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THE AGE-SPECIFIC PREVALENCE OF TYPHOID FEVER AND ASSOCIATED INDIVIDUAL FACTORS AMONG PATIENTS ATTENDING THE OUTPATIENT DEPARTMENT AT BUSHENYI HEALTH CENTRE IV. A CROSS-SECTIONAL STUDY.

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ABSTRACT

Background

Typhoid fever remains a major public health problem in many developing countries. Therefore, the study aimed to determine the prevalence of typhoid fever and its associated risk factors among patients attending OPD at Bushenyi Health Centre IV.

Methods

A descriptive cross-sectional study design was employed in Bushenyi Health Centre IV and a quantitative study approach was conducted. Using a systematic random technique, a sample size of 100 respondents was selected. Data was collected using an administered questionnaire to obtain the socio-demographic characteristics and the individual-related factors. The laboratory procedure was also conducted for the diagnosis of typhoid fever in the admitted patients by collecting blood samples from them and sent in the laboratory for testing to determine the prevalence.

Results

The prevalence of typhoid fever was found to be 20%. The most affected age group by typhoid fever in the study was 15-24 years. Low-income status, use of contaminated water for domestic use, drinking unsafe water, improper disposal of human waste, and lack of health education for the people in the area were the most individual factors associated with the spread of typhoid fever.

Conclusion

The inability to pay for the treatment of the disease, fetching water for domestic use from unprotected wells and streams and open waste disposal with failure to get information about typhoid fever prevention contributed to the prevalence of typhoid fever among patients attending OPD at Bushenyi Health IV.

Recommendations

The Ministry of Health in Uganda and health service providers should encourage and implement health education about disease prevention & the importance of proper waste disposal and washing hands with soap.

Keywords: Fever, Outpatient Department, Bushenyi Health Centre IV, Bushenyi District
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BACKGROUND OF STUDY

Typhoid fever is a systematic disease caused by Salmonella enteric Serova a gram-negative bacterium. Humans are the only host and transmission mostly occurs through the ingestion of water or food contaminated with feces from an acutely ill or convalescent patient or an asymptomatic carrier (Kabwama et al., 2017)

The hazard of the disease is high in undeveloped countries where typhoid salmonella is endemic due to poor hygiene and sanitation and the non-availability of safe sustenance and water (Antillón et al., 2017).

According to Marchello et al. (2020), Typhoid fever in the community must be diagnosed and treated promptly and accurately to prevent complications that could necessitate hospitalization or even death. Typhoid intestinal perforation (TIP), gastrointestinal hemorrhage, cholecystitis, myocarditis, shock, encephalopathy, pneumonia, and anemia are among the consequences associated with typhoid fever. Moreover, TIP and gastrointestinal hemorrhage are serious complications that are often fatal, even if managed surgically (Marchello et al., 2020)

The illness only passes between people; it is not shared by animals. Therefore, the main ways to prevent typhoid disease are to ensure that drinking water is clean, maintain good hygiene and sanitation standards by washing your hands frequently, and make sure that drinking water and sewage pipes are kept apart. Food should also be prepared carefully, and food handlers should be especially careful to wash their hands and wear gloves. Food that has been left over from a previous meal should be reheated adequately before being eaten (Robertson, 2023)

However, typhoid conjugate vaccines (TCV) are highly sensitive and have been recommended for use in typhoid fever-endemic countries. The introduction of vaccines can help with the persistent issue of pediatric typhoid fever and the developing issue of multi-drug resistance (MDR) in the afflicted areas. (Bentsi-Enchill & Hombach, 2019)

Globally, Typhoid fever infects roughly 21.6 million people and kills an estimated 200000 people every year (Brusch, 2022)

In Ghana, reports of typhoid fever cases from 2017, 2016, and 2015 indicated 365148, 384704, and 337120 cases of the disease, respectively, with the top twenty causes of outpatient morbidity and prevalence of 1.2%, 1.7%, and 1.3% of hospital admissions, respectively. These reports of cases in Africa continued to show a concerning trend and a serious public health concern (Fusheini & Gyawu, 2020).

