



# COVID-19 VACCINE HESITANCY AND ACCEPTANCE STUDY IN MADAGASCAR

A qualitative analysis using the WHO Behavioral and Social Drivers of Vaccination framework

MOMENTUM Country and Global Leadership



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## ABBREVIATIONS

<b>AEFI</b>	adverse event following immunization
<b>BeSD</b>	behavioral and social drivers
<b>COVID</b>	coronavirus disease
<b>CSB</b>	basic health centers ( <i>centres santé de bases</i> )
<b>EPI</b>	Expanded Program on Immunization
<b>FGD</b>	focus group discussions
<b>IEC</b>	information, education, and communication
<b>KII</b>	key informant interview
<b>USAID</b>	U.S. Agency for International Development
<b>WHO</b>	World Health Organization

# EXECUTIVE SUMMARY

## BACKGROUND

In response to the COVID-19 pandemic, the Madagascar government deployed COVID-19 vaccines in 2021, with a target to vaccinate 30.95% of the population (8,437,604 persons) by December 2022. However, as of 30 July 2023, only 3,092,063 individuals (11.17%) nationwide had been fully vaccinated against COVID-19. The aim of this study was to understand the drivers of COVID-19 vaccination and identify the approaches or strategies to improve COVID-19 vaccine uptake among high-priority populations. Our work aims to understand how vaccine hesitancy, or the “delay in acceptance or refusal of vaccination despite the availability of vaccination service,” according to the World Health Organization, may contribute to limited COVID-19 vaccine uptake in Madagascar and how these barriers can be overcome.

## METHODS

The MOMENTUM Country Global Leadership immunization team conducted a qualitative study using the World Health Organization’s behavioral and social drivers of vaccination framework. Five communities across three districts from three regions in Madagascar were selected. They represented the Equity Reference Group typologies and topics of zero-dose vaccination status: remote rural communities, urban poor communities, disaster-affected communities, and gender-related inequity. The respondents in this study were Expanded Program on Immunization managers at national, regional, and district levels; immunization partners; COVID-19 vaccinators at health facilities; community agents; community leaders; district administrative chiefs (mayors); district-level civil society organizations; religious leaders; and traditional leaders. The clients who were interviewed included older people (50 years and older), young people (18 to 25 years), pregnant and breastfeeding women, people with comorbidities, and people with disabilities. Framework-based coding was used to guide the development of the codebook, identification of key themes, and analytical/coding process. Data were analyzed using the qualitative analytical software Dedoose.

## RESULTS

A total of 63 key informants were interviewed and nine focus group discussions were conducted.

**Thinking and feeling.** Many managers, community leaders, and clients believe that COVID-19 is a threat and is dangerous because it kills people. Some respondents, including immunization managers and service providers, believe that COVID-19 doesn’t exist in their areas. Some community members believe that drinking herbal teas can help with COVID-19 recovery, so there is no need to take the COVID-19 vaccine. Respondents understood that the most vulnerable groups are the elderly, people with chronic illness, people with disabilities, pregnant women, and newborns. The COVID-19 vaccine is perceived by many respondents as a protective tool, protecting against the COVID-19 disease and preventing one from getting a severe form of the disease. People believe conspiracy theories that the COVID-19 vaccine is used to indirectly reduce the population. Some people believed that it was a disease of the cities and did not affect people in rural areas.

**Effective messages, messengers, and messaging platforms/channels of communications.** Young people, people with comorbidity and people with disability want messages that clearly explain that the vaccine will protect you and others from COVID-19 and the consequences of not getting vaccinated. Pregnant and breastfeeding women want messages on COVID-19 vaccine that stress how the vaccine protects them and their baby.

**Trusted sources and channels of information across each priority population.** Overall, priority populations appreciated one-on-one communication as the main channel of communication. Most respondents found radio to be a trustworthy and a strong channel for information about COVID-19. Respondents across all groups placed value in hearing messages from people who have been vaccinated against COVID-19. Health workers, community agents, and *fokontany* (village) chiefs are highly trusted sources of information.

**Resources, opportunities, and community events to improve advocacy, communication, and social mobilization.** Managers and providers stressed the importance of increased funds and financial resources to carry out sensitization activities. Human resources were consistently listed as one of the key resources that could be leveraged. The use of community agents and community leaders was reported across respondent types, as they both have trusted positions in the community. Providing soaps and disinfectants/hand sanitizer or other items at vaccination events can improve COVID-19 uptake. Other strategies to improve COVID-19 vaccine coverage include more community-level events for sensitization and demand generation, vaccination at special events, and integrating COVID-19 vaccine services with other health and non-health services.

**Barriers and challenges to strategies implemented by Expanded Program on Immunization managers for COVID-19 demand generation.** A key challenge for COVID-19 vaccination was distance to facilities, and respondents noted that COVID-19 vaccine demand and access could be higher if sites and locations outside of the basic health centers were identified for vaccination. Having a single-dose vaccine increases demand for vaccination and clients should be followed up after vaccination for booster doses.

## CONCLUSIONS

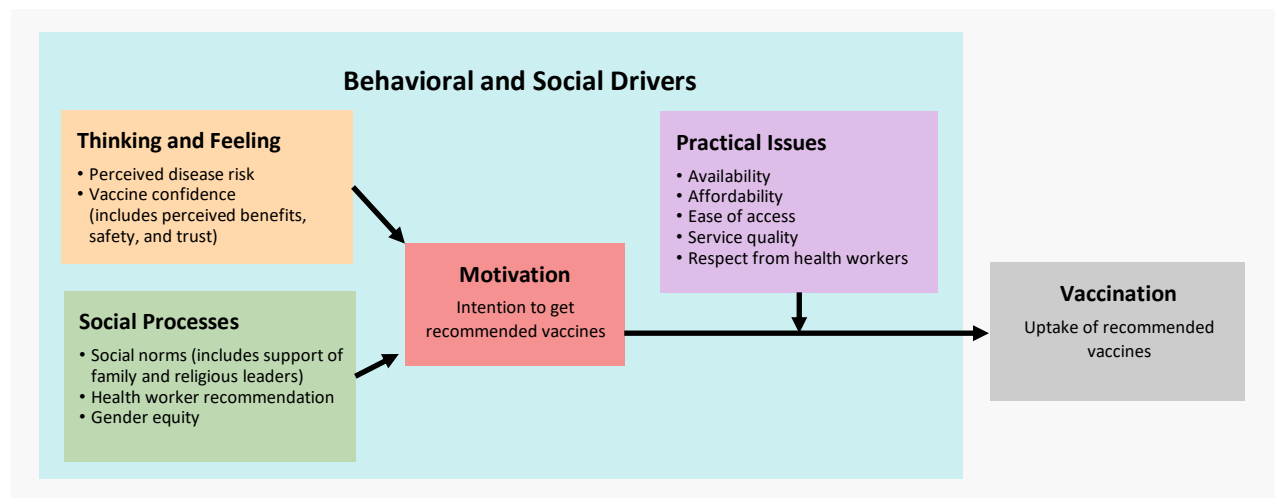
The government of Madagascar made COVID-19 vaccine freely available for the eligible population yet the rate of hesitancy to COVID-19 vaccine remains. Therefore, the immunization program managers and partners in Madagascar should review and revise the contents of existing COVID-19 vaccines messages and use the best channels for communication with the COVID-19 vaccination eligible target populations as recommended by the respondents in this study. More studies should be conducted in the future to determine the magnitude of the hesitancy to COVID-19 vaccines after government interventions.

