
Beliefs and practices of Somali citizens concerning diarrheal diseases

A report prepared by Africa's Voices Foundation
for the Health and WASH sections of UNICEF Somalia

Findings from interactive radio programmes on diarrheal diseases
aired during July-August 2016 and January-February 2017

Project Team: Africa's Voices Foundation

Partha Moman (*Researcher, Project Lead*), Dr. Claudia Abreu Lopes and Dr. Matti Pohjonen (*Senior Researchers, Executive Leads*), Rita Zagoni (*Researcher*), Rukaya Mohamed Abdirahman (*Research Assistant*), Abdul Hassan (*Research Assistant*), Mubarak Abdi (*Research Assistant*), Fatima Dahir Mohammed (*Research Assistant*), Naima Abdi Ibrahim (*Research Assistant*), Dr. Alex Lewis (*Researcher*), Guy Emerson (*Data Scientist*), Rainbow Wilcox (*Impact and Communications Manager*), George Kaburu (*Head of Operations and Performance*), Dr. Sharath Srinivasan (*Director*).

Media Partner: MediaINK, Hargeisa

Abdilaziz Musa Yusuf (*Director*), Abdikadir Ahmed (*Project Manager*), Mahad Jama Koronto, (*Radio Presenter*), Siciid Xagaa Afrax (*Radio Producer*)

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EXECUTIVE SUMMARY

In mid-2016 and early-2017, Africa's Voices Foundation (AVF) deployed a Communications for Development (C4D) and social research programme on the topics of diarrhea and cholera in Somalia. Through interactive radio, we sparked discussions to gather citizen beliefs and perceptions on the severity and causes of diarrheal diseases. In partnership with MediaINK, three shows were broadcast through 26 radio stations across Somalia with a range of over 70% of the Somali population.

The three radio shows were designed to gather audience beliefs to provide a dataset that AVF could analyse to answer the following research questions:

1. What are the beliefs in Somalia on the severity of diarrhea and how do they vary by socio-demographic group?
2. What are beliefs in Somalia around the causes of diarrhea and how do they vary by socio-demographic group?
3. How beliefs in Somalia around the severity and causation of diarrhea associated with different practices of diarrhea management and handwashing?
4. What are beliefs in Somalia around the causes of cholera and how do they vary by socio-demographic group?
5. How are beliefs in Somalia around the causation of cholera associated with with different practices of sanitation?

6,072 people (45.5% female) participated by SMS in two shows which broadly focused on diarrheal diseases. A later show, which focused specifically on cholera, elicited participation from 6,276 people (48.4% female). These participants came from 70 different districts in Somalia. Overall, 21675 text messages were received, of which 8505 were estimated to be suitable for analysis.

The results and insights presented in this report are intended to inform UNICEF's WASH and Health programmes such that they increase the uptake of key behaviours, such as latrine use, handwashing and using oral rehydration salts (ORS) on recognition of diarrheal symptoms -- ultimately helping to reduce child morbidity and mortality due to diarrheal disease.

Our main findings and recommendations are:

1. **The odds of participants from urban areas stating that they used a latrine were 135% higher than non-urban participants. In contrast, the odds of nomadic participants stating that they used a latrine were 57% lower than for non-nomadic participants.** Communication and interventions that aim to improve sanitation practices should be implemented for pastoralist and agro-pastoralist communities that are specifically tailored for their mobility and livelihoods.
2. **Participants who believed that a 'lack of hygiene' was the cause of diarrhea were more likely to seek medical services and/or use ORS on recognising symptoms of diarrhea in their children.** Seeking appropriate medical care goes

hand in hand with an understanding of the causes of diarrhea. It is an obvious result, but highlights the importance of discussing the process of transmission of diseases and ensuring that misconceptions are surfaced and challenged as a route to promote positive behaviours.

3. **Some participants expressed the belief that there were two types of diarrhea, one which posed a severe risk to children - the other which did not.** This might have adverse affects on fatality rates during outbreaks of diarrheal diseases, as people may be slow to recognise the seriousness of diarrhea. C4D messaging could stress that all types of diarrhea, when in a context prone to outbreaks of cholera like Somalia, should be considered as a potentially severe danger, and therefore appropriate diagnosis and treatment should always be sought.
4. **A minority of participants believed that diarrhea was good for them, in that it provided a detox or cleansing function for the body.** C4D programming should focus on elevating the perceived severity of diarrhea, especially in relation to children. Further, future research might explore what Somali people consider to be healthy practices, disconnected from specific topics. This may shed light on misconceptions or detrimental practices that act as barriers to beneficial health outcomes.

This research shows the capacity for AVF's approach to provide insight into WASH issues that can be relevant for programming in this sector. Further research might increase the relevance of its findings by leveraging other communications technology such as shortwave radio and interactive voice response (IVR), and being complemented with on-the-ground research to triangulate and deepen findings.

Our findings and the research and analysis tools developed lay the groundwork for more innovative and quickly deployable approaches to dealing with cholera and other disease outbreaks in Somalia.

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Acronyms used in this report include:

AVF	Africa's Voices Foundation	NWZ	North West Zone
AWD	Acute Watery Diarrhea	PESS	Population Estimate Survey of Somalia
C4D	Communications for Development	SCZ	South-Central Zone
FM	Frequency Modulation	SMS	Short Message Service
IDP	Internally Displaced Person	UNFPA	United Nations Population Fund
MICS	Multiple Indicator Cluster Survey	UNICEF	The United Nations Children's Fund
NEZ	North East Zone		

1. INTRODUCTION

1.1. Context: diarrhea and cholera in Somalia

Diarrheal diseases remain one of the most dangerous killers of children in Somalia -- killing an estimated 8,759 children in 2015, accounting for 14.5% of all deaths of children under the age of 5.¹ Recurrent cholera outbreaks, enabled by cycles of floods and famine, contribute to high mortality rates from diarrhea on a yearly basis.

Child mortality due to diarrhea is likely to continue at this level as long as access to safe water and proper sanitation remains low. In North East Zone (NEZ), 51% of respondents to UNICEF's Multi-indicator Cluster Survey (MICS) reported using improved water sources and 64.8% reported using improved sanitation.² The figures in North West Zone (NWZ) were comparable, with 41.9% accessing safe water, and 51.1% using proper sanitation.³ A Knowledge, Attitude and Practice (KAP) survey in 2015 puts access to improved water sources at 51% for South Central Zone (SCZ), and 49% of people with improved sanitation facilities.⁴

Interventions to improve Water, Sanitation and Hygiene (WASH) situation in Somalia depend upon both supplying effective facilities and infrastructure, as well as ensuring that the population at large adopt appropriate hygiene and sanitation practices, such as household water treatment, latrine use, hand washing, and appropriate health-seeking behaviour on recognition of diarrhea in children. The latter type of intervention remains especially crucial in Somalia, where prevalence of these key behaviours, discussed further below, remains low.

The Community-Led Total Sanitation approach, for example, emphasises shifting beliefs and attitudes at the community level in order to reduce open defecation in rural areas of Somalia. This approach advocates that building sanitation facilities is not effective without changing social norms.⁵ This is especially important in Somalia given that 29% of respondents to a survey in 2015 reported that they continued to practice open defecation.⁶

Promoting handwashing is another behavioural intervention that constitutes one of the most cost-effective ways of reducing rates of diarrhea, as it requires minimal material resources. One review of evidence from Randomised Controlled Trials (RCTs) has suggested that handwashing can reduce incidence of diarrhea by 30% in countries such as Somalia.⁷ Other evidence has suggested that it is the most effective type of WASH intervention to reduce

¹ WHO Maternal Child Epidemiology Estimation (MCEE) (2015) (<http://apps.who.int/gho/data/view.main.ghe1002015-SOM?lang=en>; <http://apps.who.int/gho/data/view.main.ghe3002015-SOM?lang=en>, last accessed: 25 June 2017)

² Multiple Indicator Cluster Survey 2011, Northeast Zone, Somalia, Final Report March 2014; Improved water sources refer to sources such as protected wells and boreholes which protect water from external contamination, especially faecal matter. Improved sanitation refers to facilities that keep human excreta from human beings - see: WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation (<https://www.wssinfo.org/definitions-methods/watsan-categories/>)

³ Multiple Indicator Cluster Survey 2011, Northwest Zone, Somaliland, Final Report March 2014

⁴ UNICEF WASH KAP Survey Somalia (2015)

⁵ Kamal Kar with Robert Chambers, Handbook on Community-Led Total Sanitation, Institute of Development Studies, Brighton (2009)

⁶ UNICEF WASH KAP Survey Somalia (2015)

⁷ Ejemot-Nwadiaro RI, Ehiri JE, Arikpo D, Meremikwu MM, Critchley JA. Hand washing promotion for preventing diarrhoea. *The Cochrane Database of Systematic Reviews*. 2015;(9):1-95.

diarrheal morbidity.⁸ However, in Somalia only 44% of respondents to a 2015 KAPS survey were reported as having handwashing facilities in their homes, and only 10% had adequate facilities and soap, explaining a low incidence of this behaviour.⁹

Another key behaviour to reduce mortality due to diarrhea is the use of Oral Rehydration Salts (ORS) for diarrhea management. ORS can increase the likelihood of child survival and buy time to reach medical treatment, required for severe cases. However, in Somalia only 50% of households reported using ORS for managing diarrhea in children.¹⁰

1.2. Communications for Development

Communications for Development (C4D) can improve knowledge, and shape beliefs and social norms around WASH issues - ultimately increasing the adoption of key healthy and health-seeking behaviours. Effective C4D campaigns require a thorough understanding of the collective beliefs and social norms that act as barriers to adoption of key behaviours, and should:

1. employ theories that address change at individual, interpersonal and community levels¹¹ ;
2. are adapted to the sociocultural context¹² with a clear target audience¹³;
3. involve the community in the planning, implementation, and ownership of interventions

For a C4D initiative to have a lasting impact, it must be grounded in a granular understanding of target audiences and their beliefs and practices around WASH, and specificities of certain groups in the population. However, due to poor infrastructure and large areas of political insecurity in Somalia, traditional, on-the-ground qualitative research to explore the potentially diverse beliefs and practices of Somali citizens is difficult to undertake and costly to reproduce at scale.