According to the study conducted by Kibiru et al. (2012) in East Africa (Kenya), the majority of research participants (63%) had experienced typhoid episodes at some point in their lives, whereas 37% had not, which accounts for the high prevalence of typhoid in the region. (Kibiru et al., 2012)

According to a Ugandan study, the national and district levels of typhoid fever incidence were 160 and 60 cases per 100,000 people annually, respectively, with the majority of cases occurring in urban areas. The highest prevalence was found in the Bwera subcounty in the Kasese district, followed by Kisinga, Kitholhu, and Nyakiyumbu sub-counties. (Mirembe et al., 2019)

In western Uganda, from December 2007-2009, 577 cases were reported, 289 were hospitalized 249 were outpatients, 47 deaths from typhoid fever occurred, and salmonella typhi was isolated from 27 (33%) of 81 patients (Neil et al., 2012)

According to a study by Agwu, typhoid fever is quite common (36.6%) among feverish patients who visit clinics in the Bushenyi district between the ages of 10 and 19. (Agwu, 2012)

According to a WHO report in December 2015, typhoid was reported nearly in all districts with 68 cases from Kiryandongo district (WHO Uganda, 2016)

Data on the prevalence of typhoid fever and associated risk factors is scanty and no studies are being carried out about the problem in the study area though it is one of the top diseases in their health records. Therefore, this study aims to determine the prevalence of typhoid fever and its risk factors among patients attending OPD at Bushenyi Health Centre IV.

Specific objectives

- To determine the prevalence of typhoid fever among patients attending OPD at Bushenyi Health Centre iv.
- To identify the age group most affected by typhoid fever among patients attending OPD at Bushenyi Health Centre iv.
- To determine the individual factors leading to the spread of typhoid fever among patients attending OPD at Bushenyi Health Centre

METHODOLOGY

Study area

This study was carried out at Bushenyi Health Centre IV in western Uganda, Bushenyi District.

Study design

A descriptive cross-sectional study design utilized different groups of people who differ in variables of interest, but share other characteristics such as socioeconomic status, educational background, and ethnicity. A group of people who are remarkably similar in most areas were selected but differ only in age.

Study population

The study recruited all patients attending OPD at Bushenyi Health Centre IV.

Inclusion criteria

All patients attending OPD at Bushenyi Health Centre IV

Exclusion criteria

The study excluded patients with mental disabilities.

Sample size & determination

The sample size of participants will be determined by Kish and Leslie formula which states as follows;

n=

Where n= sample size.

P prevalence of typhoid fever.

Z=confidence limits at 95% confidence interval (1.96)

Q= (1-p) which is the population without the desired characteristics. D= allowance sampling error (0.098)

Given that; z=1.96, p=0.5, q=1-p and d=0.098 Therefore; n=

n=100

Based on the calculation, the study sample was 100 respondents.

Sampling technique & procedure

A simple random sampling technique was used because it gave every person in the study population equal chances to participate thus avoiding bias.

Pieces of paper written on Yes or No were folded. The folded papers were distributed to the patients in the study area. Those who picked YES were included and those who picked NO were excluded.

Study variable

The study variables were both independent and dependent variables. The independent variables were those that

couldn't be manipulated and these included characteristics like age, tribe, religion, and education level together with typhoid fever infections. The dependent variable was a measurable characteristic of the population under study that could be manipulated and in this case, it will be the associated factors contributing to the prevalence of typhoid fever.

Data collection tools

Data was collected using an interviewer-administered structural questionnaire, consisting of both open and closed-ended questions written in simple and clear language. Overall, this method of data collection facilitated data to be collected, quantified, and processed easily. In addition, questionnaires were cost-effective. Secondary data was obtained using the standard data collection form with the help of medical health records and laboratory test registers.

