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Habitat Divide in the Practice of Cleanliness as Disease Prevention Measure

Dr Hamilton-Ekeke Joy-Telu[1], Dr Odibo Anthony Ajakpovi[2], Blessing C. Cleopas[1], Mercy Telu[3]

[1]Department of Science Education, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.
[2]School of Science, College of Education, Warri, Delta State, Nigeria.
[3]Centre for Entrepreneurship and Skills Development, Federal Polytechnic Ekowe, Bayelsa State.

ABSTRACT

Disease prevention is operationally defined in this research as the measures taken to avoid contact with disease pathogens. The indicators of disease prevention measures investigated in this study include: the knowledge and practice of regular hand washing, brushing of teeth, care of the nails and general body cleaning. Maintaining regular hand washing, brushing of teeth, care of the nails and general body cleanliness formed the dependent variables investigated while the habitats of urban and rural settings are the independent variables of the study. The study investigated if the habitat divide of urban and rural settings will have influence on students' knowledge and practice of cleanliness as disease prevention measure. The sample of the study was 140 Senior Secondary School Two (SS2) students from an urban school and another 140 SS2 students from a rural school making a sample total of 280 SS2 students. Questionnaire containing items indicating understanding of the link between cleanliness and disease prevention using the aforementioned indices was the data collection instrument. The instrument was developed by the researchers and pilot tested; PPMCC of 0.83 indicated that the instrument was reliable. One research question and one hypothesis were posited for the study. Mean and standard deviation was used to answer the research question while t-test was used to test the hypothesis at $p < 0.05$ level of significance. The study revealed that urban participants in comparison to rural participants demonstrated a better understanding of the link of cleanliness to disease prevention and were also better in the practice of cleanliness. It was therefore recommended that rural schools should intensify the teaching of personal hygiene as well as provision of facilities that will encourage personal hygiene.

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Introduction

Communicable diseases are diseases that spread from one person to another or from an animal to a person (called zonosis). The spread often happens via airborne viruses or bacteria, but also through blood or other bodily fluid. The terms infectious and contagious are also used to describe communicable disease. There are three categories or levels of disease prevention which are primary, secondary and tertiary prevention. These three categories classification stems from an era when biomedical research was almost exclusively the province of the laboratory scientist; and concepts of health and disease were principally mechanistic. In recent years, the growth and success of epidemiologic research on chronic disease prevention have introduced a large body of non-mechanic scientific knowledge germane to disease prevention.

Gordon (1983) stated in his classic write up on disease prevention that people are conversant with statistical association between risk factors and clinical events and have accepted a battery of criteria for judging whether or not the association represents causation (Gordon, 1983). The primary, secondary and tertiary classification is attractive and simple but it does not serve to distinguish between preventive interventions which have different epidemiologic justifications and requires different strategies for optimal utilization. For instance, the place of cleanliness in disease prevention is not well emphasized as there is no clear cut laboratory investigation of it. Irrespective of the fact that personal and environmental cleanliness falls within the primary prevention category hence the importance of this study.

Prevention is better than cure not only because it is easier to prevent diseases but also because preventive measures are significantly cheaper than curative care. There are three levels of prevention of diseases [1]. Hamilton-Ekeke (2017) succinctly described the three levels of disease prevention as follows:

Primary Level of Prevention of Disease

Primary level of prevention of disease is the prevention that is done before the disease starts or set in (i.e. before a person gets ill). Primary prevention can be done by a combination

Contact Gilberto Mercado-Mercado, PhD Departamento de Ciencias Químico Biológicas, Instituto de Ciencias Biomédicas, Universidad Autónoma de Ciudad Juárez, Anillo envolvente PRONAF y Estocolmo, Ciudad Juárez, Chihuahua Zip Code 32310, México.

of methods mainly aimed at people and the environment in which they live. These methods are:

a) Primary preventive methods aimed at people (personal health care): in order to build the body's resistance to infection, there are certain measures which are aimed at strengthening the body's immune system and adaptive mechanism. These can be categorized into two:

i. Specific measures which include immunization and chemoprophylaxis; and

ii. Non-specific measures which include good nutrition, personal hygiene, ante and post-natal care, exercise, good habit formation, choice of good clothing and foot wear, having enough rest and recreation, maintaining good posture and prevention of accidents (Anne, 2011).

b) Primary preventive measures through environmental control: apart from personal hygiene, efforts should also be made to maintain environmental sanitation. A dirty environment harbours the agents of disease. Therefore efforts should be made to prevent the occurrence of infectious diseases through: safe water supply, good food hygiene, safe excreta and refuse disposal, disinfection and sterilization, vector control and good living and working conditions (Hamilton-Ekeke, 2016).

