THE ROLE OF CHRISTIAN HEALTH ORGANIZATIONS IN PROMOTING COVID-19 VACCINATION IN EASTERN CONGO

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Abbreviations & Acronyms

CBCA	Communauté Baptiste au Center de l'Afrique
CECCA-16	Bureau des oeuvre medicales evangeliques de la CECCA 16
DCOM ECSC 20	Direction Communautaire des Oeuvres Médicales /Vingtième Communauté Evangélique au Center de l'Afrique
DOM-ECC	Eglise du Christ au Congo, Sud-Kivu, Department of Oeuvres Médicale
DRC	Democratic Republic of the Congo
FGD	Focus group discussion
IEC	Information, education, and communication
KAP	Knowledge, attitudes and practice
KII	Key informant interviews
NT	New Testament
OT	Old Testament
RECO	Relais communautaires (community relays)
REMEDA	Le Réseau de Medias pour le Développement
SOP	Standard operating procedure
UEA	Université Évangelique en Afrique
WHO	World Health Organization

1. Introduction

At the onset of the COVID-19 pandemic, forecasts indicated that Sub-Saharan Africa could face a substantial risk of experiencing a high number of COVID-19 morbidity, and mortality. However, as of March 2021, the region witnessed relatively low impacts, contributing to approximately 2.5% of the global confirmed cases and a smaller proportion to the death toll worldwide. Uncertainty, nonetheless, persists on whether these statistics can be attributed to reduced testing rates, milder clinical symptoms, or other contributing factors (1). As of March 2021, the Democratic Republic of the Congo (DRC) had reported only 27,552 confirmed cases and 726 Covid-19 deaths (1). In response to the pandemic, the government enacted an outbreak management and control strategy, incorporating a range of public health measures aimed at mitigating virus transmission. These measures entailed curfews and lockdown to slow down virus transmission (2).

The DRC is the largest country in Sub-Saharan Africa (3). The political context in Eastern DRC is deeply intertwined with the region's long-standing conflicts, governance challenges, and exploitation of its rich natural resources. Eastern DRC has been marred by persistent instability and violence, often driven by the activities of numerous rebel groups and the proliferation of local warlords (4). The Eastern provinces of DRC – North Kivu, South Kivu and Ituri – have repeatedly been affected by massive, violent conflicts, which conttibutes to the regions' inability to maintain key services, for example protecting the population, in particular women and children, from (sexual) violence, ensuring security and safety, maintaining law, infrastructure, and basic health and education services (5). Until this day, the provinces of North Kivu and Ituri remain in a state of emergency (stage de siege). According to the International Organization for Migration, more than six million people are internally displaced in the DRC (6).

Despite the World Health Organization (WHO) goal to achieve a vaccination rate of at least 70% in every country by mid-2022, as of August 2022, around 67.4% of the world's population had received at least one COVID-19 vaccine dose, out of which only 20.7% were from low-income countries. In the DRC, by August 2021, only 2.8% of the adult population had been fully vaccinated (2). In line with the country's National Vaccine Development Plan, the initial phase targeted three priority groups, constituting approximately 20% of the population. These groups encompassed the most at-risk individuals, including healthcare and social workers, those aged over 55, and individuals with underlying health conditions. However, in response to reported side effects associated with the AstraZeneca vaccine in many European countries, the Ministry of Health in the DRC decided to postpone phase one of the vaccination campaign, with the aim of strengthening the ministry's capacity of conducting vaccine safety investigations (2).

At the end of phase one of the vaccination campaigns in July 2021, the DRC was counted among the countries with one of the world's lowest COVID-19 vaccine adoption rates, stemming from a complex interplay of factors (7). Firstly, funding gaps and lack of national supervision hindered the recruitment, training, and payment of vaccinators, resulting in delayed vaccination. Secondly, the country faced severe challenges, due to prolonged conflict and humanitarian crises and the situation has worsened because of a series of other health crises and natural disasters, including meningitis, typhoid fever, cholera, Ebola, measles, and a volcanic eruption, which

hindered immunization efforts in North Kivu, South Kivu, and Tshopo. Thirdly, inadequate communication strategies and limited community engagement contributed to the proliferation of misinformation, rumors, and conspiracy theories surrounding COVID-19 vaccines, significantly dampening the public's demand for and willingness to receive vaccinations. These were primarily propagated by influential figures, including religious leaders (7).

Available evidence indicates that establishing trust in faith leaders plays a pivotal role during health emergencies, as they possess the capability to foster trust in challenging and uncertain times. Nonetheless, faith leaders are rarely seen as equal collaborators in health emergencies and are often overlooked in public health discussions (8). In DRC, faith leaders encountered barriers to their full engagement in responding to public health emergencies (8). Initially, their restricted ability to implement government measures arose from a deficiency in knowledge, resources, and time. Inadequate collaboration between them and other key government stakeholders, such as healthcare providers, posed a challenge, hindering the joint development and communication of evidence-based public health messages, and preventing them from receiving guidance from public health experts and in turn providing guidance to their constituents to address the pandemic's challenges (8).

Since the beginning of the COVID-19 pandemic, Difäm supported church health services to strengthen their response to the COVID-19 pandemic by implementing a small project fund supported by Bread for the World. In 2021, Difäm rolled out a second small project fund to support COVID-19 vaccination in African countries. The fund supported 24 projects in 15 countries focusing on increasing uptake of vaccines and strengthening capacity of church health services to support vaccine programs. In the DRC, the fund supported seven Christian health services. A key aspect was to leverage Christian health services in support of government-led prevention and vaccination campaigns as a vital local resource for health promotion. It was hypothesized that the faith community had the trust of the local community and could leverage that trust in support of vaccination efforts.

1.1 Context

The Difäm-supported faith-based organizations were located in five provinces: North Kivu, South Kivu, Ituri, Haut Uele, and Bas Uele. These faith-based organizations are called Communauté Baptiste au Center de l'Afrique (CBCA), Bureau des oeuvre medicales evangeliques de la CECCA 16 (CECCA-16), Eglise du Christ au Congo, Sud-Kivu, Department of Oeuvres Médicale (DOM-ECC), Direction Communautaire des Oeuvres Médicales /Vingtième Communauté Evangélique au Center de l'Afrique (DCOM ECSC 20), Le Réseau de Medias pour le Développement (REMEDA), and Université Évangelique en Afrique (UEA) and one non-governmental organisation, the Pole Institute. They implemented various initiatives funded by Difäm to reinforce their capacities, particularly in supporting vaccination initiatives, and fostering efforts to enhance community acceptance of vaccines in the implementation zones (table 1).

Table 1: Difäm-supported faith-based organizations, provinces, health zones, project titles and timelines

Province of intervention	Health zone	Project title	Timeline
CBCA			
North Kivu	Katwa	Project to mobilize the population for vaccination against covid-19 in the health zones of Katwa, Butembo, Beni, Goma and Karisimbi in North Kivu, DRC	01.07.22 - 30.06.23
	Butembo		
	Benii		
	Goma		
CECCA 16			
BAS-UELE	ZS POKO	"IMPROVING COVID-19 VACCINATION COVERAGE" project	01.07.22 - 30.06.23 (prolonged)
	ZS VIADANA		
HAUT-UELE	ZS ISIRO		
	ZS RUNGU		
	ZS PAWA		
	ZS BOMAMANGBET		
	ZS WAMBA		
ITURI	ZS NIANIA		
DCOM/ ECSC 20 (CECA 20)			
ITURI	ARU	Contribution of the DCOM/CECA 20 in promoting the acceptance of the vaccine against Covid-19	01.11.21 - 31.01.23
DOM-ECC			
SOUTH KIVU	IBANDA	COVID-19 Vaccination Project Fund	01.11.21 - 30.11.22
	KADUTU		
	MITI MURHESA		
	KABARE		
	NYANTENDE		
	KATANA		
	WALUNGU		
	KAZIBA		
	UVIRA		
	RUZIZI		
	LEMERA		
POLE INSTITUTE			

NORTH KIVU	Goma	Wote pamoja kwa kupiganisha virusi ya Covid 19 (All together against Covid 19)	01.11.21 - 30.06.23 (prolonged)
	Kiroshe		
REMED'A			
NORTH KIVU	Butembo	COMMUNITY AWARENESS PROJECT ON THE POSITIVE PERCEPTION OF THE FIGHT AGAINST COVID-19, INCLUDING VACCINATION	01.12.21 - 30.04.23 (prolonged)
	BENI		
ITURI	BUNIA		
UNIVERSITE EVANGELIQUE EN AFRIQUE			
South Kivu	Ibanda	Improve the management of the pandemic in Sars Cov-2 by strengthening the capacities of health structures and promoting community vaccination in the province of South Kivu	01.11.21 - 31.08.22
	Kadutu		
	Miti-Murhesa		
	Nyangezi		
	Kaziba		
	Mwana		
	Uvira		
	Walungu		
	Nyantende		

In North Kivu, the CBCA church played a pivotal role in mobilizing the population for COVID-19 vaccination across health zones, including Katwa, Butembo, Beni, Goma, and Karisimbi. The church employed various strategies, including the capacity building of key stakeholders such as healthcare professionals, religious leaders, and politicians among others. Additionally, the initiative involved community outreach activities for awareness raising, the development and distribution of Information, Education, and Communication (IEC) materials to enhance understanding of the disease and underscore the importance of vaccines within the community. Moreover, the efforts encompassed lobbying and advocacy efforts at both government and church levels, participating in national vaccination campaigns, and providing necessary materials for vaccinations.

Pole Institute intervened in Goma and Kiroshe areas with the main aim of equipping the community with accurate information about COVID-19. This involved conducting activities such as community outreach and large-scale media campaigns to increase awareness about COVID-19, organizing training sessions with youth associations and developing as well as distributing IEC materials.

In Ituri, CECCA-16 and DCOM/ECSC 20 promoted the COVID-19 vaccine in Bunia and Aru. Their efforts centered around capacity building of key relevant stakeholders, community sensitization and mobilization; development of IECs materials and dissemination at the community level; support to provide materials needed for vaccinations; and lobbying and advocacy at government and church levels to increase vaccination acceptance. REMED'A's contribution was to raise community awareness about COVID-19, including vaccination, through

community sensitization, development of IEC materials, and the provision of pharmaceutical and laboratory services.

Similar actions were undertaken in South Kivu through DOM-ECC and UEA to promote the COVID-19 vaccine. This involved enhancing the skills of key personnel, supplying required materials and equipment for vaccination, conducting community sensitization and outreach, creating, and disseminating IEC materials, along with advocacy efforts at both government and church levels.

1.2 Objectives

The objectives of the study are to explore the impact of a community intervention project on the church communities' understanding, attitudes, and behaviors related to COVID-19 and its prevention measures. This objective was guided by four research questions:

1. How do individuals in the study group perceive and experience the acceptance of the COVID-19 vaccine?
2. What are the factors affecting the acceptance and uptake of the COVID-19 vaccine in church communities and the wider public? How do church communities and the wider public experience and interpret the factors influencing the acceptance and uptake of the COVID-19 vaccine?
3. What role did religious health organizations play in promoting COVID-19 vaccination in North and Southern Kivu and Ituri Region? How did the Christian health actors get access to the vaccination campaigns?
4. What is the potential influence of religious organizations in promoting immunization campaigns in the region?

The results of the study will strengthen the understanding of the role of faith-based organizations and Christian health organizations/institutions in promoting COVID-19 vaccinations and enhance insights about the partnerships between the faith-based organizations and the state during the vaccination efforts. It will further provide insights about factors that influence the level of acceptance of the COVID-19 vaccine, specifically church communities' understanding, attitudes, and behaviors related to COVID-19 and its prevention measures in Eastern DRC.