1.3. Africa's Voices Foundation (AVF)

Africa's Voices Foundation (AVF) has a track record of overcoming the above mentioned obstacles to gather rich insights that address evidence gaps. AVF leverages the popularity of interactive radio in Somalia, and shapes inclusive radio discussions to which audiences can contribute their opinions via free SMS. Combined with follow-up SMS questions on individual practices and demographic information, these messages create a large and rich dataset on Somali people's beliefs, opinions, and practices. Using our multi-disciplinary analysis of this Somali language dataset, we are able to provide data and insights that meet UNICEF's needs related to WASH. Since 2014, our research has sought to identify collective beliefs in the

⁸ Lorna Fewtrell, Kaufmann R.B., Kay D., Enanoria W., Haller L., and Colford, J.M.C., Water, sanitation, and hygiene interventions to reduce diarrhoea in less developed countries: A systematic review and meta-analysis, 2005. *The Lancet Infectious Diseases*, Vol. 5, Issue 1

⁹ UNICEF WASH KAP Survey Somalia (2015)

¹⁰ UNICEF WASH KAP Survey Somalia (2015)

¹¹ Aboud, F.E and Singla, D.R. (2012). "Challenges to changing health behaviours in developing countries: A critical overview." *Social Science and Medicine*. 75: 589-594

¹² Campbell, C. (2003). 'Letting them die': Why HIV/AIDS programmes fail. Oxford: James Currey.

¹³ Joffe, H. Bettega, N. (2003). Social representations of AIDS among Zambian adolescents. *Journal of Health Psychology*, 8(5): 616-31.

Somali population and draw associations between beliefs, practices, and demographic groups to inform UNICEF's programming and C4D strategies.

AVF's research allows it to gain insights from conversations held in local languages and on a scale otherwise difficult for qualitative methods. AVF achieves research scope and depth using a mixed method approach combining semantic networks, grounded theory, thematic analysis and machine learning. This report refers to the results from data collected through three interactive radio shows, broadcast as part of longer series covering a range of health issues.

2. METHOD

2.1. Research design

In collaboration with the Health and WASH sections at UNICEF Somalia, the research design established to answer research questions related to socio-cultural barriers to latrine use, diarrhea management using ORS and handwashing. The Health Belief Model¹⁴ was used as theoretical framework to ground the research design and analysis. The model, adapted to focus on collective beliefs in this instance, breaks down health beliefs into the following categories:¹⁵

1. Perceived Susceptibility (opinion of chances of getting a condition)
2. Perceived Severity (opinion of how serious a condition and its consequences are)
3. Perceived Benefits (belief in the efficacy of the advised action to reduce risk or seriousness of impact)
4. Perceived Barriers (opinion of the tangible and psychological costs of the advised action)

The research questions below reflect an inquiry that is seeking to understand citizen perceptions of the severity of diarrhea (through questions exploring perceived severity of diarrhea) and perceived susceptibility to diarrhea and potential benefits of health behaviours (through questions exploring citizen perceptions of causation of diarrhea and cholera).

It was also important to ascertain the beliefs around both cholera and diarrheal disease more broadly to gain insight into whether Somali citizens drew distinctions between different types of diseases. The content of questions and approach to analysis therefore paid particular attention to the various Somali words for different diarrheal diseases.

Our research questions were:



1. What are the beliefs in Somalia on the **severity of diarrhea** and how do they vary by socio-demographic group?
2. What are beliefs in Somalia around the **causes of diarrhea** and how do they vary by socio-demographic group?
3. How are beliefs around the severity and causation of diarrhea associated with different **practices of diarrhea management and handwashing**?
4. What are beliefs in Somalia around the **causes of cholera** and how do they vary by socio-demographic group?
5. How are beliefs around the causation of cholera associated with with different **practices of sanitation**?

¹⁴ See: Glanz, K., Rimer, B.K. & Lewis, F.M. (2002). Health Behavior and Health Education. Theory, Research and Practice. San Fransisco: Wiley & Sons.

¹⁵ The framework was adapted to focus on collective beliefs rather than individual outlooks, so beliefs around self-efficacy and cues to action were not considered relevant to the research design

Next, with attention to socio-cognitive theories that consider how questions are processed and, in turn, answered by audiences,¹⁶ we designed open-ended radio questions to spark discussion and elicit responses from audience members about their beliefs. In contrast, the SMS questions were closed, and were geared towards gathering insight into individual practices, as well as to gather demographics (eg. gender, age, and district). All questions were assessed for comprehension and adjusted to the specific cultural context.¹⁷ Specific wordings were decided with the MediaINK team, AVF's media partner in Somalia.

Table 1: Wording of radio and SMS questions

 Radio Questions (to gather data on beliefs)	 SMS Questions sent after a demographic survey (to gather data on practices)
Radio Q1: Do you think diarrhoea can pose a serious risk to a child's health? Yes or No? Why?	SMS Q1: What do you do when your child has diarrhoea?
Radio Q2: What do people in your community think causes diarrhoea?	SMS Q2: When do you wash your hands?
Radio Q3: What do you think causes outbreaks of acute watery diarrhea (AWD) / cholera?	SMS Q3: Do you always use a latrine?

2.2. Data collection: Radio & SMS

In partnership with MediaINK, AVF deployed interactive radio programmes across a network of 26 FM radio stations covering all three zones of Somalia. Our own estimates put this range to be 49% of Somali territory, and 70% of the population (see circles indicating radio broadcast coverage, fig.1). The use of radio and mobile phone technology in tandem allows for the shaping and gathering of digital data from collective discussions, uninhibited by barriers of infrastructure and insecurity.

Ahead of the radio shows, the radio questions were broadcast in short promotional advertisements ('promos') on all of the radio stations. Audience responses to these questions were then incorporated into the pre-recorded radio broadcasts which when aired encouraged further participation from audiences. To those who responded to the

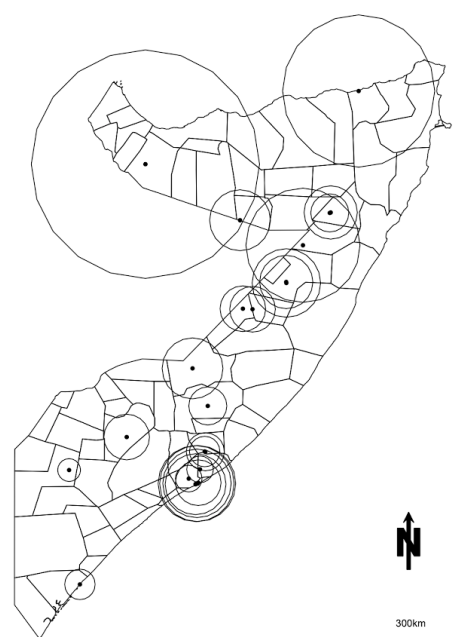


Figure 1: Coverage of Africa's Voices radio programmes in Somalia (circles) radio

¹⁶ Sudman, S., Bradburn, N. M., & Schwarz, N. (1996). *Thinking about answers: The application of cognitive processes to survey methodology*. San Francisco, CA: Jossey-Bass.

¹⁷ Lopes, C. and Srinivasan, S. (2014). *Africa's Voices: Using mobile phones and radio to foster mediated public discussion and gather public opinions in Africa*. Centre of Governance and Human Rights, Working Paper 9. Cambridge: University of Cambridge.

question, AVF sent follow-up SMS questions using UNICEF's RapidPro platform (see table 1 above for questions).

The promos and two radio shows on diarrhea ran from 24th July to 16th August 2016 (two weeks). The promos and one radio show on cholera were broadcast from 29th January to 11th February 2017 (two weeks).

2.3. Data analysis

The beliefs that emerged from the SMS responses allowed us to identify ideas shared among demographic groups (geographies, age, gender) as well as differences between them. While this type of data always reflects the social reality of radio discussions and their participants -- and thus cannot be representative of the entire population of radio audiences -- when the group of participants is heterogeneous and inclusive, and the opinions are diversified, it nonetheless allows us to capture particular sets of beliefs that are prevalent in different groups. Contrary to surveys, this approach gathers opinions in their cultural context and through a conversational mode, more aligned to the socio-cognitive processes that generate and shape these opinions.

The raw messages data first underwent pre-processing to remove non-relevant messages as well as to structure the dataset for analysis. A thematic analysis was then undertaken by Somali-speaking research assistants to discover and organise beliefs expressed in the messages, which resulted in a coding frame (see in results section below) that was applied to code the data with manual and automatic (machine learning) techniques.

The resulting coded dataset consisted of text messages that were labelled with one or more themes, which was then analysed for associations with geographical and socio-demographic groups and health practices. Insights were complemented with further qualitative interrogation, and illustrated by a selection of translated text messages.

2.4. Limits of the approach

We employed an ex-post facto design to allow AVF to identify health beliefs that were associated with groups based on health practices. Because there was neither manipulation of causes nor random assignment of participants into groups, it was not possible to isolate beliefs as the causes of behaviour. We consider that a range of other factors influence the target behaviours (e.g., access to latrines, self-efficacy, perception of effectiveness of behaviour), but they are not included in this piece of research. Therefore our theoretical framework assumes that the relationship between beliefs and behaviour is indirect and bi-directional.

The coverage error -- the difference between the target population (Somali population) and the accessible population (listeners of radio shows) -- is substantial due to the fact that roughly 30% of the Somali population lives in a geographical area not reached by the radio shows. Among those reached, a limited group listened to the show depending on their media habits, availability, and interest in the topic. The participants are self-selected and are therefore non-representative of the population of listeners of the radio shows. Factors related to access to mobile phones, literacy, gender roles, and dynamics of participation influence

participation.

These methodological limitations restrict the external validity of results (generalisation to the population of Somalia and to the entire group of radio listeners) based on prevalence of health beliefs and practices in the group of participants. Nonetheless, considering that selection bias affects associations (e.g., odds ratio) to a lesser extent – particularly when the data gathering process is inclusive, the distributions of key variables in the analysis are not skewed and sample size is large enough ($n > 1000$) – the robustness of the main findings in this report is not threatened by the lack of representativeness of the group of participants in radio shows.