# INTRODUCTION

In 2020 and 2021, the coronavirus disease (COVID-19) pandemic caused the disruption of activities in the health and many other sectors, and led to increased morbidity, and mortality globally, including in Madagascar (WHO, 2021) The COVID-19 vaccine was introduced globally to minimize the impacts of the pandemic (WHO, 2021). In May 2021, the Madagascar government deployed COVID-19 vaccines with a target to vaccinate 30.95% of the population (8,437,604 persons) by December 2022 (UNICEF 2022, Rasambainarivo, 2022). As of 30 July 2023, only 11.17% of the population (3,092,063 persons) nationwide had been fully vaccinated against COVID-19 (WHO, 2023). At the time of this study, four COVID-19 vaccines were available in Madagascar: Sinopharm, Astrazeneca, Pfizer, and Janssen; yet, the availability of the COVID-19 vaccine did not translate to full uptake of the vaccine by the target population. The factors that may influence the uptake of the vaccine include access and affordability of immunization services, awareness of vaccination, social norms, misinformation, and perceptions and attitudes towards vaccination, which are associated with hesitancy to the vaccine (WHO, 2021, Bedford et al., 2018). The strategic advisory group of experts of the World Health Organization (WHO) defines vaccine hesitancy as “delay in acceptance or refusal of vaccination despite availability of vaccination services. Vaccine hesitancy is complex and varies with vaccine, place, time, and influenced by factors such as complacency, convenience, and confidence” (MacDonald, 2015). In 2019, WHO put forth the behavioral and social drivers (BeSD) framework of vaccination to be used by immunization programs to assess behavioral and social drivers to vaccine acceptance and uptake, and guide the development of corresponding actions. The four domains of the BeSD framework are thinking and feeling, social processes, motivation, and practical issues (WHO, 2022), as described below.

Barriers and enablers to promoting vaccine confidence and demand have been studied extensively, as documented below. The BeSD framework has been increasingly guiding much of this research since its inception. MOMENTUM Country and Global Leadership’s work aims to contribute to this growing body of evidence by proving data from Madagascar on COVID-19 vaccine hesitancy.

**FIGURE 1. THE WHO BESD FRAMEWORK OF VACCINATION**



*Thinking and feeling:* perceived risk, worry, confidence, trust, safety. *Social processes:* provider recommendation, social norms, gender norms and equity, sharing information, and rumors. *Motivation:* readiness, willingness, intention and hesitancy. *Practical issues:* accountability, convenience, cost, quality, incentives, intervention fatigue. *Vaccination:* scheduled appointment, consent, accept vaccine, delay, and refusal. Several studies were carried out to understand behavioral and social drivers of COVID-19 vaccination along the BeSD domains.

**Thinking and feeling domain.** Perceived risk of the disease; worry, confidence or trust in the safety of the vaccine are constructs encapsulated in this domain. Recent studies found that limited knowledge, attitudes, and perceptions about COVID-19 vaccine efficacy and safety, and poor trust in government and public health authorities, were drivers of COVID-19 vaccine hesitancy in most African countries (Kalu et al., 2021; Kricorian et al., 2022; Steffens et al., 2022). In Ethiopia, some health workers believed that COVID-19 vaccines could worsen any pre-existing medical conditions and could cause COVID-19 infection (Adane et al., 2021). Individuals who perceive themselves to be less susceptible to COVID-19 infection or who have poor knowledge of COVID-19 have higher hesitancy towards COVID-19 vaccine (Fisher et al., 2020; Mewirther et al., 2022; Paul et al., 2021). Those who perceived the COVID-19 vaccine as risky and ineffective were associated with high vaccine hesitancy (Katoto et al., 2022; Fisher et al., 2020). Facilitators of COVID-19 vaccine acceptance were perceived benefits of vaccination and positive social influences (Steffens et al., 2022). Given their aversion to perceived vaccine risk, adults with underlying health conditions need targeted support to encourage vaccine acceptance and health professionals should proactively discuss and recommend vaccination to their patients (Steffens et al., 2022). Most health workers who were hesitant about the COVID-19 vaccine were hesitant because of negative perceptions of the vaccine safety, efficacy, and potential side effects (Biswas et al., 2021). For these reasons, communication and education strategies along with mandates for health workers should be considered to increase COVID-19 vaccination uptake among health workers, given that, as vaccinators, they are role models for preventive behaviors (Biswas et al., 2021).

**Social process domain.** This domain includes provider recommendation, social norms, gender norms and equity, sharing information, and rumors. One of several reasons for COVID-19 vaccine hesitancy was lack of clear information on the vaccine from the national governments and scientific institutions, aggravated by the circulation of inaccurate information via social media and the internet, referred to by the WHO as “infodemics” (Maccaro et al., 2022). Misinformation and conspiracy theories lead to conflicts and confusion, which then triggered skepticism and distrust in some groups and communities (Alagarsamy et al., 2022; Allington et al., 2021; Fisher et al., 2020). In the Benin Republic, some of the local reasons responsible for COVID-19 vaccine hesitancy include the existence of traditional medical practices as alternatives to vaccines and fear of neo-colonialism in the pandemic threat (Maccaro et al., 2022). Recent studies in the U.S. suggest that females and younger people have a higher hesitancy to COVID-19 vaccination and that people whose health care provider recommended COVID-19 vaccine had lower hesitancy to vaccine (Fisher et al., 2020; Reiter et al., 2020). The circulation of timely, accurate, and transparent information about COVID-19 vaccine to ease apprehensive minds could positively affect vaccine acceptance and uptake (Alagarsamy et al., 2022; Bendau et al., 2021). There should be strategies to pass information through different levels, such as medical professionals and trusted individuals and institutions (Bendau et al., 2021).

