Journal of Health and Medical Sciences

Elamin, Mohamed Osman, Rahmutalah, Hatim, Elamin, Fowzi Omer, Natto, Hatim Abdullah Yousef, and Alfahmi, Mohamed Hulayyil, Prevalence of Gastroenteritis Among Children Under Five Years of Age at a District Hospital. In: *Journal of Health and Medical Sciences*, Vol.4, No.3, 93-102.

ISSN 2622-7258

DOI: 10.31014/aior.1994.04.03.183

The online version of this article can be found at:
https://www.asianinstituteofresearch.org/

Published by:
The Asian Institute of Research

The Asian Institute of Research *Journal of Health and Medical Sciences* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of Medicine and Public Health, including medicine, surgery, ophthalmology, gynecology and obstetrics, psychiatry, anesthesia, pediatrics, orthopedics, microbiology, pathology and laboratory medicine, medical education, research methodology, forensic medicine, medical ethics, community medicine, public health, community health, behavioral health, health policy, health service, health education, health economics, medical ethics, health protection, environmental health, and equity in health. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Journal of Health and Medical Sciences* aims to facilitate scholarly work on recent theoretical and practical aspects of Health and Medical Sciences.

ASIAN INSTITUTE OF RESEARCH
Connecting Scholars Worldwide

The Asian Institute of Research
Journal of Health and Medical Sciences
Vol.4, No.3, 2021: 93-102
ISSN 2622-7258

DOI: 10.31014/aior.1994.04.03.183

Prevalence of Gastroenteritis Among Children Under Five Years of Age at a District Hospital

Mohamed Osman Elamin[1], Hatim Rahmutalah[2], Hatim Abdullah Yousef Natto[3], Fowzi Omer Elamin[4]
Mohamed Hulayyil Alfahmi[5]

[1,3,4]Faculty of Public Health, Umm Al-Qura University, KSA
[2]University of Bahri, Sudan
[5]Ministry of Health, KSA

Abstract
Introduction: Gastroenteritis is a devastating disease particularly in children less than five year of age globally. In 1825, for the first time the term gastroenteritis was used to describe this symptom. **Study design**: A hospital-based descriptive study conducted among children less than five years of age. **Setting**: District teaching Hospital. The study was conducted during one Month, from February to march, 2017. **Objectives**: To study Prevalence of Gastroenteritis disease among children under 5 years of age, identify the prevalence rate and other risk factors associated with the disease. **Material & Methods**: The sample of the population covered all children under 5 years admitted the hospital during the specified period. (n = 50 child).Data were collected using a scientifically constructed Questionnaire. Data was analyzed using the computer soft-ware program (SPSS). **Results**: The study revealed that gender distribution indicated that gastroenteritis was more prevalent in male children than in female children. Also the study revealed that gastroenteritis was higher among families who have lower income 150 SDG (66.0%) and there was relationship between the family income and gastroenteritis. **Conclusion:** The study concluded that gastroenteritis was more prevalent in male children than in female children. And also low socio economic status, and sanitation practices and low parental education leads to gastroenteritis (GE) among children less than five years of age admitted to Ibrahim Malik teaching hospital in Khartoum state. **Recommendations:** Study recommends that Ministry of Health should implement health education program and training for raising knowledge and awareness of gastroenteritis among mothers, the department of health should improve the quality of water to avoid water borne disease that leads to gastroenteritis.

Keywords: Gastroenteritis, Prevalence, Under Five

1. Introduction

Gastroenteritis is a devastating disease particularly in child less than five year of age globally. In 1825, for the first time the term gastroenteritis was used to describe this symptom. In medical language, gastroenteritis or stomach flu or gastric flu is an inflammation of the stomach and the small intestine. Centuries ago, at the time of Hippocrates, it was assumed that weaning and weather of infants were associated with gastroenteritis. It was

thought that both teething and hot climate contribute to the development of infantile gastroenteritis (Friesema, et al., 2012).

It has been reported that more than 1.1 billion children less than five years of age were more susceptible to this disease. Gastroenteritis infections annually result in 7.6 million deaths in South Asian countries including Pakistan and a number of the Eastern Mediterranean countries. From 2008 to 2015, one million deaths have been recorded (Alam, et al., 2015). Outbreaks of gastroenteritis primarily depends upon a variety of risk factors among children such as contaminated pond water which was used for washing, bathing, drinking and cooking purposes without boiling (Mukherjee,etal.,2012).The aim of this study was carried out to study the prevalence of gastroenteritis among children under five years of age in Ibrahim Malik teaching hospital at Khartoum state.

