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An Assessment of Child-Killer Disease in Relation to Environment: Case Study of Jekadafari Gombe-Nigeria

Adamu, S.J[1], Ibrahim, A.Q[2] and Mahmoud, A.B[3]
[1]*Department of Geography, Gombe State University, Tudunwada, Gombe.*
[2]*Department of Chemistry, Nigerian Police Academy, Wudil, Kano.*
[3]*Department of Biological Sciences, Gombe State University, Tudunwada, Gombe.*
E-mail: sanidaddy@gmail.com

ABSTRACT

This study assessed the level of child-killer diseases in relation to environment in Jekadafari area of Gombe metropolis. Ninety five questionnaires were administered, and seventy five were filled and returned. The cluster random sampling methodology was used, and percentage scores were used to analyze the data collected. The existing data were analyzed using correlation method. The research has confirmed that relationship exists between the diseases under study and the poor sanitary condition of the area at 0.05 significant levels. Meaning that in every 1000 cases of illness, there is every tendency of having 95% of the patients to be either of the three diseases under study, and the remaining 5% to be of any other diseases beside the ones under study. This result is attributed to the 2004 flood disaster in Gombe which led to the blockages of drainages in the area. While the remaining years under study relationship exists but not at significant level, meaning that out of 1000 cases of illness, there is every possibility of having any other disease beside the ones under study. It was recommended that government should employ the services of health inspectors/educators for educating and sensitizing the inhabitants of the area on child-killer diseases in relation to environment and their effects. Government, community and civil society organizations should provide potable drinking water, adequate local incinerators for refuse collection. Also the government should encourage the idea of "house to house" weekly inspection to ensure that personal hygienic conditions are being observed.

Keywords: Child, Cholera, Dysentery, Environment, Killer Diseases, Malaria.

INTRODUCTION

As basic facts, diseases can be classified into different types according to their nature of transmission, causes, and agents etc. Some are communicable, while others are non-communicable. Some are caused by micro-organism, while some are caused by large organism. Still others are caused by nutritional

deficiencies, where as others are mental and metabolic disorders and others are inherited and degenerative disease and so on (Telihi, 1978).

Diseases which are caused by micro-organism such as bacteria are tuberculosis (TB) diphtheria, tetanus, pertusis or whooping cough, cholera, typhoid, boils, meningitis, leprosy, gonorrhea, syphilis and so on. And those which are caused by viruses: poliomyelitis, measles, common cold, rabies etc. While malaria, amoebic dysentery, trypanosomiasis, entomoeba histolytica are caused by protozoa. Others like athletes foot, ring worm, are caused by fungi. But ascariasis and onchocerciasis (river blindness) are caused by large organism like round worms.

All of the above mentioned communicable diseases are man's health problems throughout the world. Every country and the World Health Organization are trying their best to eradicate such diseases.

REVIEW OF LITERATURE

Semple (1979) said that, child-killer disease might be defined as the reaction of a susceptible host to an infectious agent and that it was axiomatic that the prevalence of child-killer diseases was directly related to environmental standard. He went on to point out that much of the prevention of child-killer diseases depended on the level of health education of the community. He added that health education is important in many aspects of prevention and it was also the main motivating force in many preventive operations, such as encouraging parents to bring their children for immunization. Njoku (1976) considered a child-killer disease as a disease that could be conveyed from one child to another. He further examined that child-killer diseases were caused by certain micro-organisms which include bacteria and viruses. He observed that such organism could not manufacture there own foods and as such depend on other organisms termed host and that they were known as parasites as they lived on other living organisms.

Nwegbu (1977) considered the causes of child-killer diseases to be the responsibility of micro-organisms and the micro-organisms are tiny living organisms commonly called germs. He further observed that there were different micro-organisms responsible for different child-killer disease and narrated examples as follows:

i. **The Bacteria:** Which are of intermediate size and of many different types were responsible for diseases such as; tuberculosis, diphtheria, pertusis and tetanus.

ii. **The Viruses:** Which are the smallest of the micro-organisms and are responsible for measles and polioanyelitis.

He still went on to point out that the discovery of the causes of child-killer diseases was after centuries of suffering and dying as mankind come to recognize the causes of child-killer disease and to learn measures to combat them. He further stated that in spite of the knowledge that was available children were suffering and dying unnecessarily from various diseases such as measles and tuberculosis. He brought out that one of the obstacles to the conquest of child-killer diseases had been the persistence of ignorance and superstition of the parents about their causes.

