

Nworie River: A Huge Source Of Health Problems, Unhappiness And Psychological Breakdown: Implication For Educators

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Abstract

Nworie River is a popular stream that flows approximately 5km across Owerri metropolitan area in Imo State, the south-eastern part of Nigeria. Many households and industries near Nworie River channel their waste pipes into Nworie River. Such nefarious activities have poisoned the water, thus, the water is highly acidic. One hardly sees fishes in the stream. Despite the dirty nature of the river, many inhabitants of the area still use it for various domestic purposes. Because of the epileptic nature of the public water supply in Owerri and environs, Nworie River serves as a source of drinking water for the plebeians dwelling around the river. An open ended interview and a structured questionnaire were used to collect data from 100 inhabitants of the area was analyzed using simple percentage. It was revealed that the people of the area really make use of water Nworie River for cooking and drinking. It was also revealed that drinking with water from Nworie River has the potential of causing, health problems, unhappiness and psychological breakdown to its users.

Key Words: Happiness-Unhappiness; Health Problems; Water Quality; Nworie River; Psychological Breakdown.

Introduction

Water is an essential commodity such that man and animal can hardly do without. Popkin, D'Anci, and Rosenberg (2010) water is essential for the survival of many species; water prevents nutrition-related non-communicable diseases. Ritabrata (2019) posited that water is perhaps the most precious natural resource after air. An African adage says that water is life. The water quality from the rivers has a considerable importance for the reason that these water resources are generally used for multiple matters such as: drinking domestic and residential water supplies, agriculture (irrigation), hydroelectric power plants, transportation and infrastructure, tourism, recreation, and other human or economic ways to use water (Venkatramanan, Chung, Lee & Park, 2014). It is hardly likely that any kind of food will be processed and produced without the use of water at some points. Water is not used for food or drinking alone but water is used for other purposes too.

Drinking water sources are susceptible to pollutants depending on geological conditions and agricultural, industrial, and other man-made activities. Ensuring the safety of drinking water is, therefore, a growing problem. Most of the people who live near to rivers and streams make use of the water from the river or stream close to them. The people inhabiting close to Nworie River are not exceptions to the above assertions. As water is required for different purposes, it's suitability and quality must be checked before use (Tahera, Fatema, Fahmida, Tridib, Sabuj, , Digbijoy, Milan, Md-Akramul & Mahfuzar, 2016).

Nworie River is typical a freshwater resource under high urban pressure, runs an approximately 5.0km course through Owerri, the capital of Imo State (Okorie & Acholonu, 2008). Udensi, Nwigwe, Okechi, Ihejirika, Johnson, Nwachukwu and Anuforo (2014) posited that Nworie River is one of the major rivers in Owerri metropolis in Imo State, Nigeria. The later authors asserted that Nworie River covers a distance of about 7.5Km across Owerri Geopolitical Zone in South-eastern Nigeria (ISEPA/MPE 2008). The river transverses four Local Government Areas, namely: Mbaitoli, Owerri North, Owerri Municipality, and Owerri West L.G.As.

Nworie River like many other streams is very helpful to the people close to it in many ways. That was the reason why Okorie and Acholonu (2008) posited that the river is of enormous economic importance to inhabitants of Owerri metropolis as it serves as a water source for various domestic uses and is also a channel of sewage disposal from Owerri. The river also supports a substantial recreational and part-time fishing for youths. Some segments of the human population in Owerri use it as a direct source of drinking water, especially during failures of the public water supply. But of late most of the educated class residing close to Nworie River see water from the river as an impure due to the activities that go on in the river.

Water quality varies according to location, time, weather, and sources of pollution (Giri & Qiu, 2016). Correspondingly, Tahera, et al (2016) opined that the Water quality of depends on water composition influenced by natural process and human activities. Similarly, Andreea-Mihaela (2018) posited that urbanization and industrialization affect water quality negatively. Land use changes in urbanization, industrialization, and agricultural processes will continue to have negative impacts on water quality at all scales. (Moriken, Nor, & Ahmad, 2019). The results revealed that 87% of the reviewed studies indicated urban land use as a major source of water pollution (Moriken, et al (2019) further stated.

