

**OBSERVATION ON BEHAVIOURS ASSOCIATED WITH HUMAN INFECTIONS WITH
INTESTINAL HELMINTH IN SELECTED LOCAL GOVERNMENT AREAS OF RIVERS
STATE**

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Abstract

Nematodes of medical importance are major burden associated with great health challenges. The effects of these untreated infections result in chronic inflammatory disorder and are linked to more insidious persistent health conditions among the sufferer. Despite the availability and cost effectiveness of modern medicine and continuous scanning and monitoring of the distribution and pattern of spread, recorded percentage prevalence have continued to increase. This study aimed to determine some risk factors of behavioural disposition associated with the emergence and re-emergence of parasitic infections amongst human populace. A structured questionnaire was administered amongst available school-children in Emohua and Etche Local Government Areas of River State. A total of 610 respondents participated, of which 210 were from Etche and 400 were from Emohua. Data was analyzed using descriptive statistics and chi-square. Result shows 82(20.5%) of Emohua and 41(19.5%) of Etche respondents practiced open defecation. 139(34.8%) and 84(40.0%) of respondents of Emohua and Etche respectively walk barefooted. 161(40.3%) respondents from Emohua and 55(26.2%) respondents from Etche very rarely practiced regular hand-washing. Study revealed that risk factors known to impact on infection include open defecation, within the school premises and homes. This indicates high level of environmental contamination within the study areas. Walking barefooted, poor personal hygiene amongst others also create chances of been infected. It is therefore recommended that everyone should take responsibilities of the immediate environment and personal hygiene. Public health professionals should be in frontlines of informing and educating the public on the impact of infection.

Keywords: Behaviour, Infection, Observation and Helminth

Introduction

Ascaris lumbricoides, trichuristrichiura and species of Hookworm are major causative agents of intestinal helminth infection of human which falls under the category of leading Neglected Tropical Diseases (NTDs) in tropical and sub-tropical areas of the world (Hassan at al., 2017). These predominant helminth infections are water and excreta- related and humans acquired them through ingesting food contaminated with the infective form of the parasite and through penetration of the infective larvae into the skin of human when walking in a contaminated soil (Onyido et al., 2017,

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Taiwo et al., 2016; Akingbade 2013). These intestinal parasites causes a number of prevailing diseases in both adult and school- aged children and is also known to cause anaemia in pregnant women and children (Akingbade, 2017). Recent globalization has been impressive in the increase and spread of infections generated by soil- transmitted helminthes, and consequently human activities from one area to the other have created express dissemination of these infections with helminthes without barriers. Several environmental and human behavioural agents have been proven to aid in the survival, development, distribution and acquisition of human infection with intestinal helminthes parasites (World Vision, 2011). Sam-Wobo *et al.*, (2014) reported that, these human agents considered to lead a greater prevalence are poor sanitation system found amongst human population which includes poor house-hold sanitation, poor access to quality water which comprises unsatisfactory water supply at various home, lack of education – the people are not enlightened and so they are ignorant about the causes and effect of water and food–related infection. Most chiefly among poor sanitary conditions in Nigeria are indiscriminate defecation system practice in almost every corner of our environment, and the use of untreated human and animal dung as night soil (Odikamnoru *et al.*, 2013, Amadi *et al.*, 2010). WHO/UNICEF, (2010) estimated that 39% of the people were not having access to basic sanitation like latrines at home and in public places like bus stop. WHO/UNICEF (2008) statistically showed Nigeria as the largest population with unimproved sanitation, where 104.3 million people lived below the MDG’s access to sanitation and 23% of the Nigerian populace practiced open defecation. Prevalence of these intestinal helminthes parasites has continued to pose great health challenges amongst human population. It is estimated that 1 out of 3 people is affected with these helminthes (Ogbolu *et al.*, 2011). About 46 million children are at risk of the infection and from age group of 1 -14 are most infected (Stojcevic & Lucinger, 2010). Disease burden has resulted to physical deterioration and nutritional deficiency as a result of worm absorption of major nutrient needed. Infected worms are also known to feed on tissues of infected persons. The effect of untreated helminthes infection result in chronic inflammatory disorder, and it also linked to more insidious persistent health conditions among the sufferer (Utzinger, 2012). Despite the availability and cost effectiveness of modern medicine, the emergence and re-emergence of these infections have continue to strive among human population, and the recorded percentage prevalence rate has continue to rise (Nwoke et al., 2013). In Nigeria, it is as a result of set of commonly shared practices among the populace, which have shown to influence re-infection to the infection amongst the infected. Our customary belief of *Germ-No-Dey-Kill-Africa Man* has put many in ignorance of the effect of these infections, knowing that these infections are environmentally mediated. There is need for personal hygiene; everyone should take responsibility of her environmental hygiene. The public health professionals should be on the front lines of informing and educating the public about the environmental factors that impact personal on well-being and quality of life on a daily basis.