Therefore, the insights about collective beliefs and social norms contained in this report can be used for UNICEF programming decisions that involve groups of the population that share the same social, demographic, and geographical characteristics/identities with participants of the radio shows.

Finally, a note on the challenge of parsing and analysing Somali text-based data, which has extended the timeframe for delivery of this report. Somali is a low-resource language (a language for which tools and assets for computational and automated analysis are very limited) and much of the data that this and other AVF reports are based on is rich in detail and contextual nuance. Since beginning its work with UNICEF Somalia, AVF has been building its tools for textual analysis from scratch. This has required extensive and on-going verification of data quality to ensure high levels of confidence in our findings.

Although this process is time-consuming, one key outcome of this effort is the package of more robust, tested and customised set of language tools and resources for analysing Somali language data. This provides us with a unique opportunity to replicate and scale up the research, in a more efficient and timely way, for UNICEF and others working in Somalia.

3. RESULTS

3.1. Participants

A. Participants of two radio shows on diarrhea

Across two weeks of interactive radio broadcasting (and two weeks of data collection), Africa's Voices received **11,982 text messages** in response to questions aired on radio from **6,072 unique phone numbers within 66 districts** across Somalia.

There is a clear relationship between the age and gender of participants, with all age-brackets deviating from a 50/50 split (chi-squared = 30.25, df = 4, p < 0.001). There is a lower proportion of women in the higher age groups compared to the lower bracket.

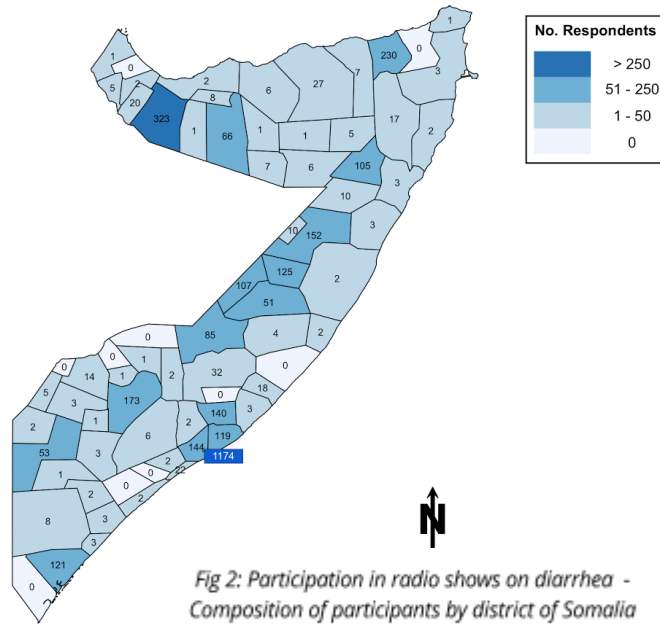


Fig 2: Participation in radio shows on diarrhea - Composition of participants by district of Somalia

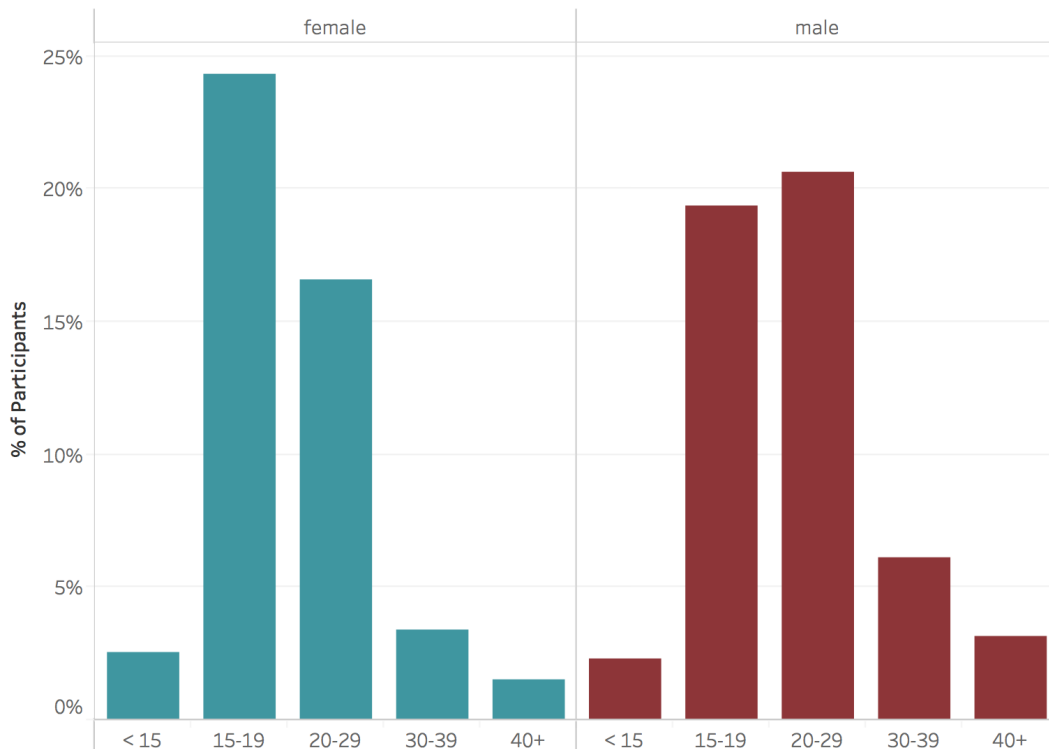



Fig 3: Participation in radio shows on diarrhea. Age distribution by gender

Table 2: Demographic characteristics of participants for two radio shows on diarrhea (n=6,072)

Socio-demographic category	 Associated SMS question	Answer given:	% of participants	% in population (PESS) ¹⁸	Response Rates (%)
Gender	Are you male or female? Please reply with word male or female.	Female	45.5	49.3	54
Urban/Rural	Do you live in a city/town or in a village? Please reply with City or Village.	Urban	84.6	NA	41
Nomad ¹⁹	Are you a nomad? Please reply with Yes or No.	Yes (Nomad)	5.13	25.9	16
Parent	Are you a parent/guardian? Please respond with Yes/No.	Yes (Parent)	60.25	NA	54
Area-Type	Which district do you currently live in?	Mogadishu, Bosasso, Garowe, Hargeisa (Major Urban Centres)	52.3	27.0	67
Age	What is your age? Please answer with a number ²⁰	10-14	4.92	9.3²¹	50
		15-19	39.9	17.5	50
		20-29	39.1	25.0	50
		30-39	10.7	16.3	50
		40+	5.46	19.7	50
Zone	Which district do you currently live in?	NWZ	13.6	28.5	67
		NEZ	15.7	13.6	67
		SCZ	70.61	58.0	67

¹⁸ UNFPA, Population Estimation Survey for the 18 Pre-War Regions of Somalia, 2014. All population figures are based on the Population Estimate Survey of Somalia (PESS). However as estimates of urban and rural populations in Somalia are exclusive of the IDP population, and collecting data on IDP status via mobile phone has proved problematic, comparisons between this dataset and Urban and Rural categories in PESS would be invalid

¹⁹ Asked only to participants who said they live in a village.

²⁰ The age question was asked bi-weekly after discussions with UNICEF, where it was decided that it was low priority.

²¹ Figures are given for percentage of population over 10 years old, thus comparable to radio participants.

B. Participants of one radio show on cholera

Across one week of interactive radio broadcasting (and two weeks of data collection),²² Africa's Voices received **9,693 text messages** in response to questions aired on radio from **6,276 unique phone numbers within 70 districts** across Somalia.

There is a clear association between the age and gender of participants, with results deviating from the general age split (48.4% for female) across some age brackets [$\chi^2(4) = 16.7, p = 0.002$]. There is a higher proportion of males in age brackets 20-29 above compared with 15-19 and below.

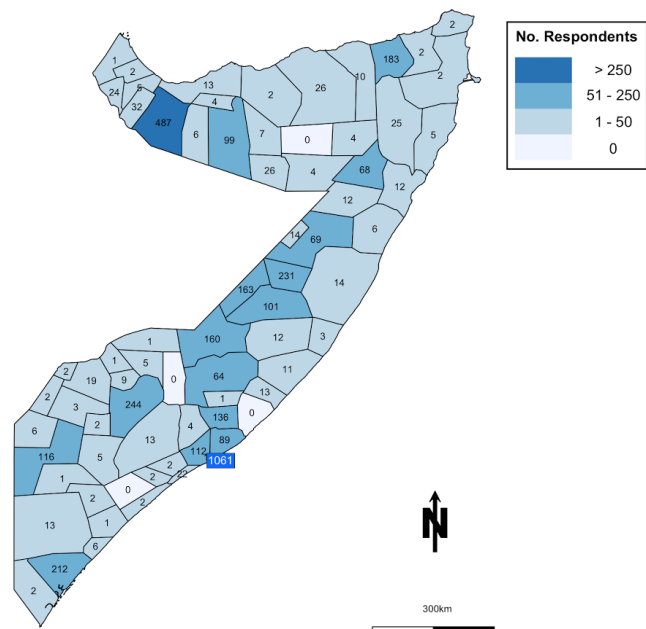


Fig 4: Participation in radio shows on diarrhea - Composition of participants by district of Somalia