2. Methodology

2.1 Study design

This study used a mixed method design. Qualitative data was collected from July – September 2023 through key informant interviews (KIIs) with health professionals, government representatives, religious leaders, and other key stakeholders. Focus group discussions (FGDs) were conducted with program beneficiaries in the intervention areas and with control groups to identify the scope and coverage of the interventions. The qualitative data was supplemented with quantitative data from a previously conducted knowledge, attitudes and practice (KAP) study, which collected data by five faith-based organizations at two timepoints – before and after the

intervention (between November 2021 and June 2023). Literature was also reviewed to provide additional insights on the topic of interest.

2.2 Study population

To participate in the KAP survey, individuals had to be at least 18 years of age, agree to participate in the survey and to the use of their data. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time. Data collection was anonymous and did not contain any personal information that could identify them. They were also assured that their responses would be kept confidential and would only be used for the study's purposes.

The study population of the qualitative data comprised individuals from North Kivu, South Kivu, and Ituri (Eastern DRC), who were present during the Covid-19 pandemic in any of these provinces. To be eligible for inclusion, potential participants needed to recollect the Covid-19 prevention and vaccination campaigns that took place in the area. They had to be at least 18 years old, provide informed consent to participate in the study, and be capable of responding to questions either in French or Swahili. People living with mental disabilities, who were unable to provide informed consent, were excluded. Additionally, potential key informants from the selected religious health organizations who have not worked in these organizations for least 6 months were excluded.
Key informants and FGD participants were informed about the purpose of the research, how findings will be used, assured about anonymity and they provided verbal consent prior to data collection.

2.3 Qualitative sampling

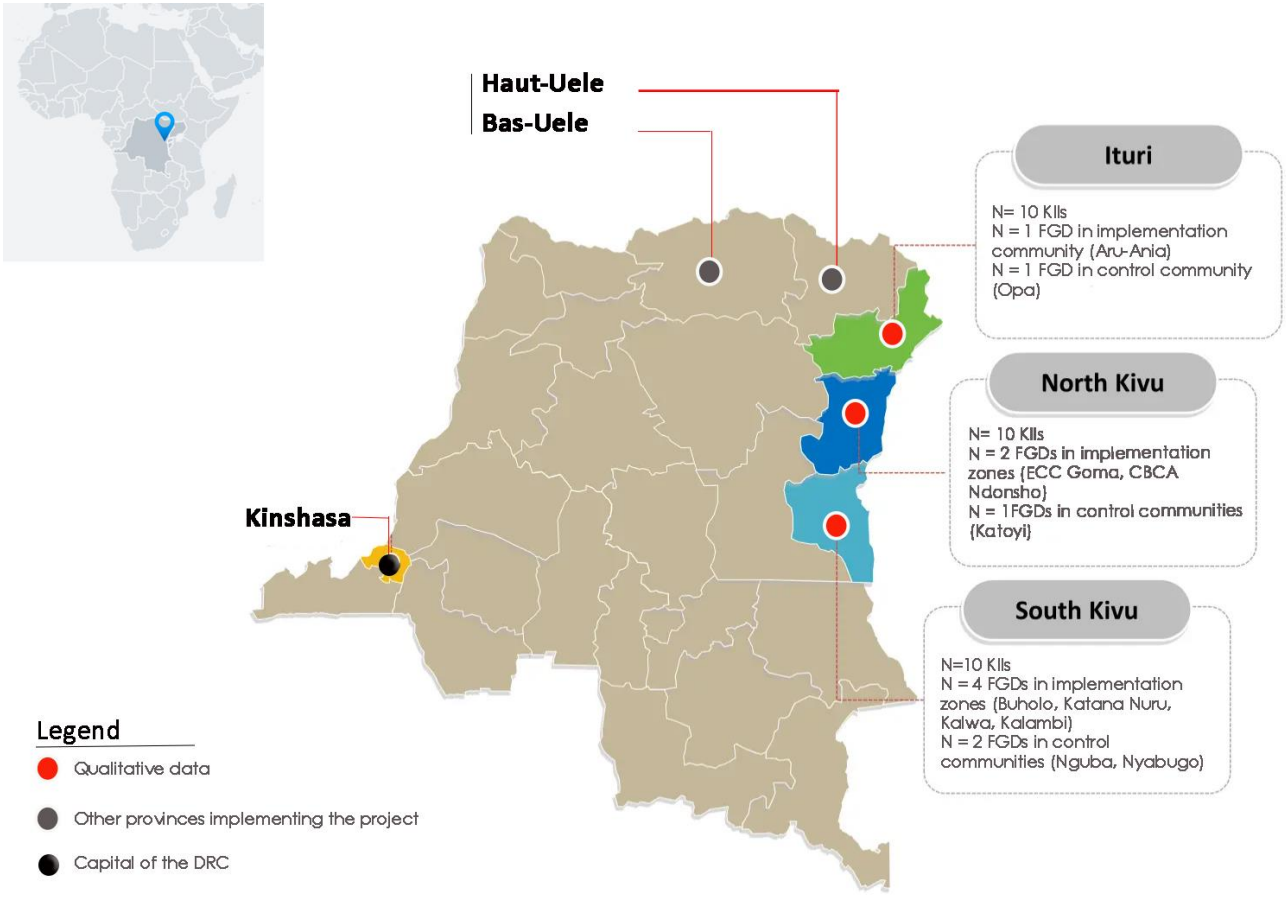
For the KAP survey, the data collectors were instructed to visit villages, where the projects were implemented, and to find a representative population sample to participate in the survey. They ensured that the sample was population representative by considering the educational status and age structure, and they included an equal number of women and men. Eligible survey participants were randomly sampled.

All key informants and FGD participants were sampled purposefully. Key informants were selected from the health service delivery zones where Difäm grantees have operated (see figure 1), as well as other faith-based organizations, NGOs, national government-led vaccine campaigns among others, that worked on the COVID-19 response. They were defined using snowball sampling. All key informants were selected based on their recollection of the prevention activities during the COVID-19 pandemic, and the role of Christian health services at that time. In each region, 10 KIIs were conducted (figure 1).
FGDs were held with community members in the regions of Ituri, North Kivu and South Kivu, in communities that implemented COVID-19 vaccine promotion activities, as well as in control areas. A technical preparation meeting with faith-based organizations was held to identify intervention and control areas at the start of the study. Communities for the FGDs were selected based on a cluster sampling methodology. An estimation was conducted targeting provinces characterized by populations that offer enhanced representativeness in relation to their demographic size and a higher frequency of interventions pertinent to the project's scope. A random selection process was employed to designate health zones within each of the regions as sites where the FGD with beneficiaries could be held. This sampling was done with the support and inputs from the faith-based

organizations partnered with Difäm to ensure relevance. Random sampling for final site selection has been done by Swiss TPH. Partner organizations provided a list with 15 beneficiaries in each location and eight were chosen at random for each FGD. In the implementation communities, one FGD was held in Ituri, two FGDs in North Kivu and four FGDs in South Kivu.

Control areas were located close to intervention areas. Participants were identified with the help of head nurses in the communities where the intervention was not implemented. Among control communities, one FGD was held in Ituri, one in North Kivu and two in South Kivu.

Figure 1: Difäm intervention regions and data collection sites, Democratic Republic of the Congo



2.4 Recruitment and training research assistants

A team of four experienced qualitative and quantitative researchers from Swiss TPH held a 4-day training to go over the interview and FGD guide. The training consisted of an introduction to the topic, presentation of the protocol, instructions of the study, consent procedures, ethical procedures, quality checks as well as expectations from the team. Data collection processes and instruments were comprehensively explained and tested. The study team pilot tested the processes and instruments between the team, and then in the field (local

test site). After the training, local researchers were taught about the instructions, consent process and inclusion and exclusion criteria.
Standard operating procedures (SOPs) were made available during the training. Introduction to the community, correct informed consent procedures, and instructions how to conduct the interview were captured in the SOPs. By the end of the training, the process of finding respondents for the FGDs (on the ground sampling) and all data collection instruments were finalized.

2.5 Data collection and management

Swiss TPH leveraged existing quantitative data from project beneficiaries that were previously garnered through a KAP survey. Baseline and endline data from Difäm supported faith-based organizations were provided by Difäm for a secondary analysis.

Experienced field teams collected the qualitative data. Young researchers, who constituted the field teams, were sourced from a pool of r researchers Swiss TPH had worked with in the past. Previously they were participants in a month-long training course, followed by a research activity. The purpose of the course was to equip and empower 15 young people with research skills in South and North Kivu.
Semi-structured KIIs were held with representatives from key stakeholder groups within the supported Christian health services, as well as representatives of government vaccine campaign and health services, NGO and others that participated in the COVID-19 response in the Eastern DRC. FGDs were held with community and family level stakeholders to understand the role of the Difäm supported activities, in particular their role and contribution to influencing perceptions of COVID-19 vaccination and prevention. FGDs were conducted in small groups of 8-19 people, guided by a short agenda. KIIs and FGDs were captured using RREAL sheets (notes) and audio recorders (if respondents gave consent). Transcription was done shortly after. Transcripts, and RREAL sheets were handed over to the field supervisor and consultant team for quality control, and corrections were made, if necessary. The semi-structured interview and FGD guides were both translated from English into the official and local languages (Kiswahili and French) for ease of use. Data collected in Kiswahili was later translated into French and English for analysis.

2.6 Data quality assurance

Quality of the qualitative data was reviewed and assured during the data collection process led by the team leader. The senior project leader was the principal investigator, who supervised the qualitative research specialist, and the survey expert, while in the field, to cross check collected data daily. Random spot checks were also conducted for quality assurance. Special attention was given to ensure confidentiality of information and that data are safely stored on a server before data analysis. The following measures were undertaken to ensure data quality control during the research exercise:

- **Checking for correctness and completeness**: A field supervisor routinely checked for clarity, proper sequencing of the questions and responses as well as editing of the completed tools for completeness.
- **Objectivity**: This was achieved by conducting a thorough analysis of both the qualitative and quantitative information, to help obtain objective and representative data that will be used to make evidence-based recommendations.

2.7 Data analysis

A descriptive, secondary analysis (frequency and cross tabulations) of the quantitative data was performed by an experienced statistician using the existing KAP dataset. Data was provided in excel format and a descriptive analysis was performed in SPSS. Responses for each question were stratified by key background characteristics, including age, sex, geography, and educational characteristics among others. Visuals, including tables and graphs, were created in Excel. A logistic regression was also performed in the Statistical software R, to identify factors associated with vaccine uptake in North and South Kivu. In Ituri, no regression analysis could be performed, as almost all coefficients and standard errors were very large, which is usually an indication of (almost) perfect separation of the data. This happens when all or nearly all the values in one explanatory variable are associated with only one of the binary outcome values. As a result, this was regression analysis was not included in the report.

The qualitative data was provided in word format and translated into English using DeepL to facilitate data analysis. All transcripts were uploaded into Dovetail and a coding sheet was developed with codes that corresponded to the four research questions. Data was managed and coded in Dovetail, where transcripts were organized by region. Using both emergent and pre-set codes, the Swiss TPH team conducted a thematic analysis to understand the role of each implementing organization in vaccination and prevention against COVID-19. After the coding was completed, summary tables were populated for each code.