There is no doubt that Nworie River is vulnerable to a multiplicity of polluting influences due to its location. Nworie River flows through homes, agricultural settings, industries, private and public institutions that discharge their wastes into the water body (Udensi et al, 2014). Public health is at risk due to chemical contaminants in drinking water which may have immediate health consequences (Tahera, et al, 2016). Okorie and Acholonu (2008) posited that all through its course, there is a steady input of large quantities of detergents from laundry activities. At numerous points, the river receives large quantities of sewage, gaseous, liquid and solid wastes, especially plastic materials. The sources of water must be monitored regularly to determine whether they are in sound health or not. Poor condition of water bodies are not only the indicator of environmental degradation, it is also a threat to the ecosystem. In industries, improper quality of water may cause hazards and severe economic loss. Thus, the quality of water is very important in both environmental and economic aspects (Ritabrata, 2019).

Nworie River has suffered human and industrial pollution for close to five decades now. Nothing destroys flowing water like waste materials and unguarded activities. The above named activities have polluted and lowered

the quality of water from Nworie River. Organic loads imposed by urban sewage and other wastes constitute a major cause of pollution of natural water bodies. A study of water quality is therefore imperative to determine not only the level of contamination in the water but to ascertain the level of damage its use has done on the people using the water for a long time now.

Water Composition and Human Health

There is a presumption that drinking and cooking with water from Nworie river are the main causes health problems around Nworie district. Health problem has to do with the malfunctioning or breakdown of human health system while health the absence of infirmity, disease and stress. It is a state of all round wellbeing; physical, mental and social well-being. A good health cannot be achieved without the availability of good and quality water supply. The importance of water to humans can never be over emphasized. Water consumption helps human and other animals in regaining energy. Lack of quality water intake can cause health challenges which range from dehydration to fatigue, mood change, cause human body to be overheat, and lead to constipation and kidney stones. Water has no calories, so it can also help to reduce indigestion and body weight. It is true that water is vital in maintaining a good health. But, the type of water needed to maintain a sound health is neat water. The intake of polluted water has a way of destroying human health and causing all kinds of illness. Bad or polluted water is as bad as poison. WHO (2019) showed concern about water sanitation and hygiene in health care.

In exception of the fact that a bad water causes health challenges, it causes unhappiness too. Unhappiness is a state of feeling bad or and dejected. A research study reported that People who drink enough water recommended on a daily basis are three times more likely to feel very happy.

Human Happiness

Happiness is the first thing every human being seeks in life. Happiness is the highest treasure any human being can have. Where there is no happiness sadness and unhappiness take over the emotions of people. Happiness leads to career success, and positive emotions (Walsh et al., 2018.) Happiness is a state of ecstasy, elation and joy. However, Ryan and Deci, (2001) averred that happiness is referred to as hedonia; the presence of positive emotions and the absence of negative emotions. Ryan and Deci, (2001) also posited that happiness can be measured by these three factors: the presence of positive emotions, the absence of negative emotions, and life satisfaction. Happiness seems to be higher among people with access to financial resources, social and environmental support. Poor access to social amenities and water can affect human health and trigger unhappiness.

Sound health and happiness are synonymous that was why it is imperative to provide neat and pure water to people so that they can be happy. Drinking dirty water can cause health problems and unhappiness. Unhappiness is the main triggers psychological breakdown. Psychological breakdown is a state of emotional devastation caused by fear and unhappiness. Unhappiness brings sorrow, bitterness, depression and poor health. It was due to the sufferings of people living around the bank of River Nworie that Ikedi Ohakem the then Governor of Imo state wanted to dredge River Nworie.

In 2014 the former Governor of Imo state, Ikedi Ohakem made a pronouncement that he needed forty billion naira for the dredging of Nworie River. He added that Nworie River was causing unhappiness, illnesses and impotency to men who live close to it. Sterility or impotency is the inability of a man's sperm cell to fertilize a fertile ovum. Over time scholars have attributed impotency to be caused by either a man's way of life or illness. Little did people know that the food and water that a man takes can render him infertile. It was said that Nworie River contained substances that kill and destroy men's spermatozoa. The drainage plan of Ikedi Ohakem did not work out water because he did not return elected and the water remained polluted and poisonous to human health. The then Governor knew that a polluted water could cause unhappiness to people.

