

## Mothers' perception and management preference of acute diarrheal disease

Terefe Keto<sup>1</sup>, Yalfal Alemu<sup>2</sup>, Aklilu Mamo<sup>3</sup>

<sup>1</sup>Department of Comprehensive Clinical Nursing, Mizan Aman Health Science College, Ethiopia

<sup>2</sup>Wolkite University Specialized Teaching Hospital, Ethiopia

<sup>3</sup>Department of Nursing, College of Health Sciences, Wachamo University, Ethiopia

### Article Info

#### Article history:

Received Jun 3, 2020

Revised Aug 18, 2020

Accepted Sep 11, 2020

#### Keywords:

Children

Diarrhea

Health education

Perception

Preference

### ABSTRACT

Globally, diarrheal disease is one of the leading causes of morbidity and mortality among under-five years of children. Every day, approximately 2195 children die due to diarrheal diseases, which accounts for 1 in 9 child deaths worldwide. Many interventions that attempt to reduce childhood diarrhea are often fail because they are programmed without understanding the problem in the target community and are culturally unsuitable. Therefore, this study aimed to assess perception and management preference of acute diarrheal disease among mothers who attend under five clinics. An institution based descriptive cross sectional study was conducted from May 1-May 30/2019. A total of 276 respondents were included in the study and consecutive sampling technique was used to identify the study participants. The results show that 47% of respondents perceive childhood diarrhea is caused by teething, 47.8% of the respondents perceive that diarrhea cannot be transmitted from one child to other. Majority of care givers prefer to give home remedies to their child, and also a substantial proportion of mothers and caregivers were not adequately knowledgeable on the use of oral rehydration salt which resulted in many of them using traditional medicine. There is need for increased health education focused on increasing caregivers' knowledge about the cause of diarrhea and enhancing adoption of appropriate prevention practices of diarrhea among children under five years.

*This is an open access article under the [CC BY-SA](#) license.*



### Corresponding Author:

Terefe keto,

Department of Comprehensive Clinical Nursing,

Mizan Aman Health Science College,

Mizan, SNNPR, Ethiopia.

Email: tereedzaze@gmail.com

## 1. INTRODUCTION

Diarrhea can be defined as a loose and watery stools occurring more than three times in a day. It usually lasts for 24 hours or more and sometimes spontaneously healed without any special treatment [1]. Diarrhea is caused by microbial agents which are usually transmitted through the consumption of food and water contaminated with human feces [2]. Food intolerances and intestinal parasites may also cause diarrhea and this type of diarrhea is common in children younger than five years [3].

Globally, diarrheal disease is one of the leading causes of morbidity and mortality among under-five years of children. Every day, approximately 2195 children die due to diarrheal diseases, which accounts for 1 in 9 child deaths worldwide [4]. In 2017, nearly 1.6 million people died due to diarrheal diseases worldwide, and one-third of these deaths occurred among under-five children. Approximately 90% of deaths due to

diarrheal diseases occurred in South Asia and sub-Saharan African countries. Diarrhea is the third leading cause of child mortality globally, next to pneumonia and preterm birth complications [5, 6]. Diarrheal diseases are the most prevalent and cause greater morbidity and mortality in under-five children in low income countries (LICs) [7]. Under five year children's in low and medium income countries (LMICs) including Sub-Saharan Africa experience an average of 2.7 episodes of diarrhea per year [8]. In Africa, diarrheal diseases caused an estimated 330,000 deaths in 2015. Ethiopia Demographic and Health Survey 2016 report showed that about 12% of under-five children had experienced a diarrheal episode in the two weeks before the survey [9, 10]. There are low cost and effective interventions that can prevent and treat diarrheal diseases [11]. However, diarrheal diseases disproportionately affect low-income and middle income countries [8], because of care givers perceived cause of diarrhea, poor recognition of the disease and treatment preference.

