitivity , as well as responsiveness to an environmental issue or problem.(FEPA,1999) ¹ . Thus an environmentally aware citizen is usually proactive, rather than reactive in the way she / he interacts with the environment. The distinction between “natural” and “Man – made” , hazards is a misconception because use (or mis use) of nature is literally “ man –made” regardless of the standard of civilization.(Donbrowsky,1989) ² . Thus it is not an earth quake that destroys a city or draught that destroys harvest; or flood that destroys a city; it is failure in the Land use , settlement, building construction, agriculture, infrastructure, knowledge, carelessness in the release of toxic substances into the environment – such pollutants as cigarette smoke which contain Carbon IV Oxide, CO₂, Methane, CH₄, Water vapor, (Green House –gases) . These failures in the ways we release substances into our environment or induce fires of greater magnitudes from the glowing splint of burning cigarette – are the precursors / initiators of Environmental hazards. Thus the extrinsic environmental hazard associated with cigarette smoking could be manifested in various ways as described below;

HAZARD / DANGERS OF FIRE ACCIDENTS.

Fire is a chemical reaction between two or more substances resulting into the production of heat and light. The dangers of fire accidents are that fire is an enemy to life and property. The meaning of enemy to life and property, to explain it in

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details is that when a house is on fire, the fire destroys properties and in some cases lives are being lost by people trying to struggle for their properties during an outbreak of fire in the premises or factories (Aiefegha ,1994) ³ had strongly noted the implications of the above statement- most especially on Children and old people. In fact to play safe, he advanced the following piece of advice viz-

- Sweeping- normally daily and disposal of the combustible rubbish.
- Good house in the sense of general tidiness is an essential safeguard against the dangers of fire accidents.
- Periodical inspection of all accommodation with a view to clearing out surplus combustible materials. This applies particularly to cartons, crates, and packaging materials in old corners.
- Safekeeping of combustible wastes awaiting disposal in incombustible containers.
- Office records, old stationeries, bagged waste papers, and other materials should not be stored in corridors, under stairs, or anywhere from which fire could spread rapidly or interfere with escape routes storage places containing combustible materials should be kept free from sources of ignition such as kerosene and cooking gas.
- Cleaning rags or wastes saturated with flammable cleaning liquids, oils, and polishes are easily ignited and may even heat up spontaneously burst out into flame. It is recommended that they should be kept in a safe place until disposed off. (Aiefegha, 1994) ³ emphatically stressed the following in addition to those outlined in the above paragraphs-

PETROL

It has not been thoroughly understood that fire accidents have occurred and many lives have been lost due to dangers of petrol vapors. The possible sources of ignition are smoking of cigarette, soldering, welding or other flame producing apparatus, engines, and exhaust pipes, electric sparks and open cooking fires empty petrol cans being tagged as the most dangerous. He further said that whether the containers are fully empty- all containers must be kept in suitable place when not required with the sign "No Smoking" "Great care must be taken when filling or draining vehicle tanks or vessels and immediate action must be taken to prevent ignition , if spillage takes place".

OIL STOVES

Stove lamps using paraffin or kerosene should be periodically examined for defects. When in use, they must be kept well away from other combustible materials, and placed in a position where accidental knocking over is avoided being careful not/never to refill when container is hot, likewise petrol shouldn't be used in apparatus designated for paraffin.

COOKING GAS

cooking gases should be kept in a ventilated place and to be shut off when not in use. Any carelessness in leaving it open when not in use will result into a big fire accident when exposed to any spark. Defective cylinders should be taken to the makers.

FIRE OF UNKNOWN ORIGINS MOST LIKELY ATTRIBUTED TO CIGARETTE SMOKING

Cigarette smoking might have accounted for series of fire disasters that had razed most big establishments and institutions to dust in the past.

