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Applying mobile technology to address gender-based violence in rural Nigeria: Experiences and perceptions of users and stakeholders

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Abstract

This paper documents the results of an intervention conducted in 10 states and 300 rural communities in Nigeria that tested the effectiveness of a mobile phone technology device, text4life, for enabling women to self-report gender-based violence (GBV). Women experiencing GBV and other challenges in sexual and reproductive health and rights were requested to use their mobiles phones to text a code to a central server. In turn, the server relayed the messages to trained nearby health providers and civil society organization (CSO) officials who provided health care and social management services to the distressed callers. Qualitative interviews were conducted with some distressed women, health care providers, and CSO staff to explore their experiences with the device. These interviews and a quantitative analysis of the distressed women (from the server database) were analyzed qualitatively and quantitatively and form the primary data source for this paper. The results indicate that over a period of 27 months, a total of 3,403 reports were received in the server, with 34.9% of the women reporting GBV. While the interviewees perceived that a large proportion of the women were satisfied with the use of the device and many received medical treatment and psychological care, the consensus opinion was that many women reporting GBV did not wish to pursue police or legal action. This was due to women's perceptions that there would be negative cultural and social backlash should they pursue civil punishments for their partners. We conclude that a mobile phone device can be used effectively to report gender-based violence in low-resource settings. However, the device would be more useful if it pursues equitable primary prevention of GBV rather than secondary prevention measures.

Keywords: mobile phone technology, tex4tlife, gender-based violence, reporting, rural Nigerian women

Introduction

The United Nations defines Gender-Based Violence (GBV) as “an act that results in physical, sexual, or psychological harm or suffering for women, girls, men, and boys as well as threats of such acts, coercion, or the arbitrary deprivation of liberty whether occurring in public or private life”¹. Although GBV affects women and men, the incidence is higher among women, making the term predominantly used to indicate the occurrence of sexual violence against women. It has been estimated that more than one billion women around the world are affected by GBV,² making it one of the most critical social challenges in gender relationships in modern times. A recent systematic review³ reported not only higher rates of GBV in low- and middle-income countries, but also more adverse social consequences of GBV for women in low-income countries.

A systematic review and meta-analysis⁴ of the prevalence of GBV in African women reported a pooled result of 44%, with prevalence rates higher in the South and West African regions. Due to its rising incidence, especially in poor communities and regions around the world, including in sub-Saharan African countries, GBV has featured in several global documents as an important issue requiring immediate remediating actions. These include the Millennium Development Goals,⁵ the Sustainable Development Goals,⁶ and, most recently, the UNFPA agenda for achieving international social justice for women by 2030⁷.

Evidence from the 2018 Nigerian National Demographic Survey indicated that 33% of women aged 15-49 years in the country had experienced gender-based violence (GBV)⁸. In recent times, the incidence of GBV has skyrocketed in Nigeria due to rising insecurity and conflicts, especially in the northern region of the country. The most dominant forms of this violence include physical and sexual violence, emotional (psychological) violence, socioeconomic violence, cultural practices such as female genital mutilation, and violence against civilian women in conflicts. The prevalence of GBV in Nigeria is particularly high in underserved, illiterate, and hard-to-reach rural communities, making it a combined gender, equity, social justice, and human rights issue.

Although a national child rights act has been domesticated in many states in Nigeria in an attempt to stem the rising tide of GBV, a major challenge has been the low rate of reporting of cases of GBV. Low reporting of GBV by affected people occurs worldwide, which leads some authors to suggest that the published data on GBV, especially in low- and middle-income countries, is only a small reflection of the true situation.^{9,10} Low rates of reporting of GBV has also been reported in Nigeria, with some suggesting that this is attributable to cultural reasons and women’s fears that reporting could lead to negative social consequences and further retributions.^{11,12,13} Furthermore, the 2018 National Demographic and Health Survey data⁸ reported that between 40% and 80% of surveyed women in nine states agreed that it was culturally acceptable for a man to beat his wife, which further explains the non-reporting of

GBV by affected women.¹⁴ Consequently, GBV remains a persistent and unresolved challenge in sexual and reproductive health and rights programming in the country.