University of Ibadan (1981) defined child-killer diseases as diseases that spread from one child to another by direct or indirect contact. They went on to say that these diseases might also lead to serious health problems if they were not detected and treated as soon as possible. They went further to point out that child-killer diseases are caused by several factors and specifically their causes were related to such micro-organism as bacteria and viruses.

CHILD-KILLER DISEASES

For the purpose of this study, three child-killers were carefully examined and they are as follows:

a. Dysentery: is a general term for a group of gastrointestinal disorders characterized by inflammation of the intestines, particularly the colon. Characteristic feature include abdominal pain and cramps, straining of stool (tenesmus), and frequent passage of watery diarrhea or stool, containing blood and mucus. The English word dysentery comes from two Greek words meaning "ill" or "bad" and "intestine". It should be noted that some doctors used the term "dysentery" to refer only to the first two major types of dysentery discussed below, while others use the term in a broader sense. For example, some doctors speak of schistosomiasis, a disease caused by a parasitic worm, as bilharzial dysentery, while others refer to acute diarrhea caused by viruses as viral dysentery.

Dysentery is a common but potential serious disorder of the digestive tract that occurs throughout the world. It can be caused by a number of infectious agents ranging from viruses and

bacteria to protozoa and parasitic worms; it may also result from chemical irritation of the intestines. (http://medical-ictionary.thefreedictionary.com/Amoebictdysentry).

b. **Cholera:** Sometimes known as Asiatic cholera or epidemic cholera, is an infectious gastroenteritis caused by the bacterium *Vibrio cholerae*. Transmission to human occurs through ingesting contaminated water or food. The major reservoir for cholera was long assumed to humans themselves, but considerable evidence exist that aquatic environments can serve as reservoir of the bacteria.

Vibrio cholerae is a gram-negative bacterium that produces cholera toxin, an enterotoxin, whose action on the mucosal epithelium lining of the small intestine is responsible for the characteristics massive diarrhea of the disease. In its most severe forms, cholera is one of the most rapidly fatal illnesses known, and a healthy person may become hypertensive within an hour of the onset of symptoms. Infected patients may die within three hours if treatment is not provided. In a common scenario, the disease progresses from the first liquid stool to shock in 4 to 12 hours, with death following in 18 hours to several days without oral dehydration therapy. The diarrhea associated with cholera is acute and so severe that, unless oral dehydration therapy is started promptly, the diarrhea may within hours result in severe dehydration (a medical emergency) or even death.

Author Susan Sontag wrote that cholera was more feared than some other deadly disease because it dehumanized the victim. Diarrhea and dehydration were so severe that the victim could literally shrink into a wizened caricature of his or her former self before death.

Other symptoms include rapid dehydration, rapid pulse, dry skin, tiredness, abdominal cramps, nausea, and vomiting. Traditionally, cholera was widespread throughout third world countries, however, more recently outbreaks have occurred in more rural parts of England and the United State mid-west region.

Water and electrolyte replacement are essential treatment for cholera, as dehydration and electrolyte depletion occur rapidly. Prompt use of oral rehydration is highly effective, safe, uncomplicated,

and inexpensive use of intravenous rehydration may be absolutely necessary in severe cases under some conditions. (http://www.wikipedia.org/wiki.cholera).

c. **Malaria** is an infectious disease due to the presence of parasitic protozoa of the genus plasmodium *(P. falciparum, P. malariae, P. ovale, or P. vivax)* within the red blood cells. The disease is transmitted by the Anopheles mosquito and is confined mainly to tropical and subtropical areas.

Parasites in the blood of an infected person are taken into the stomach of the mosquito as it feeds. Here they multiply and then invade the salivary glands. When the mosquito bites an individual, parasites are injected into the bloodstream and migrate to the liver and other organs, where they multiply. After an incubation period varying between 12 days *(P. falciparum)* to 10 months (some varieties of *P. vivax*), parasites return to the bloodstream and invade the red blood cells. Rapid multiplication of the parasites results in destruction of the red blood cells and the release of more parasites capable of infecting other red cells. This causes a short bout of shivering, fever, and sweating, and the loss of healthy red blood cells results in aneamia. When the next batch of parasites is released symptoms reappear.