Likewise a lot of life had been lost in the past due to accidental fires of unknown origins. A brief review of some of those that occurred locally are given as follows

South Africa's episode

Salifou Siddo (2000) ⁴ head of corporate affairs at a South African's National park in Johannesburg, gave the following account of such fire incidence. According to him, seventeen people were killed overnight, including three game rangers 14 local villagers. He clearly stated that the cause of the blaze that was fanned by strong winds near the Pretoriuskop

camp was not known there was however a strong suggestion that it could have been caused by lightening, or man-made- such as the careless disposal of burning cigarette stump by customers who patronize the camp. As at the time the report was filed, very frantic efforts were made to keep the fire under control according to the source of information. Further contributions from Kruger parks spokesman, (William Mabasa) said that the fire covered a large area of dry bush land. "It is not possible yet to say how many hectares, but suffice to say it is a big area" he said. According to the spokesman, Kruger, an area the size of Wales, is the jewel in the crown of South African's national parks and attracts close to one million visitors a year (40%) forty percent of them from abroad. This current study is interested in knowing the level of awareness of the extent or magnitude of hazard that could have led to the demise / destruction of a such magnificent places due to cigarette **smoking**.

For instance, the South African's episode just reviewed showed that similar event happened in 1998- where a length of above 50 kilometers by a width of almost same length had to be rebuilt due to a devastating fire incidence of unknown origin.

Nigerian episode

"A horrifying fire disaster in Abuja metropolis" ;From the numerous cases of fire incidences reviewed at the Brigade Headquarters in Abuja- the capital city of Nigeria, a case due to cigarette smoking was the most bewildering and horrifying. Ojo (1984)⁵, a senior fire brigade officer, gave an account of how an Idoma tribe middle aged man got burnt to ashes due to cigarette smoking at Wuse Zone 6. According to him the unfortunate victim having been heavily drunk /filled with alcohol slept off with a smoldering cigarette stick in his mouth. Due to the fact that most parts of Abuja hadn't gotten electricity light – most residents as at then relied on the use of kerosene. It was believed that a little petrol left in the jar was mixed with kerosene. As he sat very close to the uncovered jar, the burning / smoldering cigarette stick unconsciously fell from his mouth and sparked into the jar containing the mixture of petrol and kerosene. The blazing fire that followed suit consumed the man and everything around including the whole building; in fact according to Ojo , the fire officer, -the unfortunate man was only recognized by his wristwatch.

Environmental Air Quality

Apparently, all countries in the world today are very much concern about their environmental quality. From all indications efforts had been advanced in virtually every direction to actualize this. In a paper co-authored by Ozolin *et al* 1988⁶ practical evidences of these were well documented in UNEP news. Some of these are as stated below; In this news was a report concerning the declaration of Hague issued in March 1989 by representatives of 24 countries, including 17 Heads of State- who emphasized the need for international co-operation to protect the global environment, especially to combat any further global warming of the atmosphere. The UNEP news emphasized issues on Air Quality. Air pollution according to the news report, continues to be a major environmental problem in most countries, especially in urban and Industrial areas. It affects human health, agriculture forest growth, water resources and buildings and structure, and it is costly. "It has been estimated that air pollution costs the United States as much as \$40 billion annually in health care and lost productivity". (Ozolin *et al* 1988).⁶ To observe the trends and assess the relationship between pollution and human health. The GEMS/AIR monitoring project made the following submissions with respect to air quality assessment. Accurate assessment and evaluation of (SO₂) Sulphur IV Oxide in the air; so far, about 27 of 54 cities with data available on sulphur IV Oxide for 1980-1984 were on borderline or in excess of the WHO health standard (40-60 micrograms/cubic metre). High on the list were Milan, Tehran, Seoul, Rio de Janeiro, Sao Paulo, Paris, Beijing, Madrid, and Manila. According to the report Milan topped the list of average annual concentrations with a reading more than three times the WHO normal value . In fact developing countries were reported as having worsening trend- suspended particulate matter (SPM) chiefly from cigarette smoke, automobiles, dust, pollen grains, fungi, etc. Pose an even more pervasive threat the report further stressed. The monitoring project made a lot of series of measurements of SPM concentrations- as given in details in their report. However the one given above was only sited as an example.