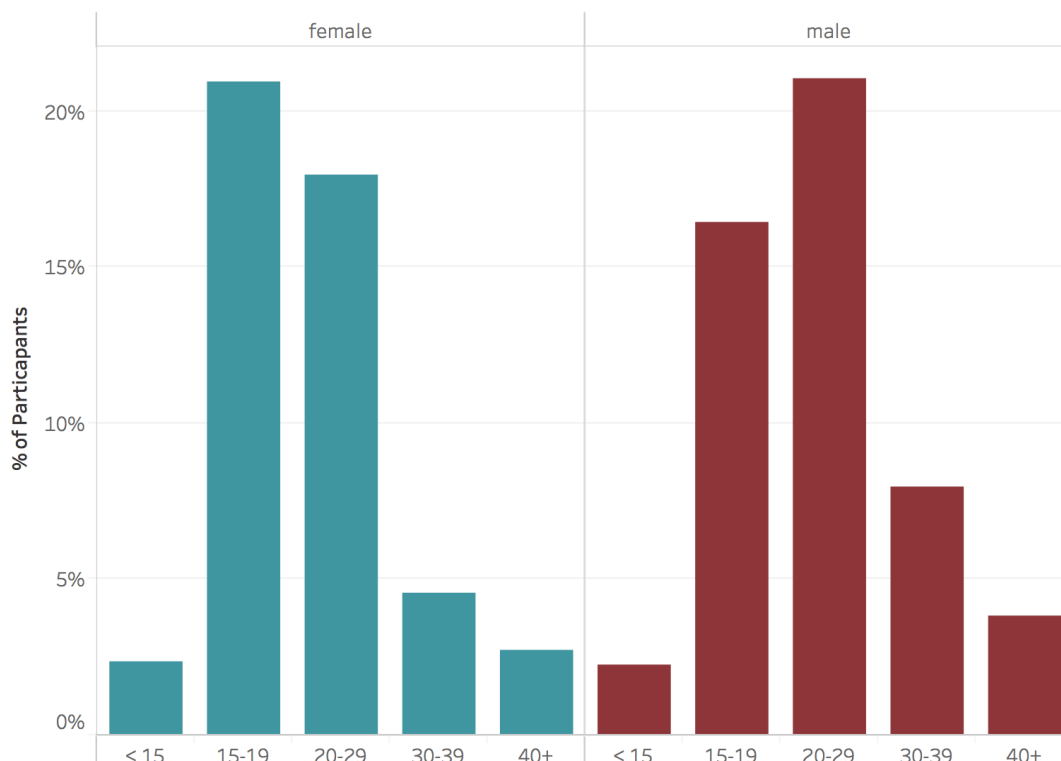



Fig 5: Participation in radio show on cholera. Age distribution by gender.

²² Even though there was only one show broadcast on cholera, the promos and radio show were broadcast across two weeks due to a technical issue.

Table 3: Demographic characteristics of participants in one radio show on cholera (n=6,276)

Socio-demographic category	 Associated SMS question	Answer given:	% of participants	% in population (PESS) ²³	Response Rates (%)
Gender	Are you male or female? Please reply with word male or female.	Female	48.4	49.3	50
Urban/Rural	Do you live in a city/town or in a village? Please reply with City or Village.	Urban	80.6	NA	45
Nomad ²⁴	Are you a nomad? Please reply with Yes or No.	Yes (Nomad)	7.07	25.9	45
Parent	Are you a parent/guardian? Please respond with Yes/No.	Yes (Parent)	90.9	NA	64
Area-Type	Which district do you currently live in?	Mogadishu, Bosasso, Garowe, Hargeisa (Major Urban Centres)	44.8	27.0	77
Age	What is your age? Please answer with a number ²⁵	10-14	5.46	9.3²⁶	54
		15-19	40.0	17.5	54
		20-29	39.2	25.0	54
		30-39	12.0	16.3	54
		40+	6.41	19.7	54
Zone	Which district do you currently live in?	NWZ	18.4	28.5	77
		NEZ	10.4	13.6	77
		SCZ	71.2	58.0	77

²³ UNFPA, Population Estimation Survey for the 18 Pre-War Regions of Somalia, 2014. All population figures are based on the Population Estimate Survey of Somalia (PESS). However as estimates of urban and rural populations in Somalia are exclusive of the IDP population, and collecting data on IDP status via mobile phone has proved problematic, comparisons between this dataset and Urban and Rural categories in PESS would be invalid

²⁴ Asked only to participants who said they live in a village.

²⁵ The age question was asked bi-weekly after discussions with UNICEF, where it was decided that it was low priority.

²⁶ Figures are given for percentage of population over 10 years old, thus comparable to radio participants.

3.2. Beliefs and Practices

Across three shows, a total of 21675 SMS were received, of which 8505 (39.2%) were estimated as relevant for analysis into the beliefs of Somali opinions around diarrhea and cholera.²⁷ The coding frames derived from qualitative exploration and thematic analysis were used to label the most frequent codes in the dataset. The coding frames are presented below alongside a 'thick description' in order to give insights into what beliefs Somalis hold around cholera and diarrhea. These are presented alongside statistical analyses of how these beliefs vary by demographic group.

These results are then complemented with the responses for individual practices that were given for:

1. Handwashing
2. Diarrhea management
3. Latrine Use

These results are then tested for associations with certain beliefs²⁸ to identify specific barriers to the adoption of appropriate WASH behaviours.

3.2.1. Related to diarrhea

Beliefs

This section lays out the qualitative results that speak to research questions 1 and 2:

1. What are the beliefs in Somalia on the **severity of diarrhea** and how do they vary by socio-demographic group?
2. What are the beliefs in Somalia around the **causes of diarrhea** and how do they vary by socio-demographic group?

Radio show 1: Beliefs related to the severity and treatment of diarrhea

The following coding frame summarises the beliefs around severity and treatment of diarrhea gathered in response to radio question 1: *"Do you think diarrhoea can pose a serious risk to a child's health? Yes or No? Why?"*. Overall 87.7% of messages sent by radio audiences agreed that diarrhea posed a serious risk to a child's health, whilst 12.3% disagreed.²⁹

Table 4. Perceived severity of diarrhea

²⁷ Relevant messages were extracted after excluding messages that were considered noise or non-relevant to the specific questions asked.

²⁸ Due to the challenges of labelling Somali-language SMS data, only certain codes were labelled with sufficient precision to allow for a statistical analysis of how these were associated with practices and varied by group. We included the codes for statistical analysis where the accuracy score (no. of labelled messages per code/no. of correctly labeled messages per code) of automatic labeling was above 0.75 out of 1. For Diarrhea only a singular code - 'Lack of Hygiene' passed this threshold. For beliefs around cholera, the following codes passed this threshold: 'Lack of Hygiene', 'Contaminated/dirty water', 'Germs' and 'Poor sanitation/Stool.'

²⁹ We estimate the answer from 4773 (39.8%) of all responses to the radio show question.

Radio question 1: "Do you think diarrhoea can pose a serious risk to a child's health? Yes or No? Why?"

Severity	Includes
Life-threatening	All serious/life- threatening; dehydration and malnutrition can lead to death.
Dangerous (not life-threatening)	Weakened immune system → susceptibility to other diseases; change in physical appearance; (Prolonged) weakness.
Only some types or durations are life-threatening	Distinctions between "healthy" type and severe/ "unhealthy" type; "easy diarrhea" that can be treated at home versus "other diarrhea" that needs treatment at a health facility; longer more dangerous; more than 6 hours; more than two days.
Some people/areas are at greater risk	(Younger) children at risk; children at risk; elderly at risk; decreased risk if nomad; increased if not living in a district as spreads through the district; risk greater in cities; risk greater in rural; bad for children but good for adults.
No harm caused/good	No harm caused; not serious/ life-threatening; it is just bowel movement, faeces, liquid that flows; it is better than constipation diarrhoea can be treated easily; healthy for your stomach; it is good/ healthy; gives children nutrients; detoxes your body/gets rid of dirt in the body; cleans your stomach; treats constipation.

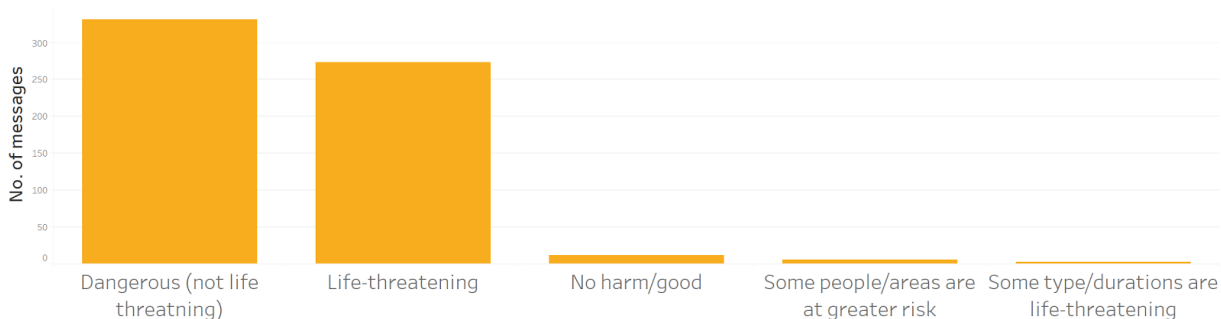


Fig 6: Prevalence of beliefs around the severity of diarrhea amongst radio audiences based on manually labeled messages

A number of beliefs arose in radio discussions about the severity of diarrhea. Amongst those who felt that diarrhea posed a serious risk to a child's health, many voiced the perspective that diarrhea was very dangerous and **posed a risk to children's lives**.

"Yes [it poses a serious risk to a child's health] because it can put the child at risk because it causes weakness which is not good for the child's health"- Mogadishu, 20 years.

"Yes [it poses a serious risk to a child's health] diarrhea puts children at risk because it causes dehydration in children which in turn can lead to death" - Unknown

Another idea that emerged on the risk diarrhea posed on children was that it is was indeed

dangerous but no reference was made to the fact that it was actually life threatening. The risk that diarrhea might weaken the immune system and make the child more susceptible to other diseases was frequently mentioned amongst these messages.

"Yes [it poses a serious risk to a child's health] because the children are susceptible to many other diseases and it can put them in a big risk if not prevented." - Qardho

"Yes [it poses a serious risk to a child's health] because if the child has prolonged diarrhea and it is not stopped, it will cause weight loss and weaken the immune system" - Mogadishu

Respondents also mentioned that **some areas and people** are at a greater risk of diarrhea. These included the idea that the elderly especially suffered from diarrheal diseases, and that those in rural areas also risked facing particularly severe consequences.

"Yes [it poses a serious risk to a child's health] because children are susceptible to the disease" - Mogadishu, 15 years

"Yes because diarrhea is a killer disease and kills both children and the elderly. Its effects and dangers on the children is bigger than that on the grownups." - Belet Weyn.

