A Rapid Assessment of Knowledge, Attitudes and Practices of Mothers Admitted with Diarrhoea Suffering Children in West Urban Region of Unguja-Zanzibar

Kheir M. Kheir

University of Dar es Salaam

Bernard Mbwele (✉ benmbwele@gmail.com)

University of Dar es Salaam - Mbeya College of Health and Allied Sciences

Khadija Omary

Ministry of Agriculture, Natural Resources and Livestock

Modester Damas

University of Dar es Salaam

Lucy Nmakinga

University of Dar es Salaam

Research Article

Keywords: Knowledge, Attitude, WASH Practice, Mothers of under-fives, Caregivers, Diarrhoea Diseases

Posted Date: December 9th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-1043619/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Abstract

Background

The knowledge, attitude and health practices of the mothers directly reflect on the health and vitality of the child in most of diarrhoea affected communities. The aim of the study was to determine the knowledge, attitude and practice of mothers and caregivers (house girls) towards diarrhoeal disease among children under-five in Unguja, Zanzibar Tanzania.

Methods

A quantitative cross-sectional study using a rapid appraisal technique to assess the knowledge, attitudes and practice of mothers and caregivers admitted with children with diarrhoeal diseases was conducted in 23 hospitals of west urban region of Unguja, Zanzibar.

Results

A total of 102 mothers and caregivers were studied. From the respondents 97 (95%) had satisfactory level of knowledge on diarrhoea while 5 (5%) had unsatisfactory knowledge. A total of 52 (51%) rejected the use of Oral Rehydration Solution (ORS) at home due to taste and smell and 50 (49%) agreed its use. A total of 55 (54%) children were served by caregivers. Collectively mothers and caregivers were asked for their practice of drinking treated or boiling water where 47 (46%) reported not to practice. A total of 48 (47%) respondents reported hand washing after helping children with defecation while only 19 (19%) respondents reported washing hands before preparing food.

Conclusion

Limited use of water sanitation and hygiene (WASH) practices was observed among mothers and caregivers in the prevention and management of under-five children with diarrhoeal disease.

Background

Globally, about 525,000 under-five children are dying by diarrhoea diseases each year [1] in resource limited settings [2]. It is also estimated that there are 1.7 billion cases of childhood diarrhoeal disease every year [1]. Diarrhoea is the third cause of childhood admission and deaths with overall incidence remaining relatively stable over the past two decades [3, 4]

Diarrhoea diseases among under-fives have remained to be a public health problem in Africa [5, 6] with outbreaks causing 13% of under-five deaths while the remaining 87% causes by non-outbreak diarrhoea due to *Salmonella*, *Shigella*, *Campylobacter* and *Escherichia coli* [7, 8].

A number of key determinants of diarrhoea among under-five morbidity and mortality in sub-Saharan Africa and Southeast Asia have been documented [9]. Some of them includes individual factors like unemployment status, education and age of mothers/caretakers [10, 11] and others related to knowledge, attitude and practice of mothers and caregivers in Water, Sanitation and Hygiene (WASH) practices that resulted in inappropriate waste disposal [12], poor hygiene and sanitation [13], limited treatment of stored drinking water [14, 15] and little awareness of ORS provision to children that led to admission of children with dehydration.

Diarrhoea still remains among the top five major killer of under-fives in Tanzania with a grey literature on maternal knowledge, attitudes and practices WASH practices and ORS provision affected by intrinsic and extrinsic factors [16, 17]. Some of the intrinsic factors includes age of the mother, mothers' education, residing in an informal settlement, The extrinsic factors includes knowledge of the causes of diarrhoea, safe stool disposal mother's hand washing during meal preparation [15] and following the changing of children's diapers [16].

Evidence exists that diarrhoeal disease can be prevented through improving mothers attitudes safe drinking-water and adequate sanitation and hygiene [1] in overcrowded settings like that of west urban region of Zanzibar, Tanzania Reports in Tanzania have shown different prevalence rates in different regions of Tanzania due to different mothers' and caregivers' knowledge, attitude and practices related to the adherence to the principles of Water, Sanitation and Hygiene [18, 19] Focused geographic support from UNICEF has shown regions of Mbeya, Njombe, Iringa, Temeke municipality in Dar es Salaam, Mufindi, Makete, Mbarali and Zanzibar, to lagging behind the towards adherence of household practices of Water, Sanitation and Hygiene (WASH) is particularly challenging [18] There is also a limited information on knowledge, attitudes and practice of mothers or Caregivers towards Diarrhoeal Disease among children under-five in Zanzibar. .