The interval between fever attacks varies in different types of malaria. In quartan malaria (or fever), caused by *P. malariae*, it is three days; intertion malaria (*P. ovale or P. vivax*) two days; and in malignant tertian (or qualitidian) malaria (*P. falciparum*), the most severe kind-from a few hours to two days. Preventive and curative treatment includes such drugs as chloroquine, proquanil, mafloquine, and pyrimethamine. A vaccine is being tested (http://www.globalhealth.org/view-top.php3?id=228).

Malaria is a leading killer of children under five and major contributor to adult morbidity in Sub-Saharan Africa. More than 300 million cases and more than one million deaths occur each year. An estimated 10,000 women and 200,000 infant annually die due to malaria infection, and severe malaria anemia accounts for more of these deaths (http://www.alertnet.org/topkillerdiseaseshtm).

METHODOLOGY

Area of Study

Jekadadari ward of Gombe Local Government Area of Gombe state was chosen as the research area. Gombe state lies within co-ordinate 10° 15'N, 11° 10'E with total land area of 18,768km and estimated population of 2,353,000 as of 2006. Gombe state has Gombe town as it metropolitan and lies within the co-ordinate of 10° 17'N, 11° 10'E, it has an estimated population of 261,536 peoples. Its topography is mainly mountainous, undulating and hilly to the south-east and flat plains in the central north-west. its ethnic composition is multi-ethnic mainly the Fulani, Hausa, Tangale, Tera, Waja and others are Yoruba, Igbo, Efik etc (Surveyor-General's Office, Gombe).

The sample consists of seventy five respondents which include civil servants, business men, military and Para-military. The questionnaires were distributed randomly across the sector of the population, also to even those who could not read and write so as to collect data on the subject matter. Each question had its own table of result. The tables were drawn to aid better understanding of the responses.

The existing data that were collected from the Monitoring and Evaluation Unit (M.E.U) of Gombe local government were also analyzed using correlation, and the correlation has also been interpreted.

DATA PRESENTATION AND ANALYSIS

Table 1 Shows The Age Group of the Respondent Whose Opinions Were Sampled

Age Bracket	Number of Respondents	Percentage (%)
20-29	12	16
30-39	20	26.7
40-49	21	28
50-59	10	13.3
And above	12	16
Total	**75**	**100**

Source: Adamu, 2009

It shows that most of them are between the ages of 40-49, because 28% of the respondents fall between this range.

Table 2: Shows the Educational Qualification of the Respondents

Educational Qualification	Number of Respondents	Percentage (%)
Non-formal education	20	26.7
O' Level	32	42.7
Diploma	10	13.3
N.C.E	9	12
Degree holders	4	5.3
Higher degree holders	-	-
Total	**75**	**100**

Source: Adamu, 2009

From the above table majority of the respondents have O' level certificate which accounts for 42.7% of the respondents

Table 3: Shows How Many People Can Identify the Child-Killer Relation to Environment

Number of Peoples That Have the Knowledge of the Disease	Number of Respondents	Percentage (%)
Yes	25	33.3
No	50	66.7
Total	**75**	**100**

Source: Adamu, 2009

From the above table, many of the respondents can not identify the child-killer diseases in relation to environment and are up to 66.7% of the respondents.

Table 4: Shows if the Resident of the Area, Have Access to Potable Drinking Water

Do You Have Access to Potable Drinking Water	Number of Respondents	Percentage (%)
Yes	22	29.3
No	53	70.7
Total	**75**	**100**

Source: Adamu, 2009

From the table above, it is clear that many of the respondents agreed that they don't have access to potable drinking water in the area, and their number is equal to 70.7% of the respondents.

Table 5: Shows if the Resident of the Area Have Local Incinerator for Collection, and Subsequently Take it to Area of Disposal, Land Fill or Incineration

Do You Have Local Incinerator	Number of Respondents	Percentage (%)
Yes	20	26.7
No	55	73.3
Total	**75**	**100**

Source: Adamu, 2009

From the above table we understand that majority of the respondents agree that there is no local incinerator in the area and their number accounts to 73.3% of the respondents.