"Yes, it can weaken many children and it is more common in places with IDPs. This is because they lack nutrition, poor health and drinking dirty water. We should always be cautious with children" - Male, 18 years

"Yes it is an illness that poses a risk for children in rural areas if they don't get the required assistance" - Unknown.

A number of participants also mentioned that they believed there are **two types of diarrhea**, one of which was a cause for serious concern, the other which was less complicated, suggesting perceptions of risk around diarrhea might be reduced as not all cases were considered problematic.

"Diarrhea can have different severity. One type can be so severe that if the person doesn't go to a health facility immediately, then s/he can die in a few hours. Then there is a less complicated type but still needs medical assistance" - Male, Hargeisa.

"Yes because there are two types of diarrhea, one type is a disease and the other is good for the health" - Bosaso, 18.

One misconception that was put forward in radio discussions was that idea diarrhea is **not harmful** and could be a healthy process, with some arguing that it could be a cure for constipation or function as a detox.

"In my opinion, diarrhea can't cause any problem because it can actually be a form of a healthy detox" - Unknown

"No [it doesn't pose a serious risk to a child's health], diarrhea is the medicine/cure for constipation." - Unknown

"No [it doesn't pose a serious risk to a child's health] because it is good and healthy for the stomach" - Mogadishu

There were also a number of ideas (59 mentions) that were put forward in these radio

discussions around diarrhea treatment, which fell into two major categories. The first perceived method of treatment was the **use of oral rehydration sachets (ORS)** on recognition of diarrhea symptom. The second perceived method was that they should be taken for treatment **at health services**, whether a doctor, health facility or hospital:

“Diarrhea puts the child at risk and causes dehydration, weakness and hinders development. It can be treated using ORS or by giving a sugar solution.”- Galkacyo, 18 years.

“yes if a child has diarrhea and gets dehydrated, s/he should be taken to the doctor as his life in danger and he could die”- 25 years.

Radio show 2: Cause of diarrhea

The following coding frames summarise the beliefs around the causation of diarrhea gathered as responses to the following radio question: *“What do people in your community think causes diarrhoea?”* (radio question 2)

Table 5. Beliefs related to the cause of diarrhea	
Radio question 2: “What do people in your community think causes diarrhoea?”	
Causes	Includes
Unclean food and water	Uncooked food; uncleaned food; food touched by flies; cold food; unclean/unboiled water; cook with dirty water; unclean utensils
Lack of hygiene	Keep children clean; poor personal hygiene; no water to wash hands; not washing hands; not washing hands with soap
Lack of sanitation/open defecation	Waste/sewage; lack of sanitation in home/district open defecation; bury/burn waste/ garbage; children playing with garbage; poor toilet practice; puddles with faeces.
Infection	Bacteria; germs; parasites; virus
Water/Weather	Floods; rain; stagnant water
Types of Food	Unripe vegetables; certain types of milk; protein
Other	God in charge; heat; lack of healthcare/medication; malnutrition

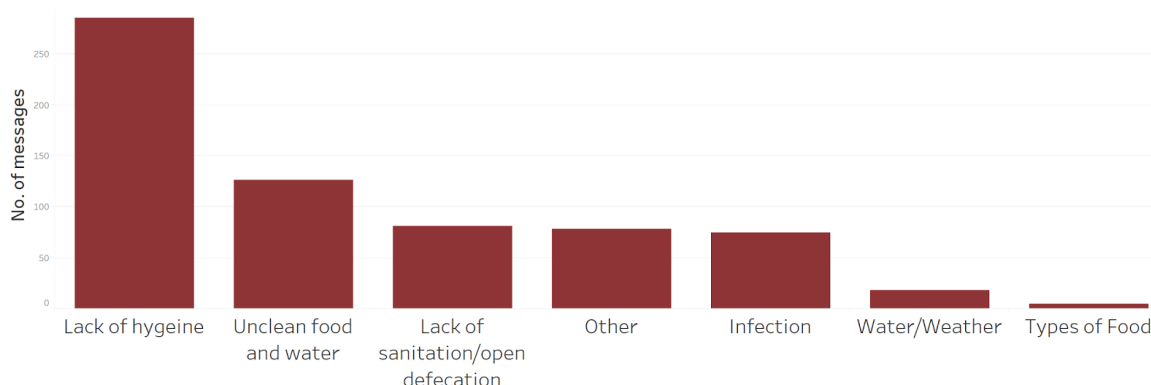


Fig 7: Prevalence of beliefs related to the causes of diarrhea based on manually labeled messages.

The messages below show how multiple interlinked ideas were often given as the cause of

diarrhea. For example, poor food preparation practice was voiced alongside a lack of hygiene, and both of these ideas could be linked to the perception that specific germs and infections caused diarrhea.

Many participants in radio show discussions, argued that **lack of cleanliness and hygiene** in communities and households was the primary cause of diarrhea.

"[Diarrhea] it is caused by dirt and lack of hygiene that the settlement is facing/experiencing which in turn causes diarrhea and cholera outbreaks in a community." - Mogadishu, Male,

"It caused from the lack of hygiene, that and dishes that have water, food and hands that have not been washed, [especially] after defecation." - Unknown

"It caused by dirty water, lack of hygiene, lack of latrines." Ceel Afweyn, Male, 42

This code had was labelled with sufficient accuracy by AVF's computational techniques to allow for statistical analysis. There was no relationships between participants who stated they believed lack of hygiene was a causal factor in contracting diarrhea and their age, gender, nomadic status or geographic location.

Some voices argued more specifically that **inappropriate cooking practices and unclean water** were the causes for diarrhea in Somalia.

"Diarrhea originates from germs and dirt, drinking dirty water, eating foods that have been contaminated by flies, hands that have not been washed." - Kismayo, Female, 15

"Diarrhea is caused by 1) lack of hygiene in the community 2) dirty food and dirty water." - Burco, Male

"Diarrhea is caused by from germs, dirty, defecation, someone who eats food that is not clean." - Cabudwaaq, Female, NA

"It [diarrhea] is caused by dirty water that has not been boiled, and lack of hygiene." Hargeisa, Female, 23

Other participants in radio shows mentioned the relevance of **poor sanitation and waste disposal** in the community as spreading diarrhea.

"[Diarrhea] is caused by 1) dirt 2) defecation 3) dirty water 4) dirty toilets 5) dirty settlements." - Mogadishu, Male, 27

"I think [diarrhea] is caused by places [that have] sewage and lack of hygiene." - Afgooye, Female, 15

"I think [diarrhea] is caused by dirt or garbage that is nearby." - Male, 40

Another perspective that circulated in radio discussions was the idea that **germs and bacteria** are the cause of diarrhea. This regularly co-occurred with other perceived causes such as lack of hygiene or dirty water and food. One of the examples below clearly shows how understandings of causation of cholera and diarrhea could be linked.

"[Diarrhea] is caused by germs, bad hygiene, even though I have heard that Cholera comes back every year. So, I would advise that dishes should be dried and covered at

night. If that is not done, [cholera] outbreak could occur again.” - Garowe, Male, 21

“[Diarrhea] is caused by bacteria, because of dirty water and food.” - Buuhoodle, Female, 20

Other voices pointed to specific **weather events and their effect on water** as the cause of diarrhea -- such as droughts, floods, and heavy rainfall, as they led to the accumulation of stagnant water and rain puddles.

“It [diarrhea] is caused by 1) when there are droughts, and after that rainfalls, and people then drink water that has not been treated, 2) people that use toilets and don't wash their hands before and after.” - Baidoa, Male, 25

“Lack of hygiene and crowded settlements that do not take care of sanitation and hygiene, and drinking water from places where it settles.” - Kismayo, Male, 29

Another common misconception is that diarrhea is caused by certain **types of food**, such as specific types of milk

“My name is Abdullahi Arab from Waberi yes diarrhea is caused by parents giving different kinds of milk to the child and giving unboiled water” - Mogadishu, 26.

“Diarrhea is caused by different things like a person eating different kinds of food and also eating cold food” - Male, 24

There were a number of **other** beliefs that did not fit into the broader categories of the coding frame - in particular some participants mentioned malnutrition and poor health care as the cause for diarrhea.

“Diarrhea is caused by 1) lack of hygiene 2) lack of nutrients and a weak immune system.” - Cabudwaaq, Male, NA

SMS questions 1 & 2: Diarrhea Management and Handwashing

This section presents the results that answer the following research question: How do beliefs around the severity and causation of diarrhea associated with different **practices of diarrhea management and handwashing**?

The following table shows a breakdown of the responds to the first two SMS questions that refer to diarrhea management and handwashing.³⁰

Table 6: Results and response rates to SMS questions 1 & 2 on diarrhea management and handwashing

Practice	SMS question	Group asked	Most frequent answer	%	Response rate %
Diarrhea Management	SMS Q1: “What do you do when your child has diarrhoea?”	S02E01³¹	ORS/health services	90.0%	49
Handwashing	SMS Q2: “When do you wash your hands?”	S02E02	At critical times ³²	61.3%	70

The responses to SMS question 1 on diarrhea management were separated into ‘health services’, ‘Oral Rehydration Salts (ORS)’, ‘medicine/pharmacy’, and ‘other ineffective treatments’.

- Responses under the heading **health services** included:
 - going to the doctor (37);
 - health facility (262);
 - hospital (38).
- The category **ORS** had no sub-category and included 267 responses.
- **Medicine/pharmacy** included 16 mentions of going to a pharmacy and 22 mentions of using unspecified tablets.
- Other **ineffective treatment** included prayer (22) and traditional medicine (1).

The following graphs show a breakdown of the broader categories by demographic group.

³⁰ The ideas in these messages were not considered mutually exclusive so the figures refer to the number of mentions of a certain type of practice rather than individuals. As these figures are gathered from a self-selected and bias sample they cannot be used to infer the practices of the Somali population as a whole.

³¹ It was not possible to compare these results with participants of a radio show on another topic and understand the effect of interest in diarrhea if any on reported practices, as this was the first show.

