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Studying misinformation in refugee settings:

Lessons from a pilot
study in the Democratic
Republic of the Congo

LESSONS
LEARNED

Key words:

information bombardment

information seeding

interactive voice response

misinformation

source labelling

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Conflicts of interest:

Elrha, a leading actor in humanitarian research and innovation, supported research for this Groundwork. The funder did not influence the results.

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Table of contents

| | |
|--|----|
| Abbreviations and acronyms | 4 |
| Executive summary..... | 5 |
| Study details | 7 |
| Interventions | 8 |
| Intervention 1 | 8 |
| Intervention 2 | 12 |
| Study design | 13 |
| Findings | 15 |
| Recruitment of participants..... | 15 |
| Adherence and completion of the intervention | 18 |
| Saliency of the intervention | 22 |
| Conclusion | 25 |
| Increase response rates..... | 25 |
| Design strategies to maximize uptake and adherence to the intervention..... | 26 |
| Complexities associated with interpreting sources require us to rethink the source intervention | 27 |
| Logistics can derail a study | 27 |



Tables

| | |
|---|----|
| Table 1: Study design..... | 14 |
| Table 2: Recruitment summary | 16 |
| Table 3: Summary of participants not reached at endline | 17 |
| Table 4: Engagement with the IVR (self-reported data) | 19 |
| Table 5: Engagement with the IVR (systems data), Call 1 | 19 |
| Table 6: Engagement with the IVR (systems data), Call 2 | 20 |

Abbreviations and acronyms

| | |
|-----|----------------------------------|
| DRC | Democratic Republic of the Congo |
| IDP | Internally Displaced Person |
| IVR | Interactive Voice Response |
| RCT | Randomized Controlled Trial |
| WHO | World Health Organization |

Executive summary

Supported by Elrha, Busara sought to evaluate the effect of different messaging strategies on improving knowledge and perceptions of COVID-19 within refugee and internally displaced persons (IDP) settings. As part of the main randomized controlled trial (RCT), we ran a pilot study in the Democratic Republic of the Congo (DRC), where we delivered an Interactive Voice Response (IVR) call containing information about COVID-19, which was subject to debate and misinformation in the community. We wanted to experimentally test the effect of attaching a reputable source to COVID-19 public health messaging on a shift in COVID-19 perceptions—meaning, do people believe information more if they trust the source?

The purpose of the pilot was to assess the feasibility and acceptability of the intervention, study design and procedures to inform the main RCT. This document outlines lessons learned and further reflections from the pilot study on the design and delivery of the intervention and study design. These are especially valuable insights as it proved not feasible to conduct the planned RCT. However, our lessons provide an intriguing perspective into information consumption and dynamics in refugee settings. Additionally, they might apprise future similar research designs seeking to deploy IVR technology to test the effects of information bombardment, information seeding, or source labelling.



Key lessons include:

Reaching people through IVR is challenging: 67 percent of the individuals we called picked up at least one of the two IVR calls. Only 21-25 percent of the people stayed on to hear all three messages. Problems like network, suspicion, and lack of sensitization may obstruct the reach of and engagement with digital campaigns.

People may categorize sources of information very broadly: in this case, various humanitarian organizations were simply viewed as the category 'humanitarian organization.'

What people hear when they listen to a message may depend on who they are: Social and psychological mechanisms could influence how individuals interpret the source of the message. Our intervention design did not account for these heuristics that influence the role of each source on information veracity.

Study details

As part of a larger RCT that Busara had planned to run in the DRC and Somalia, we conducted a pilot study in late 2020 to assess the feasibility and acceptability of the intervention, study design, and procedures.¹ More specifically, our objectives were to:

- a. assess the **feasibility of recruitment** (including the conversion rate of participants from a database and the time required to recruit participants);
- b. assess **adherence to and completion of the intervention** (i.e., do participants answer and stay on the IVR call for the entire time);
- c. assess whether the **intervention was delivered and received as intended** (i.e., the treatment attaching a reputable source — salient to the participants).

1 Schomerus, Mareike, Kritika Gorur, Pooja Gupta, et al., “A Complicated Relationship: Bringing Behavioral Science into the Fight Against Health Misinformation in a Pandemic in Displacement Settings,” Busara Groundwork (Research Agenda) (Nairobi: Busara, 2023).



