

# A Survey on Knowledge of Neglected Tropical Diseases (Ntds) Among Residence of Port Harcourt City, Rivers State, Nigeria

Gboeloh, LeBari Barine , Elele, Kingsley

Department of Biology, Faculty of Natural and Applied Science, Ignatius Ajuru University of Education, Rumuolumeni, P. M. B. 5047, Port Harcourt, Rivers State, Nigeria.

\*Corresponding Author email: [lgboeloh@yahoo.com](mailto:lgboeloh@yahoo.com)

---

## Paper Information

Received: 19 June, 2017

Accepted: 24 July, 2017

Published: 10 September, 2020

---

## ABSTRACT

Public knowledge regarding neglected tropical diseases (NTDs) among residence of Port Harcourt city was investigated using structured questionnaire. Out of 2996 respondents comprising 1994(66.6%) males and 1002(33.4%) females, 1121(37.4%) have knowledge of neglected tropical diseases. This indicated a statistically significant ( $P<0.05$ ) poor knowledge of NTDs among residence of the study area. Of the 1121 respondents with knowledge of NTDs, 34.6% claimed to have heard about NTDs from journals and books. Respondents showed high percentage of knowledge for ascariasis (31.4%), trachoma (18.5%), onchocerciasis (10.8%), and leprosy (10.4%). They exhibited low percentage of knowledge for hookworm (8.7%), dracunculiasis(7.5%), schistosomiasis (4.5%), human Africa trypanosomiasis (2.8%), lymphatic filariasis (1.6%), trichuriasis (1.5%) and Chagas disease (1.2%) but no knowledge of buruli ulcer (0%). Majority of the respondents showed significant ( $P<0.05$ ) preference for the use of improved sanitation (37.9%), education and orientation (36.8%) for the control of NTDs. Public knowledge of the diseases among residence of the study area is low. Therefore it becomes pertinent for the government and other stakeholders to deliberately initiate and implement programs that will increase the knowledge of the public regarding NTDs. This will no doubt facilitate the effective implementation of control measures.

---

**Key words:** Survey, Knowledge, Neglected Tropical Diseases, Port Harcourt



This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

## Introduction

The World Health Organization have identified and designated a group of diverse communicable diseases occurring in 149 tropical and sub-tropical countries of the world as Neglected Tropical Diseases (NTDs). These NTDs include buruli ulcer, chagas disease, dengue and chikungunya, dracunculosis, echinococcosis, endemic treponematoses(yaws), lymphatic filariasis, trypanosomiasis also called sleeping sickness, river blindness, rabies, leprosy, schistosomiasis, leishmaniasis, trematodiosis, trachoma and taeniasis. Others include helminthiasis (ascariasis, trichiuriasis and hookworm infections), taenia/cysticercosis and trachoma, trachoma, rabies and mycetoma (WHO, 2009).

These diseases have close relationship with poverty, unsanitary condition and are prevalent among individuals that have close contact with vectors, domestic animals and livestock (WHO, 2009., Hotez *et al*, 2007). Unfortunately, sub-Saharan Africa countries are ranked first among the poorest nations of the world (Hotez and Kamath, 2009). For instance, according to a World Bank report, in sub-Saharan Africa, 51% and 73% of the total population lives on less than US\$1.25 and US\$2 per day respectively (Hotez and Kamath, 2009. Chen and Ravalion, 2008).

It is reported that an estimated 500million children are affected by NTDs in sub-Saharan Africa, and Nigeria accounts one quarter of the African burden (Hotez and Kamath, 2009., Olatanwa *et al*, 2014, FMH, 2015, Hotez *et al*, 2012). Hence, the general burden of NTDs on the development of sub-Saharan Africa cannot be over emphasize. The diseases are obstacles to economic development(Conteh, *et al*, 2010), and exact enormous pressure on pregnancy outcome, child development and workers' productivity especially in agricultural sector (Hotez and Kamath, 2009., Hotez *et al*, 2007., Molyneux *et al*, 2005). Although NTDs can be controlled and treated, they have continued to disfigure, disable and destroy many lives, cause absenteeism of children from school and keep endemic communities in cycles of poverty (FMH, 2015).