Experimental procedure

An experimental study involving specimen collection and processing was used to determine the prevalence.

Data collection procedure

This included obtaining a permission letter from the research committee of SFRASH which was presented to the Charge of Bushenyi Health Centre IV to allow the research to be conducted from the facility. A rapport was created with the chosen respondents. Moreover, the reason for carrying out the study was explained to them as they were assured of confidentiality. Also, a letter seeking consent was presented to the participants to allow documentation on whether to take part in the study or not. On consenting, the questions were read and interpreted to them for easy understanding and the respondents were thanked for their cooperation. Meanwhile, 10 patients were interviewed every day for 10 days to make 100 respondents. Data was collected from each patient at the facility to establish the prevalence.

Quality control

Pre-testing the research tools

This was done by pre-testing the questionnaires before they were used and training the research assistants like nurses, lab technicians, and clinicians. Only patients attending OPD at Bushenyi Health Centre IV.

Piloting the study

Piloting the study was conducted for one week before collecting the actual data; this gave highlights about the challenges of the study in the study area.

Data management, processing, analysis & presentation

Quantitative data was collected and entered in a computer and Microsoft Excel was used to analyze it. The analyzed data was presented in the form of tables, proportions, graphs, and figures. During and after data analysis the data was kept under lock and key protocol.

Ethical consideration

An introductory letter from SFRASH-Uganda Institution of Allied Health was presented to the DHO and the Charge of Bushenyi Health Centre IV, Bushenyi District through the institution research committee which permitted to conduct of the research from the facility. All information was treated under confidentiality and privacy.

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RESULTS

Demographic and Social Characteristics

Characteristics	Category	Frequency (N)	Percentage (%)
Age of respondents			
	7-14	15	15
	15-24	29	29
	25-34	19	19
	35-44	19	19
	45 and above	18	18
	Total	100	100
Sex			
	Male	44	44
	Female	56	56
	Total	100	100
Religion			
	Catholic	39	39
	Muslim	17	17
	Protestant	31	31
	Others	13	13
	Total	100	100
Marital status			
	Cohabiting	20	20
	Married	28	28
	Single	41	41
	Widowed	11	11
	Total	100	100
Education level			
	No formal education	11	11
	Primary level	35	35
	Secondary level	33	33
	University level	21	21
	Total	100	100

Table 1 shows that; Most of the respondents 19 (19%) were between the age group of 25-34 years, 29 (29%) were between the age group of 15-24 years, 19 (19%) respondents were between the age group of 35-44, 15 (15%) were between the age group of 7-14 years and 18 (18%) were above 45 years. The majority of the respondents 56 (56%) were females and the rest 44 (44%) were males. Most of the respondents 39 (39%) were Catholics, 31 (31%) were Protestants, 17 (17%) were Muslims and other religions were 13 (13%). Almost half of the respondents were single 41 (41%), 28 (28%) were married, 20 (20%) were cohabiting and the least 11 (11%) were widows. Most of the respondents 35(35%) had studied up to the primary level, 33 (33%) up to the secondary level, 21 (21%) up to the university level and the least 11 (11%) had no formal education.

