Beliefs and practices of Somali citizens concerning HIV/AIDS

Research findings from Africa's Voices Foundation's interactive radio programme aired on 2nd December 2016 for UNICEF Somalia

Executive Summary

In late 2016, Africa's Voices Foundation deployed a communication for development and social research intervention using interactive radio on the topic of HIV/AIDS, specifically, stigma against those living with the infection and disease. In partnership with Hargeisa-based MediaINK, the show was broadcast on 26 FM radio stations across Somalia, with a range covering 70% of the Somali population. A total of 6793 people participated in the show by sending free SMS messages; 45.8% of participants were women. 8624 messages were received of which 3890 were estimated to be suitable for in-depth analysis of collective beliefs.

The radio show was designed to elicit audience feedback to answer the following research questions: (1) What are the collective beliefs in regards to acceptance versus discrimination of 'people living with HIV/AIDS' (PLWHA), and how do these vary between demographic groups? (2) Is the practice of people requesting a HIV/AIDS test during ANC visits associated with perceived acceptance of PLWHA in their community and how does this practice vary between demographic groups?

The resulting insights and recommendations are aimed at informing UNICEF Somalia's programming to support more impactful behaviour change campaigning around HIV/AIDS. The report reflects on the suitability and efficacy of AVF's research methods as a culturally-sensitive approach for flexible and time-sensitive social research, complementary C4D intervention with in-built feedback and evidence gathering tools, and remote monitoring and evaluation for HIV/AIDS. Our main findings are:

1. **Interactive radio has been demonstrated to be a powerful research and evidence-driven C4D tool for HIV/AIDS:** Our one-off interactive radio show on HIV/AIDS was a successful format for sparking inclusive

discussions at scale around HIV/AIDs in Somalia. AVF also showed its capabilities to analyse this conversation for much needed social data and generate insights that can be used to optimize UNICEF's C4D programming around HIV/AIDS. This method could be expanded to meet other programmatic needs - for example tracking social change over time to contribute to UNICEF's monitoring and evaluation of HIV/AIDS programmes.

2. **Those who perceive acceptance of PLWHA in their communities are more likely to have requested HIV/AIDS testing during ANC visits,** particularly if they live in major urban centres. Behavioural change campaigning to combat stigma of PLWHA, should therefore be integrated into a wider programme strategy to increase uptake of HIV/AIDS services, as well as contribute to the well-being of PLWHA.

3. **Beliefs that support discrimination of PLWHA are most prevalent among young people (up to 20 years old), especially men, living in major urban centres.** Conversely, beliefs that support acceptance of PLWHA are more prevalent among women (20-29 years old) living outside urban centres. Given the association between perceived discrimination and uptake of services, HIV/AIDS programming that engages these broad groups in a targeted fashion will be a essential to achieving desired social, behavioral and even biomedical outcomes.

4. **A lack of knowledge of how HIV/AIDS is transmitted is seen as a clear obstacle to developing acceptance of communities towards PLWHA.** This was reinforced by the converse finding, that knowledge of transmission was given as a common reason for the belief that PLWHA are accepted in the community. C4D programming that combats misconceptions around HIV/AIDS transmission will therefore be key to reducing discrimination against PLWHA. However messaging around this must be careful to avoid reinforcing another misconception amongst radio audiences - that HIV/AIDS can only be transmitted through adultery or immoral sexual practices.

5. **The belief that HIV/AIDS quickly results in death and cannot be managed by medication is also related to negative attitudes towards PLWHA.** UNICEF's multimedia C4D HIV/AIDS strategy should work with those in its existing network of PLWHA who are comfortable to speak publicly about their lives, to allow audiences to understand that PLWHA can live normal lives with appropriate support.

6. **Religious beliefs are related to both acceptance *and* discrimination towards PLWHA.** Evidence gathered here suggests that some Somalis hold the belief that as the status of PLWHA is determined by God's will, PLWHA should therefore be accepted in society. UNICEF Somalia's behavioural change programming should build from existing beliefs such as these amongst groups of citizens, and include voices of moral authority in disseminating acceptance beliefs, rather than risk polarising the discussion and hardening negative viewpoints.

Beliefs and practices of Somali citizens concerning HIV/AIDS

Findings from Africa's Voices Foundation's interactive radio programme aired on 2nd December 2016 for UNICEF Somalia, March 2017

List of acronyms used in report

ANC	Ante-natal care
ART	Antiretrovirals
AVF	Africa's Voices Foundation
C4D	Communications for Development
FM	Frequency Modulation
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IDP	Internally Displaced Person
MICS	Multiple Indicator Cluster Survey
NEZ	North East Zone
NWZ	North West Zone
OR	Odds Ratio
PESS	Population Estimate Survey of Somalia
PLWHA	People Living with HIV/AIDS
SCZ	South-Central Zone
SMS	Short Message Service
UNAIDS	The Joint United Nations Program on HIV/AIDS
UNFPA	United Nations Population Fund
UNGASS	Special Session of the United Nations General Assembly
UNICEF	The United Nations Children's Fund

Report authors and contributors: Partha Moman, Claudia Abreu Lopes, Rita Zagoni, Mubarak Abdi Mohammed, Alex Lewis, and Sharath Srinivasan.

Editorial and layout: Rainbow Wilcox, Matti Pohjonen, and Jeunese Payne.

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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); Mubarak Abdi Mohammed (Research Assistant); Omer Qalonbi (Research Assistant); Dr. Alex Lewis (Researcher); Guy Emerson (Data Scientist); Rainbow Wilcox (Impact and Communications); George Kaburu (Operations and Performance); Dr. Sharath Srinivasan (Director of AVF)

Project partner, MediaINK, Hargeisa: Abdilaziz Musa Yusuf (Director); Abdikadir Ahmed (Project Manager); Mahad Jama Koronto (Presenter); Siciid Xagaa Afrax (Producer)

1. Introduction

1.1 Context of HIV/AIDS in Somalia

Preventing the spread of HIV and providing adequate treatment, care, and support for those infected is essential for the health of women and children in Somalia -- a country where key health indicators are some of the worst in the world. Prevalence of HIV/AIDs is estimated at 0.5% [0.3-0.7%], (adults aged 15-49), corresponding to an estimated 30,000 people living with HIV/AIDS in Somalia.[1] There has been a steady upward trend in prevalence in the previous decade, with a per annum increase of 2700 to 3000 in the number of new HIV infections.[2] Crucially, access to and use of detection and treatment services remains low.[3]

While supporting government and local partners to deliver testing and treatment services around HIV/AIDs is important, impact will be limited without also addressing community norms and health practices. Low awareness of the infection and disease, stigmatising attitudes against those infected, gender inequities, and misconceptions around HIV/AIDS leave the Somali population vulnerable to increased rates of infection.[4]

MICS data from 2011 show the extent of the problem. Only 8.9% and 6.4% of women aged 15-49 years in Northeast zone (NEZ) (sample size=4785) and Northwest zone (NWZ) (sample size=4820) respectively had comprehensive knowledge around HIV/AIDS prevention, and only 8.6% (NEZ) and 8.3% (NWZ) were accepting of people living with HIV/AIDs (PLWHA)[5]. Findings from a youth behavioural survey covering South-central zone (SCZ) (sample size=395), found that only 5.4% of unmarried men and 4.3% of unmarried women aged 15-24 years had full knowledge of HIV/AIDs, were able to both identify the ways of preventing sexual transmission and rejected major misconceptions around the disease[6]. Corresponding values for the other two zones, for women only, are 20.6% (NEZ) and 16.5% (NWZ) -- showing a greater gap in HIV/AIDs knowledge between SCZ and the other two zones.

Poor infrastructure and large areas of political insecurity in Somalia mean that more traditional, on-the-ground qualitative research to explore the potentially diverse beliefs, attitudes and practices of Somali citizens is difficult to undertake and costly to reproduce at scale. UNICEF's own behaviour change strategy recognises: "quality social data to inform evidence based data is a huge gap in the HIV and AIDS Programme in Somalia."[7]

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[1] UNAIDS, HIV and AIDS Estimate, 2015. See http://aidsinfo.unaids.org/
[2] See also UNGASS: http://www.unaids.org/sites/default/files/country/documents/SOM_narrative_report_2015.pdf
[3] In 2014, out of a total estimated 29,726 people infected with HIV/AIDs, 22,422 were in need of antiretroviral treatment (ART). UNGASS, p. 9. Only 2.1% of mothers in NEZ and 2.6% in NWZ were offered and accepted HIV testing during ANC, according to the Multiple Indicator Cluster Survey (MICS). See UNICEF, Somaliland Final Report, MICS 2011 (2014); UNICEF, Northeast Zone Final Report, MICS 2011 (2014)
[4] UNICEF, Behavioural and Social Change Strategy for HIV/AIDS, Puntland (2012-2014), UNICEF, Behavioural and Social Change Strategy for HIV/AIDS, Somaliland (2012-2014), UNICEF, Behavioural and Social Change Strategy for HIV/AIDS, South Central (2012-2014). See https://www.unicef.org/statistics/index_24302.html
[5] UNICEF, MICS NEZ (2014), UNICEF, MICS NWZ (2014)
[6] IOM: Youth Behavioural Survey Report: Somalia 2012. See http://publications.iom.int/system/files/pdf/somalia_youth_survey_final.pdf
[7] UNICEF, Behavioural and Social Change Strategy for HIV/AIDS, Puntland (2012-2014), UNICEF: p. 9.