In Nigeria, the most prevalent of these diseases include elephantiasis with a projected 106million people in danger (GAELF, 2005), schistosomiasis with an estimated 29million infected persons (Steinmann *et al*, 2006), ascariasis which infects about 55million people (de Silva *et al*, 2003), hookworm with an estimated 38million infected persons, and trichuriasis with an estimated 34million infected persons (de Silva *et al*, 2003).

In DR Congo, the most prevalent NTDs include hookworm with an estimated 31million people infected (de Silva *et al*, 2003), schistosomiasis with 15million people infected (Steinman *et al*, 2006), 49million people are at risk of being infected with elephantiasis (GAELF, 2005), and trichuriasis with an estimated 26million people infected (de Silva *et al*, 2003).

In cameroon, Kanga *et al* (2012) and WHO (2012) reported that due to extreme poverty coupled with the geographical position of the country, ten NTDs are prevalent. These include soil transmitted helminth infections, human African trypanosomiasis, onchocerciasis, schistosomiasis, leishmaniasis, lymphatic filariasis, dracunculiasis, trachoma, leprosy, endemic trponematosis.

NTDs are considered public health concern especially in endemic countries by WHO but are often not given the desired attention by successive African government at all levels or even prioritized at the international level. Hence the diseases are said to be neglected.

In an attempt to control NTDs in line with World Health Organization's targets, in 2012, various stakeholders attended the London Declaration on Neglected Tropical Diseases (NTDs), promising modern and extended willingness toward the management and eradication of the first 10 ranked NTDs by the year 2020 (Global Network, 2014).

Subsequently, in 2013, the government of many African countries through the 6th Conference, of African Union Ministers of Health held in Addis Ababa, Ethiopia, made significant commitment to the management and eradication of selected NTDs in prevalent zones, especially, Drancunculiasis and river blindness. The conference pledged to continue the adoption of four control measures including chemotherapy using distribution and regular administration of drugs of choice among some populace, intensive disease management to treat complex cases, vector control and improve sanitation, and personal hygiene (AU, 2013).

Following the design of a master plan for control of NTDs by the government of Nigeria in 1992 (FHM, 2012) and considering the need for community participation in the control of NTDs, it is important to assess public knowledge and awareness concerning these diseases. This study is therefore aimed at the assessment of public knowledge of NTDs among residence of Port Harcourt city especially against the backdrop of no previous data on how much the residence know about NTDs. The results obtained will assist policy makers in planning and budgeting for control programs.

## Materials And Methods

### Study Area

The study was conducted in Port Harcourt city (Fig.1.0), the capital of Rivers state. The city is a major industrial city in the Niger Delta and covers Port Harcourt City, Obio/Akpor, Degema, Eleme, Oyigbo, Okrika and Ikwere Local Government Areas. The city is located along 4<sup>0</sup> 49<sup>1</sup> N and 7<sup>0</sup> 2<sup>1</sup>E. The major climatic characteristics of the city include high humidity, low pressure, high temperature and frequent rain fall.