A research conducted in Nepal showed that; 90% of the cause of diarrhea was dirt and lack of cleanliness and majority (80%) of the mothers believed that thin watery diarrhea as the most dangerous and 75% of the respondents are used to treat diarrhea using oral rehydration salt (ORS). In Peru, 58% mothers perceive diarrhea as non- infectious disease [12, 13]. In South Asia, among children who had diarrhea in one year period only 19% have got oral rehydration therapy (ORT) in home and/or in health institution and only few mothers practice offering of extra fluids to their children with diarrhea in India [14, 15].

A study in Nigeria, showed that teething was the perceived leading cause of diarrhea as shown by 52% of the caregivers followed by eating of contaminated food 25%. The second leading cause of diarrhea as perceived by the caregivers is drinking of contaminated water 35% followed by eating of contaminated food 22.5% [16]. In a study conducted in Benishangul Gumuz regional state, Ethiopia, 70.7% of the respondents identified 'teething' as one of the major causes of diarrhea, while 20.2% of the respondents reported that diarrhea can be caused/ transmitted by drinking unclean/unsafe water. A study done in another state of Ethiopia showed that teething as the main perceived cause of infantile diarrhea and over 50% of the respondent restrict fluid intake for their children with diarrhea, 70% of the respondent decrease fluid intake and only 20% of respondents give ORS or other homemade fluids [17, 18]. An ethnographic study was done in Jimma showed that the causes of diarrhea perceived by respondents were evil eye, teething and contaminated food [19].

In many developing countries the perceived cause of diarrhea by mothers is associated with cultural and spiritual reasons [19]. Many interventions that attempt to reduce childhood diarrhea are often fail because they are programed without understanding the problem in the target community and are culturally unsuitable. Appropriate treatment seeking and effective case management by mothers/caretakers at home and by health workers in facilities has great potential to reduce the toll of diarrhea mortality [20, 21]. The aim of this study was to assess mothers'/caregivers' current perception and management preference of acute diarrheal disease among mothers who attend under five clinic at Hossana health facility and no previous studies concerning the title have been reported from the study area. Therefore, this study was conducted to fill this gap and the result of this study will be used to design effective intervention strategies for morbidity and mortality caused by childhood diarrheal disease in study community and communities with similar culture throughout the globe as well as it will also provide a direction for further intervention such as preparing educational messages based on existing beliefs.

## 2. RESEARCH METHOD

Hosanna is located in SNNP regional state, which is 232 Km far away from Addis Ababa, a capital city of Ethiopia and 194 Km far away from regional state, Hawassa. The average annual temperature of the town is 14.4°C and the annual rainfall is 1331mm. According to Ethiopian climate classification, the agro climatic zone of the town, were the rainfall is between 920.4mm and 1436.5mm.

Hossana has eight kebeles (wards) with a total population of 107,843, among which 52843 are male and 54,999 are female and of among which 22,009 population are households and 16834 populations are found less than five years age group. The town consists of four governmental health institutions; these are one general hospital and three health center. This study was carried out in all governmental health institution of Hossana. An institution based descriptive cross sectional study was conducted from May 1-May 30/2019 among 11 mothers (caregivers) attending under five clinic at Hossana health institution. The study populations were; all caregivers/mother attending under-five clinic during data collection period and whose child has diarrhea currently or episode of diarrhea prior to the time of the study. Caregivers whose child need urgent referral and management were excluded from the study. A single population proportion formula was used to estimate the sample size. The following assumptions were made while calculating the sample size. The degree of precision or margin of error chosen to be 0.05 with the reliability coefficient of 1.96% certainty ( $Z=1.96$ ) and 50% was considered as a proportion. The final sample size for this study with 10%

the non-response rate was a total of 276 respondents and a consecutive sampling technique was used to identify study participants as shown in Figure 1.