Interventions

We implemented two interventions, described below:

Intervention 1

We delivered critical information about COVID-19 through an IVR call. This information aimed to dispel misconceptions about “i”) the risk of contracting COVID-19 and ii) the risk of falling severely ill with COVID-19. The control group received the following as voice messages two times each over a week:

Message 1: *“Good day. Please stay tuned for an important message regarding the coronavirus. Seven out of 10 coronavirus patients in South African hospitals are black Africans. The virus attacks people of all skin colors. Protect yourself!”²*

² Source: National Institute for Communicable Diseases, Covid-19 Sentinel Hospital Surveillance Update, ed., <https://www.nicd.ac.za/wp-content/uploads/2020/07/NICD-COVID-19-Weekly-Sentinel-Hospital-Surveillnace-update-Week-30-2020-updated.pdf> (Pretoria: National Institute for Communicable Diseases, 2020), Week 30.

Message 2: *“Good day. Please stay tuned for an important message regarding the coronavirus. Please be careful in crowded indoor spaces during this time. It may be possible that the coronavirus can spread through the air where there is poor ventilation. One person can infect dozens. Protect your family and friends, and take extra precautions if in a crowded indoor space!”*³

Message 3: *“Good day. Please stay tuned for an important message regarding the coronavirus. Obesity places those infected by coronavirus at a much higher risk for serious illness and death. Practice healthy habits and stay safe!”*⁴

The first treatment included attaching a source labelling intervention to the control group. In this treatment, participants were informed about the source of the COVID-19 information they received. Participants in this group received two IVR calls over the week. The objective was to assess

3 World Health Organization, Transmission of SARS-CoV-2: Implications for Infection Prevention Precautions: Scientific Brief, ed., <https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions> (Geneva: WHO, 2020), July 9.

4 Rebello, CJ, JP Kirwan, and FL Greenway, “Obesity, the Most Common Comorbidity in SARS-CoV-2: Is Leptin the Link?,” *International Journal of Obesity* 44, no. 9 (2020).



whether adding a reputable source to COVID-19 information increases trust, improves knowledge and perceptions about COVID-19 compared to the messages without the source.

Message 1: “Good day. Please stay tuned for an important message regarding the coronavirus. 7 out of 10 coronavirus patients in South African hospitals are black Africans. The virus attacks people of all skin colors. Protect yourself! This is according to the South African government.”

Message 2: “Good day. Please stay tuned for an important message regarding the coronavirus. Please be careful in crowded indoor spaces during this time. It may be possible that the coronavirus can spread through the air where there is poor ventilation. One person can infect dozens. Protect your family and friends, and take extra precautions if in a crowded indoor space! This is according to the World Health Organization.”

Message 3: “Good day. Please stay tuned for an important message regarding the coronavirus. Obesity places those infected by coronavirus at a much higher risk for serious illness and death. Practice healthy habits and stay safe! This is according to information from scientific researchers.”

The second treatment combined source labelling with information bombardment. In this treatment, we attached a malaria prevention message to the original series of three COVID-19 messages along with their source.⁵ The rationale for including this treatment was to understand the impact of attaching a source when multiple public health messages are disseminated. This was meant to mimic the real environment of refugees, where they are exposed to multiple public health messages simultaneously.

Malaria Message: *“Good day. Please stay tuned for an important message regarding malaria. Malaria is a dangerous disease and an ongoing threat. Reduce your risk of infection by wearing long sleeves. Stay protected!”*⁶

⁵ This message was selected because preliminary research confirmed that malaria was a significant public health threat to residents in all study locations.

⁶ National Health Service (UK), “Malaria,” NHS.



Intervention 2

The second intervention aimed to understand the channels through which public health news/information travels in refugee and IDP settlement populations. We designed an information seeding exercise that provided a small subset of study participants (who are not part of Intervention 1) information about COVID-19. This message corrected misinformation about dogs and cats spreading COVID-19 to humans. We were interested in understanding the channels through which this information spread across communities.

Info Seed Message: *“Good day. Please stay tuned for an important message regarding the coronavirus. Evidence shows dogs and cats can carry the coronavirus. However, it does not suggest that these animals are a significant source of infections for humans. Please spread this information so that all may stay informed!”⁷*

⁷ Source: Center for Disease Control and Prevention, “Animals and Covid-19,” CDC.

Study design

We recruited participants into the study and conducted a baseline survey with all participants to capture existing attitudes, perceptions, and behaviors around COVID-19. After baseline, we adopted an experimental approach, randomly assigning individuals in our sample to one of the four study groups. The intervention (two IVR calls) was implemented one to two weeks after the baseline, where each group received the call with the requisite treatment or control messaging. After 11 weeks of the intervention,⁸ we conducted an endline survey to measure our key outcome variables, including change in perceptions between the baseline and the endline, veracity in the information they received in the IVR call, and willingness to share such information with others in their community.