**Motivation domain.** This domain captures the readiness, willingness and intention, or hesitancy to be vaccinated. It is influenced by thinking and feeling as well as social processes, and it is in the causal pathway to vaccination uptake or rejection. In India, COVID-19 vaccine uptake intentions can directly or indirectly be attributed to the government’s vaccine communication strategy. Trust in the health care sector positively influences vaccine uptake intentions while a perceived risk of taking the vaccine is seen to negatively affect vaccine uptake intentions. (Alagarsamy et al., 2022). In addition, values and knowledge about COVID-19 vaccines and the impact of the vaccine program can positively influence vaccine uptake intentions (Alagarsamy et al., 2022).

**Practical issues domain.** This relates to the physical, financial, or programmatic factors that undermine or support the motivation to be vaccinated. In the U.S., COVID-19 vaccine hesitancy was seen more among ethnic minorities than other populations (Khubchandani et al., 2021). This was due to factors such as pre-existing vaccine hesitancy, lower access and fewer interactions with health care professionals, cost, and low



awareness. In addition, people living in rural areas and in lower income households and having lower levels of education were more likely to be hesitant to COVID-19 vaccine (Khubchandani et al., 2021; Bell et al., 2020; Katoto et al., 2022; Paul et al., 2021). Large crowds and long queues at health centers contributed to COVID-19 vaccine hesitancy (Alagarsamy et al., 2022).

There were no published studies on COVID-19 vaccine hesitancy in Madagascar. Hence, this study, which applied the BeSD framework, was introduced to understand the drivers of COVID-19 vaccine hesitancy and the approaches or strategies to improve COVID-19 vaccine uptake among high-priority populations in Madagascar.

The study aimed to answer the following question: What are the drivers of COVID-19 vaccine hesitancy and the approaches or strategies to improve COVID-19 vaccine uptake among high-priority populations (older adults, pregnant women, breastfeeding mothers, youths, people with comorbidities, and people with disabilities) in Madagascar?

The specific objectives of the study were:

- To understand the thoughts and feelings about COVID-19 and COVID-19 vaccination among the priority populations
- To understand the misconceptions and the drivers of misconception about COVID-19 vaccination among the priority populations
- To establish effective messages, messengers, and messaging platforms/channels of communications that can promote COVID-19 vaccine acceptance or reduce hesitancy among the priority populations
- To document the strategies implemented by Expanded Program on Immunization (EPI) managers in Madagascar for COVID-19 demand generation and the barriers and challenges faced in the implementation of these strategies
- To document the resources, opportunities, and community events that can be leveraged to improve advocacy, communication, and social mobilization to improve demand generation efforts for COVID-19 vaccination

## METHODS

The MOMENTUM Country and Global Immunization teams, working with the government and in-country consultants conducted a qualitative study using the BeSD framework and designed the questionnaire that was administered to the respondents through key informant interviews (KIIs) and focus group discussions (FGDs) at national, regional, district, facility, and community levels, to gather a wide variety of perspectives to improve COVID-19 vaccine delivery and acceptance.

### STUDY POPULATION

We conducted primary data collection through KIIs with three categories of respondents, 1) high-priority populations: older adults ( $\geq 50$  years old), pregnant women, breastfeeding mothers, young adults (18–25 years old), people with comorbidities, and people with disabilities; 2) community influencers and leaders (mayor, administrative district chiefs, religious leaders, traditional leaders); and 3) with immunization managers and providers (national, regional and district managers; development partners; civil society organizations; facility managers/providers; and community agents). We also conducted FGDs with high-priority populations, including older adults, pregnant women and lactating mothers, and youths. Eligible respondents are those who have been in their current location or position for at least a year to ensure their familiarity with their population context or role and their ability to provide insights on the topics covered in the interviews.

### STUDY SETTING

Through consultation with the Ministry of Health, the national immunization team known as the Direction du Programme Elargi de Vaccination, and the U.S. Agency for International Development (USAID) Mission, we identified districts in Madagascar with poor COVID-19 vaccination coverage. Ultimately, five communities across three districts and three regions were selected because they had a high proportion of unvaccinated children in the communities and they represented typologies that are associated with low vaccination access. These typologies are recognized by the Equity Reference Group for immunization as: remote rural communities, urban poor communities, and conflict and disaster-affected communities. The following districts were selected: Vohipeno in Fitovinany region, Mananjary in Vatovavy region, and Toliara II in Atsimo-Andrefana region. While the Equity Reference Group typologies relate to zero dose for routine childhood vaccination, we adopted these typologies in our study because zero-dose children and communities have come to be emblematic of inequities in immunization. The expectation is that the practical barriers to service access and delivery from the client and provider side, respectively, are likely to be relevant for COVID as well.

### RECRUITMENT OF RESPONDENTS

The MOMENTUM team contacted the appropriate district health offices to identify managers and providers who may have been willing to participate in the study. At the health facility, the medical officer in charge or matron supported identification of health care workers, clients, community health workers, and community leaders who participated in the KIIs. To identify and recruit community members, snowball sampling was used to identify additional participants. Informed oral consent was received prior to the administration of the study questionnaires.

## DATA COLLECTION

Semi-structured KIIs and FGD guides specific to each respondent category were developed, based on the concepts presented in the BeSD framework (Figure 1). Questions and probes in the guides cover three domains: 1) demographic information, 2) perceptions/attitudes/beliefs about COVID-19 vaccine, and 3) advocacy, communication, and social mobilization interventions to improve COVID-19 vaccine uptake. Questions were asked about professional experiences and community norms and activities, rather than personal experiences or individual opinions. Questionnaires were administered and interviews lasted approximately 45 to 60 minutes.

In-person interviews were conducted in November and December 2022 by teams of two experienced local data collectors recruited and trained by the USAID MOMENTUM immunization team. One interviewer and one note-taker were present at each interview. Interviewers followed the semi-structured interview guides developed for each respondent type. The interviews were conducted in the language that the study participant felt most comfortable with, either French or Malagasy. Interviews were recorded and audio files transcribed verbatim. Transcripts were translated to French (if in Malagasy) and then English prior to analysis. All data collected were de-identified.