³² As defined by WHO. See: http://www.who.int/gpsc/tools/Five_moments/en/

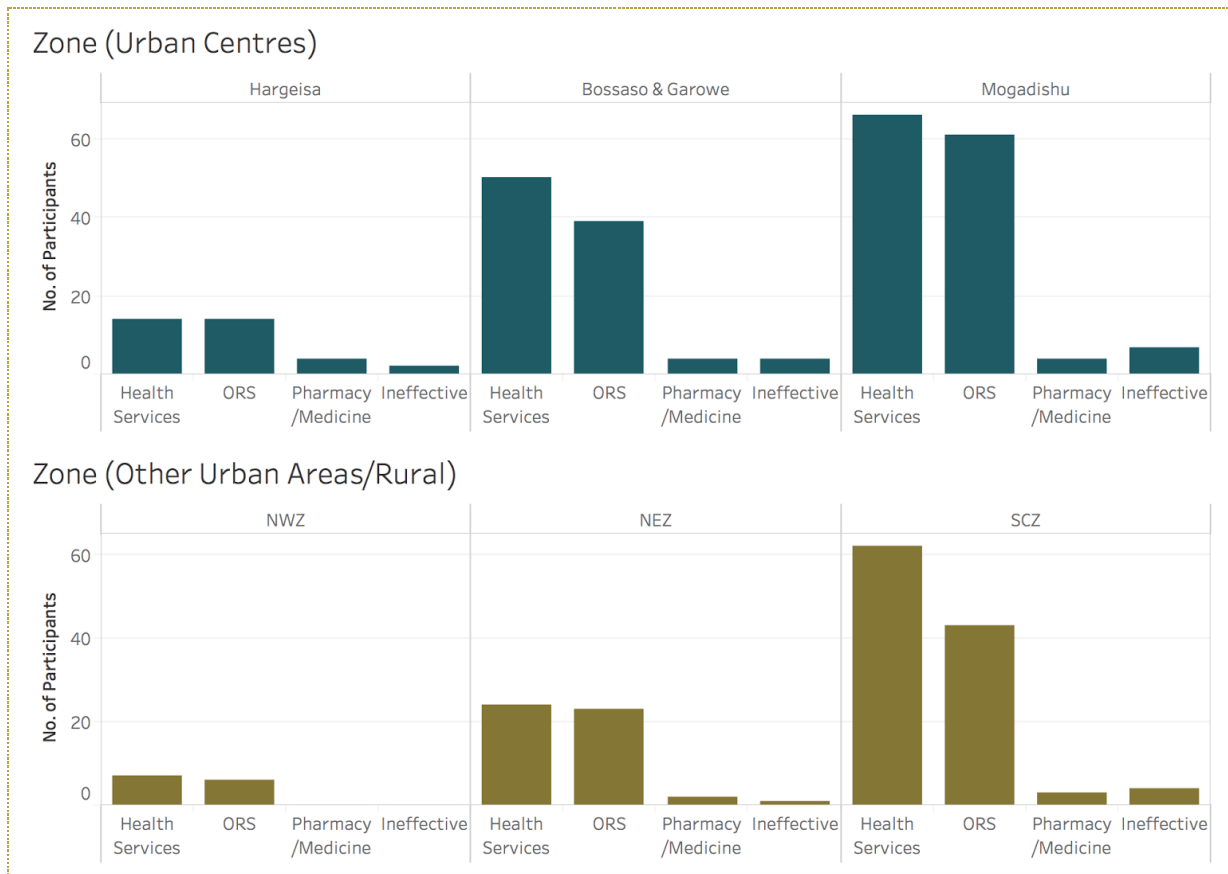


Fig 8: Breakdown of radio audience answers to SMS question 1: 'What do you do when your child has diarrhoea?' by zone and area type

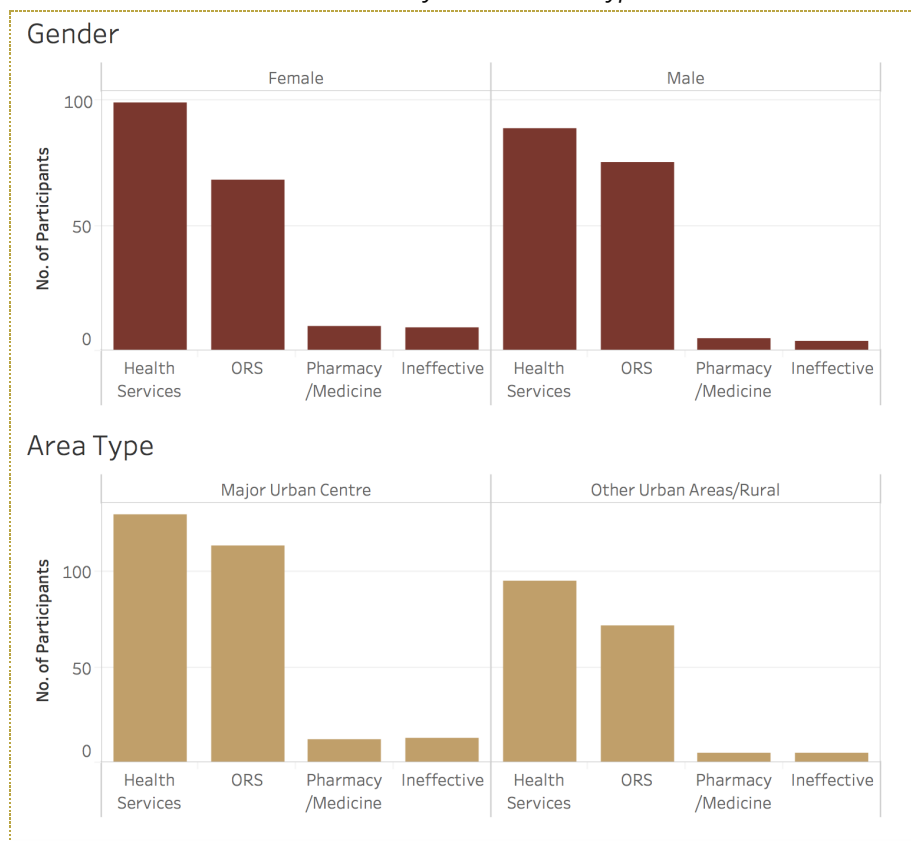


Fig 9: Breakdown of radio audience answers to SMS question 1: 'What do you do when your child has diarrhoea?' by gender and area type

The responses to SMS question 2 related to handwashing were divided into 'critical times' and 'non-critical times'. Responses that were categorised as '**critical times**' included:

- after handling human waste (29);
- after toilet use (599);
- before cooking (6);
- before eating (778);
- and before serving food for the family (3).

Those responses that constituted '**non-critical times**' included:

- ablution before prayers (19);
- after eating (8);
- after handling dirt (122);
- after waking up (61);
- before and after doing anything (77);
- and the generic idea to keep hands clean (607).

The following graphs show a breakdown of whether audience members reported washing their hands at a critical times or a non-critical times by demographic groups.

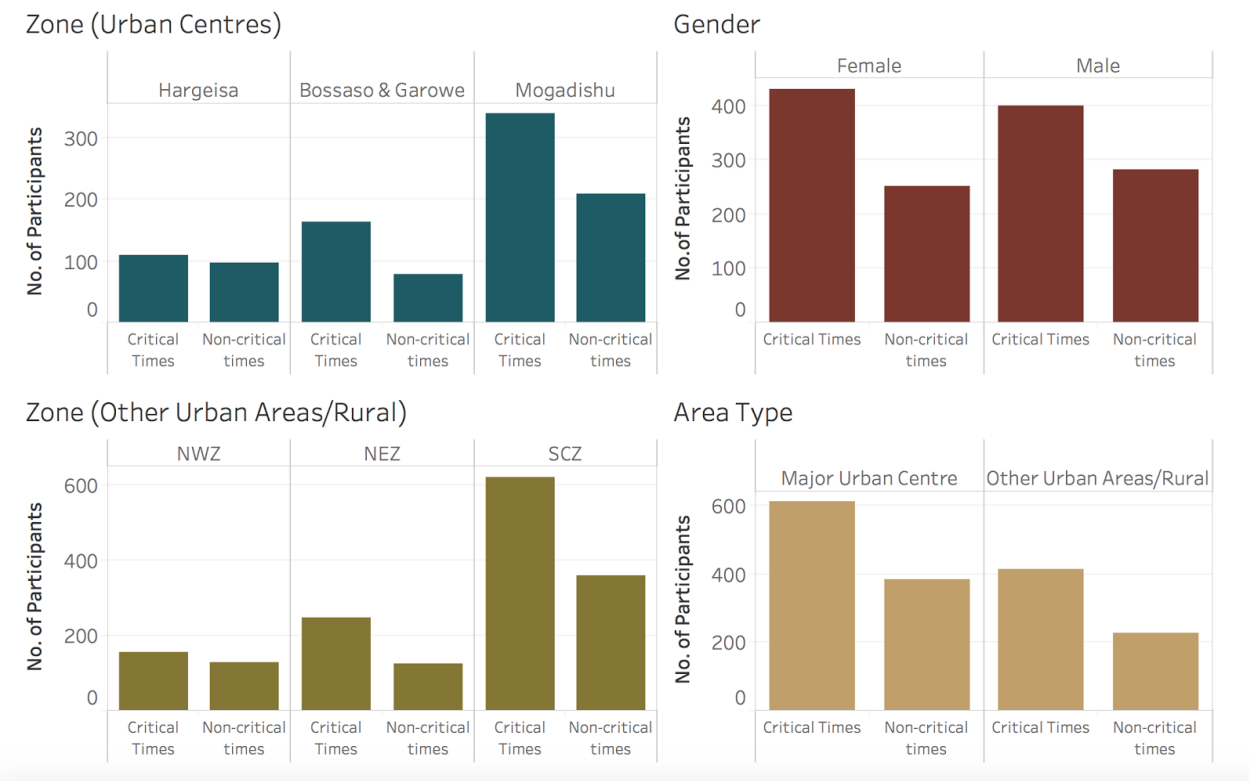
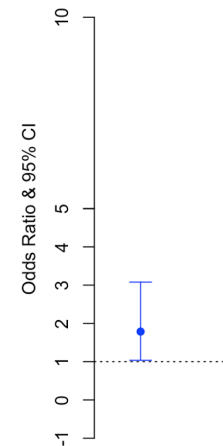