Table 6: Shows If the Resident of the Area Are Observing/Maintaining Personal Hygienic Condition Such As:

a. Cutting your finger nails
b. Washing your hands with soap or ash and water after going to toilet
c. Washing your hands before and after eating
d. Washing your plates before and after eating

Do You Maintain Personal Hygienic Above	Number of Respondents	Percentage (%)
Yes	25	33.3
No	45	60.7
Total	**75**	**100**

Source: Adamu, 2009

Table 7: Shows If There Are Incidences of Child-Killer Diseases in Relation to Environment Such as Dysentery, Cholera and Malaria in the Area

Are Their Incidences of the Diseases Above	Number of Respondents	Percentage (%)
Yes	70	93.3
No	5	6.7
Total	**75**	**100**

Source: Adamu, 2009

From the information on the above table, it shows that majority of the respondents agrees that there are incidences of child-killer diseases in relation to environment such as dysentery, cholera and malaria in the area, and this number of peoples are 93.3% of the respondents.

Table 8: Shows the Extent or Level of Mortality Due to Child-Killer Disease in Relation to Environment in the Area

Do You Have High or Low Level of Mortality Due to the Disease	Number of Respondents	Percentage (%)
High	63	84
Low	12	16
Total	**75**	**100**

Source: Adamu, 2009

From the above table, we understood that the level of mortality due to child-killer diseases in relation to environment is very high as most of them agree to that and their percentage is 84%.

Table 9: Shows the Level of Awareness on the Effect of Child-Killer Diseases in Relation to Environment

How Do You Access the Level of Awareness on the Effect of the Disease	Number of Respondents	Percentage (%)
High	6	8
Low	69	92
Total	**75**	**100**

Source: Adamu, 2009

From the above table is clear that up to 92% of the respondents agree that the level of awareness on the effect of child-killer diseases in relation to environment is very low.

YEAR 2004 RECORDS OF JEKADAFARI GOMBE

Date	Diarrhea with Blood	Cholera	Malaria	Access to Healthy Meat	Access to Potable Drinking Water	Presence of Drainage Facilities
Jan.	421	35	497	No (2)	Yes (1)	No (2)
Feb.	379	57	217	No (2)	No (2)	No (2)
March	455	89	155	Yes (1)	No (2)	No (2)
April	615	109	1281	Yes (1)	No (2)	No (2)
May	723	214	757	Yes (1)	No (2)	No (2)
June	803	231	807	Yes (1)	No (2)	Yes (1)
July	466	270	307	Yes (1)	No (2)	No (2)
Aug.	219	117	251	Yes (1)	No (2)	No (2)
Sept.	201	65	319	No (2)	Yes (1)	No (2)
Oct.	371	35	175	Yes (1)	Yes (1)	No (2)
Nov.	170	23	113			
Dec.	190	25	89			

Source: Information Monitoring and Evaluation Unit (M.E.U) Primary Health Care Department, Gombe Local Government

CORRELATIONS

2004 Correlations

		Diarrhea	Cholera	Malaria	Meat
DIARRHEA	Pearson Correlation	1.000	.610	.699*	-.459
	Sig. (2-tailed)	.	.061	.024	.182
	N	10	10	10	10
CHOLERA	Pearson Correlation	.610	1.000	.313	-.562
	Sig. (2-tailed)	.061	.	.378	.091
	N	10	10	10	10
MALARIA	Pearson Correlation	699*	.313	1.000	-.250
	Sig. (2-tailed)	.024	.378	.	.486
	N	10	10	10	10
MEAT	Pearson Correlation	-459	-.562	-.250	1.000
	Sig. (2-tailed)	.182	.091	.486	.
	N	10	10	10	10
PORTABLE	Pearson Correlation	.469	.621	.276	-.524
	Sig. (2-tailed)	.172	.055	.440	.120
	N	10	10	10	10
DRAINAGE	Pearson Correlation	-.600	-.446	-.318	.218
	Sig. (2-tailed)	.067	.196	.371	.545
	N	10	10	10	10

2004 Correlations

		Portable	Drainage
DIARRHEA	Pearson Correlation	.469	-.600
	Sig. (2-tailed)	.172	.067
	N	10	10
CHOLERA	Pearson Correlation	.621	-.446
	Sig. (2-tailed)	.055	.196
	N	10	10
MALARIA	Pearson Correlation	.276	-.318
	Sig. (2-tailed)	.440	.371
	N	10	10
MEAT	Pearson Correlation	-.524	.218
	Sig. (2-tailed)	.120	.545
	N	10	10
PORTABLE	Pearson Correlation	1.000	-.218
	Sig. (2-tailed)	.	.545
	N	10	10
DRAINAGE	Pearson Correlation	-.218	1.000
	Sig. (2-tailed)	.545	.
	N	10	10