## DATA ANALYSIS

The MOMENTUM team, qualitative research consultants, and a subset of data collectors trained in qualitative analysis completed the analysis. A framework-based coding approach was used to guide the inductive development of the codebook, identification of key themes, and analytical/coding process. Open coding and constant comparative analysis methodologies were used throughout the analysis. Matrices were developed to observe patterns, similarities, and differences between districts and among different levels of informants. Anonymized quotes were used to support the interpretation. All qualitative analyses were completed in the analytical software Dedoose. Data were analyzed between January and April 2023.

## ETHICAL CONSIDERATIONS

Several efforts were taken to ensure that this work was conducted ethically and respected the participants who volunteered their time. Participation in the work was entirely voluntary and could be ended at any time without penalty. Data collectors and other study team members were trained on research ethics. Informed oral consent was completed prior to data collection, and personally identifiable data was not collected. In addition, interviews were conducted in a private location to ensure privacy, and data confidentiality was maintained by storing the data in password-protected files. Findings from this study was shared with the national EPI team to review and come up with an action plan to address the reasons for COVID-19 vaccine hesitancy in the country and the solutions proffered by the respondents.

## FINDINGS

A total of 62 KIIs were conducted, which included 32 managers/providers, nine community leaders, and 18 clients (Table 1). Nine FGDs with clients were conducted, which included three FGDs with young people, three with pregnant or lactating women, two with older people, and one with all client types.

**TABLE 1. DESCRIPTION OF PARTICIPANTS INCLUDED IN THE KIIS**

Type of Respondent	Level or Group	Number of Respondents			Average Age (Range)
		Total	Male (%)	Female (%)	
Managers	National	7	3 (44.9%)	4 (57.1%)	41.6 (35, 49)
	Regional	6	5 (83.3%)	1 (16.8%)	39.7(26, 51)
	District	22	8 (36.4%)	14 (63.6%)	45.5 (26, 64)
Community leaders	Mayor	3	3 (100%)	0 (0%)	55.0 (45, 66)
	Religious leader	3	3 (100%)	0 (0%)	51.7 (47, 54)
	Traditional leader	3	3 (100%)	0 (0%)	78.0 (70, 81)
Clients	Young person	3	2 (66.7%)	1 (33.3%)	25.0 (23, 25)
	Older person	3	0 (0%)	3 (100%)	63.0 (56, 73)
	Pregnant or lactating women	3	0 (0%)	3 (100%)	21.6 (18, 24)
	Person with comorbidities	6	0 (0%)	6 (100%)	51.3 (31, 71)
	Person with disability	3	1 (33.3%)	2 (66.7%)	44.7 (42, 47)
<b>TOTAL</b>		63		34 (53.9%)	46.1 (18, 81)

The findings from the KIIs are organized into three sections: key findings across all respondent types aligned with the BeSD framework, key findings for each of the study’s five objectives, and solutions proposed by respondents to improve COVID-19 vaccination.

### COMMON FINDINGS ACROSS ALL RESPONDENT TYPES ALIGNED WITH THE BeSD FRAMEWORK

The BeSD framework was essential to framing our work and identifying areas to strengthen and leverage to improve COVID-19 vaccination. **Table 2** shows the key findings across all participants—managers, providers, community leaders, and caregivers—as they pertain to each theme.

**TABLE 2: USING THE BeSD FRAMEWORK TO CATEGORIZE KEY RESPONSES ACROSS ALL RESPONDENT TYPES**

BeSD Theme	Common Responses
<b>Thinking and feeling</b>	<ul style="list-style-type: none"> <li>• Many respondents across each of the respondent types feel COVID-19 is dangerous because it kills people and can affect anyone, particularly those with chronic illness who are among the most vulnerable. However, some others feel it does not cause harm.</li> <li>• While several respondents feel the COVID-19 vaccine is protective, a few believe conspiracy theories that the COVID-19 vaccine is used to indirectly reduce the population of the world.</li> <li>• A large proportion of respondents feel that COVID-19 can affect anyone; elderly people and people with chronic illness are the most vulnerable.</li> <li>• Some managers and providers feel COVID-19 doesn't exist anymore.</li> <li>• Some clients feel COVID-19 is not in their area.</li> <li>• Some community leaders and clients state that drinking herbal teas help with recovery, so there is no need to take COVID-19 vaccine.</li> </ul>
<b>Social processes</b>	<ul style="list-style-type: none"> <li>• The Government of Madagascar has done a lot in the coordination of vaccination and the deployment of vaccines in the country.</li> <li>• There are widespread negative rumors on COVID-19 vaccines and poor sensitization of clients to vaccination sites.</li> <li>• Political leaders (especially elected officials) and trained health workers/administrators and fokontany chiefs are highly trusted sources of information.</li> <li>• The use of a conditional gifts after the vaccination may increase the uptake.</li> <li>• Restrictive measures linked to the possession of a valid vaccination card incite people to get vaccinated to secure their living and employment.</li> </ul>
<b>Motivation</b>	<ul style="list-style-type: none"> <li>• Awareness creation by leaders in government motivates people to get the COVID-19 vaccine.</li> <li>• Positive testimonials from vaccinated individuals is a strong motivation.</li> <li>• People are motivated because COVID-19 vaccines are free.</li> <li>• Vulnerable groups are prioritized.</li> <li>• Some people are demotivated by the President's declaration that vaccination is not compulsory.</li> <li>• Demotivators: mass campaigns do not cover all villages, lack of public awareness, negative influence by religious leaders, vials not opened when clients are few, stockout of vaccines.</li> </ul>
<b>Practical issues</b>	<ul style="list-style-type: none"> <li>• Inaccessibility of vaccination services due to distance.</li> <li>• Inadequate strategies to reach clients.</li> <li>• Stockout of vaccines and vaccination cards.</li> </ul>
<b>Vaccination</b>	<ul style="list-style-type: none"> <li>• Most people prefer the one-dose schedule of the COVID-19 vaccine to the multiple-dose schedule.</li> <li>• Some respondents were vaccinated, while others who have not been vaccinated were still reluctant to get vaccinated</li> </ul>

## THOUGHTS AND FEELINGS

### PERCEPTIONS ABOUT COVID-19

**COVID-19 AS A THREAT:** Many managers, community leaders, and clients believe that COVID-19 is a threat and is dangerous because it kills people. Community members (clients and community leaders) fear going to the health facility due to the COVID-19 pandemic. In addition, community members in priority populations are concerned about losing their job or not being able to work when if they contract COVID-19 and that those who die from COVID-19 won't be buried with ancestors. Clients think that the disease is hard to eradicate.

