ENVIRONMENTAL POLLUTION VARIABLES AND PERCEIVED HEALTH IMPLICATIONS ON THE HOST COMMUNITIES IN CALABAR EDUCATION ZONE OF CROSS RIVER STATE, NIGERIA

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Abstract

The study examined the perceived health impact of environmental pollution (air and noise) on health status of host communities in Calabar Education Zone. Two hypotheses were formulated to guide the study. A survey research design was used for the study. A sample of 397 respondents was drawn using purposive sampling technique. A data collection instrument titled "Perceived Impact of Environmental Pollution on Health Status Questionnaire" (PIEPHSQ) was used to elicit required data and Cronbach Alpha was employed to estimate its reliability. The two hypotheses raised for the study were analysed using Pearson Product Moment Correlation and tested at .05 level of significance. The findings revealed that the perceived health impact of each of air and noise pollution served as significant correlates of health status of host communities. Recommendations included that environmental protection initiative programmes such as seminars, trainings and workshops should be organized where causes, effects and the way forward to mitigate environmental pollution in order to reduce its impacts on human health.

Key Words: Environmental pollution variables, air pollution, noise pollution, health status, host communities

Introduction

Health is a product and function of being fit or free from all forms of illness or disease. It is quite important and necessary for everyone as a condition for social functioning, live in a safe environment to ensure the comfort of life. Man's utilization of the environment and its resources in the production and distribution of goods and services has threatened the quality of the environment on one hand, and the quality of health of the people on the other (Ahmed, 2014). The growth of many industries which produce goods and services to feed the teeming population has increased the volume of wastes that are harmful to human health and the environment known as pollutant. Pollution occur from all human activities (domestic activities that generate waste, agricultural practices, fishing with chemicals, commercial activities, industrialization, increase in the number of auto- mobiles, production processes in factories, and power stations associated with noise etc) which often pollutes rivers, land, water, air and the entire environment (Odok & Etefia, 2011).

Human exposure to fine particulate matter is particularly dangerous; hence they can penetrate deep into the lungs and may affect other aspects of human life. There are several gases and particles that pollute the quality of air such as bush burning, commercial activities generating fumes from exhaust pipe, emission from factories and fossil fuel which produces carbon monoxide is poisonous to human health. Inhalation of this substance reduces the amount of oxygen in the blood stream and high concentration can lead to headaches, dizziness, unconsciousness and even death. Joshua and Nazrul (2015) contended that perceived health implication of air pollution has both acute and chronic diseases ranging from minor irritation of eyes and the upper respiratory system to chronic respiratory disease, health illness, lung cancer and death.

Environment is being polluted when any substances from any process is released or discharged into the environment which is capable of causing harm to man and other living organisms. Similarly, Aba and Unah (2016) affirmed that environmental pollution occurs when any material, organism or substance is introduced into the environment especially by direct or indirect action of man, in more than its natural concentration which has detrimental effect on it and every other thing there because of the pollutant. Pollutants are the key elements or component of pollution which are generally waste materials of different forms. Environmental pollution results from the activities of man through the use of technology to manipulate the ecosystem to meet his need which most times been mostly negative to human health.

Unregulated disposal of waste is equally at risk to human health. The wastewater channelled into the drain generates unpleasant smell or odour and multiply vectors that leads to transmission of diseases like cholera epidemics. Where waste are not properly disposed, it causes attendant typhoid germs and other micro-organism which are very harmful to human with most common implication associated with meningitis, gastro enteric infections, genital and ocular infection, hemorrhagic fever, spread of rodents which contain a variety of pathogens. Ibrahim (2017) explained that inadequate and inappropriate handling of both solid and liquid waste on the environment is likely to have serious public health either through direct or indirect contact. For instance, other dioxin binds generated from incineration that is linked to organic particles known as carcinogen carried by wind are deposited on land and in water acts as potential cancer promoter and weak-delete immune response on human health such as endometriosis, birth defect and low testosterone levels.

In view of these threats to the social responsibility, environmental pollution is one of the phenomena that have gained both international and national attention including Nigeria. News agencies, health organizations, federal government and ministry of health have passed information about the menace associated with environmental pollution variables and its perceived implications to the host communities in Calabar Education Zone in Cross River State is no exception. Therefore, this thesis work would focus on two types or classification of environmental pollution such as air (atmospheric) pollution and noise pollution.