The Afya Bora project in Zanzibar by UNICEF and UNFPA reported a limited knowledge among families and communities on appropriate practices around maternal, newborn and child health and nutrition, hygiene and sanitation that is thought to affect childhood diarrhoea [20].

Community factors are thought to explain the persistence nature of the childhood diarrhoea in Zanzibar [17] that urges research on community understanding for childhood diarrhoea. This study aimed at understanding how the knowledge, attitude and health practices of the mothers directly reflect on the health and vitality of the child.

Materials And Methods

Study Area and Period

The study was conducted between 4th March 2019 and 12th February 2020 in the west urban region of Unguja which is one of the five regions of Zanzibar which is an island located 39 km away across the sea from the capital Dar es Salaam. The region has three districts namely: Urban district, West 'A' district and West 'B' district. These districts were selected based on the recurrence of diarrhoea cases; the region is rapidly urbanizing with a population of 593,678 which accounts for 46% of the total population of Zanzibar. The region is overpopulated second only to Dar es Salaam region.

Study Design and Participants

A cross-sectional study design was conducted among mothers and caregivers who attended 23 hospitals with their children having diarrhoea in selected West Urban region.

Sample Size Determination

A population proportion formula was employed using desired characteristics of 7.2% [7] from diarrhoea cases as calculated below.

Fishers formula: $n = Z^2pq/r^2$ [21]

Where: n = Desired sample size; p = Proportion of the population with a desired characteristics which will be 7.2% [7]; q = 1-p ; z= standard deviation desired degree of accuracy. Where z is 1.96 if the degree of confidence is 95%; r= Degree of error which will be 5%. Therefore: n was found to be 102.

Data Collection

Standard structured questionnaires were used to collect information rapidly from mothers and caregivers. The eligible participants were mothers and caregivers of the children who had diarrhoea more than three times per day. Nurses were used to collect information from those mothers who could not fill in the questionnaires themselves.

Data Analysis

The coded information was statistically analyzed for frequency and association using the Statistical Package for the Social Sciences (SPSS + version 16). Descriptive information was used to see if there is a relationship between knowledge, attitude and practice of mothers and caregivers towards diarrhoeal disease.

Ethical consideration

Ethical approval was granted from the Zanzibar Medical Research Ethics Committee (Ref. No. ZAHREC/02/DEC/2018/6). Permission to conduct the study was sought from the respective health centre authorities. The information about the study was given in writings, and study representative explained the benefits, participation rights and freedom to withdraw from the study at any time. The consent was obtained from mothers and caregivers aged above 18 years of age before collection of information. With regards to interview mothers and caregivers aged 15 to 17 years, a **written informed consent was obtained from a legal guardian for participants below 18 years**. Both mothers and caregivers who were above 18 years provided signed consents and the legal guardians signed assent form. The participants were assured of the confidentiality of the information of knowledge, attitude and practice in the household prevention and management of diarrhoea. The information obtained from the participant was not intended to be used for any other purpose except for research study.

Results

A total of 102 mothers and caregivers of children under-five years with diarrhoea were included in the study.

Socio-demographic Characteristics

Out of the 102 study participants 49 (48%) were mothers and 53 (52%) were caregivers. The ages of the study participants ranged from 15 years to 45 years: 3 (3%) of them were between 15 and 20 years, 13 (12.7%) of them were between 21 and 25 years, 34 (33.3%) of them were between 26 and 30 years, 29 (28.4%) of them were between 31 and 35 years, 19 (18.6%) of them were between 36 and 40 years, 4 (4%) of them were between 41 and 45 years old. Based on education, primary education were 21 (20.6%), secondary education were 34 (33%), tertiary education were 38 (37.3%) and 9 (8.8) did not have formal education recognized by the government.

Regarding occupation, 34 (33.3%) were housewives, 27 (26.5%) were self-employed, 20 (19.6%) were public employees, 16 (15.7%) were privately employed and 5 (5%) were farmers or animal keepers.