The most interesting part of the GEM/AIR monitoring project report is the aspect that has to do with the pollutants that stemmed from indoor and outdoor smokes. Such as cigarette and automobile smokes respectively. It could be inferred from their report that ozone is an integral constituent of smoke. Ozone is a principal ingredient in urban smog. An aspect of the report stated categorically that ozone-also known as tropospheric ozone is not emitted directly, but it is formed when hydrocarbons and Nitrogen oxides react in the presence of sunlight. At ground level, ozone in lower concentrations than previously believed causes temporary breathing difficulty and long term lung damage. Ozone also damages crops, trees, and building materials. Studies have shown that in many cities in the United States of America and other OECD countries, ozone levels in excess of WHO suggested levels (one hour mean concentration of 0.05 to 0.1 ppm, not to be exceeded more than once per month) occur frequently. Ozone has long been considered to be the oxidant that determines the air quality of an urban atmosphere. GEM also added that in the 1980s, atmospheric

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chemists identified hydrogen peroxide or photochemical product of air, as another oxidant that may significantly degrade air quality. Water (H₂O) is one of the sure product of cigarette smoke. In presence of sunlight, it can be converted to hydrogen peroxide.

UV
2H₂O-----> 2H₂O₂
Light O₂

According to the report measurements of hydrogen peroxide carried out at various locations in Canada, Brazil, Europe, Japan, and in the United States show concentrations generally less than 10 parts per billion (ppb) by volume. The manifestation of hydrogen peroxide includes Acidity of rain, clouds, and fog. VOC i.e. volatile organic chemicals chiefly from building materials (including adhesives) consumer products (such as cigarette) have been discovered as a chief source the report added. Extremely alarming aspect of the report is the part that linked cigarette smoke with radioactive radon production. It has it that exposure to the products radioactive decay of radon in homes is leading cause of lung cancer. Radon itself according to the report, does not pose a substantial health risk; however it decays into a series of short lived, chemically active species (polonium 218, Lead 214, Bismuth 214, Polonium 214 and Lead 210). That can become deposited in the respiratory tract if inhaled. Subsequent alpha decays irradiate adjacent tissues. For most areas of the United States, estimated mean outdoor concentration is 9-becquerels/cubic meters). A mean of indoor concentration of about 55Bq/cubic meter has been reported in the United States. Indoor radon concentrations differ greatly from one house to another within a neighborhood and from one area to another, depending on composition of soil and building materials and on the geology of the area. Average indoor radon as gathered from the report varies from as low as 15Bq/cubic meter in the United Kingdom to as high as 122Bq/cubic meter in Sweden. The United States Environment Agency recommends remedial action for dwellings with 148Bq/cubic meter or above; although the International Commission on Radiation Protection (ICRP) uses 296Bq/cubic meter before remedial action is taken.

Studies in the United States have shown/indicated that the current annual mortality rate from lung cancer attributable to indoor radon exposure is estimated to be about 16,000 cases. Only 3 percent of this mortality is estimated to occur among individual who have never smoked tobacco. Thus, more than 90 percent of the lung cancer risk associated with radon could be controlled by eliminating smoking of cigarette, the report affirms.

Cigarette smoking has also been linked to global warming. From the literature so far on fire incidences either accidental or spontaneous- the bottom line remains that as tiny as cigarette stumps are- they could initiate the advent of "huge fire"; countless filling stations (petrol stations have been razed down by fire of this sort most magnificent buildings have been lost in the past as a result of processes like this. Large acres and hectares of cocoa plantations are lost annually during dry season in the southern and Mid-western parts of this country (Nigeria) as a result of careless pouring of cigarette ash trays still containing burning cigarette stumps into dried bush during dry season etc. As seen earlier the products of combustion are normally carbon IV oxide {formerly carbon dioxide and water vapour "Chemical principle has it that matter is neither created nor destroyed in the course of chemical reaction, it can only be transformed from one form to another--- law of conservation of mass or indestructibility of matter (Lambert)⁷ }.