Air pollution refers to a situation where man or his agent in the process of man-environment interaction emits various gaseous substances in the atmosphere. In shorts, air pollutions turn clear, odourless, air into smelly air that harms health, kills plants and animal and equally damage properties. Smog is a type of outdoor air pollution that affects the environment (Ogundele, 2013). Air pollution is the introduction of chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms or cause damage to the environment or built environment into atmosphere. The atmosphere is a natural laboratory in which various gases, solid particles and sunlight are involved in many chemical processes, such gases include carbon monoxide (co), hydrocarbons, ammonia (NH_3), nitrogen oxide (NO_2) sulphur oxide (SO_2) ozone and particulates, and these are known as pollutants. Polluted air adversely affects the health of human beings, animals, plant, soil, damage buildings, monuments, and other structures. Where the pollutant in the air becomes very high, many people had difficulty in breathing and as a result few deaths may occur.

Noise pollution can best be described as unwanted sound caused by human activities in our societies. It becomes pollution when it is too high and might be a source of worry to humans and the public. At present times, the activities of people in construction industries, recording studios, air, land and seaports transportation companies have not just caused noise pollution but have worsened the bad state of the environment that is already polluted (Abah & Unah, 2016). Noise pollution can best be described as unwanted sound caused by human activities in our societies. Simply put; noise could be any loud sound. It becomes a pollutant when it is unpleasant and could be disturbing to humans and the public. It is caused when a noise which is of higher intensity than 85 db reaches our bare ears. It may lead to psychological problems like stress & hypertension. It can also lead to permanent hearing impairment, which is worse. It is mainly caused by loud pumps and compressors in the chemical industries. Even marriage functions and rock music concerts are often ignored contributors to this type of pollution (Ibok, 2017).

Moreover, indiscriminate use of horn by vehicles and widespread use of loudspeakers in social and religious ceremonies may cause nervous breakdown and heart troubles which can produce pressure and dizziness. The loudness of sound can produce undesirable physiological (auditory effects, acoustic trauma, noise reaction) and psychological effect (annoyance, sleep, speech or communication interference) on human health. Even coughing or coughing blood, skin rashes, tumours, gastrointestinal problems, different forms of cancer, asthma and bronchitis are the perceived health implication of environmental pollution (Akpan, 2017).

For instance, in Calabar Education Zone of Cross River State, the release of oil like petroleum and diesel which consist of hydrocarbons into the environment is usually accompanied by tanker accidents in the process of transportation. Most of this oil contained heavy metals that could affect the health of people living about such disaster area. Abah and Unah (2016) confirmed that skin contact with certain chromium compounds can cause skin ulcer or cancer,

stomach upset, kidney and liver damage and even death. Although, perceive health effects of barium depends upon the water-solubility. Barium may cause a person to experience breathing difficulties, increased blood pressure, heart rhythm changes, stomach irritation, muscle weakness, changes in nerve reflexes swelling of brain due to environmental pollution. Thus, this study was designed to investigate the relationship between environmental pollution variables and perceived health implications of host communities in Calabar Education Zone of Cross River State, Nigeria.

Statement of the problem

The physical environment has witnessed significant changes in recent decades as a result of man's activities in quest to satisfy their basic needs of life. The incidence of high population growth has further aggravated the pressure on available natural resources by humans. Everybody on earth has his personal value judgment, which determines their activities, perception and attitude towards the environment. Different kinds of human activities that lead to environmental pollution are being practiced. Activities of fishing with chemicals, dumping of waste along the road and water channels, open defecation, commercial activities (transportation) factories and generator emissions and so on, have constituted environmental problems. All these activities have continued to cause the outbreak of diseases such as, cholera, diarrhea and other health challenges on the inhabitants in the study area.