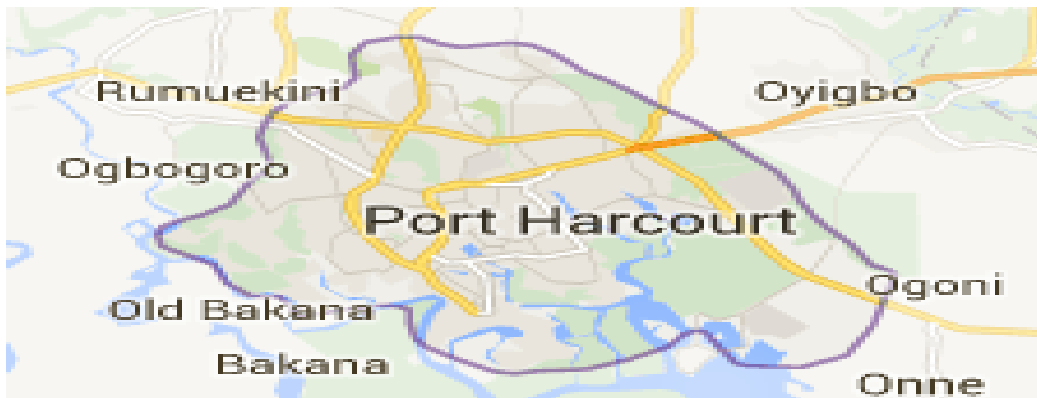


Figure 1.0: Map of Port Harcourt city

Source: [www.google.com.ng/maps/Port+Harcourt/data](http://www.google.com.ng/maps/Port+Harcourt/data)

### Sampling Area

Port Harcourt city is made up of urban areas and some rural peripheries. The areas sampled for the study included Government Residential Area (GRA), Diobu, Trans-Amadi, Elelenwo, Rumuokoro, Rumuokwuta, Choba, Rumuola and Eleme Junction.

### Sampling Techniques

A cross sectional survey design was adopted for the study. Information regarding age, sex, occupation, level of education, awareness and knowledge of NTDs was obtained using a self-designed questionnaire. A total of 3045 questionnaires were produced and randomly distributed among residence of the areas. The study was carried out between December, 2015 and May, 2016.

**Ethical approval**

Approval for the study was given by the Ethics Committee, Ignatius Ajuru University of Education, Port Harcourt. Again, the first part the questionnaire contained consent form that was completed by participants.

**Data Analysis**

Data obtained from the questionnaires were analyzed using SPSS version 17.0 at 95% significance level. Verification of the significance was done using chi square.

Table 1: Demographic Characteristics of Respondents (n=2996)<sup>+</sup>

Characteristics	No. of Respondents (%)
Sex	
Male	1994(66.6)
Female	1002(33.4)
Age	
10-20	50(1.7)
21-30	1073(35.8)
31- 40	1000(33.4)
41- 50	796(26.6)
51- Above	77(2.5)
Occupation	
Students (Secondary)	307(10.3)
(Tertiary)	590(19.7)
Civil Servants	470(15.7)
Job Seekers	508(17.0)
Self Employed	364(12.1)
Politicians	102(3.4)
Company Workers	177(5.9)
Lecturers	371(12.4)
Market Women	107(3.6)
TOTAL	2996

<sup>+</sup> Percentage based on number of questionnaires answered and returned

Table 2: Knowledge of NTDs among residence (n=2996)<sup>+</sup>

Variables	No. of respondents (%)
Have you heard of the acronym NTDs	
If yes, where did you hear about it	
Yes	1121(37.4)
No	1875(62.6)
Electronic media	100(8.9)*
Print media	207(18.5)*
Class room	171(15.3)*
Journals and books	388(34.6)*
Discussion with friends	101(9.0)*
Workshop/Seminar/Conference	182(16.2)*
Social media	34(3.0)*
Do you know the full meaning of NTDs	
Yes	1120(37.4)
No	1876(62.6)
Have you seen any one suffering from a NTD	
Yes	708(63.2)
No	413(36.8)
Is NTDs a public health problem?	
Yes	1120(100)
No	1(0)

<sup>+</sup> Percentage based on number of questionnaires answered and returned

\* Percentage totally exceed 100% because of multiple responses.

**Results**

A total of 3045 questionnaires were produced and randomly distributed to the residence of the selected areas within the city. Out of the 3045 questionnaires distributed, only 2996 were completed and returned.