1.2 Communications for Development in the context of HIV/AIDS

Effective behavioural change intervention and *Communications for Development* (C4D) programming to improve knowledge, to shape social norms and individual attitudes, and to enhance preventive behaviour, is important for ensuring that HIV/AIDS prevalence does not rise, and that PLWHA receive social support and follow appropriate health-seeking behaviour.

Existing literature shows that behaviour change programmes are more effective when they: (1) stem from theories that address change at individual, interpersonal, and community levels[8]; (2) are adapted to the sociocultural context[9] with a clear understanding of the target audience[10]; and (3) involve the community in the planning, implementation, and ownership of interventions[11]. It is therefore necessary to have a granular understanding of the target beneficiaries -- their beliefs, opinions, and practices in regards to HIV/AIDS, and how these vary between different groups in the population.

1.3 The Africa's Voices approach

Africa's Voices Foundation (AVF) has a growing track record of overcoming obstacles to addressing evidence gaps by leveraging the popularity of interactive radio in Somalia. AVF shapes inclusive discussions through radio broadcasts to which audiences contribute their opinions via SMS. Combined with follow-up SMS questions on health practices and demographic information, these messages create a large dataset on Somali people's beliefs, opinions, and practices. Using our unique multi-disciplinary analysis of this local language dataset, we are able to provide relevant data and insights to meet UNICEF data needs and knowledge gaps around HIV/AIDS.

1.4 Research design

AVF worked with UNICEF Somalia's HIV/AIDS team to identify knowledge gaps and priority topics to explore in the research. Due to an initial concern that HIV/AIDS might be too controversial as a topic for discussions sparked by mass media, only one interactive radio

[8] 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
[9] Campbell, C. (2003). 'Letting them die': Why HIV/AIDS programmes fail. Oxford: James Currey.
[10] Joffe, H. Bettega, N. (2003). Social representations of AIDS among Zambian adolescents. *Journal of Health Psychology*, 8(5): 616-31.
[11] Cornish, F., Priego-Hernandez, J., Campbell, C., Mburu, G., McLean, S. (2014). The impact of community mobilisation on HIV prevention in middle and low income countries: A systematic review and critique. *Aids and Behaviour*, 18(11): 2110-34.

show was broadcast concerning HIV/AIDS, focusing primarily on the issue of discrimination and stigma against PLWHA. This was understood to be an exploratory step towards understanding what type of content and questions can and should be aired on the subject, but also to assess whether credible findings and adequate quality data can be gathered using AVF's research methods and approach.

The research questions were designed to provide insights that would inform UNICEF programming around two objectives of its strategy for behaviour and social change around HIV:[12]

1. "Reduce fear, stigma, and discrimination against persons living with HIV&AIDS";
2. "Increased access, acceptance, adherence of appropriate care and treatment."

AVF formulated a research design with the following two research questions in mind:

1. **What are the collective beliefs in regards to acceptance/discrimination of PLWHA, and how do these vary between demographic groups?**

2. **Is the practice of people requesting a HIV/AIDS test during ANC visits associated with perceived acceptance of PLWHA in their community and how does this practice vary between demographic groups?**

These research questions guided the development of questions posed to radio audiences:

	**1. Radio Show question** (Beliefs)	Do you think people with HIV/AIDS are accepted in your community? Yes or no? Why?
	**2. Question sent by SMS** (Practices - Parents only)	Have you or your wife ever requested an HIV/AIDS test when having ANC check-ups?

The radio questions were designed to elicit responses through which audience members could express their perception of collective beliefs about HIV/AIDS, while the SMS questions were geared towards gathering insight into individual practices. In this way, the research design drew upon group behaviour theories which identify linkages between individual behaviours and perceptions of group or collective beliefs. While a full theory of change was not developed for this pilot, we draw on explanations of stigma based on social identity,[13] as a negative evaluation of a group of people motivated by a need to maintain a positive social identification.

This research explores associations between perceived social stigma of PLWHA and individual health-seeking behavior, given that maintaining positive social identification as the non-stigmatized (or normal) may discourage health-seeking behavior. We focus on

[12] UNICEF, Behavioural and Social Change Strategy for HIV/AIDS, Puntland (2012-2014), UNICEF, Behavioural and Social Change Strategy for HIV/AIDS, Somaliland (2012-2014), UNICEF, Behavioural and Social Change Strategy for HIV/AIDS, South Central (2012-2014).
[13] Goffman E. (1963). *Stigma: Notes on the Management of Spoiled Identity.* New York: Prentice Hall.

associations, not causal relationships as the theoretical frameworks we draw upon assume that the relationship between beliefs and behaviour is bi-directional.[14]

The radio questions were designed with attention to socio-cognitive theories that consider how questions are processed and, in turn, answered by audiences.[15] The questions were designed to be open-ended, widely comprehensible, and adjusted to the specific cultural context. Usually in a binary yes/no format, they seek contrasting opinions to promote lively and plural discussion.[16] Specific wordings were discussed and decided together with MediaINK team, AVF's media partner in Somalia.

[14] Joffe, H. (2002), Social Representations and Health Psychology. *Social Science Information*, 41(4), 559-580.

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

[16] 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.

2. Method

2.1. Data collection: Radio & SMS

In partnership with MediaINK, our Hargeisa-based media partner, AVF deployed interactive radio programmes across a network of 26 FM radio stations covering all three zones of Somalia, 49% of Somali territory and 70% of the population (see circles indicating radio broadcast coverage, fig.1).[17] The use of radio and mobile phone technology in tandem allows for the shaping and gathering of digital data from collective discussions, uninhibited by the barriers of poor infrastructure and insecurity.

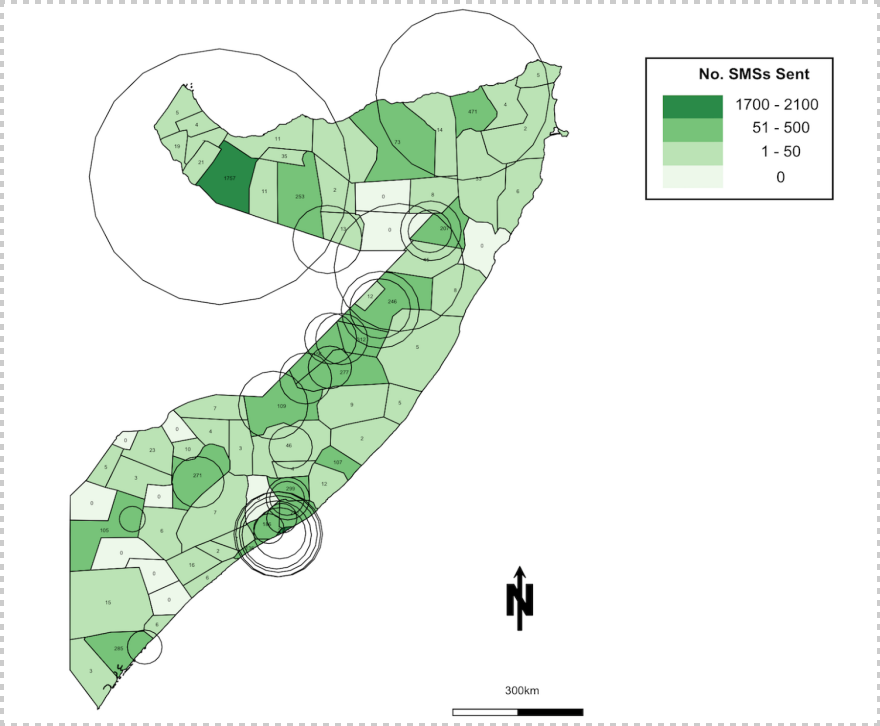


Figure 1: Radio coverage (circles) and SMS responses, 8-show season, July-September 2016