It has been observed through research that exposure to fine particulate matter is dangerous to human health as it can penetrate deep into the lungs, affect the rate of breath, inhalation of toxic substance may reduce the amount of oxygen in the blood stream and high concentration can lead to headaches, unconsciousness, and dizziness. At times, these pollutants could cause irritation of eyes, chronic respiratory disease, kidney infection, lung cancer, birth defect and low testosterone levels. Exposure to some contaminant through direct contact, inhalation or ingestion as observed by researchers may lead to congenital disorders, carcinogenic attack, leukamia, liver toxicty, neuromuscular blockage. These contaminants due to the dosage level absorbed could also lead to depression of the central nervous system, headaches, nausea, fatique, eye, irritation, skin rash and the end of it all could result to death. Loudness of noise reaction or arrogance, interference of sleep, hearing less, loss of concentration, emotional and behavioural stress, headache, aggressive behaviour trouble in communicating.

Despite the efforts made by international, national, and state government towards combating all kinds of environmental issues with the cooperation of the ministry of health, environment and non-governmental organizations such as: creation of environmental awareness, sensitization, adequate environmental training, laws and legislation etc. Environmental pollution is still in alarming rate having health implications on human health. Pollutants on environmental components such as air and land may have great effect on human health. Consequently, this research examined the extent which environmental pollution variables relate

to the perceived health implications on host communities in Calabar Education Zone in Cross River State, Nigeria.

Purpose of the study

The purpose of this research was to evaluate environmental pollution variables (air and noise) and perceived implications on the host communities in Calabar Education Zone of Cross River State.

Research questions

1) What is the relationship between air pollution and perceived health implications on the host communities?
2) To what extent does noise pollution relate to the perceived health implications on the host communities?

Statement of hypotheses

1) Air pollution does not significantly relate to the perceived health implications on the host communities.
2) There is no significant relationship between noise pollution and perceived health implications on the host communities.

Literature review

Exposure to urban air pollution is one of several environmental and public health concerns currently confronting the World's population. Several studies have established an association between air pollution and health effects. Exposure to air pollution leads to adverse health effects ranging from respiratory illness to chronic illness such as cancer, adverse pregnancy outcomes and premature death. About 3.3 million premature deaths are attributed to both indoor and outdoor air pollution yearly and the burden is high among those living in middle-income countries. Low socioeconomic status generally is associated with poor health, which makes people susceptible to the damaging effects of air pollution (Egondi, Catherine, Nawi, Kanyiva, Oti, Steven, Remare & Joachim, 2013). Air pollution has significant implication on the health of humans, plants and animal. Sule, (2007) opined that carbon monoxide is a poisonous gas caused by incomplete combustion. Its inhalation reduces the amount of oxygen in the bloodstream, and high concentration can lead to headaches, dizziness, unconsciousness, and death.

Longwap (2015) justified that air pollution is a significant risk factor for a number of health conditions including respiratory infections, heart disease, and COPD, stroke and lung cancer. The health effects caused by air pollution may include difficulty in breathing, wheezing, coughing, asthma and worsening of existing respiratory and cardiac conditions. These effects can result in increased medication use, increased doctor or emergency room visits, more hospital admissions and premature death. The human health effects of poor air quality are far reaching, but principally affect the body's respiratory system and the cardiovascular system. The effects of hazardous air pollutants in the lungs of most industrial workers are generally

higher than in the ambient air and this is obvious because the low level of toxic air is found in ambient air. Nitrogen dioxide (NO2) also has effect that can result in cough and irritation of respiratory tract (Otti & Ogbuagu, 2015).

In their study, Okechukwu and Ukeje (2016) adopted a survey research design to examine gas flaring and the contours of its mismanagement in Nigeria. Participants for the research were drawn from Rivers State. Two of the study's research questions were concerned with evaluating whether gas flaring boosts the health condition of the respondents and also, whether it is prone to ensuring unhealthy living. The result showed the respondents indicating that gas flaring served to increase the risk of respiratory illnesses such as asthma, impaired lung function and cancer, and reduced human life expectancy. Oyegbile, Olawole, Oladeji and Oyesola (2017) ascertained vulnerability of rural households to risks linked with quarry activities in Nigeria by utilising a survey research design. Rural households in Oyo State composed the population and data obtained included ascertaining the vulnerability to risks connected with quarrying activities in terms of exposure. The finding revealed that due to air pollution, the rural dwellers were vulnerable to health hazards such as respiratory and skin diseases due to the activities of quarrying companies in the area.