All these ideas were stemmed or rooted to Great Greek philosophers who put forward the idea that atoms exist and no more. They left the idea vague and untested. Dalton changed this vague imagining into a set of concrete suggestions about atoms, which together make up the atomic theory of Dalton and the recent modifications- being summarized from Lambert and Holderness documentations in 1936 (Ancient idea) and 1999 (Modern idea)-Editions.

- "Matter is made up of small, individual particles called atoms. As of today these particles though the smallest are known to be divisible.
- Atoms are indestructible and cannot be created. As of today, atoms are destructible and can also be created from knowledge of radioactivity.
- The atoms of a particular element are exactly alike in every way and are different from the atoms of all other elements. As of today atoms of a particular element are not exactly alike in every way from the concept of isotopy and allotropy.
- Chemical combination takes place between small whole numbers of atoms. Likewise-as of today this has been modified from polyatomic reactions"

Global Warming

Carbon IV oxide methane gas and water vapour which are respectively CO₂, CH₄ and H₂O when released into the atmosphere from fire incidences and other processes are never destroyed instead they contribute to their net increase in pool concentrations.

The consequences of industrialization from ages past had been documented by many studies in which tobacco industry is not an exception. Prominent among these studies was that of "Bourn et al 1993"⁸. They focused on changes in the concentration of Green House Gases and their effect on global temperature.

Recent publications from these crop of scientists showed that global and hemispheric annual variation in temperature showed marked warming up to 1940, relatively steady up to the mid 70s only to be followed by rapid warming during the 1980s. Factoring out ENSO related events from the decade of the 1980s over the globe has been significantly warmer (by 0.340c) than the mean of the 1950-1979 period. This rapidly warming trend shows that global surface air temperature in the 1980s are the warmest in the history of meteorological records and that the four warmest years on records are all in the 1980s- with the warmest year being 1981 and 1987 to find the remote immediate causes of this serious trend in temperature anomalies – Bourn and his co-researchers in 1993 carried out analysis of baseline data on CO₂ (carbon IV Oxide) and CH₄ (methane) the two most prominent green house gases which have become the major contributors to global warming (aside from ozone depletion). The summaries of the work of these researchers are given as follows:

Carbon IV Oxide , CO₂ Concentrations in the Atmosphere

Atmospheric CO₂ levels derived from the ice cores, and 39 records of monthly and annual atmospheric CO₂ concentrations from 31 globally distributed sites for the past three decades before 1990 was risen steadily from about 250-330 ppmV in 1990 to about 350 ppmV in 1991. A very interesting finding in relation to CO₂ concentration and climate change is that long term CO₂ changes are dominated by marked glacial-interglacial oscillations between 190/200 and 260/280 ppmV with a period of about 20,000 years similar to the orbital procession.

Methane, CH₄ Concentration

Methane is recognized as one of the most important radio-active trace gases with significant potential to contribute to climate as seen earlier on. Its major sources are Biomass burning- as extensively discussed above, fermentation of ruminant, anaerobic decay of organic matter, in rice paddies, wetland and landfills: coal mining, natural gas and oil (exploitation and production). For instance; "spillage that results from oil production and exploration had led in the past to the burning of large hectares of land in the coastal and Delta regions of Nigeria by careless and ignorant peasant individuals who are chain cigarette smokers in jungles! this, of course, is usually accompanied by unimaginable fire hazard (Aroh *et al* 1996)⁹. In West Africa, all these sources are relevant especially mining and natural gas and oil exploration and production. Unfortunately, there is no co-coordinated monitoring network of atmospheric Methane, {CH₄} in the sub-region. But, as in the case of Carbon IV Oxide , {CO₂} emission, records exist at Ascension Island. Analysis carried out on weekly data at 7 sites globally from 1980-1988 shows that CH₄ emission had risen from 1,582ppbV in 1983 to 1,602ppbV in 1985 giving a growth annual rate of about 14ppbV estimated from Ascension Island. The occurrence of inter-annual patterns which exhibit some stationarity suggest that although there is no appreciable influence of air originating from outside the inter-tropical convergence zone (ITD in West Africa), the winter months exhibit lowest CH₄ levels. Within the last 160,000 years, rapid increases have occurred between 1890 and 1990 as CH₄, jumped from 800-900ppbV.