In 2020, at the beginning of the COVID-19 pandemic, the Women's Health and Action Research Centre (WHARC), a leading Nigerian non-governmental organization, began an innovative project with support from the United Nations Fund for Population Activities (UNFPA) and other partners to address the challenge of low reporting of GBV in the country. The project consisted of the development of *Text4life*, a mobile phone technology that employed a telemedicine approach, using unstructured supplementary service data (USSD), to allow users to report GBV to a central server. The report would also be simultaneously received by a local civil society organization (CSO) and a primary health center. These institutions would document and reach out to assist the reporting individual to receive medical care and social counselling and support. The technology was previously used effectively in 20 rural communities in Nigeria in providing emergency transportation for pregnant women who experienced complications.¹⁵

In this paper, we report our experience and the results of the use of this technology-based approach for addressing GBV in under-privileged rural communities. We then make recommendations on scaling up the approach for wider use in sub-Saharan Africa.

Methodology

The *text4life* technology was adapted from a previous device used by WHARC to rapidly transport women experiencing complications of pregnancy in rural communities to primary health centers for emergency treatment.¹⁵ Based on its initial success, UNPFA provided support to experiment with its use in reporting and managing cases of GBV at scale in rural populations in Nigeria. The UNPFA funded the project to coordinate and test the experimental use of the device in ten states. They convened a consortium consisting of three implementing partners—WHARC, Education as a Vaccine (EVA), and the Planned Parenthood Federation of Nigeria (PPFN)—and 30 CSOs. The 10 (out of 37 total) states were chosen from different regions: Lagos and Ogun (South-West), Akwa Ibom (South-South), Enugu (South-East), Kano and Kaduna (North West), Borno, Adamawa, and Gombe (North-East), and the Federal Capital Territory, Abuja. The states were purposefully selected to reflect the ethnic diversity in the country. Thirty-two communities with health facilities were randomly selected from three Local Government Areas (LGAs) per state, with at least 10 facilities/communities per LGA. Overall, 300 communities were identified to participate in the pilot of the project.

The device

The *text4life* device was designed to create an alternative means to report GBV cases and provide prompt intervention in local civil society organizations (CSOs) and primary health care centers (PHCs). To maximize its effectiveness, we opted for unstructured supplementary

service data (USSD), a communication protocol available to every basic cell phone and accessible through any mobile network operator in Nigeria. This eliminated the need for an internet connection, which would have been difficult in rural communities. (Internet penetration in Nigeria currently stands at 38%, and is mainly in urban communities). We developed a USSD application that was accessible through a quick code that, when dialed, displays user input prompts, stores user data in the cloud, and processes the input into a distress call sent to CSOs and primary health providers via Short Messaging Service (SMS). The user input is accessible through a designated website and a server installed at WHARC. As an endpoint to the USSD application, the website is also connected to a cloud database to store the USSD input. We employed this method to ensure that user information is not lost and can be accessed in real-time. For quality assurance purposes, the facilitator response is also evaluated through the same USSD interface on a mobile phone. By inputting the right keywords, the facilitators record the outcome of the distress call.

Project implementation

As soon as the technical aspect of the device was in place, the implementing partners (IPs) were each assigned to contiguous states to coordinate the project. The IPs then randomly selected three LGAs in each state, and identified one PHC and one CSO to coordinate the project in each LGA. Capacity building workshops were held to train the CSOs, the PHC personnel, and the IPs in project implementation. Mobile phones were given to the IPs, the PHC staff, and the CSOs, and a detailed explanation was provided on ways to receive messages texted by women in distress and forwarded from the server at WHARC.

The process unfolds as follows: A woman experiencing GBV or related reproductive health challenges dials a code at the central server to report the nature of the challenge. The server in turn transfers the message to the phones held by the CSOs and the nearby PHC staff, providing the identification and the location of the caller. The CSO and PHC then prepare to receive the distressed caller. A two-way message offering a direct visit by the CSO to the home of the distressed caller, was provided in the platform to enable the CSO to follow up with the caller.

Following the capacity building workshops, each CSO undertook to announce the availability of the device in their LGA through town hall meetings, posters, radio and TV messages, and social media channels. The health facility staff also disseminated information about the device during antenatal visits and immunization clinic days. Women experiencing GBV were invited to text the code, which was widely disseminated in the rural communities.