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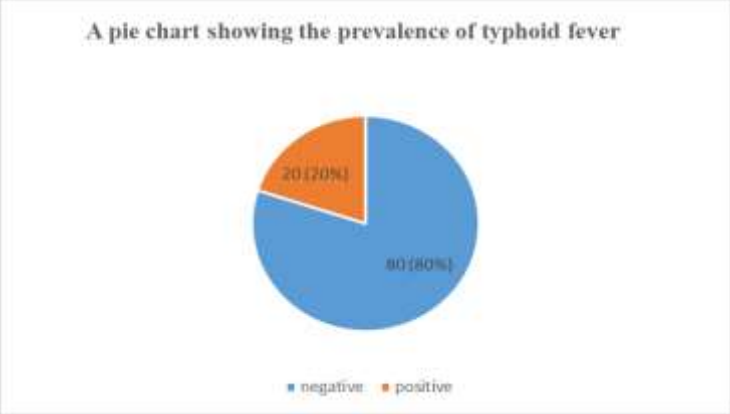
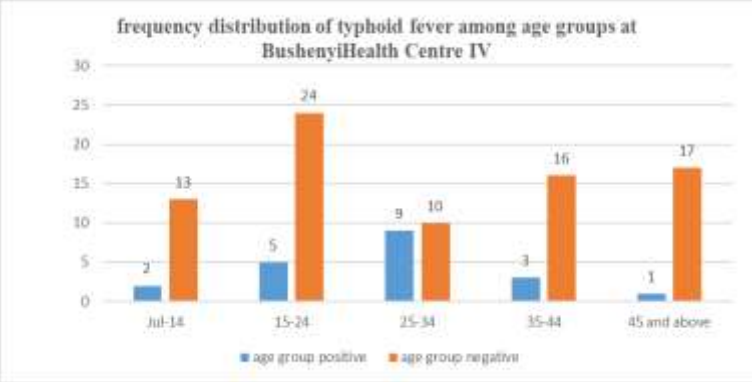
Prevalence of Typhoid Fever among patients attending OPD at Bushenyi Health Centre IV

Figure 1: Prevalence of Typhoid Fever among patients attending OPD (N=100)



Based on Figure 1, 20 (20%) of the respondents were positive for typhoid fever as the prevalence, and the majority of the respondents 80 (80%) were negative for typhoid fever.

Figure 2: Showing frequency distribution of typhoid fever among age groups at Bushenyi Health Centre IV (N=100)



From Figure 2, 10 respondents were between the age group of 7-14 years comprising 2 (20%) positive and 8 (80%) negative; 24 respondents aged 15-24 years 3 (12.5%) of whom were positive and 21 (87.5%) were negative; 14 respondents aged between 25-34 years, 6 (42.9%) of whom were positive and 8 (57.1%) were negative; age group of 35-44 years comprised of also 14 respondents with 3 (21.4%) positives and 11 (78.6%) negatives; 14 respondents aged 45 years and above with only 1 (7.1%) positive and 13 (92.9%) negative.

Individual factors associated with Typhoid Fever among patients attending OPD at Bushenyi Health Centre IV, Bushenyi district (N=100)

Table 2: Occupation-associated typhoid fever among patients attending OPD

Occupation	Employed	Unemployed	Total
Positive	9	18	27
Negative	26	47	73
Total	35	65	100

Out of 100 respondents, 35 (35%) were employed and only 9 (25.7%) were positive and 26 (74.3%) were negative; 65 (65%) were unemployed and among these 18 (27.6%) were positive and 47 (72.4%) were negative

Table 3: Respondent's source of meals associated with typhoid fever among patients attending OPD

Source of meals	H/K	SV	H	S/S	Total
Positive	6	9	9	9	33
Negative	18	20	17	22	67
Total	24	29	26	31	100

KEY: (H/K) HOTELS AND KIOSKS, (SV)-STREET VENDORS, (H)-HOMES, (S/S)-SHOPS & SUPERMARKETS

Out of 100 respondents, 24 (24%) got meals from hotels/kiosks with 6 (25%) who were positive and 18 (75%) who were negative for typhoid fever; 29 (29%) of the respondents got their meals from street vendors and results showed that out of these, 9 (31%) were positive and 20 (69%) were negative for typhoid fever; 26 (26%) got their meals from homes with results that showed only 9 (34.6%) who were positive and 17 (65.4%) were negative; 31 (31%) of the respondents got their meals from shops and supermarkets and 9 (29%) were positive and 22 (71%) were negative for typhoid fever

Table 4: Respondent's financial status associated with typhoid fever among patients attending OPD

Financial Status	Low	Middle	High	Total
Positive	09	11	09	29
Negative	26	39	06	71
Total	35	50	15	100

Out of 100 respondents, 35(35%) had low-income status and results indicated that 09 (25.7%) were positive and 26 (74.3%) were negative for typhoid fever; 50 (50%) had middle-income status with 11 (22%) who were positive and 39 (78%) who were negative for the disease; 15 (15%) had high-income status and out of these, 09 (60%) were positive and 06 (40%) were negative for the disease.