Evidently these values point to gas and oil related emissions and large scale mismanagement of Agricultural lands, and the environment as a whole resulting to unpalatable, and unpleasant consequences of Flood disasters, Desertification, Deforestation, Global warming, Fire Hazards of multiple dimensions, e.t.c.

DESIGN/METHODS

Questionnaires were randomly administered to the targeted population of smokers (15-36 years and above) of both sexes. A total of one hundred and forty smokers were surveyed through the stratified sampling technique. The various strata were ,Automobile Mechanics, Taxi-drivers, Traders, Office workers, Clergymen, Students (both secondary and tertiary institutions), and Prostitutes in F.C.T. Abuja in Nigeria. The percentages of respondents were noted and the one way analysis of variance statistics technique was used to know the level of significance.

HYPOTHESIS

H_0 ; There is no difference in the treatments (population) means of the awareness levels of the various extrinsic environmental hazards associated with cigarette smoking.

H_a ; At least two of the population means differ in terms of extrinsic environmental hazards awareness.

RESULT

The level of awareness of the various extrinsic environmental hazards as observed were ; Global warming 0.7%, Desertification 11.3%, Deforestation 10.6%, Flooding 0%, Fire Hazard 69% . There was no significant difference in the low level of awareness among the various cadres ($P>0.05$).

Table A

Source	Fire Hazard (%)	Desertification (%)	Deforestation (%)	Global Warming (%)	Flooding (%)	No Awareness (%)
Road side Mechanics	43	14	14	0	0	29
Government office Workers	60	20	10	0	0	10
Marketers/Traders	50	30	15	0	0	5
Students	75	5	10	05	0	5
Clergymen	80	10	10	0	0	0
Taxi Drivers /commercial Motor-cyclists	90	0	10	0	0	0
Hotel Prostitutes	85	0	5	0	0	10
Mean (μ)	69	11.3	10.6	0.7	0	8.4

ANOVA Table B

SOURCE	DF	SS	MS	F
Treatment	K-1 = 5	SST = 23837.85	MST=SST/K-1 = 4767.57	F= MST/MSE = 51.3
Error	N-K = 36	SSE = 3349.36	MSE =SSE/N-K = 93	
Total	n- 1 = 41			

HYPOTHESIS TESTING

Calculated F value = 51.3

Tabulated F value = 2.42 at F (0.05)

We have sufficient evidence (at significance level of 0.05) to conclude that at least two of the mean level of awareness of the various extrinsic environmental hazards differ; and were low in awareness.