Demographic analysis of the returned questionnaires indicated that 1994(66.6%) were males while 1002(33.4%) were females (Table 1). The age groups of 21-30years,31-40years and 41-50years represented 35.8%, 33.4% and 26.6% of the total respondents respectively.

Majority of the respondents were students (897/2996) representing 30% of the total respondents, followed by job seekers (508/2996), civil servants (470/2996) and lecturers (371/2996) representing 17.0%, 15.7% and 12.4% of the total respondents respectively (Table 1).

Out the 2996 questionnaires returned, 1875 (62.6%) of respondents claimed not to have heard of NTDs while 1121(37.4%) have heard of it (Table 2). Majority of those who have heard of NTDs got the information from journals and books (388/1121) representing 34.6% of total awareness. Others got it from print media (18.5%), workshop/seminar/conference (16.2%), class room (15.3%), and discussion with friends (9.0%).

All the 1120 (100%) of respondents that have heard of NTDs also claimed to know its full meaning and agreed that NTDs are public health problems. However, only 708(63.2%) agreed to have seen someone suffering from a NTD while 413(36.8%) have not seen any one suffering from a NTD (Table 2).

Table 3 showed that respondents have highest knowledge of ascariasis (31.4%), followed by trachoma (18.5%), onchocerciasis (10.8%) and leprosy (10.4%). On the other hand, respondents showed no knowledge of buruli ulcer (0%) and little knowledge of hookworm (8.7%), dracunculiasis(7.5%), schistosomiasis(4.5%), Human African trypanosomiasis (2.8%), lymphatic filariasis(1.6%), trichuriasis(1.5%) and Chagas disease(1.2%).

Respondents agreed that NTDs could be controlled majorly by improved sanitation (37.9%) and education and orientation (36.8%). Other control measures advocated by respondents included building and equipping hospitals (23.2%), community participation (12.6%), poverty reduction (12.0%), funding of agencies (11%) and legislation (9.9%)(Table 4).

Table 3: Knowledge of NTDs in relation disease type (n=1121)<sup>+</sup>

Disease type	No. of respondents (%)
Schistosomiasis	50(4.5)
Leprosy	117(10.4)
Onchocerciasis	121(10.8)
Human African Trypanosomiasis	31(2.8)
Chagas diseases	14(1.2)
Lymphatic filariasis	18(1.6)
Leishmaniasis	12(1.1)
Trachoma	207(18.5)
Ascariasis	352(31.4)
Hookworms	98(8.7)
Trichuriasis	17 (1.5)
Buruli ulcer	0(0)
Druncunculiasis	84(7.5)
TOTAL	1121

<sup>+</sup>Percentage is in accordance with number of respondents that claimed to know about NTDs

Table 4: knowledge of NTDs in relation to control measures (n=1121)<sup>+</sup>

Variables	No. of respondents (%)*
How can NTDs be controlled	
Education and orientation	412(36.8)
Poverty reduction	135(12.0)
Improved sanitation	425(37.9)
Building and equipping hospitals	260(23.2)
Community participation	141(12.6)
Funding of agencies	123(11)
Legislation	111(9.9)

<sup>+</sup>Percentage is in accordance with number of respondents that claimed to know about NTDs

\* Percentage totally exceed 100% because of multiple responses.

## Discussion

Over the years, health organizations, non-governmental organizations, partners and government of countries in sub-Saharan Africa where NTDs have paid little attention to the diseases. Rather, priority is accorded other diseases such as HIV/AIDS, malaria and tuberculosis (Olatunwa *et al*, 2014., Kanga *et al*, 2012., WHO, 2008).