Stephen, Adesina and Jummai (2018) employed a survey research approach to conduct a sociological analysis of the impact of solid minerals mining on community development in Nigeria. Communities where solid minerals are mined in Nasarawa State served as the population. One of the study's research questions was to assess the impact of mining activities on people in the communities in terms of health risks brought about by air pollution in the area. The result revealed almost all the respondents agreeing that there was the prevalence of health issues due to air pollution in the area. An evaluation of perception of health effects of environmental pollutants among gas-plant workers and residents in Nigeria was carried out by Eseoghene and Johnson (2020) in a study which adopted a descriptive survey design. The population was formed from residents and gas workers in Delta State. The study's aims involved verifying prevalent health conditions among the people due to the gas flaring which was always occurring in the area. Malaria, pneumonia, asthma, cough, severe acute respiratory disease and measles were the diseases mentioned by the respondents.

Ndinwa, Akpafun and Chukumah (2020) utilised a descriptive survey approach in an investigation of perceived environmental and health impacts of gas flaring in Southern Nigeria. The population was formed from people in Delta State. Posers for the study included assessing the effect of gas flaring on the peoples' health. The finding showed that asthma, bronchitis, cancer, and skin diseases were the most common indicated by the people. In a study on how communities perceive air pollution and public health in Nigeria, Nwanakwere and Oyedokun (2020) applied the use of a survey research design. The study was conducted in Ogun State and the study's objectives included examining the relationship between respondents' perception of air pollution and public health risk. The result revealed that there was a significant relationship between perception of air pollution and public health risk, thus implying that the extent of air

pollution in the investigated area was already exposing the respondents to numerous health risks.

Nwazunku, Amadi, Ede, Obasi, Abonyi and Amadi (2020) assessed quarrying activities and dust-related health problems among quarry workers and residents in Nigeria by using a cross-sectional survey design. Communities in Ebonyi State where quarrying activities are carried out provided the study's population. An assessment of the most prevalent dust-related health issues was conducted. Cough, heart issues, headache, eye problems, skin irritation and wheezing (including sneezing) were the major diseases reported. Saka and Busari (2020) investigated how states regulate industries in Nigeria based on their activities that cause environmental pollution. Applying a survey research design, the population was sourced from Osun State specifically among people in proximity of an Iron and Steel Company in the state. A verification of the health hazards posed by the company was conducted. The result showed that the soot emitted by the company was unbearable by the people and it served as a source of numerous respiratory, skin and eye-based diseases.

Whyte, Numbere and Sam (2020) assessed residents' perception of the effects of soot pollution in Nigeria by applying a cross-sectional survey design. The population was made up of residents of Rivers State and part of the study's aim was to ascertain respondents' perception on the effect of soot pollution on their health. The result revealed that most of the respondents perceived that the soot had affected their health or that of a household member with cough; irritation to the eyes, nose, or throat; and skin irritation being the most mentioned health effects. An assessment of spatial patterns of gas flaring stations and the risk to the respiratory and dermal health of residents in Nigeria was conducted by Nwosisi, Oguntoke, Taiwo, Agbozu and Noragbon (2021). Applying a survey research design, the residents of the country's Niger Delta region constituted the population. The study's posers included obtaining data on respondents' perception of health risks faced as a result of gas flaring in the area. The finding indicated respiratory issues (catarrh, asthma, etc.), fever, malaria, skin diseases and cough as the common diseases reported in the area.

A survey research design was used by Okobia, Makwe and Orapine (2021) in their evaluation of air pollution and human health implications in Nigerian urban settlements. The urban settlements under investigation were in Abuja and the study's aim involved examining the health implications encountered due to the air quality in the area. The result showed that health records from hospitals showed that respiratory diseases, asthma, cardiovascular diseases and cancer were the most prevalent health issues faced by people in the area. Ake, Rasak, Asamu, Ogunlade, Olowojolu, Oladepo and Ake (2022) examined air pollution and human health in the industrial urban areas in Nigeria by employing a survey research design. The industrial urban area of Ilorin in Kwara State served to provide the population. An investigation of air pollution diseases frequent in the area was ascertained and the result showed that respiratory, eye-based and skin diseases were the most reported.