While most respondents believe that COVID is a threat, some respondents across all respondent types are not afraid of COVID-19 or they think that it doesn't cause harm and wait until the disease is severe to go to a health facility. There are some perceptions among clients that COVID-19 doesn't exist in their areas, especially in rural areas, and some perceptions among managers and providers that COVID-19 doesn't exist anymore.

*“Because here at home, in rural areas, we don't know when a person has Corona, and we tend to think that the disease doesn't exist, that's why it's not significant here in rural areas.”*

*– Young person in Mananjary district, translated*

There are some misconceptions and rumors among clients and community leaders that COVID-19 was imported into Madagascar to reduce the population or that COVID-19 is witchcraft, but they still feel that COVID-19 is a threat.

*“Concerning COVID, people think that it is a kind of imported thing to decrease the population growth because the population growth is increasing rapidly.”*

*– Community leader in Mananjary district, translated*

**KNOWLEDGE ABOUT COVID-19:** Many participants across all respondent types acknowledge the importance of taking hygienic measures for prevention of the infection, and the importance of going to the health facility if concerned about COVID-19 symptom severity during recovery. Some community members (clients and community members) believe that drinking herbal teas can help with COVID-19 prevention or recovery, so there is no need to take the COVID-19 vaccine.

*“My opinion is that this disease does not exist here. I resign myself to the herbal teas, this is my idea.”*

*– Community leader in Mananjary district, translated*

In general, clients have accurate knowledge about COVID-19 transmission (via cough, a sneeze, touch/close contact). Respondents have a good understanding of the most vulnerable groups and were able to state that while everyone is at risk for COVID-19, higher-risk groups included elderly people, people with chronic illness (i.e., diabetes), people with disabilities, pregnant women, and newborns. Some community members also explained that people who are not vaccinated are vulnerable. (COVID-19 misconceptions are outlined in the section on misconceptions and the drivers of misconception.)

## PERCEPTIONS ABOUT COVID-19 VACCINES

The COVID-19 vaccine is perceived by many respondents as a protective tool, by protecting against the COVID-19 disease, helping the body to develop more protection against other diseases, and preventing one from getting a severe form of the disease. Community members stressed that the vaccine protects vaccinated people and protects the neighbors of vaccinated people.

*“So to protect our lives and the lives of those around us, we got vaccinated, because if there is no vaccine to prevent COVID 19, the first thing that's going to happen is I'm going to catch it and then I can pass it on to neighbors or people. That's why we were afraid of COVID.”*

**– Older adult in Toliara II district, translated**

Managers and providers highlighted the importance of the vaccine in preventing severe infection and supporting the immune system.

While there was much overall support for COVID vaccination among the respondents, some community leaders and clients reported that people believe conspiracy theories that the COVID-19 vaccine is used to indirectly reduce the population, especially since it is not made within the country. They reported that some people think that it introduces new diseases into the body to cause infertility and that some community members believe it is made to shorten the number of years of life, especially of the elderly people by threatening the immune system and introducing the virus into the body. There is some distrust among community members that the COVID-19 vaccine is fatal and threatens the health of individuals and communities.

## MISCONCEPTIONS AND DRIVERS OF MISCONCEPTION

A key misconception reported is that some people, especially women believed that COVID-19 spread through breastfeeding. While there is a lot of understanding around the importance of hygiene in preventing COVID-19 (i.e., through hand washing and mask wearing) and an overall strong understanding of COVID-19 transmission modalities, there was some belief that COVID-19 spread through dirt and being dirty. A small number of respondents believed that it was a disease of the cities and did not affect people in rural areas; if it did, it was because it came from the cities. An immunization manager spoke about the challenges of sharing the dangers of COVID-19 and motivation to get vaccinated, stating,

*“They were not persuaded because they did not see a lot of deaths. They said, these are diseases of the cities that have come here.”*

**– Immunization manager in Mananjary district, translated and clarified**

Among community members, there is a belief that only health care providers receive general knowledge on the disease and COVID-19 vaccines, but health workers did not succeed in enlightening the general population, which contributes to an information gap among the population and leads to low uptake of COVID-19 vaccines.

## EFFECTIVE MESSAGES, MESSENGERS, AND MESSAGING PLATFORMS/CHANNELS OF COMMUNICATIONS

Analysis in this section focuses only on responses from clients, which fall into five priority groups: young people, older people, pregnant and breastfeeding women, people with comorbidities, and people with disabilities. Effective messages, messengers, and sources and channels of information were explored in the KIIs and FGDs with clients.

### EFFECTIVE MESSAGES THAT RESONATE WITH EACH PRIORITY POPULATION

**YOUNG PEOPLE:** Young people stressed the importance of having a clear explanation of **why** the vaccine is important (versus **that** it is important). They wanted clear messages explaining that the vaccine will protect you from COVID-19, why that is important, and the consequences of not getting vaccinated. Some respondents noted that these messages may be especially relevant in rural areas. In addition, they stressed linking messages to their experiences, with one respondent noting,

*“If your explanations are related to the reality they are going through, it could attract them because it will speak of reality. They will accept it. So, it will depend on your explanation. If it's an unclear explanation, it won't attract them, but if it coincides with their situation, you can convince them.”*  
– **Young person in Mananjary district, translated**

The young respondents brought up some messaging themes that were not mentioned across other respondent groups, including messages about getting vaccinated to protect your opportunities and future, getting vaccinated so you can be healthy do things you like (i.e., sports), and getting vaccinated to protect your country and support the goal of resuming activities. One respondent noted that,

*“If you are vaccinated, it is to your advantage, you are young, you will not stay here in Antsenavolo, you will study, or you will play soccer, but the fact that you do not have a vaccination record, for example, will encourage you not to join a club, in town. It is a loss for you; then you consider your future.”* – **Young person in Mananjary district, translated**

Overall, messages that stress both the importance of vaccination to an individual’s health and other aspects of their life should be emphasized, with one respondent saying,

*“We should emphasize the messages that speak about the advantages of being vaccinated. Firstly it ensures health, secondly it ensures the economy of a country because it frees us from confinement, all the world could resume its activities and its work. Thirdly, we young people like to do sports, I mean competitions. To be able to do what we like, we must protect ourselves and maintain our health by taking the COVID-19 vaccine.”* – **Young person in Toliara II district, translated**



**PREGNANT AND BREASTFEEDING WOMEN:** Messages should stress how the vaccine protects both themselves **and** the baby they are carrying, and that, during the pandemic, vaccination can be done out of love for their baby. It is also important to clearly state that the vaccine is not deadly and is good for them, as there were some information gaps about whether it was recommended for pregnant women and safe for them. Messages about the vaccine being a way to protect their bodies and preserve their health and hygiene were important, too. Pregnant women also spoke about discussing the vaccine with their friends and the importance of passing the message along to their friends, so messages can encourage them to tell their friends to get vaccinated.