1.1 Problem statement

According to WHO, 527 000 children aged less than five years die each year's caused 25 million clinical cases, 2 million hospital admissions and annually worldwide in children, most of them occurred in developing countries children are among vulnerable groups to gastroenteritis and leading diarrheal disease and need great attention, and mothers are very important individuals to the children so that their role is very important and toward early prevention and rehabilitation of gastroenteritis so that this research has been studied the prevalence of gastroenteritis among children under years of age.

1.2 Justification

Gastroenteritis is also known as infectious diarrhea which is the second leading cause of death among infectious disease of children under five years of age. (Walker, et al, 2012). The cause of deaths may relate to disease severity, delay of treatment or immunodeficiency's.

1.3 Objective

1.3.1 General objectives

To study Prevalence of Gastroenteritis among children under 5 years of age at Ibrahim Malik Hospital.

1.3.2 Specific objective

- To identify the prevalence rate of gender relationship gastroenteritis disease occurred.
- To determine relationship between the family size and gastroenteritis.
- To determine the relationship between the education of mothers children and gastroenteritis.
- To determine the relationship between socioeconomic status of the family and Gastroenteritis.
- To determine the relationship between hygiene of mothers children and gastroenteritis.

1.4 Significance of the study

The significance of this study is present updating knowledge of mothers; Help to raise the awareness of the mothers about highly necessary recommendations regarding to gastroenteritis disease among the children under five years, as well as, this research will also be addition to the existing of knowledge on gastroenteritis.

Table 1: Distribution of study population according to mother's age and education level (N=50).

Mother's age		Frequency	Percent
Valid	> 20 years	6	12.00%
	20 -29 years	8	16.00%
	30- 39 years	26	52.00%
	< 40 years	10	20.00%
	Total	50	100.00%

Mother's education level		Frequency	Percent
Valid	Primary	10	20.00%
	Secondary	15	30.00%
	University	5	10.00%
	Post graduate	0	0.00%
	Illiterate	20	40.00%
	Total	50	100.00%

The above table (2) indicates majority of mother's age 26(52.0%) were found 30 up to 39 years old. While 10(20.0%) had above 40years old and 8(22.50%) had 20-29 years old.Majority of mother's educational level 20(40.0%) were illiterate. While15 (30.0%) were secondary, 10(20.0%) were primary and 5(10.0%) were university.

Table 3: Distribution of study population according to family's income and size (N=50).

Family's income		Frequency	Percent
Valid	> 150 SDG	33	66.00%
	150 - 200 SDG	14	28.00%
	200 - 300 SDG	3	6.00%
	< 300 SDG	0	.00%
	Total	50	100.00%
Family's size		Frequency	Percent
Valid	> 5 members	20	40.00%
	5 - 10 members	24	48.00%
	11-15 members	6	12.00%
	<15 members	0	.00%
	Total	50	100.00%

The above table (3) has shown the majority family daily income 33(66.0%) were less than150 SDG, while 14(28.0%) were 150-200 SDG and 3(6.00%) were 200 - 300 SDG.

Majority of family size 24(48.0%) were 5-10 members while 20(40.0%) were less than 5 members and 6(12.0%) were 11-15 members.

Table 4: Distribution of study population according to water source and equipment's used for drinking it (N=50).

Water source		Frequency	Percent
Valid	Pipe water	18	36.00%
	River	19	38.00%
	Well	7	14.00%
	Others	6	12.00%
	Total	50	100.00%
equipment's used for drinking water		Frequency	Percent
Valid	Barrels	19	38.00%
	Zeer	20	40.00%
	Jerry cans	11	22.00%
	Others	0	.00%
	Total	50	100.00%

The above table (4)the majority of study participants 19 (38.00%) were used river water. While 18(36.0%) were used pipe water and 7(14.0%) were used well. The majority of study participants (mothers) 20 (40.0%) were used (Zeer) for drinking water and storage. While 19(38.0%) were used barrels and 11(22.0%) were used jerry cans.

Table 5: Distribution of study population according to washing hands with soap and water after using toilet or before and after eating (N=50).

washing hands with soap and water after using toilet		Frequency	Percent
Valid	Yes	20	40.00%
	No	30	60.00%
	Total	50	100.00%
washing hands with soap and water before and after eating		Frequency	Percent
Valid	Yes	11	22.00%
	No	39	78.00%
	Total	50	100.00%

The above table (5) shows the majority of study participants 30(60.0%) were not used washing hands with soap after using toilet while 20(40.0%) were using washing hands with soap after using toilet.

