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SANITATION VARIABLES AS A PREDICTOR OF HEALTH OF STUDENTS

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The essence of the study is to examine the " Poor sanitation variables as a predictor of the health of students in College of Health Technology, Calabar". To achieve this, two specific objectives were developed from which two hypotheses were formulated in line with variables of the study. The study adopted a survey research design and the instrument used was questionnaire to gather data. The data were analyzed using Pearson product moment correlation coefficient statistical analysis at .05 significance level at 100 degree of freedom. The sample of the study consisted of 370 respondents. The result of the findings in hypothesis one revealed that poor solid waste disposal significantly influences the health of students in College of Health Technology, Calabar. Findings from hypothesis two showed that dirty school environment significantly affects the health of students in College of Health Technology, Calabar. The study recommended that sufficient efforts should be put towards ensuring proper handling and disposal of solid waste by the government and the school authorities; also, adequate awareness of environmental sanitation should be carried out so as to create a positive state of consciousness in the minds of the students about cleanliness and personal hygiene.

Keyword: Poor sanitation variables , health of students, College of Health Technology, Calabar, Nigeria.

BACKGROUND TO THE STUDY

The rapid urbanization process in Calabar has its own consequences such as overcrowded dwellings, high rate of pollution, inadequate household facilities, and carefree attitude of people toward poor environmental conditions which have been the precondition for deteriorating environment. This development made the town assumed the status of an urban city and sanitation coverage has not been able to keep pace with the urban population growth. Sanitation is basically a hygienic disposal or recycling of waste. It is considered as a practice that allows protection of health with the help of hygienic measures (UNESCO, 2003). It is commonly understood as a term that is used for treatment of waste in its original form. The 1992 convention on the protection and use of trans-boundary watercourses and international lakes view sanitation as "the collection, transport, treatment, and disposal or reuse of human excreta or domestic water-waste, whether through collective systems or by installation, serving a single household or undertaking". This understanding of the term includes, not only the removal of waste from direct contact with human beings, but also its treatment and possible safe reuse. It has been found that poor water and sanitation facilities have many other serious repercussions. A direct link exists between water, sanitation and health, and nutrition and human well-being. Consumption of contaminated drinking water, improper disposal of human excreta, lack of personal and food related hygiene and improper disposal of solid and liquid waste have been major causes of many diseases in developing nations such as Nigeria and children, particularly girls and women, are the most affected. (Henewa, Kolawole and Ameyaw, 2014). Consequently, Nigeria is burdened with sanitation related diseases as epidemics still significantly plague the citizens. Environmental sanitation is an essential factor that leads to a healthy environment and consequently stimulates good health and productivity: also secures peoples' well-being. The environment provides the basis for humans' existence and its destruction ultimately leads to biotic extermination. (Henewa, et al, 2014). Accordingly, environmental sanitation is viewed as a major pillar for the survival of people. Environmental Sanitation issues have increasingly become a matter

of countrywide concern in Nigeria. Therefore, various Governments have initiated different strategies to control the problem of poor sanitation especially in the major cities of the country. (Henewa, et al, 2014). Given the pace of development with respect to basic environmental sanitation, there is no way the country can achieve the set Millennium Development Goals in the nearest possible time.

The College of Health Technology, Calabar, started as Institute of Public Health in the later part of 1970, using the Diamond Health Centre, Diamond Hill, Calabar as its temporary site. During this period, twenty one (21) School Health Attendants and five (5) Community Nursing Students were admitted for training. Early in 1971, the Institute moved to No. 2 Hawkins Road, Calabar, yet another temporary accommodation. Other cadres of Health personnel trained by the School were Rural Health Assistants and Leprosy Attendants. The College moved to its permanent site at Mary Slessor Avenue, Calabar in 1975.

In 1976, the name of the Institution was changed to School of Health Technology following its approval by the Federal Ministry of Health. In the same year, the first batch of Public Health Nurses, direct intake of Community Midwives, Rural Health Superintendents, Public Health Superintendents (now Junior Community Health Extension Workers (JCHEWs), Medical Records Assistants and Assistant Medical Records Officers were trained. In 1985, the National Certificate in Health Records and Vital Statistics Program was introduced. Other programs subsequently introduced were: Direct Community Health Officers, Community Health Supervisors, Health Information Management Technicians, Senior Community Health Extension Workers (SCHEWs), Medical Laboratory Assistants/Technicians, Pharmacy Technicians and Radiography Technicians.