**PEOPLE WITH COMORBIDITIES:** Like other groups, people with comorbidities wanted a clear explanation of why they should receive the vaccine. They also mentioned that messages specific to people living in rural areas were important, as people in rural areas could be harder to convince. They also want to understand the state of COVID-19 and think that messages should state that COVID-19 transmission is on the rise (when applicable) and that COVID-19 is unlikely to go away. They think that the messages should focus on themes of protecting yourself and protecting others and that the vaccine is an approach for people to be healthy and in contact with one another. In addition, clear messages from doctors stating that people with chronic diseases should get the COVID-19 vaccine, and that it is safe for them, were strong and motivating for people with comorbidities to get vaccinated.

**PEOPLE WITH DISABILITIES:** People with disabilities think that themes of protecting yourself and others is important in COVID-19 vaccine messaging. In addition, respondents stressed the importance of noting that

*“Disability is not an obstacle [to get vaccinated].”*  
– *Person with disability in Vohipeno district, translated*

As such, health programs should encourage other people with disabilities to go to the basic health centers (*centres santé de bases*, CSB) to get vaccinated. In addition, they noted that messages stating the vaccine is just like a shot, which people are used to getting, may help motivate people. They, too, wanted more information about the disease, including information about symptoms, how it can be prevented, and how it can be cured.

## TRUSTED SOURCES AND CHANNELS OF INFORMATION ACROSS EACH PRIORITY POPULATION

Respondents across all groups placed value in hearing messages from people who have been vaccinated against COVID-19. In addition, health care providers, community agents, and fokontany chiefs were highly trusted sources of information. Many respondents listed liking messages from a mix of different people in the community (i.e., providers, community leaders, and vaccinated people).

**YOUNG PEOPLE:** Overall, the young respondents placed value in hearing messages from people who they think know the correct information, in the information that those people shared, and in seeing people who have been vaccinated. They considered these influential messengers to be fokontany chiefs, community agents, health workers (i.e., doctors, nurses associated with the CSBs and health facilities), traditional leaders, and specific influential actors like athletes, with one respondent noting,

*“We trust the community agents, doctor, Fokontany president, they tell the truth.”*  
– *Young person in Toliara II district, translated*

One respondent noted that adults trust fokontany chiefs more than youths do and that messages from fokontany chiefs have focused more on older adults while messages from youth leaders were more targeted to youths. Community agents are trusted because they have been vaccinated and are frequently with people who have been vaccinated. One participant also noted that the leader of the football team sensitized youth after getting the COVID-19 vaccine and convinced young people.

Some young people considered radio to be a trusted source of information and that they do not think lies are on the radio. Others disagreed and thought there may be lies on the radio so preferred in-person communication. They noted that hearing from a doctor who was vaccinated on the radio would be helpful. One young respondent noted that Facebook can have untruthful information, such as photoshopped photos, so that young people may have more distrust because they know that information shared with them could be false and made up. In addition, messages received at the CSB are among the most trusted, and young people believe they should go to the CSB to get correct information.

**OLDER PEOPLE:** Older adults also trust community agents and doctors, with one respondent noting,

*“It’s because of the community agents that we are motivated to get vaccinated...It has really encouraged us and really increased our enthusiasm.”*  
– **Older person from Toliara II district, translated**

In addition, they trust people who have been vaccinated. Older people trust the government and appreciate the collaboration between different individuals, like the mayor, who knows people in the community, and doctors.

Older adults preferred in-person messages more than posters and pictures about COVID-19 vaccination. They trusted the radio and liked a combination of national radio (i.e., National Malagasy Radio) and other radio shows (i.e., Mampita). They stressed a need for door-to-door communication or other alternatives for those who live in rural areas or the forest and don’t have a radio. They also mentioned that low-cost radio should be available to everyone. Through quick door-to-door communication, they think that older adults who stay at home can be reached. Lastly, if there are concerns about community messages, older adults said that going to the hospital for messages can help allay concerns. In addition, one respondent noted that a recent puppet show was successful in delivering messages.

**PREGNANT AND BREASTFEEDING WOMEN:** Pregnant women expressed their trust in doctors, midwives, community agents, and health staff who look out for their health and their children’s health; some noting that the midwife is their most trusted source. A theme that was present among pregnant women was the understanding that they did not know everything and that they should seek messages from health providers (both verbal and written messages, i.e., posters) so they could be advised on what to do. They were open to hearing these messages from trusted sources, with one stating,

*“We trust because we don’t know.”*  
– **Pregnant or breastfeeding woman from Toliara II district, translated**

Another noted,

*“We don’t have any knowledge in this area. It’s the doctors’ responsibility so I respect what the doctors suggest, I trust them.” – Pregnant or breastfeeding woman from Toliara II district, translated*

There was also a theme of respecting government and authorities. They also trusted their friends and liked hearing messages from their peers who have been vaccinated. Pregnant women liked posters and written material. They also noted church as a location to receive messages. In addition, they are open to messages via the telephone.

**PEOPLE WITH COMORBIDITIES:** Doctors and community agents were noted as trusted sources of information among people with comorbidities, as well as presidents and traditional leaders. Radio messages were listed as a channel for messages. One respondent noted that in rural areas, songs should be used to share messages (compared to news-type messages).

**PEOPLE WITH DISABILITIES:** Doctors, nurses, community agents, midwives, and health workers in general were noted as trusted messengers by people with disabilities. In addition, they mentioned religious leaders, traditional leaders, and fokontany chiefs. One participant brought an example of a trusted member of the community—the traditional leader’s wife—who worked with community members to sensitize them, stating *that*,

*“The traditional leader’s wife is a person like us, there is a place where we go to bathe women after childbirth. We unite as women who give birth in this village, the traditional leader’s wife who promoted the conversation and mastered it.” – Person with disabilities from Vohipeno district, translated*

In addition, people with disabilities trust in government messages (that the government would not recommend something harmful) and expressed a desire to have messages from the president. Messages at church were suggested as a channel to share COVID-19 vaccine information. Radio messages were also listed as strong sources of information.

