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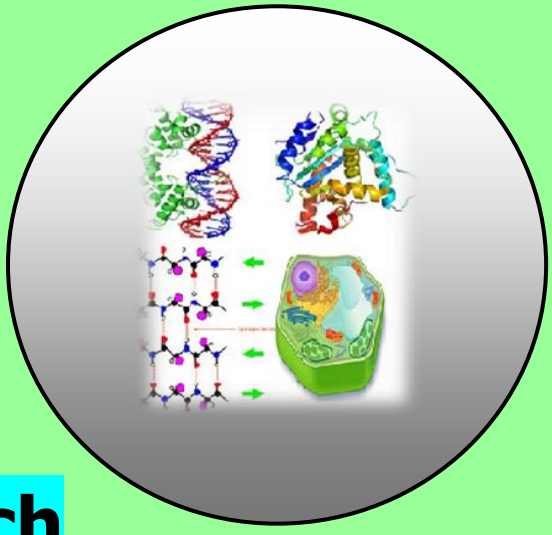

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RESEARCH PAPER

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Survey on Prevalence of *Shigella* and *Salmonella* among children Visited Jimma Arjo Health Centre for Diarrhea Diagnosis

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ABSTRACT

This study was conducted to investigate the prevalence of shigella and salmonella among patients visited in Jimma Arjo Health centre for diarrhea diagnosis and purposive sampling technique and random sampling technique was employed to select the Health centre and study population respecvely. From the total of 70 patients were selected and intervened among the patient visited in Jimma Arjo health centre for the purpose of the study. Additionally, the researcher also took three nurses with diploma level and three nurses having B.A degree in different health professionals. The current study was conducted to investigate the prevalence of bacterial infection /shigellas are and Salmonellas in Jimma Arjo Health centre. Across sectional study was conducted which employ purposive sampling and random sampling to select study size and study population respectively. Questionnaires and structured interview was used to collect amatory risk and other factors and recorded data was used to determine the prevalence of salmonella and shigella at the health centre. Based on the data gathered the researcher found out that the presence of reasonably high amount of salmonella and shigella species that were drug resistance to the children and community at large. Based on the finding of the study of alleviating the prevailing problem, therefore, the study encompassed procedures from back ground information relevant for the study went through hypnosis, methodologies and conclusions and recommendations.

Key words: Prevalence, Shigella, Salmonella, Diarrhea and Health Center.

INTRODUCTION

Diarrheal disease continues to be an important cause of morbidity and mortality among young children in developing countries. Children and young adults are the most affected, particularly in regions with limited resources and where hygienic measures are inadequate. Causes of diarrhea in endemic areas include a wide variety of bacteria, viruses, and parasites. Among the diarrhoeal pathogens, Shigella continues to play a major role in etiology of inflammatory diarrhoea and dysentery, thus presenting a serious challenge to public-health authorities worldwide. The few studies conducted on shigellosis in Ethiopia revealed that, Shigellosis and the emergence of antimicrobial resistant Shigella species is a major health problem. Recent data different health institutions in Ethiopia have indicated that salmonellosis is a common problem and also showed the presence of a number of serogroups/serotypes in humans, animals, food animals, food products animal origins and other food stuff (Afeworki and Lirneneh, 1980, Ali et al., 1999, Asfaw and Giotom, 2000, Ashenai et al., 1985). Infections by most species of Shigella and Salmonella can be asymptomatic, or can be treated with rehydration solutions except for infection by invasive strains. The use of antibiotics might shorten the duration of diarrhea and limit the shedding of the organisms which otherwise might continue to spread among people and in to the environment and further pose a risk of transmission of infections. In the present study, survey study was conducted to determine the prevalence of Shigella and Salmonella species among diahrroic children visiting Arjo Jimma Health Center from March to November 2015, south West Ethiopia. The researcher determined the prevalence of intestinal parasites, Shigella and Salmonella species in diarrheal from already reordered data of 2014/15.