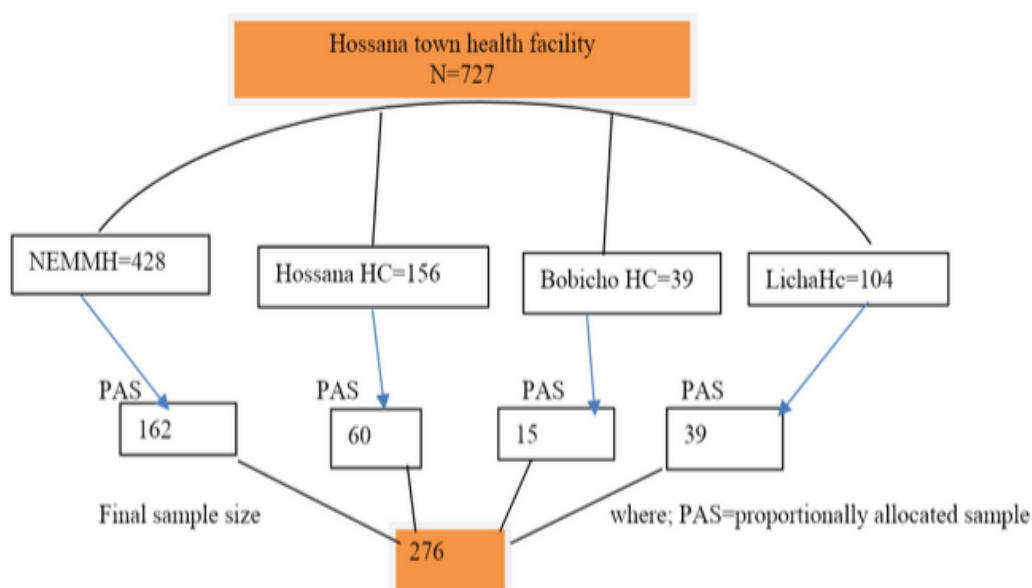


Figure 1. Schematic sampling presentation

## 2.1. Data collection tools and methods

Data was collected by using structured questionnaire from May 1- May 30/2019, which is adapted from different reviewed literature [18, 19]. The question and statements was arranged according to particular objectives that they could address. The final version of English questioner was translated to local language version, then back to English to ensure its message consistency. Ethical clearance letter was obtained from college of health science, Wachamo University and approved by research and ethics committee of the University; then forwarded to all Hossana health facilities administrative office before starting interviewing of the study subject. The aim of the study, confidentiality issue and informed consent was explained and the actual data collection was conducted after obtaining a written consent from each participants. A consecutive sampling technique was used to identify study participants and face to face interview was used to collect the data.

## 2.2. Data processing and analysis

Data was cleaned, coded and then entered into computer using EpiData and exported into SPSS 21<sup>th</sup> version for analysis. The finding was presented by statement, graphs and tables.

## 3. RESULTS

### 3.1. Socio demographic results of respondent

A total of 276 care givers were participated in the study. The overall response rate of this study was 100% and most 149(54%) of the study participant were between the age of 20-29 years while most children studied 143(51.8%) were aged between 25 to 59 months. According to the findings of this study, 221(80.2%) of respondents indicated that they were married. In regard to number of children under five years per household, 192(69.6%) of the respondents had one child under five years. In terms of household size, 102(36.9%) of households had a range of 4 to 5 family members, while 105(38%) of respondents indicated that they were protestant religion follower. Regarding occupational status, 99(35.8%) of the caregivers (mothers) were merchant, 86(31%), 72(26%), 3(1%) were government employees, housewife and daily laborer respectively. Among the total respondents, 47.3% of them has monthly income of >1500 Ethiopian birr. The monthly income of the respondents is presented in Figure 2 while the socio-demographic characteristics is described in Table 1.

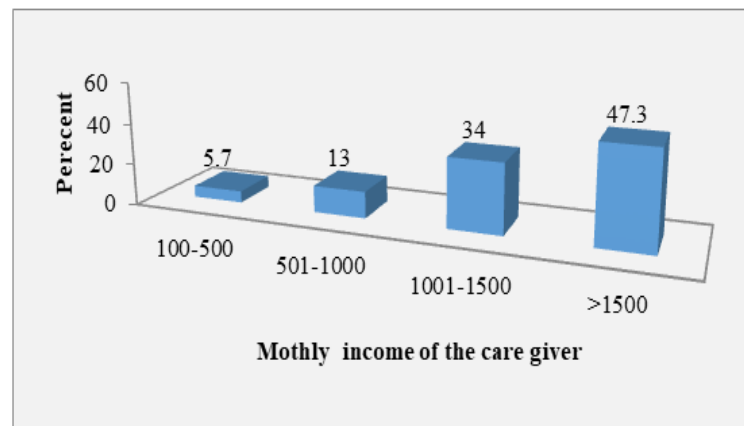


Figure 2. Monthly income of mothers (care givers)