In 1999, the College was granted provisional approval by National Board for Technical Education (NBTE) to run Public Health Nursing (PHN) and Environmental Health (EH) Programs at HND level. On November 6, 2201, the Cross River State College of Health Technology, Calabar Law was assented to by His Excellency Mr. Donald Duke, the then Governor of Cross River State. In 2002, the then Principal of the School, Mrs Ako A. B. Adam was appointed Acting Provost of the Institution, following its Collegiate Status as conferred by the Law. In August 2005, the Second Governing Council was inaugurated with Dr. Mike Nkwam as the Chairman and Dr. Franklin Ani as the substantive Provost.

In 2006, the General Studies Department was created to take care of service courses as required by National Board for Technical Education (NBTE).

By 2007, other Principal Officers of the College, the Registrar, the Librarian and the Bursar assumed duty. In 2011, NBTE granted full accreditation for HND Public Health Nursing and Provisional accreditation to run the National Diploma in Health Information Management, Environmental Health and Community Health Programs. In 2013, a Centre for Entrepreneurial Studies (CES) was established as a mandatory accreditation requirement by NBTE. In the same year, NBTE then granted the College full accreditation to run HND in Environmental Health and Health Information Management Programs.
In 2014, the College introduced Dispensing Opticianry Program and re-introduced the Radiography Technicians Program. The staff strength of the College has also grown for both Academic and Non-Academic staff complementary to the College expansions. (http://www.chtcalabar.edu.ng)

College of Health Technology, Calabar is confronted with public health concerns such as poor sanitation and various forms of environmental pollution. The situation is evidenced by unsanitary conditions such as open dumping sites as well as and dirty & obstructed drains, leading to the outbreak of epidemics such as cholera, diarrhoea. On this basis, the College of Health Technology was chosen in order to assess the influence of environmental sanitation on the health of its students. It is therefore important that environmental education on health and hygiene has to go hand in hand with physically safe and well-kept hygienic facilities to make schools safe places for learning. Most safe and hygienic schools require the participation of community members, parents, lecturers and above all, voluntary agencies to function optimally.

Specific objectives

The specific objectives of the study are to:

1. Examine the extent to which poor solid waste disposal influences the health of students in College of Health Technology, Calabar.

2. Determine the influence of dirty school environment on the health of students in College of Health Technology, Calabar.

Hypothesis

1. Poor solid waste disposal does not significantly influence the health of students in College of Health Technology, Calabar.

2. Dirty school environment does not significantly affect the health of students in College of Health Technology, Calabar.

REVIEW OF LITERATURE

Poor Solid Waste Disposal and Health of Students

Refuse generation in the form of solid waste and its likely effects on the health, quality of environment and the urban landscape have become burning national issues in Nigeria today. Solid wastes comprise all the wastes arising from human and animal activities that are normally solid, discarded as useless or unwanted. Also included are by-products of process lines or materials that may be required by the law to be disposed of (Christopher et al, 2009). Solid waste can be classified in a number of ways, on the basis of sources, environmental risks, utility and physical property. On the basis of source, solid wastes are again classified as: Municipal solid wastes, industrial solid waste and agricultural solid wastes. Nigeria's major urban and rural centers are both today fighting to clear mounting heaps of solid waste from their environments. These strategic centers of beauty, peace and security are being overtaken by the messy nature of over flowing dumps unattended heaps of solid wastes emanating from household or domestic kitchen sources, markets, shopping and business centers. City officials appear unable to combat unlawful and haphazard dumping of hazardous commercial and industrial wastes which are a clear violation of the clean air and health edicts in our environmental sanitation laws, rules and regulation.

All stakeholders concerned with the safety and the revamping of our environment have come to realize the negative consequences of cleared solid human wastes found in residential neighborhoods, markets, schools, and central business districts in our cities. These solid wastes have become recurring features in our urban and rural environment. It is no longer in doubt that Nigerian sub-urban and rural environment are inundated with the challenges of uncleared solid wastes. As a result, urban residents are often confronted with the hazardous impact to their collective health and safety.

In August 2004, United Nations reported that while developing countries are improving access to clean drinking water they are falling behind on sanitation goals. The World Health Organization (WHO) and United Nations International Children Education Fund (UNICEF) joint report in August 2004 states that: "about 2.4 billion people will likely face the risk of needless disease and death by the target of 2015 because of poor sanitation and poor solid waste management." The report also noted that bad sanitation-decaying or non-existent sewage system and toilets-fuels the spread of diseases like cholera and basic illness like diarrhea, which kills a child every 21 seconds. (WHO, 2004; UNICEF, 2004).