Overall, priority populations appreciated in-person communication as the main channel of communication. While most respondents found radio to be a trustworthy and strong channel for information about COVID-19, some respondents expressed hesitation about the trustworthiness of messages on the radio and the reach of radio to rural areas and to older people.

## **RESOURCES, OPPORTUNITIES, INCENTIVES AND COMMUNITY EVENTS TO IMPROVE ADVOCACY, COMMUNICATION, AND SOCIAL MOBILIZATION**

Managers and providers stressed the importance of increased funds and financial resources to carry out sensitization activities. Human resources were consistently listed as one of the key resources that could be leveraged. The use of community agents and community leaders was reported across respondent types, as they both have trusted positions in the community. In addition, communication and collaboration between people with different roles in the community (i.e., doctors and fokontany chiefs) can be leveraged. Clients also suggested leveraging parents and community members who have been vaccinated in sensitization

events. Managers and providers stressed the importance of mobilizing stakeholders and bringing them together for advocacy purposes. In addition, training stakeholders, public figures, and community leaders and using tools to conduct the training to give testimonies of vaccination was important.

Several supplies and tangible items could be leveraged to improve demand. These included giving soap and disinfectants/hand sanitizer or other items at vaccination events. In addition, having more speakers and megaphones at events was listed as an approach to improve existing events. In addition, posters, pictures, and graphics can augment existing messages. Clients suggested using TV and radio for sensitization. Sensitizations should occur in local languages, which could increase the reach of existing activities.

Overall, respondents wanted more community-level events for sensitization and demand generation. Special events in the community can be leveraged for sensitization. Commune offices and schools can be used for vaccination or sensitization events. In addition, community dialogue and meetings involving periodic outreach could help health facilities reach communities needing vaccination. Finally, integrating COVID-19 vaccine services with other health and non-health services could increase COVID-19 vaccine uptake.

## **STRATEGIES IMPLEMENTED BY EPI MANAGERS FOR COVID-19 DEMAND GENERATION, THE BARRIERS AND CHALLENGES**

The use of community agents for demand generation was a strong recommendation, in addition to those mentioned above. Activities at the community level were also requested. There was a perception that the government had done a lot for COVID-19 vaccination, especially in terms of resource and stakeholder mobilization, mass media and social media campaigns, and making vaccines free, all of which supported vaccine demand.

A key challenge for COVID-19 vaccination was distance to facilities. Respondents noted that COVID-19 vaccine demand and access could be higher if sites and locations outside of the CSB were identified for vaccination. Some respondents noted that having a choice in the type of COVID-19 vaccine would increase their demand, while some noted that having a single-dose vaccine increases demand. Some also noted that follow-up after vaccination for booster doses could be improved by providers to ensure that people were able to receive their booster dose; this was also impacted by stockouts and availability of vaccines.

## SOLUTIONS PROPOSED BY RESPONDENTS TO IMPROVE COVID-19 VACCINATION

The following tables present solutions proposed by the respondents during the interviews. They've been grouped into solutions about advocacy and communication, messaging approach and content, and service delivery, incentives, and mandates. **Table 3** summarizes the solutions that were common for all respondent types. The themes in Tables 3 and 4 are ordered based on priority across respondents, including the frequency by which they were said across interviews and the importance by respondents (i.e., was a focus of their response to questions, they returned to these points throughout the interview).

**TABLE 3: SOLUTIONS COMMON ACROSS ALL RESPONDENTS: SERVICE PROVIDERS, COMMUNITY LEADERS, AND CLIENTS**

Advocacy Communication and Mobilization	Messaging Approach and Content	Service Delivery, Incentives and Mandates
<ul style="list-style-type: none"> <li>• Program managers/service providers should <i>conduct community dialogue</i> with parents or eligible target populations.</li> <li>• Conduct community <i>sensitization meetings</i>, particularly in the rural areas.</li> <li>• Use social gatherings or events (e.g., canoe course) to deliver COVID-19 vaccines. Sensitization must be conducted well before social event(s).</li> <li>• High level advocacy to His Excellency the President of Madagascar to take the COVID-19 vaccine publicly.</li> </ul>	<ul style="list-style-type: none"> <li>• Use testimonies of people who received the COVID-19 vaccination (recorded or live) to create awareness on vaccination.</li> <li>• Create more awareness on COVID-19 vaccination (i.e., vaccine type, safety, where to get vaccines, how to manage adverse event following immunization (AEFI), etc.).</li> </ul>	<ul style="list-style-type: none"> <li>• Deliver COVID-19 vaccine along with other products, such as mosquito nets, etc.</li> <li>• Motivate or reward hard-working teams, program managers, service providers, or community leaders.</li> <li>• Establish mobile teams or temporary fixed teams to reach distant communities.</li> <li>• Daily COVID-19 vaccination at health facilities/CSBs.</li> <li>• Health centers (facilities) to conduct outreach every month.</li> <li>• Make COVID-19 vaccination mandatory.</li> </ul>

In **Table 4**, we provide highlights of the top solutions to improve COVID-19 vaccine uptake, proposed by managers and service providers.

**TABLE 4: SOLUTIONS BY MANAGERS AND SERVICE PROVIDERS**

<b>Advocacy Communication and Mobilization</b>	<b>Messaging Approach and Content</b>	<b>Service Delivery, Incentives and Mandates</b>
<ul style="list-style-type: none"> <li>• Empower health care workers, youth representatives, and women’s organizations with knowledge on COVID-19 vaccines and COVID-19 disease to mobilize their peers in the communities.</li> <li>• Community agents/community leaders to conduct door-to-door awareness creation and mobilization.</li> <li>• Conduct advocacy visits to local authorities as mayors, fokontany chiefs, church leaders, and traditional leaders.</li> </ul>	<ul style="list-style-type: none"> <li>• Print and distribute information, education, and communication (IEC) materials on COVID-19 vaccination to the fokontany/communities to create awareness.</li> <li>• Update COVID-19 message to contain clients’ benefits from vaccination, including messages that COVID-19 vaccination does not kill or cause death.</li> <li>• COVID-19 vaccination messaging should indicate the target age group to be vaccinated (18 years and above).</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct vaccination in markets. Conduct mapping of markets and their days to support this.</li> <li>• Regular training of program managers and service providers on COVID-19 vaccines and COVID-19 disease.</li> <li>• Provide stipends/logistics for non-government organizations (e.g., women organizations) to be able to go to the community to create awareness on COVID-19 vaccination.</li> <li>• Increase number of vaccination teams in areas that have insufficient teams.</li> <li>• Institute mechanisms to retrieve and archive data from tablets or tools used for COVID-19 data collection at the end of vaccination exercise.</li> <li>• Review the educational requirements for the recruitment of community agents (engage educated community agents).</li> <li>• Improve vaccine handling to reduce AEFI.</li> <li>• Motivate community agents to carry out sensitization routinely and not only during campaigns.</li> </ul>

Lastly, **Table 5** summarizes the solutions proposed by clients in the high-priority groups to improve COVID-19 vaccine uptake.