Following the London declaration and the sixth conference of African Union ministers of health in 2012 to adopt WHO's global roadmap to elimination of NTDs by 2020, it is equally important, as part of the process to assess the level of awareness and knowledge of the public about these group of diseases. In the study area, the level of knowledge of NTDs is

relatively poor. Out of 2996 respondents, only 1121(37.4%) have heard of NTDs and also know the full meaning of NTDs. The results indicated statistically significant difference ( $P<0.05$ ) in the percentage of respondents that have knowledge of NTDs compared to those that have no knowledge. This result is contrary to the 63.1% recorded by Olatunwa *et al* (2014) in Abuja, Nigeria but lower than the 23.1% reported by Kamga *et al* (2012) in some regions of Cameroon.

The respondents showed better knowledge of ascariasis (31.4%) than any other NTD. This was statistically significant compared to their knowledge of other NTDs. This may be because of the high prevalence of the parasites in the study area (Gboeloh and Elele, 2013). There was no statistical difference in their knowledge about trachoma (18.5%), Ochocerciasis (10.8%) and leprosy (10.4%).

However, the respondents have the lowest of knowledge for Chagas disease, schistosomiasis, trichuriasis, druncunculiiasis and leishmaniasis and no knowledge for buruli ulcer. Similar low results were recorded by Nwogu and Okaka (2008) concerning onchocerciasis in Okpuje, Edo State, Nigeria and Ugboimoiko *et al* (2010) concerning urinary schistosomiasis in south – western, Nigeria.

In the present study, only 1.1%, 7.5% and 1.6% of respondents had knowledge of leishmaniasis, druncunculiiasis, and lymphatic filariasis respectively as against 18.0%, 23.1% and 75.3% knowledge recorded by Kamga *et al* (2012) for leishmaniasis, druncunculiiasis, and lymphatic filariasis respectively, in Cameroon. The result may be due the fact that the diseases may have limited distribution in the country.

The 1.2% and 0 (0%) awareness status accorded Chagas disease and buruli ulcer may be because the causes and manifestation of the diseases are not known to the respondents as majority claimed not to have seen someone suffering from the diseases. It may also be due to the fact that the diseases are restricted to certain geographical regions (Kamga *et al*, 2012., WHO, 2000).

Respondents' knowledge of the controls measures was high and there was no statistical difference between those that advocated for control through education and orientation, and improved sanitation. However, a statistical difference ( $P<0.05$ ) was observed between respondents that advocated for improve sanitation, building and equipping hospitals and those that advocated for other control measures. The preference for these two control measures may be as a result of the success recorded in the control of HIV/AIDS, Tuberculosis and malaria through mass orientation and provision of drugs (WHO, 2008).

## Conclusion

Many NTDs are still prevalent in Nigeria and interestingly, public knowledge of the diseases among residence of the study area is low. Therefore it becomes pertinent for the government and other stakeholders to deliberately initiate and implement programs that will increase the knowledge of the public regarding NTDs. This will no doubt facilitate the effective implementation of control measures.