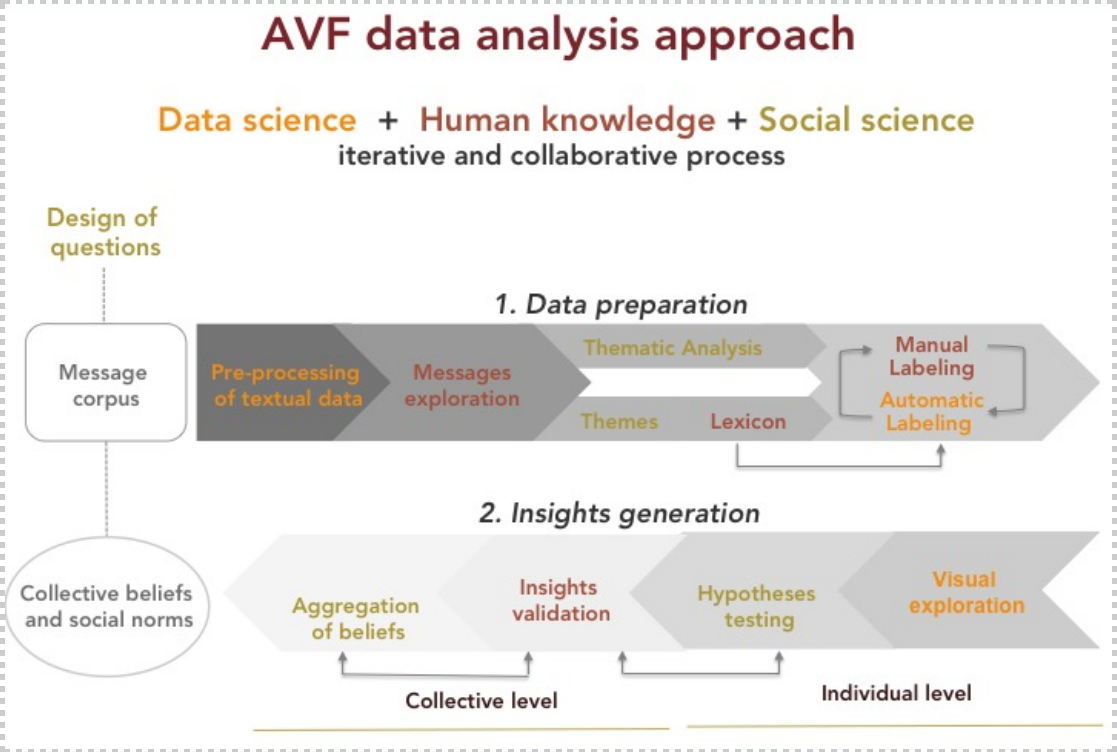
Radio questions seeking audience's opinions were broadcast from Sunday 27 November until Tuesday 29 November, 2016. A final show incorporating audience responses to these questions was broadcast on Friday 2nd December - this show also encouraged further participation from audiences. To those who participated in the radio shows, AVF sent follow-up SMS questions using UNICEF's Rapidpro platform. These asked for demographic information (e.g., age, gender, and district) and their health practices (e.g., have you/your wife ever ask for an HIV/AIDS test at an antenatal check-up?).

2.2. Overview of data analysis

The raw audience data underwent pre-processing, where demographic and health practices answers were manually and then automatically coded. Once the dataset was

[17] The numbers in the map indicate total participation for the previous season of 8 radio shows - the breakdown for the show on HIV/AIDS specifically is included in the results section below.

prepared for analysis, a thematic analysis was undertaken to discover beliefs expressed in the messages, organising the textual data into themes and sub-themes. A coding frame organising these themes was developed and applied to the data with manual and automatic techniques. The resulting dataset consisted of messages labelled with one or more beliefs, and was then analysed for testing geographical and socio-demographic associations concerning health beliefs and practices. The insights from this quantitative analysis were complemented with further qualitative interrogation and thick description of the message data, with insights illustrated by a selection of translated text messages.[18]



2.3. Limits of the approach

We employed an ex-post facto design to allow AVF to identify health beliefs that were associated with naturally occurring groups based on demographic characteristics or health practices. We focus on associations: 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. Additionally, our theoretical framework assumes that the relationship between beliefs and behaviour is bi-directional.[19]

The coverage error[20] – 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

[18] Thick descriptions of human behavior is used to not just explain behaviour but also its broader context, aimed at making it meaningful to an outsider.
[19] Joffe, H. (2002), Social Representations and Health Psychology. *Social Science Information*, 41(4), 559-580.
[20] Groves, R. M., Fowler, F. J., Couper, M. P., (2009). *Survey Methodology*. New Jersey: John Wiley and Sons.

are therefore non-representative of the population of listeners of the radio shows. Access to mobile phones, literacy, gender roles, and dynamics of participation all influence who participates in radio shows.[21]

These methodological limitations restrict the external validity of results, i.e., their generalisation to the Somali population and to the listening audience. Nonetheless, considering that selection bias affects associations (e.g., odds ratio) to a lesser extent – particularly when the data gathering process is inclusive[22], the distributions of key variables in the analysis are not skewed[23] and sample size is large enough (n>1000)[24] – the robustness of the main findings in this report is not threatened by the lack of representativeness of the group of participants in the show on HIV/AIDS. Therefore, insights about attitudes, beliefs, social norms and practices 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 with participants.

A further limitation of the research has been the overall 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 in 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 language tools and resources for analysing Somali language data. This provides us with a unique opportunity for replicating and scaling up the research we do for UNICEF and others in Somalia.

[21]Srinivasan, S., and Lopes, C. (2016). Africa's Voices Versus Big Data? The Value of Citizen Engagement through Interactive Radio. In Oscar Hemer, Thomas Tufte (eds.), *Voice & Matter: Communication, Development and the Cultural Return* (pp.157-171), Publisher: NORDICOM.

[22]Inclusiveness is enhanced by reading messages from all strata of population during the show, giving particular relevance to messages from women, nomads, and those living in rural communities.

[23] Deviations of the distribution of main demographic variables to the Somali population are tested, but certain characteristic of the listeners may simultaneously influence participation and opinions, for example, having experience with the disease discussed in the show.

[24] Nemes, S., Jonasson, J., Genell, A., Steineck, G. (2009). Bias in odds ratios by logistic regression modelling and sample size. *BMC Medical Research Methodology*, 9, 56.

3. Analysis of participants

Across one week of broadcasting, Africa's Voices received **8624 messages** in response to questions aired on radio from **6793 unique phone numbers within 67 districts** across Somalia. This made it **the most popular show to date** of 16 radio shows broadcast on various health issues. 75% of these respondents were regular participants, and 25% were new audience members, which suggests that controversial topics can be discussed on the radio with an engaged audience.

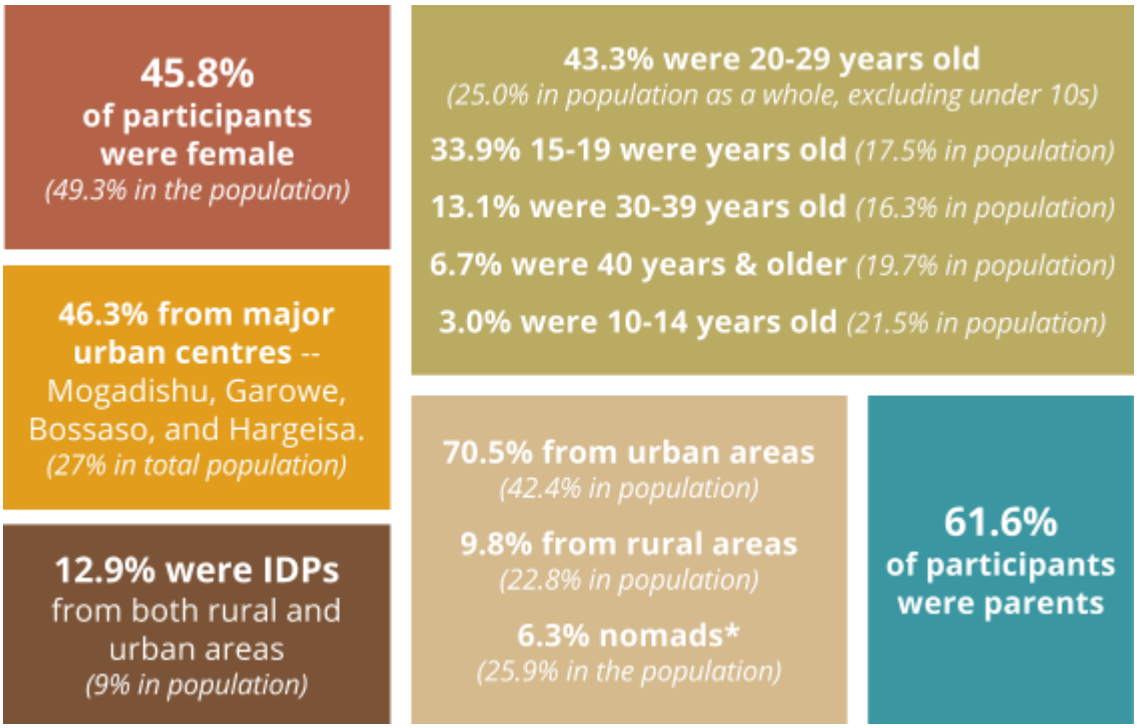


Figure 2: Socio-demographic results of participants for gender, location and age.
*These categories, along with IDP, are considered mutually exclusive in order to reflect the categorization in UNFPA, Population Estimation Survey for the 18 Pre-War Regions of Somalia, 2014. All population figures are based on the Population Estimate Survey of Somalia (PESS).[25]

The group of participants differs from the population of Somalia in several dimensions: people from major urban centres are over-represented, particularly from Mogadishu and Hargeisa, outside major urban centres SCZ is also over-represented; younger groups are overrepresented (15-29 years old) and nomads are under-represented (cf Table 1). Age distribution differs between genders. The mode for women is 15-19 and the mode for men is 20-29. Overall, among participants, women are on average 3.6 years younger than men.

