Assessment of Household Water Use Behaviour and Hygiene Practices in Ijumu Local Government Area, Kogi State, Nigeria

Lawal, F. O.
Department of Geography and Environmental Management
Faculty of Social Sciences, University of Ilorin, Ilorin City, Nigeria
Correspondence email: fonundi@yahoo.com

Abstract

Water and hygiene practices play a prominent role in the prevention of water related diseases. This study assesses household water use behaviour and hygiene practices in Ijumu Local Government Area, Kogi State. Fifteen households were randomly selected from each of the 26 villages in the study area for the administration of 390 copies of questionnaire. The study employed the use of Pearson Correlation analysis and descriptive statistics to interpret the data. The study reveals that 93.3% of the respondents practiced hand washing, out of which (40%) used water only, (30.5%) used water and soap, and (22.8%) used water and other cleaning agents. Furthermore, the study revealed a positive relationship between water source and incidence of disease with $r = +0.55$ *suggesting that the more improved the water source, the better the people's health condition. The study further reveals that 74% and 54.9% of the respondents respectively have formal education and are aware of the importance of water treatment and thus adopt different treatment mechanisms. In addition, the result of the correlation value of (r= -0.96, -0.76 and -0.61) show a strong but negative relationship between time spent for water collection and the different hand washing variables at critical times, indicating that hand washing practices increases with a decrease in time spent for water collection. The study concludes that hygiene practices is dependent on accessibility to water supply. The study calls for policy responses towards investigation of water quality and sensitization and monitoring programmes in order to enforce participation in sanitation programmes.*

Keywords: Water Use, Behaviour, Hygiene, Sanitation, Pearson correlation

INTRODUCTION

The importance of water in the sustenance of human life and health cannot be overstated. Water and hygiene practices plays a prominent and inseparable role in the prevention and control of water related diseases. In many parts of the world, inadequate water and hygiene practices have continued to be a serious problem as about 663 million people lack access to potable water WHO (2015) and almost half of the global population are without basic sanitation facilities (UNICEF, 2015). It is against this background that water, sanitation and hygiene practices have become issues of global concern and one of the United Nations Sustainable Development Goals (SDGs) which is aimed at achieving universal and equitable access to safe and affordable drinking water and access to adequate and equitable sanitation and hygiene for all by 2030.

Furthermore, the issue of poor access to clean and safe drinking water and sanitation facilities causes major health risks to human. For instance, it is estimated that 4% of all deaths and 5.7% of all disability or ill health in the world are caused by diseases relating to poor drinking water, unimproved sanitation facilities and poor hygiene practices (WHO, 2014). The situation in

Nigeria according to UNICEF (2010) however indicated that more than 12 million Nigerians are without safe water and an estimated 40 million people lack access to improved sanitation facility. Similarly, Orimoloye *et al* (2015), reported the level of sanitation coverage in terms of access to sanitation facilities in urban and rural areas of Nigeria to be 41% and 26% respectively. The situation became more worrisome when the country was unable to meet the MDGs target of halving by 2015 the population without access to safe water as an estimated 90 million people lack access to safe drinking water in Nigeria (UNICEF, 2015). Hence, the rural population in Nigeria have resulted in the use of unsafe water such as rivers, wells, harvested rainwater among others as their dominant sources of water supply and this greatly affects their health (Obeta and Chukwu 2013; Ezen wanji 2012).

Past researches have shown how adequate hygiene practice by the simple act of washing hands with soap and water at critical times have reduced incidence of diseases especially diarrhoea in young children by as much as 44% and acute respiratory infections by 25% (Ejemot *et al* 2008; WHO 2005 and Boot and Cairncross, 1993). In view of the above, it can be inferred that although water supply and sanitation facilities are necessary for the prevention of diseases, however, it is not sufficient to provide these facilities Mertens *et al* (1992) without promotion of domestic hygiene practices (Cairncross, 1990). In other words, water infrastructure and sanitation facilities (such as water pipes and toilets) alone do not improve health condition of people, it is the way they are put to use that reduces the risk of diseases. This is because, even if the infrastructure is made available, there is no guarantee that people will use it accordingly all the time.