Table 1. Socio demographic characteristics of mothers (care givers)

No	Characteristics	Age	Number	Percent
1	Age of caregivers (mothers)	≤19 years	25	9
		20-29	149	54
		30-39	102	37
2	Age of child in moths	<6months	11	3.9
		6-11months	25	9
		12-24 month	97	35.2
		25-59 months	143	51.8
3	Sex of the child	Male	166	60.2
		Female	110	39.8
4	Educational level	Illiterate	50	18.1
		Read and write	39	14.1
		Primary school	63	22.9
5	Religion affiliation	College and above	124	44.9
		Protestant	105	38
		Orthodox	72	26.2
		Muslim	69	25
6	Ethnicity	Others	30	10.8
		Hadiya	138	50
		Kambata	83	30.2
		Silte	44	15.9
7	Occupational status	Others	11	3.9
		House wife	72	26
		Employer	86	31
		Daily laborer	3	1
		Merchant	99	35.8
8	Household size	Other	16	5.7
		2-3	96	34.7
		4-5	102	36.9
		6-7	40	14.4
		>8	38	13.7
9	Marital status	Married	221	80.2
		Single	25	9
		Divorced	26	9.4
		Widow	4	1.4
10	Number of under-five children	One	192	69.6
		Two	42	15.2
		Three	43	15.2
Total			276	100%

### 3.2. Knowledge and perception on causes of childhood diarrhea

Among the total respondents, 132(47.8%) of them perceive diarrhea cannot be transmitted from one child to other, but the remaining 144(52%) perceives that it can be transmitted from one child to other child. Regarding the recent cause of diarrhea, 105(38%), 52(18%) and 42(15%) of care givers believes that their baby get diarrhea from lack of hygiene, eating uncooked food and lack of pure water respectively Figure 3.

Knowledge of mothers regarding diarrhea in which 192(69.6%) mothers considered loose and watery stool as diarrhea. Regarding causes of diarrhea, 130(47%) mother perceive child hood diarrhea is

caused by teething, only 2(0.7%) of them perceive child hood diarrhea is caused by evil eyes. Among the total respondents, 142(51.4%) of them did not know about signs of dehydration and, 212(76.8%) of them responded that diarrhea causes lethargy Table 2.

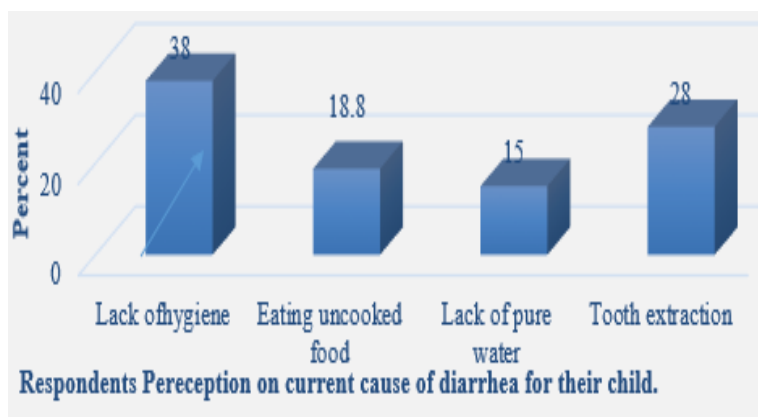


Figure 3. Respondents perception on current cause of diarrhea for their child among mothers (care givers)

Table 2. Knowledge and perception on causes of child hood diarrhea among mothers (care givers)