The hardest hit by poor sanitation and deficient disposal of solid waste is rural poor and residents of slum areas in fast-growing cities, mostly in Africa and Asia. In 2007, the "Earth summit" succeeded in alerting the conscience of the world to the urgency of encouraging sanitary actions, in addition we must also find answers to many tough conceptual and technical questions that have remained unsolved over time. It affirms that rapid urbanization in developing world if ignored can be a threat to health, the environment and urban productivity.

One of the greatest problems facing developing countries is the unhealthy disposal of solid waste which resulted from human activities for survival (Osinowo, 2001; Joseph, 2006). The poor state of waste management in the country is caused by inadequate facilities, poor funding, and poor implementation of policies as well as wrong lifestyle. Economic development, urbanization, improved living standards in cities, and increase in enrolments of school children due to government policies in developing countries increase the quality and complexity of generated solid waste in schools. If this waste is accumulated, it may lead to degradation of the urban environment, stresses on limited natural resources, and various health issues. Globally, most tertiary institutions provided the avenue where students were to be taught sanitation of the environment, which provides opportunity through which the act of waste management and sanitation can be learnt (Ifegbesan, 2008). The awareness, attitudes and behaviours of people in the community are crucial to the management of waste. Reasons for individual participation in management of waste are related to environmental motivation, social pressure, attitudes and economic incentives (Bartlett, 2005). Problems with waste management have arisen recently in developing countries where there is a little history of environmental awareness education (Ojeda, 2000) and where many members of the community are illiterate and unaware of the problem of solid waste accumulation (Ri, 2003).

Environmental attitude of young people appears to be crucial as they ultimately play a direct role in providing knowledge based solutions to incoming environmental problems. Social environmental programs although addressed to students if properly channelled can also influence the environmental knowledge attitude and behaviour of adults (parents, teachers and local community members) through the process of Intergenerational influence (Gallagher 2000). Every school generates waste arising from routine activities such as classwork, sweeping, serving of food, and bush clearing. The common types of solid waste found in various schools in less-developed countries include paper, grass, nylon (pure water bags and biscuits, lollypops, ice cream, and sweet or candy wrappers) sugar cane, maize cobs, and groundnut shells. Other forms of waste may also be found on school premises and these may not have even been generated directly by pupils and teachers. For example, Age, gender, educational status, and the amount charged for

waste collection services had been identified as factors influencing solid waste management in highly populated cities like Ibadan and Lagos (Asani, 2007).

Unarguably one of the main problems facing tertiary institution students and which has become an intractable nuisance is open and indiscriminate dumping of refuse, human and animal faeces. Piles of decaying garbage which are substantially domestic in nature dominate strategic locations in the heart of the city. Wastes in such dump sites obviously are sources of air and water pollution, land contamination, health hazards and environmental degradation (Omoleko, 2004). Regrettably, this condition characterizes environmental cultures. It is important to note that endangered public health situation can exert excessive pressure on the health budget, curtails productivity and worsens urban health. This ugly situation persisted for decades because of the high rate of illiteracy, ignorance, uncivil culture of indiscriminate waste littering and other factors.

The situation in less-developing countries such as Nigeria is more acute, partly because of the lack of adequate solid waste disposal facilities and people's negative attitude towards the environment. There is strong evidence which suggests that individual or group awareness and attitudes towards waste generation and management is critical in the effort to respond to the waste management challenges (Kofoworola, 2007). The negative attitude of the society towards the environment also affected the educational institution whose problem has been aggravated by constant changes, not just in curriculum content but also school subjects.

Nguyen (2011) opined that cities are the engines of economic growth, but the environmental implications of such growth need to be assessed and managed better. The critical and most immediate problems facing developing countries and their cities are the health impact of urban pollution that are derived from inadequate water services, poor urban and industrial social waste management as well as air pollution, especially from particulates which constitutes part of solid waste. Among the pressing environmental and public health issues in Nigeria today is the problem of solid waste generation and disposal. The problem of solid waste management is a historical one because man's existence is inextricably linked to the generation of waste. The problem is becoming intractable as many cities in developing countries cannot keep pace with urbanization, pollution, and the increasingly concomitant generation of garbage due to changing life styles and consumption patterns. (Nguyen, 2011).

A national policy on the environment was formed by the federal government of Nigeria through the promulgation of Decree 58 for the establishment of Federal Environmental Protection Agency (FEPA) on 30th December 1988 and the goals of the policy include:

- To secure for all Nigerians a quality of environment adequate for their health and well-being
- To raise public awareness and promote understanding of the essential linkages between the environment and development; and
- To encourage individual and community participation in environmental protection and improvement efforts.