Both quantitative and qualitative data were integrated during the analysis process and contextualized with results from the literature review. Results from the KIIs and FGDs were triangulated, and emergent themes were validated against findings from the quantitative survey.
An analysis workshop was held among Swiss TPH researchers and data collection team supervisor(s) to discuss findings, triangulate results to co-create conclusions and recommendations.

2.8 Ethical Considerations

Ethical approval for the study was obtained from the DRC's ethical review committee called Comité National d'Ethique de la santé to ensure it is in accordance with national and local ethical procedures (registration number CNES 001/DPSK/211PM/2023).

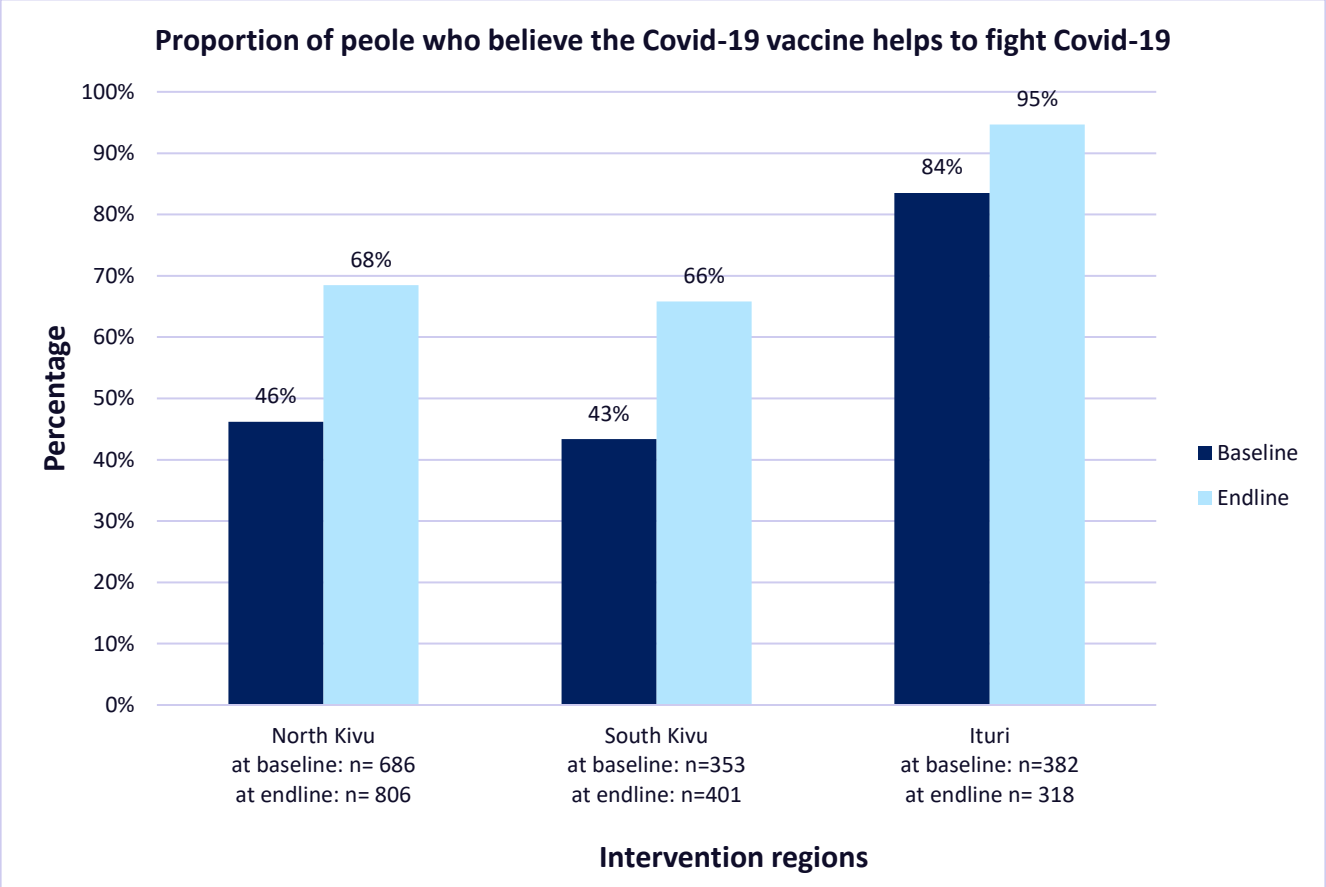
3. Findings

3.1 Attitudes and experience related to COVID-19 vaccination

According to the baseline KAP survey, more than 40% of respondents in all three provinces believed that the COVID-19 vaccine works (43% in South Kivu, 46% in North Kivu and 84% in Ituri). Compared to the endline, the proportion of people increased in all three regions (66% in South Kivu, 68% in North Kivu and 95% in Ituri). The biggest change between baseline and endline was visible in South Kivu at 22% followed by North Kivu at 23%)

However, the highest rate of those believing the COVID-19 vaccine works was in Ituri at both timepoints (see figure 2).

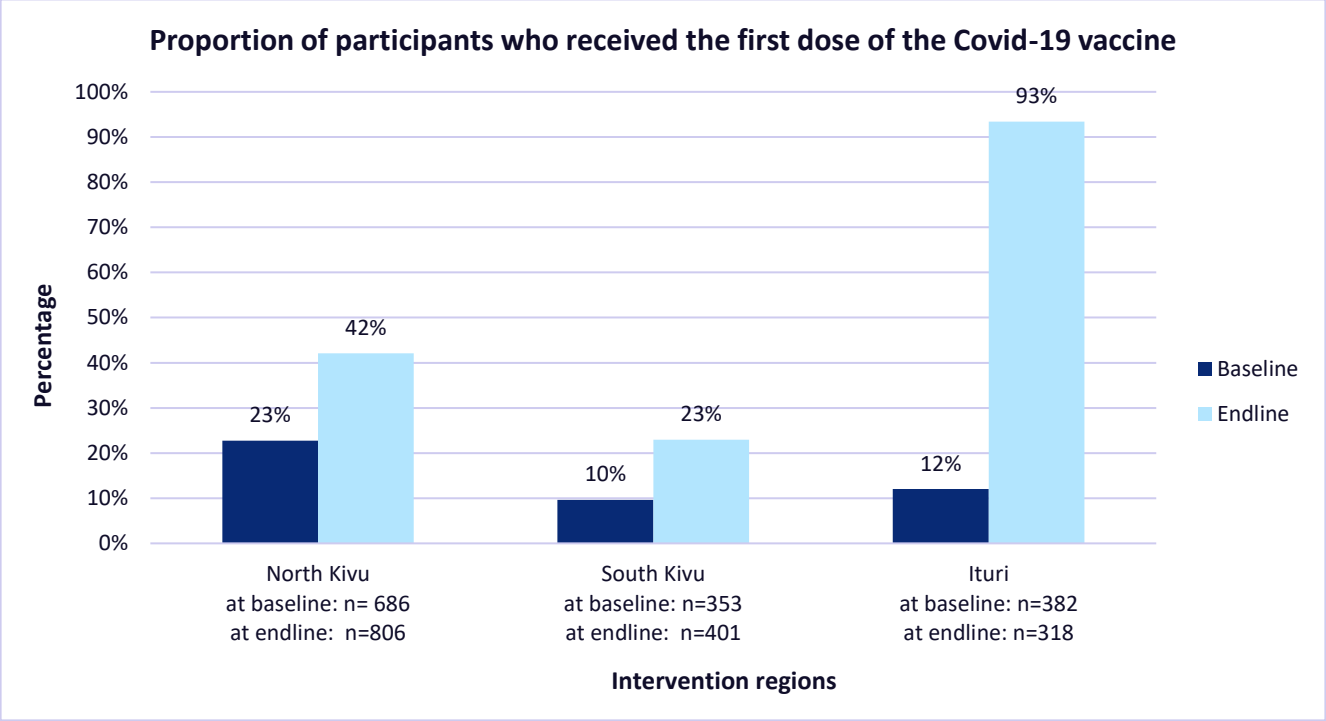
Figure 2: Belief about the Covid-19 vaccine in North Kivu, South Kivu and Ituri at baseline and endline



At baseline, in all three regions, below 25% of KAP survey participants indicated they had received a first dose of COVID-19 vaccination (23% in North Kivu, 10% in South Kivu and 12% in Ituri). Ituri showed the highest increase in the proportion of people being vaccinated from baseline to endline from 12% to 93%. In comparison, the survey revealed that in South and North Kivu, less than half of participants received a COVID-19 vaccine at 23% and 42%, respectively (see figure 3).

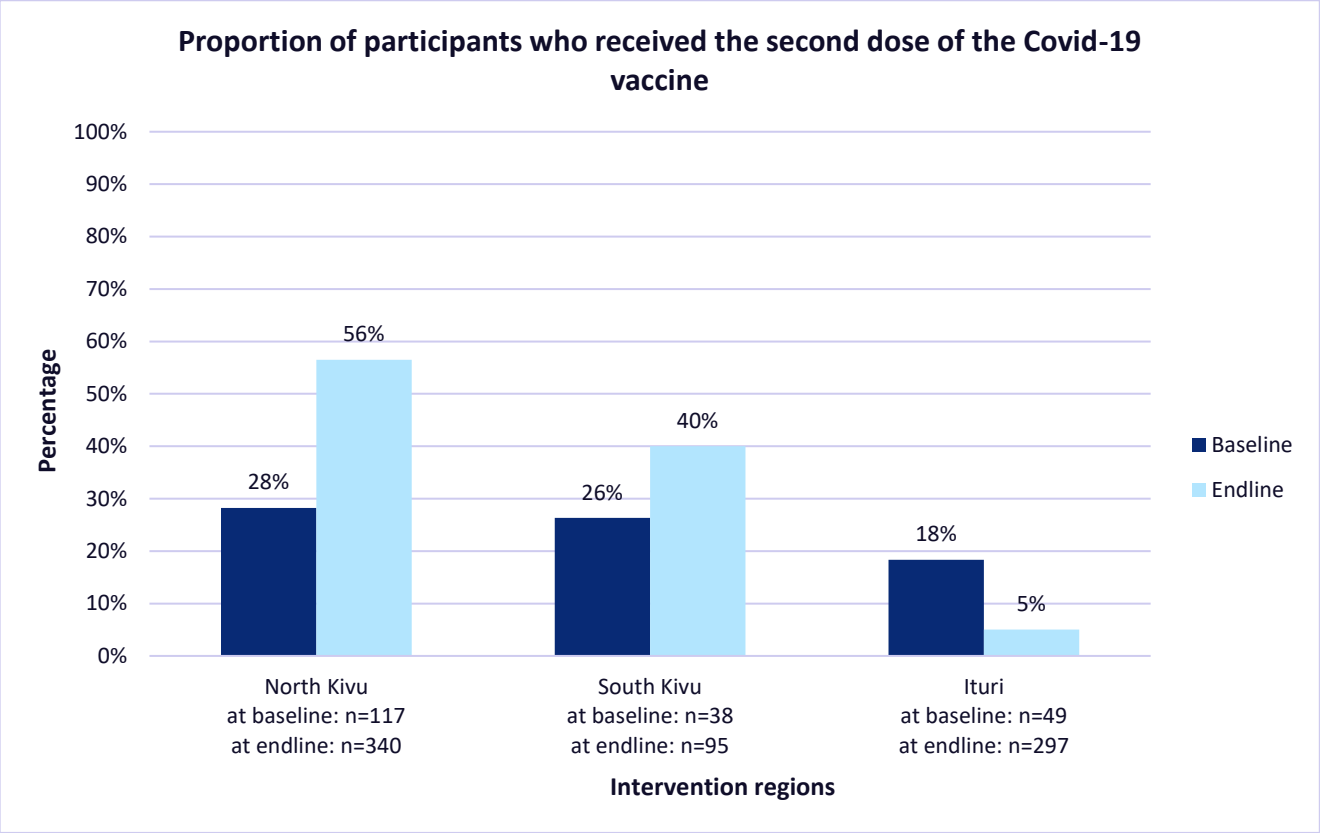
In North Kivu, out of 686 respondents at baseline, a substantial proportion were not at all likely or somewhat likely (84%) to recommend the COVID-19 vaccine to others. Similarly, in South Kivu, 80% were not at all or somewhat likely to recommend the vaccine. In Ituri, on the other hand, 86% were somewhat likely or extremely likely to recommend COVID-19 vaccination. At the endline, there was a slight positive trend regarding vaccination recommendation in North and South Kivu. However, the most evident change was in Ituri, where 94% were extremely likely to recommend vaccination to others.