In regards to the children 32 (31.4%) were 0 - 6 months, 34 (33.3%) were 7-12 months and 36 (35.3%) were 13-60 months (Table 1).

Knowledge of Mothers and Caregivers towards Diarrhoea among Under-five Children

Most of the mothers and caregivers 97 (95%) defined diarrhoea as frequent passing of loose stool 3 or more times per day, 3 (2.9%) defined it as frequent passing of normal stool while only 2 (2%) identified blood in the stool. Among 44 (43.1%) of the participants, identified causes of diarrhoea were: eaten fecal matter / feces and 11 (10.8%) teething. More than half 55 (54%) of the participants identified that weakness or lethargy is the danger sign of under-five diarrhoea disease while 6 (6%) identified mark thirst for water (Table 2).

More than half 53 (52%) of participants knew the recommended volume of water for mixing sachets of Oral Rehydration Salts (ORS) (i.e., 1000 ml of water to 1 sachet of ORS) while 49 (48%) suggested other volumes. 62 (60.8%) of the participants responded correctly to that ORS should be given frequently to the diarrhoea child and 11 (10.8%) didn't know. Also, 83 (81.5%) thought that ORS should be given to the diarrhoea child within 24 hours (1 day) after mixing while 19 (18.5%) didn't know (Table 3).

Attitudes of Mothers and Caregivers towards Diarrhoea Disease among Under-five children

From the respondents, the majority of them 52 (51%) disagreed with the treatment diarrhoea disease at home and 50 (49%) agreed. More than a third of respondents 88 (86.3%) agreed that mothers can make oral rehydration therapy fluid at home for treatment of diarrhoea disease while 14 (13.7%) disagreed (as showed in figure 1). More than half of the respondents 54 (53%) believed that children dislike the taste and smell of ORS and 58 (47%) disagreed.

There were 69 mothers and caregivers (67.6%) believed that children dislike the taste and smell of chlorinated water or a dilute sodium hypochlorite solution while 33 (32.4%) did not think this was a problem.. With regards to possibility of preventing diarrhoea diseases, 88 respondents (86.3%) believed they could prevent their admission while 14 (13.7%) thought it was hard to prevent. On the other hand about .53 respondents (52%) reported the diarrhoea disease that caused their admission was a communicable and 49 (48%) believed it was a non-communicable disease (Figure 1, Figure 2 and Figure 3).

Practices of Mothers and Caregivers towards Diarrhoea Disease among Under-five Children

Most respondents 96 (94%) said that they dispose of child waste in a latrine while 6 (6%) do not.. Similarly, 55 (54%) replied that they do not drink treated or boiled water while 47 (46%) do so. (Figure 4 and figure 5). The majority of respondents 40 (40%) breast fed their child more than usual and only 22 (22%) of the mothers and caregivers breast fed less than usual during the diarrhoea disease.

More than three-quarter 80 (78%) of respondents offered a drink more than usual while 4 (4%) offered a drink less than usually during the diarrhoea disease. Regarding feeding, the majority 44 (43%) of respondents offered food more than usual during the diarrhoea disease but 23 (22.5%) offered food less than usual. Most of the mothers and caregivers 48 (47%) responded that they usually wash hands with soap after helping children with defecation, but only 19 (19%) usually wash their hands before preparing food (Table 4).

Mother and Caregiver Care-Seeking Behavior and Places During their Children Diarrhoea.

Most respondents 93 (91%) sought medical treatment for their children during the time of diarrhoea diseases and 9 (9%) did not. From those who sought care for their child's diarrhoea, more than half 54 (53%) visited health centers diarrhoea, less than half 42 (41%) went to the hospital and only 6 (6%) went to diarrhoea a traditional practitioner (Table 5).

Discussion

This study has assessed Knowledge, Attitudes and Practice of Mothers and Caregivers towards Diarrhoeal Disease among under-five children in West Urban region in Unguja – Zanzibar in a rapid assessment ways.-

The study reports that the majority of respondents 97 (95%) have satisfactory knowledge about diarrhoea which is higher than a study finding 92% in [22], 85% in [23] and 41% in [24]. Similarly, 91 (89%) of the respondents had good knowledge about causes of diarrhoea disease. This finding was higher than the study finding 85.5% in [22] and 51.5% in [5]. This finding is higher than studies conducted in Pakistan, India, Mali and Western Ethiopia [25]. This might be due to high levels of awareness in urban areas since most of our study participants were literate and lived in an urban region. Another possible explanation was the effect of Afya Bora Project that provided community knowledge of WASH through community health care workers from 2015 to 2019 Zanzibar [20].