The majority of study participants 39(78.0%) were not used washing hands with soap and water before and after eating while 11(22.0%) were used washing hands with soap and water before and after eating.

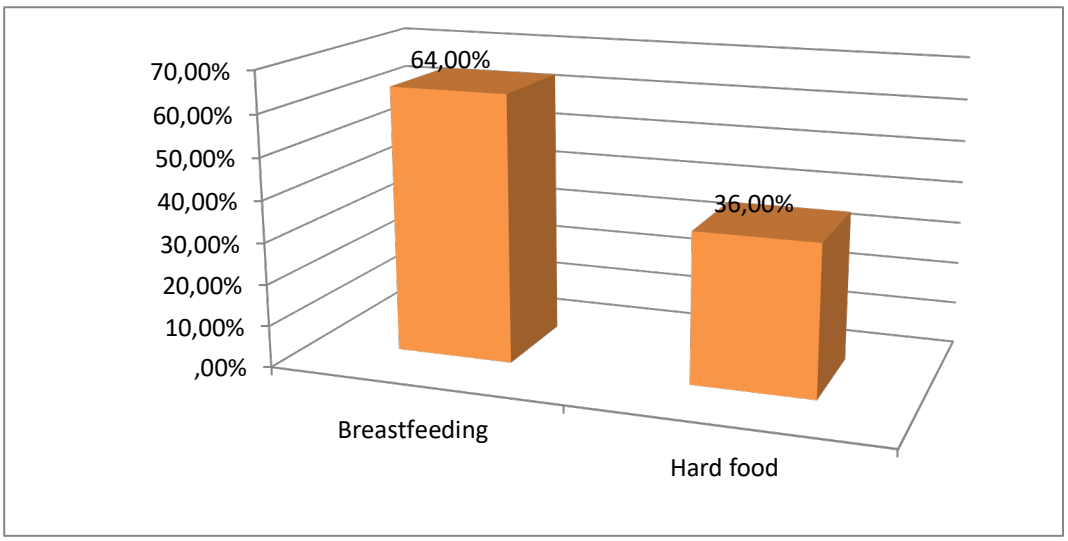

Figure 1: Distribution of study population according to type of feeding (N=50).

The above figure (1) have shown the majority of children 32 (64.0%) whose mothers were interviewed were breastfed their children while 18(36.0%) were not breastfed.

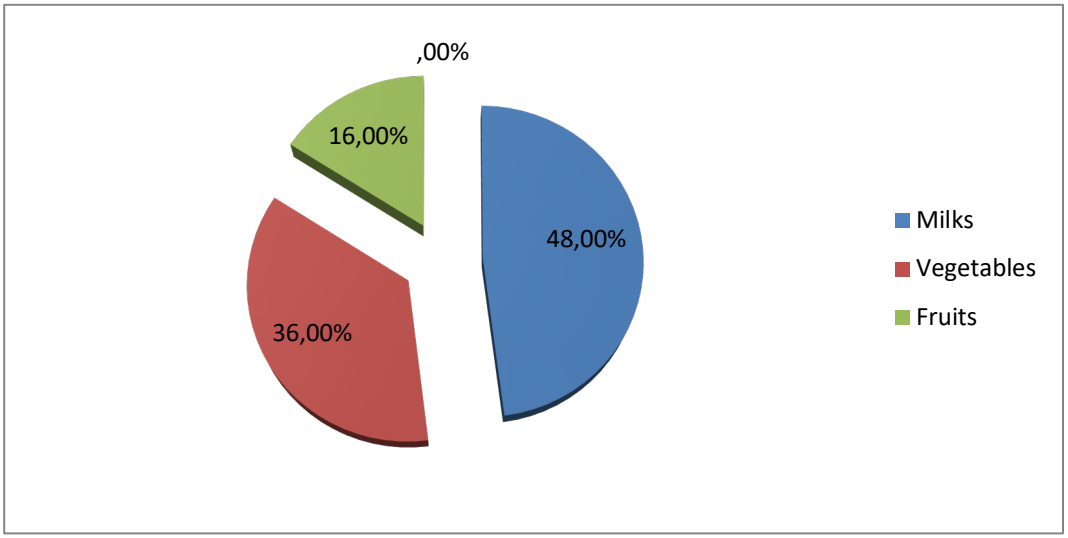

Figure 2: Distribution of study population according to type of food in weaning (N=50).