Figure 3: Proportion of respondents, who received a first dose of COVID-19 vaccination in North Kivu, South Kivu and Ituri at baseline and endline



Almost two thirds of participants in North and South Kivu had not received a second dose of the COVID-19 vaccine at baseline. This proportion decreased to 42% and 58% in North and South Kivu, respectively. Ituri showed the lowest rate of vaccination with second dose vaccination at both time points because most community members were vaccinated with a single-dose Johnson and Johnson vaccine, due to the conflict-affected area. This is a strategy for adapting to the logistical challenges that a two-dose vaccination can represent (distance, vaccine storage, insecurity, practicability of roads, etc.) (see figure 4).

Figure 4: Proportion of people, who received a second dose of COVID-19 vaccine in North Kivu, South Kivu and Ituri at baseline and endline



The regression analysis shows the association between several independent variables – age, gender, belief that the Covid-19 vaccine helps to fight Covid-19, belief that the vaccine is safe, trust in government public health professionals and trust in faith-based health agencies – and being vaccinated in North and South Kivu.

In North Kivu, age had a statistically significant, positive effect on the likelihood of being vaccinated at the 5% level. Belief that the Covid-19 helps and that it is safe were associated with vaccine uptake, which was statistically significant at the 1% significance level. Likewise, trust in faith-based health agencies had a positive association with getting vaccinated (statistically significant at the 1% level).

In South Kivu, belief that the Covid-19 vaccine helps to fight Covid-19 and that it is safe had a positive, statistically significant association with being vaccinated at the 5% and 1% significance level, respectively. Gender had a negative effect on the likelihood of being vaccinated at the 1% significance level, indicating that females were associated with a lower likelihood of being vaccinated compared to males (table 2).

Table 2: Logistic regression to identify factors predicting Covid-19 vaccine uptake (1st dose) among KAP survey participants in North and South Kivu

	Dependent variable	
	Vaccinated – North Kivu	**Vaccinated – South Kivu**
Age	0.367**	0.030
	(0.157)	(0.184)
Gender	0.102	-0.892***
	(0.206)	(0.305)
Belief that the COVID-19 vaccine helps to fight COVID-19	2.037***	0.980**
	(0.422)	(0.464)
Belief that the vaccine is safe	0.727***	0.617***
	(0.141)	(0.181)
Trust in government public health professionals	0.145	0.277
	(0.178)	(0.282)
Trust in faith-based health agencies	0.452***	0.391
	(0.170)	(0.278)
Observations	697	335
Log Likelihood	-297.804	-138.854
Akaike Inf. Crit.	609.608	291.708

Note: *p<0.1; **p<0.05; ***p<0.01

In **Sud Kivu**, most community members participating in the FGDs reported they have been vaccinated against COVID-19. They perceived the vaccine to be quite accepted among the community, due to the awareness-raising campaigns. Some participants reported that community members got vaccinated out of fear of dying from COVID-19 or because they wanted to travel. However, not everyone accepted the vaccine.

"Here we have a case of 16 civil servants but I can tell you here there are only two people who agreed to be vaccinated! all the others had refused!" (FGD BUHOLO 2 – South Kivu).

In the control group, some community members stated that they did not get vaccinated, due to fear, though, others reported they were vaccinated, even if this may have led to problems with family members:

"Personally ended up taking the vaccine, but when I took it, I had serious problems with my wife, who said how could I take it without our being in agreement? First of all, it's because this disease arrived at a time when people were not informed about it, and when we saw the images on television and after the invitation was extended to presidents, especially African presidents, who signed agreements, we said to ourselves, we've been

sold! But once I'd had the vaccine, I remained normal and didn't show any signs of it. I realized that it's just one vaccine among many!" (FGD Control zone – South Kivu)

Similarly, in **Ituri** region, most community members accepted the vaccine, either because they were chronically ill or afraid of getting infected with COVID-19.

"I had received mine because I was afraid of being infected and dying, which is why I went to get the vaccine" (FGD ARU – Ituri)

"I had received it for two reasons: they said that everyone with chronic illnesses had to be vaccinated, and I was afraid of being attacked by COVID-19 to be put in isolation to be left alone." (FGD ARU – Ituri)

In the control group, however, it was evident that most of them did not get vaccinated, mainly out of fear of dying, as a result of taking the vaccine.

"Some had tried to receive this vaccine but once it hurt them, we could not go to receive the vaccine because of fear instead of losing our lives" (FGD CONTROL ZONE – Ituri)

In **North Kivu**, there are mixed results about the community's attitudes towards the COVID-19 vaccine. On the one hand, focus group discussion participants stated that people were getting vaccinated voluntarily, often if they wanted to travel, and uptake was high. Conversely, there remains a substantial number of people who have not been vaccinated until this date, mainly due to widespread misinformation.

"No, it was only those who were traveling who took the initiative to get vaccinated, but only after awareness-raising. Those who didn't receive awareness-raising, apart from those who were traveling, didn't get vaccinated" (FGD – North Kivu)

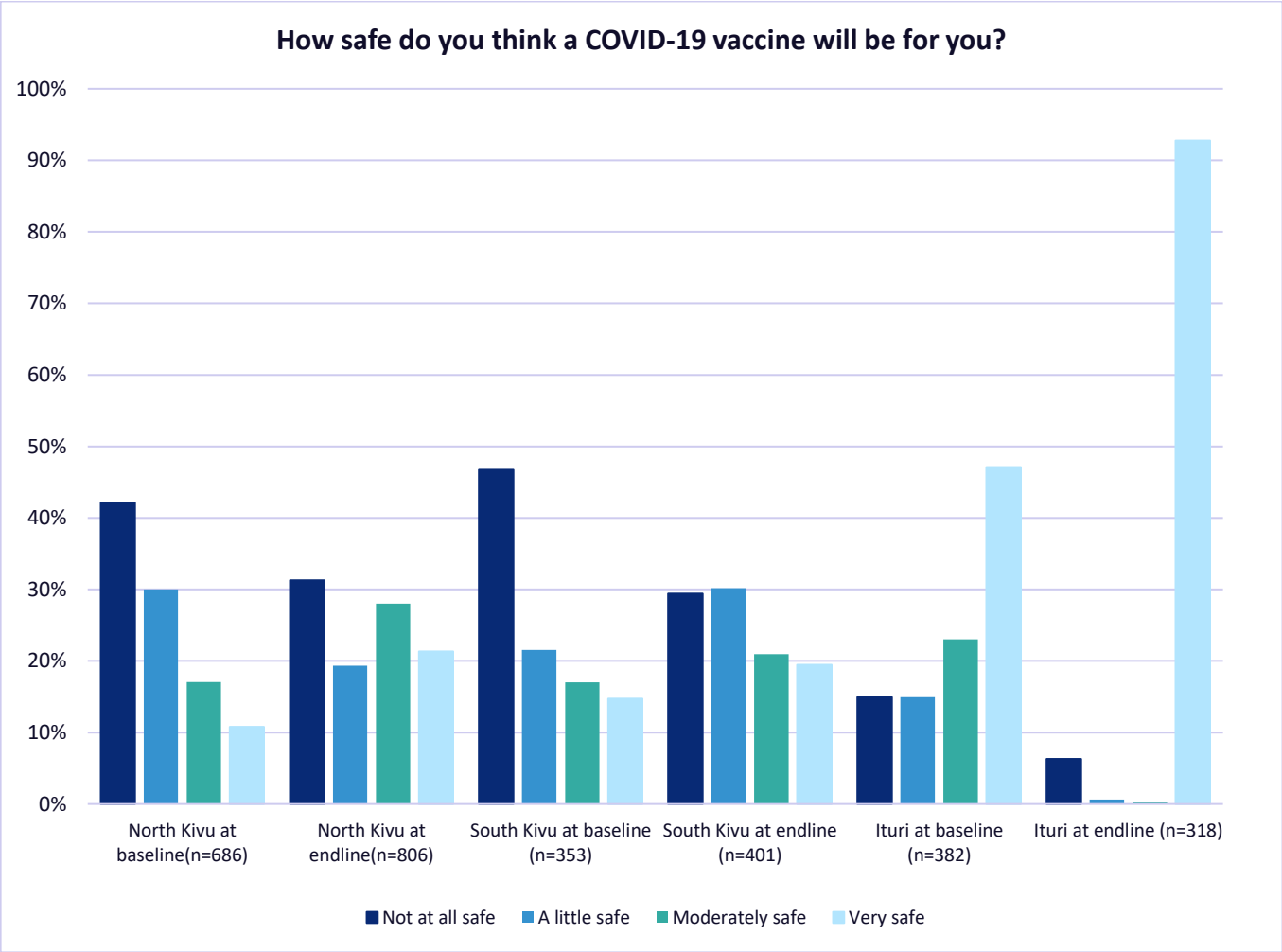
*"When there's bad information out there, a good proportion of people refuse vaccines outright; to this day I believe there are even vaccines that have expired because they missed the takers." (*KII - Pastor North Kivu)

3.2 Barriers to COVID-19 vaccination acceptance and access in the community

3.2.1 Misinformation and myths

At baseline, most people in North and South Kivu thought that the COVID-19 vaccine was not at all safe or a little safe (42% and 30%, respectively, in North Kivu and 47% and 22%, respectively, in South Kivu). In Ituri, almost half (47%) however, thought that the vaccine was very safe. At the endline, there was a slight positive change in North and South Kivu. Only in Ituri, an increase of 46% indicated that almost every participant perceived the vaccine as very safe (figure 5).

Figure 5: Perceived safety of the Covid-19 vaccine among KAP respondents in North Kivu, South Kivu and Ituri at baseline and endline



At baseline, among those, who did not believe that the vaccine was effective to fight COVID-19, across all three regions, between 24% and 33% of respondents thought that the COVID-19 vaccine was harmful. At endline, however, an even higher proportion of participants, who did not believe that the vaccine was effective believed that the vaccine kills. This trend was evident in all regions. On the other hand, the number of participants that had information about the vaccine increased from base to endline (table 3).