Secondary Level of Prevention of Disease

The next best time to preventing disease is after it has started but before symptoms have appeared i.e. before the patient has diagnosed him or herself sick. This stage is called pre-clinical, sub-clinical or pre-symptomatic period. Prevention at this time is called secondary prevention. The process by which one can diagnose a disease at sub-clinical stage is known as 'screening'. Examples include examining urine and faeces of school children for parasites; examining pregnant women for early signs of complications in their pregnancy; and weighing young children to see if their weight falls into the nutrition danger area. Once a case have been detected, effective treatment should be given or referral [2].

Another form of screening is 'tracing of contacts' of a person with an infectious disease, such as AIDS, Ebola and tuberculosis, to see if anyone else in the family or neighbourhood also has the disease. Thirdly, when a regular record is kept of the number of new cases of disease, like cholera and tuberculosis, it is possible to detect an epidemic early. This is another form of secondary prevention called 'surveillance' [3].

Tertiary Level of Prevention of Disease

When a disease has been diagnosed, it is important to apply the most effective treatment. Most of the curative work of outpatients and in-patients departments is concerned with tertiary prevention; the aim of early diagnosis and treatments is to reduce the suffering, to cure the disease completely, and to prevent complications, especially disability. Rehabilitation is a type of tertiary preventive measure which is aimed at restoring a disabled person to fullest capacity.

A summarized explanation of the three classifications of disease prevention is as follows: primary prevention is practiced prior to the biologic origin of disease; secondary prevention is practiced after the disease can be recognized, but before it has caused suffering or disability; and tertiary prevention is practiced after suffering or disability have been experienced, in order to prevent further deterioration [4].

Good hygiene care as well as practices in terms of personal hygiene contributes to a large extent on factors relating to healthful living and prevention of hazards from disease (Bostos, 2010). These health risks factors are directly linked to some important daily activities, implicated with worthy operational actions and obligatory responsibilities such as washing hands before meals and after defecation with soap, brushing teeth at least twice a day specially after waking in the morning and before going to bed at night, taking bath with soap and regularly keeping nails short and taking regular exercise [5]. Hence, this study investigated if these disease preventive practices are been observed and if there are disparities in the observation between urban and rural settings.

Method

The research was a case study design as only one school each of the habitat divide was studied in-depth to ascertain their practice of personal cleanliness and their understanding of it to disease prevention. Stratified random sampling technique was used to select the urban and rural secondary schools as well as simple randomisation to select one school each of the habitat divide. The stratified random technique was used because of the division of the population into urban and rural schools and to ensure that each sub-group of the population is adequately represented within the whole sample population of the research study. Whilst simple randomization was used to ensure that all schools have equal chances of being involved in the study. This was done by writing all the names of public schools in Yenagoa metropolis on pieces of paper and shuttling in a bag. Without looking into the bag, a paper was picked out of it and the school on the paper was approached to be involved in the study. The procedure was repeated for the schools in Ogbia LGA to select a rural school. The urban secondary school was in Yenagoa metropolis which is the State capital and the rural school was from a village in Ogbia Local Government Area of Bayelsa state which is an out skirt of the metropolis.

The sample for the study was all SS2 students in the two participating schools - one hundred and forty students each of the habitat divide i.e. rural and urban school which were the SS2 students in each of the schools making a total of two hundred and eighty (280) Senior Secondary School Two (SS2) students meaning the population was equal to the sample.

The instrument for data collection was a self-designed and validated questionnaire titled, Cleanliness for Disease Prevention (CDP) questionnaire. The questionnaire contained two sections, section A consist of demographic data of the respondents like, class and school while section B consist of questions on the four variables investigated in the study (the variables include: regular hand washing, brushing of teeth, care of the nails and general body cleaning). The instrument was pilot tested with a small sample of senior secondary two (SS2) students not involved in the original sample of 280 SS2 students. This was done by administering the instrument twice within an interval of two weeks (test re-test method of reliability testing). Both data were correlated using the Pearson Product Moment Correlation Coefficient (PPMCC). A

reliability co-efficient of 0.83 was obtained which is within the benchmark of reliable coefficients.