The above figure (2) shows the majority of mothers 24(48.0%) were given milk to their children while 18(36.0%) were given vegetables and 8(16.0%) were given fruit to their children.

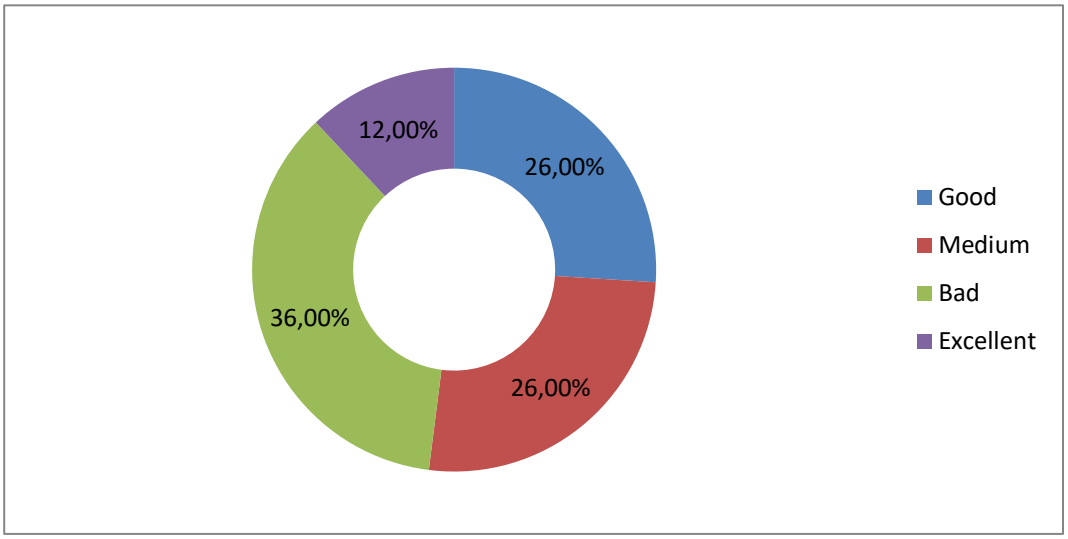

Figure 3: Distribution of study population according to level of personal hygiene of mothers (N=50).

The above figure (3) have shown the majority of mothers 18(36.0%) were bad according to level of their personal hygiene while 13(26.0%) were good according to level of their personal hygiene, 13(26.0%) were middle according to level of their personal hygiene and 6(12.0%) were excellent.

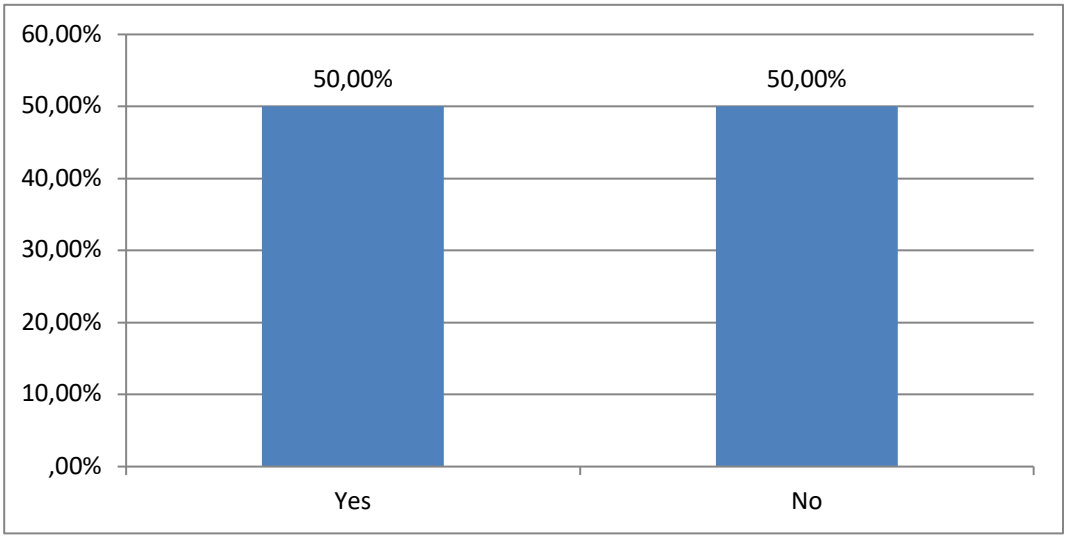

Figure 4: Distribution of study population according to mother's knowledge of personal hygiene (N=50).

