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AWARENESS OF TYPHOID FEVER AND PREVENTIVE MEASURES AMONG RESIDENTS OF EPINMI AKOKO IN ONDO STATE, NIGERIA

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ABSTRACT
The awareness regarding the diseases among the community members help in prevention of the particular disease. It is essential to investigate the level of awareness and Preventive measures of typhoid fever especially among the residents of Epinmi Akoko in Ondo State to avoid the typhoid fever complications. The aim of This study is to investigate the level of awareness of typhoid fever and Preventive measures among residents of Epinmi Akoko in Ondo State. The study employed a descriptive cross sectional research design. The study was conducted in Epinmi Akoko. A multistage sampling technique was used to select a sample size of 240 respondents from a target population of 1,500 respondents which were used to collect relevant data. Data were collected through structured questionnaire which was analysed and presented using frequency, tables and percentages. The study showed that the residents have moderate level of awareness of signs and symptoms of typhoid fever (53.07%) and the mode of transmission of typhoid fever (56.09) respectively while there was significant difference on preventive measures of typhoid fever among male and female. Base on the findings, it was recommended that since residents of Epinmi Akoko have a moderate level of awareness of typhoid fever, more efforts should be made to increase the awareness about typhoid fever among residents of Epinmi Akoko in Ondo State.

Keywords: Awareness, Typhoid fever, preventive measures, residents of Epinmi Akoko

Introduction

Awareness involves sensitizing communities about maintaining health by informing them about the importance, effects, dangers, and consequences of their actions in the environment. Awareness is being conscious of something or having the ability to be cognizant of events. In this context, awareness refers to being conscious of the environment to prevent the occurrence of typhoid fever. Being aware of typhoid fever helps people to take preventive measures. Aderounmu (2022) confirmed that awareness provides a means through which the residents of Epinmi Akoko are educated on the preventive measures of typhoid fever.

Typhoid fever remains a persistent public health problem in many low and middle-income countries, particularly in rural communities where access to safe drinking water and adequate sanitation is limited. Orikpe (2020) stated that typhoid fever awareness and understanding of preventive measures are essential for reducing typhoid fever transmission. Typhoid fever is a life-threatening systemic infection caused by the bacterium *Salmonella enterica*, commonly known as *Salmonella Typhi*. Obanya (2021) noted that climate change has the potential to further increase the global burden of typhoid.

Typhoid fever affects many communities in Nigeria due to inadequate and limited awareness of preventive practices. In rural areas, people often experience high rates of typhoid fever infection because the residents depend on untreated water from streams, wells, or rainwater, especially in Epinmi Akoko where rainwater and river water are their major sources of water supply. Ifejika (2022) affirmed that the community's vulnerability to typhoid fever is due to poor water supply and inadequate control measures, which perpetuate the breeding of typhoid fever vectors. Maduaka (2018) stated that the situation is further compounded by lack of awareness and inadequate knowledge of effective preventive practices among community members.

Typhoid fever is common in developing countries. Most cases in the United States are brought in from other countries where typhoid fever is common. The majority of these cases arise when people visit relatives in countries such as India, Pakistan, and Bangladesh. Fafunwa (2017) reported that in the developing world, typhoid fever affects around 19.2 million people every year. Abdullahi (2016) stated that typhoid fever is most common in rural areas of developing countries where there is no modern sanitation. Countries like South and Southeast Asia, Central and South America, Africa, and the Caribbean are most affected by typhoid. Dajuma (2021) noted that children are more likely to get typhoid than adults. Typhoid fever gets its name from a high fever that can last for weeks if left untreated.

In addition, Omotosho (2020) estimated that 8 million people get sick from typhoid and 110,000 people die worldwide every year. Taiwo and Ajayi (2022) stated that communities that lack access to safe drinking water and adequate sanitation are at highest risk. Osagie (2018) opined that some people travelling are at risk of developing typhoid fever in many typhoid-endemic countries, especially in Asia and sub-Saharan Africa. Travellers are usually at risk when exposed to the environment.

Typhoid fever early symptoms may include fever, general ill-feeling, and abdominal pain. High fever and severe diarrhea occur as the disease gets worse. Arubayi (2018) confirmed that some people develop a rash called "rose spots," which form small red spots on the abdomen and chest. Other symptoms of the condition include stomach pain, loss of appetite, headache, and weakness that gets progressively higher over a few days.

Transmission of typhoid fever is through food or water contaminated with *S. Typhi*. The condition is highly contagious, and the bacteria can be passed out of the body in a person's feces and sometimes their urine. Obiagwu (2022) opined that when someone consumes food or drinks

water that has been contaminated with infected feces or urine, the bacteria will multiply in the body and spread into the bloodstream. The bacteria enter the body and transfer into the intestines, and then into the blood. In the blood, it will travel to lymph nodes, gallbladder, liver, spleen, and other parts of the body. Some people become carriers of *S. Typhi* and continue to release the bacteria in their stools.

