PALGO JOURNAL OF MEDICINE AND MEDICAL SCIENCE

ISSN 2476-8340
Volume 5 Issue 6, December 2018.Page 139 - 145
http://www.palgojournals.org/PJMMS/Index.htm
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ADEQUATE SANITARY FACILITIES AS A CORRELATE OF GOOD HEALTH OF STUDENT IN CROSS RIVER STATE COLLEGE OF HEALTH TECHNOLOGY

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Accepted 11 December 2018

The essence of the study is to examine the “Adequate Sanitary Facilities as a Correlate of Good Health of Student”. 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 analysed 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 revealed that inadequate sanitary disposal facilities have significant effect on the health of students in College of Health Technology, Calabar The study recommended that sufficient efforts should be put towards ensuring proper handling and provision of sanitation facilities 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: Adequate Sanitary, Facilities, Correlate Of Good Health , Student , Cross River State College Of Health Technology

BACKGROUND TO THE STUDY

Environmental sanitation is a basic and powerful driver of human development as it affects the quality of life of the students. It cuts across all sectors of the economy including those that concern health, environmental protection, improvement of human settlements and services, and general productivity of all sectors of the economy. Environmental sanitation is a very vital tool when it comes to the maintenance of better-quality and healthy living. However, the situation is very critical holding to the fact in College of Health Technology, Calabar where despite the fact that it is an health institution and majority of the students reside in the hostel; most do not even know about the environmental sanitation strategies and techniques. This is due to a long period of neglect of the sector, the lack of attitudinal change that did not allow for economic development and lack environmental education and awareness among the people. In the 1960s, there was a resurgent environmentalism. However, the resurgence was limited to the industrialized countries. In the United States, for instance, the concern over the environmental degradation reached a critical point in the 1970s.Most metropolitan growth is taking place in informal settlements where Municipal governments are unwilling or unable to provide basic quality services and amenities such as treated water, sewerage, drainage and collection of garbage. Effective garbage collection is expensive and is rarely achieved in practice in most developing countries such as Nigeria. Poor sanitation is endemic in towns and cities across Nigeria and exacts a heavy toll on public health especially in Calabar. Consequently, the Cross River State government has initiated public policies presumably aimed at protecting the environment and maintaining its integrity. It is a recognized fact that Municipal planners need to recognize that the worst sanitary conditions usually exist in areas inhabited by the poor mostly in the remote rural areas and the sanitation needs of these areas need to be addressed. The Construction of toilet facilities in College of Health Technology, Calabar does not meet with the crowded population of student; this constitutes a problem. As far as school sanitation is concerned UNICEF in its assessment on school sanitation and health education has noted that there are large number of colleges in both urban and rural Nigeria with no or little provision of toilets and urinals; for the small number of schools with such provisions; it is either dilapidated or not properly maintained. In the College of

Health Technology, Calabar, the sanitation is mostly challenged by inadequacy of sanitary resources to meet the teeming population of the students and lack of adequate cleaners to maintain the sanitary conditions of the classroom, toilet, waste pins amongst others. The current status of environmental sanitation in College of Health Technology, Calabar is so poor that it is detrimentally affecting the standard of living of students and well-being; these poor sanitation practices ranges from pollution of all sorts (air and land), also lack of effective refuse collection system has also led to the use of drains as refuse disposal repositories further compounding the problem with drains turned into open sewers with putrid smells. The sight and smell of inadequately managed wastes constitute a major discomfort. It is therefore important to look at sanitation holistically.

OBJECTIVES OF THE STUDY

1. Investigate the extent to which adequate sanitary disposal facilities affects health of students in College of Health Technology, Calabar.

Hypotheses

1. Adequate sanitary disposal facilities does not significantly affect health of students in College of Health Technology, Calabar.

REVIEW OF LITERATURE

Sanitary Disposal Facilities and Health of Student

Sanitation can be seen as the policy and practice of protecting health through hygienic measures. In the view of the World Health Organization (WHO) (2007), sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces. It has been realized that improving sanitation is known to have a significant impact on health both in households and across communities (WHO, 2007). Similarly, Iheke (2010), sees sanitation as the process of keeping places clean and hygienic especially by providing a sewage system and a clean water supply. Sanitation is a condition that affects the health of people in a geographical area. The word sanitation operationally refers to the maintenance of hygiene conditions, through services such as garbage collection and waste water disposal so as not to endanger the health and welfare of people and also for the social and environmental effects, it may have on people. Throughout the world, an estimated 2.5 billion people lack basic sanitation (more than 35% of the world's population) (World Health Organization & UNICEF, 2012). Basic sanitation is described as having access to facilities for the safe disposal of human waste (faeces and urine), as well as having the ability to maintain hygienic conditions, through services such as garbage collection, industrial/hazardous waste management, and wastewater treatment and disposal.(World Health Organization & UNICEF, 2012). According to WHO and UNICEF (2012), without immediate acceleration in progress, the world will not achieve the United Nations' Millennium Development Goal (MDG) sanitation target (i.e., to halve the proportion of people without sustainable access to basic sanitation by 2015). Basic Sanitation is very important in all places and environments especially schools. School sanitation refers to hygienic practices that occur in schools.