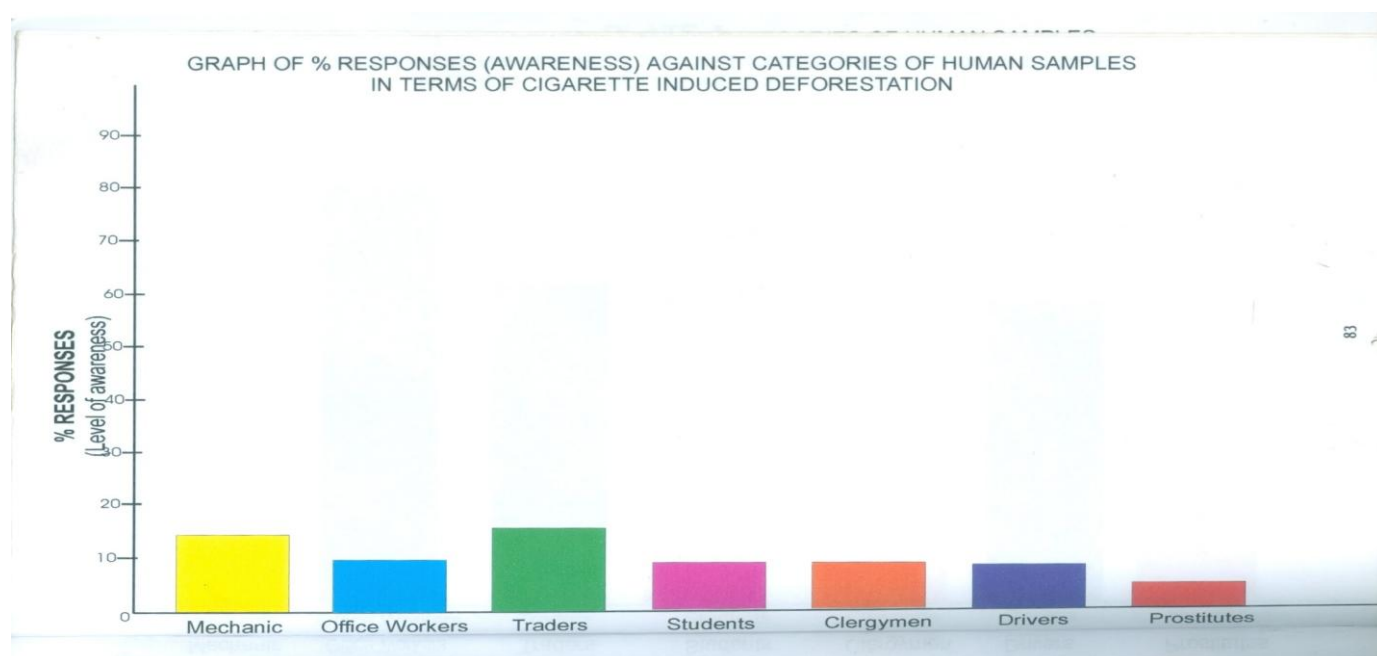
DISCUSSION

The extrinsic environmental hazard associated with cigarette smoking is popularly tied to fire hazards from table A deductions - where the mean responses for fire hazard was 69%, Desertification 11.3%, Deforestation 10.6%, Global warming 0.7% , and flooding 0 % . Unfortunately , these category of responders failed to associate immediate hazards of cigarette smoking with the long term Environmental effect !. Deeper awareness requires to be conducted on these variables association with cigarette smoking. Careless disposer of smoldering /burning cigarette smoke could ignite heavy blaze of fire inferno. The resulting smoke releases Carbon iv oxide, methane, water vapour, Sulphur IV oxide (depending on the nature of what was burnt) into the atmosphere. These as earlier noted are never destroyed from

Dalton law of the indestructibility of matter. Being green house gases reflect heat back unto the earth's surface enhancing the phenomenon of global warming, this in turn leads to terrible effects of Flooding , e.t.c. All these had led to serious environmental hazards of lost of farmland, famine, displacements from human natural abodes, death toils to the tune of thousands and millions of human population. In fact Nigerians at various locations of the country just witnessed this. Similar trends were recorded in other parts of the Globe this year,2012.

The public needs to be informed on carbon iv oxide, Methane gas , water vapour - atmospheric data concentrations at all times. This is necessary in order to pace up with the report of Bourn *et al* in 1993 on the concentrations of these green house gases all over the world at least for the sake of standardization and environmental air quality control. Such pro active measure would go a long way to avert some of the unfortunate misfortunes and disasters that had paucitly featured in the Nigeria's climatic history.

In future, awareness on the environmental hazards of sources generating smoke such as habitual cigarette smoking, needs intensification on immediate mitigation and stoppage. This current research only serves to fine tune a big problem we all live with daily ; causing a lot of havoc but with little awareness as revealed from the current findings. Currently , no reliable demographics on the concentrations of toxic /poisonous gaseous pollutants such as CO₂, CO, CH₄, SO₂, NO₂, e.t.c. are available anywhere in Nigeria. This is a big aberration, the concentrations of these gases need to be known and strictly monitored for the purposes of intervention and control by the environmental experts.



CONCLUSION ; There was a significant difference in the level of awareness of the extrinsic environmental Hazards among the various cadres of smokers in F.C.T. Abuja, Nigeria ($P < 0.05$) and was relatively very low.

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