[25] All population figures taken from: UNFPA, Population Estimation Survey for the 18 Pre-War Regions of Somalia, 2014. See http://somalia.unfpa.org/sites/arabstates/files/pub-pdf/Population-Estimation-Survey-of-Somalia-PESS-2013-2014.pdf

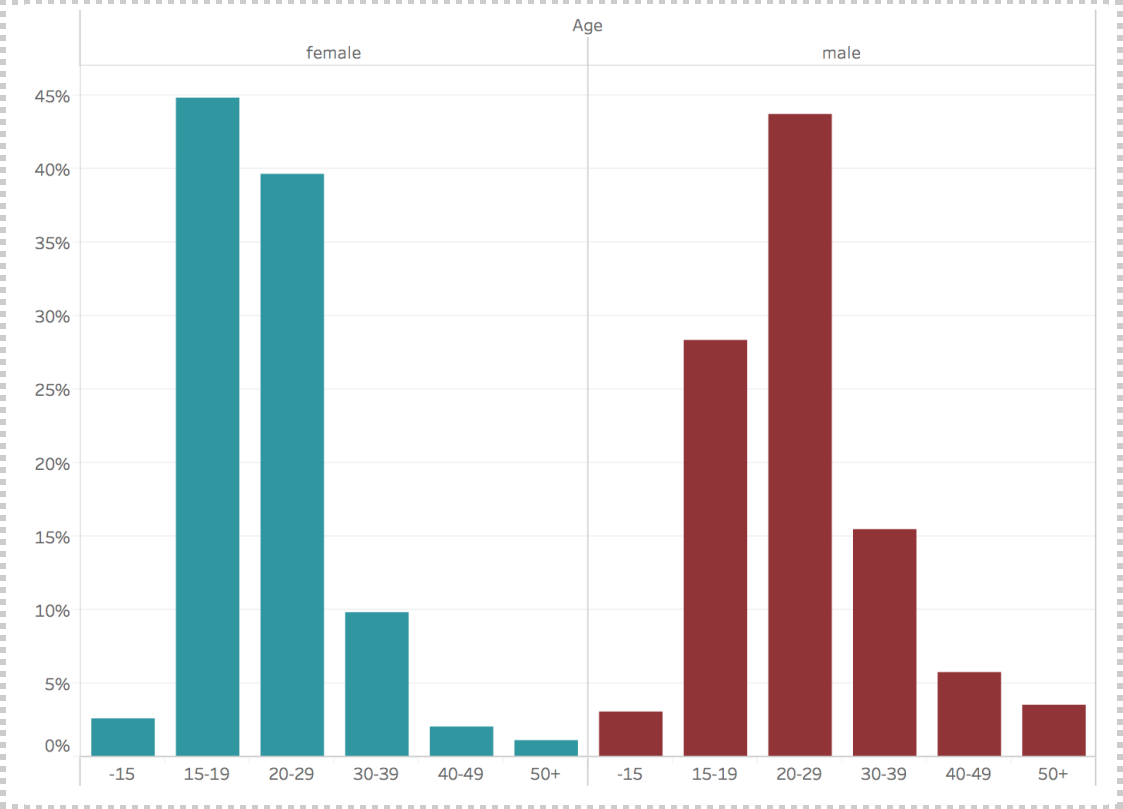


Fig 3: Age distribution by gender

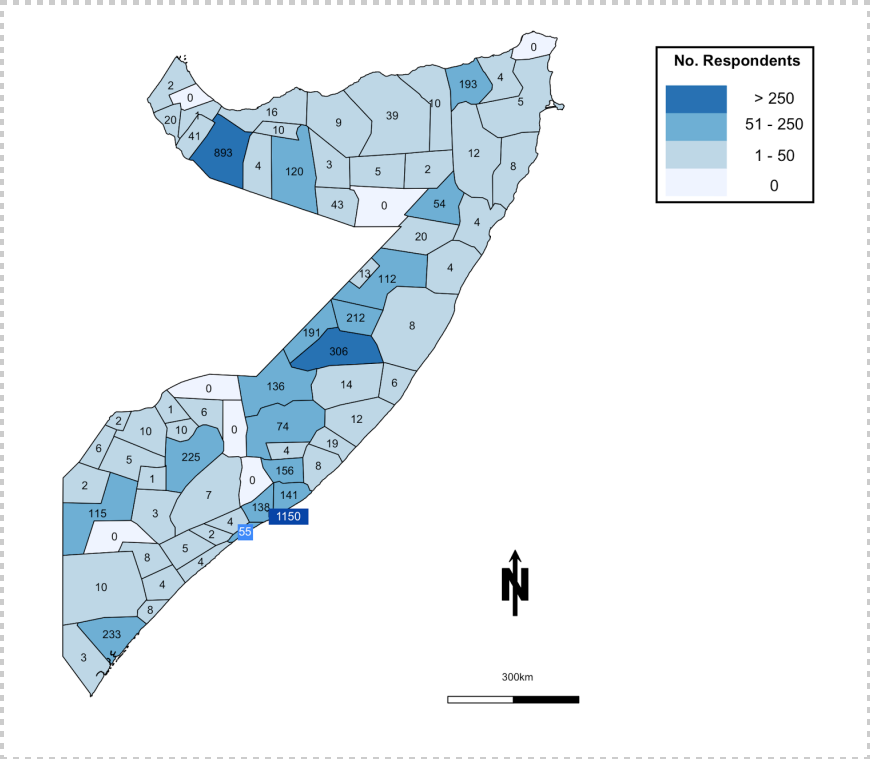


Fig 4: Composition of participants by district of Somalia

Table 1: Demographic characteristics of participants and deviations from population estimates					
Socio-demographic category	Associated question sent by SMS	**Answer given:**	**% of participants**	% in population (PESS)[26]	z-test[27]
Gender	Are you male or female? Please reply with word male or female.	**Female**	**45.8**	49.3	z=5.77, p<.001
Urban/Rural	Do you live in a city/town or a village? Reply with City or Village.	**Urban (not IDPS)**	**70.5**	42.4	z=46.70, p<.001
Nomad[28]	Are you a nomad? Please reply with Yes or No.	**Yes (Nomad)**	**6.8[29]**	25.9	z=35.93, p<.001
IDP[30]	Are you an IDP? Please reply with Yes or No.	**Yes (IDP)**	**12.9[31]**	9.0	z=11.23, p<.001
Parent	Are you a parent/guardian? Please respond with Yes/No.	**Yes (Parent)**	**61.6**	N/A	-
Area-Type	Which district do you currently live in?	**Mogadishu, Bosasso, Garowe, Hargeisa (Major Urban Centres)**	**46.3**	27.0	z=35.83, p<.001
Age	What is your age? Please answer with a number[32]	**10-14**	**3.0**	9.3[33]	z=17.88, p<.001
		15-19	**33.9**	17.5	z=35.57, p<.001
		20-29	**43.3**	25	z=34.83, p<.001
		30-39	**13.1**	16.3	z=7.14, p<.001
		40+	**6.7**	19.7	z=26.94, p<.001
Zone	Which district do you currently live in?	**NWZ**	**25.09**	28.5	z=6.23, p<.001
		NEZ	**15.59**	13.6	z=4.79, p<.001
		SCZ	**59.32**	57.97	z=2.25, p<.001

[26] UNFPA, Population Estimation Survey for the 18 Pre-War Regions of Somalia, 2014.

[27] One proportion z-test with associated p<.05 indicates a statistically significant deviation between the proportion in the group of participants and the corresponding estimate in the population.

[28] Asked only to participants who said they live in a village.

[29] This figure is adjusted to account for manually checked false positive and false negative cases of nomads in the dataset. False positive cases were assumed to be rural.

[30] Asked only to those who said they live in a city/town and non-nomads who live in a village.

[31] This figure is adjusted to account for manually checked false positive and false negative cases of IDPs in the dataset. False positive cases were assumed to be urban.

[32] The age question was asked bi-weekly after discussion with UNICEF, as it was decided that it was low priority.

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

4. Results

4.1. Beliefs around discrimination/acceptance of PLWHA

This section reports the findings on the following research question: **What are the collective beliefs in regard to discrimination and acceptance of PLWHA, and how do these vary by demographic group?**

The beliefs around PLWHA were gathered in response to the following question broadcast on the radio: *Do you think people with HIV/AIDS are accepted in your community? Yes or no? Why?*

An estimated 2649 from the total of 6793 participants sent a message with an answer that could be included in our analysis of beliefs. This totalled an estimated 3890 messages that could be analysed for insights into the collective beliefs of Somali people around HIV/AIDS.[34] Of the remaining messages with no relevant belief, 43% were noise (consisting of only a couple of words that were not used in the analysis), 40% were non-relevant (estimated from proportion of non-relevant messages among manually labeled ones), and 17% contained only words for Yes/No. Non-relevant messages included the audience's questions and remarks on the topic of HIV/AIDS that were not immediately relevant to the radio question posed, some of which will be detailed below.

Of the estimated 3890 messages that contained relevant beliefs, 1612 were specifically labelled through an iterative process of manual coding and automatic labelling.[35] A dataset with the labelled messages linked to individual health practices and demographics was created for quantitative analysis to test patterns of occurrence of certain beliefs among particular groups.