***. Correlation is significant at the 0.05 level (2-tailed).**

The correlation in the above table shows that, there is a relationship between diarrhea and malaria, this is because the correlation is significant at the 0.05 level, that is to say in every 1000 peoples that are ill 699 can either be diarrhea or malaria and the remaining 318 people that are ill can suffer with any other type of diseases besides the ones mention above, and the number mention above one after the other 699 and 318 which is equivalent to 95% and 5% respectively, and this is all as a result of poor sanitary condition of the area.

YEAR 2005 RECORDS OF JEKADAFARI GOMBE

Date	Diarrhea with Blood	Cholera	Malaria	Access to Healthy Meat	Access to Potable Drinking Water	Presence of Drainage Facilities
Jan.	143	60	307	2	1	2
Feb.	75	90	320	2	2	2
March	95	121	414	1	2	2
April	150	135	400	1	2	2
May	331	218	433	1	2	2
June	275	225	501	1	2	1
July	241	201	791	1	2	2
Aug.	419	115	515	1	2	2
Sept.	321	101	299	2	1	2
Oct.	329	85	265	1	1	2
Nov.	169	60	564			
Dec.	153	33	217			

CORRELATIONS

2005 Correlations

		Diarrhea	Cholera	Malaria	Meat
DIARRHEA	Pearson Correlation	1.000	.271	.173	-.346
	Sig. (2-tailed)	.	.449	.632	.328
	N	10	10	10	10
CHOLERA	Pearson Correlation	.271	1.000	.682*	-.602
	Sig. (2-tailed)	.449	.	.030	.065
	N	10	10	10	10
MALARIA	Pearson Correlation	.173	.682*	1.000	-.517
	Sig. (2-tailed)	.632	.303	.	.126
	N	10	10	10	10
MEAT	Pearson Correlation	-.346	-.602	-.517	1.000
	Sig. (2-tailed)	.328	.065	.126	.
	N	10	10	10	10
PORTABLE	Pearson Correlation	-.157	.622	.599	-.524
	Sig. (2-tailed)	.665	.055	.067	.120
	N	10	10	10	10
DRAINAGE	Pearson Correlation	-.112	-.536	-.174	.218
	Sig. (2-tailed)	.758	.110	.631	.545
	N	10	10	10	10

2005 Correlations

		Portable	Drainage
DIARRHEA	Pearson Correlation	-.157	-.112
	Sig. (2-tailed)	.665	.758
	N	10	10
CHOLERA	Pearson Correlation	.622	-.536
	Sig. (2-tailed)	.055	.110
	N	10	10
MALARIA	Pearson Correlation	.599	-.174
	Sig. (2-tailed)	.067	.631
	N	10	10
MEAT	Pearson Correlation	-.524	.218
	Sig. (2-tailed)	.120	.545
	N	10	10
PORTABLE	Pearson Correlation	1.000	-.218
	Sig. (2-tailed)	.	.545
	N	10	10
DRAINAGE	Pearson Correlation	-.218	1.000
	Sig. (2-tailed)	.545	.
	N	10	10

***. Correlation is significant at the 0.05 level (2-tailed).**

From the table above, the correlation shows that it is significant at the 0.05 level, meaning that in year 2005 records of Jekadafari area of Gombe local government we understand that because of the poor sanitary condition of the area there is a relationship between cholera and malaria, that is to say in every 1000

cases of sickness up to 682 of them can either be cholera or malaria and only the remaining 318 sickness beside the ones mention above, and this number is equivalent to 95% and 5% respectively.