S/no	Variable	Category	Frequency	Percent
1	Diarrhea	Watery stool	192	69.6
		Increase frequency	42	15.2
		Both	43	15.2
2	Cause of Diarrhea	Contaminated water	32	13
		Eating mud	2	0.7
		Contaminated water and food	52	17.8
		Teething	130	47
		Evil eyes	38	13.5
		Amoeba	22	8
3	Sign of dehydration	Sunken eyes	38	13.9
		Thirsty and dry skin	96	34.7
		Don't know	142	51.4
4	Consequences	Lethargy	212	76.8
		Loss of Weight	28	10.1
		Unconsciousness	25	9.1
		Death	11	4
Total			276	100%

### 3.3. Perception on identification of diarrhea among under-five children

Among the total respondents; 135(48.9%), 50(18%) and 47(17%) they were identifies types of childhood diarrhea as yellow, Mucous and watery respectively. From these, most 201(72.8%) of them identifies the type diarrhea to decide on its management, but the remaining 75(27.2%) to identify its cause as presented in Table 3.

Table 3. Perceptions on types of diarrhea among mothers (care givers)

s/no	Variables	Response	Number	Percent
1	What are the types of childhood diarrhea you identified?	Yellow	135	48.9
		Mucous	50	18
		Bloody	44	15.9
		Watery	47	17
2	What is the use of identifying types of diarrhea?	To decide on management	201	72.8
		To identify the cause	75	27.2
Total			276	100%

### 3.4. Caregivers' perception and knowledge on treatment of diarrhea

Among the total respondents, 188(68.2%) of them perceives that all childhood diarrhea can be treatable by modern medicine and the remaining 88(31.8%) perceives all type of diarrhea can't be treatable by modern medicine. Among the respondents who perceive all type of diarrhea that can't be treatable by modern medicine, 80(90.9%) them perceives that, a diarrhea that is caused by teething and 8(9.1%) of them perceives a diarrhea that caused by Evil eye can't be treatable by modern medicine Figure 4. Hundred seventy four (63%) of the respondents decide to take action when their child suffer diarrheal disease and about 33(11.9 %) and 25(9%) of respondents take their child to traditional healers and restrict food and fluid respectively Figure 5. A considerable number of caregivers 40(14.5%) agreed that ORS is effective in treating diarrhea and 239(86.6%) agreed that diarrhea can be adequately managed at home. When asked what fluid can a child with diarrhea be given at home, 115(41.7%) of caregivers reported Herbal fluids followed by plain water 82(29.7%) as presented in Table 4.

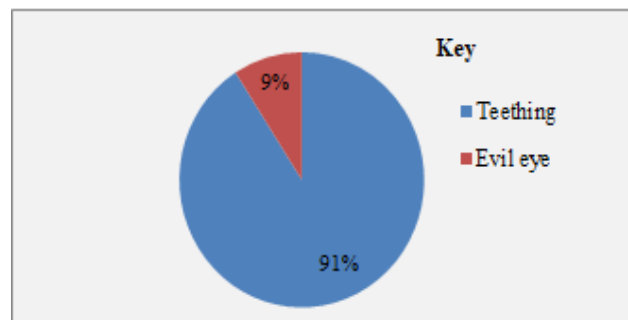


Figure 4. Perception on childhood diarrhea that can't be treated by modern medicine among mothers (care givers)

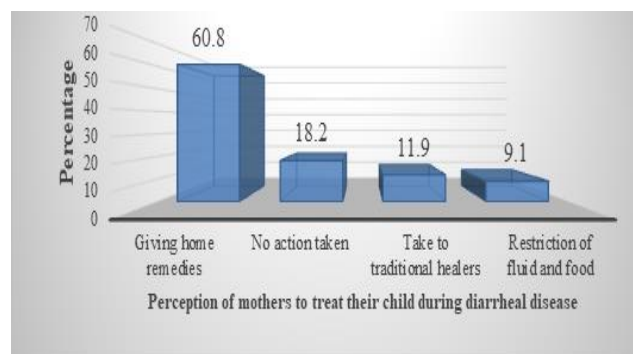


Figure 5. Perception of mothers to treat their child during diarrheal disease among mothers (care givers)