Coppens (2005) consider School Sanitation and Hygiene Education as combination of hardware and software components that are necessary to produce a healthy school environment to develop or support safe hygiene behaviour. He further stated that hardware components include supply of drinking water and facilities for hand washing and safe disposal of excreta and solid waste in and around the school compound. The software components are the activities that promote hygienic conditions at schools as well as practices of school staff and children that help to prevent water and sanitation related diseases and parasites. Poor sanitation in school environment will have certain negative influences on learning in an unhygienic environment can affect learning in a lot of ways. Snel (2004) indicate that "health influences learning and education influences health which is indicated in the fact that poor sanitation causes diarrhoea which keeps students in hospitals rather than in schools". They also noted that diarrhoea kills 1.5 million children each year. It is obvious that a sick person cannot learn properly. Poor sanitation could also lead to waterborne diseases (like typhoid, cholera,), infections with intestinal worms, stunted growth and malnutrition. (Sharma, 2015). More than five million people die each year from diseases related to inadequate waste disposal systems (WHO, 2007).There are so many indications of poor sanitation in most institutions. The promises of school health and hygiene education programmes have not always been fulfilled by either the government or stakeholders in education (Danida, 2007). Many school environments in most institutions are not safe for students due to neglect of the operation and maintenance of health facilities. Danida further states that schools often suffer from non-existent or insufficient water supply, sanitation and hand washing facilities, dirty and unsafe water supply, toilets or latrines that are not adapted to the needs of students particularly girls; nonexistence of hygiene education, unhealthy and dirty classrooms/school compounds among others.

Also, lack of sanitation, unsafe disposal or storage of waste in/around houses and streets, and in undesignated containers may provide habitats for vectors of diseases that cause various infectious diseases including typhoid fever and diarrhoeas (Ogawa, 2005). WHO (2007) estimates that 88% of diarrhoeal disease is caused by unsafe water supply and inadequate sanitation and hygiene. This has led to the need for measures to be evolved that will enhance proper sanitation in schools.

Smart investments in sanitation can reduce disease, increase family incomes, keep girls and boys in school, help preserve the environment, and enhance human dignity. Increasing evidence also shows that school sanitation and hygiene education programmes offer high cost benefit (Danida, 2007). In 2008, the world health organization's expert committee on environmental sanitation (as cited by Evans, Vandervoorden & Peal, 2009) said that proper environmental sanitation involves the control of community water supplies, excreta and waste water disposal, refuse disposal, vectors of diseases, housing conditions, food supplies and handling conditions, atmospheric conditions and the safety of the working environment. Meanwhile the world needs for the basic sanitation services like drinking water supply, excreta and waste water disposal, have greatly increased as a result of rapid population growth and higher expectations. (Thor, 2005).Thor further opined that a major way of solving environmental issues is the encouragement of research in environmental sanitation. However, providing sanitation to students requires a system approach rather than only focusing on the toilet or water waste treatment plan. (Tilley, Ulrich, Lüthi, Reymond, & Zurbrügg, 2014). Sanitation system generally involves faeces collection, transport and treatment (Sustainable Sanitation Alliance, 2008).The main objectives of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease. In choosing the particular system to use, a lot of factors have to be considered. The factors to be considered include; experience of the user, excreta and wastewater collection methods, transportation or conveyance of waste, treatment and reuse or disposal of wastes. Not minding the type of system chosen, sanitation is of various types. Sanitation types are many. The various types of sanitation include, community led total sanitation, dry sanitation, ecological sanitation, and environmental sanitation. (AKUT Sustainable Sanitation, 2014 as cited in Sanni, 2015) The author went further to give a brief description of each of the types. Community-Led Total Sanitation (CLTS) is an approach to achieve behaviour change in mainly rural people by a process of triggering behaviour change, leading to spontaneous and long-term abandonment of open defecation practices. CLTS takes an approach to rural sanitation by ensuring communities recognize the problem of open defecation and take collective action to clean up and become "open defecation free. The second type called dry sanitation usually means sanitation systems with dry toilets which have urine diversion, in particular the urine-diverting dry toilet. The third type called the Ecological sanitation commonly abbreviated to ecosan, is an approach, rather than a technology or a device which is characterized by a desire to "close the loop" (mainly for the nutrients and organic matter) between sanitation and agriculture in a safe manner. Put in other words, Ecosan systems safely recycle excreta resources (plant nutrients and organic matter) to crop production in such a way that the use of non-renewable resources is minimised. When properly designed and operated, ecosan systems provide a hygienically safe, economical, and closed-loop system which converts human excreta into nutrients to be returned to the soil, and water to be returned to the land. Finally, Environmental sanitation encompasses the control of environmental factors that are connected to disease transmission. Subsets of this category are solid waste management, water and wastewater treatment, industrial waste treatment and noise and pollution control.