Fig 10: Breakdown of radio audience answers to SMS question 2, 'When do you wash your hands?', by gender, zone and area type

Beliefs versus Practices

The odds of seeking medical help (including the use of ORS and attending medical services) for diarrhea treatment was 79% higher in participants who stated they believed that lack of hygiene was a causal factor in diarrhea contraction. This relationship was irrespective of age and gender (Odds Ratio = 1.79, $p = 0.04$) (Fig 11)

Fig 11 (right): The odds of seeking medical help (including the use of ORS and attending medical services) for diarrhea treatment was 79% higher in participants who stated they believed that lack of hygiene was a causal factor in diarrhea contraction. This relationship was irrespective of age and gender (Odds Ratio = 1.79, $p = 0.04$)



3.2.2. Beliefs & practices related to cholera

Radio show 3: causes of cholera

The following section outlines the results from data collection that speak to the following research question:

1. What are Somali citizens' beliefs around the **causes of cholera** and how do they vary by socio-demographic group?

The following coding frames summarise the data gathered in response to the following question (radio question 3): *“What do you think causes outbreaks of acute watery diarrhea (AWD)/cholera?”*

Table 7: Beliefs on the causes of cholera	
<i>Radio question 3: “What do you think causes outbreaks of AWD/cholera?”</i>	
Beliefs on Causation	Includes
Lack of Hygiene	Bad hygiene; Lack of cultural hygiene; unclean hands; unwashed hands after going to the toilet; unwashed hands before eating food.
Contaminated/Dirty Water	Dirty water; water that hasn't been treated; Cooking with toilet water; Children swimming in dirty water; Water that is contaminated with Cholera; Foods cooked with dirty water.
Contaminated/Dirty Water (slight misconception about cause of cholera)	Throwing up in water/rivers; Garbage/dirt carried by water.
Poor food preparation/eating practice	Dirty cooking utensils; uncovered food; raw food; flies; dirty grocery bags; not rinsing vegetables; cold food.
Germs	Germs
Poor Sanitation/faeces	Crowded communities and excessive sewage; Faeces
Dirty Environment/Community	Dirty Environment, garbage that is too close; dying animals.
Poisoned/contaminated weather	Poisoned weather; dirty/contaminated weather; the weather carries AWD/Cholera; NGO's poisoning weather.
Weather impacting on water	Droughts and floods; lack of rainfall; hot weather and "changes in water"; rain puddles; from rivers/wells that have lack of water.
Other Misconceptions	God's will; intercourse outside of marriage; insect outbreak; using the wrong medication; rural communities without aid/medical help; not taking care (hygiene) of children; hunger and starvation;

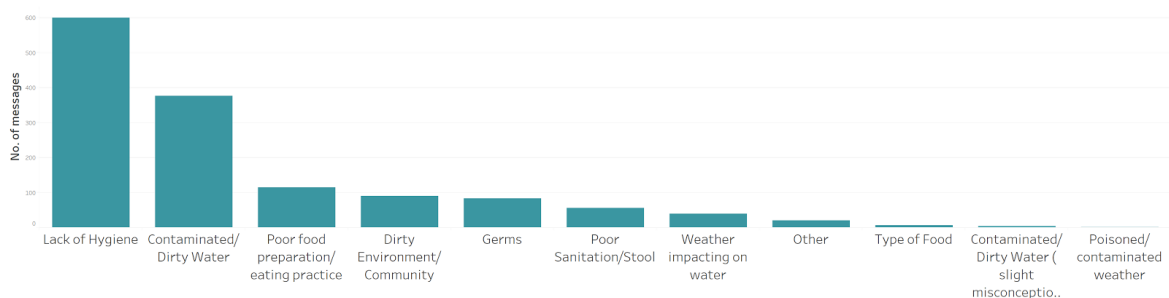


Fig 12: Prevalence of beliefs around causation cholera based on on manually labeled messages

The following ‘thick description’ deepens the insights into what beliefs Somali people held related to the cause of cholera. Where possible this is complemented with an analysis of how these vary by demographic group.

Similar to the radio discussions around diarrhea diseases more generally, many participants argued that cholera outbreaks were caused by a **lack of hygiene**. Participants emphasised the importance of washing hands after defecation, before eating food and personal hygiene as methods to prevent cholera:

“I believe that cholera outbreak is caused by not washing hands with soap or ash after using latrines and before eating. One should wash hands with boiled water, and clean places that have garbage and work hard for hygiene.” - Mogadishu, Female, 18 years

“Diarrhea or cholera is caused by the lack of hygiene. It is mostly contaminated from drinking dirty water or eating dirty foods.” - Hargeisa, Male

“Cholera can be prevented by looking after hygiene, boiling water, washing hands with water and soap or ashes.” - Baidoa, Male, 32 years

“It is likely that cholera outbreak is caused by the lack of hygiene” - Mogadishu, Female, 15 years

Lack of hygiene was labeled with sufficient accuracy through a process of automatic labelling to identify whether the incidence of this belief varied by demographic group among radio audiences. However no significant associations were found.

Related to this idea was the notion that **contaminated or dirty water** caused outbreaks of cholera. This also runs parallel to perception of causation of diarrhea more broadly. Respondents focused on necessity of drinking water being clean to avoid outbreaks of cholera and the importance of using clean water to wash hands, food, and cooking utensils.

“Cholera outbreaks are caused by lack of hygiene, lack of water due to drought, severe hunger, using medication in the wrong way, lack of knowledge on healthcare.” - Mogadishu, Male, 24 years.

“It seems to me that drinking dirty water [is the cause for cholera outbreak].” - Hargeisa, Male.

“I think [Cholera] is caused by drinking dirty water from a source where a sick person

vomited.” - Mogadishu, 28 years.

Contaminated or dirty water was another code that AVF's automatic process labelled above a certain threshold for accuracy, however there were no significant associations between specific demographic groups and beliefs.

There were however some voices that mentioned the contamination of dirty water as the cause of cholera but featured **slight misconceptions about how the contamination occurred**. For example, some respondents suggested garbage thrown in rivers was an issue, whilst others suggested that chlorination could actually be the source of contamination. The latter is especially concerning given that chlorination is one of the most effective ways of treating water, especially at the household level.

“It [cholera] outbreaks from the poison in chlorine [for water]” - Bardhere.

Another idea put forward by radio audiences as the cause of cholera was **poor food practices**, such as eating uncooked, raw or cold foods, eating from dirty grocery bags, and not covering food appropriately, which in turn was seen to lead to flies and insects contaminating the food.

“I believe that it outbreaks from lack of cleanliness of food and water, and lack of personal hygiene.” - Cadaado, Female, 16 years.

“[Cholera outbreaks are caused by] lack of hygiene and eating raw foods.” - Kismayo, Female, 16 years.

“Outbreak occurs when dirty water is used in latrines, and then not washing hands with soap and not cooking food properly.” - Mogadishu, Female, 18 years.

“It is caused by eating uncovered food that was exposed to flies and many other reasons” - Female, 18 years.

“Lack of hygiene and food that is uncooked or not cooked well” - Mogadishu, Male.

In parallel to beliefs about the causes of diarrheal disease more broadly, some participants pinpointed **germs and bacteria** as the cause of cholera and acute watery diarrhea.

“I believe that AWD/Cholera outbreak is caused by germs” - Hargeisa, Female.

“AWD/Cholera is caused by bacteria or virus, lack of hygiene, drinking dirty water or eating dirty food, places where there is a lack of water and people are crowded. Cholera outbreak occurs due to virus that is known as vibro cholera, along with open defecation spread by flies. [Cholera outbreak occurs when] cooked food is added with uncooked food washed with dirty water.” - Gaalkacyo, Female, 21 years.

Sufficient precision was attained in automatically labelling this code to test for associations with demographic groups but no significant associations were found.

There were a number of messages that referred to **poor sanitation and faeces** as the cause of cholera. They referenced the risks presented by open sewages and open defecation.

“AWD/Cholera outbreak is caused by lots of garbage surrounding settlements and sewages.” Baidoa, Male, 26 years.

Poor Sanitation and faeces was a code which was labelled with sufficient precision in order to

perform a statistical analysis to explore for variations between different demographic groups, but no significant associations were found.

Dirty environment/community is also given as a reason, where crowded communities and settlements, as well as dying animals are reasons which cause the outbreak of AWD/Cholera.

"AWD/Cholera outbreak is caused by lack of hygiene, dirty water, dead animals that have not been buried or burnt." - Hargeisa, Male, 33 years.

"It outbreaks from dirty water, and dirty settlements and clothes that are not clean." - Gaalkacyo, Female.

One idea put forward by some participants was that cholera was a disease **carried by the weather**. In some instances this contamination was seen as originating with NGOs.

"[Cholera] is bought by lack of hygiene and food that has not been covered, in addition to flies, and bacteria originated from the air/weather" - Hargeisa, Female, 17 years.

"[Cholera] originates from water, commodities, and weather that is dirty" - Unknown.

"Organisations have added the poison in the air to the water as well" - Unknown

"Yes it is caused by contaminated or poisoned water during summer" - Mogadishu, 34 years

Some participants argued more specifically that the cause of cholera was how changes in **weather impacted on water** and caused it settle and stagnated. This included heavy rainfall and flooding as well as drought.

"Dirty water during droughts and floods" - Mogadishu, Female, 18 years

"Outbreak mostly occurs from dirty water, and when it rains/ water settles on the ground and leads to the outbreak of insects" - Bosaso, Female, 20 years

SMS question 3: Practices of sanitation

This section presents the results that speak to the following research question: How are beliefs around the causation of cholera associated with with different **practices of sanitation?**

The following table shows a breakdown of responses for latrine use.³³

Table 8: Results and response rates for latrine use. SMS question 3: Do you always use a latrine?				
Practice	Question	Group asked	Yes%	Response rate%
Latrine use	SMS Q3: Do you always use a latrine?	S04E03 ³⁴	72	46

The graph below shows the demographic breakdown of whether people responded 'yes' or 'no'.