The nature and characteristics of the water in Nworie River made Acholonu (2016) to compare his water quality test result in 2008 and 2014 and posited that the water quality of water in River Nworie in 2008 and 2014 shows that the carbon dioxide content is still above the threshold set by MSWQC and/or EPA and WHO standard. Dissolved oxygen is also still lower than the norm. The finding of coliform bacteria and Escherichia coli (E. coli)

shows that the river is polluted and not drinkable; that it has human and/or animal faecal contamination, among others as stated above. Udensi, et al (2014) averred that based on the physical, chemical, and biological test results, the river was polluted and not potable. There are many evidences to show that Nworie River still polluted. The Brown-Black colour of the water and its high acidity are enough to prove that the water is not drinkable. The findings of Udensi, et al (2014) and Acholonu (2016) show thus, water quality standards, namely, alkalinity (42.7/3.08), Carbon Dioxide (12.2/10) and phosphate (0.5/0.1) coupled with the low dissolved oxygen (1.07/5.0). As observed by Wetzel and Likens⁵, the measure of dissolved oxygen is one of the frequently used and the most important of all chemical methods available for the investigation of the aquatic environment. It provides valuable information about the biological and biochemical reactions going on in waters. Acholonu (2016) also argued that the pollution of the water is further evident from the biological test results. The best defense humans have towards a better health is to protect their source of water supply (The Watchtower, 2021). Okorie and Acholonu (2008), Udensi, et al (2014) and Acholonu (2016) who conducted in-depth studies on Nworie River in Owerri agreed that the finding of coliform bacteria and *Escherichia coli* is an obvious indication that the water has human and/or animal faecal contamination and not good for drinking and could have water borne disease agents. Alozie (2016) that wrote that a Professor of Biology, Alex Acholonu, has warned has warned Imo people to avoid contact with Nworie River in Owerri Municipal Local Government of Imo state, that it could be injurious to health, adding, “The river has coliform bacteria. While expressing regret over the outcome of his findings, he said that the dredging of Nworie River which was started by Governor Ikedi Ohakim, was abandoned by the present administration under Rochas Okorochoa.

Purpose of the Study

The main aim of this study is to know if water from Nworie River is a source of Sterility, Kidney Disease and Poor Academic Performance or not. Specifically, the study seeks:

1. To know whether the people of the area are aware of the water quality.
2. To know whether the people of the area still use water from Nworie River.
3. To know the effect of water from Nworie River on the health of its users.
4. To know the effect of water from Nworie River on happiness of its users.

Hypothesis

Ha₁: Water from Nworie River has no significant negative effect on human health.

Ha₂: Water from Nworie River has no significant negative effect on the human happiness.

Research Method

This is a descriptive study with observation and Meta analysis. The study adopted a mixed method (qualitative and quantitative) research design. Structured interviews and questionnaires were used to elicit data from 100 adults who live around the banks of Nworie River for the study. Simple percentage was used for the data analysis of this study. Any item scoring a percentage mean between 1 and 49 is considered low, while any item scoring a percentage mean between 50 and 100 is seen as high as bench marks.

Results

Table 1: Knowledge and usefulness of Nworie River

Items	n	Responses	
		Percentage (%) Yes	No

Do you know Nworie River?	100	100	00
Do you use water from Nworie River?		99	01
Do you cook with water Nworie River?		91	09
Do you drink water from Nworie River?		84	16
Do take your bath with water from Nworie River?		96	04
Do you use water from Nworie River for washing your clothes?		92	08
Do you use water from Nworie River for washing eating plates?		94	06
Do you use water from Nworie River for building construction?		100	00
Do you feel happy drinking water from Nworie River?		08	92

Note: A table showing the perception of people living along the bank of along the bank Nworie River on the health implication of the body of water

All the participants agreed strongly that they know Nworie River. 99. % of the respondents agreed that they use water from Nworie River. Only 1% of the participants said that they do not use water from Nworie River. 91% of the respondents agreed that they cook with water from Nworie River. While 84% of the respondents agreed that they drink water from Nworie River. 96 % of the subjects agreed that they take your bath with water from Nworie River. It is on 6% of the respondents affirmed that they do not use water from Nworie River for washing eating plates. Only 8 out of 100 adults who participated in this study agreed that they are happy drinking water from Nworie River, that is to say that 92% of the participants fell unhappy to drink water from Nworie River.