It is evident that much research has focused on environmental sanitation and health of the general population, particularly those living in urbanized areas, those of the students in rural areas have not received much attention. Adequate sanitation facilities such as hand washing facilities are rare in most tertiary institutions. These tertiary institutions have not considered the importance of these sanitary facilities from a preventive health perspective yet. Without adequate sanitary facilities, all investment in sustainable environmental sanitation and good health of students is a complete waste of time an instance such as faeces contamination from hand to mouth, food, friends etc. is virtually guaranteed. (Giusti, 2009).

Inadequate sanitary disposal facilities in colleges including careless disposal of waste, poor sanitation habit, lack of ventilation and inadequate management of school waste cause infection through contaminated water, food, hand. (WHO, 2008) . Associated adverse health outcomes include a multitude of infections: Gastrointestinal, respiratory, burn wound, and sharps-related. Adequate hand hygiene (such as hand washing with soap) is critical for preventing infection, however several hundreds of students are affected annually by infections arising from inadequate sanitary disposal facilities and poor hand washing practice (WHO, 2009). Erasmus et al, (2010) and Allegranzi, et al, (2011), report that school environment are frequent spots of getting infection by students and that compliance with hand washing standards among students and the provision of such facilities by the school management is often low. Because of these inadequacies/ shortcoming, students are at risk of contracting communicable diseases and those illness arising from inadequate availability of sanitary facilities (Bartram et al, 2015).

Inadequate sanitary disposal facilities and poor environmental conditions including lack of awareness of proper utilization facilities are of particular significance to the health tertiary institution students'. They contribute adversely to the health of the student by increasing the risk of infection during school session (Benova, Cumming & Campbell, 2014; Cheng et al, 2012).

WHO, (2008) asserts that lack of safe drinking water, hand washing facilities and poor sanitation remains one of the

causes of mortality especially among children of school age and women who suffer most due to poor living conditions. Lesley (2003) observes that sanitation conditions in urban areas where tertiary institutions are located in developing countries, have dominant infectious diseases like cholera and dysentery and this is attributed to “lack of clean water and inadequate facilities for excrement disposal”.

In Africa, especially Nigeria, lack of clean water and basic sanitation is the main reason for disease transmitted by faeces to escalate (WHO, 2008). Faecal matter deposited near homes/schools and open ground normally contaminated drinking water/ food. This account for the ten-percent of diseases in developing countries. UNICEF (2015), reported that adequate facilities combined with unhygienic practice and the general lack clean water supply as well as safe disposal of domestic waste water and solid waste present sanitation problems.

According to Benneth et al, (2015), within a month after installation of low-cost, portable hand-washing station and simple drinking water stations with drinking water treatment, coupled with the creation of awareness for the students, there was successful adoption and sustained used of the stations, despite the inconsistency of running water in the facilities. The intervention also influenced the general population, for instance there were higher rate of safe-water storage at home of these students and those living nearby and demonstration of correct hand-washing technique.

It is an established fact that even in many urban settings in Nigeria students in tertiary institutions; they do not have access to adequate sewerage facilities. Also added to is that piped water and sewerage services are available to only a few towns in rural areas covered by government and that even in these towns; it’s only a small proportion of the population that has access to this service. Erasmus et al, (2010), states that in many cities, disposal of wastes is a major problem. Garbage and rubbish tends to be dumped, burnt and covered into landfills at a minimum distance commensurate and converted into landfills at a minimum distance commensurate with public opinion. As long as the process removes refuse and as long as the disposal site is not a health hazard and does not affect aesthetic values too greatly; the operation is considered successful. However, the side effects on health, atmosphere, soil, water bodies and appearance of the landscape may be consider especially in terms of pests, smoke, odors, litter paper polythene bags and water pollution. Hanad & Harrison (2006), writes that according to studies, the external assistance variables influence participation of students in waste management, for example, community members become motivated to participate in sanitation programmes if they are being aided with external resources in form of labor, funds and materials.