The first step for labelling beliefs was to conduct a thematic analysis of the responses to the radio question on discrimination. The themes and sub-themes identified were developed into the following coding frame to categorise the messages:

Table 2: Coding frame for beliefs related to discrimination of PLWHA

Reasons for discrimination	Includes
HIV/AIDS can spread easily	no one is taking responsibility for spreading the disease; shaking hands can spread the disease; general idea that people with HIV/AIDS are spreading the disease

[34] Based on the proportion of relevant messages among the manually labeled dataset, we extrapolate to the full dataset (with noise excluded), and estimate that there may have been 3890 relevant messages overall. AVF will continue its analysis to label the majority of the dataset to establish a final figure and dataset for analysis.

[35] For the belief that 'HIV/AIDS is transmitted easily' the automatic process labelled 760 messages with an accuracy of 80.7% (estimated from a sample of 52 messages labeled with this code) leaving a total of 937 messages. 78 messages were labelled manually with the code 'HIV/AIDS is not transmitted easily' and a further 75 were labelled automatically with an accuracy of 89% (n=73), for a total of 153 messages. 85 messages were labelled manually with the code 'PLWHA should be separated in specific medical centres', and a further 71 were labelled automatically with an accuracy of 87% (n=71) for a total of 156 messages. The other codes had a total of 366 messages all identified manually.

People with HIV/AIDS cannot be trusted/are bad/immoral people	cannot pray with them, cannot trust them; they are immoral; they did something wrong (extramarital affairs)
People from community are not understanding of the disease	they don't know about transmission or treatment
Fear of people with HIV/AIDS	emotional response (don't like/respect or ignore/hate people with HIV/AIDS) or behavioural response (families are evicting people with HIV/AIDS from their homes)
It is a dangerous disease	people with HIV/AIDS have a severe/dangerous disease, there is no cure for HIV/AIDS
HIV/AIDS is a punishment from God	HIV/AIDS is a punishment decided by God therefore we should not accept PLWHA
PLWHA will purposefully spread the disease	as revenge; because they are emotionally unstable; because they hate other people;
PLWHA need to be taken to specific medical centres	they need to be taken to special medical centres

Table 3: Coding frame for beliefs related to acceptance of PLWHA

Reasons for acceptance	Includes
HIV/AIDS cannot be transmitted easily	it's not an airborne disease; people can still eat together
People with HIV/AIDS are part of the community	they are part of the community; they have the right to live in the community; they are our brothers
People with HIV/AIDS need support	they will develop mental problems if isolated; they need moral support; they need to have access to medication; they need to have access healthcare
People with HIV/AIDS have rights	they have human rights; they have rights equal to everyone else
It is a dangerous disease	people with HIV/AIDS have a severe disease
HIV/AIDS was decided by God so they should be accepted	contracting HIV/AIDS is decided by God - therefore we should accept people with HIV/AIDs
People should be accepted otherwise they will be a risk to the community	if not accepted, people with HIV/AIDS will purposely transmit it to others; If not accepted, people with HIV/AIDS will hide their status

This coding frame was then applied to the dataset beginning with a process of manual labelling. The following graphs show the frequency of the main beliefs in the training dataset created for initial manual labelling. As the training dataset was randomly selected, the relative frequencies of the codes can be expected to hold across the full dataset of relevant messages. This dataset was used to train an algorithm to automatically label the most frequent codes across the entire dataset: HIV/AIDS can spread easily; HIV/AIDS cannot be transmitted easily; and PLWHA need to be taken to specific medical centres.

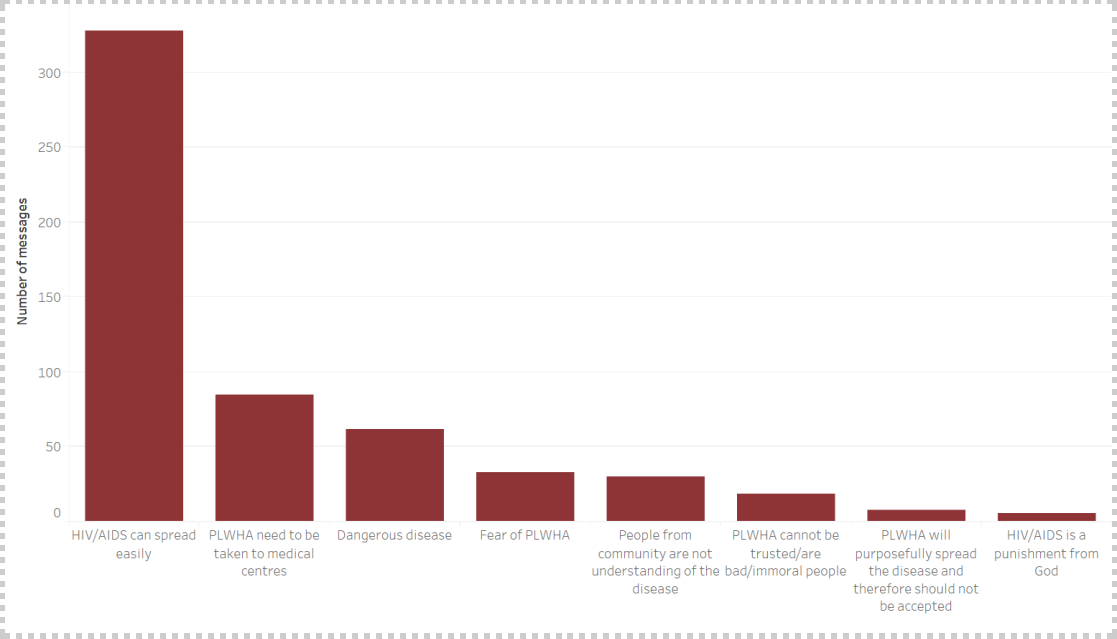


Figure 5: Most frequent beliefs associated with lack of acceptance of PLWHA, training dataset (n=569). One message may have more than one code if it contains several beliefs.

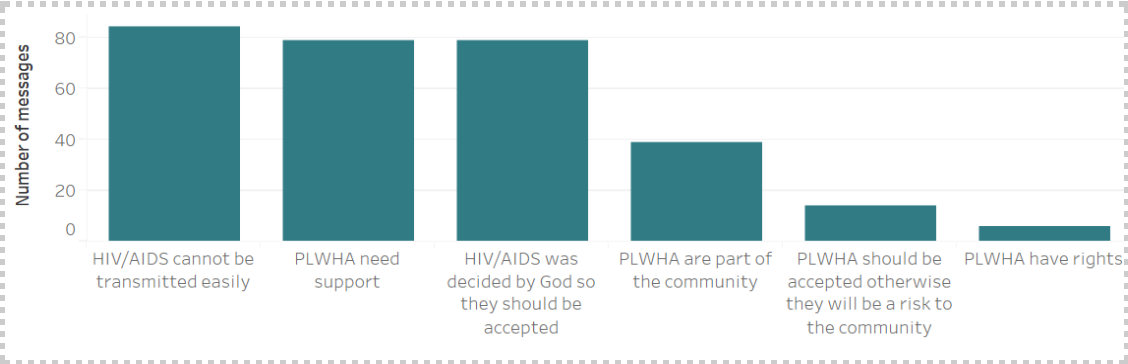


Figure 6: Most frequent beliefs associated with acceptance of PLWHA, training dataset (n=301). One message may have more than one code if it contains several beliefs.

4.1.1 Variations in perception of acceptance towards PLWHA by geographic area and socio-demographic groups

The perception of acceptance towards PLWHA is mixed: 42.4% of messages (2027) said that PLWHA were accepted in their community and 57.6% of messages (2755) said that they were not. This sub-section briefly shows how these perceptions vary by sociodemographic group. In the following sub-section, we will also describe in detail the different beliefs associated with discrimination and acceptance. The beliefs described in the two coding frames are placed into two overarching categories: those associated with perceptions of discrimination of PLWHA and those associated with perceptions of acceptance of PWLHA.

Area type: There is no variation in the perceptions of stigma against PLWHA in major urban centres (42.8% messages expressed acceptance) when compared to other areas (41.0% messages expressed acceptance). However, there are distinct demographic

patterns related to age and gender across these areas: younger men (15-19 years) generally and women outside urban centres perceive more stigma against PLWHA in their communities.

Gender: Both genders perceive stigma against PLWHA in their communities (41.0% of messages from women and 44.0% of messages from men expressed acceptance). In major urban centres, perceptions of acceptance are similar for men and women (odds ratio = 1.01[36]), whereas outside major urban centres, men perceive more acceptance than women (odds ratio = 1.29), meaning that the odds for men perceiving acceptance in their community are 29% higher than the odds for women).[37]

Age: The perception of acceptance of PLWHA varies considerably across age groups. The highest acceptance is perceived in the age group 20-29 (43.9% of messages expressed acceptance) and age group 40 and older (44.0% expressed acceptance), followed by the age group 30-39 (41.7% of messages). The age groups with more perception of stigma are 15-19 (36.0% of messages expressed acceptance) and 10-14 (27.0% of messages expressed lack of acceptance). The general age pattern of younger age groups showing more stigma holds across geographical areas. But for major urban centres, the heightened perception of stigma in the 15-19 age group compared to the 20-29 age group is even bigger (odds ratio=1.75[38] for major urban centres and 1.47[39] for outside urban centres).