Table 4. Caregivers' knowledge on treatment of diarrhea among mothers (care givers)

s/no	Variables	Category	Frequency	Percent
1	ORS is effective in treating diarrhea	Yes	40	14.5
		No	236	85.5
2	Diarrhea can be adequately managed at home	Yes	239	86.6
		No	37	13.4
3	What fluid can a child with diarrhea be given at home?	ORS	35	12.7
		Salt sugar solution	19	6.7
		Plain water	82	29.7
		Fruit juice	16	5.8
		Herbal fluids	115	41.7
		Others	9	3.3
4	Barriers towards proper management of diarrhea	Lack of knowledge on ORS	135	48.9
		Long distance to health care	50	18
		Financial constraints	44	15.9
		Traditional beliefs and customs	47	17
	Total		276	100%

*Mothers' perception and management preference of acute diarrheal disease (Terefe keto)*

### 3.5. Preferences for diarrhea management among care givers (mothers) during diarrheal disease among under-five children's

Respondents were asked to indicate their preferences for managing diarrhea cases whenever it occurs, 158(57.2%) of the respondents preferred treating the child personally at home while 46(16.7%) preferred traditional medicine treatment. Only 74(26.8%) of caregivers indicated that they preferred treatment in a health facility. Respondents were asked to identify ways in which they managed diarrhea at home; majority of respondents (60.8%) used herbal medicines to treat diarrhea at home followed by fluids like soup (32.2%) and drugs (7%).

## 4. DISCUSSION

Caregivers' perceptions are important in understanding individual attitudes and beliefs towards diarrhea prevention, control and management in children under five years. This study was conducted with the aim of determining perception and management preference of acute diarrheal disease among mothers who attend under five clinics. According to the findings from this study, 47% mothers perceive that child hood diarrhea is caused by teething and a considerable number (13.5%) of care givers responded that diarrhea is caused by evil eye. This finding is higher than a study conducted in Mizan, Ethiopia; in which only 4.5% respondents reported that evil eye can cause diarrhea [22, 23], comparable with a study conducted in Jimma, Ethiopia; 42.8% of care givers perceived the causes of diarrhea were teething [19] and south Mozambique [25], and lower than a study conducted in Kenya, 52.9%) caregivers attributed diarrhea to supernatural causes such as witchcraft and evil eye [24]. This difference might be due to difference in cultural background of the study participants, local beliefs and difference in context of the study especially the nature of the study population such as a study population educational level.

The result of this study revealed that only (14.5%) of caregivers agreed that ORS is effective in treating diarrhea and for this the major barrier for the care giver were lack of knowledge on ORS(48.9%) and long distance to health care facilities(18%). This finding is lower as compared to a study conducted in Kenya; (35.6%) [24], Nepal (75%) [12], agreed that ORS is effective in treating diarrhea, and comparable with a study conducted in India (18.8%) [26]. This dissimilarity might be due to caregivers misconception about the uses of ORS in diarrhea treatment.

Based on the result of this study, 63% of the respondents decide to take action when their child suffer diarrheal disease and the remediation what taken were restricting from food and water, home remedy and traditional healers which accounted 9%, 60.8% and 11.9%. This finding is lower than a study conducted in Thailand; 51.7% of respondents restrict food and fluids from the victims throughout the duration of diarrheal episodes, 17.6% restrict food and fluid for three to seven days and greater than 65% of respondents believe in reducing fluid intake during diarrheal episodes [27]. This discrepancy between the two study participants might be due to mothers' lack of prior experience, a lack of proper education about the concerned matters. The findings of this study showed that, at home (60.8%) of care givers use herbs and (32.2%) use fluids to manage diarrhea. This was similar to findings of a study conducted in Guinea Bissau to assess knowledge and practices of men and women on maternal and child health; use of fluids was reported as the predominant methods used to treat diarrhea at the household level [28]. The main types of fluids used were fruit juice, herbal fluids and plain water. Fluids are mainly administered to replace lost fluids, prevent dehydration and restore lost energy from the body during diarrhea episode [29].