Management of GBV by health providers and CSOs

The CSOs and health providers were also retrained on how to manage women reporting GBV to them using specific protocols. The CSOs served as first responders, immediately either receiving the women in their facilities or visiting the homes of the women. CSO staff

documented the circumstances under which GBV occurred and took measures to provide assurance and to counsel the women. Thereafter, they accompanied women to the PHC, where they were received by a nurse or midwife. The health provider, assisted by the CSO staff, took further notes and a history of GBV from the women; they also examined the women for physical signs of GBV and provided treatment as necessary. The health providers were trained to provide GBV treatment in accordance with WHO recommendations. Subsequent management of the case depended on the seriousness of the problem and the preference of the woman; it could include counselling alone, counselling with the offender/partner, reporting to the police, and judicial intervention.

Data collection

Over a period of 27 months (April 2021 to June 2023), information about the text4life device was received by an estimated two million women. A total of 3403 messages relating to GBV and other reproductive health challenges were received in the server during the same period. For this study, we retrieved the information from the backend of the server and analyzed the locations of women reporting challenges and the nature of the challenges reported. We conducted qualitative interviews with 21 women who had texted the codes. The interviews were arranged by calling them to request interviews. These interviews focused on their experiences using the device and their satisfaction with how the challenges they had reported were managed. We also conducted in-depth interviews with 15 CSO representatives and 16 health facility managers to identify how the issues reported were handled, the challenges they identified, and success stories associated with the project and the use of text4life. Interviews for each category of interviewee continued until data saturation was reached. Tables 1a and 1b in the Appendix provide profiles of the respondents.

Data analysis

Data analysis of the quantitative data consisted of a descriptive analysis to determine counts of the reporting of GBV during the period and the states reporting the challenge. Qualitative data were drawn from the interviews, which were transcribed verbatim and coded with the aid of Atlas.ti 6.2. The responses from the interviews were explored using an inductive approach to thematic and content analysis. The codes captured narratives that are pertinent to the research questions, including emerging themes from the interviews. To ensure credibility of the qualitative data, multiple interviewers were used for data collection. The questioning was iterative, probes were used to elicit detailed responses, questions were rephrased, and the mirroring technique was used to ensure accurate responses.

Ethical consideration

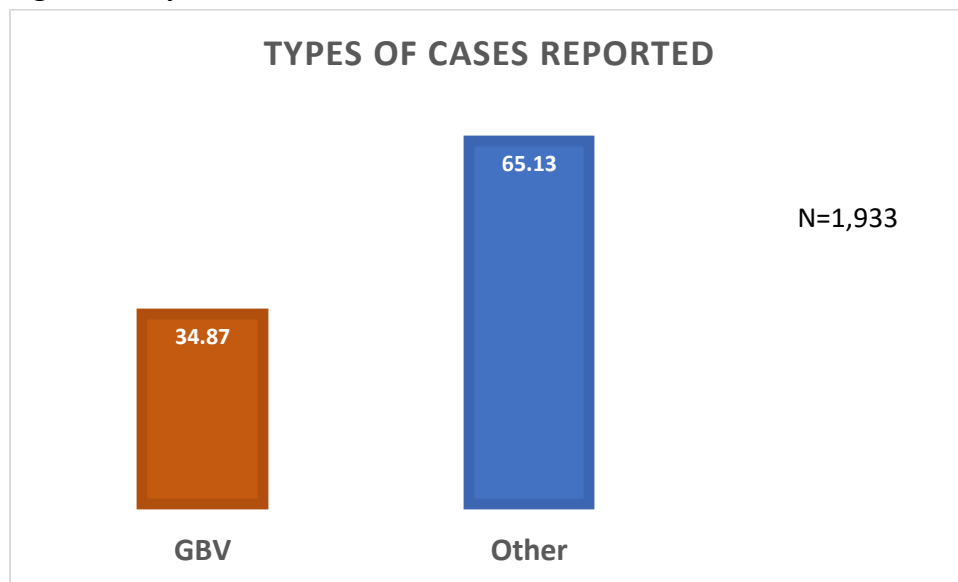
Permission to conduct the study was obtained from the Ministries of Health in the ten participating states; in some states complementary approvals were also obtained from Advisers on Health to the state governments. Ethical approval for the study was obtained from the

Research Ethics Committee of the College of Medicine, University of Benin (CMS/REC/2020/092, dated October 4, 2020). Informed consent was obtained from all interview respondents, and only those who agreed to participate after a full explanation of the purpose and methods of the study were included. Respondents were assured of confidentiality of information obtained for the study.