4.1.2 Main beliefs around transmission and relationship to discrimination or acceptance

The beliefs expressed by participants around discrimination and acceptance of PLWHA were varied. Two frequent, and contrasting, beliefs found in the messages were:

A. PLWHA are discriminated from the community because HIV/AIDS can spread easily;
B. PLWHA are accepted in the community because transmission is not possible through everyday contact and interactions.

These beliefs were frequent enough to allow for a statistical analysis to show how their prevalence varied by different demographic groups and geographic areas. By focusing future shows on other interesting qualitative insights, it will be possible to do a similar analysis for other beliefs. This section first describes in detail these two conflicting beliefs and then shows how they vary by group.

A. Main belief related to discrimination: PLWHA are rejected from the community because HIV can spread easily

Many responses expressed the idea that the infection was easily communicable and therefore PLWHA are discriminated in their community. Specific misconceptions included

[36]These results are controlled for age group through binary logistic regression.
[37]To compare proportions of responses among sociodemographics groups, we calculated odds ratios. Odds ratios compare the odds of a response to occur (e.g., likelihood of acceptance *vs* discrimination of PLWHA) between socio-demographic or other groups (e.g., men vs women). If odds ratio=1, the odds are the same in both groups.
[38] These results are controlled for gender through binary logistic regression.
[39] See note 34.

the belief that HIV could spread through bodily contact, shaking hands, greeting PLWHA, touching or sharing clothes of PLWHA, and eating with PLWHA:

> "No [PLWHA are not accepted] because HIV/AIDS is among the diseases which can be transmitted through greetings, sharing of clothes, eating together, sex and the like. Therefore to avoid it spreading into the other healthy people it is good that they are quarantined." - Female, Mogadishu

> "First you avoid talking to people living with HIV/AIDS, avoid shaking their hands, avoid eating from their plates and don't wash their cloths. In rural areas avoid touching their clothing (left on the sand outside where they slept). " - Male, Burco

> "No [PLWHA are not accepted because the community] believe that s/he can infect them easily through greeting" - Male, Mogadishu, 40

There were also many voices that suggested in more general terms that the disease was highly contagious and could spread easily:

> "No [PLWHA are accepted] because it is a disease which spread very fast" - Female, Mogadishu 19

The belief that PLWHA are discriminated because the infection spreads easily is expressed equally by both genders (52.9% of messages from women and 51.9% of messages from men expressed this belief), but with a minor variation: *in major urban centres men are more likely than women in these areas to endorse this belief* (odds ratio=1.20[40]) as depicted in Figure 7. By contrast, outside major urban centres there is little difference between men and women (odds ratio =1.01).

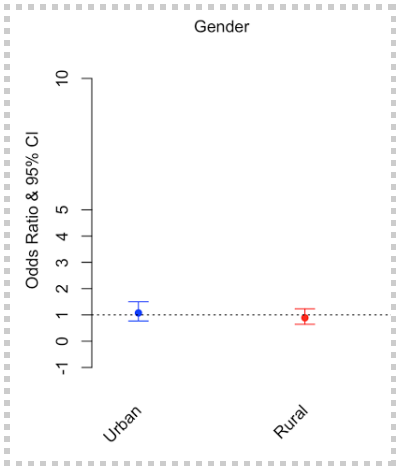
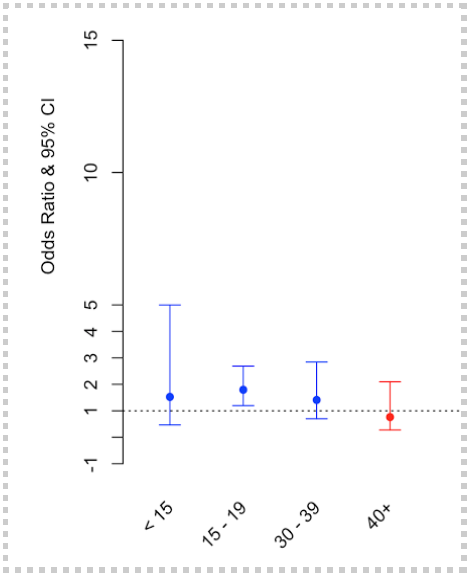


Figure 7 (right): Odds ratio and 95% confidence interval for main belief related to discrimination of PLWHA. Blue means odds for men>odds for women; Red means odds for women>odds for men.

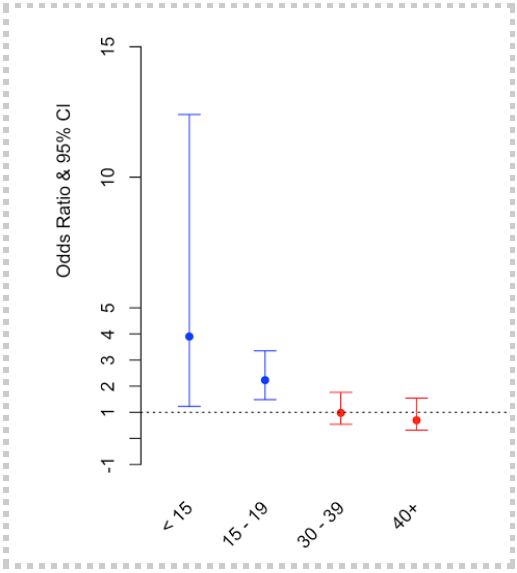
The age pattern for the belief that the infection easily spreads varies with the type of area. In major urban centres, this belief is less likely to be expressed by 20-29 years old, when compared to other age groups, except age group 40 years and older[41]. Outside these urban centres, this belief is less likely to be expressed by age groups 20 and older when compared to younger age groups. *Overall, these results suggest that younger age groups (up to 20 years old) think that their community stigmatises PLWHA because the infection spreads easily.*

[40] See note 34.

[41] When controlled for gender, the belief (spread easily) is also more more likely to be expressed by 40 years and older when compared to 20-29 years. The result changes because older people from urban centres in this study are more likely to be men.



Major urban centres



Outside urban centres

Figures 8 (left) and 9 (right): Odds ratios and 95% confidence interval for main belief related to discrimination of PLWHA (it can spread easily). The baseline for comparison is age group 20-29 (thus does not appear). Blue means odds for age group having this belief>odds for age group 20-29; Red means odds for age group having this belief<odds for age group 20-29.

B. Main belief related to acceptance: PLWHA are accepted in the community because transmission is not possible through everyday contact and interactions

In contrast, many argued that transmission of HIV was only possible via exposure to certain bodily fluids and sexual intercourse. They often stressed that everyday contact and interaction could not lead to infection. Saliva was occasionally referred to, erroneously, as a vector for HIV.

> "Yes [PLWHA are accepted] because HIV/AIDS is not transmitted through social interaction; it is transmitted through exchange of fluid or blood between people. Therefore the community should not quarantine people living with HIV/AIDS." - Female, Balcad

> "Yes [they are accepted] because it is not easily transmitted, hence they are allowed" - Female, Bosasso, 23

> "Yes [PLWHA] are allowed because AIDS is not transmitted through touch, air or sharing of cloths etc" - Female, Hargeisa

> "Yes you can live with [PLWHA], you only avoid their body fluid, blood, inter-course, their toothbrush and the likes" - Female, Hargeisa

The belief that PLWHA are accepted because HIV transmission is not possible through everyday contact was expressed more by women than by men (56.6% of messages were from women and 43.4% of messages were from men). Outside major urban areas, the gender gap is wider (odds ratio for male vs female=0.55[42]) compared to urban areas (odds ratio for male vs female=0.70[43]).

This belief is more common among those aged 20-29 years old when compared to the other age groups. But in urban areas, this belief is more common among those aged 40 years and older compared to all groups.

The results for the belief that HIV/AIDS cannot spread easily were consistent with the results for the belief that HIV can spread easily. However women in rural areas simultaneously perceive more stigma and also endorse the belief that the infection doesn't spread easily. This result suggests that they may not agree with the beliefs for discrimination in their community.

4.1.3 Other beliefs for discrimination against PLWHA

Perceptions of stigma against PLWHA had a number of justifications and related ideas. A pattern in the data related to the belief that HIV was easily communicable was the idea expressed by many voices that PLWHA needed to be **isolated in specific centres**. This was linked to two different motivations, one to ensure that they received specific medical treatment and support, and the other to make certain that risk to other people in the community was reduced:

> "[PLWHA] are not allowed because it is a killer disease which spreads. They should be quarantined and placed in specific centre of support" -Unknown

> "No [PLWHA are not accepted] because that disease has no cure, they should be taken to a separate place, taken care of and given helpful medication" - Female

> "No [PLWHA are not accepted] because the disease is dangerous and anyone infected should be quarantined. May Allah protect us all from it." - Unknown

> "No [PLWHA are not accepted] because they should be taken to a specific place where they can be treated" - Female, Baardheere

Another belief expressed by participants was that those with HIV/AIDS sought to **spread the disease *purposefully*** as an act of vengeance or jealousy for having become infected with the disease:

> "You cannot welcome someone with HIV/AIDS because they will spread it to take revenge. Nowadays there are some PLWHA with organisations or lead organisations and spread it maliciously. They are well-funded" - Male, Burco

[42] See note 34.
[43] See note 34.