In spite of the formulation of FEPA and a national environmental policy, the environment has not been adequately protected. Interest is mainly on aesthetics, which is rarely achieved. Waste collection is irregular and restricted to the major cities. Improperly sited open dumps deface several cities, thereby endangering public health by encouraging the spread of odors and diseases, uncontrolled recycling of contaminated goods and pollution of water sources. Sadly, there seems a resignation to the unremitting solid wastes build up by the relevant authorities, where such bodies exist at all. However, in reactions to the inescapable environmental impact of delay in solid wastes removal, the federal government for example, introduced the monthly environmental sanitation in the early seventies. There from the states and local governments were expected to take a cue and evolve their own Solid Wastes Management (SWM) strategies based on the peculiarities of their environment.

Each state had in the process of mitigating urban solid wastes, set up Wastes Management Boards (WMB) an attempt to tackle the occurrence of wastes and their hazards to society as a whole. While the unhealthy aspects of abandoned solid wastes can be contained, the more avoidable features of blocked drains and floods have yet to be fully tackled. (Nwanta & Ezenduka, 2010).

One resonant feature common in the waste build-up and emanating environmental degradation scenarios is the high cost or capital intensive nature of its amelioration as well as tackling the solid wastes menace. It requires a lot of financial and human capital to minimize and attempt to eradicate the adverse effects of exposed and untreated solid wastes in our urban centres. It is expected that government would in due course arrive at the means to combat solid wastes and reduce their negative impact on area residents and the perception of our cities as being dirty, chaotic, and full of traces of rotting or fermenting garbage that emit odors harmful to the human body. Obviously, the timely removal of accumulated solid wastes requires more than our governments at all levels are presently engaged in. Further plans, policies and programs would need to be put on a more permanent basis in order to combat the dastardly effects of environmental degradation. It would require effective mobilization of resources such as involving all stakeholders in regular counter measure to suppress uncontrolled solid wastes generation and irregular disposal outside city confines

altogether. (Nwanto & Ezenduka, 2010).

Dirty School Environment and Health of Students

Disposal of refuse without proper supervision often amounts damage to the environment and ultimately to the human body system. A public health physician, Akin Osibagun quoted in Chioma (2015), asserted that improperly disposed solid refuse has both direct and indirect health effects. The direct health effects arise from excessive breeding of vermin and agents of disease such as rats, flies and mosquitoes. “Rats are known to transmit diseases such as leptospirosis, lassa fever and some other hemorrhaging fevers, salmonellosis, and plague.” Akin Osibagun quoted in Chioma (2015) pointed out that flies are implicated in transmission of diarrhea disease while mosquitoes are well known for transmission of malaria all of which affects the health of students especially in the urban areas where no attention is paid to proper sanitation.

Apart from infectious diseases, improper disposal of refuse will also result to food poisoning, leachate and contamination of ground water and this can result in poisoning of boreholes. He explains that leachate is the liquid that forms as water trickles through contaminated areas. It is a very harmful mixture of chemicals that may result in hazardous substances entering the surface water, groundwater or soil

The improper disposed refuse also cause injuries to students (e.g. from broken bottles, rusted metal objects etc.). Refuse also generates methane gas which is highly inflammable and improperly disposed, can be a fire hazard. The bottom line is that bad waste management practices can result in land and air pollution and can cause respiratory problems from the lungs into other parts of the body which in most cases students tend to be victims of such adverse effects.

Environmental challenges and opportunities seem to vary considerably among schools around Nigeria. Similarly, the resources available to these schools to manage health hazards vary as widely as the threat themselves, often creating formidable school management in the study area. This has made the issue of imparting in student environmental health education practices in all pyramids of education in Nigeria a thing of concern to all educational stakeholders. This is owing to the fact that school physical environment needs to be kept neat and clean so as to make teaching and learning conducive and effective. This is to say that school physical healthy environment may determine effective and efficient management of schools. There is a need for a healthy- promoting school environment as World Health Organization (2004) defines a health promoting school as ”one that constantly strengthens its capacity as a healthy setting for living, learning and working”. The America Academy of pediatrics (2003) defines a “healthful school environment” as “one that protects students and staff against immediate injury or disease and promotes prevention activities and attitudes against known risk factors that might lead to future disease or disability”.