Results

Out of the 3,403 reports received in the server, 1,933 were reports of GBV and other health related matters. Of the 1,933 reports, 34.9% were GBV cases (Figure 1). The most commonly mentioned types of GBV by the interviewees were wife beating and rape. Other issues reported included pregnancy/labor complications, child health issues, unwanted pregnancies, and COVID-19, among others. Of note is that most of the users interviewed were reported for persons who had experienced GBV or other health conditions; only five were self-reports. Most of the interviewed users were female (n=16).

Figure 1: Reports of GBV and other issues



The distribution of the reported GBV cases by state is presented in Table 2. The highest prevalence rates were in Kano State, and Abuja.

Table 2. GBV reporting, by State

State	Frequency (N=674)	Percent of reports
Abuja	79	11.72
Akwa Ibom	24	3.56
Ogun	32	4.75
Anambra	1	0.15
Adamawa	4	0.59
Niger	1	0.15
Borno	52	7.72
Benue	6	0.89
Enugu	50	7.42
Edo	1	0.15
Sokoto	54	8.01
Gombe	38	5.64
Kwara	1	0.15
Jigawa	3	0.45
Plateau	1	0.15
Kaduna	18	2.67
Kano	115	17.06
Katsina	1	0.15
Lagos	17	2.52
Nasarawa	5	0.74
Oyo	6	0.89
Taraba	9	1.34
Not stated	156	23.15

Experiences of text4life users and care providers

The majority of users acknowledged the usefulness of the app in enabling them to report cases of GBV in a confidential and safe manner, calling it a life-saving line for GBV victims. Those who reported and received assistance other reproductive health problems were also grateful for the app. One man reported that he used the app on behalf of his sister when she was in labor and an ambulance was sent to convey the woman to a hospital.

It is very good, very good because even my other relation that called them, she was having domestic problems. They say the app is good. They are even the ones that encouraged me to call, so I feel it is good (User_o3, female).

What made me use the app is that any small issue, he [her husband] used to beat me every day. That month, that's what happening. He beats me, sometimes he injures me, that's why I text these people. They said if we need any help that we should call them. So that's why I said 'Let me try, because where I got married to my husband is not my state

and I don't have any of my family there.' So I said, 'Let me call these people so that maybe I'll have some help from them' (User_12, female).

The majority of the CSOs and health providers also considered the app useful. Only one person reported thinking it was not useful because the response takes time.

I think it is a good project, because actually it is opening people's eyes, just that the mentality of people, they don't want to open up, the thing is eating them inside but because they are afraid of losing their husband or family. It is a good project, it's a welcoming one (CSO_02).

It is good, because some women know their right now. Before they didn't know their right, their husband beats them without giving them food or anything. But now they know their right. If such happens, they will take him to the district head and inform them about what is happening. District head will call the husband and settle them. So now they know their right (HP_15).

Well, it's a recent advancement, though to be honest, I swear, I don't believe it will work that way, so yes other relation I grade it [Text4Life] well (User_15, Male).

Opinion about whether the reporting of GBV increased as a result of the app was divided. Eight of the CSOs and health providers affirmed that there was an increase, but six of them did not think there was an increase in the number of GBV cases compared to the number they usually receive.

Management of reported cases

Some of the 21 users who were interviewed confirmed that they received a response in form of a visit or call from a CSO, health provider, or both after sending the code. Eight said they received no response. Narrating how the cases were handled, the CSOs and health providers followed the standard protocols for handling GBV provided by the state and their organizations. The common procedure was: treatment when there is an injury, gathering evidence in the case of rape, counselling, and reporting to the police or state agencies in charge of GBV. There were a few cases of arrest and prosecution, but typically community leaders gave optimal support in settling the GBV cases.

Yeah, we have a natural referral network system that was already established. based on the need of each person. Let's say the person needs legal assistance, we link the legal person to provide that; someone requires health assistance, we already have people within the referral network to deal with the issues reported (CSO_01).

So, when the cases come, there are channels for those who want to take it further and those who just wanted to report the case so they could have psychosocial support, support was provided for them, they were also monitored for signs of reoccurrence and if it was a sexual assault case, there are sexual assault and referral centers in the State, about four of them (CSO_07)

After the interventions by CSOs and health providers, many victims and their families did not want police involvement. Instead, they preferred family-level settlements.