Typhoid fever preventive measures such as boiling drinking water, washing hands regularly with soap, maintaining proper food hygiene, and improving environmental sanitation are essential in reducing the spread of typhoid fever. Smith (2019) submitted that the primary preventive measures for typhoid fever are drinking clean water and maintaining good hygiene, which includes handwashing. Wadi (2023) stated that food needs to be carefully prepared and handled properly with regard to handwashing and wearing gloves.

Alcohol-based sanitizer can also be used in the prevention of typhoid fever when there is no hot water. Okebukola (2021) stated that people should avoid drinking untreated water and flavored ices that could have been made with contaminated water. Community members need to thoroughly cook their food and serve it steaming hot. Prevention of typhoid fever should be based on what we eat and personal hygiene. If our environment is properly maintained, clean, and hygienic, it reduces the incidence of getting typhoid fever and the standard of living will be improved.

Personal hygiene such as regular handwashing with soap and clean water is of significant importance for the prevention of typhoid fever. Hand hygiene is an effective way to reduce transmission of typhoid fever. Ezeh (2018) noted that hands can easily carry the bacteria from contaminated surfaces to the mouth. This practice is important after using the toilet and before preparing or consuming food. Olaniyunu (2018) stated that vaccination significantly reduces the likelihood of typhoid fever infection but does not provide complete protection. Effective diagnosis and antibiotic treatment of infected persons help reduce the reservoir of infection within the community.

Epinmi Akoko is a semi-rural community in Akoko South East Local Government Area of Ondo State. The residents rely largely on untreated water sources and basic sanitation facilities. The area is characterized by environmental and infrastructural factors that may increase vulnerability to typhoid fever. Iwuoha (2022) noted that awareness of typhoid fever is essential for promoting preventive behaviors such as safe water use, proper food handling, hand hygiene, and timely health-seeking practices. In such communities, individual behaviors and household practices play an important role in the prevention of typhoid fever. Ogunyomi (2021) opined that men and women may differ in their knowledge, attitudes, and practices regarding typhoid fever preventive measures due to their different social roles and responsibilities within the household and community. This study therefore seeks to assess the awareness of typhoid fever and preventive measures among residents of Epinmi Akoko in Ondo State, Nigeria.

Statement of the Problem

Typhoid fever remains a significant public health concern in many developing regions, including rural and semi-urban communities in Nigeria. It is a life-threatening infectious disease caused by *Salmonella typhi*, commonly transmitted through the consumption of contaminated food and water, poor sanitation, and inadequate personal hygiene practices. Despite advances in medical treatment and public health awareness campaigns, the disease continues to pose serious health risks, particularly in areas with limited access to clean water and proper waste disposal systems.

In Epinmi Akoko, some residents face challenges regarding typhoid fever because of inadequate knowledge and awareness of preventive measures of typhoid fever in the environment.

Therefore, environmental and socio-economic factors in the community such as reliance on untreated water sources, poor sanitation infrastructure, overcrowding, and limited access to healthcare services may contribute to the continued spread of typhoid fever. The researchers are worried that when the people of the community consume contaminated food and water, they may contract typhoid fever.

Therefore, if the people of the community are knowledgeable about the causes, symptoms, mode of transmission, and practice of preventive measures of typhoid fever, their general well-being would be improved. Furthermore, preventive behaviors such as regular handwashing, proper food handling, safe water treatment, and use of hygienic sanitation facilities will improve the wellness of the residents of Epinmi Akoko. Therefore, this study seeks to assess the level of awareness of typhoid fever and the preventive measures adopted by residents of Epinmi Akoko in Ondo State.

Purpose of the Study

The specific objectives of the study are

1. To determine the level of awareness of the signs and symptoms of typhoid fever possessed by residents of Epinmi Akoko in Ondo State.
2. To determine the level of awareness of mode of transmission of typhoid fever possessed by residents of Epinmi Akoko in Ondo State.
3. To determine the level of awareness of preventive measures of typhoid fever adopted by residents of Epinmi Akoko in Ondo State based on gender.

Research Questions

The study was guided by the following research questions:

1. What is the level of awareness of the signs and symptoms of typhoid fever possessed by residents of Epinmi Akoko in Ondo State?
2. What is the level of awareness of the mode of transmission of typhoid fever possessed by residents of Epinmi Akoko in Ondo State?
3. What is the level of awareness of preventive measures of typhoid fever adopted by residents of Epinmi Akoko in Ondo State based on gender?