MATERIAL AND METHODS

Description of the study area

This study was conducted at Jimma Arjo Health centre to examine the prevalence of shigella and salmonella among the patients visited for Diarrhea diagnose in case of Jimma Arjo Health centre. Jimma Arjo woreda is one of the woreda's found in East wollega Zone. Jimma Arjo is named after the way or read taking from Nekemte to Jimma passing through specific area called Arjo. That is why the woreda is named from combination of two words "Jimma" implies an area found in south western Nekemte. Thus, Jimma Arjo Woreda is found about 47 kilometres a way in south western direction from Nekemte town. It is found between "Getema" town and "Bedele" town. It is characterized by cool and cloudy temperature. It is found at altitude of 47co south above sea level. The woreda has 15 clinics of which three are governmental, and the rest 12 are of private. In addition to this, the woreda has two governmental health centers with 56 Health extension stations. One of the health centers is going to be developed in to Hospital and will be envegurated by the year 2014/15. The woreda is trying its best to claim the pre-prevention health policies and a number of health extension stations have been launched throat the woreda's institutions have been diversified but the quality aspect is still in question. That is why; diarrhea is becoming the major health severe problem of the day in the woreda.

Study design, area and period

A survey study was conducted to determine the prevalence of, Shigella and Salmonella species among diarrheic children visiting Jimma Arjo Health Center, Jimma South West Ethiopia from March to November 2014/15 based on the recorded dat.

Sample size and sampling technique

It couldn't be possible to gather data from the whole sample size of a given sample population because of time and condition. Thus, of needs to select some reasonable representatives. In doing so, the researcher used purposive sampling technique to select the site for the study. Hence, the researcher selected patients visited at Jimma Arjo Health centre employing purposive sampling technique 3 senior nurses and three Junior Nurses at the health centre in the same way who has been working at the health centre. Therefore, totally 70 patient were participated as a study subject. The sample size was determined based on the prevalence rate of the study done at Jimma Arjo health center

Demographic data collection

Histories were taken from each patient and informed consent was obtained from the parents or guardians before sample collection was attempted by the attending pediatrician. All relevant demographic, clinical and laboratory data were recorded and transferred to the questionnaire prepared for this study. Data were entered and analyzed using SPSS version 16.0 computer software.

Sources of Data

The primary sources of this data were recorded data of patients for questionnaires and health professionals for the interview, where as the secondary sources of the data were documents and studies conducted around the prevalence's of pathogens.

Data collection instruments

Instruments used to be employed to collect for this study were structured questionnaires, and structured interviews.

Structured questionnaires

Structured questionnaires having open and close ended items were prepared and presented for the patients selected as the target population. Hence, the researcher read all the questions for the patients and recoded their responses. All the questionnaires were aimed at obtaining data about the rate of prevalence shigella and salmonella patients diagnosed in the health centre. The first part of the questionnaires was intended to collect personal data and the second part was aimed at gathering the patients' idea and perception regarding the prevalence of the diseases.

Structured Interviews

In an attempt of more modification of the data, face to face interaction interview should be available with the target population. Thus, the researcher held an interview with the six selected health centre's workers. The entire interview question consisted descriptions on prevalence of shigella and salmonella among patients visited at the health centre.

Methods of Data Analysis and interpretation

The data obtained through group discussion with the patients visited at the health centre and forwarding interviews for the workers of the health centre were organized, labeled, arranged and further interpreted. Furthermore, the information obtained were analyzed by description that in the study. In doing so, the researcher used qualitative and quantitative data analysis method. Therefore qualitative and quantitative data analysis method has been used for the purpose of the study.

RESULT

Socio- demographic characteristics of the respondents

Out of the total study participants 28(40%) were males and 42 (60) were females. The age of the studied ranges from one month of age to 15 years with mean age of five year, the majority (60%) of the study subjects were between 1-5 years of age and list frequency (10%) was observed for children less than one years old (table 1).

Table 1. Socio- demographic characteristics of the respondents.