According to the result of this study; 57.2% of the mothers preferred to treat their child personally at home while (16.7) % preferred the traditional medicine treatment. This finding is higher than a study done Turkana County, Kenya; (22.9%) of the respondents preferred treating the child personally at home while (42.10%) preferred the traditional medicine treatment [23]. This discrepancy may be due to reluctance of the caregivers and mothers to seek for health care services on regular basis, wrong perceptions on diarrhea and its causes and lack of knowledge on how to use ORS and its therapeutic benefits and because of the demonstrated effectiveness of the traditional remedies in combating some common illnesses like diarrhea.

## 5. CONCLUSION

The findings of this research indicated that most mothers perceive child hood diarrhea is supernatural causes such as teething. This is wrong perceptions which affect adoption of proper and effective diarrhea management practices. Majority of care givers prefer to give home remedies to their child, but a significant portion of the respondents prefer to take their child to traditional healers, and also a substantial proportion of mothers and caregivers were not adequately knowledgeable and or knowledgeable on use of

ORS which resulted in many of them using traditional medicine and or worsening of the conditions. It is important for health care workers to enhance promotion and education of community members especially mothers and caregivers on best practices for preparing and administering ORS and its benefit in management of the common diarrhea cases to children. Also there is need for increased health education focused on increasing caregivers' knowledge about the cause of diarrhea and enhancing adoption of appropriate prevention practices of diarrhea among children under five years.

## REFERENCES

- [1] Fekety, R., "Guidelines for the diagnosis and management of *Clostridium difficile* associated diarrhea and colitis. American College of Gastroenterology, Practice Parameters Committee," *American Journal of Gastroenterology*, vol. 92, no. 5, pp. 739-750, 1997.
- [2] Kung'u WN, et al., "Diarrhoea prevalence and risk factors in slums," *J. Nat. Inst. Public Health.*, vol. 51, no. 1, pp. 73-76, 2002.
- [3] Longstreth, G.L., et al., "Functional Bowel Disorders," *Gastroenterology*, vol. 130, no. 5, pp. 1480-1491, 2006.
- [4] Global diarrhea burden|global water, sanitation and hygiene|healthy water|CDC 2019. [Online]. Available: <https://www.cdc.gov/healthywater/global/diarrhea-burden.html>.
- [5] These diseases are "preventable and treatable" but half a million children die from them every year. Why? | world economic forum, 2019. [Online]. Available from: <https://www.weforum.org/agenda/2019/08/how-stop-more-half-millionchildren-dying-diarrhea-this-year/>.
- [6] Mokomane M., Kasvosve I., et al., "The global problem of childhood diarrhoeal diseases: emerging strategies in prevention and management," *Ther Adv Infect Dis.* vol. 5, no. 1, pp. 29-43, 2018.
- [7] Gerald T., et al., *Diarrheal Diseases and Prevention*, Boston University School of Medicine, Boston, Massachusetts, United States, 2015.
- [8] Fischer Walker et al., "Diarrhea Incidence in Low- and Middle- Income Countries in 1990 and 2010: A Systematic Review," *BMC Public Health*, vol. 12, no. 220, pp. 1-7, 2012.
- [9] Reiner RC, Graetz N, Casey DC, et al., "Variation in childhood diarrheal morbidity and mortality in Africa, 2000-2015," *N Engl J Med.*, vol. 379, no. 12, pp. 1128-1138, 2018.
- [10] Central Statistical Agency (CSA) [Ethiopia] and ICF., "Ethiopia Demographic and Health Survey 2016," Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF, 2016.
- [11] Degefa G., Gebreslassie M., et al. "Determinants of delay in timely treatment seeking for diarrheal diseases among mothers with under-five children in central Ethiopia: A case control study," *PLoS One*, vol. 13, no. 3, p. e0193035, 2018.
- [12] Mukhtar A., Mohamed I., et al. Mothers' beliefs and barriers about childhood diarrhea and its management in Morang district, Nepal, 2012 <http://www.biomedcentral.com/1756-0500/5/576E>
- [13] Gazi, A., et al., "Can mothers care for acute diarrhea disease of under-five children effectively at home? A sectional study in slum community in bankura," *Journal of Evidence Based Medicine and Health Care*, vol. 2, no. 36, pp.5575-5584, 2015.
- [14] Martha V., Toacwm G., Devids et al., "Etiology of Diarrhea in children <5 years of age in Ifakara Tanzania," *American journal of tropical medicine*, vol. 70, no. 5, pp. 536-538, 2012.
- [15] Albert M, Karen E Anachristina T., "Association of diarrhea and URTI which weight & height gains in Bangladeshi children age 5-11 years," *Bulletin of WHO*, vol. 8, no. 11, pp. 1316-1318, 2000.
- [16] T.E Babalola, et al., "Caregivers' Perceptions of Causes and Treatment of Fever and Diarrhea among Under-Fives in Ile Ife," *Journal of Pharmacy and Pharmacology*, vol. 6, no. 9, pp. 854-858, 2018.
- [17] Merga N., Alemayehu T., "Knowledge, perception, and management skills of mothers with under-five children about diarrhoeal disease in indigenous and resettlement communities in Assosa District, Western Ethiopia," *Journal of Health, Population, and Nutrition*, vol. 33, no. 1, p. 20, Mar 2015.
- [18] Muhie L., Byassp, Freji L., et al., "One year community study of under 5 in rural Ethiopia health and behavioral determine of morbidity," *The Ethiopian Journal of Health Development*, vol. 18, no. 1, pp. 19-23, 1997.
- [19] Kaba M., Ayele F., "Ethnographic study of diarrhoeal disease among under-five children in Mana District, Jimma Zone, Southwest Ethiopia," *Ethiop. J. Health Dev.*, vol. 14, no. 1, pp. 77-83, 2000.
- [20] Abegaz NT, Berhe H., et al., "Mothers/caregivers healthcare seeking behavior towards childhood illness in selected health centers in Addis Ababa, Ethiopia: a facility-based cross-sectional study," *BMC Paediatrics*, vol. 19, no. 1, p. 220, Dec 2019.
- [21] Negussie T., Chepnge G., "Determinants of health care seeking for childhood illnesses in Nairobi slums," *Tropical Medicine & International Health*, vol. 10, no. 3, pp. 240-245, 2005.
- [22] Enzley S., Barros F., "A global review of diarrheal disease control. New York," NY, USA: *UNICEF*, 1997.
- [23] Wadu Wolacho Debancho et al., "Lactating Mothers' Perception towards Diarrheal Disease in Bench Maji Zone, Southwest Ethiopia: Mixed study design," *The Pan African Medical Journal*, vol. 31, no. 176, pp. 1-10, 2018.
- [24] Nhampossa T., et al., "Health care utilization and attitudes survey in cases of moderate-to-severe diarrhea among children ages 0-59 months in the District of Manhica, southern Mozambique," *American Journal of Tropical Medicine and Hygiene*, vol. 89, no. 1 Suppl, pp. 41-48, 2013.