Individual related factors associated with typhoid fever among patients attending OPD at Bushenyi Health Centre IV

Table 5: Water for domestic use associated with typhoid fever among patients attending OPD

Water for domestic use	Taps	Streams	Wells	Borehole	Total
Positive	4	8	8	7	27
Negative	18	19	19	17	73
Total	22	27	27	24	100

Out of 100 respondents, 22 (22%) got water for domestic use from taps and only 4 (18.1%) were positive and 18 (81.9%) were negative; 27 (27%) respondents got water from streams and results showed that out of these, 8 (29.6%) were positive and 19 (70.4%) were negative; 27 (27%) got water for domestic use from wells and had 8 (29.6%) who were positive and 19 (70.4%) who were negative; 24 (24%) obtained water for domestic use and had 7 (29.1%) who tested positive and 17 (70.9%) who tested negative for typhoid fever.

Table 6: Disposal of human waste associated with typhoid fever among patients attending OPD

Disposal of…	Toilet/Latrine	Bush	Plantation	Water source	Total
Positive	17	3	4	3	27
Negative	60	6	4	3	73
Total	77	9	8	6	100

Of all 100 respondents, 77 (77%) disposed of human waste into toilets/latrines, and results obtained depicted that 17 (22%) of them had typhoid fever and 60 (78%) never had typhoid fever; 6 (66.6%) of the respondents disposed their human waste in bushes and among these, 3(33.4%) of the respondents tested positive for typhoid fever.

Table 7: Respondents who dispose of waste in the toilet/latrine, its distance from the main house, associated with typhoid fever among patients attending OPD

Distance from the latrine	<10 metres	>10 metres	Total
Positive	11	6	17
Negative	36	24	60
Total	47	30	77

Out of the 77 respondents who disposed of human waste in toilets/latrines, a total of 47 (61%) of these lived a distance less than 10 meters away from the toilet/latrine and results revealed that 11 (23.4%) were positive and 36 (76.6%) were negative for typhoid fever; 30 (38.9%) were more than 10 meters away from the toilet/latrine and had only 6 (20%) who tested positive and 24 (80%) who tested negative for typhoid fever.

Table 8: The kind of water drunk by respondents associated with typhoid fever among patients attending OPD

Kind of water for drinking	Unboiled	Boiled	Packed	Treated water	Total
Positive	9	8	7	3	27
Negative	23	22	16	12	73
Total	32	30	23	15	100

Out of 100 respondents, 32 (32%) drank unboiled water and the results revealed that 9(28.1%) were positive and 23 (79.9%) tested negative for typhoid fever; 30 (30%) of respondents drank boiled water and had 8 (26.6%) who tested positive and 22 (73.4%) who tested negative; 23 (23%) drunk packed water and had only 7 (30.4%) who were positive and 16 (69.6%) who were negative; 15 (15%) of the respondents drunk treated water and 3(20%) of these was positive,12(80%) of these were negative for typhoid fever.

DISCUSSION

Prevalence of typhoid fever among patients attending the outpatient department at Bushenyi Health Centre IV

The study revealed that the prevalence of typhoid fever was 20% which was lower than that revealed by Gidudu et al. (2022) in Mbale city which was 25.6%. This is attributed to the fact that there has been an improvement in personal and hygienic behaviors in food handling and better sanitation practices around the town with many using hand washing facilities to avoid fecal-oral transmission of this communicable disease. In addition, the government has endeavored to create health programs to teach the community about the disease and its control through national radios, televisions, and newspapers, and people around Bushenyi Health Centre IV have adhered to them following a recent outbreak in Kampala, Uganda Kabwama, et al., (2017) which revealed an outbreak of typhoid fever in Kampala due to consuming contaminated water and street vendors beverages.