World Health Organization states that the physical school environment has a strong influence on children’s health for several reasons. Firstly, the environment is one of the primary determinants of children’s health: contaminated water supplies can result in diarrhea disease; air pollution can worsen acute respiratory infections and trigger asthma attacks; and exposure to lead, arsenic, solvents and pesticides can cause a variety of health effects and even death. Secondly, children may be more susceptible to the adverse health effects of chemical, physical, and biological hazards than adults. Relative to their body weight, they breathe more air, consume more food and drink more water than adults. Their exposure to any contaminant in air, water, or food will therefore be higher than experienced by adults. Children spend much of their day within school environments during critical developmental stages. Thirdly, children’s behavioural patterns are distinctively different from adults and place them at risk from exposure to environmental threats that adults may not face. These behaviours include placing fingers and other objects in the mouth and not washing hands before eating. Children lack the experience to judge risks associated with their behaviours. Adolescents, in particular, are more likely to take risks, such as climbing and jumping unstable structures. (WHO, 2004)

Provision of safe and sufficient water, sanitation, and shelter from the elements are basic necessities for a healthy physical learning environment. Equally important is the protection from biological, Physical, and chemical risks that can threaten children‘s health. Infectious diseases carried by water, and physical hazards associated with poor construction and maintenance practices are examples of risks children and school personnel face at schools throughout the world. The quality of school environment is crucial in creating a congenial and healthy environment for teachers and students welfare and productivity in institutions of learning today. School heads manage their environment by getting rid of all wastes and by-products of different natural and anthropogenic processes introduced into the immediate school environment. Environmental health education has become one the greatest challenges facing institutions of learning in the whole world today. (WHO, 2002).

The provision of health education for fruitful, healthy and productive living and effective management of all school programmes is very crucial. People all over the world today, irrespective of their level of education and sophistication, have a common instinct for self preservation which provides a strong motive to pursue health. In the past, it used to involve a long-drawn out process of trial and error, of fear and hope, of reasoning and following example. Today, with the enormous opportunity implicit in the widespread availability and use of scientific knowledge, the attainment of a state of well-being rests upon personal resolve. Resolve here depends on attitude upon insight and insight upon knowledge,

experience and feeling.

The provision of health education have been developed with the specific aim of helping students to make choices about health more wisely and live a healthy life capable of making them achieve their education goal pursuit. The health situation of all students in tertiary institutions in particular is very important and should never be taken for granted at any time. This bring us to the popular saying that “Health is wealth” This is because a man’s state of health determines his ability and strength to engage in every of his activities which provide wealth for him to achieve his targeted goal of life.

In most tertiary institutions today all over the world, both the teachers and students suffer greatly on problem of environmental health. According to Federal Ministry of Education (2006), environmental health problems in schools includes; mosquito bite, attack of water born disease, spread of infectious disease like HIV/AIDS, asthma, landslide, erosion, storm, earthquake, poor social convenience, and student engaging in drugs abuse. Furthermore, Droppings or body parts from cockroaches, rodents and other pests can trigger asthma attacks and cause allergic reactions to students and staff of tertiary institutions especially when school convenience such as toilet, washroom and bathrooms are not kept neat and clean. Due to such situations, some pests also can transmit disease to the school occupant. The negative influence of this on the student and school management is causing of malaria, injuries, malnutrition disabilities and death among student and teachers. Other effects could be disruption of school academic programmes, making the school environment dirty and unconducive for learning, and increase in school dropout and absenteeism among students.

According to Ghose, (2006) environmental health problem affecting school children today are: unsafe water, sanitation and hygiene, urban air pollution, indoor smoke from solid fuels, lead exposure and climate change. This tends to have effects on the student and teachers in the area of diarrhea disease, respiratory infections, lower respiratory infections, lung cancers, hypertensive disease, malaria, unintentional injuries. This may result to causing unsafe environment for teaching and learning.

Environmental Health Education is initiated to acquaint all members of the society especially students on the general principles that promotes health like keeping their school convenience such as toilet and bathrooms clean, avoid cases of environmental hazards erosion and flood, prevent disease infection by keeping the school environment clean and stop students abuse of drugs. Lack of environmental health education in institutions of learning may negatively influence school management in terms of creating poor school environment, and increased indiscipline among students (offiong, 2003). Commenting on the need for environmental health education in the management of tertiary institutions, Obong (2006) states that the knowledge of health education helps to manage school environment in an aesthetic way such as regular painting and maintenance of the quality of buildings, channeling of sewage, well planned landscape and trimming of flowers, clearing of grasses, proper disposal of refuse, sweeping and removing cobweb among others and the provision of a relaxed atmosphere for the molding of minds.