Materials And Methods

Study area

The study was undertaken in three communities in Emohua and three communities in Etche Local Government Area in River State of Nigeria. The area lies within the tropical rainforest zone of Africa and the climate is characterized with moderate dry and moderate rainy season. Average temperature is between 22°C -28 °C in all the study sites. Co-ordinate reading is between

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Latitudes 4°55'0''N and 7°5'0''E and Longitude 6°45'0''E and 7°5'0''E. The study area people are upland, predominantly an agrarians with a little of trading and civil servants. They exhibit common behavioural habits. Indiscriminate faecal disposal are order of the day. Spotted faecal matters are seen around their school premises, bus-stops, market places, and even around homes. Generally, sanitation facilities are grossly inadequate.

Ethical Approval for the Study

The authors got approval to carry out the study from the Head of schools in various communities where the study was conducted. Consequently, assent was also obtained from the respondents.

Data Collection on Determination of Pre-Disposing factors (PDF) of Infection

Demographical characteristics and risks factors were obtained using questionnaire from all the study areas. Questionnaire was conducted in English Language. Data on some pre-disposing factors, such as type of toilet facilities used, appropriate use of toilet facilities, observing generally, good hygienic behaviour after using the toilet, and walking bare-footed were collected. Very good numbers of children were seen walking bare-footed and sanitary facilities within these study areas were observed.

Statistical Analysis

The data was analyzed using descriptive statistics, such as percentages and result was presented as tables and graphically. Chi-square statistics was also used to test for significance differences.

Results

Out of a total of 210 respondents interviewed for risk factors of infection in Etche Local Government Area, and 400 respondents interviewed in Emohua Local Government Area for the questionnaire study, results were as follows. From the various study sites 51.4% and 53.8% were females while 48.6% and 46.3% were males in Etche and Emohua study sites respectively (Table 1 and 2). The predisposing factors based on response of the respondents on appropriate use of toilet facilities at schools and homes, and proper hygienic behaviour are shown in Table 3 and 4. In Etche study site, responses on appropriate use of toilet at school (Table 3), shows 25.7% used pit latrine, 54.8% used water closet, while 19.5% practiced open defecation system. At home, 30% used pit latrine, 61% used water closet while 9.1% still practiced open defecation. Response on hygienic behaviour of hand washing after toilet and playing shows 48.6% often wash-hands, 25.2% rarely wash-hands, while 26.2% very rarely wash hands. Response on wearing foot wear shows 33.8% often wore shoes, 26.2% rarely wore shoes, while 40.0% very rarely wore shoes. Table 4 shows response from Emohua study site. At home, appropriate use of toilet shows 30.5% used pit latrine, 60.8% used water closet, while 8.8% still practiced open defecation system. At school, 29.0% used pit latrines, 50.5% used water closet, while 20.5% still practiced open defecation system.

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Of the respondents who wore shoes in the school and around homes, 44.3% often wore shoes, 21.0% rarely wore shoe, while 34.8% very rarely wore shoes. Response on hygienic practice shows 28.8% often practiced hand-washing, 31.0% rarely wash-hands, while 40.3% very rarely wash-hands.

Table 1: Socio-Demographical Characteristic of the Study Population in Etche L.G.A.