"No [PLWHA are not accepted] most [PLWHA] apart from a few who believe in God's will are malicious and will spread the disease in the community" - Female, 14, Bossaso

Others voices argued that the perceived **severity of the disease** was justification for exclusion of PLWHA. They believed that those with HIV/AIDs were likely to die soon, often specifying there was no cure:

"No [PLWHA] are not allowed into the community because they are believed to be people who will die soon and not live long. Therefore, people avoid living and interacting with them and they are stigmatised." - Male, Mogadishu

"No [PLWHA] are not allowed [in the community] because they have a killer disease with no cure"- Male, Cabudwaaq, 16

"No [PLWHA are not accepted] they are discriminated because of the disease as it is a dangerous disease" - Female, Bossaso, 26

"No [PLWHA are not accepted] because this person is carrying a killer disease therefore they are not allowed"- Male, Mogadishu, 14

Another issue participants raised was the idea that those who caught HIV were somehow **immoral or untrustworthy**. This was often explicitly associated with the idea that in order to become infected with HIV, people had to have committed adultery. Otherwise this accusation was often implicit:

"No [PLWHA are not accepted] because our people think that anyone who is infected is due to immorality [adultery] and that is why they are discriminated." - Female, Hargeisa

"Salam Aleykum. If I give my opinion on people with HIV/AIDS they are not allowed to get into the community. They have a serious disease and can possibly cause problems if allowed in. I would have loved that they be put in centres out of the community because they are adulterers and cursed. May Allah protect us" - Female, Belet Weyne, 12

"No [PLWHA are not accepted] because it is a disease which people don't like and it is believed the infected people are bad people." - Unknown

Linked to this belief, was the idea expressed by many participants that **HIV/AIDs was a punishment by God**, especially for acts such as adultery and other sexual activity outside of marriage:

"Yes [PLWHA are not accepted] because it is viewed as punishment from Allah and that is what our prophet foretold us; "When people take Allah's commands lightly they will be faced by disease whose cure is unknown to them". And the community truly believe it is transmitted through adultery and the use of condoms and the likes which encourages adultery and unlawful sex. 99% get infected through

> adultery, only 3% get infected without doing anything wrong. [HIV/AIDS] come from Christian countries. " - Male, Hargeisa

> "Someone with AIDS is not allowed into the community because they are people who transgressed from Allah's path." - Bosasso

This was in some instances generalised to the belief that Muslims do not get AIDS.

Other more general expressions of **fear and hatred of people** with HIV/AIDS formed part of the discussion:

> "People living with HIV/AIDS are not allowed because they are not seen as part of the community. Even their children are chased from school " - Jowhar, 40

> "No [PLWHA are not accepted] because [the community] fear[s] people living with that disease" - Male, Beletweyn

> "No [PLWHA are not accepted] because they are like someone carrying an IED on their back" - Male

A number of participants argued that a **lack of understanding** of how HIV/AIDS is transmitted is the problem. These included both people who expressed their own lack of knowledge as driving their own discrimination against PLWHA, as well as those who pointed to the ignorance of others as the cause of discrimination.

> "No our people don't welcome people living with HIV because our people don't know how the disease spreads. Thank you" - Female, Sheikh

> "Mostly [PLWHA are not accepted] because the community has a wrong idea on how it is transmitted and it could have been good to have awareness on stigmatisation" - Male, Bossaso

Though these codes capture patterns in the data, it is important to remember that there were still a number of other misconceptions and beliefs that did not necessarily fit these patterns demonstrating the diversity of responses and viewpoints, for example:

> "No AIDS is brought by the skin-lightening cream, that cream has a poison called mergal. That is the cause of AIDS" - Balcad

4.1.4 Other beliefs for acceptance of PLWHA

There were also many voices that expressed acceptance towards PLWHA, making a case for their inclusion in the community in a number of ways. Many emphasised that people with HIV/AIDS were **part of the community**, often using fraternal language, and stressing that discrimination was not acceptable.

"Yes [PLWHA] are our brothers, we should welcome them and make them feel happy. We should not discriminate them." - Female, Burco

"yes [PLWHA] are allowed because discrimination is not good. We eat with them, we sleep with them, we befriend them. They are part of the people" -Female, Bossaso, 17

Others grounded their acceptance of PLWHA in the language of **rights:**

"Yes [PLWHA are accepted] because it is God's will and their human rights need to be protected" - Male, Garbahaarey

"Yes [PLWHA are accepted] because they have rights like other people, like the right to education, health etc" - Female, Hargeisa

For others, the justification that PLWHA are **accepted was related to religious belief**. Specifically, people believed that as all things were determined by God's Will, including whether or not someone was infected with HIV/AIDs, no one should be discriminated against because they had a certain disease. It is therefore clear that religious belief in Somalia could be associated with both positive and negative attitudes towards PLWHA:

"Yes [PLWHA are accepted because] AIDS is due to God's wish and no one can protect themselves from it. It affects both the good people and the bad." - Ceel Afweyn

"*Asalaamu alykum*. Yes [PLWHA] are allowed because the disease is brought about by God and they should not be discriminated. They should be treated." - Unknown

"Yes [PLWHA are accepted] because the religion does not teach us to discriminate a Muslim" - Male, 28, Bari

"Yes, [PLWHA are accepted] - discrimination is *haram*, we are Muslim people" - Mogadishu

On a more practical level, some voices stressed that PLWHA are **accepted so that they could receive appropriate levels of moral and social support** as well as assistance in accessing medication. Otherwise PLWHA might end up suffering unnecessarily or even taking their own life:

"[PLWHA are accepted] because he is a living being who needs to live; they should not therefore be discriminated and driven out of the community. He should get medication, food and clothing and medical help. While we know it has no cure again it is important the person gets medical help that is effective." - Mogadishu

"Yes [PLWHA are accepted] because the infected person should not be demoralised, they are helped so that they go to health centres and get medical assistance" - Male, Bossaso, 24

"Yes sickness and health comes from God, so sick people should be supported, given medication and pray for their health." -Hargeisa

"Yes [PLWHA are accepted] because if they are discriminated from the community they can kill themselves." - Male, Burco

Lastly, some people argued that PLWHA are **accepted in order to avoid them becoming resentful and then purposefully spreading the disease**:

"Yes [PLWHA are accepted] because if he is discriminated he will do cruelty and malicious acts. They should be welcome - eat with them, socialise with them apart from sex, sharing needle, shavers, and blood transfusion" - Male

"People with HIV/AIDS should be welcomed and encouraged. If they are not welcomed they can spread the disease" - Female, Cadaado

It should also be noted that a number of people asked questions to the experts on the radio show. These included questions about the cause, transmission, and symptoms of HIV/AIDS. The questions were not suitable for analysis into collective beliefs, but further demonstrate a wider curiosity and interest in discussing the disease, as well as gaps in knowledge:

"How can the HIV virus be prevented?" Male, Hargeisa, 20

"How can one get infected with AIDS?" - Male, Cadale, 32

"What are the signs that show [an infection of] HIV/AIDS?" - Male, Lower Jubba, 52

4.2. Associations between beliefs and uptake of HIV/AIDs testing

This section reports the findings on the following research question: **Is the practice of people requesting a HIV/AIDS test during ANC visits associated with perceived acceptance of PLWHA in their community and how does this practice vary between demographic groups?**

Table 4: Results and response rates for requests for HIV/AIDS tests during ANC visit.

Practice	Question	Group asked	Yes%	RR%
Uptake of HIV test at ANC visits	**Have you or your wife ever requested an HIV/AIDS test when having ANC check-ups?**	**S03E07**[44]	32.4	29.2
		S03E08[45]	35.8	32.9
		Total	34.4	31.2

Table 4 shows that requesting an HIV/AIDS test does not differ significantly between the group who listened to and participated in the HIV/AIDS show (S03E08) and those who had

[44] Participants who participated in the previous show concerning early initiation of breastfeeding were asked the question on practices as a sample of people to compare who may have had less interest/reason to engage in HIV/AIDS show.
[45] This was the HIV/AIDS show. Only these participants had their practices analysed for associations with beliefs.

only participated in the previous show on early initiation (S03E07) [z=-0.52, p>.05], showing that the prevalence of requesting HIV/AIDS tests was not affected by self-selection of participants in the HIV/AIDS show based on interests or experience with the disease.

Due to the lack of representativeness of the group of participants, the total figure for practices cannot be generalised to the Somali population and should not be taken to be an indicator of prevalence of uptake of HIV tests at ANC. However, by making comparisons amongst different groups we are able to indicate which demographic groups are more likely to practice the appropriate health behaviour.

It should also be noted that a number of responses showed offence taken at being asked this question, as it was seen as an insinuation of adulterous practices. Further audience questions would have to be created with due diligence to avoid similar reactions. This could be achieved by robustly pre-testing the questions with the diverse groups that constitute radio audiences, through focus groups discussions.