Kpe-Nobana and Thankgod (2022) determined the perceived health effects of air pollution on people in southern Nigeria. A descriptive survey design was adopted. Inhabitants of Rivers State served as the population. Data on the perceived physical health effects of air pollution was obtained. The result revealed that difficulty in breathing, damage to the lungs, interference with sense of smell, cardiovascular diseases, eye infection, cough and catarrh were the perceived physical health effects of air pollution in the area. In an appraisal of social and health impact of cement production on host communities in Nigeria, Charles, Kuku and Sanda (2022) used a survey research design. Drawing the population from a group of communities in Kogi State, the study's posers included verifying the health impact of cement production on the people. The result showed that most of the respondents reported airborne, skin and respiratory diseases as the major diseases that occurred in the area.

In a study designed to determine the effect of exposure to oil pollution on maternal outcomes in Nigeria, Oghenetega, Okunlola, Ana, Morhason-Bello and Ojengbede (2022) used a survey research design. The population comprised of pregnant women from the 9 oil producing states in the country's southern regions. Enquiries by the study included determining respondents' perception of air pollution and how it affected their condition. The result revealed the women indicating issues such as premature rupture of membrane, having to undergo caesarean operation for delivery and postpartum haemorrhage due to the extent which the air in their environment has been polluted. Chukwu, Morse and Murphy (2023) adopted a survey research design in an investigation of perceived health impacts of air quality, sources of information on air quality and individual actions to address air quality in Nigerian urban areas. All urban dwellers in the country formed the population. An inquiry of how respondents perceived air quality to impact on their health was conducted and the result indicated that respiratory diseases, eye/skin issues, and heart diseases were the most mentioned health complications which occurred because of poor air quality in urban areas.

Noise is undesirable and unwanted sound, so noise pollution is unwanted sound dumped into the atmosphere without regard to the adverse effects it may have. Noise pollution is sound at a level which is annoying, distracting or physically harmful. This can mean different things to different people. In residential areas, what is an acceptable level of noise to one person may be unacceptable to another, as well as dependent on the time of the day and the nature of the activity generating the noise. Over time, noise can cause impacts to health and wellbeing – especially when it disturbs sleep. In some people, noise may lead to anxiety, stress and other health impacts, even if it doesn't occur all the time (EPA, 2012).

Noise is a potential hazard to health, communication, and enjoyment of social life. Depending on its duration and volume, the effects of noise on human health and comfort are divided into four categories; physical effects, such as hearing defects; physiological effects, such as increased blood pressure, irregularity of heart rhythms and ulcers; psychological effects, such

as disorders, sleeplessness and going to sleep late, irritability and stress; and finally effects on work performance, such as reduction of productivity and misunderstanding what is heard. In comparison to other pollutants, the control of environmental noise has been hampered by insufficient knowledge of its effects on human and lack of defined criteria (Oyedepo, 2013).
Obot, Animashaun and Fayose (2002) opines that environmental noise pollution is not an entirely new phenomenon. Rather, it is a problem that has grown steadily worse with time. At its inception, noise was not recognized as pollution, but the effects all the same have been altogether unpleasant and damaging. Air and water pollution leave visible scares, and this is where they differ greatly from the most widespread but most in obstructive form of pollution, noise pollution. Noise pollution leaves no visible marks in its wake, and, in fact, its real impact sometimes does not manifest itself until much later and after much damage. The impression created as result is that this form of pollution is not a serious one to the environment. Indiscriminate use of horn by the vehicles and widespread use of loudspeakers in social and religious ceremonies caused several health hazards to the urban inhabitants. It may cause deafness, nervous breakdown, mental disorder, heart troubles, high blood pressure, dizziness, and insomnia (Bhargawa, 2001).

Ogbija, Atubi and Ojeh (2015) identified effects of environmental degradation on human health in selected oil communities in Nigeria by applying a survey research design. Inhabitants of oil communities in Delta State made up the study's population. Data elicited from the respondents was concerned with identifying environmental degraders in the communities and how they impacted on their well-being. The result showed that noise pollution from oil companies' vibration seismic shooting and this caused issues of sleep disturbance, irritation, hearing difficulty and loss of concentration. The environmental impact assessment of coal mining in Nigeria was investigated by Ogbonna, Nzegbule and Okorie (2015). Using a survey research design, communities in Enugu State constituted the population. The study's aims included evaluating environmental impacts of the mining activities and the associated health risks. The result revealed noise pollution as one of the environmental impacts and its associated health risks included sleep disturbance, having to shout on the top of one's voice to be heard and hearing difficulty.