Thus, men and women play different roles in water use and hygiene practices. These differences are particularly pronounced in developing countries where women are the main users, providers, and managers of water. Based on their dependence on water resources, women have accumulated considerable knowledge about water resources, including location, quality and storage mechanisms. Inadequate accessibility to safe and clean water has adverse effects on all and sundry, however, the effects are felt more by women and children (especially female). Therefore, this affects their productive time for other activities such as education and economic activities (Ifabiyi *et al*, 2010). Moreover, in another study by Ifabiyi and Onundi (2014), it was observed that due to the unreliability of government water supply facilities in many rural communities, households seek alternative water sources to meet their water demands. However, the quantity of water gotten from the alternative water sources are mostly determined by the time taken to collect water.

Many researches (WHO 2015; Ifabiyi and Onundi 2014; Obeta and Chukwu 2013; Ezen wanji 2012; Ifabiyi *et al*, 2010, Ejemot *et al* 2008; WHO 2005 and Boot and Cairncross, 1993) have been carried out on the importance of water supply, sanitation and hygiene practices, however, many of these researches often proffer one type of service such as provision of clean and safe water or improved sanitation facilities with little attention to the behaviour change component, which develops as a result of perception and attitude acquired over time. From the forgoing, this study attempts to contribute to the body of knowledge by assessing the behaviour, norms, beliefs and attitudinal component of water use and hygiene practices. Hence, the study examines household water use behaviour and attitudes towards hygiene practices in Ijumu Local Government Area, Kogi State.

METHODOLOGY

Study Setting

This study was conducted in Ijumu Local Government Area Kogi State, in the North central part of Nigeria. It has its administrative headquarter in Iyara and it is located between latitude 7˚ 30` and 8˚ 10` North of the Equator and between longitude 5˚ 45`and 6˚ 15` East of the Greenwich Meridian (Ifabiyi, *et al* 2010). Ijumu is one of the LGAs that formed Okun region. It covers an area of 1,306 square kilometers, and it's divided into 15 wards, with 26 villages and an estimated population of 119,929 in 2006 (NPC, 2006). Ijumu LGA is predominantly inhabited by the Okun people (Yorubas) and forms part of the ethnic group in Kogi state. The people are majorly subsistence farmers, traders, hunters and civil servants, while Christianity and Islam are the major religion.