The instrument was administered personally by the researchers to the participants and retrieved after answering the questions on the spot which yield a hundred percent retrieval of the questionnaires administered. The research question answered by this study was: is there a difference in the practice of cleanliness as disease prevention measure among urban and rural participants? Also the null hypothesis tested in the study was: there is no significant difference in the practice of cleanliness among urban and rural participants. Mean and standard deviation was used to answer the research question posited for the study while t-test statistics was used to test the hypothesis at $p < 0.05$ significant level.

Results

The research question and hypothesis posited in the study are analysed in the Tables below:

Research question: is there a difference in the practice of cleanliness as disease prevention measure among urban and rural participants?

Table 1: Mean and Standard Deviation of the Knowledge and Practice of Cleanliness.

Habitat	Variables	N	X	SD
Urban	Knowledge of cleanliness	140	9.99	1.30
	Practice of cleanliness	140	8.52	1.20
Rural	Knowledge of cleanliness	140	9.37	1.28
	Practice of cleanliness	140	8.01	1.12

Mean and standard deviation of the knowledge and practice of cleanliness along habitat divide shows that the urban dwellers have more knowledge of cleanliness more than the rural dwellers and put to practice their knowledge in general personal hygiene than the rural dwellers.

Table 2: Participants' Understanding of the link of Cleanliness to disease Prevention.

Variable	N	X	SD
Urban participants' understanding of the link of cleanliness to disease prevention	140	15.28	3.01
Rural participants' understanding of the link of cleanliness to disease prevention	140	15.04	2.89

Table 2 shows the mean scores of urban and rural students on knowledge and practice of personal hygiene; mean score for knowledge and practice or personal hygiene among students in urban was 15.28 which is slightly above the mean score of knowledge and practice of cleanliness of rural students which was 15.04. The difference in mean shows that students in urban schools have a better understanding of the link of cleanliness to disease prevent than students in rural schools.

This difference was tested to see if it is statistically significance at $p > 0.05$ level of significance.

Hypothesis Testing

The null hypothesis stated in the study was: there is no significant difference in the practice of cleanliness among urban and rural participants. T-test statistics was used to test this hypothesis.

Table 3: Independent T-Test Analysis of Knowledge and Practice of Cleanliness amongst Urban and Rural Students.

Variable	N	X	SD	Df	P	Remark
Knowledge and Practice of Cleanliness amongst Urban Students	140	15.28	3.09	278	0.512	Not Significant
Knowledge and Practice of Cleanliness amongst Urban Students	140	15.04	2.89			

Table 3 indicated that the independent t-test analysis of knowledge and practice of cleanliness among students from urban and rural school was 0.512 meaning that the t-calculated is greater than t-critical (0.512>0.05). This means that the null hypothesis of no significant relationship between knowledge and practice of cleanliness of students from urban and rural school should be upheld and the alternate hypothesis of there is a significant relationship between knowledge and practice of cleanliness of urban and rural students should be rejected.

Discussion of Findings

The practice of personal hygiene is important to promote healthy living in the school environment it is observed that most students lack the knowledge and practice of personal hygiene. Undoubtedly this can result to epidemic and transmission of diseases among student which will affect effective teaching and learning. Several studies [3,6-8], on how effective practice of personal hygiene can reduce poor personal hygiene induced diseases abound. Report from Rabie and Curtis (2006) shows that improved awareness of personal hygiene especially hand washing among students have effectively reduced gastro intestinal and respiratory tract infections by 50%, the two leading causes of children morbidity and mortality around the world.

Additional studies have also shown that school with better knowledge of personal hygiene have fewer sick days and absenteeism in school and achieve higher grades, Vivas, Gelaye Aboset, Kumie, Bernane and Williams (2010).

Studies carried out by Oluwafemi (2017) on the knowledge and practice of personal hygiene among senior secondary school student of Ambassadors College Ile-Ife, Nigeria, using 25-item designed, self-administered anonymous questionnaire including open and closed ended questions was used. A total of 276 senior secondary school students were used for the investigation, it was revealed that among 50.7% of males and 49.3% females, majority of the student have good level of personal hygiene and a good number of them have high level of hygiene practices.