Table 2: Participants' Disposition in Using Nworie River

Responses

Items	n (%)		
	n	Yes	No
Do you think that drinking water from Nworie River can cause illness?	100	70	30
Do you know that drinking water from Nworie River can cause health problems	63	37	
Do you think that drinking water from Nworie River can cause impotency?	67	33	
Does drinking water from Nworie River make you happy?	17	83	
Do you see Nworie River as a polluted body of water?	97	03	
Do you believe that Nworie River is a useless body of water?	49	51	
Do you have any kidney problem?	01	99	
Are you psychologically broken when using water from Nworie River?	91	09	
I use water from Nworie River because I have no choice, if I do I will not use it	97	03	

Note: A table showing the perception awareness of the side effects of using water from Nworie River.

70% of the participants agreed strongly that drinking water from Nworie River can cause illness. Only 63% of the respondents agree that they know that drinking water from Nworie River can cause a kidney disease. While 67 % of the respondents agreed that drinking water from Nworie River can cause impotency. 39% of the women interviewed that their husbands do not perform well in bed. 83 % of the subjects agreed that drinking water from Nworie River makes them unhappy. 97% of the participants see Nworie River as a polluted body of water. 49 % of

the subjects see Nworie River as a polluted body of water. Only 1% of the participants believe that Nworie River is a useless body of water. All the respondents agreed that they need pipe borne water to replace Nworie River.

93% of those who were interviewed affirmed that they know that Nworie River is a dirty water that has the potential of causing many manner kinds of diseases and impotency. The participants said that despite the fact that they know that the water is impure; they are helpless, as they have scarce sources of water in exception of Nworie River. Only 7% of the participants said that Nworie River has no problem, they posited that the water was the same water their great fathers and grand fathers drank and grew old before they died. However, 27% of the respondents who responded to the questionnaire agreed that they have kidney problems while 22% said that they do not have any kidney challenge. 51% of the respondents said that they have no idea whether they have kidney problems or not. 91% of the respondents said that they are psychologically broken when using water from Nworie River. The participants said that they use water from Nworie River because they have no choice.

The respondents who were interviewed on the reason why they use Nworie River despite the fact that they know that the water was polluted said that they use water from Nworie River because they do not have alternative. They pleaded with the Government, Non-Governmental Organizations and philanthropists to aid them with pipe born water.

It is imperative to sink water bore holes so as to provide a constant water supply to the people living along the banks of Nworie River. This will help to save them from contracting more infectious water borne diseases, premature deaths, impotency and low academic performances of their children.

Table 3: Mean Score, Standard Deviation and Standard Error mean of the Effect of

Nworie Water	n	Mean	S.D	Std Err
Nworie water on human Health in Nworie District				
Human Health	100	3.92	.453	0.096

Table 3 shows the mean scores, standard deviations and standard error mean of the effect of Nworie water on human health. The table indicates a mean economic stability of 3.92 with a standard deviation of .453 of 100 adults who took part in the study. Similarly, to further address the research question the following hypothesis was raised.

H_{a1}: Water from Nworie River has no significant negative effect on the health of its users.

Table 4: A t- test on the effect of Nworie water on human health of its users

Nworie Water	t	d/f	Sig	95% Conf. Interval Diff.	
				Lower	Upper
Human Health	8.41	99	0.00	2.89	3.99

Table 4 depicts a t-test on the effect of Nworie water on human health. Data in Table 4 indicate that water from Nworie

River has a significant effect on the human health of its users. This is indicated by the calculated t-value of 8.41 which is significant at 0.00 level and therefore significant at .05 levels of significance. Thus, the alternate hypothesis which states that water from Nworie River has no negative effect on the health of its users is rejected. This result shows that using water from Nworie River causes has negative effect on the health of its users.