The above figure (4) has shown the majority of mothers (50.0%) had knowledge of personal hygiene.

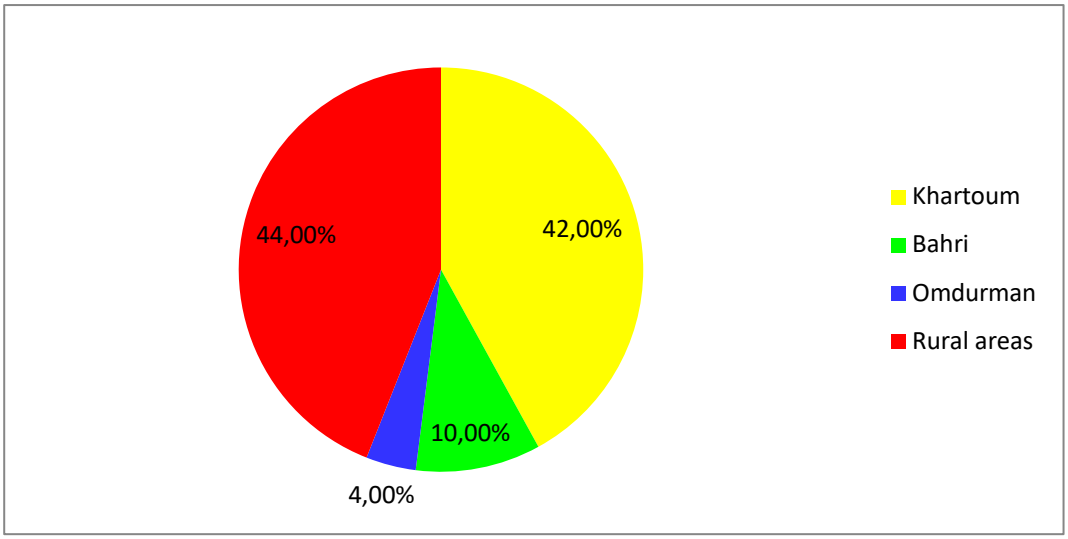

Figure 5: Distribution of study population according to family's place of residence (N=50).

The figure (5) shows the majority family's place of residence 22(44.0%) were rural areas while 21(42.0%) were Khartoum state and 7(14.0%) were Omdurman and Bahri.

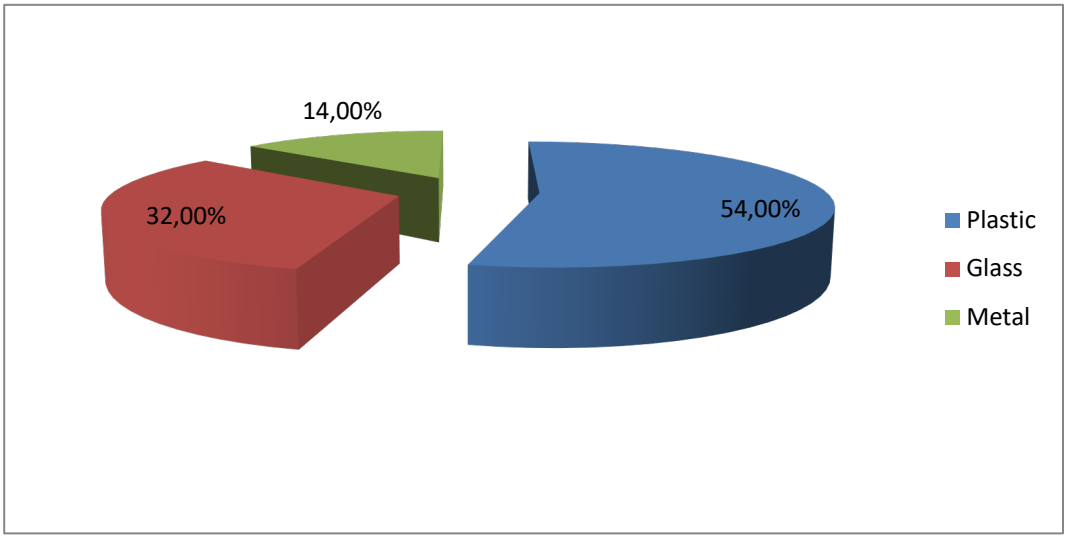

Figure 6: Distribution of study population according to containers of saving foods (N=50).

The above figure (6) have shown the majority of mothers 27(54.0%) were used plastic according to containers of saving foods while 16(32.0%) were used glass according to containers saving foods, 7(14.0%) were used metal.