YEAR 2006 RECORDS OF JEKADAFARI, GOMBE

Date	Diarrhea with Blood	Cholera	Malaria	Access to Healthy Meat	Access to Potable Drinking Water	Presence of Drainage Facilities
Jan.	110	49	430	2	1	2
Feb.	69	67	207	2	2	2
March	60	99	513	1	2	2
April	118	171	350	1	2	2
May	480	169	399	1	2	2
June	398	210	511	1	2	1
July	111	113	781	1	2	2
Aug.	156	200	416	1	2	2
Sept.	95	199	274	1	1	2
Oct.	370	175	249	2	1	2
Nov.	360	150	590			
Dec.	117	135	212			

CORRELATIONS

2006 Correlations

		Diarrhea	Cholera	Malaria	Meat
DIARRHEA	Pearson Correlation	1.000	.519	-.060	-.061
	Sig. (2-tailed)	.	.124	.868	.868
	N	10	10	10	10
CHOLERA	Pearson Correlation	.519	1.000	-.112	-.569
	Sig. (2-tailed)	.124	.	.758	.086
	N	10	10	10	10
MALARIA	Pearson Correlation	-.060	-.112	1.000	-.489
	Sig. (2-tailed)	.868	.758	.	.151
	N	10	10	10	10
MEAT	Pearson Correlation	-.061	-.569	-.489	1.000
	Sig. (2-tailed)	.868	.086	.151	.
	N	10	10	10	0
PORTABLE	Pearson Correlation	.022	.050	.396	-.524
	Sig. (2-tailed)	.951	.892	.257	.120
	N	10	10	10	10
DRAINAGE	Pearson Correlation	-.454	-.389	-.207	.218
	Sig. (2-tailed)	.188	.266	.565	.545
	N	10	10	10	10

2006 Correlations

		Portable	Drainage
DIARRHEA	Pearson Correlation	.022	-.454
	Sig. (2-tailed)	.951	.188
	N	10	10
CHOLERA	Pearson Correlation	.050	-.389
	Sig. (2-tailed)	.892	.266
	N	10	10
MALARIA	Pearson Correlation	.396	-.207
	Sig. (2-tailed)	.257	.565
	N	10	10
MEAT	Pearson Correlation	-.524	.218
	Sig. (2-tailed)	.120	.545
	N	10	10
PORTABLE	Pearson Correlation	1.000	-.218
	Sig. (2-tailed)	.	.545
	N	10	10
DRAINAGE	Pearson Correlation	-.218	1.000
	Sig. (2-tailed)	.545	.
	N	10	10

From the table above it shows that the correlation is telling us their is relationship but not at significant level in the year 2006 records of Jekadafari ward of Gombe local government, that is to say there is relationship between this three diseases Diarrhea, Cholera and Malaria, and this simply mean that in every 1000 cases of diseases (illness), there is every chance of having any of the three (3) diseases and any other disease, all as a result of environmental pollution in the area.

YEAR 2007 RECORDS OF JEKADAFARI, GOMBE

Date	Diarrhea with Blood	Cholera	Malaria	Access to Healthy Meat	Access to Potable Drinking Water	Presence of Drainage Facilities
Jan.	99	58	344	2	1	2
Feb.	75	53	177	2	2	2
March	119	78	441	1	2	2
April	170	104	274	1	2	2
May	350	93	296	1	2	2
June	266	118	459	1	2	1
July	150	105	670	1	2	2
Aug.	130	170	400	1	2	2
Sept.	110	181	270	2	1	2
Oct.	240	166	211	1	1	2
Nov.	330	133	598			
Dec.	104	120	199			

CORRELATIONS

2007 Correlations

		Diarrhea	Cholera	Malaria	Meat
DIARRHEA	Pearson Correlation	1.000	.160	-.044	-.602
	Sig. (2-tailed)	.	.660	.992	.066
	N	10	10	10	10
CHOLERA	Pearson Correlation	.160	1.000	-.044	-.229
	Sig. (2-tailed)	.660	.	.903	.525
	N	10	10	10	10
MALARIA	Pearson Correlation	-.004	-.044	1.000	-.431
	Sig. (2-tailed)	.992	.903	.	.214
	N	10	10	10	10
MEAT	Pearson Correlation	-.602	-.229	-.431	1.000
	Sig. (2-tailed)	.066	.525	.214	.
	N	10	10	10	10
PORTABLE	Pearson Correlation	168	-.336	.377	-.524
	Sig. (2-tailed)	.643	.343	.283	.120
	N	10	10	10	10
DRAINAGE	Pearson Correlation	-.382	-.041	-.254	.218
	Sig. (2-tailed)	.276	.910	.479	.545
	N	10	10	10	10