Table 5: Mean Score, Standard Deviation and Standard Error mean of the Effect of Nworie water on human Health in Nworie District

Nworie Water	n	Mean	S.D	Std Err
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Happiness	100	2.73	.342	0.075
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Table 5 shows the mean scores, standard deviations and standard error mean of the effect of Nworie water on the happiness of its users. The table indicates a mean economic stability of 2.73 with a standard deviation of .342 of 100 adults who took part in the study. Similarly, to further address the research question the following hypothesis was raised.

H_{a2}: Water from Nworie River has no negative effect on the happiness of its users.

Table 6: A t- test on the effect of Nworie water on human health of its users

Nworie Water	t (2tailed)	d/f	Sig	95% Conf. Interval Diff.	
				Lower	Upper
Happiness	5.01	99	0.00	2.42	3.03

Table 6 depicts a t-test on the effect of water from Nworie River on the happiness of its users. Data in Table 6 indicate that water from Nworie River has a significant effect on the happiness of its users. This is indicated by the calculated t-value of 5.01 which is significant at 0.00 level and therefore significant at .05 levels of significance. Thus, the alternate hypothesis which states that water from Nworie River has no negative effect on the happiness of its users is rejected. That means that using water from Nworie River does not give joy to its users and therefore causes unhappiness and psychological breakdown to them.

Findings

- It was found that Nworie River is a polluted and dirty body of water.
- Water from Nworie River is healthy for cooking and drinking.
- Drinking Water from Nworie River could cause health challenges such as impotency.
- Drinking and Water from Nworie River causes unhappiness to its users.
- Using Water from Nworie River causes psychologically breakdown to participants.

Discussions

It has been found that Nworie River is a polluted body of water that is not good for human and animal consumption, as it poses a great health hazard to its users. It was found that the people living around Nworie River drink water from it despite the fact that they know that the water is dirty. And the intake of infected water can cause kidney diseases. Wagner, Merklung, Metzger et al (2022) undertook a study on water intake and progression of chronic kidney disease: the CKD-REIN cohort study and found that kidney failure is associated with water intake. Clark, Huang, Garg, et al found that an increased water intake and kidney health Wu, Chen, and Liaw, et al (2016) studied the association between fluid intake and kidney function, and survival outcomes analysis: a nationwide population-based study and found that adequate hydration may offer some advantages in patients with kidney disease. Merklung, Metzger et al (2022) and Wu, Chen, and Liaw, et al (2016) are interested the volume of water intake and not in the quality of the water taken. The result of the study conducted by Rango, Jeuland, Manthrilake, and McCornick in (2015) suggests that kidney disease that cannot be clearly linked with the presence of these contaminants in drinking water. The reviewed study is at variance with the current study that found that the intake of tainted water can cause a kidney disease. However, the study of Cameselle, Perera, Dayananda and Liyanage (2020) found that people who drink water with elevated levels of some metal ions and counterions are at risk of kidney tissue damage. Udensi, Nwigwe, Okechi,

Ihejirika, Johnson, Nwachukwu and Anuforo (2014) discovered Nworie River has high level of heavy metals in the sediment.

Chukwu and Izunobi (2015) averred that Federal Medical Centre (FMC) and Alvan Ikoku College of Education (A.I.F.C.E.) are located along the bank of Nworie River. The waste disposal practiced by inhabitants of these institutions and other members of the public is through open dump for solid wastes (Ishaku and Ezeigbo 2010).

The consequence is contamination and pollution of the river and its environs and the accumulation of toxic substances in the biotic and abiotic environment. This indicates that the water needs to be treated before domestic use (Chukwu & Izunobi, 2015). The presence of toxic substances and heavy metals in Nworie River water will certainly impact negatively on the kidney of who so ever drinks the water for a period of time.