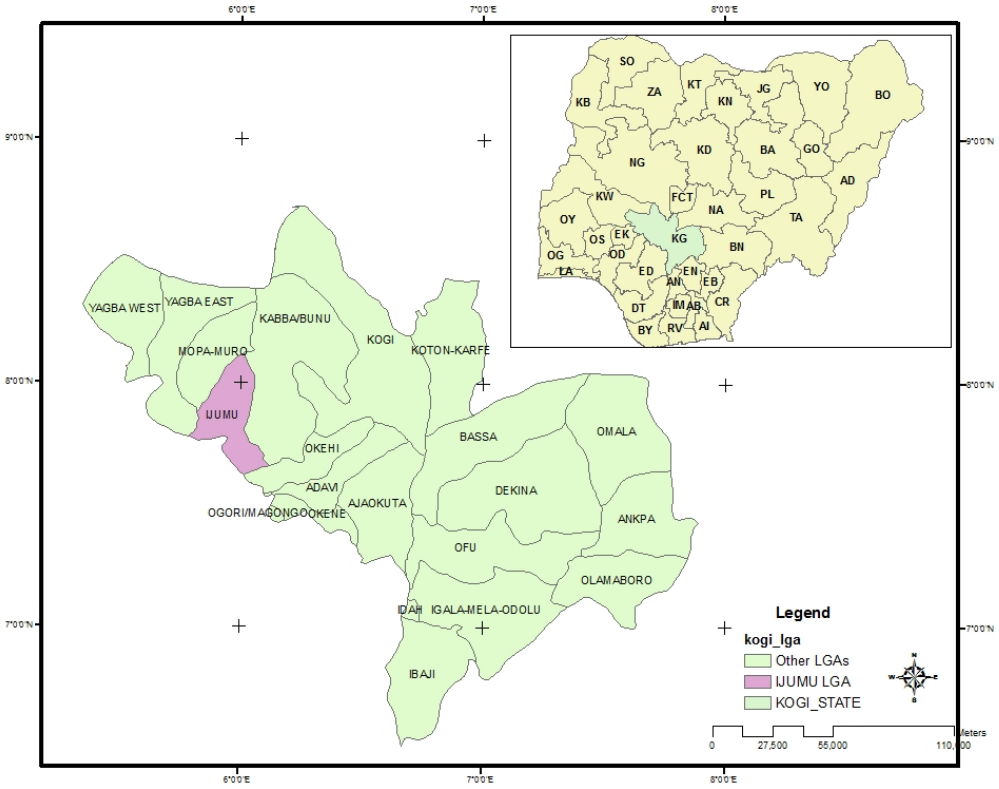

Figure 1: Map of Kogi State showing Ijumu Local Government Area with Nigeria as Inset. Adapted from Ifabiyi and Onundi, (2014).

Study Design

The research design was a cross-sectional study which assessed household water use behaviour and hygiene practices. The households were randomly selected from the population, using the simple random sampling technique. This study employed direct observation methods and a well-structured questionnaire which was distributed to the households. An observation checklist was used to record information on water sources and sanitation facilities available, water treatment methods and hand washing facilities. These methods enabled the researcher to examine the habits, cultural beliefs, practices, and norms regarding water use and hygiene practices. A total of 390 copies of questionnaire were distributed in the 26 villages comprising of Ijumu LGA, this amounted to 15 copies in each village. The data obtained were sorted, compiled and presented in tables for further analysis using Statistical Package for Social Sciences (SPSS) version 20.0.