Research Hypothesis

H_0: There is no significant difference on the level of preventive measures of typhoid fever adopted by residents of Akoko in Ondo State based on gender.

Methods

A descriptive cross-sectional survey design was adopted to assess the awareness of typhoid fever and Preventive measures among residents of Epinmi Akoko. The study was conducted in Epinmi Akoko, Ondo State, Nigeria. The population comprised all the residents in Epinmi Akoko. A sample of 240 residents was selected using a multistage sampling technique. Data were collected using a structured questionnaire consisting of sections socio-demographic characteristics, signs and symptoms, mode of transmission, are preventative measures of typhoid fever. Contents validity was ensured through expert review and reliability was confirmed through a Cron Bach alpha coefficients of.85. Data were analysed using Descriptive statistics to summarized the frequency and percentage distribution of the Respondents while chi-square statistic was used to determine the association between preventive measures of typhoid fever among male and female residents of Epinmi Akoko. Statistical significance was set at .05 level. Data analysis was performed using statistical software such as SPSS. In determining the level of awareness of typhoid fever and preventive measures, Ashur's (1977) modified by Okafor (1997) criteria for determining level of awareness was used .According to these criteria, scores from 0-39 per cent was considered

low awareness (LA), 40-59 per cent was considered as moderate awareness (MA),60 per cent and above was considered High awareness (HA).

Results

Table 1: Percentage responses of level of Awareness of symptoms of Typhoid Fever Possessed by residents of Epinmi Akoko in Ondo State (n=240)

S/N	Signs & symptoms of Typhoid fever	Yes F.	%	No F	%
1	Headache	153	(63.75)	87	(36.25)
2	Loss of appetite	135	(56.25)	105	(43.75)
3	Abdominal pain	73	(30.42)	167	(69.58)
4	Cough	128	(53.33	112	(46.67)
5	VOMITING	175	(72.92)	65	(27.08)
6	Diarrhea or constipation	95	(39.58)	145	(60.42)
7	Weakness and fatigue	123	(51.25)	117	(48.75)
8	Muscle aches	137	(57.08)	103	(42.92)
	Overall (%)		53.07		46.93

Key: Low Awareness level=0-39%, moderate awareness level=40-69%, High awareness level=70% and above.

The results presented on table 1, above showed the level of awareness of symptoms and signs of typhoid fever possessed by the residents of Epinmi Akoko in Ondo State (53.07%) towards the symptoms and signs of typhoid fever virus. This means that, there is a moderate level of awareness of signs and symptoms of typhoid fever among residents of Epinmi Akoko.

Table 2: Percentage responses of level of Awareness of mode of transmission of Typhoid Fever Possessed by residents of Epinmi Akoko in Ondo State (n=240)

S/N	**items on modes of transmission of typhoid fever**	Yes F	%	No F	%
1	Food and water contaminated	125	(52.08)	115	(47.92)
2	person to person contact	143	(59.58)	97	(40.42)
3	Unclean environment	137	(57.08)	103	(42.92)
4	Improper handwashing	163	(67.92)	77	(32.08)
5	improper disposal of waste	101	(42.08)	139	(57.92)
6	Food handler by an infected person or carrier	116	(48.33)	124	(51.67)
7	Eating contaminated food	171	(71.25)	69	(28.75)
8	Contaminated water	121	(50.42)	119	(49.58)
	Overall (%)		56.09		45.92

Key: Low Awareness level=0-39%, moderate awareness level=40-69%,High awareness level=70% and above

The results presented on table 2, above showed that residents of Epinmi Akoko in Ondo State had moderate level of awareness of mode of transmission of Typhoid fever (56.0%).This means that the people of Epinmi Akoko have a good awareness of mode of transmission of Typhoid fever among the residents of Epinmi Akoko in Ondo State.

Table 3: Percentage responses of level of Awareness of preventive measures of Typhoid Fever adopted by residents of Epinmi Akoko in Ondo State based on gender (n=240)

S/N	Preventive measures of typhoid fever	Male (n=117)		Female (n=123)	
		F	%	F	%
1	Maintence Proper hygiene	97	(82.91)	112	(91.06)
2	Proper sanitation	85	(72.65)	102	(82.93)
3	Safe water	10	(8.55)	111	(90.24)
4	Food safety	7	(5.98)	110	(89.43)
5	Early treatment	12	(10.26)	119	(96.75)
6	vaccination	13	(11.11)	105	(85.37)
7	Avoid contaminated food	92	(78.63)	117	(95.12)
	Overall (%)		38.58		90.13

Key: Low Awareness level=0-39%, moderate awareness level=40-69%,High awareness level=70% and above