Idoko (2005) is the coordination of the efforts of the people through human (teaching and non-teaching staff, students) and material resources to accomplish the objectives of tertiary education. In the opinions of Cotton, (2003) management of tertiary institutions is the process of deciding what to do in school and getting it done through effective use of available resources. How school environment is managed in aesthetics, recreation, waste, drainages pattern and other physical outlook of the environment has telling influence on the quality of learning environment of students. In most school today in Nigeria, a lot of students seem to engage an illegal drug taking called drug abuse. According to National Drug Law Enforcement Agency (NDLEA), drug abuse represents a scenario where drug is taken without medically recommended or if use causes physical. psychological, legal or social harm to the individual user or other affected by the drug users behaviour. Ghose (2006) states that the act of student indulging in drugs is capable of making them misbehave in class during lessons.

Borodo (2005) observes that the consequence of drug abuse in our school today is increasing the burden on the management of schools as well, as increased cases of crimes and other societal ills in the school. Boroda further states that most students who frequently engaged in fighting and bullying of other fellow students are those who indulge in taking illicit drugs such as alcohol, cigarettes and marijuana, cocaine, codeine among others. This seems to have negative influence on their academic activities as well as constitutes a problem to the management. Student who receive quality environmental health education will learn to stay away from abusing drugs and keep their school convenience clean and avoid being infected with disease. All these pose serious challenges to the management of the tertiary institutions such that they spend more time and resources on the school security management instead of teaching and learning. (Kyalo and Mbugua,, 2011).

Also, orienting student on health issues may go a long way in positively influencing their school conveniences. This is because, student who are not enlightened about health practices and the implication of neglect may imbibe the culture of routinely taking care of their school conveniences. Schools convenience are referred to as toilets, latrines, washrooms and bathrooms. Banuri (2004) maintained that if toilets and urinary place are not given adequate attention in keeping with the health of student it will affect their learning abilities and their overall performance negatively. Egim (2003) states that tertiary institution administrators in cross river state have the responsibility to make school toilets accessible, clean and safe by encouraging students to keep them regularly clean.

Verla (2003), Opines that cleaning and maintenance of school conveniences such as toilet, washrooms and bathrooms

help to avoid health problems Verla further opines that there is every need for provision of toilet paper, warm water for washing of hands, soap for washing of hands and hand towel/ dryers in school toilets and latrine. Similarly, Okaba and Obong (2006) state that schools should have an effective toilet cleaning and inspection regime to ensure adequate standards of hygiene, behaviours and cleanliness, throughout normal hours of usage. This will help to prevent a lot of health problems that could be encountered by the student in schools.

With increase in the population of tertiary institutions and the rising demand for education and other essentials, there has been a rise in the amount of waste being regenerated daily around the school environment. This waste is carelessly thrown around the school and due to poor and ineffective management of this waste, the school environment turns to be source of environmental and health hazard to the students in the vicinity of such environments. One of the aspects of concern is the pollution caused to the earth-be it land, air and water. This makes the school environment to become the children's sources of contamination due to the incubation and proliferation of flies, mosquitoes and rodents. They in turn, are disease transmitters that affect the student's health which has its organic defenses informative and creative states. The said situation produces gastrointestinal, dermatological, respiratory, genetic and several other kinds of infectious disease. Nguyen (2011) reported that many cities in developing countries face serious environmental degradation and health risks due to the weakly developed solid management system. Several studies have been conducted in order to examine the health and environmental effects arising from inappropriate waste disposal in schools such studies showed that a link exist between the two (Aatamila, 2010; Nguyue, 2011. Giustic 2009). The conclusion from this and other studies has led to an increasing interest of researcher in the study relating to environmental pollution as well as its effects on plants and animals. The ever-increasing consumption of resources result in huge amount of solid wastes from domestic activities, which pose significant threats human health However, the ill of inappropriately disposed solid waste on students of tertiary institutions are quite numerous to be mentioned. Health deterioration and accidents are just a few of the negative effects (Giusti 2009).

Research Design

The design for this study is survey research design and it involves the collection of sample data for describing a population too large to be observed totally. The use of survey aids the presentation in a descriptive and allows inference to be drawn from sample population for generalization to the whole population. The underlying principle of survey in this study is that the study explore or seek the opinion of students in the influence of environmental sanitation on the health of students in Cross River State College of Health Technology, Calabar.

Population of the Study

Cross River State College of Health Technology, Calabar is situated in Calabar South local government area of southern senatorial district of Cross River State, with an area of 331.551km and a projected population of 249,884 people in 2015. Calabar south lies between 4^0 15' and 5^0N and longitude $8^0$25'E in the north. Cross River State College of Health Technology is located along Mary Slessor Road, Calabar, opposite Asi ukpo Diagnostic Centre, Calabar, it is bounded in the north by Asi ukpo Diagnostic Centre, in the south by Beteba street, in the west by St. Bernard Catholic Church, Calabar and in the east by General Hospital, Calabar. Cross River State College of Health Technology, Calabar was initially known as School of Health Technology. The institution has nine departments and the population of 1,866 students as at 2017/2018 academic session. The distribution of the population is presented in Table 1.