Police support? Not in my unit because the people involved don't usually want police report. The one who went last time said she has a sister that wanted justice for the sister, that was why she even went further. The patients don't really want to because it is their husband. To them, they love their husband, they don't want to go for the man is beating them, the man is not giving them money. So, in my unit we've not had any police report. I've not had a reason to. The only one I would have referred to police but the woman started begging me (HP_09).

One of the health providers (HP_07) recounted two cases of rape they had handled.

Interviewer: Ok, so from what you've said now, it means you people manage it at the clinic. Please can you tell me how they are being managed at the clinic.

Respondent: The only thing that the client will tell you is to treat them and then they will go.

Interviewer: So, you treat injuries?

Respondent: Injuries from, maybe, beating, we now treat them.

Interviewer: Ok, so that means police are not involved and community members are not involved?

Respondent: No, they don't agree. If you tell them, so that you involve a third person, they'll say no. The one that I told you of, that other child? It was the husband's cousin, so they said no, that they want to go and sit as a family to discuss about it. We couldn't see them again.

Interviewer: Now the patients you receive, the victims, are they ready to even go through rehabilitation, like counseling? Do they accept something like that?

Respondent: We did counseling for them. We talked to them, but they were not ready to, they said they understand but it's a family something. The second one is still a family cousin who is staying with them, so they had to drive that boy away. So that is the way it is.

Recommendations for improving the app

The opinion of the users, CSOs, and health providers were sought on how to improve text4life. Their various recommendations for improving the app are shown in Figure 2 in their order of

frequency. The most common recommendation was creation of more awareness (n=11). Others include: training, provision of more information and communication materials, close monitoring of the implementers, funding, collaboration with government, and extension of the duration of the project, among others.

I wish you are going to collaborate with the government to give you more supporting staff. Especially supervisors, who are going to be working in the health facility and try to rectify so many challenges (HP_o3).

Then the issue of GBV, we should make it a serious community engagement thing. There should be more community sensitization and even the media should be part of it, because the media is very critical. So, when we do that, it will even be able to sustain what we are doing (CSO_o9).

More awareness should be created, maybe like through the radio jingles, television, like that, to let people know. Because many people may not know the existence of the text4life (User_o7).

Figure 2: Network view of respondents' recommendations for improving text4life



Discussion

The main objective of this study was to explore how women, health providers, and CSOs responded to the introduction of a mobile phone device designed to increase women's access to GBV and other reproductive health services in ten Nigerian states. The results showed that, out of 1,933 reports received by the central server, over 34% were GBV-related matters. This shows

a high prevalence of GBV reporting, compared to other sexual and reproductive health and rights issues, and suggests a high case load of GBV in the targeted states. To the best of our knowledge, this is the first mobile phone device that provides a mechanism for women experiencing GBV to report to a central server in real time, enabling specific actions to be taken by third parties. A previous report¹⁶ documented the increasing reported cases of GBV in Nigeria due to the emergence of social media, which makes the use of a media device particularly appealing in the country.

Several reviews and anecdotal reports^{17,18} have raised the possibility and relevance of using mobile technologies to address GBV in low- and middle-income countries with limited social networks and limited agency by women and communities to address diverse challenges related to sexual and reproductive health and rights. Our model is one of the first to test this approach in the African region, and our focus on rural women ensures that we are testing its effectiveness among the most vulnerable population of women first.

Our qualitative interviews with women who used the device found that it was helpful in resolving their experiences of GBV, with many women reporting that it enabled them to report the matter, when they had previously not been able to report repeated cases of abuse, including rape. Prompt responses from health providers and staff of CSOs helped them to find realistic ways to address the problem. However, interviews with the health providers and CSOs indicated that while the affected women were promptly treated for injuries, pain, and psychological disorders associated with their experiences of GBV episodes, they were often unwilling to report the abusers to the police or to proceed with legal actions. This hesitancy was attributed to their unwillingness to subject their spouses and partners to civil justice, believing it would jeopardize their marital and social relationships. Many also perceived that they would suffer social and cultural retributions if they were to report such cases to the police.

Thus, it was evident that the major reason that women used the device was to seek medical help and counselling for GBV, rather than to obtain legal justice. It is clear that despite existing legislations against GBV in Nigeria^{19,20}, women are often unwilling to pursue available civil remediation actions for GBV. This may also account for the low reporting of GBV among women who lack access to a device such as the text4life.