The age group most affected by typhoid fever among the patients attending the outpatient department at Bushenyi Health Centre IV

Data analysis and interpretation of the research findings revealed that out of 2 0 positive typhoid fever cases, the age group affected by typhoid fever was 25-34 years with a case number of 6 (42.9%). This was attributed to the fact that they were living a single life in their homes and others were still students who had little time to prepare their food and therefore ended up eating food from restaurants and roadside food vendors whose hygiene was in question while preparing food and this predisposed them to typhoid fever. They were also found drinking un-boiled water and not washing their hands before eating. This research study was in line with a study done by Allu et al., 2019 in Duhok, Iraq which revealed the highest occurrence of typhoid fever was among the individuals between the age group of 25-34 years. The study findings were also in agreement with those conducted by Ahmad et al, (2018) who reported that in Pakistan, Khairpur district, out of 143 typhoid fever tests performed, 73 (51.04%) patients were above the age of 25 years and 70 (48.95%) were below the age of 25 years.

The study revealed that 2 (20%) typhoid cases were found to be between the age group of 7-14 years. This could have been because there was less contamination among children as most of them belonged to high-income category parents who could afford good quality treatment and safe

water and also toilets at their homes were 10 meters away from the main house. This disagrees with the study done by Stanaway et al., (2019) which revealed that globally, 55.9% of typhoid cases in 2017 occurred among children below 15 years. The study findings also revealed that there was only 1 (7.1%) typhoid case between the age group of 45 years and above. This was because the majority of these respondents were married and with businesses therefore with high-income status who could afford good and quality health services and quality food and high hygienic facilities such as hand washing points which implicated less prevalence of typhoid fever among this group. This was in line with the study done by Rasul et al,(2017) in Punjab, Pakistan revealed that 23 (6.08%) typhoid cases out of 382 patients were found positive in the age group of 45 years and above.

Individual factors associated with typhoid fever among patients attending the outpatient department at Bushenyi Health Centre IV

The respondents were assessed on the socioeconomic factors and the results revealed

Occupation; of 35 (35%) who were employed, only 9(25.7%) were positive 26 (74.3%) were negative; of all 65(65%) who were unemployed, 18 (27.6%) were positive and 47 (72.4%) were negative. This study concluded that the unemployed respondents had a higher prevalence of typhoid fever (27.6%) than those of employed respondents (25.7%).

Respondents' sources of meals

Out of 100 respondents, 24(24%) got meals from hotels/kiosks with 6 (25%) who were positive and 18(75%) who were negative for typhoid fever at one time in their lifetime compared to those who were employed. Responded fever; 29(29%) of the respondents got their meals from street vendors and results showed that out of these, 9(31%) were positive 20(69%) were negative for typhoid fever.26(26%) got their meals from homes with results that showed only 9(34.6%) who were positive and 17(65.4%) were negative; 31 (31%) of the respondents got their meals from shops and supermarkets and 9(29%) were positive and 22 (71%) were negative for typhoid fever. These results showed that respondents who got their meals from street vendors had a high prevalence of typhoid fever (26.1%) compared to other sources of meals. This was because Street vendors have limited facilities for storing food and cleaning dishes. This poor hygiene practice is a vehicle for disease transmission which is in line with the study done by Akwa & Simone (2020). The financial state of the respondents: Out of 100 respondents, 35 () had low-income status and results indicated that 9(%) were positive and 21 (782.4%) were negative for typhoid fever; 28 (36.8%) had middle-income status with 5 (17.9%) who were positive and 23 (82.1%) who were negative for the disease; 19 (25%) had high-income status and out of these, 2 (10.5%) were positive and 17 (89.5%) were negative for the disease. It was therefore found that low-income status respondents had a high prevalence of typhoid fever (27.6%) followed by middle-income status with a prevalence of 17.9%. This was because these respondents could not afford to have good quality food, their hygiene was poor, and could also obtain food from roadside traders whose hygienic nature was poor lacking hand washing facilities. This study was also in agreement with the study done by Akwa & Simone (2020), which revealed that low-income category households had a high tendency to purchase and eat cooked food from street vendors. Which eventually predisposes them to typhoid infection. The facilities available to street sellers for dishwashing and food storage are inadequate. This lack of hygiene is a conduit for the spread of illness (Akwa & Simone, 2020).