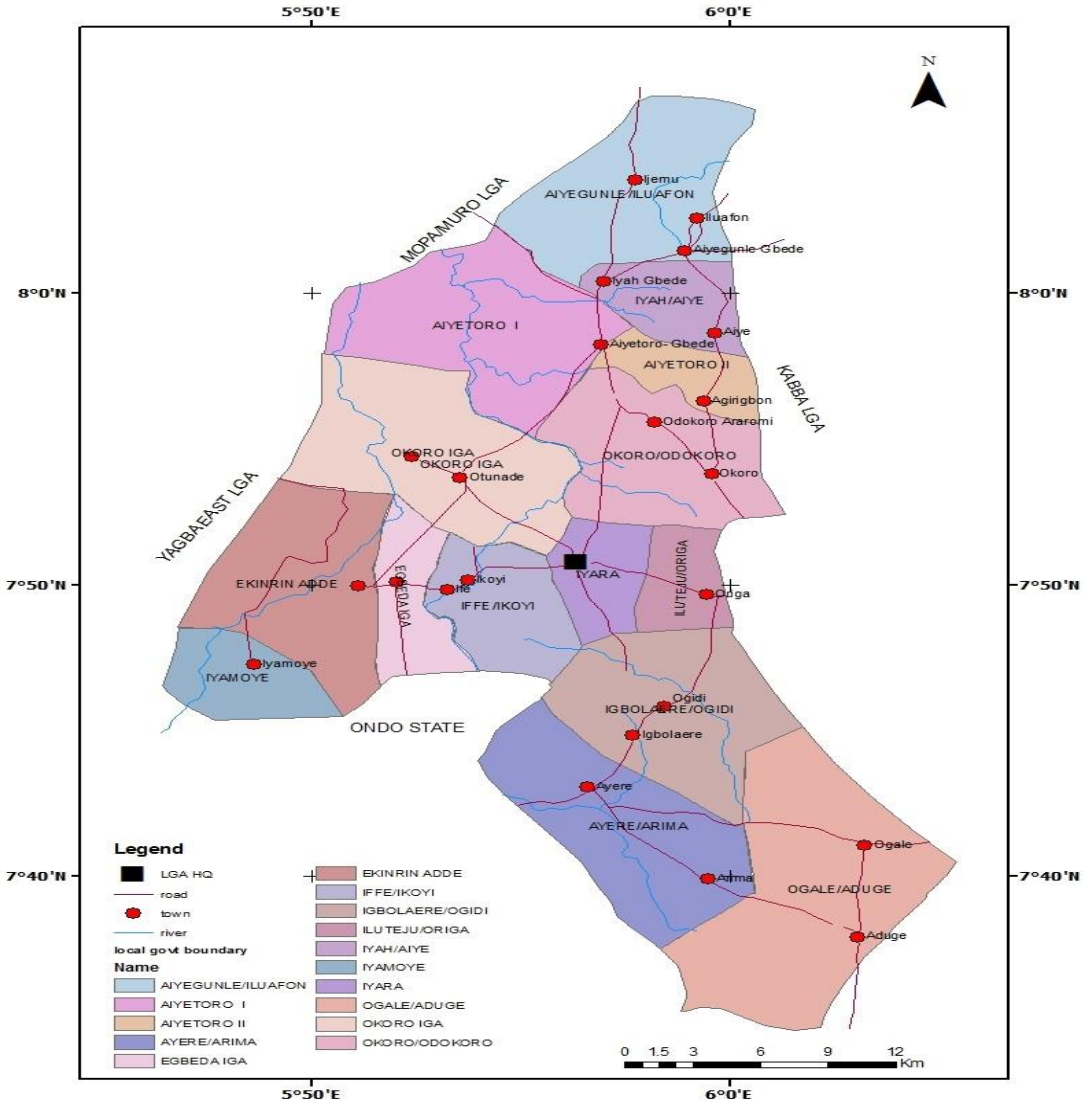

Figure 2: Ijumu Local Government Area and its Political Wards
Adapted from Ifabiyi and Onundi, (2014).

RESULT AND DISCUSSION

The results of the socioeconomic characteristics of the respondents were examined. The percentage distribution of the respondents comprises of age range 21-30 years (16%), 31-40 years (16%), 41-50 (21%), 51 -60 (18%) and above 60 years (29%). The study revealed that 53% of the respondents comprises of the male population and about 74% of the respondents have formal education, with (21%) having primary education, (33%) secondary education and (20%) tertiary education. In addition, 55.1% of the respondents are married and the occupation distribution ranges from farmers (33%), traders (23%), artisans (15%), civil servants (19%) and others (10%). Majority (52%) earn below the minimum wage of N18, 000. The study also examined water use behaviour and handling methods of the respondents and it was revealed that the major sources of water in the study area include well (39%), bore hole (35%), stream (13%), pipe water (12%) and others such as water vendor and rain fall (1%). Furthermore, the study also revealed that the time spent by households in collecting water varies as 43% of the respondents spend 15 minutes or less to collect water, 27% spend 16-30 minutes, 19% spend 31 minutes to 1 hour and 11% spend above 1 hour.

The result of the correlation analysis between water sources and health condition of respondents in table 1 ($r = +0.55$) showed a positive relationship between water source and health conditions suggesting that the more improved the water source, the better the health condition of the respondents. The study discovered that (22.1%) of the respondents add alum and water guard (chlorination) to water, (17.4%) boil their water, (10%) use clean cloth to filter water and (5.4%) reported that they treat their water by ensuring that all the particles get settled below and then they would throw away the settled particles (sediments). Past studies (Ashish *et al*, 2013 and Braimoh and Udeabor, 2013) have shown the importance of boiling water as an effective way of treating drinking water. Also, the study observed the use of wide mouth clay pot as the preferred means of storing water in Ijumu LGA. The use of clay pot according to a respondent was preferred because it makes the water cool. In addition, it was discovered that (50.5) and (54.6%) of the respondents respectively clean their water container daily and use fitted cover for covering their water, and (65.6%) placed their water container above the floor using tyres and small basins. Moreover, the study examined the hygiene practices in terms of respondents' hand washing practice.

Hand washing is an indicator of positive behaviour towards hygiene. Majority of the respondents (93.3%) practiced hand washing, out of which (40%) used water only, (30.5%) used water and soap and (22.8%) used water and other cleaning agents such as ash. Moreover, the study showed that 24.1% washed hands before eating, 24.1% after defecation 23.8% washed hands before cooking and 21.3% responded to washing hands after cleaning toilet or potty by taking their bath immediately after cleaning the toilet. This is further corroborated by the result of the pearson moment correlation value in table 1 (r= -0.96, -0.76 and -0.61) which show a strong but negative relationship between time spent for water collection and the different hand washing variables, suggesting that hand washing practices increases with a decrease in time spent for water collection.