The table on the next page sums up the study design:

⁸ The delay in conducting the endline was caused due to logistical challenges in navigating the payments infrastructure in DRC. Payments coming from international banks took longer to reflect in the field team's bank accounts and led to larger deductions in the form of processing fees. Additionally, some payments did not reflect in the staffs' bank accounts, leading to payments being made twice.



Table 1: Study design

| Study arms | Intervention 1 | | | Intervention 2 |
|-------------------------------|--|------------------|--|---------------------|
| | Control | Treatment 1 | Treatment 2 | |
| Intervention | No intervention (3 COVID-19 messages) | Source labelling | Source labelling + Information bombardment | Information seeding |
| Sample size (Baseline) | n=8 | n=8 | n=8 | n=7 |
| Baseline survey (n=31) | | | | |
| Sample size (Endline) | n=4 | n=5 | n=2 | n=2 |
| Endline survey (n=13) | | | | |
| Outcomes | <ul style="list-style-type: none"> • Perceptions • Veracity of information • Willingness to share information | | | |

Key findings and lessons

Given the purpose of the pilot was to assess the feasibility and acceptability of the intervention, design, and procedures, we did not expend effort towards understanding the impact (average treatment effect) of the treatment on our outcome measures. Instead, we delved into unraveling the challenges with the intervention design and understanding how people engaged with the IVR system.

A detailed summary of our key findings follows:

Recruitment of participants

We recruited participants from a humanitarian database. We had a sample size of 50 participants at the start of the pilot. Of these, we could recruit 31 participants (62 percent) at baseline. This response rate fares well against comparable benchmarks for computer-assisted telephone interviews (56 percent).⁹ At endline, attrition increased as only 13 of the 31 participants (42 percent) answered our calls.

The table on the next page shows a summary of the recruitment:

⁹ Henderson, S and Rosenbaum, M, "Remote Surveying in a Pandemic: Research Synthesis," Northwestern/ Global Poverty Lab; Innovations for Poverty Action (IPA).



Table 2: Recruitment summary

| | Attempted | Successful | Percentage |
|-----------------|-----------|------------|------------|
| Baseline | 50 | 31 | 62% |
| Endline | 31 | 13 | 42% |

Due to logistical problems, the endline was delayed and conducted 13 weeks after baseline. This could be a potential reason for the high attrition rate between baseline and endline. Payments to the field team were delayed due to opaque financial regulations, which made the situation even more challenging.

At endline, we followed a protocol to call each participant at their preferred time. If unreachable, we called again three times a day, every alternate day, for a week (a total of nine calls) before deeming the participant as unresponsive. This protocol was found to be effective at maximizing survey response rates.¹⁰

10 Kopper, S and Sautmann, A, "Best Practices for Conducting Phone Surveys," J-PAL ABdul Latif Jameel Poverty Action Lab.

We were unable to reach five of the 18 participants because they did not answer any of the calls. This could be due to them losing their SIM cards, changing their numbers, or using an alternative number. Six participants were found to be incorrect respondents, and four refused to participate. Those who refused participation stated reasons such as being busy and lacking a financial incentive for not wanting to participate.

The table below summarises participants not reached at endline:

Table 3: Summary of participants not reached at endline

| Reason | # of participants | Total participants not surveyed | Percentage |
|-------------------------------------|-------------------|---------------------------------|------------|
| Incorrect respondent | 6 | 18 | 33.3% |
| Did not answer any call | 5 | 18 | 27.8% |
| Answered and refused to participate | 4 | 18 | 22.2% |
| Deceased | 1 | 18 | 5.6% |
| Wrong number | 1 | 18 | 5.6% |
| Keeps rescheduling | 1 | 18 | 5.6% |



Adherence and completion of the intervention

Out of 31 people at baseline, we managed to survey 13 participants at endline successfully. Of these 13 participants, we found that seven (53 percent) recalled answering one or more IVR calls. Out of these seven participants, six participants reported hearing the messages being played.

From the systems' data generated by Africa's Talking, the implementer of the IVR system, we found that out of the 31 participants who received the IVR call, 67 percent answered any of the calls. 13 people answered call 1 (42 percent) and 12 people answered call 2 (39 percent). However, this number falls drastically when measuring the number of participants who stayed on till the end of the message. Only 21-25 percent of the participants who answered the calls heard all three messages till the end.