Table 3: Perceived myths and misinformation about the COVID-19 vaccine among respondents, who did not believe that the vaccine was effective, in South and North Kivu and Ituri at baseline and endline

		A vaccine to fight against COVID-19	Covid-19 vaccine is harmful/it kills	Don't have information about vaccine	Don't know what's behind the vaccine	Fake disease	It's satanic	The vaccine is not effective
Baseline	North Kivu (n=362)	9%	24%	24%	5%	18%	1%	19%
	South Kivu (n=200)	2%	26%	39%	8%	10%	5%	11%
	Ituri (n=63)	2%	33%	48%	5%	3%	3%	6%
Endline	North Kivu (n=254)	1%	28%	11%	11%	37%	1%	11%
	South Kivu (n=137)	10%	42%	24%	2%	9%	1%	12%
	Ituri (n=17)	0%	47%	0%	0%	18%	18%	18%

In **South Kivu**, FGDs with community members and key informant interviews highlighted the proliferation of misinformation and myths circulating around COVID-19 and the vaccination. Examples included the perception that the vaccine is a Western strategy to kill Africans, a strategic tool to reduce the African population, and that Africans are naturally more protected against the disease than white people, and thus, there is no need to be vaccinated. Hidden political agendas by neighboring countries were also mentioned as barriers.

''Maybe as the whites collaborate more with the Rwandans and Rwanda wants to eliminate us to come and occupy here! So on the political level we wondered why this vaccine may want the whites to exterminate us to send the Rwandans here'' (KII – South Kivu)

"There were a lot of rumors about the COVID-19 vaccine, starting from where the vaccine came from. It's as if there were disagreements! Some said that the vaccine was clotting the blood, others said something else, like preventing people from having children! all these rumors came from where the vaccine came from, and these rumors continue to this day!" (FGD NYAMUGO – South Kivu)

A lack of information about the vaccine benefits, how it works, and education about potential side effects were also cited as barriers. Some community members feared the side effects and negative consequences following the vaccination, such as making people sterile and sexually weak. Others did not consider COVID-19 as a dangerous disease, which led them to think that they would rather get sick and treated for the disease than getting vaccinated.

''I was too scared because we were told that we wouldn't give birth anymore and that it's the mark of the beast, that after a few days we'd die'' (FGD KALWA – South Kivu)

Likewise, community members in the control group highlighted misinformation and misconception about the vaccines as an obstacle, along with a lack of accurate and trustable information about the disease and the vaccine.

''There are people who have never been sure about the COVID-19 vaccine because some people say that we're going to become pigs, bats, goats'' (FGD Control zone – South Kivu)

Similarly, in **Ituri,** misinformation, misconceptions, rumors and speculations about the disease and the vaccine were widespread barriers. Common misinformation included that the vaccination would reduce the population size, is a tool invented by white people to exterminate black and African people, that the vaccine reduces life expectancy and leads to infertility. Some people did not believe that the disease existed and therefore, did not consider being vaccinated. Another barrier to acceptance of the COVID-19 vaccine was fear - either of the vaccine, injections, side effects or negative consequences stemming from wrong information.

''The main reasons for non-vaccination in this region for some people who have not been vaccinated is just a fear of side effects'' (KI I– Ituri)

''Another hypothesis was that one day the vaccinated would have a reduced life expectancy; and some said that the vaccines had a sterilizing power that could reduce the fertility of the white population so that one day they would come to live here; other said that it could give an immediate reaction to a large number of people to die'' (KII – Ituri)

Likewise, misconception and misinformation about the vaccine and the fear of the negative side effects were also highlighted among the control group members.

''Vaccines increase death unlike us who did not receive this vaccine we are still alive in good health'' (FGD CONTROL ZONE – Ituri)

In **North Kivu**, like in the other two regions, misinformation and myths lead to many misconceptions about COVID-19 and the vaccine, such as the belief that white people want to reclaim Africa's wealth using the vaccination and that the vaccine would result in infertility. Some people believed that COVID-19 does not exist, due to limited COVID-19 cases that were recorded. Furthermore, divergent viewpoints on COVID-19 vaccines from influential opinion leaders, such as professors, have led to community confusion and further reinforced misinformation.

"People were saying that COVID-19 is something made by white people to make us sterile via vaccination. Since COVID-19 caused the death of so many white people, they don't want black people to be able to multiply and be numerous on planet earth. When COVID-19 arrived, people were getting sick and not even going to hospital. They thought, "If I go to hospital, they'll say I've got COVID-19 and confine me, even though I've only got a touch of the flu" (FGD – North Kivu)

"The biggest obstacle to vaccination was fear. People told themselves that there was a risk of developing the COVID virus once vaccinated, and that the consequence would be death. This fear prevented people from being vaccinated. " (FGD – North Kivu)

''There were great professors who weren't for it, there were other great professors who were for it, so it created a mess in people's heads, and people were testing themselves, they couldn't intervene'' (KII – North Kivu)

3.2.2 Cultural and religious influences

In **South Kivu,** some cultural and religious beliefs led to community members not accessing the vaccine. For example, community members believed that instead of being vaccinated, existing plants could provide protection against COVID-19.

''they would have the "muvuke" solution to protect themselves, just as they do not believe in vaccines'' (FGD CELPA – South Kivu)

''We have talked a lot about the effects of plants: as soon as you take them, you are protected'' (KII – South Kivu)

A few community members perceived religious leaders as a barrier to COVID-19 vaccination and mentioned that they spread conflicting COVID-19 information, misinformation, and rumors to their congregation that led to reluctance in vaccination against COVID-19 among the religious community. Other religious leaders did not allow community members to enter the church if they had been vaccinated.

"He told me that he would say in the Sunday communiqués that we don't want to hear that there's a faithful member of the church who's gone to be vaccinated, he won't set foot in this church again! so the church is the first to block us in this awareness!" (FGD BUHOLO 2 – South Kivu)

''I can say that the religious leaders did not help us! They were saying that it is the end of the world because first, it was Ebola, then COVID and all these epidemics are from the world of darkness!'' (FGD NYAMUGO – South Kivu)

''they were the ones who desensitized people by saying that the vaccine would come with this or that! In addition, that prevented the community from being vaccinated as usual. Therefore, those churches that sensitized their Christians were rare, and people was not vaccinated'' (FGD KALWA – South Kivu)

In the control group, community members mentioned that some religious leaders discouraged them from taking the vaccine, which resulted in vaccine hesitancy among the congregations they led, due to their influence.

''The other problem is that people respect religious leaders! In the churches, people were not allowed to be vaccinated! If they had been allowed, people would have been vaccinated because many things that are accepted go through churches and schools! You find someone sick with covid but the pastor tells you I am going to pray for you, it's going to end!'' (FGD Control zone – South Kivu)

Likewise, in **Ituri**, cultural beliefs were highlighted as barriers to vaccination. For example, traditional medicines were thought to heal COVID-19 and therefore, the community would not need to be vaccinated. These beliefs were also shared among members in the control groups.

''that's why you'll see some people have decided not to be vaccinated, saying that we have traditional vines to cope with it'' (KII– Ituri)

''At times, certain sects say that to use medicine is to neglect God's power, and that it is enough to pray, arguing that a believer does not need medicine to heal.'' (KII– Ituri)

In **North Kivu**, a key informant highlighted that the DRC is characterized by many different cultures and customs, which hindered effective vaccination promotion. Community members also mention traditional medicines as a barrier to vaccination uptake.

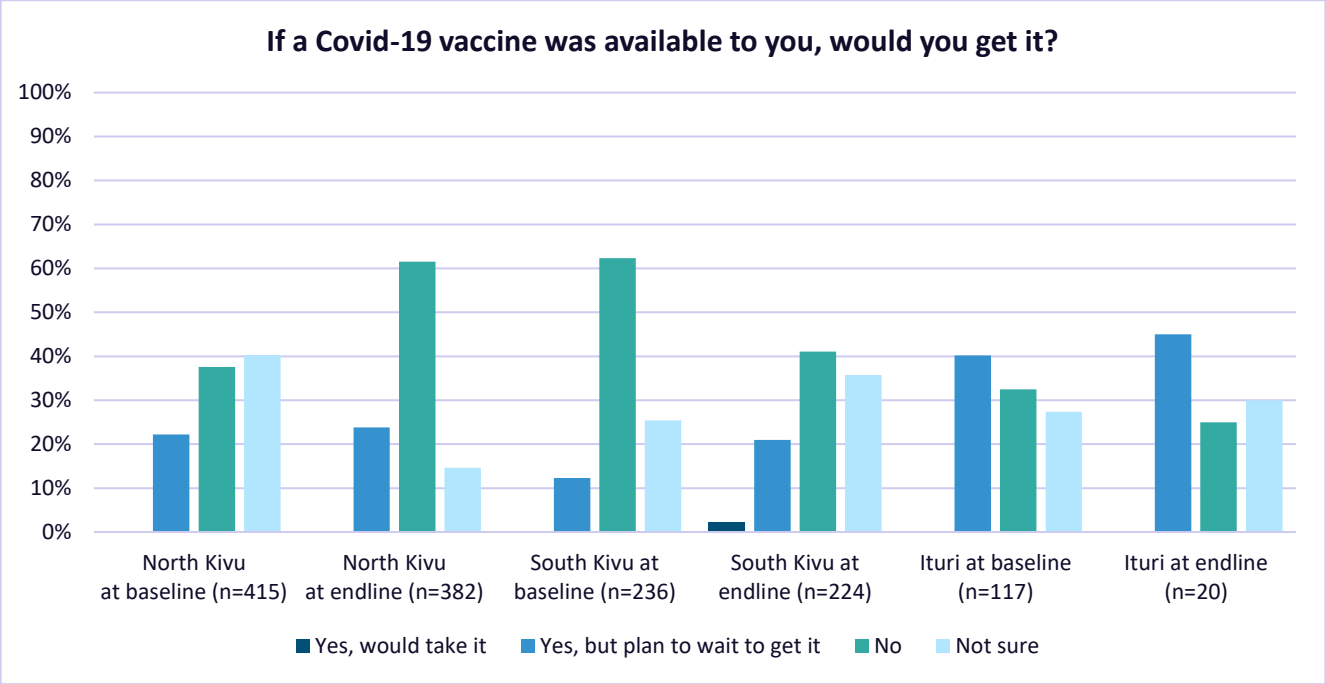
''because there are customs, there are myths, there are cultures, our country, we know, has many cultures, with many communities, that is the obstacle'' (*KII – NORTH KIVU)*

"Covid was compared to influenza, and we have local means of treatment (MUVUKE). This prevented people from getting vaccinated." (FGD – North Kivu)

3.2.3 Health system barriers

The quantitative data shows at baseline, 57% of survey respondents from North Kivu knew the vaccine was available to everyone, compared to 36% and 16% in South Kivu and Ituri, respectively. At the endline, the knowledge about vaccine availability was highest in Ituri at 91%, followed by North Kivu at 79% and South Kivu at 66%. However, even though most participants knew the vaccine was available for everyone, many mentioned that even at the endline, they were not willing to get, in particular in North Kivu, where the proportion increased from baseline to endline (figure 6).

Figure 6: Willingness to get COVID-19 vaccine, among KAP respondents in North Kivu, South Kivu and Ituri at baseline and endline



In **South Kivu**, factors related to the health system also posed barriers to vaccination. For example, there were only few vaccination sites set up, which resulted in community members having to travel long distances to be vaccinated.

''I wanted to say that vaccination centers should also be multiplied, either at markets, schools, etc., because after the 5 the vaccines are sent to Funu, but if there were many sites it would be a good thing!'' (FGD BUHOLO 2 – South Kivu).

''I will say somewhere that the state has not incentivized people to adhere to vaccination because demanding such high fees, for instance, for travel, is demotivating'' (KII – South Kivu).

There were also concerns about the reliability of COVID-19 vaccines that arose, due to the vaccine development within a shorter timeframe than the usual standards, and because different types of vaccines were available. Some people also preferred certain manufacturers over others, for example, due to the number of doses that were needed. There were also concerns around the quality and shelf lives of the vaccines.