Adeola and Nenuwa (2016) explored environmental challenges of quarry activities in south-western Nigeria. The study used a survey research design and residents of quarry communities in Ekiti State served as the study's population. One of the study's inquiries explored respondents' perceptions towards environmental issues brought about by the quarrying activities and their associated health risks. The respondents indicated noise pollution as one of the major environmental issues faced by them and further indicated sleep disturbance/insomnia, hearing difficulty/loss, and headache/irritation as the associated health risks. Ayodeji and Olumuyiwa (2016) ascertained tertiary students' awareness and self-perceived effect of noise pollution in South-Western Nigeria by using a descriptive cross-sectional survey design. Students at schools in Osun State composed the population. One of

the study's posers was to verify the students' perceived health effect of noise pollution. The students indicated headache, sleep disturbance, hearing difficulty/ loss, poor concentration, and undue aggression as some of the health effects of noise pollution.

Utilising a survey research design, Eludoyin (2016) examined perceptions of noise pollution among residents of medium-sized settlements in south-western Nigeria. The population consisted of an urban settlement in Osun State and the data elicited examined the perceptions towards effect of neighbourhood noise pollution. The result revealed that issues bordering sleep disturbance, undue aggression and lack of concentration were mostly indicated. An assessment of noise pollution and perceived health challenges among urban residents in Nigeria was undertaken by Akinnubi (2020). Utilising a descriptive survey design, residents of Lagos State formed the population. One of the research questions inquired the perceived health challenges due to noise pollution. The result revealed the following as the health challenges – sleep disturbance/insomnia, nervousness/loss of concentration and hearing, loss of memory and frequent headache.

A geospatial analysis of environmental noise levels in urban residential areas in Nigeria was carried out by Alani, Ogunmoyela, Okolie and Daramola (2020). Employing a survey research design, residents of Lagos State made up the population. Assessing respondents' perceptions of the effects of environmental noise levels was one of the study's aims. The result revealed them indicating irritation/general annoyance, sleep disturbance/sleep insufficiency and loss of concentration. Jiyah and Jiyah (2020) conducted an empirical analysis of noise pollution in Nigerian urban areas by applying a case study design. The population comprised of an urban area in Niger State and the study's objectives involved probing the health hazards of noise pollution. The result revealed the respondent's indicating insomnia, hearing difficulty, persistent headache, and catarrh as the most common health hazards of noise pollution.

Bassey and Okon (2021) applied a cross-sectional survey design to explore the perspectives and experiences of the effects of quarrying in quarry communities in Nigeria. The population was made up from quarry communities in Cross River State. An assessment of the perceptions of the effects of quarrying in the communities was assessed. The result revealed the respondents indicating noise pollution as one of the major effects which in turn also affected their health in areas of hearing difficulty and sleep disturbance. Extent of exposure and consequences of noise pollution among urban residents in Nigeria was conducted by Gadanya and Buhari (2021) in a study which applied a descriptive cross-sectional survey design. Urban residents of Bichi Town in Kano State formed the population, and they were enquired of the effects of noise in the area. Sleep disturbance, headache, poor concentration, anxiety and hearing disturbances were the commonly reported effects of noise.

A public perception about the environmental effects of urban noise pollution in Nigeria was investigated by Maton, Nesla, Dodo, Binbol, Labiru, Lemut, Baklit and Matur (2021).

