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Longitudinal Follow-Up to Assess Knowledge Retention and Practice Change of Mothers and Caregivers on Childhood Diarrhea in Zanzibar, Tanzania

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Strictly as per the compliance and regulations of:



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I. DESIGN AND SETTING

We will conduct a longitudinal follow-up of mothers and caregivers previously reached by a caregiver education and WASH promotion programme across multipledistricts in west urban region in Zanzibar (Urban district, West 'A' district and West 'B' district).

II. POPULATION AND ELIGIBILITY

The mothers/caregivers of under-five children reached by the programme.

III. SAMPLING AND SAMPLE SIZE

Population proportion formula will employ using desired characteristics of 50% (Kheir et al, 2025) from knowledge and practice of mothers and caregivers on childhood diarrhea cases as calculated below.

Fishers' formula: $n = Z^2pq/r^2$ (Singh, Ajay & Masuku, 2014)

Where: n = Desired sample size; p = Proportion of the population with a desired characteristics which will be 50% (Edwin & Azage, 2019); $q = 1$; 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 384. The reason of chosen 50% is same even there are no past studies that already did the same line, also 384 sample size is ethical to the study area are greater than 5000 population. Purpose random sampling is the type of method which will be used in the study to involves selectively individual or elements from a population based on specific criteria or purpose.

IV. OUTCOMES AND MEASURES

- Correct oral rehydration solution preparation and use, recognition of dehydration/danger signs.

- Handwashing at critical times such as after using the toilet, before eating or preparing food, and after changing a child's diaper.
- Safe water storage and treatment methods such as boiling water.
- Timely care-seeking for diarrhea with danger signs. Danger signs include lethargy or unconsciousness, inability to drink or breastfeed, and vomiting everything
- Knowledge will be measured with a structured questionnaire, and practices by self-report corroborated with spot checks where feasible. Changes from baseline to follow-up will be analysed using mixed-effects models for repeated measures, accounting for clustering at community level and adjusting for key covariates. Subgroup analyses by district and caregiver characteristics are planned. Ethical approval and written informed consent will be obtained.

V. DATA COLLECTION TOOLS AND TRANSLATIONS

The structured questionnaires, observation checklists and consent will be used as tools for data collection. The all-data collection tools will be prepared in English and translate into Swahili language which is mother tongue of mothers and caregivers.

VI. FIELD PROCEDURES

A set of standardized instructions for conducting fieldwork is enumerator training, pilot, daily debriefs and referral protocol for danger signs.

VII. DATA QUALITY ASSURANCE

A systematic process for ensuring data is accurate, complete, consistent, and reliable is skip logic, supervisor review, re-interview rate and secure data handling.

VIII. ETHICS

Ethical approval will be grant from the Zanzibar medical research ethics committee. Permission to conduct the study will be sought from the respective health centre authorities. The information about the study was given in writings, and study representative

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explained the benefits, participation rights and freedom to withdraw from the study at any time. The consent will be 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 will be obtained from a legal guardian for participants below 18 years. Both mothers and caregivers who above 18 years will be provided signed consents and the legal guardians sign assent form. The participants will assure of the confidentiality of the information of knowledge retention and practice change in the household prevention and

management of childhood diarrhea. The information will be obtained from the participant will not intend to be used for any other purpose except for research study.

IX. ANALYSIS PLAN

A detailed blueprint for a research study that outlines how data will be collected, organized, and analyzed to answer specific questions is repeated measures with clustering, covariate adjustment, planned subgroup analyses.

X. TIMELINE AND RESPONSIBILITIES

The study expected to be completed in 6 months and following activities will be carried out:

Research Activities	Two months				Two months				Two months			
	First month		Second month		Third month		Fourth month		Fifth month		Sixth month	
	First 2 weeks of Nov	Last 2 weeks of Nov	First 2 weeks of Dec	Last 2 weeks of Dec	First 2 weeks of Jan	Last 2 weeks of Jan	First 2 weeks of Feb	Last 2 weeks of Feb.	First 2 weeks of Mar	Last 2 weeks of Mar	First 2 weeks of Apr	Last 2 weeks of Apr
Completion of rapid methodological												
Procurement and deploy materials for field work												
Enumerator training and pilot study												
Collection of data and field work practice												
Data analysis and interpretation												
Report preparation and Publication												

QUESTIONNAIRE

Longitudinal follow-up to assess knowledge retention and practice change of mothers and caregivers on childhood diarrhea in Zanzibar, Tanzania.

Clinics		Name	District	Date
	Address			
	Telephone No.			
	Questions		Categories	Coding
1	Mother or Caregivers	Mother		1
		Caregivers		2

2	Age	15 – 20 21 - 25 26 - 30 31 - 35 36 - 40 41 – 45	1 2 3 4 5 6
3	Level of mother education	Primary education Secondary education Tertiary education None	1 2 3 4
4	Mother occupation	Farmer Animals keeper Public employed Private employed Housewife Self employed	1 2 3 4 5
Knowledge retention			
5	Diarrheal disease	Frequent passing watery stool (3 or more stool) Frequent passing normal stool Blood in stools	1 2 3
6	Causes of Diarrheal disease	Teething Contaminated water Contaminated food Eaten faecal matter / faeces Evil eye	1 2 3 4 5
7	Danger sign of diarrheal disease	Becoming weak Repeated vomiting Fever and blood in the stool Marked thirst for water Other specify	1 2 3 4
8	Respondents' knowledge about the correct use of ORS	Do you understand to prepare ORS (homemade solution)? Yes No If Yes how is ORS prepared? 1 sachet of ORS 300ml (1 coke bottle) of water 1sachet of ORS-500 ml (1small size of mineral bottle) of water 1 sachet of ORS – 600 ml (1 beer bottle) of water 1 sachet of ORS -1000 ml (11) of water 1 sachet of ORS – 1500 ml (1.5 or large size of mineral bottle) of water How often should ORS be given? Once a day 2-3 times a day Whatever child wants to drink After the passing of very loose stool How long should be mixed ORS last? 24 hours (1 day) 48 hours (2 days) 72 hours (3 days) 96 hours (4 days) Don't known	1 2 1 2 3 4 5 1 2 3 4 1 2 3 4 5
Practices Change			
9	Drinking Water	Drinking treated or boiled water Not drinking treated or boiled water	1 2

10	Disposal of child waste in latrine	Disposal of child waste in latrine Not disposal child waste in latrine	1 2
11	Maternal feeding practices during child diarrheal disease	When (Name) had diarrhea, did you breastfeed him/her less than usual, about the same amount, or more than usual? Less Same More Child not breastfed Don't known When (Name) had diarrhea, was he/she offered less than usual to drink, about the same amount, or more than usual to drink? Less Same More Nothing to drink Don't known Was (Name) offered less than usual to eat, about the same amount, or more than usual to eat? Less Same More Nothing to eat Don't known When do you wash hands with soap? Before prepare food Before feeding children After helping children defecation Never Other	1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4
12	Mother care seeking behavior and place sought for care in this region	Did you seek advice or treatment from someone outside of the home for (Names) diarrhea? Yes No Where did you first go for advice or treatment? Hospital Health center Traditional practitioner Other specify	1 2 1 2 3