Table 1:Population of the study

DEPARTMENT	POPULATION
Health Information Management	408
Environmental Health	654
Community Health	310
Public Health	10
Medical Laboratory	205
Pharmacy Technician	104
Dispensing Opticianary	104
Radiography	66
Computer Science	5
Total	1,866

Sampling Procedure

The sampling procedure adopted took the form of two stage sampling; this is a sampling procedure that involves the selection of sample through different stages and in most instances involves the application of more than one sampling technique. Stratified sampling procedure was adopted in selecting elements of the population for this study. The first

stage in the selection of sample involved stratification based on nine (9) department (Health information management, Environmental health, Community health, Public health, Dispensing opticianary, Radiography, Medical laboratory, Computer science and Pharmacy technician) from each of the department twenty percent (20%) of the respondents were drawn using stratified random sampling to constitute the sample. This sampling procedure allows the researcher the opportunity to appropriately select items that constitute the sample without the bias and ensures that all elements are given equal chance of being selected into the sample

Sample

The sample involved three hundred and seventy respondents from the various departments in Cross River State College of Health Technology, Calabar. 82 Health Information Management, 130 Environmental Health, 62 Community Health, 2 Public Health, 40 Medical Laboratory, 20 Pharmacy Technician, 20 Dispensing Opticianary, 13 Radiography and 1 computer science.

Table 2: Sample of the study

S/N	DEPARTMENTS	POPULATION	20%
1.	Health Information Management	408	82
2.	Environmental Health	654	130
3.	Community Health	310	62
4.	Public Health	10	2
5.	Medical Laboratory	205	40
6.	Pharmacy Technician	104	20
7.	Dispensing Opticianary	104	20
8.	Radiography	66	13
9.	Computer science	5	1
	TOTAL	**1,866**	**370**

Data Collection Instrument

The research instrument adopted for the study was a set of questionnaire which consisted of 21 item questions. The questionnaire was divided into six sections:

Section “A” consist of 4 item questions on Demographic Data while section “B, C, D, E, and F” consist of 17 item questions on the influence of environmental sanitation on the health of students in Cross River State College Of Health Technology, Calabar. The 370 copies of the questionnaire were personally administered to the sampled population. The instruments also adopted were interviews and documentary evidence.

Reliability and Validity of Instrument

Reliability refers to the degree of consistency that an instrument demonstrates in measuring what it does. The reliabilities of the instrument were tested by the consistency of the response, which was evaluated by repeated pilot testing and the estimate was .56 to .69 That is, the research gave same group of the respondents the questionnaire to complete after two weeks interval, the same questionnaire were administered and collated. This method gave the instruments reliability over time.

While validity refers to the degree to which an instrument measures what it is intended to measure the extent to which a true and accurate measure of a trait is probable.The Validity of the research instrument was determined through consultation with experts and the project supervisor. Furthermore, the face and content validity were established by using experts in the department of Health Information Management and the supervisor. The experts and the supervisor certified that the instrument was faced and content valid and could then be used for the study. The corrections and suggestions of the experts and the supervisor led to modification of some items in the questionnaire.

METHOD OF DATA ANALYSIS

The data collected were just presented on a tabular form to show the various questions from which the data were collected. The analyses of the data were firstly descriptive in nature and were statistically presented in the percentages and Pearson product correlation analysis to reveal the respondent’s view on each question.

Conclusions were drawn to each analysis while testing hypothesis in chapter four using the Pearson product correlation statistics.

RESULTS AND DISCUSSION

Hypothesis one:

$H_{o1:}$ Poor solid waste disposal does not significantly influence the health of students in College of Health Technology, Calabar.

Table 3: Pearson correlation co-efficient analysis in relation of Poor solid waste disposal and health of students in College of Health Technology, Calabar.
(N = 370)

VARIABLES	$\bar{X}$	SD	r- calculated value
Poor solid waste disposal	3.084	1.943	
			. 424
Health status of students	3.073	1.992	

***significant at .05 level, df = 368, critical value = .195**

Result from table 3 above reveals that the Pearson product moment coefficient analysis of the relationship between Poor solid waste disposal and Health status of students yielded calculated-r of .424, although a weak positive correlation, which was significant at .05 level; hence, Poor solid waste disposal significantly influences Health status of students and can equally mar the health status of students in the College of Health Technology, Calabar.

