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FACULTY OF EDUCATION
DEPARTMENT OF PHYSICAL AND HEALTH
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A complimentary copy given to: Prof. Dashe

By the **H.O.D, Physical and Health Education;**
Dr. S.O. Owojaiye

Signatures

Date;

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PERCEIVED KNOWLEDGE OF CAUSES OF AIR AND WATER POLLUTION AMONG RESIDENTS IN OKUTA COMMUNITY OF KWARA STATE

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Abstract

The study examined perceived knowledge of causes of air and water pollution among residents in Okuta community of Kwara State. A descriptive research design of survey type was employed for this study. The population of the study comprised all adults male and female in Okuta community of Kwara State. A multi-stage sampling technique was used. A sample of one hundred respondents was used for the study. Researchers' structured questionnaire was used for data collection. The instrument was validated and tested through test re-test method, and the reliability correlation co-efficient of 0.76r was obtained. The instrument was administered by the researcher and three research assistants. The hypotheses were tested using inferential statistics if chi-square X^2 at 0.05 alpha level of significance. The findings revealed that residents believe that air pollution was caused as result of pollutants such as smoke, toxic substance, carbon dioxide and exhaust into the air.

The finding also revealed that pollutants such as toxic, washing inside water source, water degradation, and water poison are the causes of water pollution in the area. Based on the findings, the researchers recommend that both air and water pollutants should be prevented to avoid pollution in the community.

keyword: Perceived knowledge, Causes, Air, Pollution, Water, Residents.

Introduction

Pollution occurs when pollutants contaminates the natural surroundings, that bring about changes that affect our normal lifestyles adversely, it occur in different forms. The human activities and natural processes can both generate air pollution. Air pollution occurs when harmful substances including particulates, and biological molecules are introduced into earths atmosphere, many times, it cause allergies, diseases, deaths in human and it can also cause harm to other living organisms. The major pollutants to the environments are produced through various human activities, and such pollutants include carbon dioxide from burning of fossil fuels, Nitrogen oxide, volatile organic compound, particulate generate from vehicles, power plants and various industrial process, and other includes paints, hair spray, vanish aerosol sprays and other solvents, dust, toxic gases and nuclear weapon, smoke and wildfire (Eremektar, 2002).

According to Rosenhouse (2012), air pollutants are the substances that adulterate, infect, perverts and vitiates the safety of another substance and the environment. Dusts and smoke are the major agents of air, atmosphere and environmental pollution. Atolagbe and Tanimowo (2006) shows that a major factor of environmental hazard in urban area is traceable to pollutants that emanate from different human activities. The pollution of an environment occurs in three major ecological components of the environment, incudes' air, water and land ranges from solid to sewage wastes, chemical, industrial and nuclear discharges and pollution of water, aquifer and air. Effective management of these and other environmental pollutants is akin to the maintenance of orderly, clean, healthy, crisis-free and sustainable environment (Webster, 2004).

Regular servicing of automobiles can effectively reduce the noise and air pollutants. Building can be designed with a suitable window and doors including chimney to let out the smoke and heat that would be generated from domestic energy used. The people involved in

Household energy on daily basis should be equipped with nose-guards to protect the sense organs from exposure to air pollutants that may lead to other health problems.

According to Fadairo (2008), the air we breathe has some chemical composition whereby 99 percent of it, is made up of nitrogen, oxygen, water vapour and inert gas. A common type of

air pollution happens when people release particles, dusts and smoke into the air from the burning fuels. This pollution looks like a soot, containing millions of tiny particles that are pollutants floating in the air.

Another common type of air pollutants are dangerous gases, such as sulfur dioxide, carbon monoxide, nitrogen oxides and chemical vapour. These can take part in further chemical reactions once they are in the atmosphere, creating acid rain and smog. Other sources of air pollution can come from households such as domestic energy consumption and the second hand smoke (Fadairo, 2008). According to Molly (2015), the greenhouse effect is when gases absorb the infrared radiation that is released from the earth, preventing the heat from escaping. This is a natural process that keeps our atmosphere dusty. If too many gases are introduced into the atmosphere, it can make the planet artificially warm and dangerous for man.