Concerning attitude, more than half of the mothers and caregivers 52 (51%) were negative towards the use of oral rehydration solution (ORS) at home; This was lower than the previous study finding of 55% in [22]. Similarly, negative attitudes toward taste and smell of oral rehydration solution were 5(53%) as supported by 51.5% in [22]. The findings related to children's dislike of the taste and smell of chlorinated water or water guard 69 (67.6%), perhaps due to the residual chlorine, or to the unusual taste of sugar with salt,

Our study has indicated that only 47 (46%) had the good practice of drinking treated or boiled water. This was higher than a study finding 37 (31%) in Ethiopia [24]; and 43% in who practiced drinking treated or boiled water although there were a low quality evidence to suggest no impact of hygiene intervention on mortality in a systematic review [9]. The possible reasons for the respondents that do not boil or treat water might be they trust the water from the tap, costs of burning charcoal or wood for boiling drinking water and dislike of treatment methods which probably create an abnormal taste and smell.

We found 19 mothers and caregivers (19%) reported to wash their hands before preparing food. This finding was lower than a study finding 67.8% in Workie et al., 2018 and 66.7% the report of UNICEF, 2015. In a confusing way we found, 48 respondents (47%) who reported to wash hands with soap after helping children with defecation diarrhoea. This finding was lower than a study finding 100% [22]; 69.3% and 49% [15]. But higher than a finding that 16% of the mothers reported washing their hands after defecation [25]. This variation might be due to difference in ethics, culture, belief, socio-demographic and information access for WASH health education in Africa [26],[16].

We have found paradoxical knowledge levels with attitude and practices. This means mothers might be aware of the causes and risks of diarrhoea but there have been limited cultural changes towards practical application of the knowledge [18, 27–29]. The use of integrated knowledge translation (IKT) for moving knowledge into action is needed in Unguja Zanzibar.

Conclusion

Mothers and Caregivers of West Urban Region of Unguja present with poor attitudes and practices towards diarrhoeal disease among children under-five that do not reflect their high level of knowledge on the causes, transmission and management of diarrhoea diseases.

Recommendations

There is a need to endorse effective community health education, dissemination of information and community conversations to create a positive practice towards moving knowledge into WASH practices as a key prerequisite of community management of diarrhoeal diseases in the under-fives.

Abbreviations

ORS: Oral Rehydration Solution; WASH: Water, Sanitation and Hygiene;

Declarations

Acknowledgements

The authors are very thankful to the Ministry of Health Zanzibar Medical Research Ethical Committee, Department of Molecular Biology and Biotechnology and Department of microbiology/Immunology University of Dar es Salaam for providing valuable support assess Knowledge, Attitudes and Practice of Mothers and Caregivers towards Diarrhoeal Disease among under-five children in West Urban region in Unguja – Zanzibar, Tanzania.

Funding

This study received no external funding other than Ministry of Health Zanzibar support for the PhD student.

Availability of data and materials

Other additional materials are available upon request from the corresponding author.

Authors' contributions

KMK: concept development, study design, data collection, laboratory work, data analysis, critically reviewed the data and drafted the manuscript; BM: data analysis, critically reviewed the data and drafted the manuscript; KO: supervision of data collection, critically reviewed the data and drafted the manuscript; MD: supervision of data collection, data analysis, critically reviewed the data. LN: Concept development, supervision of data collection, data analysis, critically reviewed the data. All authors gave final approval of the version to be published and agree to be accountable for all aspects of the work. All authors read and approved the final manuscript.

Competing interests: Authors declare no competing interests

Ethics approval and consent to participate

Ethical clearance was obtained from Ministry of Health Zanzibar Medical Research Ethical Committee with IRB approval number of ZAHREC/02/DEC/2018/6 while the official permission was also obtained from department of preventive health services at the Ministry of Health Zanzibar. In addition, written informed consent was obtained from the mothers who were eligible to be recruited for those who had the capacity to understand the study information. Mothers were guided to reach an informed decision for their participation. With regards to interview mothers and caregivers aged 15 to 17 years, a **written informed consent was obtained from a legal guardian for participants below 18 years**. Mothers who were unable to understand and no capacity to make an informed decision before the initiation of data collection were excluded before the beginning of the interviews. All participants were informed about the purpose of the study, and all the methods were performed in accordance with the relevant guidelines and regulations. The individual results of any investigation remained confidential. All identified cases of children with diarrhoea were referred to attending physicians for treatment.