The results of this study permit us to propose that the best approach to address GBV in Nigeria (and other countries with similar social contexts) is to focus on primary prevention rather than secondary prevention measures. Primary prevention focuses on preventing GBV from occurring in the first place, while secondary prevention takes action to punish perpetrators. To date, most approaches seeking to address GBV prevention in Nigeria have emphasized secondary prevention,^{21,22} with limited efforts made to promote primary prevention efforts. Primary prevention measures include: creating increased awareness of gender issues and the existing laws and legislations designed to prevent GBV; community engagement activities on

gender mainstreaming; the inclusion and integration of gender transformative approaches to policy development and program implementation; and, the systematic empowerment of women. Primary prevention reduces the chances that GBV actually takes place, and thereby eliminates the need for remedial police or legal action.

While the interview respondents recognized the benefits and importance of the device, they reported very limited awareness by local constituents and identified significant challenges in using the device. Consequently, a consistent recommendation they offered was to increase awareness about text4life to promote its increased use in communities. Some of the mechanisms suggested to promote the device include media dissemination, recruitment and training of staff, partnerships with mobile phone companies, uptake by the government, improvement of the technical delivery of the device, and social marketing. Going forward, we believe these recommendations will be useful to scale up the use of the device throughout Nigeria, and perhaps to other parts of Africa.

This intervention had strength and weaknesses. The major strength was its novelty, given that it is one of just a few devices that help women report health challenges and is possibly the first to enable reporting of major challenges, such as GBV, in sexual and reproductive health in the African region. Our involvement of a cohort of rural women, which ensured that the device was tested with some of the most vulnerable and marginalized women, is also a strength of the study. Another strong point was that the 10 states and three LGAs in each state were selected so that the study reflects the geo-political and cultural mix of the country. This approach increased the validity and generalizability of the study to the wider Nigerian context.

The major limitation of the study was the qualitative design. The freeform responses of the women, the health providers, and the CSOs permitted reports on perceptions and beliefs. However, they may not capture the full or representative responses from all project participants. The qualitative results do provide insights into the nature and pattern of the responses, offering information about how the device was used and experienced by stakeholders in the community.

Conclusion

We conclude that a mobile phone device can be used effectively to report gender-based violence in low resource settings. The device is more useful in identifying specific measures for targeting equitable primary prevention of GBV, rather than secondary prevention measures. From the results of this study, it is evident that digital technologies can improve both reporting of and responses for GBV (and potentially other sensitive health issues) in low-resource settings. However, the introduction of digital technologies in these settings is still challenged by limitations posed by shortcomings in the health system and socio-cultural and traditional beliefs.

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Appendix

Table 1a. Profile of the interviewees (CSOs and Health Providers)

ID	Position	Sex
CSO_01	Executive Director	Male
CSO_02	Finance Officer	Female
CSO_03	Custom Manager	Male
CSO_04	Executive Director	Male
CSO_05	Executive Director	Female
CSO_06	Executive Director	Female
CSO_07	Senior Program Officer	Male
CSO_08	Project Coordinator	Female
CSO_09	Program director	Female
CSO_10	Project Director	Male
CSO_11	Executive Director	Female
CSO_12	Program Manager	Male
CSO_13	Founder	Female
CSO_14	Program consultant	Male
CSO_15	Coordinator	Male
HP_01	Health Extension worker	Female
HP_02	Community health extension worker	Male
HP_03	Community health worker	Male
HP_04	Community health officer	Female
HP_05	Community health worker	Female
HP_06	Community health extension worker	Female
HP_07	Community health officer	Female
HP_08	Anatomist and reproductive biologist/community health worker	Male
HP_09	Community health worker	Female
HP_10	Community health worker	Female
HP_11	Community health worker	
HP_12	Nurse	female
HP_13	Community health officer	Male
HP_14	Community health worker	Female
HP_15	community health extension worker	Male
HP_16	Community health worker	Male

Note: CSO – Civil Society Organization; HP – health provider

Table 1b Profile of the interviewees (Users)

ID	Age	Sex
User_01	22	female
User_02	23	Male
User_03	35	Female
User_04	50	Male
User_05	53	Female
User_06	50	Female
User_07	41	Female
User_08	42	Female
User_09	35	Male
User_10	29	Female
User_11	Not given	Female
User_12	32	Female
User_13	30	Female
User_14	Not given	Female
User_15	29	Male
User_16	34	Female
User_17	Not given	Female
User_18	31	Female
User_19	Not given	Male
User_20	27	Female
User_21	38	Female