Howgrave-Graham (1994) opined that to maintain clean and ideal environment, experts from different disciplines such as Sciences, Environmental and Community Health Promotion would be required to reduce atmospheric pollution that occurred due to emission of poisonous gases, particles and rays. Pollution typically refers to other substance in concentrations greater than normal would occur under natural and normal condition. The major water pollutants include microbes, nutrients for soil buster such as fertilizer, organic chemical leafy metal, oil and sediments. According to United Nations Department of Economic and Social Affairs (2015), water is essential to life. No other single substance is as important to human health, and economy as water. It has been discovered that people can live weeks without food but not without water, as human being cannot live more than five to ten days without water. Experts have it that water help in digestion of foods and other substances in the body, cool our body, lubricate the joints, remove body wastes and also help in removing dirt's in the eye. As essential as water is to human livelihood, the contamination of such irreplaceable substance would definitely cause havoc and problem to humans.

According to Goel (2011), contamination of water is regarded as water pollution, water can be polluted when the foreign bodies such as dust, particulate, smoke, oil spill among others things are introduced to the water body, such as river, ocean, dam and groundwater. When pollution occurs, the entire biosphere plants and organisms living in the body of water would be affected including the community.

The groundwater pollution is also known as groundwater contamination from the sources that may not be directly or affecting the surface water bodies. It was observed in Okuta community that groundwater pollution occur through the toxic pathogen that cause water

borne diseases, through chemicals such as sodium, manganese, physical changes, such as increase in temperature and discoloration (Zaikab, 2006).

The pollutants in water that Okuta community used for their domestic purposes reduce the quality of water and cause water degradation. These act was traced to human activities among the people of Okuta community, such as dumping refuse in running water, careless emptying of septic tank into the stream from the upper flow of the water and the same water will definitely flow down to the other part of the community whereby causing problems to the people.

Statement of the problem

The researchers observed that, residents of Okuta community are always involved in different activities ranging from business such as mill grinding, food selling, transportation and farming among other. It was observed that majority of the households lack proper ventilation, making the indoor air feel with pollutants and air concentrate as a result of wood burning, cooking, and also smoke of grinding machine, and refuse burning close to the house which caused air pollution to the environment.

Researchers also observed that in Okuta community, major part of water sources for the community were not clean and adequate for consumption, this was traced to the activities of individuals in the community, such human activities include adding excess fertilizer to the soil for planting, contamination of water flow from upper stream, washing chemical substance to the water body all these pollute the water which affects the atmospheric and the environmental conditions of Okuta community negatively. The human activities and challenges of air and water pollution documented above prompted the researchers to investigate the knowledge of air and water pollution in Okuta community, Kwara State.

Objectives of the Study

The objectives of this study are to find out if;

1. air pollutants will be a cause of pollution in Okuta community of Kwara State.
2. water pollutants will be a cause of pollution in Okuta community of Kwara State.

Research Questions

The following research questions were answered,

1. Will air pollutants be a cause of pollution in Okuta community of Kwara State?
2. Will water pollutants be a cause of pollution in Okuta community of Kwara State?

Research Hypotheses

The following research hypotheses were tested,

1. Air pollutants will not be significantly perceived as causes of pollution experienced by inhabitants of Okuta community, Kwara State.
2. Water pollutants will not be significantly perceived as causes of pollution experienced by inhabitants of Okuta community, Kwara State.

Methodology

Descriptive research design of survey type was employed for this study. The population of the study comprised all inhabitants of Okuta community in Kwara State; the respondents are adult male and female in Okuta community. A sample of one hundred respondents were sampled for the study. A multi-stage sampling technique was used. A stratified random sampling technique was used to put respondents into strata. Children who are less than 18 years, those people who are above 60 years old and those who are not consented to participate in the study were excluded from the study. Random sampling technique of a fish bowl was used to select 100 respondents, 25 respondents each from different wards, such as new market area, Arafu area, Tsoun field and Tudun/wada area were used. Researchers' structured questionnaire was used for data collection. The instrument was validated through test re-test method and a reliability correlation co-efficient of 0.76r was obtained. The researchers and three trained research assistants with ability to speak the native language of Bartunen were used for data collection. Verbal consent of each respondent was sought and confidentiality assured. Data obtained were collected, coded and analysis was done using frequency counts and percentage while the null hypotheses were tested using inferential statistics of chi-square X^2 at 0.05 level of significance using Statistics Package for the Social Sciences Software, version. 20.0.

Results

Ho1: Air pollutants will not be significantly perceived as causes of pollution experienced by inhabitants of Okuta community, Kwara State.