Consent for publication

This study does not contain any individual or personal data.

Author details

1. Department of Molecular Biology and Biotechnology, University of Dar es Salaam, P.O. Box 35179, Dar es Salaam, Tanzania. 2. Department of Epidemiology and Biostatistics, University of Dar es Salaam - Mbeya College of Health and Allied Sciences, P.O. Box 608, Mbeya, Tanzania 3. Ministry of Agriculture, Irrigation, Natural Resources and Livestock, P.O. Box 159, Maruhubi, Zanzibar, Tanzania

References

1. WHO. **Diarrhoeal disease**. Home/ Newsroom/ Fact sheets/ Detail/ Diarrhoeal disease. 2021. <https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease>. Accessed 15 Sep 2021.
2. GAPPD. **Ending Preventable Child Deaths from Pneumonia and Diarrhoea by 2025: the Integrated Global Action Plan for Pneumonia and Diarrhoea**. Geneva, Switzerland; 2013. https://apps.who.int/iris/bitstream/handle/10665/79200/9789241505239_eng.pdf;jsessionid=E94AB6D8D7E0DA1D4D35DFA83FA48BF2?sequence=1.
3. 7PointPlan. Diarrhoea: **Why children are still dying and what can be done. The global burden of childhood diarrhoea**. 2021. <https://7pointplan.org/index.html>. Accessed 15 Sep 2021.
4. Reiner RC, Graetz N, Casey DC, Troeger C, Garcia GM, Mosser JF, et al. **Variation in Childhood Diarrheal Morbidity and Mortality in Africa, 2000–2015**. *N Engl J Med*. 2018;379:1128–38.
5. Debancho WW, Gizaw AT, Ababulgu FA. **Lactating mothers' perception toward diarrheal disease in Bench-Maji zone, Southwest Ethiopia: Mixed study design**. *Pan Afr Med J*. 2018;31:1–10.
6. Robert E, Grippa M, Nikiema DE, Kergoat L, Koudougou H, Auda Y, et al. **Environmental determinants of e. Coli, link with the diarrheal diseases, and indication of vulnerability criteria in tropical west africa (kapore, burkina faso)**. *PLoS Negl Trop Dis*. 2021;15:e0009634.
7. Edwin P, Azage M. **Geographical Variations and Factors Associated with Childhood Diarrhea in Tanzania: A National Population Based Survey 2015-16**. *Ethiop J Health Sci*. 2019;29:513–24.