Adopting a survey research design, the study's population was that of Jos Metropolis in Plateau State. One of the study's research questions was whether noise pollution could affect human health. The result indicated the respondents indicating that it could adversely affect sleep, enhance hearing loss, and cause mental stress (including making one get annoyed easily and also making one lose coordination when the ear drum is affected. A cross-sectional descriptive survey design was adopted to identify the effect of environmental factors and its associated health risks of noise pollution in urban areas in Nigeria by Mbaegbu, Oparaocha, Ede, Zubair, Odupute, Nwolisa, Nwakwuo, Opara, Akpelu, Aronu, Obasi, Nwazunku and Ilo (2021). The study's population was that of Owerri Metropolis in Imo State. One of the study's research questions enquired the associated health risks of noise pollution. The respondents indicated the following – hearing impairment, whistling/buzzing of the ear, loss of concentration, headache, slee disturbance and undue aggression.

Okwudili, Okorie, Oparaocha, Orji, Opara, Akpelu, Abonyi, Ilo, Nwankwo and Aronu (2021) assessed noise pollution and its perceived health risks on residents of urban areas in Nigeria by using a cross-sectional descriptive survey design. Inhabitants of Owerri Metropolis in Imo State made up the study's population and an assessment of perceived health risks connected with noise pollution was elicited from the respondents. The finding revealed them indicating the following - annoyance, lack of concentration, disturbed sleep, headache, hearing impairment and whistling and buzzing of the ear. Tunde and Abdulquadri (2021) investigated environmental noise pollution and its effects on the hearing ability of residents of urban areas in Nigeria by using a survey research design. Residents of Ilorin in Kwara State formed the study's population. The study's objectives included verifying the effect of noise pollution on the people in the area. The finding revealed that males had significantly more adverse health effects from noise pollution than females due to more length of exposure than females. Issues faced by the residents included hearing impairment, sleep disturbance and irritation.

Akande, Adenle, Emechebe, Lembi, Ahmed, Eze and Ajayi (2022) explored implications of residential housing exposure to urban environmental noise on peoples' wellbeing in Nigeria. The study applied a survey research design and the population consisted of inhabitants of Minna in Niger State. The study's enquiries included determining the well-being of people as a consequence of the noise pollution they were exposed to. The finding indicated the people reporting issues of general disturbance/irritation, headache, insomnia and stress. Public perception on environmental noise pollution in Nigerian urban centres was explored by Apeh, Bamedele, Badrudden, Alfa and Ijimdiya (2022). A survey research design was utilised, and the study's population consisted of inhabitants of Zaria City in Kaduna state. The study ascertained perceptions towards health hazards of noise pollution and the result revealed the respondents indicating ringing of ear, annoyance/irritation, aggression, sleep disturbance, loss of concentration, headache, stress, and hearing impairment.

Methodology

The study adopted a survey research design. The population of the study was made up of the adult and youth population across all the seven local government areas (LGAs) that make up Calabar Education Zone of Cross River State. From the population, a sample of 397 respondents was drawn using a multi-stage purposive sampling approach. The purposiveness was in line with selected LGAs and communities therein having deleterious issues of air and noise environmental pollution. Four LGAs and three communities each therein were sampled for the study. The data collection instrument was tagged the "Perceived Impact of Environmental Pollution on Health Status Questionnaire" (PIEPHSQ). It has sections A and B. Section A was designed to obtain data of the respondents' demographics while Section B elicited responses concerning each of air and noise pollution (6 items each) and perceived health impact on health status (10 items), all with a response rubric of strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD).

The instrument was validated by two experts in Measurement and Evaluation in the Department of Educational Foundations and two experts in the Department of Environmental Education who ascertained the degree to which the items on the instrument measured what it is expected to measure. The reliability of the instrument was ascertained by conducting a trial test with 30 respondents from communities that were not part of the sample, and the obtained data was analysed using the Cronbach Alpha reliability method. The reliability coefficients for belief systems concerning each of air and noise pollution were .82 and .81, respectively while that for perceived health impact on health status was .82. The data collection for the study was done by the researchers in conjunction with 5 research assistants lasted about 6 weeks. The data collected were analysed using Pearson Product Moment Correlation (PPMC) technique and tested at .05 level of significance.

Presentation of results

Ho1: The first hypothesis stated that air pollution does not significantly relate to the perceived health implications on the host communities. To test this hypothesis, air pollution and perceived health implications were compared using PPMC. The result of the analysis is presented in Table 1.