## References

- Akpoghomeh O .2001. Street map of Port Harcourt metropolis and its environs. Kraft Books. Pp 214-312.
- AU .2013. Neglected Tropical Diseases in the Africa Region. Sixth Conference of AU Ministers of Health, Addis Ababa, Ethiopia.
- Chen, S.H and Ravallion, M (2008). The developing world is poorer than we thought, but no less successful in the fight against poverty. World Bank Policy Research Working Paper 4703 (WPS 4703).
- Conteh L, Engels T, Molyneux, DH. 2010. Socioeconomic aspects of neglected tropical diseases. *Lancet*, 375(9710), 239-47.
- de Silva NR, Brooker S, Hotez PJ, Montrosor A, Engels D.2003. Soil transmitted helminth infections: updating the global picture. *Trends in Parasitology* 19(12): 547- 551.
- Federal Ministry of Health .2012. Nigeria master plan for neglected tropical disease (NTDs) 2013–2017. Federal Ministry of Health. Abuja 142 p.
- Federal Ministry of Health.2015. Family health. Federal Ministry of Health. Abuja.
- Gboeloh LB, Elele K .2013. Incidence of Gastrointestinal Parasites among Workers in Major Abattoirs in Port Harcourt, Rivers State, Nigeria. *International Journal of Biological, Biomolecular, Agricultural, Food and Biotechnological Engineering* 7(11): 748-750.
- Global Alliance to Eliminate Lymphatic Filariasis.2005. Global Alliance to Eliminate Lymphatic Filariasis- progress as of January 2005.
- Global Network .2014. Ending Neglected Tropical Diseases Opportunities to Support the Control and Elimination of NTDs.
- Hotez JP, Kamath A.2009. Neglected Tropical Diseases in sub-Saharan Africa: Review of Their Prevalence, Distribution and Disease burden, *PLoS Neglected Tropical Diseases* 3(8):e412.
- Hotez PJ, Asojo OA, Adesina AM.2012. Nigeria: “Ground Zero” for the high prevalence neglected tropical diseases. *PLoS Neglected Tropical Diseases* 6: e1600.
- Hotez PJ, Kamath A .2009. Neglected tropical diseases in sub-Saharan Africa: Review of their prevalence, distribution, and disease burden. *PLoS Neglected Tropical Diseases* 3: e412.
- Hotez PJ, Molyneux DH, Fenwick A, kumaresan J, Sachs SE.2007. Control pf neglected tropical diseases. *England Journal of Medicine*, 357:1018-1027.
- Kamga HLF, Assob NJC, Nsagha DS, Njunda AL, Njimoh DL .2012. A community survey on the knowledge of neglected tropical diseases in Cameroon . *International Journal of Medical Biomedical Research* 1(2):131-140.
- Mmom PC.2003. The Niger Delta: A spatial perspective to its development. Pp 23-45. Zelon Enterprises, Port Harcourt.
- Molyneux DH, Hotez PJ, Fenwick A.2005. “Rapid-impact interventions”: how a policy of integrated control for Africa's neglected tropical diseases could benefit the poor. *PLoS Medicine* 2(11):e336
- National Population Commission .2006. Nigeria Demographic and Health Survey, 2006. NPC, Abuja.
- Nwogu MD, Okaka CE.2008. The knowledge, attitude and perception of onchocerciasis and ivermectin treatment by the people in Okpuje, Edo State, Nigeria. *International Journal Biomedical Health Science* 4: 122–123.
- Olamiju OJ, Olamiju FO, Adeniran AA, Mba IC, Ukwunna CC, Chukwu O, Uwem FE.2014. Public Awareness and Knowledge of Neglected Tropical Diseases (NTDs) Control Activities in Abuja, Nigeria. *PLoS Neglected Tropical Diseases* 8(9): e3209.

- Steinman P, Keiser J, Bos R, Tanner M, Utzinger J.2006. Schistosomiasis and water resources development: systematic review, meta-analysis and estimates of people at risk. *Lancet Infectious Diseases* 6(7): 411 – 425.
- Ugbomoiko US, Ofoezie IE, Okoye IC, Heukelbach J.2010. Factors associated with urinary schistosomiasis in two peri-urban communities in south-western Nigeria. *Annals Tropical Medical Parasitology* 104:409–419.
- WHO.2009. Neglected tropical diseases, hidden successes, emerging opportunities. World Health Organization. Geneva.
- WHO/TDR .2008. Report of WHO/TDR on community directed intervention for major health problems in Africa. Geneva. World Health Organization.132 p.
- World Health Organization .2016. Factsheet on Neglected Tropical Diseases. World Health Organization, Geneva.
- World Health Organization.2000. Buruli ulcer-*Mycobacterium ulcerans* infection. Geneva: World Health Organization./CDS/CPE/GBUI/ 2000.1.
- World Health Organization.2012. Elements of the Roadmap for Neglected Tropical Diseases in the WHO African Region. Priorities for Neglected Tropical Diseases in the WHO African Region, World Health Organization. Geneva.