8. MoH-Zanzibar. **Zanzibar Comprehensive Cholera Elimination Plan (ZACCEP), 2017-2027**. 2016. <https://www.gtfcc.org/wp-content/uploads/2019/05/national-cholera-plan-zanzibar.pdf>.
9. Gera T, Shah D, Sachdev HS. **Impact of Water, Sanitation and Hygiene Interventions on Growth, Non-diarrheal Morbidity and Mortality in Children Residing in Low- and Middle-income Countries: A Systematic Review**. *Indian Pediatr*. 2018;55:381–93.
10. Seidu AA, Ahinkorah BO, Kissah-Korsah K, Agbaglo E, Dadzie LK, Ameyaw EK, et al. **A multilevel analysis of individual and contextual factors associated with the practice of safe disposal of children's faeces in sub-Saharan Africa**. *PLoS One*. 2021;16:e0254774. doi:10.1371/journal.pone.0254774.
11. Thiam S, Sy I, Schindler C, Niang-Diène A, Faye O, Utzinger J, et al. **Knowledge and practices of mothers and caregivers on diarrhoeal management among under 5-year-old children in a medium-size town of Senegal**. *Acta Trop*. 2019;194 August 2018:155–64. doi:10.1016/j.actatropica.2019.03.013.
12. Rukambile E, Muscatello G, Sintchenko V, Thomson PC, Maulaga W, Mmassy R, et al. **Determinants of diarrhoeal diseases and height-for-age Z-scores in children under five years of age in rural central Tanzania**. *J Prev Med Hyg*. 2020;61:E409–23.
13. Mekonnen GK, Mengistie B, Sahilu G, Mulat W, Kloos H. **Caregivers' knowledge and attitudes about childhood diarrhea among refugee and host communities in Gambella Region, Ethiopia**. *J Heal Popul Nutr*. 2018;37:1–11.
14. Thiam S, Diène AN, Fuhrmann S, Winkler MS, Sy I, Ndione JA, et al. **Prevalence of diarrhoea and risk factors among children under five years old in Mbour, Senegal: A cross-sectional study**. *Infect Dis Poverty*. 2017;6:109.
15. Bennion N, Mulokozi G, Allen E, Fullmer M, Kleinhenz G, Dearden K, et al. **Association between wash-related behaviors and knowledge with childhood diarrhea in Tanzania**. *Int J Environ Res Public Health*. 2021;18:4681.
16. Kabhele S, New-Aaron M, Kibusi SM, Gesase AP. **Prevalence and Factors Associated with Diarrhoea among Children between 6 and 59 Months of Age in Mwanza City Tanzania**. *J Trop Pediatr*. 2018;64:523–30.
17. Abbas HA. **Investigation on the potential risk factors for persistence of diarrhoeal diseases in Zanzibar: the case study of Mjini Magharibi region in Zanzibar**. University of Dar es Salaam -College of Natural and Applied Sciences (UDSM-CONAS); 2018. <http://localhost:8080/xmlui/handle/123456789/2671>.
18. Mshida HA, Kassim N, Mpolya E, Kimanya M. **Water, Sanitation, and Hygiene Practices Associated with Nutritional Status of Under-Five Children in Semi-Pastoral Communities Tanzania**. *Am J Trop Med Hyg*. 2018;98:1242–9.
19. Mwambete K, Joseph R. **Knowledge and perception of mothers and caregivers on childhood diarrhoea and its management in Temeke municipality, Tanzania**. *Tanzan J Heal Res*. 2010;12:47-54.
20. UNICEF, UNFPA. **Afya Bora ya Mama na Mtoto Project (2015-2019)**. Zanzibar; 2020. [https://www.unicef.org/tanzania/media/2416/file/Final Evaluation Afya Bora project in Zanzibar.pdf](https://www.unicef.org/tanzania/media/2416/file/Final%20Evaluation%20Afya%20Bora%20project%20in%20Zanzibar.pdf).
21. Singh AS, Masuku M. **Sampling Techniques and Determination of Sample Size in Applied Statistics: An Overview**. *Int J Econ Commer Manag*. 2014;2.
22. Workie HM, Sharifabdilahi AS, Addis EM. **Mothers' knowledge, attitude and practice towards the prevention and home-based management of diarrheal disease among under-five children in Diredawa, Eastern Ethiopia, 2016: A cross-sectional study**. *BMC Pediatr*. 2018;18:1–9.
23. Merali HS, Morgan MS, Boonshuyar C. **Diarrheal knowledge and preventative behaviors among the caregivers of children under 5 years of age on the Tonle Sap Lake, Cambodia**. *Res Rep Trop Med*. 2018;Volume 9:35–42.
24. Agegnehu MD, Zeleke LB, Goshu YA, Ortibo YL, Mehretie Adinew Y. **Diarrhea Prevention Practice and Associated Factors among Caregivers of Under-Five Children in Enemay District, Northwest Ethiopia**. *J Environ Public Health*. 2019;2019:5490716.
25. 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**. *J Heal Popul Nutr*. 2015;33:20–30.

26. Darvesh N, Das JK, Vaivada T, Gaffey MF, Rasanathan K, Bhutta ZA. **Water, sanitation and hygiene interventions for acute childhood diarrhea: A systematic review to provide estimates for the Lives Saved Tool.** BMC Public Health. 2017;17 Suppl 4:776.
27. Graham ID, Kothari A, McCutcheon C. **Moving knowledge into action for more effective practice, programmes and policy: protocol for a research programme on integrated knowledge translation.** Implement Sci. 2018;13:22.
28. Gagliardi AR, Berta W, Kothari A, Boyko J, Urquhart R. **Integrated knowledge translation (IKT) in health care: a scoping review.** Implement Sci. 2016;;1–12.
29. Morse T, Tilley E, Chidziwisano K, Malolo R, Musaya J. **Health Outcomes of an Integrated Behaviour-Centred Water, Sanitation, Hygiene and Food Safety Intervention–A Randomised before and after Trial.** Int J Environ Res Public Health. 2020;17:2648.