Only 13 percent of the group who got the Malaria message along with three COVID-19 messages stayed on the call to hear the Malaria message. This indicates that our intervention reached a low proportion of people, and even once exposed, it was tough to sustain the fidelity of the intervention as people successively dropped off during the call. The table on the next page sums up participants' engagement with IVR, followed by tables that show the system's data on engagement:

Table 4: Engagement with the IVR (self-reported data)

| | # of participants | Total # of participants | % successfully reached |
|--------------------|-------------------|-------------------------|------------------------|
| Answered any call | 7 | 13 | 53% |
| Heard the messages | 6 | 7 | 85% |

Engagement with the IVR (systems data)

Table 5: Engagement with the IVR (systems data), **Call 1**

| | # of participants | Total # of participants | % successfully reached |
|-------------------|-------------------|-------------------------|------------------------|
| Answered any call | 21 | 31 | 67% |
| Answered call 1 | 13 | 31 | 42% |
| Heard message 1 | 8 | 24 | 33% |
| Heard message 2 | 6 | 24 | 25% |
| Heard message 3 | 6 | 24 | 25% |
| Heard message 4 | 1 | 8 | 13% |



Table 6: Engagement with the IVR (systems data), **Call 2**

| | # of participants | Total # of participants | % successfully reached |
|------------------------|-------------------|-------------------------|------------------------|
| Answered call 2 | 12 | 31 | 39% |
| Heard message 1 | 10 | 24 | 42% |
| Heard message 2 | 9 | 24 | 38% |
| Heard message 3 | 5 | 24 | 21% |
| Heard message 4 | 1 | 8 | 13% |

For those participants who did not engage with our system, we sought feedback on why they did not answer our calls. We received a variety of reasons, such as poor network, reluctance to answer calls from foreign numbers (as the system used a Kenyan country code), a suggestion to incentivize participation economically, and the importance of sensitizing the individuals by clearly communicating the purpose of the research and providing prior notification before making calls.

Interviewer: “We want to call people like you in the future and we are worried that some people will not answer our calls. What do you think we can do to get people to answer our calls?”

Respondent: “Request to hold a training so that they learn the goal of the calls and notify us before calling” - Male

Respondent: “I would say you give them money” - Male



Saliency of the intervention: Was the intervention received as intended?

Our original area of interest was to understand how important the source is to the trustworthiness of a message. When we asked participants who heard the messages to recall the source of the message, four out of six participants said they could not remember the source. However, since the interval between our intervention and endline survey was longer than expected, we added four hypothetical questions to our endline survey to understand the perceived source better [Appendix 1]. In all the questions, we told participants to imagine a situation where they received a phone call from Busara and a humanitarian organization with information related to COVID-19.

We diversified the information sources and asked participants to imagine explaining the information and its source to their friends. We aimed for participants to identify and describe the sources in their own language, making these questions qualitative. Our findings revealed that when we didn't specify an additional source, participants often noted the source as a humanitarian organization or Busara in the message.

In instances where we mentioned the World Health Organization (WHO) as the information source, participants interpreted it as various humanitarian organizations or a local helpline, alongside WHO.

These results suggest that the influence of the information source may not follow a straightforward pattern. Firstly, participants sometimes confused the call source with the information source. Even when the source wasn't highlighted, or the information source was clearly communicated as a different organization, people still associated the source with a humanitarian organization or Busara. In other words, they unintentionally linked any information to a source.

Secondly, our participants likely received similar information from other humanitarian organizations. Consequently, when receiving the same information, they might not distinguish between sources. They may automatically attribute it to one of the many humanitarian organizations they have interacted with in their community.

In addition, underlying psychological and social mechanisms could interact with the source of the information in offline settings and influence its change pathway. For instance, one explanation could be that source works in subconscious ways, where we reflexively and automatically interpret the source based on certain heuristics (System 1), rather than intentionally and deliberately assessing what the source of the information is (System 2).¹¹

¹¹ Kahneman, Daniel. *Thinking, Fast and Slow*. New York: Penguin, 2011.



Since our study was not designed to identify these mechanisms, we cannot hypothesize the mechanisms through which the source influences our belief and trust in the information.

For the intervention seeding strategy, we encountered challenges in assessing its reception due to the limited number of participants surveyed. At baseline, seven of the 31 participants were assigned the information seeding exercise. However, during the endline evaluation, we were only able to connect with two participants. Interestingly, both participants couldn't recall receiving the information, likely influenced by the extended period between the intervention and the endline evaluation, resulting in low recall overall. Consequently, determining the saliency of the intervention becomes impractical.

Furthermore, among the 13 participants surveyed at endline, only three remembered hearing information about cats and dogs. However, this small number doesn't provide enough clarity on whether they received this information from our seeding strategy or if it aligns with the general knowledge they already possessed.