Individual factors with typhoid fever among patients attending the outpatient department at Ishongororo Health Centre IV

Source of water domestic use

Out of 76 respondents, 18 (23.7%) got water for domestic use from taps and only 2 (11.1%) were positive and 16 (88.9%) were negative; 21 (27.6%) respondents got water from streams and results showed that out of these, 5 (23.8%) were positive and 16 (76.2%) were negative; 19 (25%) got water for domestic use from wells and had 4 (21.1%) who were positive and 15 (78.9%) who were negative; 18 (23.7%) obtained water for domestic use and had 4 (22.2%) who tested positive and 14 (77.8%) who tested negative for typhoid fever. The research findings found out those respondents who obtained water for domestic use from streams had a higher prevalence of typhoid fever(23.8%) compared to other water sources. This was due to the fecal contamination of this kind of water since it always runs around the area carrying a lot of waste. This was strongly in line with the study findings done by Kabwama et al. (2017) which reported that the outbreak of typhoid in Kampala city was likely caused by consuming contaminated water from unprotected groundwater sources. He continued to say that Kampala city has more than 200 unprotected groundwater sources, most of which serve as unprotected sources of water for economically disadvantaged people in the city; water from unprotected sources such as streams and wells has higher chances of fetching germs from intruding animal or from running water carrying waste which predisposes the consumers to pathogens that are likely to cause typhoid fever that is salmonella typhi pathogens.

Respondent’s disposal of human waste

The majority of respondents, 73 (96.1%) disposed of human waste into toilets/latrines, and results obtained depicted that 15 (19.7%) of them had typhoid fever and 58 (80.3%) never

had typhoid fever; 3 (3.9%) of the respondents disposed their human waste in bushes and among these, none of the respondents tested positive for typhoid fever.

Distance of the toilet/latrine from the main house

Out of the 73 respondents who disposed of human waste in toilets/latrines, a total of 45 (61.6%) of these lived a distance less than 10 meters away from the toilet/latrine and results revealed that 10 (22.2%) were positive and 35 (77.8%) were negative for typhoid fever; 28 (38.4%) were more than 10 meters away from the toilet/latrine and had only 5 (17.9%) who tested positive and 23 (82.1%) who tested negative for typhoid fever. This concluded the findings that respondents whose houses were less than 10 meters away from the toilet/latrine had a higher prevalence of typhoid fever (22.2%) than those whose houses were greater than 10 meters away from the toilet/latrine who had a prevalence of (17.9%). This could have been because it was easy for the flies which are the carrier vectors of germs responsible for transmission of typhoid fever for those who lived near toilets. This also encouraged open defecation, especially during night hours which in turn exposed to hand contamination due to contact, food, and water contamination thus increasing the risk of transmission of typhoid transmitting pathogens (salmonella typhi).