''Many people did not like the Pfizer vaccine. It took time for people to understand that Johnson Johnson is a good vaccine, as it is given as a single dose'' (FGD CELPA – South Kivu).

"Some vaccines were too close to expiry and others were not, so they could not be kept for long'' (FGD KALWA – South Kivu).

An additional barrier were the conflicting schedules and fragmented efforts with other public health emergencies, including concurrent public health campaigns, like the Malaria Initiative, Oral Polio vaccine, Measles vaccines and mosquito net distribution.

"many people refused, wondering why they were only bringing the vaccine and not the food, and this put up a barrier to other vaccines such as OPV and measles vaccine, saying that we had changed the name, but it's the covid-19 vaccine we're bringing'' (FGD NYAMUGO – South Kivu).

In **Ituri**, even though vaccines were freely available, there were only a limited number of vaccination sites, they were far away or not accessible for a long time, which was perceived as a barrier to vaccination.

''The vaccination site is difficult to access while the vaccination period was limited'' (FGD BENEFICIARE ARU – Ituri)

Community members in the control group stated that there was limited knowledge on the available types of vaccines, their differences, how they worked and possible side effects among health care providers as well as among the community. They also stated that divergent viewpoints on COVID-19 from health care providers resulted in confusion and increased vaccine hesitancy.

''The medical staff who inject the vaccine themselves doubt it, telling their friends or brothers that I did not receive the vaccine, so it is not effective'' (FGD ARU CONTROL ZONE – Ituri)

In **North Kivu**, several barriers in relation to the health system were mentioned. For example, there were stock outs of vaccines, transportation challenges, limited number of vaccination centers and limited availability of vaccines that the population preferred, such as Moderna and Johnson and Johnson.

"Firstly, you can send someone to the center to be vaccinated and they find they've run out of vaccine; the stock has already run out. Second obstacle: means of transport are inadequate." (KII – North Kivu)
"Another factor was accessibility: in some areas, it was difficult to bring in inputs, because of certain self-defense groups, because of certain populations, who refused, always with EBOLA infomedia, Ahh it was complicated (KII – North Kivu).

A lack of trust in the efficacy and benefits of the vaccines and in health workers were also limiting factors. Health workers were less frequently involved in promoting the COVID-19 vaccine, as the community perceived their engagement as an opportunity for them to earn money from vaccinating community members:

"Another thing that caused resistance to vaccination was that people were saying that health workers were paid to exterminate the community. People were asking others not to go to hospital on the pretext that even if you're not sick, you're going to be injected with water contained in a syringe to kill you. This was a major obstacle to vaccination" (FGD – North Kivu)

Furthermore, control group members highlighted they were used to vaccines being brought to their homes, but to get the COVID-19 vaccine, they had to travel long distances and pay for transportation, which hampered vaccination uptake.

"I think that what prevented many people from not going is, first of all, the fact that here we're used to vaccines being delivered to our doors, but this one you had to reach or look for, but if it was also a vaccine that was delivered door to door, that could also motivate people, because there were people who felt the need to be vaccinated, but they didn't go or look for it." (FGD Control zone – North Kivu)

3.3 Church Health Service support for Covid-19 vaccination uptake & prevention

In **South Kivu**, church leaders were first trained about the COVID-19, the vaccination and about their role in communicating to the community. They learned about COVID-19 prevention measures to be able to respond to different questions relating to the biology and epidemiology of the disease. The church (DOM ECC) signed an agreement of collaboration with the government, working closely with the provincial health division, which was responsible for providing training and for setting standards and regulations. However, there were no direct partnerships with any community-based organizations. Difäm provided the church with financial and material resources to carry out the campaigns and acquire the necessary materials for vaccination. During the awareness raising activities, the messages were disseminated through different avenues, such as radios, churches, and markets.

"We haven't had any direct partnerships at the local level; we may have worked with the support of our external partners, particularly DIFAM. They have provided us with almost all the material and financial resources, I say material because we have rolling stock that we acquired long before the illness of these organizations, but which we put to use during the covid -19 fight! They have provided us with the financial resources to enable us to carry out our activities, but also the material resources - I've just mentioned the elements of the cold chain, the tests" (KII – South Kivu).

"Their role was already to raise awareness, because acceptance of vaccination depended on acceptance of the disease! only those who accepted that the disease existed could accept vaccination! I think the role of religious leaders was indirect! they didn't make enough noise about the vaccine, but at least they talked about the disease! so it wasn't a small thing to have made people accept the disease, which was denied in the community" (KII – South Kivu).

Religious leaders strategically used bible verses to teach the community about the existence of COVID-19 and explain to them not only that epidemics have always occurred in history but also that they used to kill a lot of people. They informed the community about the importance of getting vaccinated and that it is safe. Some religious leaders were also getting vaccinated themselves and proved it by showing their vaccination cards, which convinced community members to get vaccinated as well.

"Yes, they have played a role because they themselves have been vaccinated and we continue (vaccination continues)!" (KII – South Kivu)

"We spoke with the pastors, they developed a narrative in relation to the bible about the exit from Egypt, comparing covid to the angel of death, and that blood had to be added to the portals to show that this one is protected and that one if not!" (KII – South Kivu)

"W*e changed our approach and raised awareness through the media and included awareness messages in our homilies! When we preach, there are biblical verses about diseases in the OT, even in the NT, which called for the isolation of cases, and it was the priest alone who could declare the healing of the isolated person and reintegrate him or her into society! That's why we got involved and there were quite a few Christians who understood, and we were models! We wore masks even during the pulpit! We are all civilized, we no longer share microphones!(laughter)!"* (KII – South Kivu).

The faith-based organization also implemented COVID-19 prevention measures, such as using masks, reducing the number of people attending the church, and reinforcing the importance of hand-washing and social distancing. The fact that church leaders were setting good examples regarding prevention measures was successful in changing mindsets of the community in these three regions.

"Yes, there have been churches that have helped communities to raise awareness of the existence of COVID-19 and of the various measures to protect themselves, such as hand-washing, wearing nose plugs and social distancing. The church implemented these preventive measures by setting up hand- washing facilities, urging people not to gather together and wearing masks. These measures have helped us a lot. As for the vaccine, in some churches, people were told to get vaccinated if they wanted to, especially Catholics" (FGD CH CELPA – South Kivu).

"They implemented hand-washing in front of their church gates, even indoors, forbade people from greeting each other, reduced the number of worshippers during a mass or service in Protestant churches, and increased the number of church tours where people had entered once, to two or four times, so that distancing was respected in the church, which helped to combat the disease" (KII – South Kivu).

The faith-based organization also supported vaccination efforts by ensuring they obtained the necessary cold chain requirements to store the vaccines appropriately and supported the set-up of vaccination sites.

"we acquired cold chain inputs such as freezers that we stored here and there to help preserve anti-covid and other available vaccines" (KII – South Kivu).

"The other role is in relation to vaccination. We've played a role in vaccinating people, and so far we've vaccinated over 1,000 people here at home" (KII, Registered Nurse – South Kivu).

Likewise, in **Ituri**, training was provided to religious leaders, before the awareness raising activities started. The churches delivered the messages through different means, such as in the churches, on markets, on the radio, through a musician-comedian, and on billboards. Through the different communication channels, the church aimed to educate the community about the disease, about how it is transmitted and about COVID-19 symptoms. They also informed about myths and misinformation and emphasized the importance of getting vaccinated to

prevent the disease. Religious leaders worked in collaboration with political and administrative authorities, as well as other international health organizations, such UNICEF, WHO, Malteser International.

"The CCA20 church, the 20th largest Protestant community in Africa, also played a special role in organizing the first round of awareness-raising campaigns to combat the COVID-19 pandemic in the health zone, and subsequently financed the vaccination and awareness-raising campaigns. So our participation was supported by a number of organizations, including UNICEF, Malteser International and the CCA20 helped to unblock the difficulties with the faithful of the church and other partners. Their support helped us, because awareness-raising requires material and logistical support, which helped us a great deal, and the response was positive" (KII – Ituri).

"*Churches organized training for community relays and church leaders to help spread the word about this disease in the community. The first role the religious leaders played was to give us space in the church to sensitize the faithful. Secondly, they too were trained and assisted in raising awareness to help the community adhere to vaccination" (KII – Ituri).*

Religious leaders acted as role models by getting vaccinated, which reinforced community members' trust in the vaccine. One community member stated that other members of the community, who were previously vaccinated, came to testify to reduce the fear of getting vaccinated. A vaccination site was also set up outside the church, where people could get vaccinated during church meetings.

"Religious leaders, starting with the number one of the CCA20, when people saw that he had received the vaccine, the obstacle of fear that was in people's hearts was removed and they embraced vaccination, even pastors at all level" (FGD BENEFICIARE ARU – Ituri).

"On the church side, each time we went to the church to raise awareness, but as the period was not so easy, we left with the vaccine, even if it was in the church, we asked for a short time to raise awareness, and at the same time our team set up outside, and we even asked the pastor to authorize people to go out gradually to get vaccinated, and then to return to the church again" (KII – Ituri).

In the control zone, churches have also increased their efforts to sensitize community members through churches, markets and radios.

In **North Kivu**, after receiving training by different partners, like ECC, MADAIR, university professors, the faith-based organization conducted different awareness raising activities. For example, community leaders passed messages in church meetings, educated community members in small groups, and set up services among the neighborhood to facilitate communication and information sharing. They also used radios to disseminate information. Religious leaders strategically used the bible to remind members of the community to love each other, protect themselves and others, and to show that pandemics have always existed. They were also vaccinated to show that the vaccine is safe and to act as role models to encourage others to get vaccinated as well. Sometimes they were even vaccinated in front of other members. Interviewees reported that the engagement of church leaders was impactful, as they were setting good examples, which encouraged the community to adhere to Covid-19 prevention measures.

"We used the Church as a place of communication. We talked about the problems facing Christians, and then we also used the radio. We've got an RTSV radio station that we've used as a medium, but also telephones, so we've been able to communicate with people from the inside, and that's been a good experience, but at the church we've also had the opportunity" (KII - GOMA)

"My role was first and foremost to coordinate these awareness campaigns, but also to act as a bridge between the government and the communities. When I talk about the government, I'm talking about the health division, I'm talking about vaccination coordination, and when we already had people to vaccinate, I could easily ask the government to bring us a mobile vaccination team (KII - Goma).

Further COVID-19 prevention measures, such as distribution of masks and facilitating hand washing, were implemented in the churches in order to further mitigate the risk of COVID-19 transmission.

"In our churches, we asked for hygiene measures to be put in place all over the temple and even in front of the houses, we provided water, hand-washing products, masks and distributed them to the faithful" (KII- Goma).

The faith-based organization also collaborated with the government, who provided equipment, medicine, and vaccines. They also worked with some NGOs, such as World Vision, Christ United, World Relief, etc. who also provided supplies and helped to set up vaccination sites.

"We've been in contact with the provincial government, and even the national government. And with the provincial Ministry of Health, which supported us by sending us medicines and vaccines. So the government health services have strengthened our structures, so the structures organized by our churches, which may not have had the necessary products or equipment, have strengthened their capacities to enable them to take care of the population" (KII- GOMA).

"It was just after, it was just last year that they collaborated with just the organizations, the NGOs that set up vaccination sites on both campuses. So on one campus, the Salomon campus, they collaborated with SANRU and on the Moise campus it was with WORLD RELIEF. So they split up" (KII- GOMA)

3.4 Perceived success of religious leaders in reaching the community

There was little trust in government public health professionals in North Kivu and South Kivu at baseline. A slight positive change was noted at endline, however, the trust remained low. Conversely, in Ituri, two thirds trusted government public health facilities already at baseline, which increased to 86% at endline. Similar proportions could be observed for trust in faith-based health agencies for all three regions (see figures 7 and 8).