The findings of this study also revealed that using water from Nworie River could lead to impotency and low academic performance due to the toxic substances found in the water. It was also revealed that the inhabitants along Nworie River use water from Nworie River because they have no better alternative. It was also found that people residing along the bank Nworie River are in dare need of neat pipe borne water. The study of Jiawen, Jinlong, Aihua, Xinlin, Xiaoya, & Yunfei (2019) is in agreement with the present study because the two studies found that groundwater quality has influence on human health. The study conducted on Nworie River by Acholonu (2016) which revealed that Nworie River contains coliform bacteria and *Escherichia coli* is an obvious indication that the water is not good for drinking. The presence of Iron, Fe(0.03-0.58) mg/l, Copper, Cu(0.01-0.25) mg/l, Zinc, Zn(0.09-0.64)mg/l, Manganese, Mn(0.08-0.94)mg/l, lead, Pb(0.01-0.09)mg/l, Cadmium, Cd(0.00-0.02)mg/l, Chromium, Cr(0.01-0.94)mg/l found by Udensi, et al (2014), show that Nworie River is not healthy for human health.

The chemical and biological analyses above show that using water from Nworie River for domestic purposes is detrimental to human health. It implies that drinking water from Nworie River can deteriorate human health, and anything that has the potential of influencing human health can affect or influence students' academic achievement.

It was recommended that Nworie River should be dredged urgently. It was also recommended that the Government, Non-Governmental Organizations and philanthropists should make haste to come to the aid of the people living along the bank Nworie River by providing them with pipe born water. Higher values of iron, manganese, and arsenic reduced drinking water quality. Awareness should be raised on the health implications of drinking water from Nworie River.

This current study shows that drinking water has a significant impact on our mood; feelings of happiness and sadness. This is in line with the stud of which revealed that people who drink enough water recommended on a daily basis are three times more likely to feel very happy, according to new research. Similarly, Ogletree (2022) revealed that drinking enough water lift one's mood.

Conclusion

The result of this study show that Nworie River is a polluted and dirty body of water and using water from Nworie River for domestic purposes is capable of causing healthy problems. Drinking water from the polluted Nworie River could cause health problems, unhappiness and psychological breakdown. It is obvious that every sane person will be unhappy and psychologically broken using water from a River he or she knows is polluted.

Recommendation

Previous water experts who conducted studies on Nworie River suggest that Nworie River should be dredged so as to reduce the water acidity but the researchers of this current study are of the view that well sunk neat borehole water should be provided for the people living along the banks of Nworie River to avert the negative health hazards of using water from Nworie River. The inhabitants of the area are really in need neat and pure water to be happy. It is obvious that the consumption of the dirty water from Nworie River has made people from the area to be unhappy.

Ethical Clearance

The Research Ethics Committee of the Department of Educational Foundations, Faculty of Education, University of Nigeria, Nsukka approved the undertaking of this prison study.

Conflict of Interest

The Authors have no funding support or conflict of interest to declare.

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Appendix

Bio Data of some the Persons Interviewed in the course of this Study who wanted their names to appear on the work.

S/N	Names	Occupation	Age	Gender
1.	Okorie Jude Obioma	Teacher	57	Male
2.	Duru Nkem	Trader	72	Female
3.	Osuagwu Ikgwu	Farmer	63	Male
4.	Eke Jacinta	Trader	51	Female
5.	Onwu Anthony Kamkwe	Civil Servant	46	Male
6.	Atasiobi Ozioma	Student	23	Female
7.	Oji Peter Itheme	Student	21	Male
8.	Chiamaka Kasieobi	Teacher	48	Female
9.	Okwudiri Amadi	Hair Stylist	35	Male
10	Okem Okechukwu	Farmer	55	Female
11	Ugoh Ebere Charity	Tailor	37	Female
12	Udo Etim Ini	Bricklayer	42	Male
13	Adanze Ukah Pualine	Police	51	Female
14	Agali Beatrice Ugwu	Civil Servant	48	Female
15	Julian Ibe Obinna	Trader	63	Male
16	William Patrick	Truck Pusher	34	Male
17	Nwobi Juan Akunna	Famer	45	Female
18	Akindele Bola	Motor Mechanic	29	Male
19	Ajero Helen Nwanne	D.J	39	Male
20	Ukeme Ijeoma Jane	Civil Servant	40	
21	Musa Ibrahim	Trader	55	Male