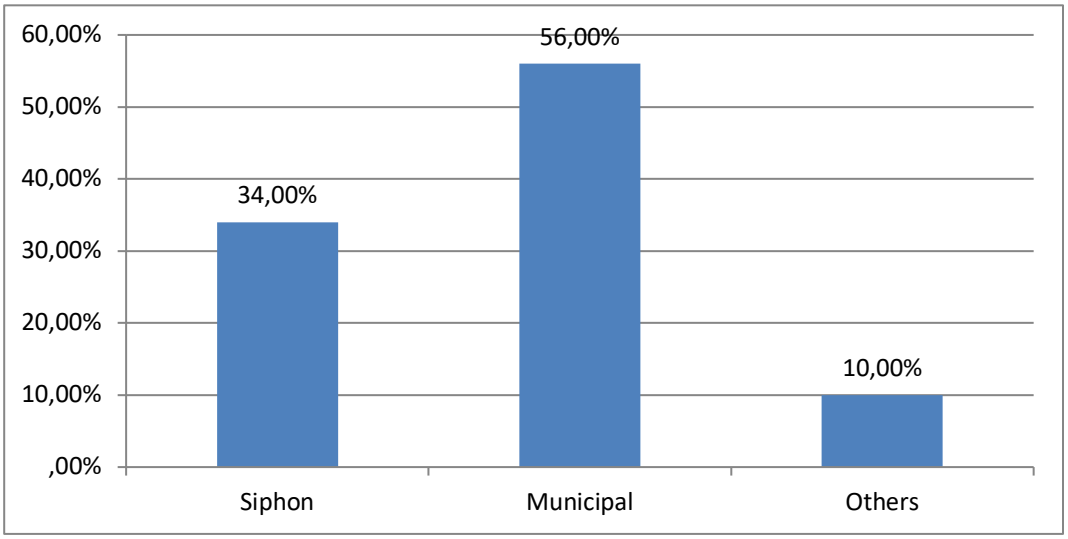

Figure 7: Distribution of study population according to Type of toilet (N=50).

The above figure (7) indicates the majority of family 26(56.0%) were used municipal according to the type of toilet while 17(34.0%) were used siphon and 5(10.0%) used others.

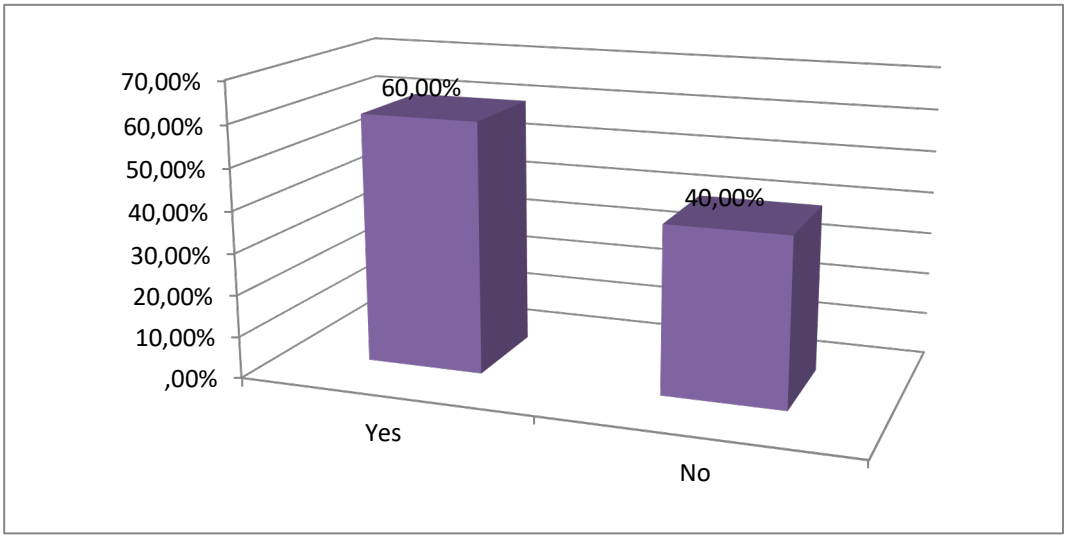

Figure 8: Distribution of study population according to attending child healthcare center (N=50).

The above figure (8) shows the majority of mothers' children 30(60.0%) were attended health centers with their children while 20(40.0%) were not attended health center with their children.