The kind of water drunk by the respondents

Of all the total number of respondents, 28 (36.8%) drank unboiled water and the results revealed that 7 (25%) were positive and 21 (75%) tested negative for typhoid fever; 24 (31.6%) of respondents drank boiled water and had 5 (20.8%) who tested positive and 19 (79.2%) who tested negative; 15 (19.7%) drunk packed water and had only 3 (20%) who were positive and 12 (80%) who were negative; 9 (11.8%) of the respondents drunk treated water and none of these was positive for typhoid fever. These findings implied that the highest prevalence of typhoid fever was depicted by respondents who drank unboiled water (25%). This was because unboiled water also lacking treatment is not good for drinking as it is said that water should always be treated to make it safe from contamination since it can be contaminated with salmonella typhi directly from the source, drawing, or storage. Boiled water is safe for drinking considering the storage conditions while packed and treated water are considered safe water for drinking. This was in line with the study done by Mogasale et al,(2014) which stated that UNICEF categorized water sources as improved drinking water sources or unimproved drinking water sources.

Health-related factors associated with typhoid fever among patients attending OPD at Bushenyi Health Centre IV.

Respondent's cost of treatment for typhoid fever

Out of 100 respondents, 45 (45%) described the cost of treatment of typhoid fever as expensive and the test outcomes revealed that 10 (25%) were positive and 35 (75%) were negative for typhoid fever; 35 (35%) of the respondents described the treatment cost as affordable and had 5 (20%) who were positive and 20 (80%) were negative for typhoid fever; 20 (20%) described the cost of treatment as cheap and had only 3 (15.8%) who were positive and 16 (84.2%) who were negative for typhoid fever. Findings revealed that those respondents whose cost description for typhoid treatment was expensive had a higher prevalence of typhoid fever (21.9%) than those who described theirs as affordable and lastly the least prevalence was noticed in respondents whose cost of typhoid treatment was cheap. This was attributed to the fact that those whose treatment was expensive had a low-income status and therefore couldn't afford good quality health services and they were depending on the government health services which are usually inefficient.

Healthcare workers giving information about typhoid fever prevention

29 (38.2%) never got information about typhoid fever prevention and of these, 9 (31.0%) tested positive for typhoid fever and 20 (69.0%) tested negative; 28 (36.8%) got information sometimes and among these, 4 (14.3%) were positive for typhoid fever and 24 (85.7%) were negative; 19 (25%) always gotten information about typhoid disease prevention and their results showed that only 2 (10.5%) were positive and 17 (89.5%) tested negative for typhoid fever. These results showed that respondents who always received information about typhoid fever prevention had a lesser prevalence compared to those who never at all received information about disease prevention. This information encompassed ways or methods on how to combat the disease, health sanitation education, and perhaps information on personal hygiene education.

CONCLUSION

The research study aimed to determine the prevalence of typhoid fever, the age group most affected by typhoid fever, and the individual factors associated with typhoid fever. The study established that the prevalence of typhoid fever was 20%, the most affected age group was 25- 34 years; drinking water from unsafe sources, fetching water for domestic use from unprotected wells and streams and open waste disposal, Inability to pay for the treatment of the disease with failure to get information about the typhoid fever prevention contributed to the prevalence of typhoid fever among patients attending OPD at Bushenyi Health Centre IV.

LIMITATIONS

The researcher faced the problem of doing research alongside other school activities. However, this will be solved by proper planning and time management.

RECOMMENDATION

The Ministry of Health (MoH) in Uganda and health service providers should encourage and implement health education about disease prevention to reduce the prevalence of typhoid fever, the respondents should be taught the importance of proper waste disposal and washing hands with soap, the government should provide safe water and clean water for domestic use and encourage households to start income generating activities and also ensure that market for their produces available for them to boost their financial status to reduce on the individual factors associated with typhoid fever.

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LIST OF ABBREVIATIONS

TIP: Typhoid Intestinal Perforation
OPD: Outpatient Department
WHO: World Health Organization
MDR: Multi-Drug Resistance
UNICEF: Uganda National International Children's Emergency Fund
MoH: Ministry of Health
DHO: District Health Officer
SFRASH: St Francis Schools of Health Sciences
TCV: Typhoid Conjugate Vaccine

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