The study also examined household sanitation practices and determinants for these practices. In all the sampled households, (40.8%) reported that they have no toilet facility, so they practiced open defecation in the bush at the periphery of their villages, (32%) use pour/flush toilets, (25.9%) use pit toilets (latrine) and only few households reported using bucket latrine (1.3%). In addition, the study also showed that about 53.1% and 61% of the respondents respectively have access to and share toilet facilities at all times. It was also indicated that 58.5% of the respondents have their toilet facilities located outside the building. However, 50% of the respondents indicated cleaning of the toilet facilities daily.

In addition, about 55.9% of the respondents reported that they had experienced water related ailments in their households at one time or the other. The study observed that 44.1% of the respondents could not name any waterborne diseases. The study showed that 16.2% reported experiencing malaria, typhoid (13.3%), diarrhoea (19.4%), and cholera (7%). Furthermore, the study showed that 68.5% of the respondents also knew the transmission route for waterborne diseases was through poor water quality. 31.5% of the respondents who answered "no" to diseases attribution to water were able to convey at least one of several common causes such as infestation of food by flies, eating contaminated or improperly prepared food in which they referred to as bad food, poor sanitation and hygiene behaviour, seasonal/weather changes and spiritual notions (evil powers) especially where lives are lost. It was further revealed in table 1 that there is a strong inverse relationship between time spent for water collection and incidence of diseases in the study area (r = -0.52), suggesting that, as time spent for water collection reduces, hygiene practices increase, then incidence of diseases reduces and the health of people becomes better.

Table 1: Pearson Correlation Values between Time Spent for Water Use, Hand Washing and Incidence of Disease

Water Use Variable	Hand washing before eating	Hand washing after toilet	Hand washing after cleaning toilet	Incidence of disease
Time spent collecting water	-0.97	-0.76	-0.61	-0.52
Water Sources	-	-	-	0.55

Water plays a prominent role in the practice of hygiene and maintenance of proper sanitation facilities. The study examined household water use behaviour and hygiene practices in Ijumu LGA and it was observed from the result of the socioeconomic characteristics of the respondents that the larger proportion of the age group tilt towards the older people. The reason for this may be because the younger age range whom constitute the labour force, might have moved to where there are more economic opportunities like jobs and enterprise transactions. It was also observed that not all households have the government pipe water connection in their compound. And where available, water rarely comes out. Hence, residents rely on other accessible and nearby water sources to meet their daily water needs. Thus, the quantity of water use in the households depends on the time spent for water collection, as it influences the hygiene and therefore health condition of the people. This finding agrees with the view of Ifabiyi and Onundi (2014) that households utilise water sources accessible and nearby.

The result of the correlation analysis between water sources and health condition of respondents showed a positive relationship between water source and health conditions suggesting that the more improved the water source, the better the health condition of the respondents. Similarly, Esrey (1996) believed that there are a lot of health benefits when water becomes readily available on-plot. The study further revealed that majority of the study population (54.9%) are highly aware of the importance of water treatment in the study area. However, consideration is only given to the source of water households' use for drinking. In general, households gave their opinion on what they feel is a safe water and the rationale for treating water coming from several sources.

Majority of households drink water only from unique sources (for instance, some streams such as *Osiiki, Abomu and Ihun* are basically meant for drinking). Findings from the study indicated that households are aware that treating water reduces the risk related to consumption of unsafe water as it was observed from some respondents during the data collection process that water aesthetic attributes such as (taste, smell, and colour) determine household's assessment of safety risk. For instance, it was observed from some respondents that they do not treat water collected from boreholes and pipe borne water because they believed that water from these sources is clean, odourless and tasteless, therefore it is safe for drinking. This result confirms the crucial role of perceptions and habits in inducing change in hygiene practice. Among the households who did treat their drinking water in Ijumu LGA, the study found out that the treatment methods vary from one household to the other.