Items	Respondents	
	Frequency	Percent
1.Age		
1-5	7	10
6-10	42	60
11-15	21	30
2. Sex		
Female	28	40
Male	42	60
3. Education		
Illiterate	8	11.42
KG	22	32.42
Elementary	34	48.57
Nursery	3	4.28
Diploma	1	1.42
B. sc	2	2.82

Table 2. Structured Questionnaires for the Patients.

No	Items	Alternative responses	No of respondents	% age of respondents
1	Is there shigella and salmonella diagnosis among you for diarrhea disease?	Yes	63	90%
		No	7	10%
		Total	70	100%
2	How many of you are diagnosed of diarrhea infection?	All	63	90%
		Some	7	10%
		None	-	-
		Total	70	100%

Furthermore, on item three regarding sector respondents, two of them were males having an age greater than twenty four years and one female giving an age greater than twenty four with correspondence education level B.Sc degree in different health specialists.

Analysis of verbal questionnaires with patients

The researcher forwarded structured questionnaires to the twenty selected target population. The structured questionnaires were prepared and asked verbally to the target population and asked verbally to the target population and each result was discussed right a way to the table frown under the questions.

As it is indicated on table two, regarding the prevalence of shigella and salmonella among patients visited, on item (90%) of the respondents suggested that as the prevalence of bacterial infection are there at the study sites. From this item, the researcher identified that there was shigella and salmonella diagnosis among them for diarrhea disease.

Table 3. Questionnaires for the patents regarding hygienic practices they usually make.

No	Item	Alterative response	No of response	%age of response
1	Of which water sources you use for drinking purpose	Rain	7	10
		River	56	80
		Tap	-	-
		Well	7	10
		Total	70	100
2	Do you have dwelling homes isolated for human beings and animals?	Yes	11	15
		No	59	85
		Total	70	100

As it is illustrated on table three, regarding hygienic practices of the patient and the major sources of water 7(10%) of them obtained from rain, 56(80%) river and the rest 7(10%) of the respondents responded well respectively and they had used for drinking purpose and researcher concluded that major of the inhabitants used river water for drinking purpose. On other hand, they had dwelling homes isolated for human beings and animals from this item, the researchers concluded that the habitats did not have isolated homes from animals that was the reason for the contaminated areas of the hygienic practices. The majority (58.1%) of enteropathogens were found in children aged 1-5 years. Whereas, 26 (20.2%), 21 (16.3%) and seven (5.4%) pathogens were observed in children within age groups of 6 – 10, 11 – 15 and less than one years, respectively

Interview results

Most of the time they faced diarrhea related gastrointestinal infections due to unhygienic practices related to water sources and domestic's animal. They had urged that the faced diarrhea related infection. They further explained that there were a lot of repetitive diagnosis of shigellosis and salon hellos is among the patients hospitalized at the health centre. Poor hygienation, cultural heritages, views of the community towards the disease stated, the feeding habits of the community, the community, the demographic situation of the locality, the socio economic situation of the local comment were some of the major factors contributing to the prevalence of shigellosis and salmonellas is disease at the Woreda.

The respondent additionally expressed that the community's poor sanitation was the main and the for coming reason for the prevalence of shigellosis and salmonellas is. The community did not keep their hygiene and they used contaminated substances for their usual food. The community did not use clean water for drinking without adding any antibiotics. That why the prevalence rate of shigella and salmonella among patients visited at the health cent was highly intensified to the area.

DISCUSSION

These variations in prevalence might be due to differences in climatic conditions, environmental sanitation, economic and educational status of parents and study subjects, and previous control efforts. The low prevalence of intestinal parasite in this study compared to the other previous studies in Jimma and elsewhere in the country could be due to increased awareness of the community about personal and environmental hygiene from the continuous awareness creation and interventions made by the health science students from Jimma University during their practical training conducted in the field as well as in different health institutions.

Comparison with previous study results conducted in different parts of Ethiopia is difficult since the parasite prevalence varies with agro-ecozone, altitude and other environmental factors which are not studied here. Shigellosis is primary a pediatric disease, with more than half of all infections occurring in children between six month to 10 years of age as observed in previous Ethiopian study (Asrat et al., 1999). The isolation of Shigella species (2.3%) in this study is lower than (5%) reported by Mache, 2001 (20.1%) from the same study subjects and area.