Tables

Table 1. Socio-demographic Characteristics of Respondents in Western Urban region

Characteristic	Category	Frequency	Percent
Type of Respondent	Mothers	49	48.0
	Caregivers	53	52.0
Age of Respondent	15 - 20 years	3	2.9
	21 - 25 years	13	12.7
	26- 30 years	34	33.3
	31 - 35 years	29	28.4
	36 - 40 years	19	18.6
	41- 45 years	4	3.9
Education of the Respondent	Primary Education Complete	21	20.6
	Secondary Education	34	33.3
	Tertiary Education	38	37.3
	Primary Education Incomplete	9	8.8
Occupation of Respondent	Housewife	34	33.3
	Self employed	27	26.5
	Public employ	20	19.6
	Private employ	16	15.7
	Farmer Animals keeper	5	4.9
Age of child	0 - 6 months	32	31.4
	7 - 12 months	34	33.3
	13 - 60 months	36	35.3

Table 2. Mother and Caregiver Knowledge about Diarrhoea among Under-five Children

Characteristic	Frequency	Percent
Definition of diarrhea		
Frequent passing watery stool 3 or more	97	95.1
Frequent passing normal stool	3	2.9
Blood in stools	2	2.0
Diarrheal causes		
Teething	11	10.8
Contaminated water	35	34.3
Contaminated food	12	11.8
Eaten fecal matter	44	43.1
Diarrheal danger signs		
Becoming weak	55	53.9
Repeated vomiting	26	25.5
Fever and blood stool	15	14.7
Marked thirst for water	6	5.9

Table 3. Respondent's Knowledge about the Correct use of ORS, West Urban Region

Variable	Category	Frequency	Percent
ORS use	Agreed	76	74.5
	Disagreed	26	25.5
How is ORS prepared?	1 sachet of ORS- 500ml of water	40	39.2
	1 sachet of ORS- 1000ml of water	53	52.0
	1 sachet of ORS- 1500ml of water)	9	8.8
How often should ORS be given?	Frequently drink	62	60.8
	Whatever child wants to drink	25	24.5
	After the passing	15	14.7
	Very loose stool	15	14.7
How long should be mixed ORS last?	24 hours (1day)	83	81.4
	48 hours (2days)	8	7.8
	Don't known	11	10.8

Table 4. Feeding Practices During Child's Diarrheal Disease and Hand Washing Behavior

Characteristic	Category	Frequency	Percent
Breastfeed him/her less than usual, about the same amount, or more than usual?	Less	22	21.6
	Same	36	35.3
	More	40	39.2
	Breastfed	4	4
Offered less than usual to drink, about the same amount, or more than usual to drink?	Less	4	4
	Same	18	17.6
	More	80	78.4
Offered less than usual to eat, about the same amount, or more than usual to eat?	Less	23	22.5
	Same	35	34.3
	More	44	43
When do you wash hands with soap?	Before prepare food	19	19.3
	Before feeding	31	30.3
	After defecation	48	47
	Never	4	4

Table 5. Respondents Care-Seeking Behavior and Places During their Children Diarrhea.

Characteristics	Category	Frequency	Percent
Seek advice or treatment outside of the home	Yes	93	91.2
	No	9	8.8
First place goes for advice or treatment	Hospital	42	41.2
	Health center	54	53
	Traditional practitioner	6	6

Figures

Figure 1

Attitudes of Mother and Caregiver towards ORS and Treated Diarrhoea at Home

Figure 2

Attitudes of Mother and Caregiver towards Dislike Tastes and Smells

Figure 3

Attitudes of Mother and Caregiver towards Preventable and Communicable Diarrheal Disease

Figure 4

Reported practice of Disposal of Child Waste in Latrine among Mother and Caregiver

Practice of Drinking Treated or Boiled water

Figure 5

Reported practice of Drinking Treated or Boiled Water Mother and Caregiver