Furthermore, the study examined hand washing which is an indicator of positive behaviour towards hygiene practice. In this study, hand washing at critical times referred to hand washing after defecation, before preparing food, before eating and after cleaning toilets. It was indicated by some of the respondents that before cooking, they usually wash their plates and pots, by doing that affords them the opportunity to wash their hands. The study found out that households are aware of the importance of hand washing practice especially at critical times in

Ijumu LGA as it was observed that perceptions and habits drives household assessment of safety risks and this helps in inducing positive change towards hygiene practices. Thus, this study believe that hygiene (hand washing) practices is dependent on accessibility to water supply that is, time taken to collect water as was indicated by previous study that hand washing is less common when a water source is greater than one kilometre from the home, but more frequent when the water is more accessible (Curtis *et al*., 2000).

White *et al*. (1972) also explained that the amount of water used for bathing must be sufficient to remove dirt and soap. Therefore, if water is insufficient, hand washing may be less frequent. Moreover, hand washing can be an effective barrier to transmission of pathogens. As described above, many of the local communities in Ijumu LGA used wide-mouth water storage containers and as also observed during the field survey that majority of the households dipped into their water containers to collect water. Hence, in situations where hand washing is not practiced, the probability of contaminating the quality of water may be on increase and this may affect public health. Thus, it can be inferred from the study that hygiene practice is aided by availability and accessibility to water supply.

The study also examined household sanitation practices and determinants for these practices. Three types of toilets are common in the study area but people of the sampled households have four means of defecating. It was observed from the study that pour/flush toilets were the major improved sanitation facility in Ijumu LGA, only few households use ventilated improved pit latrines. The reasons given by the respondents without toilet facility include lack of space for the facility and lack of money for the construction of facility, this confirms the reasons why majority of the households in the study area share their toilet facilities with their neighbours and family members. Although, lack of space was emphasised as the main reason for lack of toilet facilities, and reasons given were that the houses in the older sections of the communities were originally built in the olden days when provisions were not made for sanitation facility as that was the common designs of buildings at the time. Also, it was observed that houses were close to each other, as the land were communally owned by the extended family. It was further observed that some of the toilet facilities in the study area were in unhygienic conditions as there were common scenes of flies' infestation of the latrines; reason being that these facilities require water for their maintenance. Hence, pour/flush facilities may be difficult to maintain where access to water is limited. Therefore, some households in the study area may be prone to water-borne infections due to the unhygienic conditions of the facilities.

Furthermore, in order to assess the level of knowledge of respondents about water related sickness, questions were asked on the nature of ailment experienced in the household, causes and symptoms of the ailments. In the study, some respondents could not name any waterborne diseases either because they had no clue as to what was meant by waterborne disease or because they want to shy away from the question as was observed from a respondent "*ehh! me e se aisan, olorun a ni je"* "I have never been sick, may God forbid". Moreover, the study revealed that the pattern of relationships between incidence of diseases and water use behaviour variables is highly varied. Hence in Ijumu LGA, there is a strong negative relationship between time spent for water collection and incidence of diseases, suggesting that, as time spent for water collection reduces, hygiene practices increase, then incidence of diseases reduces and the health of people becomes better.

This study agrees with past study such as Esrey *et al.* (1991) that improvements to water supply can increase the level of health in the household as higher quantities of water used can allow for more and better hygiene practices. Esrey (1996) further opined that there are only

significant gains in health when water becomes available on-plot. Also, Howard and Bartram (2003) review studies which investigate the distance to water source and show a reduction in the incidence of diseases. For example, insufficient water for hand washing purposes can cause more disease transmission especially if the time taken to collect water is more than 30 minutes. This is also supported by Fewtrell *et al*., (2005) that the risk of contamination is present during the transport of water from the source to the home.

CONCLUSION

Although, the people in Ijumu LGA are meeting up with their water needs and demand from the various sources of water accessible to them, however, the quality of these sources of water cannot be guaranteed as the local communities only rely on their belief and perception to determine safer water. Nevertheless, the local communities are aware of the importance of good hygiene and this aid their positive behaviour towards hygiene practices, and this can be improved with reliable and access to safe water in their compounds. The study therefore concludes that accessibility to potable and reliable water supply will help improve sanitation and hygiene practice of the people. The study therefore suggests an examination of the water quality in order to ascertain whether what the people believe to be safe water is actually safe and comply with standard. The study also recommends sensitization and monitoring programs in order to create awareness on the importance of hygiene practice and where necessary enforce participation in sanitation programs.