Even though, the study was conducted in different age groups, our prevalence rate of 2.3% lowers than that a report by Ashenafi, 1983 (9%) and 11.7% isolation rate reported by Asrat et al. 1999 at Tikur Anbessa, Ethio-Swedish children's hospital, a report by Ayalu (6.7%) in Harar and a report 15.6% by Hiruy in Gondar. The low isolation of Shigella in this study compared to the previous study in Jimma could be due to increased awareness of the community about personal and environmental hygiene from the continuous interventions made by the health science students form Jimma University during their filed practice.

Epidemiological investigation of salmonellosis in developing countries like Ethiopia is difficult because of the very limited scope of the studies and lack of coordinated surveillance systems. The overall prevalence of Salmonella in this study was 6.2%. This is comparable with studies conducted in Ethiopia at different times, 4.5% in Addis Ababa, 6.4% in Addis Ababa, 4.5% in Addis Ababa and higher than the findings reported by Asrat et al. 1999 (3.8%) in Addis Ababa but lower than reported in Jimma (15%).

Infection with non-typhoidal Salmonella in infants and children commonly produces self-limited diarrhoea. Studies have indicated that antimicrobial treatment for uncomplicated gastroenteritis does not shorten the duration and severity of symptoms; in contrast, it may prolong fecal excretion, increase the risk of relapse, and result in the emergence of antibiotic resistance (Roma et al., 2000). Nevertheless, if extra-intestinal complications occur, effective antimicrobial treatment is essential. Multidrug resistant phenotypes have been increasingly described among Salmonella species worldwide, according to the infectious disease report released by the WHO in 2000.

CONCLUSION

This study indicated that enteric bacteria such as Salmonella and Shigella species are responsible for the majority cases of diarrheal in children. Therefore, measures including health education, improvement of safe water supply, sanitation facilities and continuous monitoring of microbiological and antimicrobial surveillance is crucial. Having gone through different steps and procedures the researcher deduced on the following summary and conclusion. The presence of reasonably high amount of intestinal parasite salmonella and shigella species that are drug resistance to the commonly prescribed drugs is a treat to the patients visited at Jimma Arjo Woreda health centre for diarrhea diagnosis were of children and community at large. Majority of the patients visited at Jimma Arjo Woreda health centre for diarrhea diagnosis were of children and the prevalence rate was higher at individuals of this age level. The result from the study indicated that campylobacter species were the predominant etiologies and the precise were the predominant etiologies and the presence of bacteria isolates resistant's to the commonly prescribed drugs for treating diarrhea in children and other victims. The prevalence of shigella infection censed by water supply, waste disposal, food preparation and climates. The commonest illness among children caused by water supply, waste disposal, food preparation and climates. Lack of proper hygiene and malnutrition were the main causes for the prevalence of shigella and salmonella among the patients visited at Jimma Arjo health centre for diarrhea diagnosis. The prevalence of these intestinal parasites was the major catastrophe the health disorder of the inhabitants.

RECOMMENDATION

Based on the basis of the findings and conclusions arrived of by the researcher through different techniques of data collection, the researcher tried to forward some possible suggestions and recommendation that thought help alleviate the prevailing problem.

The concerned health bureau of Jimmaa Arjo Woreda should take measures to improve ways of eradicating the prevalence of these intestinal parasites.

The health bureau of Jimma Arjo Woreda should give health education, about ways of making the environment safe and hygienated.

Every community should be taught to prepare holes and other waste disposal areas.

The health extension workers should harness, train and initiate the awareness of the safe water supply, sanitation facilities and continuous monitoring of microbiological and antimicrobial surveillance.

Periodic monitoring of etiologic agent with drug resist pattern should be essential in the management of diarrhea in children.

The percents and guardians of the children should improve the feeding habits of their children and some other ways of transmission of the diarrhea.

The community should health policies of the health strategy designed by the central and regional government.

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