The results presented on table 3, above showed that female had high level of awareness of Preventive measures of typhoid fever (90.13%) while male had low level of (38.58%) preventative measures of typhoid fever among the residents of Epinmi Akoko in Ondo State. This implies that female are more aware of Preventive measures of typhoid fever than male among the residents of Epinmi Akoko in Ondo State based on gender**.**

Table 4: Summary of the Chi-square Analysis of Responses Regarding the level of Awareness of preventive measures of Typhoid fever adopted by residents of Epinmi Akoko in Ondo State **based on gender**

Variables	N	Yes O(E)	No O(E)	X^2	Crit	Df	P-val	Decision
Male	117	83(63.86)	34(53.14)	24.645	3.841	1	0.00	Rejected
Female	123	48(67.14)	75(55.86)					

Key:0= Observed frequency, E=Expected frequency, p-value <.05 significant

The table 4, shows that the null hypothesis of no significant difference in the awareness of Preventive measures of typhoid fever among residents of Epinmi Akoko in Ondo State based on gender was rejected the calculated (x^2=24.645), critical value=3.841, df=1, p=0. 0,≤.05). This implies that there was significant difference in the awareness of Preventive measures of typhoid fever possessed by male and female residents of Epinmi Akoko in Ondo State based on gender.

Discussion of Findings

The result in Table 1 revealed that the level of awareness of signs and symptoms of typhoid fever possessed by residents of Epinmi Akoko was moderate (53.07%). This was normal because some of the residents were aware that drinking contaminated water may cause typhoid fever

infection. This finding is in agreement with the study of Arubayi (2018), which confirmed that some people develop a rash called "rose spots," which are small red spots on the abdomen and chest. Similarly, the study of Abdullahi (2016) stated that typhoid fever is most common in rural areas where there is no modern sanitation.

The result in Table 2 revealed that the level of awareness of the mode of transmission of typhoid fever possessed by the residents of Epinmi Akoko was moderate (56.09%). This is expected and therefore not surprising, because the findings showed that many residents of Epinmi Akoko have heard about the disease and its mode of transmission routes. Therefore, some of the community members have experienced and are knowledgeable about the mode of transmission of communicable diseases, and this makes the people of the community aware that typhoid fever can be transmitted through drinking contaminated water. This finding is in line with the study conducted by Obiagwu (2022), who opined that when someone consumes food or drink that has been contaminated with infected feces or urine, the bacteria will multiply in the body and spread into the bloodstream. The majority of the residents were aware that typhoid fever can be transmitted through drinking contaminated water and through an unclean environment. Also, the majority of the residents were aware that a food handler who is infected may indirectly cause typhoid fever disease. This suggests that basic awareness about the disease exists within the community. Similarly, the study showed that many people in the community have identified contaminated food and water as the primary mode of transmission of typhoid fever.

The result in Table 3 revealed that females possessed a higher level of awareness of preventive measures of typhoid fever than their male counterparts. This result was normal and therefore not surprising, because females are more available to maintain proper hygiene and safe water during food handling in the house, and it is their role to maintain the environment that might affect health or cause infections to health. This finding is in line with the study conducted by Okebukola (2021), who stated that people should avoid drinking untreated water and flavored ices that could have been made with contaminated water. Females were known to practice proper hygiene more than their male counterparts. This implies that respondents who received health information from clinics or media platforms tended to have better knowledge about the preventive measures of typhoid fever.

The result in Table 4 revealed that male and female residents of Epinmi Akoko differed significantly in their level of awareness of preventive measures of typhoid fever. The result, however, portends the need to plan more educative programmes for males on the preventive measures of typhoid fever. This result was expected and not surprising. This is because in most societies, women are by nature more concerned with the role of keeping the environment clean through sweeping, collecting and disposing of refuse, and maintaining the proper use of water. The finding of the study is in agreement with the study of Ogunyomi (2021), who opined that men and women may differ in their knowledge, attitudes, and practices regarding typhoid fever prevention because of their different social roles and responsibilities within the household and community.

Conclusion

The study concluded that residents of Epinmi Akoko have a moderate level of awareness regarding the signs and symptoms as well as the mode of transmission of typhoid fever, while there was inadequate awareness of preventive measures of typhoid fever among males, and there was a significant difference between the awareness of preventive measures of typhoid fever among males and females. These gaps may increase vulnerability to typhoid fever within the community.

Recommendations

1. The community shareholders should encourage the residents to imbibe in good health and practices health hygiene to prevent them from disease associated with the typhoid fever
2. More efforts should be made to increase the public health awareness on typhoid Fever among the residents
3. Public-health education programmes should be organized among the residents of Epinmi Akoko in order to educate them the signs and symptoms, mode of transmission and Preventive measures of typhoid fever.

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