Hypothesis two:

$H_{o2:}$ Dirty school environment does not significantly affect the health of students in College of Health Technology, Calabar.

Table 4: Pearson correlation co-efficient analysis in relation of Dirty school environment and health of students in College of Health Technology, Calabar.
(N = 370)

VARIABLES	$\bar{X}$	SD	r- calculated value
Dirty school environment	2.795	1.102	
			.378
Health status of students	3.073	1.059	

***significant at .05 level, df = 368, critical value = .195**

Result from table 4 above reveals that the Pearson product moment coefficient analysis of the relationship between Dirty school environment and Health status of students yielded calculated-r of .378 which was significant at .05 level; hence, Dirty school environment influences Health status of students in the College of Health Technology, Calabar.

Based on the findings of the study, it was shown in hypothesis one which states that poor solid waste disposal significantly influence the health of students in College of Health Technology, Calabar. This finding is supported by Nguyen (2011), who opined that cities are the engines of economic growth, but the environmental implications of such growth need to be assessed and managed better. The critical and most immediate problems facing developing countries and their cities are the health impact of urban pollution that are derived from inadequate water services, poor urban and industrial solid waste management, as well as air pollution, especially from particulates which constitutes part of solid waste.

Findings from hypothesis two indicated that dirty school environment significantly affect the health of students in College of Health Technology, Calabar. This finding is in line with the study of Chioma (2015) in the study conducted in Western Nigeria, asserted that improperly disposed solid refuse has both direct and indirect health effects. The direct health effects arise from excessive breeding of vermin and agents of disease such as rats, flies and mosquitoes. “Rats are known to transmit diseases such as leptospirosis, Lassa fever and some other hemorrhaging fevers, salmonellosis, and plague. Apart from infectious diseases, improper disposal of refuse will also result to food poisoning, leachate and contamination of ground water and this can result in poisoning of bore holes. The bottom line is that bad waste management practices can result in land and air pollution and can cause respiratory problems and other adverse health effects on the students as contaminants are absorbed from the lungs into other parts of the body which in most cases students tend to be victims of such adverse effects.

Okaba and Obong (2006) in their study conducted Cross River State, reported that schools should have an effective toilet cleaning and inspection regime to ensure adequate standards of hygiene, behaviours and cleanliness, throughout normal hours of usage. This will help to prevent a lot of health problems that could be encountered by the student in schools.

Banuri (2004) maintained that if toilets and urinary place are not given adequate attention in keeping with the health of

student it will affect their learning abilities and their overall performance negatively.
Nguyen (2011) further supported this by reporting that with the increase in the population of public schools and the rising demand for education and other essentials, there has been a rise in the amount of waste being generated daily by around the school environment. This waste is carelessly thrown around the school and due to poor and ineffective management of this waste, the school environment turns to be a source of environmental and health hazards to the students in the vicinity of such environments. One of the aspects of concern is the pollution caused to the environments and the earth whether on land, air and water. This makes the school environment to become the children's sources of contamination due to the incubation and proliferation of flies, mosquitoes, and rodents. They, in turn, are disease transmitters that affect the students' health, which has its organic defenses in a formative and creative state. The said situation produces gastrointestinal, dermatological, respiratory, genetic, and several other kinds of infectious diseases. Many cities in developing countries face serious environmental degradation and health risks due to the weakly developed solid waste management system. Aatamila, (2010); Nguyen, (2011), Giusti (2009) also asserted that several studies have been conducted in order to examine the health and environmental effects arising from inappropriate waste disposals in schools. Such studies showed that a link exists between the two.

CONCLUSION

Upon the findings and facts made in the course of this research, it is concluded that the poor solid waste disposal and dirty school environment, influence the health of students in College of Health Technology, Calabar. Conclusively, it suffices to say that there is utmost need for the Government, State Ministry of Health and the administration of College of Health Technology, Calabar and other tertiary institutions, to exuberantly make every effort to identify and proffer solution to the problems and shortcomings associated with environmental sanitation. Also, they should promote the proper disposal of solid waste, healthy and clean school environment and adequate and effective utilization of sanitary facilities, that will aid positive results in the health of the students and the actualization of the ultimate goal of clean and healthy environment for the benefits of both the young and the old of the society.

RECOMMENDATIONS

The study recommended that sufficient efforts should be put towards ensuring proper handling and disposal of solid waste regularly by the government and the school authority. Also, adequate awareness of environmental sanitation should be carried out by sanitation committee so as to create positive state of consciousness in the minds of the students about cleanliness and personal hygiene.

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