2007 Correlations

		Portable	Drainage
DIARRHEA	Pearson Correlation	.168	-.382
	Sig. (2-tailed)	.643	.276
	N	10	10
CHOLERA	Pearson Correlation	-.336	-.041
	Sig. (2-tailed)	.343	.910
	N	10	10
MALARIA	Pearson Correlation	.377	-.254
	Sig. (2-tailed)	.283	.479
	N	10	10
MEAT	Pearson Correlation	-.524	.218
	Sig. (2-tailed)	.120	.545
	N	10	10
PORTABLE	Pearson Correlation	1.000	-.218
	Sig. (2-tailed)	.	.545
	N	10	10
DRAINAGE	Pearson Correlation	-.218	1.000
	Sig. (2-tailed)	.545	.
	N	10	10

From the table of correlation above it shows that relationship due exist between the three (3) diseases diarrhea, cholera and malaria but is only that the relationship is not significant, that is to say in every 1000 cases of illness, there is every chance of having any one of diseases

in the above is all as a result of environmental pollution of the area.

YEAR 2008 RECORDS OF JEKADAFARI, GOMBE

Date	Diarrhea with Blood	Cholera	Malaria	Access to Healthy Meat	Access to Potable Drinking Water	Presence of Drainage Facilities
Jan.	201	70	270	2	1	2
Feb.	98	54	119	2	2	2
March	130	66	301	1	2	2
April	149	91	220	1	2	2
May	285	75	259	1	2	2
June	184	104	364	1	2	1
July	131	98	616	1	2	2
Aug.	123	161	351	1	2	2
Sept.	97	169	212	2	1	2
Oct.	213	140	187	1	1	2
Nov.	299	118	404			
Dec.	100	88	150			

2008 Correlations

		Diarrhea	Cholera	Malaria	Meat
DIARRHEA	Pearson Correlation	1.000	-.186	-.090	-.338
	Sig. (2-tailed)	.	.606	.806	.339
	N	10	10	10	10
CHOLERA	Pearson Correlation	-.186	1.000	.093	-.119
	Sig. (2-tailed)	.606	.	.799	.743
	N	10	10	10	10
MALARIA	Pearson Correlation	-.090	.093	1.000	-.409
	Sig. (2-tailed)	.806	.799	.	.240
	N	10	10	10	10
MEAT	Pearson Correlation	-.338	-.119	-.409	1.000
	Sig. (2-tailed)	.339	.743	.240	.
	N	10	10	10	10
PORTABLE	Pearson Correlation	107	-.402	.293	-.524
	Sig. (2-tailed)	.768	.250	.412	.120
	N	10	10	10	10
DRAINAGE	Pearson Correlation	-.136	-.018	.042	.218
	Sig. (2-tailed)	.709	.962	.909	.545
	N	10	10	10	10

2008 Correlations

		Portable	Drainage
DIARRHEA	Pearson Correlation	-.107	-.136
	Sig. (2-tailed)	.768	.709
	N	10	10
CHOLERA	Pearson Correlation	-.402	-.018
	Sig. (2-tailed)	.250	.962
	N	10	10
MALARIA	Pearson Correlation	.293	.042
	Sig. (2-tailed)	.412	.909
	N	10	10
MEAT	Pearson Correlation	-.524	.218
	Sig. (2-tailed)	.120	.545
	N	10	10
PORTABLE	Pearson Correlation	1.000	-.218
	Sig. (2-tailed)	.	.545
	N	10	10
DRAINAGE	Pearson Correlation	-.218	1.000
	Sig. (2-tailed)	.545	.
	N	10	10

From what we have on the above table it is evident that the correlation is telling us that relationship is existing between the three (3) different diseases in the table, but is only that the relationship is not significant, that is to say every 1000 cases of illness, there is every possibility of having any of the diseases mention above and any other disease that is not mention above, and this all as a result of the pollution of the environment.

CONCLUSION

This research work has confirmed that 0.05 significant level of relationship due exists in the first two years of the sampling years (2004 & 2005) between the environmental conditions and the diseases. However, the relationship due exist in the remaining three years but not at significant level, and this may be as a result of Gombe 2004 flood disaster.

It was recommended that government should employ the services of health inspectors / educators for educating and sensitizing the inhabitants of the area on child-killer diseases in relation to environment and their effects. Government, community and civil society organizations should provide potable drinking water, adequate local incinerators for refuse collection. Also the government should encourage the idea of "house to house" weekly inspection to ensure that personal

hygienic conditions are being observed.

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