Study Area	Male	Female
Site A	52 (56.5%)	40(43.5%)
Site B	27 (40.0%)	41(60.3%)
Site C	23 (39.7%)	27(54.0%)
Total	102 (48.6%)	108(51.4%)

Table 2: Socio-Demographical Characteristic of the Study Population in Emohua L.G.A

Study Area	Male	Female
Site A	76 (54.3%)	64(45.7%)
Site B	49(37.7%)	81(62.3%)
Site C	60 (46.2%)	70(53.9%)
Total	185 (46.3%)	215(53.8%)

Table 3: Response of Pre-disposing Factors of Infection Interviewed in Etche

<u>Appropriate use of Toilet Facilities at School</u>	<u>Response of uses (%)</u>
Pit latrine	54(25.7%)
Water closet (WC)	115(54.8%)
Open defecation	41(19.5%)
<u>Toilet Facilities at Home</u>	
Pit latrine	63(30.0%)
Water closet (WC)	128(60.95%)
Open defecation	19(9.05%)
<u>Hygienic Behaviour</u>	
Hand washing (often)	102(48.6%)
Hand washing (rarely)	53(25.2%)
Hand washing (very rarely)	55(26.2%)
<u>Wearing of Footwear</u>	
Wore shoe (often)	71(33.8%)
Wore shoe (rarely)	55(26.2%)
Wore shoe (very rarely)	84(40.0%)

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Table 4: Response of Pre-disposing Factors of Infection Interviewed in Emohua

<u>Appropriate use of Toilet Facilities at School</u>	<u>Response of uses</u>
Pit latrine	116(29.0%)
Water closet (WC)	202(50.5%)
Open defecation	82(20.5%)
<u>Appropriate Use of Toilet Facilities at Home</u>	
Pit latrine	122(30.5%)
Water closet (WC)	243(60.8%)
Open defecation	35(8.8%)
<u>Hygienic Behaviour</u>	
Hand washing (often)	115(28.8%)
Hand washing (rarely)	124(31.0%)
Hand washing (very rarely)	161(40.3%)
<u>Wearing of Footwear</u>	
Wore shoe (often)	177(44.3%)
Wore shoe (rarely)	84(21.0%)
Wore shoe (very rarely)	139(34.8%)

Discussion

The findings of this study indicate that there is total neglect on proper sanitation and hygiene practices amongst the people. Most observably, the study subjects from various study sites exhibit common behavioural habits. This could be that the people are ignorant of WASH-RELATED diseases and so they lack proper understanding of the hazards and consequences that are associated with not keeping proper hygiene (John, 2017). Habits commonly practiced amongst the people of the study areas include walking barefooted, some very rarely wash their hands after toileting and playing with soil, and very good number of them defecates in bushes within their homes and school premises. Thus, these habits are risk factors associated with human intestinal helminthes infection. This therefore reflects the poor hygienic practice of the study subjects and serves as an indication that human intestinal helminthes infections are prevalence in the study areas. This corroborates with Simon-Oke *et al* (2014) who stated that prevalence of human intestinal infection is an indicator of community life style . The findings showed very good number of the respondents commonly practiced open defecation system, including dumping and indiscriminate defecation. This is consistent with Kelechi *et al.*, (2015) who opined that poor sanitation practices contaminate the soil environment, and what we give to the environment is what the environment gives back to us. Thus, environmental contaminated with faecal matters indicate high public health hazard amongst the population residing in the area. The study area, especially schools had no access to quality toilet facilities and clean water supply. WHO/UNICEF, (2010) estimated that about 2.6 million people were without basic sanitation like latrines. Highlighting the importance of social and economic benefits to WASH interventions including environmental cleanliness and healthy living, they further emphasize that proper sanitation acts as barriers to transmission of infections from the environment to the human body. Thus, improved hygiene practices are essential to overcoming the challenges of

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deaths through infections with human intestinal helminthes. In some areas in Nigeria, indiscriminate defecation has become order of the day. This is because enact laws regarding to sanitations are weak, people are not restricted from indiscriminate defecation at dumpsites, nearby bushes, traffic highways, riverbanks and open field. It is obvious that most people are ignorance of the development, survival and transmission of these parasites.

Conclusion

Risk factors of infections with intestinal helminthes include poor sanitation and hygienic practices. There is need for sensitization program on toilet day and sanitation, to promote good behaviour toward defecation system in Nigeria. There should be adequate provision of sanitary facilities in school with adequate water supply by private and public sectors, to encourage children on hygienic practices. Finally, bus stops and market places should be provided with sanitary facilities to discourage indiscriminate defecation amongst Nigerian

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