Discussion

Gastroenteritis is a major public health problem in children below the age of five it is one of the most common illnesses in humans worldwide. It is the second most common cause of death among children, and the leading cause of childhood deaths. Although it can affect individuals of any age, it presents a significant health risk to those at extremes of age, the very young children.

A total sample of this study was consisted of 50mothers who had brought their sick children less than five years of age with gastroenteritis admitted to Ibrahim Malik teaching hospital in Khartoum state. This study was carried out to achieve specific objectives through questionnaire, observation and interview the following findings were discussed:

The present study with demonstration of sample of the studied group the finding showed that the numbers of male children were 28(56.0%) and female children were 22(44.0%),the gender distribution indicated that gastroenteritis was more prevalent in male children than in female children. Revealed that a relation existed between gender and prevalence of gastroenteritis. These findings are similar to the findings from the study conducted in Morocco by (Benhafid et al, in 2009), where boys predominated among enrolled patients, compared with girls of hospital admissions. The study showed that 18(36.0%) were 11-24 months where more effected with gastroenteritis than the other age groups, These findings can be compared to the findings from the study conducted in (Maua Meru) North District, Kenya where most patients with gastroenteritis infection were of the age of 3 - 60 months, with 79% being less than 18 months old (Kiulia, 2006). The highest prevalence was observed in children aged between 1 and 2 years. In this study result indicated that gastroenteritis was higher among families who have lower income 33(66.0%) and there was relationship between the family income and gastroenteritis. This finding agreed (Khattak et al. 2007) reported that family income was less than Pakistani 5000/rupees per month in 60% children with gastroenteritis while 40% had income greater than 5000 rupees. And (Ahmed et al. (1995) conducted a study in Karachi and reported that in family income<2000 rupees per month was 36% chronic gastroenteritis patients and 24% acute gastroenteritis patients. This study illustrated gastroenteritis prevailed among children those mothers 20(40.0%) were illiterate or low educational level. Mansour et al. (2013) reported that 36% of the cases mothers were illiterate as reported in the present study. The study showed (36.0%) mothers children were poor hygiene, so that was associated with the prevalence of gastroenteritis. Also poor handling of drinking water was significantly associated with increased risk of childhood gastroenteritis.

The study revealed that lack of hand washing with soap after defecation and before food preparation was associated with the prevalence of gastroenteritis among children under five years of age.

Conclusion

The study concluded that gastroenteritis was more prevalent in male children than in female children. And also low socio economic status, and sanitation practices and low parental education leads to gastroenteritis (GE) among children less than five years of age. Mother's improper health care practices and knowledge regarding GE can increase the diarrheal complications. Gastroenteritis is a significant cause of morbidity amongst young children.

The study conducted at Ibrahim Malik teaching hospital in Khartoum state, revealed that prevalence of gastroenteritis among children under five years is still a problem in Sudan. This study has been concluded children11-24 months where more prevalent with gastroenteritis than the other age groups. Also concluded that water source was associated the prevalence of gastroenteritis among children under five years of age. Gastroenteritis is a common childhood illness, requiring a systematic approach to its assessment, management and prevention.

The study concluded that lack of hand washing with soap after defecation and before food preparation was associated the prevalence of gastroenteritis among children under five years of age. Also the study concluded children with poor hygiene was associated the prevalence of gastroenteritis.

Recommendations

The study recommended that the following activities to be carried out prevention or reducing the complication of the disease:

1. The federal Ministry of Health should implement health education program and Training of qualified the knowledge and awareness of gastroenteritis mothers children patient.
2. The federal ministry of health should improve the quality of water and treat before consumption on the community to avoid water borne disease that leads with gastroenteritis.
3. The Federal Ministry of Health Initiates strategies to demand compliance of protection the prevalence of gastroenteritis in children.
4. Since the problem of gastroenteritis is a widespread, the government in Sudan should overcome these problems by spreading guidance and practice in people about the phenomenon and by facilitating them with fundamental needs.
5. Wide research should conduct and policies should be made in order to eradicate the problem of gastroenteritis.
6. Mothers should carefully follow doctor's instructions to stay away improper medication use.
7. The government should be made major effort to contact patient who have a limited access to health care.

References

Abebe, A., Teka, T., Kassa, T., Seheri, M., Beyene, B., Teshome, B., Kebede, F., Habtamu, A., Maake, L. &other authors. (2014). Hospital-based Surveillance for Rotavirus Gastroenteritis in Children Younger than 5 Years of Age in Ethiopia. Pediatr Infect Dis J. 33, S28–S33.