Table 1: Chi-square showing air pollutants as perceived causes of air pollution in Okuta community of Kwara State

S/n Item	SA	A	D	SD	Row Total	Cal χ^2	Df	Critical Value	Remk
1. Pollutants that release smoke causes air pollution.	60 (60%)	20 (20%)	10 (10%)	10 (10%)	100(100%)				
2. Toxic in the environment can cause pollution.	24 (24%)	62 (62%)	10 (10%)	4 (4%)	100 (100%)				
3. Carbon dioxide from wood and charcoal causes air pollution.	22 (22%)	54 (54%)	12 (12%)	12 (12%)	100 (100%)	34.40	9	16.92	Ho Rejected
4. Inhaling generator exhaust can increase risk pollution.	36 (36%)	40 (40%)	22 (22%)	2 (2%)	100 (100%)				
Column Total	122	156	53	28	400				

Significance level 0.05

In the table 1: Show that majority of people who formed the respondents have knowledge that air pollutants serve as a cause of pollution in Okuta community of Kwara State. The findings from the analysis in the table shows the calculated chi-square value of 34.40 against the table χ^2 value of 16.92 at 0.05 level of significance with degree of freedom 9. Since the calculated χ^2 value of 34.40 was greater than the table χ^2 value of 16.92, thus, the null hypothesis was rejected, which means that air pollutants are responsible for air pollution in Okuta community, Kwara State.

Ho2: Water pollutants will not be significantly perceived as causes of pollution experienced by inhabitants of Okuta community, Kwara State.

Table 2: Chi-square showing water pollutants as perceived causes of water pollution in Okuta community, Kwara State.

S/n	Item	SA	A	D	SD	Row Total	Cal X ²	Df	Critical Value	Remk
1.	Excessive use of fertilizer near source of water can cause water pollution.	32 (32%)	44 (44%)	8 (8%)	16 (16%)	100 (100%)				
2.	Washing inside drinking water can cause water pollution.	26 (26%)	40 (40%)	24 (24%)	10 (10%)	100 (100%)				
3.	Chemical substance in water source such as fertilizer can cause water pollution	26 (26%)	44 (44%)	30 (30%)	0 (0%)	100 (100%)	25.44	9	16.92	Ho Rejected
4.	Pouring of potassium in water can cause water pollution	32 (32%)	38 (38%)	22 (22%)	8 (8%)	100 (100%)				
Column Total		116	166	98	20	400				

Significance level 0.05

Table 2: The findings from the analysis in the table shows the calculated chi-square X² value of 25.44 against the table X² value of 16.92 at 0.05 level of significance with degree of freedom 9. Since the calculated X² value of 25.44 was greater than the table X² value of 16.92, thus, the null hypothesis was rejected, which means that groundwater pollutants such as fertilizer application near source of water supply, serve as a causes of water pollution in Okuta community, Kwara State.

Discussion of Findings

Hypothesis one shows that air pollutants serve as a cause of air pollution in Okuta community, Kwara State. This finding is in line with Atolagbe and Tanimowo (2006) who observed major factor of environmental hazard in an urban area is traceable to pollutants that emanate from different human activities. The pollution of an environment occurs in three major ecological components of the environment air, water and land ranges from solid to sewage wastes, chemical, industrial and nuclear discharges. A common type of air pollution happens when people release particle, dust and smoke into the air from the burning fuels.

This pollution looks like a soot, containing millions of tiny particles that are pollutants floating in the air.

Hypotheses two revealed that water pollutants serve as a cause of air pollution in Okuta community, Kwara State. The findings justified the assertion of Goel (2011), who reported that contamination of water is regarded as water pollution, the water can be polluted when the foreign bodies such as dust, particulate, smoke, oil spill among others introduced into the water body, such as river, ocean, dam and groundwater is regarded as pollution. When pollution occurs, the entire biosphere plants and organism living in the body of water would be affected including the community.

Conclusion

Based from the findings of the study, the following conclusions were drawn:

1. Air pollutants serve as a cause of air pollution in Okuta community Kwara State.
2. Water pollutants serve as a cause of water pollution in Okuta community Kwara State.

Recommendations

The following recommendations are made,

1. The community should make their environment clean and hygienic to avoid air and water pollution; economy fuel should be made available for the inhabitants to cook their foods instead of using woods and charcoals.
2. The residents should provide adequate water supply such as boreholes and tap water, and they should made it a priority to keep sharing health talk to prevent both air and water pollution.

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