Figure 7: Trust in government public health professionals among KAP respondents in North Kivu, South Kivu and Ituri at baseline and endline

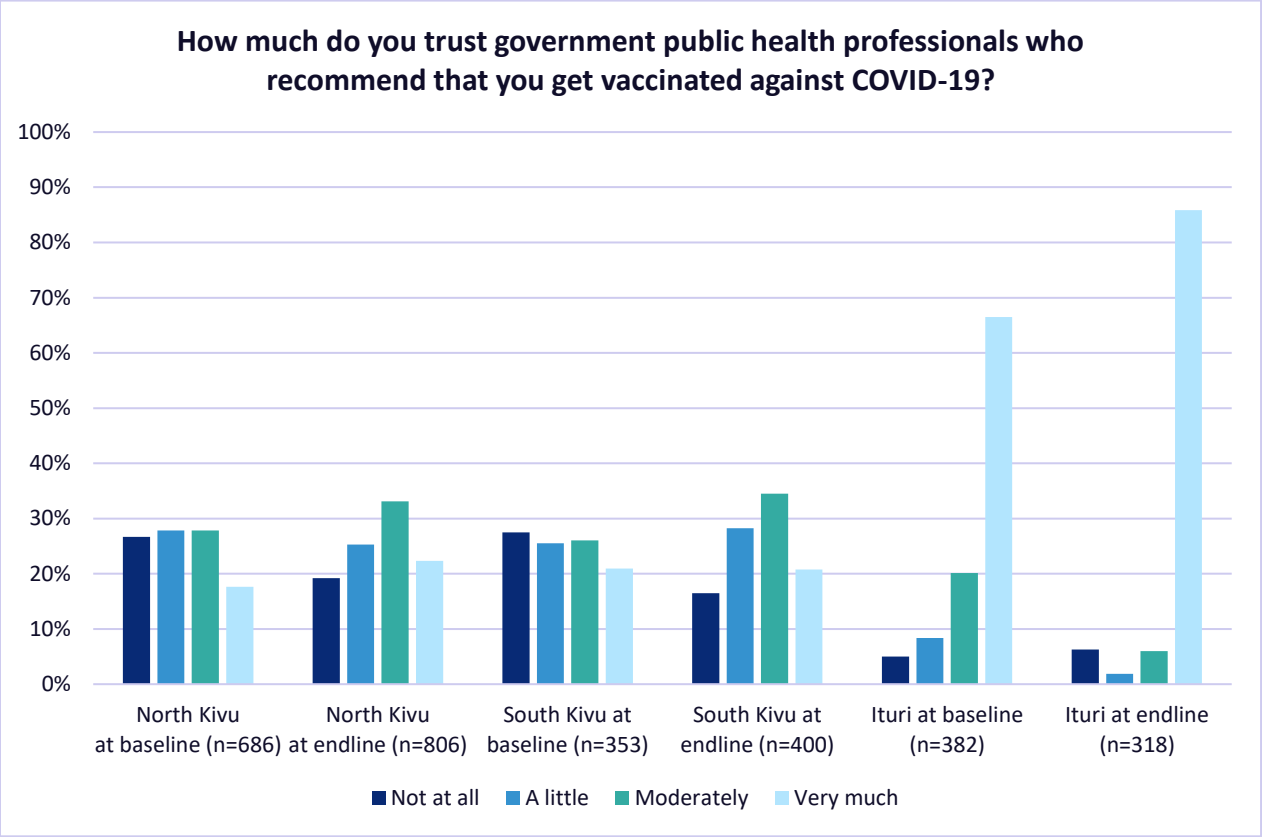
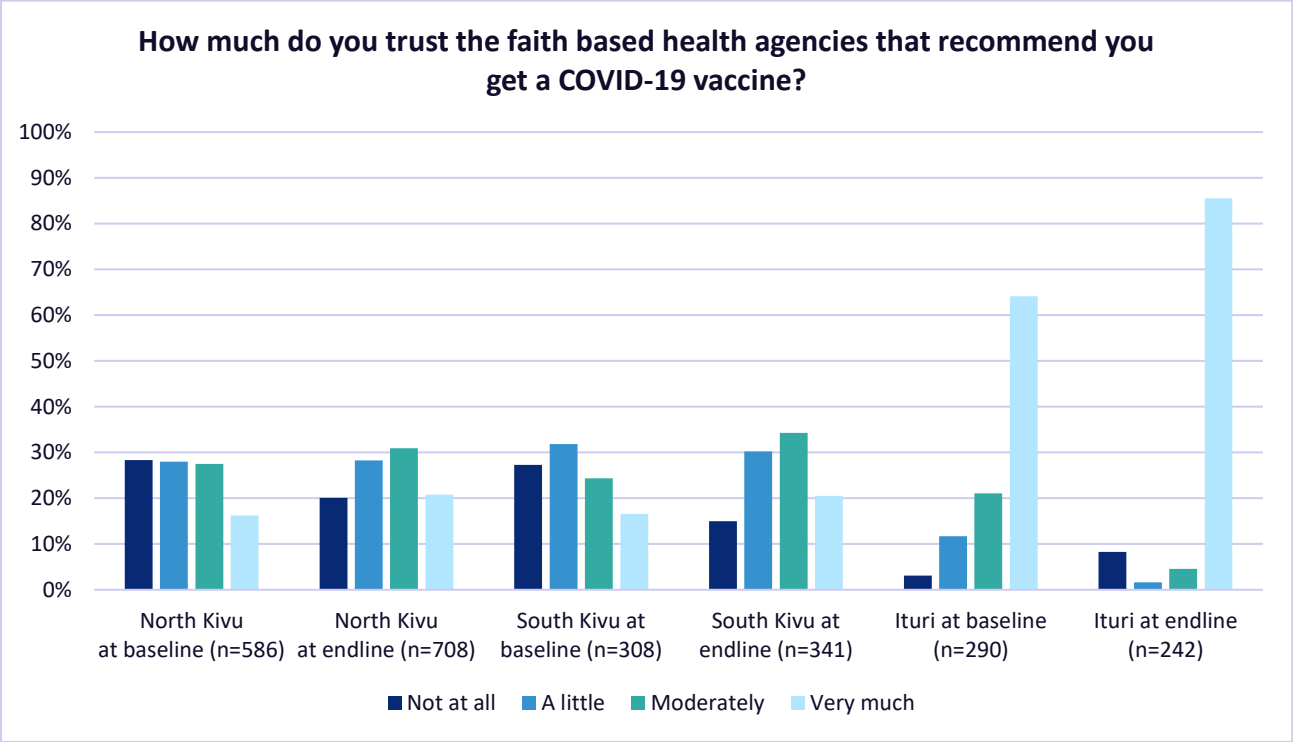


Figure 8: Trust in faith-based health agencies among KAP respondents in North Kivu, South Kivu and Ituri at baseline and endline



In the South **Kivu**, community members and health workers stated that the faith-based organization was successful in reaching the community. Religious leaders are role models for community members of their congregation. Community outreach activities, including awareness campaigns, helped to reduce fear of the vaccine. Even if some community members were initially afraid of the vaccine, they changed their perception after some time.

"I also hid from the vaccine the very first time, alluding to all the effects that were attributed to it! But when I saw someone who'd already been vaccinated three times, I realized that there were no problems, so I went and got vaccinated too!" (FGD – South Kivu)

''There were priests who told us that they were already vaccinated; so we could see that among us it was easy to take it because many Catholics were vaccinated because they knew that the vaccine existed without being the beast'' (FGD – South Kivu).

Many community members state that today, there is less hesitancy around the vaccine, since none of the anticipated consequences occurred among those who were vaccinated.

''Today I find that there is no longer any obstacle, because all the rumors that people were saying after I took the vaccine did not happen'' (FGD – South Kivu).

Today, however, many of the awareness-raising activities have stopped, as outlined by a health professional.

"I already know that as the pandemic has seemed to disappear people are saying that you are still telling us to go get vaccinated for what reason? That's what I can say as an obstacle, and as the world has said, there's no longer any reason to stop someone at customs, so that they can show their vaccination card, that's another challenge" (KII, Registered Nurse – South Kivu)

In **Ituri**, awareness raising by faith-based organizations was perceived as an effective strategy in reaching the community, as they were trusted, credible influences with many followers, which allowed them to convey messages about COVID-19 to many people, especially after they showed the community that they have been vaccinated themselves. The awareness raising campaigns carried out by the church organizations played a big role in shifting the mindset of the population about COVID-19 vaccination, resulting in greater acceptance and increased vaccination numbers.

"We started by convincing the leaders, the opinion leaders, because when a leader adheres to something, the rest of the community adheres to it. I remember we went to a village where there was a great fetishist whom the whole community obeyed, and it was with him that you couldn't vaccinate in his area. We spoke with him and he agreed to be vaccinated, but after him it was the whole village that accepted the vaccine" (KII – Ituri)

"we proceeded with awareness campaigns, especially the awareness campaign carried out by CECA 20, we went from 500 vaccinated in 14 days during the first campaign to more than 2,000 vaccinated in 7 days'' (KII – Ituri)

''Now the level is estimated at 60%; as I said earlier, at the beginning people didn't decide to vaccinate themselves, but of course after a lot of awareness-raising, they started to come forward of their own accord'' (KII – Ituri).

In the control zone, some efforts by faith-based organizations to sensitize community members was acknowledged, however, they noticed that acceptability is still low.

In **North Kivu**, faith-based organizations were perceived to be mostly successful in reaching the community. Given their influence, they succeeded in reducing myths and promoting the COVID-19 vaccination among community members. Community outreach activities, such as awareness campaigns played a big role in changing the mindset among the population and facilitated vaccine acceptance. The awareness campaign even reached some Indigenous people who got vaccinated at the hospital.

"I think that if the Church only makes a statement about a pandemic, that statement goes a long way. But even if the president says it, people will say no, the Church hasn't said anything yet" (FGD – North Kivu)

"Yes, the church has intervened in the importance of vaccination. I'd like to take the example of my neighbors. They're not Christians, but when they saw Christians going for vaccination, they went for it too. They told themselves that since Christians wanted to be vaccinated, there was no danger involved." (FGD – North Kivu)

"The indigenous people who come to Hill Africa for treatment, you can drop in and see, there are names like RAMKAIS, there were even the faithful, the indigenous people who said that we can't catch this disease, but with sensitization they understood that these are people like us, and we are all created in the image of GOD, because we had this campaign that says that even if you're in the forest you can also catch the disease, even if you're in the West, in the East, in America, you can catch this disease" (KII – North Kivu)

However, today, awareness raising activities have stopped and community members are no longer being vaccinated.

"Given that this is not a health emergency anymore, people are no longer getting vaccinated" (KII – North Kivu).

4. Discussion

Religious leaders made some difference in promoting COVID-19 vaccination across all regions. However, they were not able to fully overcome a trust crisis in the government, health system, and among community members. In Ituri, the biggest difference in vaccine acceptance was documented, most likely due to the higher levels of trust in the government and faith-based organizations, as shown by the KAP survey results. Likewise, in Ituri, religious leaders have significant influence over their rural communities, which also are not regularly exposed to other political and health messages that could bias them against vaccination or the health system as an institution. Conversely, community members from urban North and South Kivu showed little trust in the government and faith-based organizations, potentially due to the Ebola outbreak, other concurrent public health emergencies and the ongoing civil war in the regions. If there is trust in governments and faith-based organizations among the community, it is evident that faith-based organizations can play a big role in promoting vaccine uptake. However, some demand and supply side barriers were also highlighted in the qualitative interviews, which might need further consideration for interventions to be even more effective.