Similarly Abiola, Nwogu, Ibrahim and Hassan (2012) studied the effect of health education on knowledge attitude and practice of personal hygiene among secondary school student in rural Sokoto State, North West, Nigeria using a quasi- experimental controlled study with pretest and post-test designed. A total 120 subject per group were selected by multi-stage sampling technique. Two pretested instrument structured interviewer administered questionnaire and observers checklist for personal hygiene practice were used for data collection. Health education interview was carried out one week after baseline data collection and repeated after four weeks. For the

intervention was carried out in both intervention and control group three months after the second intervention, However, for ethnical consideration the control group was also provided with the health education intervention similar to the one provided to the intervention group. Result indicated that health education intervention impact on knowledge base attitude and practice of study subject in intervention group compared to the control group. Personal hygiene health education was recommended to be taught in secondary schools. This study relates to the present work, under investigation, it deals with the knowledge and practice of personal hygiene among secondary school students.

Furthermore, Ghose, Rahman, Hassan, Khan and Alam, (2012) in their study of the knowledge and practicing behaviour related to personal hygiene among the secondary school student of Mymensingh Sadar Upazilla Bangladesh, using a descriptive type of cross- sectional study was conducted on 132 students of class ix and x, the study was perform to assess and compare the level of knowledge and practicing behaviour of urban and rural student in regards. Their study yielded a similar finding of urban students have a better understanding and practice of hygiene than the rural students; which collaborates with the findings of this study.

Finally, the findings from this study collaborated with Talakeri, Angolkar, Sah and Hirachand (2015) findings. In their study, Talakeri, Angolkar, Sah and Hirachand (2015) compared the knowledge and practice of personal hygiene among urban and rural school children in Belagavi India. A cross sectional study was conducted in Belagavi district, among 200 children of urban and 200 children of rural area. Pre-tested and self-administered questionnaire was used to collect information. Percentage and chi-square test were calculated to see the association. Ethical clearance; informed consent was obtained from concerned authority and persons.

The study revealed that more of urban school children (91.5%) compared to rural school (51.5%) were having good knowledge about personal hygiene and (48.5%) of rural school children were having poor knowledge about the same with $p<0.001$. A statistical significant difference was detected among the practices of urban and rural school children with $p<0.001$. Therefore they concluded that urban school children were having more knowledge regarding personal hygiene compared to rural school children, periodic personal hygiene education is needed to improve hygienic practices.

Conclusion

Health education provides health skills for life. Usually emphases are placed on skills necessary for promoting appropriate behaviours and practices which are instantly used for survival like prevention of diseases, and reducing factors that cause disease. The main aim of personal hygiene is to promote standards of personal cleanliness within the settings of the condition where people live. Good hygiene is an aid to health, beauty, comfort and social interactions. Good personal hygiene directly aids in disease prevention and health promotion as revealed in this study. There is definitely habitat disparity in the knowledge and practice of cleanliness of secondary school student as revealed in this study. As contained in literatures on urban and rural disparities, rural risk factors for health disparities include geographic isolation, lower socioeconomic status, higher rates of health risk behaviours, limited access to healthcare specialists and subspecialists, and limited job opportunities. This inequality is intensified as rural residents are less likely to have social amenities that can aid hygiene, and if they are poor, cannot afford items for personal cleanliness.

Recommendations

Based on the findings of this study, the following recommendations are made:

School based personal hygiene education is vital in order to decrease the rate of transmissible diseases, students are receptive to learning and are very likely to adopt healthy behaviour at younger age, hence the teaching of personal hygiene is strongly recommended as well as provision of water and sanitary facilities both at home and school.

Periodic/routine check/observation of students' personal hygiene is needed to improve their hygiene practices.

State Ministry of Education through the Ministry of Health should formulate principles, guidelines and laws that the students would adhere to on matters of personal hygiene in schools. This is imperative to ensure that appropriate personal hygiene practices are adhered to, by students to reduce cases of absenteeism in school, deaths and disease morbidity due to poor personal hygiene practices.

Parent can on their own reduce the tendency of allowing their wards to engage in poor personal hygiene practices by encouraging them to be clean at all times.

Government should provide enabling environment for rural areas to develop and have a thriving economy to cater for their basics to improve personal hygiene.

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