Table 1
PPMC of air pollution and perceived health impact on the host communities

Variable	N	X	SD	r-value	*P*-value
Air pollution	397	7.74	2.37		
				0.469*	.000
Health status of host communities	397	15.67	7.13		

*Significant at 0.05 level; df = 395 critical r value = 0.113

The result of the analysis in Table 1 revealed that air pollution produced a mean score of 7.74 with a standard deviation (SD) of 2.37 while health status of host communities produced a mean score of 15.67 with an SD of 7.13. The result further revealed that the calculated r-ratio of .469 obtained with a p-value of .000 is greater than the critical value of .113 and this met the condition required for significance at the .05 level. Hence, the null hypothesis that air pollution does not significantly relate to the perceived health implications on the host communities was rejected, thus indicating that air pollution does significantly relate to the perceived health implications on the host communities in Calabar Education Zone.

Ho2: The second hypothesis stated that there is no significant relationship between noise pollution and perceived health implications on the host communities. To test this hypothesis, noise pollution and perceived health implications were compared using PPMC. The result of the analysis is presented in Table 2.

Table 2
PPMC of noise pollution and perceived health status of host communities

Variable	N	X	SD	r-value	*P*-value
Noise pollution	397	7.27	4.29		
				0.443*	.000
Health status of host communities	397	15.67	7.13		

*Significant at 0.05 level; df = 395 critical r value = 0.113

The result of the analysis in Table 2 revealed that noise pollution produced a mean score of 7.27 with a standard deviation (SD) of 4.29 while health status of host communities produced a mean score of 15.67 with an SD of 7.13. The result further revealed that the calculated r-ratio of .443 obtained with a p-value of .000 is greater than the critical value of .113 and this met the condition required for significance at the .05 level. Hence, the null hypothesis that there is no significant relationship between noise pollution and perceived health implications on the host communities was rejected, thus indicating that there is a significant relationship between noise pollution and perceived health implications on the host communities in Calabar Education Zone.

Discussion of Findings

The result of the first hypothesis revealed that air pollution does not significantly relate to the perceived health implications on the host communities. This implied that when the air is polluted with contaminants that reduce air quality, it does have a significant connection with the health status of host communities. The finding is in line with Stephen *et al*., (2018) who found out that people agreed that there was the prevalence of health issues due to air pollution

in the area. Also, Whyte *et al*., (2020) reported that respondents perceived that the soot had affected their health or that of a household member with cough; irritation to the eyes, nose or throat; and skin irritation being the most mentioned health effects. Okobia *et al*., (2021) observed that health records from hospitals showed that respiratory diseases, asthma, cardiovascular diseases, and cancer were the most prevalent health issues faced by people. Charles *et al*., (2022) revealed that respondents reported airborne, skin and respiratory diseases as the major diseases that occurred in the area due to air pollution. Chukwu *et al*, (2023) reported that respiratory diseases, eye/skin issues, and heart diseases were the most mentioned health complications which occurred because of poor air quality in urban areas.

The result of the second hypothesis revealed that there is a significant relationship between noise pollution and perceived health implications on the host communities. This implied that when sources of noise which emit undesirable noise levels, it does have a significant connection with the health status of host communities. The finding is in consonance with that of Ogbonna *et al*., (2015) who revealed noise pollution as one of the environmental impacts and its associated health risks included sleep disturbance, having to shout on the top of one's voice to be heard and hearing difficulty. Eludoyin (2016) observed that issues bordering sleep disturbance, undue aggression and lack of concentration were mostly indicated. Jiyah and Jiyah (2020) found out that respondents indicated insomnia, hearing difficulty, persistent headache and catarrh as the most common health hazards of noise pollution. Okwudili *et al*., (2021) reported people indicating the following - annoyance, lack of concentration, disturbed sleep, headache, hearing impairment and whistling and buzzing of the ear, all due to noise pollution. Apeh *et al*., (2022) observed that respondents indicated ringing of ear, annoyance/irritation, aggression, sleep disturbance, loss of concentration, headache, stress, and hearing impairment due to noise pollution levels.

Conclusion and Recommendation

The result showed that air and noise pollution are deleterious to the well-being of people. It is hoped that based on the result people would see the need to be aware of the dangers of exposure to each of the environmental pollution variables to ensure that they do not expose themselves to the hazards of each of air and noise pollution.

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