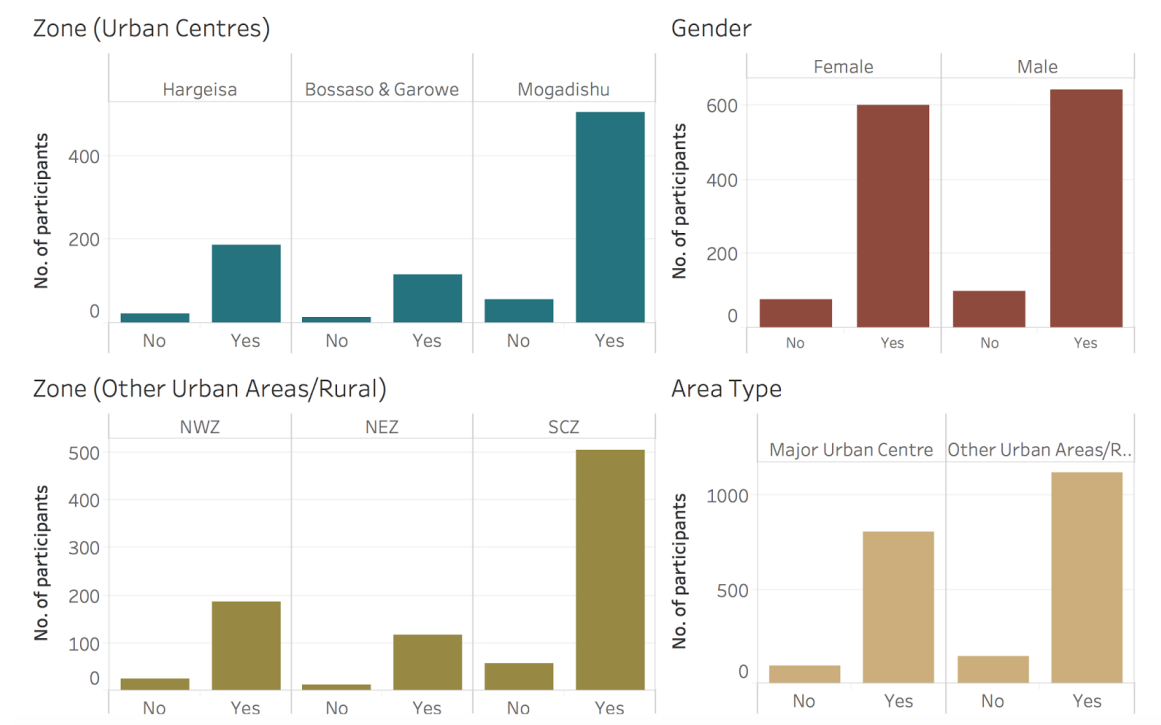


Fig. 13: Breakdown of answers to SMS question 3, 'Do you always use a latrine?' by zone, gender, and area type

- The odds of male participants stating that they used a latrine were 26% lower than for female participants (Odds Ratio = 0.74 , p = 0.04), irrespective of age (Fig. 14).
- The odds of nomadic participants stating that they used a latrine were 57% lower than for non-nomadic participants (Odds Ratio = 0.43 , p < 0.01) (Fig. 15) irrespective of age

³³ The ideas in these messages were not considered mutually exclusive so the figures refer to the number of mentions of a certain type of practice rather than individuals. As these figures are gathered from a self-selected and bias sample they cannot be used to infer the practices of the Somali population as a whole.

³⁴ This was the show on cholera outbreaks. Only these participants had their practices analysed for associations with beliefs.

and/or gender.

- The odds of urban participants stating that they used a latrine were 135% higher than non-urban participants (Odds Ratio = 2.35, $p = 0.01$) (Fig. 16) irrespective of age and/or gender.
- There was no relationship between the age of participants and whether or not they said they used a latrine, irrespective of gender.
- No significant relationships were found between any cholera beliefs stated by the participants and their stated practices.

Fig. 14: The odds of male participants stating that they used a latrine were 26% lower than for female participants (Odds Ratio = 0.74, $p = 0.04$), irrespective of age.

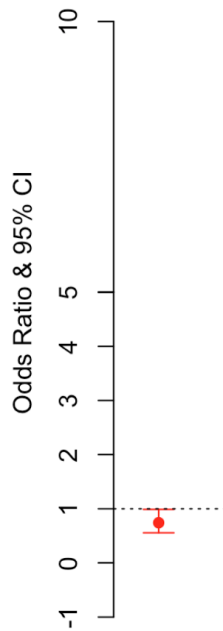


Fig. 15: The odds of nomadic participants stating that they used a latrine were 57% lower than for non-nomadic participants (Odds Ratio = 0.43, $p < 0.01$)

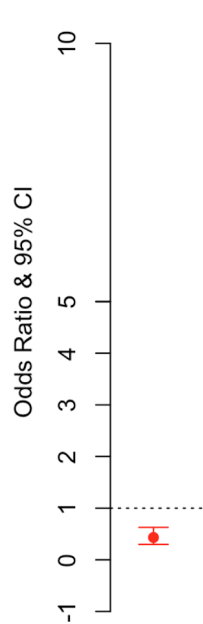
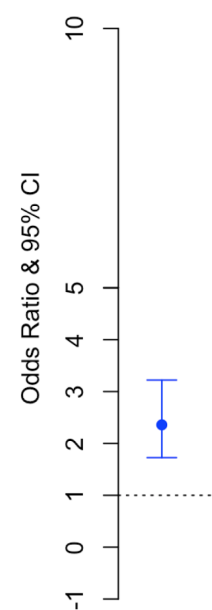


Fig 16: The odds of urban participants stating that they used a latrine were 135% higher than non-urban participants (Odds Ratio = 2.35, $p = 0.01$)



4. CONCLUSION

4.1. Key findings and recommendations

Finding 1: The use of latrines varies significantly depending on demographic group. The odds of participants from urban areas stating that they used a latrine were 135% higher than non-urban participants. By contrast the odds of those reporting themselves as nomads stating that they used a latrine were 57% lower than for non-nomadic participants.

Recommendation 1: Tailored communication and material interventions around open defecation should be designed and implemented for nomads. Due to their lifestyle and livelihoods, this will manifest specific challenges and considerations. In line with the Community-Led Total Sanitation approach, radio engagement that leverages shortwave networks and targets nomad populations in reach and content might form part of a strategy of involving these hard-to-reach populations in sanitation approaches whilst providing persuasive and interactive formats towards behaviour change.

Finding 2: Participants who believed that a 'lack of hygiene' was the cause of diarrhea were more likely (than those who did not believe that this was the case) to seek medical services and/or use ORS on recognising symptoms of diarrhea in their children.

Recommendation 2: Seeking appropriate medical care goes hand in hand with understanding the causes of diarrhea. It is an obvious result, but highlights the importance of discussing the process of transmission of diseases and ensuring that misconceptions are surfaced and challenged as a route to promote positive behaviours.

Finding 3: A misconception that was prevalent among radio audiences was the belief that there were two types of diarrhea, one which posed a severe risk to children, and the other which did not. This might have potentially adverse affects on fatality rates during outbreaks of diarrheal diseases, as people may be slow to recognise the seriousness of the diarrheal symptoms.

Recommendation 3: C4D messaging could stress that all types of diarrhea, when in a context prone to outbreaks of cholera like Somalia, should be considered as a potentially severe danger, and therefore appropriate diagnosis and treatment should always be sought.

Further research into how Somali people differentiate and assign severity to different types of diarrhea would be fruitful in designing strategies to increase the appropriate perception of severity amongst audiences, and in turn the appropriate treatment-seeking behaviour.

Finding 4: A minority of participants believed that diarrhea was good for them, in that it provided a detox or cleansing function for the body.

Recommendation 4: C4D programming should focus on elevating the perceived severity of diarrhea, especially in relation to children. Further, it would be valuable to explore in future research what Somali people consider to be healthy practices, disconnected from specific topics. This may shed light on misconceptions or detrimental practices that act as barriers to beneficial health outcomes.

Finding 5: There was a misconception among a small subset of radio audiences that diarrhea was carried and transmitted by certain types of 'dirty' or 'polluted' weather. This belief was also evident in the messages related to cholera.

Whilst cholera outbreaks can be facilitated by weather such as flooding and heavy rainfall, this suggests a misconception related to cholera that could weaken the perceived link between practices (such as hand washing and latrine use) and the transmission of diarrheal diseases. Previous Africa's Voices research (2016) also found a link between weather and disease, specifically between wind and polio.

Recommendation 5: The misconception that diarrhea and cholera can be spread by 'dirty' weather was not highly prevalent among radio audiences. However, it's important to target it in UNICEF's ongoing communication strategy.

Further research directed at gaining deeper insight into this misconception would be useful to understand how it varies by demographic groups and is linked to practices. This might include leveraging radio networks beyond FM to reach a more diverse range of audiences, and complementing AVF's method with more traditional on the ground research such as focus group discussions and interviews.

4.2. Future Directions

This research shows the capacity for AVF's approach to provide insight into WASH issues that can be relevant for programming in this sector. Further research might increase the relevance of its findings by leveraging other communications technology such as shortwave radio and interactive voice response (IVR), and being complemented with on-the-ground research to triangulated and deepen findings.

AVF is also currently scaling up its work due to the current drought situation in Somalia, working to leverage radio and SMS to quickly disseminate information directed towards hygiene promotion in a targeted fashion based on individual responses and characteristics. This intervention builds on the findings in this report to create an effective radio and SMS targeting strategy.

The findings and the research and analysis tools AVF has developed lay the groundwork for more innovative and quickly deployable approaches to dealing with cholera and other disease outbreaks in Somalia. This might include establishing cost-effective early warning/early response approaches that can identify outbreaks, as well as particular rumours and beliefs that put populations at risk. These could then rapidly be used to inform communication strategies designed to provide relevant information to affected populations and promote positive attitudes and beliefs around key behaviours.