References

Ashish J., Satish P., Jyoti B.K., Mehak S. and Awnish, K. S. (2013). Water sanitation Hygiene, knowledge, attitude and practice in Urban slum settings. Centre for Global Health and Development, 532-15.

Boot, M. and Cairncross, S. (1993). Actions Speak. The study of hygiene behaviour in water and sanitation projects. Delft: IRC and LSHTM, The Hague.

Braimoh, O.B. and Udeabor, S.E. (2013). Hand hygiene practices among Community Health Officers in Rivers State, Nigeria. Afr Health Sci. 13(2): 507-11.

Cairncross, S. (1990) Health impacts in developing countries: new evidence and new prospects. *Journal of Institution of Water Environment Management. 4 (6): 571-577.*

Curtis V, Cairncross S, Yonli R (2000) Domestic Hygiene and Diarrhoea— Pinpointing the Problem. Tropical Medicine and International Health, 5:22–32.

Ejemot, R.I., Ehiri, J.E., Meremikwu, M.M. and Critchley, J.A. (2008) Hand Washing for Preventing Diarrhoea. J. AdvNurs. 64 (1): 14-5.

Esrey S. A., (1996) Water, Waste, and Well-being: A Multicountry Study. American Journal of Epidemiology, 143:608–623.

Esrey, S. et al (1991). Effects of Improved Water Supply and Sanitation on Ascariasis, Diarrhea, Dracunculiasis, Hookworm Infection, Schistosomiasis, and Trachoma. *Bulletin of the World Health Organization* 69(5):609-621.

Ezenwaji, E.E. (2012). Institutional Framework for Public Water Supply and Sanitation Management. Department of Geography and Meteorology, University of Nigeria, Nsukka.

Fewtrell, L., R.B. Kaufmann, D. Kay, W. Enanoria, L. Haller, and J.M. Colford Jr. (2005). Water, Sanitation, and Hygiene Interventions to reduce Diarrhoea in Less Developed Countries: A Systematic Review and Meta-Analysis. The Lancet Infectious Diseases 5:42-52.

Howard G, Bartram J (2003). Domestic Water Quantity, Service Level and Health. New York: World Health Organization.

Ifabiyi I.P., Usman, B.A. and Orire, I.O Aledare A (2010). Productive Time of Women and Water Supply in Ijumu, Local Government Area, Kogi State, Nigeria. *Global Journal of Human Social Sciences.* 10(5): 45-52.

Ifabiyi I.P. and Onundi (2014). Daily Water Consumption Pattern and Time Spent in Collecting Drinking Water in Ijumu Local Government Area Kogi State.

Mertens, T.E., Jaffar, S., Fernando, M.A., (1992) Excreta Disposal Behaviour and Latrine Ownership in Relation to the Risk of Childhood Diarrhoea in Sri Lanka. *International Journal of Epidemiology*.

Obeta, M.C., and Chukwu, K.E. (2013). Water Supply and Demand in Nigera. Lagos: Merit International Publication

Orimoloye, E.O.; Amadi C.O.A.; Amadi A.N.; Azuamah Y.C.; Nwoke E.A.; Zacchaeus, U. & Dozie I.N.S. (2015). Assessment of Water Sanitation and Hygiene Practices in Ibadan, Nigeria. International Journal of Research (IJR) 2(2).

UNICEF (2015). Global Water Supply and Sanitation Assessment Report. New York.

UNICEF (2010). Water Sanitation and Hygiene in Nigeria, FACT SHEET.

White, G. F., Bradley, D.J. and White, A.U. (1972). *Drawers of Water: Domestic Water Use in East Africa.* Chicago: University of Chicago Press.

World Health Organization (2015). Health Systems: Improving Performance, World Health Report, Switzerland.

WHO and UNICEF Joint Monitoring Program (JMP) (2014). POST –2015 Proposed Targets and Indicators for Households, Schools and Health Centers.

WHO (2005). Health through Safe Drinking Water and Basic sanitation, World Health Organization, Geneva Switzerland.