Sanitation is the foundation of development but it has been found a half of the people in the world do not have access to adequate sanitary facilities. The percentage of those with acess to hygiene sanitation facilities has declined slightly over the last two decades, as construction has fallen behind population growth (UNICEF, 2015). Each method of waste disposal has its drawbacks. Reusing glass bottle can require more energy than their initial manufacture, as they have to be sterilized. Incineration is a source of greenhouse gases and toxic chemical like dioxins and produce large qualities of methane gas. They must be managed so that pollutants do not sleep into ground therefore be kept dry, but this slows down the rate of decomposition. Good sanitation and improved hygiene means of disposing their waste. This is a growing nuisance for heavily populated areas, carrying the risk of infectious diseases, particularly from diseases that lower their resistance. Poorly controlled waste also means daily exposure to unpleasant school environment by the students. The build-up of faecal contamination in waters is not just a human risk; other species are also infected threatening the ecological in balance of the environment. The disadvantages of untreated waste water and excrete into the environment affects human health several routes; By polluting drinking water, entry into food chains for example via fruits, vegetables and fish, bathing, recreation and other contact with contaminated water, by providing breeding sites for flies and insects that spread diseases, poor nutrition from loss of important fish protein source due to environmental pollution. It has been noted by Medina, (2002), that the combination of adequate facilities, correct behavioural practices and education is meant to have a positive impact on the health and hygiene conditions of the students and the community as a whole. The success of a school hygiene programme is therefore not determined only by the number of latrines constructed and the number of hand pumps installed or water connections built but however by the utilization of these facilities effectively. WHO & ECEH (2000), asserted that the increasing level of poor sanitation in Europe is as a result of many combinations of factors. These factors include lack of environmental awareness, high population, land shortage, poor waste management and negligence. He further observes that affordability and self-esteem or responsibility heavily influences the waste management system adopted.

Simple “low technology” sanitary facilities could be a solution which may help to reduce infection rates, but higher levels of awareness and teaching of best environmental sanitation practices are necessary for utilization of these facilities by the students and the teachers. Government and external support agencies are advised to focus on upgrading and making available adequate sanitary facilities to ensure that tertiary institutions have sufficient, continuous, safe piped water, sustainable and proper sanitation habits and stable health. (WHO and UNICEF, 2015).

METHODOLOGY

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 adequate sanitary facilities as an correlate of good health of student.

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.

Table2: 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” consistof 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. That is, the research gave same group of the respondents the questionnaire to complete after two weeks interval, the same questionnaire was administered and collated. This method gave the instruments reliability of .67 to .78 .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.

Data Collection Procedure

The procedure used to collect data for the study was a questionnaire. The 370 copies of the questionnaire that were distributed to respondents were collected back. The data were extracted from the questionnaire and presented in tables and analysed.

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.

Hypothesis three:

H_{o3}: Inadequate sanitary disposal facilities does not significantly affect the health of students in College of Health Technology, Calabar.

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

VARIABLES	$\bar{X}$	SD	r- calculated value
Inadequate sanitary disposal facilities	2.949	1. .999	
			. 636
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 Inadequate sanitary disposal facilities and Health status of students yielded calculated-r of .636 which was significant at .05 level; hence, Inadequate sanitary disposal facilities influences significantly the Health status of students in College of Health Technology, Calabar.

Findings from hypothesis three indicated that inadequate sanitary disposal facilities significantly affect health of students in College of Health Technology, Calabar. These findings are supported WHO, (2008), which reported that inadequate sanitary disposal facilities in secondary school including careless disposal of waste, poor sanitation habits, lack of ventilation, and inadequate management of school waste cause infections through contaminated water, food,

hands. Giusti, (2009) further supported this by asserting that adequate sanitation facilities such as hand washing facilities in rural schools has not been considered important.Yet from a preventive health perspective these sanitary facilities absolutely crucial. Without adequate sanitary facilities, all investment in sustainable environmental sanitation and good health of students is a complete waste of time and resources as faecal contamination from hand to mouth, food, friends etc. is virtually guaranteed.

CONCLUSION/RECOMMENDATION

Upon on the findings and facts made in the course of this research, it is concluded that the inadequate sanitary disposal facilities and awareness of environmental sanitation, 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 healthy environment for the benefits of both the young and the old of the society.

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