Ahmad, A., Hafiz, S. and Zafar, A. (1997). Isolation of Aeromonas spp. From human stools. J. Pak. Med. Assoc, 47, 305-308.

Ahmed HM et al. Molecular characterization of rotavirus gastroenteritis strains, Iraqi Kurdistan. Emerging Infectious Diseases, 2006, 12(5):1420–1422

American Medical A, Centers for Disease C, Center for Food S, Applied Nutrition F, Drug Prevention. Et al. (2001) Diagnosis and management of foodborne illnesses: a primer for physicians. MMWR Recomm Rep.; 50(RR-2):1–69.

Ayukekbong, J. A., Andersson, M. E., Vansarla, G., Tah, F., Nkuo-Akenji, T., Lindh, M. & Bergstrom, T. (2013). Monitoring of seasonality of norovirus and other enteric viruses in Cameroon by real-time PCR: an exploratory 59 study. Epidemiol Infect 1–10.

Bahrdwaj A et al. Does rota virus infection cause persistent diarrohea in childhood? Tropical Gastroenterology, 1996, 17(1):18–21.

Bishop, R. F., Davidson, G. P., Holmes, I. H. & Ruck, B. J. (1973). Virus particles in epithelial cells of duodenal mucosa from children with acute non-bacterial gastroenteritis. Lancet 2, 1281–1283.

Boadi, K. and Kuitunen, M. (2005). Childhood diarrheal morbidity in the accrametropolitan area, Ghana: socioeconomic, environmental and behavioral risk determinants. J. World Health Popul, 2–13.

Bodhidatta, L., Lan, N. T. P., Hien, B. T., Lai, N. V., Srijan, A., Serichantalergs, O., Fukuda, C. D., Cam, P. D. & Mason, C. J. (2007). Rotavirus Disease in Young Children from Hanoi, Vietnam. Pediatr Infect Dis J 26, 325–328.

Bonkoungou, I. J. O., Haukka, K., sterblad, M., Hakanen, A. J., Traor, A. S., Barro, N. &Siitonen, A. (2013). Bacterial and viral etiology of childhood diarrhea in Ouagadougou, Burkina Faso. BMC Pediatrics 13, 1–1. BMC 60 Pediatrics.

Boschi-Pinto C, Velebit L, Shibuya K.(2008) Estimating child mortality due to diarrhoea in developing countries. Bull World Health Organ; 86:710-7.

Boschi-Pinto, C., Lanata, C. F. and Black, R. E. (2009). The global burden of childhood Diarrhoea'. In maternal and child health: global challenges, programs, and policies. Maternal and child health. 225-243. springer.com/chapter/10.1007/b106524_13.

Canani RB, Cirillo P, Roggero P, et al. Therapy with gastric acid inhibitors increases the risk of acute gastroenteritis and community-acquired pneumonia in children. Pediatr. 2006; 117:e817-820. (Case-control study; 186 subjects)

Chhabra, P.; Payne, D.C.; Szilagyi, P.G.; Edwards, K.M.; Staat, M.A.; Shirley, S.H.; Wikswo, M.; Nix, W.A.; Lu, X.; Parashar, U.D.; et al.(2013) Etiology of viral gastroenteritis in children< years of age in the United States, 2008–2009. J. Infect. Dis., 208, 790–800.

Coburn, B. J., Wagner, B. G. & Blower, S. (2009). Modeling influenza epidemics and pandemics: insights into the future of swine flu (H1N1). BMC Med 7, 30.

Dennhey., H. P., Mararet, C. M., Rodolfo, B. E., Jenifer, J. L., Robert, E. S., Zhang, N., Rhodes, R., Gentsch, P., Bernstein, W. R., David, I., Brese, C., Staat, S. J. and Allen, M. (2006). A case-control study to determine risk factors for hospitalization for rotavirus gastroenteritis in U.S. children. Pead. Infect. Dis. J, 25 (12), 1123-1131.

Devrajani BR, Shah SZA, Shaikh S, Shaikh S, Essa S (2009) Hypocalcaemia in Acute Gastroenteritis (A Case-Control Study at Department of Internal Medicine). World Appl Sci J 7: 777-780.

Dey, S. K., Nguyen, T. A., Phan, T. G., Nishio, O., Salim, A. F. M., Rahman, M., Yagyu, F., Okitsu, S. & Ushijima, H. (2007). Molecular and epidemiological trend of norovirus associated gastroenteritis in Dhaka City, Bangladesh. J ClinVirol 40, 218–223.