4.1 Integrated awareness raising activities

One community member in South Kivu reported there were many other public health campaigns operating during the same period as the COVID-19 awareness raising activities, such as campaigns for malaria net distribution and for vaccines against measles and polio. These campaigns ran concurrently, and it is unclear whether the other campaigns also discussed COVID-19 vaccination, though it was thought that they did not by respondents. This is despite the fact that combining efforts and integrating awareness campaigns for different public health issues, where possible, is likely to be more resource-efficient and less confusing for the community. Messages could be co-created with community and youth organizations to ensure they are locally contextualized, applicable, and acceptable. Furthermore, health personnel highlighted the need for continued awareness raising about COVID-19 and the vaccination beyond the immediate emergency. As documented by Haldane et al. (2021), for prevention and preparedness for future outbreaks, a population needs to get accustomed to public health messaging around water, sanitation and hygiene and infectious disease prevention and response. Such messaging should be strengthened through continuous proactive engagement and mobilization, even during non-crisis periods (9).

4.2 Barriers to health service use

Demand-side barriers to vaccination were prevalent during the COVID-19 Church health service response. There was a proliferation of misinformation, myths, and cultural misbeliefs about the vaccination in all three regions, which limited vaccine uptake. Given the limited accessibility of media, internet, television in Ituri, it is likely that they were less affected by the spread of misinformation, compared to North and South Kivu. However, supply side barriers, such as vaccine stock outs, and transportation challenges, especially in the conflict-affected area, increased the likelihood of limited vaccination uptake. Additionally, the data revealed a small number of vaccination sites in all regions, requiring individuals to travel considerable distances to get vaccinated and paying transportation fees. During future public health emergencies, there is a need for more vaccination sites and for being proactive in bringing vaccines to each community, by deploying mobile public health units, to alleviate the financial burden on the population. Likewise, it is important to strengthen supply chains and provide necessary commodities, including vaccination documentation forms for reporting. These findings align with other findings on health seeking behavior in DRC, which indicate that although people want to access health care services, barriers in access, such as prohibitive costs for health care services, limited options for health care services in rural areas (10), limited resources to access medical care (11), and heightened economic burdens, due to the high costs associated with the time lost at the hospital (12).

4.3 Trust in public health messaging

The DRC has been facing many public health challenges in recent years, including multiple Ebola outbreaks, which were particularly severe in North and South Kivu. In addition, North and South Kivu have been heavily affected by a civil way, which has been ongoing in North Kivu for more than 10 years. The civil war, the Ebola outbreaks, and the Ebola vaccine have led to widespread mistrust of community members in public health services and the government have led to little trust among the community in the government and health system. In Ituri, on the other hand, there have been severe political unrests since 2018, however the region was never affected by a civil war. Thus, there has always remained a trust in the government. In North and South Kivu, the lack of trust in the government and the health system was evident among KAP survey respondents, compared to Ituri. Likewise, qualitative data indicated that often community members questioned health workers' motivation in vaccinating the population. These findings align with recent survey findings from South Kivu highlighting that only 2.1% of respondents trusted the national government (13). In Ituri, there is a large faith-based organization that has a lot of influence on the community that may help people to keep trusting the system and may have a stabilising role. The ability of faith-based organizations to influence people's awareness, offset misconceptions and overcome misinformation was dependent on how trusted they are among the community, in particular in conflict-affected and emergency settings.

4.4 Coalition building

The World Health Organization suggests a holistic and integrated approach in combatting public health challenges. This requires partnership building and collaboration among different actors, such as national

governments, public health organizations, religious leaders, faith-based organizations, faith communities and civil society (14). While the data indicates existing partnerships between faith-based organizations and the government, as well as with other key public health organizations across all provinces, there was a notable absence of inter-faith coalitions and collaboration with community-based organizations. Such coalitions are crucial for delivering unified and harmonized messages and to overcome community distrust. Although some faith-based organizations engaged in collaborative efforts, enhanced coordination to ensure consistent messaging across the entire community was needed. In South Kivu, where Difäm supported two churches, qualitative data revealed instances of contradictory messages from religious leaders. Considering the presence of approximately 180 different churches in South Kivu, it is plausible that the religious leaders in supported churches effectively communicated appropriate messages about COVID-19 and vaccination. However, in other churches, leaders might not have been adequately informed about COVID-19, leading to the dissemination of misinformation and the reinforcement of rumors. Conversely, in Ituri, the presence of fewer churches in the area correlates with a more significant impact of the churches' intervention messages. Future interventions need to focus on building interfaith coalitions and partnering with community-based organizations, schools, youth centers, etc. to overcome distrust in the community. Furthermore, a critical requirement involves the continuous monitoring of ongoing initiatives, particularly in urban areas, to ensure the synchronization and strategic alignment of messages being disseminated within the targeted communities.

4.5 Fragmentation among the community

The interventions in faith-based organizations would have likely brought people together that share common values and characteristics. However, the population of the DRC is not homogeneous and characterized by diverse subgroups, whose cohabitation is often marked by suspicion and mistrust. This results in a lot of inter-community conflict between community members. As one of the key informants in North Kivu highlighted, one of the obstacles to high vaccination acceptance were the different cultures and communities that exist in the Congo. While the COVID-19 pandemic could have brought community members and leaders closer together, people did not feel that connection, particularly in towns. Working in siloed intervention areas did not maximize the potential of a collective voice and more outreach efforts were needed.

4.6 Strengths and limitations

This report benefits from both quantitative and qualitative data that were triangulated to supplement each other and provide comprehensive insights into the role of religious leaders in three regions. However, there are a few limitations that should be noted. Firstly, recall bias among community members and key informants might have resulted in them remembering aspects in a different way than they had happened a few years ago. Secondly, social desirability bias among key informants and community members could have led them to answer questions the in the way they thought they are supposed to, instead of telling the truth. Thirdly, the data collection was conducted without the Swiss TPH team’s direct supervision, and the daily transmission of data was impeded by limitations in internet connectivity in DRC, consequently hindering the daily data quality checks. The KAP data

that informed this analysis was collected at the close of the campaigns in 2022. The current data, while collected in similar locations may not have reached the same populations of people give the high mobility in the areas under investigation. Lastly, the sample size of KAP survey respondents varied across regions and between baseline and endline, which limits comparability of results.

5 Recommendations

Overall, it is evident that religious leaders were influential among the community and played an important role in promoting COVID-19 vaccination, with most success in Ituri province. The following recommendations can help to inform future interventions with church health services and religious leaders to maximize their effectiveness and reach.

- Strengthen partnerships between faith-based organizations and the government for larger vaccine programmes. Faith-based organizations can be strong partners to the government if they work in collaboration, without competition, and if churches on the ground are actively engaged.
- Leverage faith-based organizations as local assets and mutual players. They are usually rooted in the community and operated by local people. By further building upon them as a resource, they can play a bigger role in public health messaging within the community.
- In the long term, strengthen the role that faith-based organizations can play in the provision of healthcare. To have an impact, the government can leverage faith-based organizations as local resources if they are already trusted at the community level (win-win situation). Improve and build on the trust that is already there for other diseases, including NCDs, and the provision of vaccines, etc.
- Build coalitions among different faith-based organizations, community-based organizations, schools, youth groups, sports clubs, etc. in the target communities to ensure common messaging and that the community hears the same information. Likewise, strengthen collaboration with existing community-based structures (civil society coalition), that the community trusts.
- Sustain integrated awareness raising activities about COVID-19 and other infectious diseases, including WASH and pandemic preparedness, through different avenues, such as radios, the media, outreach, etc. to maintain momentum. This may help to overcome the myths and beliefs and ensure regular health information for the community.

6 References

1. Hategeka C, Carter SE, Chenge FM, Katanga EN, Lurton G, Mayaka SM-N, et al. Impact of the COVID-19 pandemic and response on the utilisation of health services in public facilities during the first wave in Kinshasa, the Democratic Republic of the Congo. BMJ Glob Heal. 2021 Jul;6(7).

2. Nachega JB, Mbala-Kingebeni P, Otshudiema J, Zumla A, Tam-Fum J-JM. The colliding epidemics of COVID-19, Ebola, and measles in the Democratic Republic of the Congo. Lancet Glob Heal. 2020 Aug;8(8):e991–2.

3. Shephard B. Elite Bargains and Political Deals Project: Democratic Republic of Congo (M23) Case Study. 2018. Available at: https://assets.publishing.service.gov.uk/media/5c190ffde5274a466da21704/DRC_case_study.pdf, accessed 13 October 2023.

4. Rift Valley Institute. Stable Instability: Political Settlements and Armed Groups in the Congo. 2016. Available at: https://www.refworld.org/docid/57e92e4d4.html, accessed 13 October 2023.

5. Federal Ministry for Economic Cooperation and Development Germany. A country facing big challenges. 2023. Available at: https://www.bmz.de/en/countries/democratic-republic-of-the-congo, accessed 13 October.

6. International Organization for Migration. Nearly 1 Million Newly Displaced in DRC in First Half of 2023 Amid Surge in Violence. 2023. Available at: https://www.iom.int/news/nearly-1-million-newly-displaced-drc-first-half-2023-amid-surge-violence, accessed 13 October 2023.

7. Zola Matuvanga T, Doshi RH, Muya A, Cikomola A, Milabyo A, Nasaka P, et al. Challenges to COVID-19 vaccine introduction in the Democratic Republic of the Congo–a commentary. Hum Vaccines Immunother. 2022;18(6).

8. Baba A, Grant L, Pearson N, Wild-Wood E, Falisse J-B, Way Y, et al. Engaging faith communities in public health messaging in response to COVID-19: Lessons learnt from the pandemic in Ituri, Democratic Republic of Congo. Front Public Heal. 2022;10:916062.

9. Haldane V, Jung A-S, De Foo C, Bonk M, Jamieson M, Wu S, et al. Strengthening the basics: public health responses to prevent the next pandemic. BMJ. 2021 Nov;375:e067510.

10. Zihindula G, Maharaj P. In: Aging and Health in Africa, Volume chap 4. Maharaj P, editor. New-York: Springer; 2013. Health and health seeking behaviour in the Democratic Republic of the Congo: Perspectives of the Elderly; pp. 91–101.

11. Bartels SA, Scott JA, Leaning J, Kelly JT, Joyce NR, Mukwege D, et al. Demographics and care-seeking behaviors of sexual violence survivors in South Kivu province, Democratic Republic of Congo. Disaster Med Public Health Prep. 2012 Dec;6(4):393–401.

12. Kayiba NK, Yobi DM, Devleesschauwer B, Mvumbi DM, Kabututu PZ, Likwela JL, et al. Care-seeking behaviour and socio-economic burden associated with uncomplicated malaria in the Democratic

Republic of Congo. Malar J. 2021 Jun;20(1):260.

13. Vinck P, Pham PN, Bindu KK, Bedford J, Nilles EJ. Institutional trust and misinformation in the response to the 2018-19 Ebola outbreak in North Kivu, DR Congo: a population-based survey. Lancet Infect Dis. 2019 May;19(5):529–36.

14. World Health Organization strategy for engaging religious leaders, faith-based organizations and faith communities in health emergencies. Geneva: World Health Organization. 2021.