Conclusion: Implications for future similar research designs

While we were not able to implement the full RCT, the pilot has been a purposeful exercise to understand the feasibility and relevance of this intervention and study design. We have stumbled upon important and thought-provoking questions, which are summed up in the following sections. Future research that is designed in a similar fashion might benefit from these in order to conduct a study that is valuable and relevant to inform the programming initiatives of humanitarian organizations.

Increase response rates

Since we had a fixed number of respondents from a database, we would have needed to make sure to minimize attrition across survey rounds. While the call protocol (nine attempts to be made—three per day, at different times, then a day off, then repeat) seemed feasible and useful; we would suggest sending SMS invitations to participants, notifying them about the date and time of the interview in advance. In conclusion, we suggest collecting alternative contact numbers during the baseline to address the issue of numerous unanswered calls and instances of connecting with the wrong respondent.



Design strategies to maximize uptake and adherence to the intervention

Using digital technology for information dissemination in refugee settings may be more nuanced than previously anticipated. Busara switched from an SMS-oriented intervention to an IVR call due to literacy concerns in these settings. However, IVR calls came with their own set of problems: Participants in these settings seemed to fear answering calls from international numbers due to the sensitivities around their political and social context. Additionally, network issues can obstruct successful communication in these settings. Finally, even when participants answer the call, keeping them engaged is a task. Our IVR call was less than 1 minute and 30 seconds long, yet we were only able to engage less than 25 percent of the people who answered till the end of the call.

The success of digital communication efforts may have to rely on supplementary on-ground campaigns and mobilization through community health workers to increase awareness and engagement with the intervention. While digital campaigns are the future of public health with increasing phone ownership and internet penetration, stand-alone digital interventions in refugee settings may still need an impetus from on-ground efforts.

Moving forward, we suggest that there is a need to identify the most appropriate channel for delivering an information-based intervention.

Furthermore, it is crucial to identify best practices to improve engagement including multiple touchpoints, higher frequency of engagement, advance communication with the date and time of IVR call, etc. And finally, to ensure that content is engaging to motivate people to listen to the full message and stay on till the end of the call.

Complexities associated with interpreting sources require us to rethink the source intervention

We discovered that understanding the relationship between attaching reputable sources to information and their perceived credibility and spread requires us to gain deeper insight into the involuntary processes and heuristics by which source influences our perceptions and decision-making. Most literature on source labelling focuses on online environments such as social media, where it is easier to standardize and vary the source of the information and detect the mechanisms that drive the effect.

Logistics can derail a study

Logistical challenges require as much forethought as possible. For example, it will be crucial to make provisions to assure that payments to field teams can be made in advance to avoid delays between baseline and endline.



Appendix

Four hypothetical questions that we asked in the endline survey:

Question 1: Imagine that you receive a call from the Danish Refugee Council and Busara during which they play the following voice recording: *“It may be possible that the coronavirus can spread through the air where there is poor ventilation.”* You tell a friend that the coronavirus might spread through the air and they ask you, *“Where did you get this information from?”* How would you respond?

Question 2: Imagine that you receive another call from the Danish Refugee Council and Busara during which they play the following voice recording: *“According to the World Health Organization, it may be possible that the coronavirus can spread through the air where there is poor ventilation.”* You tell a friend that the coronavirus might spread through the air and they ask you, *“Where did you get this information from?”* How would you respond?

Question 3: Imagine that you receive another call from the Danish Refugee Council and Busara during which they play the following voice recording: *“According to the scientific researchers, obesity places those infected by coronavirus at a much higher risk for serious illness and death.”* You tell a friend that obese people are at greater risk from coronavirus and they ask you, *“Where did you get this information from?”* How would you respond?

Question 4: We have collected COVID information from 3 sources: the Government of South Africa, the World Health Organization and Scientific Researchers. What words would you use to describe these sources to a friend?

About Busara

Busara is a research and advisory organization, working with researchers and organizations to advance and apply behavioral science in pursuit of poverty alleviation. Busara pursues a future where global human development activities respond to people's lived experience; value knowledge generated in the context it is applied; and promote culturally appropriate and inclusive practices. To accomplish this, we practice and promote behavioral science in ways that center and value the perspectives of respondents; expand the practice of research where it is applied; and build networks, processes, and tools that increase the competence of practitioners and researchers.

About Busara Groundwork

Busara Groundwork lays the groundwork for future research and program design. As think pieces, they examine the current state of knowledge and what is needed to advance it, frame important issues with a behavioral perspective, or put forward background information on a specific context.

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