

Chloride (mg/L)	250	5.0	265	280
Flouride (mg/L)	1.5	0.1	1.0	1.2
Nitrate(mg/L)	50	0.5	65	52
Nitrite(mg/L)	0.5	0.05	0.4	0.5
Sulphate(mg/)	250	5.0	214	200
ORGANIC ANALYTES				
Benzene(μ g/L)	1.0	0.5	1.7	1.1
PVCas Vinyl Chloride (μ g/L)	0.5	0.1	0.55	0.5
Pesticides (Aldrins, Dieldrins,etc.) (μ g/L)	0.03-0.1	0.001	0.08	0.05
Polycyclic Aromatic Hydrocarbon(μ g/L)	0.1	0.01	-	1.0

Sample1B (Downstream), Sample 2B (Upstream).

Discussion

Many researchers emphasized the impact of poverty and deprivation on living conditions (Muntaner, Lynch and DaveSmith,2001) while the work of Lynch *et al* (2000), Kawachi (1997) and Wilkingson (1996) focused more on the effects of inequality on a given society. The analysis of this study showed that really, there was deplorable socioeconomic conditions in the study area. In the results as presented in tables 1-3 and figures 1-13, more females, 54% and men, 46% were residents of the communities around the waterside(Aba River) and the age bracket of 21years to 50years were predominate in the area with low academic attainment as the majority of 74% were ordinary level certificate and residents were mainly semi-literate (52%); business and petty traders (80%)with low income and use the water from Aba River for drinking, washing, cooking and other domestic activities; hospital visits and bills in last 12 months were high due to typhoid, malaria, diarrhoea, worm infestation and food poisoning, no free medical care by government or surrounding industries. These buttress the work of Berhardt, Ingram and Makuc *et al* (2000) which emphasised that economic resources, level of income and education, access to health care, and environmental quality could contribute to the health of people and communities.

The microbiological analysis and count in sample 1A downstream showed a colony count of *E. coli* 197cfu/ml while sample 2A upstream had a count of 7.0cfu/ml which is far above the standard and agreed with the work of Ibekwe, Ewelike and Amajuoyi (2006) and Ezeama and Nwankpa (2002) who reported same high Coliform count of *E. coli* when they conducted microbial analysis of the Aba River in their study.

Umunnakwe and Akagha (2013) and Ezeronye and Ubalua (2005) in their work, reported organic and inorganic contamination of the Aba River which supported the result of this study where inorganic and organic analytes were far above the minimum detectable level but disagreed with works of Richards and Shieh (1986) and Hannah *et al* (1986) who reported that priority pollutants and other potentially toxic organic compounds in wastewater were removed in industries treatment plants. The presence of high Coliform count, *E. coli*, inorganic and organic analytes in the Aba River did not agree with WHO (2011) which reported the required standards for drinking water and domestic use and therefore calls for proper waste treatment in order to avert inherent emerged and re-emerging public health threat from the study area.

Considering the health implication of some of these chemical analytes: long term exposure to arsenic in drinking water could cause cancer in the skin, lungs, bladder and kidney (Calvin *et al*, 2014 and Barry and Williams, 2013). The likelihood of effects is related to the level of exposure in areas where drinking water is heavily contaminated (Walker and Walker, 2016), as in this study. Aluminium exposures during neonatal and paediatric parenteral nutrition could impair bone mineralization and delay neurological development (Calvin *et al*, 2014), iron excess is delivered to

generate oxidative stress and shifts the immune-regulatory balance producing severe, deleterious physiological effects (Puntarulo, 2005). Also, Iron overload effect includes decreased antibody-mediated and mitogen-stimulated phagocytosis, alteration in T-lymphocyte subsets and modification of lymphocyte distribution in the immune system (Walker and Walker, 2016). Just as reported in this study, Lead poisoning causing symptoms of the central nervous system like insomnia, delirium, cognitive deficits, tremor, hallucinations and convulsion were reported by Mgbemena, (2014). According to Barry and Williams (2013),

manganese could damage the nervous system and respiratory tract as well as irreversible parkinsonian-like syndrome. Epidemiological studies and case reports have shown that chronic exposure to selenium compounds is associated with adverse effects on endocrine function particularly synthesis of thyroid hormones following dietary exposure of around 300 micrograms and impairment of natural killer-cells activity. Nail and hair loss. (Marco *et al*, 2001). While eating too much sodium could cause high blood pressure especially later in life osteoporosis, nerve problems (Sally, 2007). Ammonia on its own, had been reported to cause health effects like scratchy throat, chest tightness, cough, dyspnoea, eye irritation and Nickel implicated in skin allergies, lung fibrosis and cancer of the respiratory tract (Mgbemena, 2014).

Conclusion

The analysis of the public health implication of Aba River (Waterside) pollutants had yielded empirical evidence that the water which the Aba North communities living by the river banks consume and utilize in domestic chores are highly polluted and not fit for use. It is also evident from the study that both surrounding industries and government had not contributed towards the provision of safe drinking water, clean environment or free medical care and health education. Prevention is safer than cure and thus there is need for urgent intervention to protect surrounding communities in Aba river from epidemics which may be eminent.

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