The joint analysis of answers to the radio show and answers to reported practices allow us to conclude that: **People who perceive that their community accepts PLWHA are twice (111%) more likely to have asked for an HIV/AIDS test in an antenatal check-up if they live in a major urban centre. If they live outside an urban centre, they are only 20% more likely to have asked for an HIV/AIDS test at an antenatal check-up.**[46] This is consistent with other qualitative research that identifies discrimination and stigma around HIV/AIDS as a key barrier to uptake of services around the disease, including testing, counseling and treatment.[47]

The graphs below depicts the counts for participants who answered 'no' and 'yes' to the question on whether they would ask for an HIV/AIDS test at an antenatal check-up for main demographic groups.

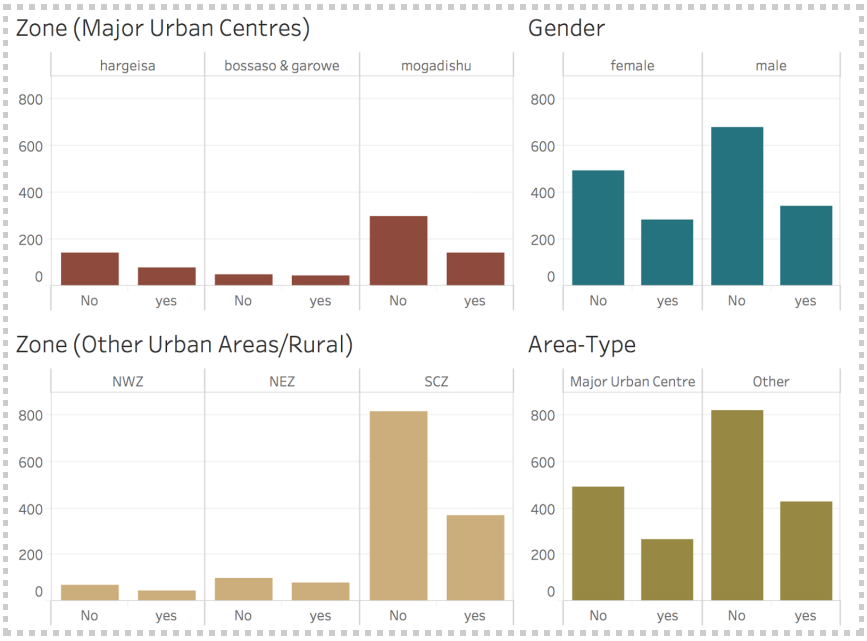


Figure 11. Uptake of HIV/AIDS tests at ANC by demographic group

[46] These results are controlled for gender through binary logistic regression.
[47] BBC Media Action, (2012), UNDP Somalia HIV Project Formative Research Report. See https://erc.undp.org/evaluation/documents/download/6162

Men are less likely than women to say that their wives/themselves had requested an HIV/AIDS test at an antenatal check-up (odds-ratio=0.88) and people aged 15-19 and 20-29 are more likely than other age groups. These results are naturally biased by the opportunity of going to antenatal checkups and suggest that men may not be aware that their wives had requested an HIV/AIDS test during antenatal check-ups.

People who live in major urban centres are more likely to had asked for an HIV/AIDS test at an antenatal check-up compared to people who live outside urban centres (odds-ratio=1.13[48]). This pattern applies to all age groups, but it is more pronounced for age groups 20-29 (odds-ratio=1.23[35]) and 30-39 (odds-ratio=1.29[35]), to which antenatal check-ups are more applicable.

Across geographical zones (NWZ, NEZ and SCZ) there is some variation in the requesting of HIV/AIDS tests at ANC check-ups. The results suggest that people in Mogadishu are less likely than those in other major urban centres to have asked for a HIV/AIDS test. The same pattern was observed outside major urban centres in the same zone (SCZ).

[48] See note 34.

5. Conclusions & recommendations

Interactive radio as a research and evidence-driven C4D tool for HIV/AIDS: Our one-off show on HIV/AIDS proved that it can be a topic explored via interactive radio in Somalia. When rigorous analyses are applied to the SMS data gathered, this can be a valuable tool, complementing other evidence bases, for deepening, nuancing and updating our understanding of Somali people's perspectives and knowledge of HIV/AIDS.

Qualitative insights into collective beliefs and attitudes can be garnered across geographically widespread groups. Hypotheses can be tested ahead of programme decision-making and new lines of enquiry can be explored. Follow-up SMS survey questions can be targeted to specific audiences to build knowledge around priority groups for UNICEF's programmes. Participation and engagement is likely to build over time with successive shows on HIV/AIDS, as more people are aware of and comfortable talking about the disease in this format. The sensitivity and comprehensibility of questions can also be improved by incorporating robust methods for testing questions before implementation.

Additionally, and importantly, when deployed in a robust manner, interactive radio research can track social change over time. Research might be designed in order to assess progress amongst and between socio-demographic groups: in their collective beliefs and in their social norms. As the group of engaged audience members grows, change over time can also be assessed using follow-up SMS surveys, independent of the radio shows.

Certain key findings of this initial study are worth highlighting; each finding is paired with a recommendations worthy of reflection by the UNICEF team.

Finding 1: Those who perceive acceptance of PLWHA in their communities are more likely to have requested HIV/AIDS testing during ANC visits, particularly if they live in major urban centres. Perceived stigma signals what is sanctioned by others and therefore shapes individual attitudes and behaviours.

Recommendation: UNICEF should direct C4D interventions towards combatting discrimination against PLWHA and reinforcing the perception that others follow positive practices to improve uptake of HIV/AIDS services, as well as improve the quality of life of PLWHA.

UNICEF behavioral change programming should be based on a theory of change in which interventions directed towards changing social norms towards PLWHA are assessed against wider behavioral objectives to increase uptake of HIV/AIDS services.

UNICEF should continue to develop, test and deploy innovative approaches to monitoring and evaluation of behavior change interventions that deal with stigma, especially those that operate through mass media.

Strategies to reduce stigma should involve community members in designing interventions focused on reshaping social norms. For example future radio shows could broadcast diverse voices supporting PLWHA and testimonials from PLWHA that correct common misconceptions.

Finding 2: Beliefs that support discrimination of PLWHA are most prevalent among young people (up to 20 years old), especially men, living in major urban centres. Conversely, beliefs that support acceptance of PLWHA are more prevalent among women (20-29 years old) living outside urban centres. Beliefs related to acceptance offer an entry point for strengthening social norms that can catalyse behavioural change**.**

Recommendation: HIV/AIDs programming often targets specific high-risk populations, but UNICEF should also target these broader groups to promote positive practices and to improve knowledge - ultimately this will also impact on desired biomedical, social and behavioral outcomes.

The information should be disseminated from within these key groups (eg. young urban men) to avoid resistance, for example, by partnering with community based organisations (CBOs) to design a campaign or to invite representatives of these groups to radio shows to promote positive views.

Understanding how interaction with media and information varies by group will be essential to effective behavioural change programming. More research is required on Somalia's fast-changing media landscape, particularly the emergence of social media and instant messaging, and how these could be best leveraged to engage specific groups in discussion around HIV/AIDS.

Finding 3: A lack of knowledge of how HIV/AIDS is transmitted is seen as a clear obstacle to developing acceptance of communities towards PLWHA. This was reinforced by the converse finding, that knowledge of transmission was given as a common reason for the belief that PLWHA are accepted in the community. The belief that HIV/AIDs is easily spread is especially prevalent amongst young people (under 20) and men in urban areas.

Recommendation: UNICEF's C4D programming should combat key misconceptions, especially the idea that physical contact and everyday interaction can spread the virus. Discussion of bodily fluids and sexual intercourse as the avenues of transmission, however, needs to be carefully judged against the misconception that HIV/AIDS is only transmitted through adultery and other sexual practices perceived by many Somali people as immoral.

To broaden knowledge that builds from narrow extant bases, C4D messaging, co-designed with community input, could stress that HIV/AIDS can be transmitted via a number of bodily fluids, including breast milk and blood, as well as all kinds of unprotected sex.

Finding 4: The belief that HIV/AIDS quickly results in death and cannot be managed by medication is also related to perceptions of stigma towards PLWHA. Conversely, many participants who argued for the inclusion of PLWHA in the community did so because they understood that with appropriate social, medical, and psychological support PLWHA could be functioning members of the society and not a threat to others. They also think that by ensuring their well-being, they will not spread the disease.

Recommendation: UNICEF's multimedia C4D HIV/AIDS strategy should work with those in its existing network of PLWHA who are comfortable to speak publicly about their lives, to allow audiences to understand that PLWHA can live normal lives with appropriate support. By giving them a range of platforms, such as further radio shows on HIV/AIDS, television and other media formats, such an intervention can help to dispel the notion that PLWHA require special, or even isolated, medical centres for effective treatment.

Finding 5. Religious beliefs are related to both acceptance *and* discrimination towards PLWHA. There exists evidence that some Somalis hold the belief that as the status of PLWHA is determined by God's will, PLWHA should therefore be accepted in society.

Recommendation: UNICEF Somalia's behavioural change programming should build from existing beliefs amongst groups of citizens, and should include voices of moral authority in disseminating acceptance beliefs, rather than risk polarising the discussion and hardening negative viewpoints. C4D messaging can and should draw on the relationship between religion and health, especially if done in tandem with further involvement from the community and religious leaders.