- [25] Antony Muiruri., Caregivers' knowledge, perceptions and practices on Diarrheal diseases among children under five years in Kenya, 2018. [Online]. Available: <https://www.semanticscholar.org/paper/CAREGIVERS%E2%80%99-KNOWLEDGE%2C-PERCEPTIONS-AND-PRACTICES-ON-Wanjiru-Osero/8b0ff10500811df09c538daa60b02bdb6bfe241f>
- [26] A. Kaur, S. Chowdhury, R. Kumar., "Mothers' beliefs and practices regarding prevention and management of diarrheal diseases," *Indian Pediatrics*, vol. 31, no. 1, pp. 55-7, 1994.
- [27] Choprapawana C et al., "Cultural study of diarrheal illness in Thailand," *Journal of Diarrheal Disease Research*, vol. 9, no. 3, pp. 2004-211, 1991.
- [28] King R., Mann V., Boone P., "Knowledge and reported practices of men and women on maternal and child health in rural Guinea Bissau: a cross sectional survey," *BMC Public Health*, vol. 10, no. 1 , p. 319, 2010.
- [29] Thomas S., Getahun A., Alemayehu S., "Determinants of childhood diarrhoea among under-five children in Benishangul Gumuz Regional State, North West Ethiopia," *BMC Pediatrics.*, vol. 14, no. 1, pp. 1471-2431, 2014.