**TABLE 5: SOLUTIONS BY CLIENTS**

Advocacy Communication and Mobilization	Messaging Approach and Content	Service Delivery, Incentives and Mandates
<ul style="list-style-type: none"> <li>• Town announcements should be conducted in the community prior to and during vaccination by temporary fixed teams or mobile teams.</li> <li>• Engage youth leaders in the community as COVID-19 vaccination advocates.</li> <li>• Identify focal person as community mobilizer for COVID-19 vaccination in a community/fokontany to work with community agents.</li> </ul>	<ul style="list-style-type: none"> <li>• Vaccination team should conduct health talks at intervals during vaccination to inform clients of the vaccines they will be given, number of doses to receive to be fully vaccinated, its benefits, and how to manage or report AEFI.</li> <li>• Use social media handles (Facebook, Instagram, Twitter, WhatsApp, etc.) to send COVID-19 vaccination messages.</li> </ul>	<ul style="list-style-type: none"> <li>• Engage gendarmes (rural areas) as part of team for COVID-19 vaccination.</li> </ul>

## DISCUSSION AND RECOMMENDATIONS

### 1. THINKING AND FEELINGS ABOUT COVID-19 AND COVID-19 VACCINATION AMONG THE PRIORITY POPULATIONS

This study revealed the thoughts and feelings on COVID-19 and COVID-19 vaccination among priority populations: young people 18 to 25 years, older adults 50 years and above, people with comorbidities, people with disabilities, and pregnant women and lactating mothers. The majority of participants thought and felt that COVID-19 is dangerous and kills people, those infected are likely to be jobless, and COVID-19 is difficult to eradicate. Interestingly, some participants attach a spiritual connotation to COVID-19 and think of it as witchcraft, believing that those who die from it will not be buried with their ancestors. Some strongly aligned with the conspiracy theory that the Western World introduced COVID-19 to reduce the population of the world. Others think that COVID-19 does not exist and is a lie. These poor knowledge and negative perceptions about COVID-19 by some respondents may be the reasons for their refusal to receive the vaccine, which agrees with findings by Fisher et al., 2020, that individuals who perceive themselves to be less susceptible to COVID-19 infection have higher hesitancy to COVID-19 vaccine. Similarly, individuals with poor knowledge of COVID-19 disease have higher hesitancy to COVID-19 vaccination (Mewirther et al., 2022; Paul et al., 2021). Although participants differ in how they view COVID-19, nearly all participants stressed the importance of personal hygiene and seeking medical care once someone is infected with the virus.

We also found that participants had some knowledge of how COVID-19 could be transmitted, via saliva/spit, cough, a cold, and close contact. In addition, participants noted that everyone is at risk of infection, including the vaccinated, but those more at risk are the elderly people, people with chronic illness, people with disabilities, pregnant women, and newborns. The respondents' views support the strategy put in place by the government and partners to prioritize these at-risk populations for vaccination against COVID-19. It is for

these reasons that Steffens et al., 2022 recommended that adults with underlying health conditions need targeted support to encourage vaccine acceptance and that health professionals should proactively discuss and recommend vaccination to their patients.

It was positive to find that many of the respondents believed that the COVID-19 vaccine prevents the vaccinated from the severe form of the disease when infected and that those around the vaccinated are protected. Although many believe that the COVID-19 vaccine protects the vaccinated, others believe that the COVID-19 vaccine, when administered, will introduce new diseases into the body to cause disease and infertility, which ultimately leads to reducing the population of the world. This view is similar to findings from a study in Ethiopia, where some health workers believed that COVID-19 vaccines could worsen any pre-existing medical conditions and could cause COVID-19 infection (Adane et al., 2021). Likewise, in a Nigerian study (Wonodi et al., 2021) reported adults beliefs in circulating conspiracy theories about the COVID-19 vaccine, including that it causes infertility and was designed to reduce the African population.

For some respondents, drinking herbal tea is the cure for COVID-19, while the majority of the respondents think there is no cure once infected with the virus. This was reported in a similar study in the Benin Republic, which found that some of the local reasons responsible for COVID-19 vaccination hesitancy include the existence of traditional medical practices as alternatives to vaccines and they found people feared neo-colonialism treats in the pandemic response (Maccaro et al., 2022). To clear these misconceptions about COVID-19 and vaccination, the government of Madagascar must intensify awareness creation in the media and at the community levels to debunk rumors and misinformation, as recommended by the respondents. In addition, almost all the participants had recommended that His Excellency the President of Madagascar should publicly be seen being administered COVID-19 vaccine to encourage the populace to get vaccinated, which would ultimately reduce the high rate of vaccine hesitancy. This agrees with the findings from a study that suggests that those who perceived the COVID-19 vaccine as risky and ineffective had high vaccine hesitancy and that major facilitators of COVID-19 vaccine acceptance were perceived benefits of vaccination and positive social influences (Katoto et al., 2022; Fisher et al., 2020; Steffens et al., 2022). More so, limited knowledge, attitude, concerns about COVID-19 vaccine efficacy and safety, and a lack of trust in government and public health authorities were drivers of COVID-19 vaccine hesitancy in most African countries (Kalu et al., 2021; Kricorian et al., 2022; Steffens et al., 2022).

## 2. DRIVERS OF MISCONCEPTION ABOUT COVID-19 VACCINATION AMONG THE PRIORITY POPULATIONS

In this study, we identified misconceptions about COVID-19 among some of young people 18 to 25 years, adults 50 years and above, people with comorbidities, people with disabilities, pregnant women, and lactating mothers. These misconceptions include that COVID-19 spreads through breastfeeding and through dirt/being dirty, COVID-19 can be prevented through personal hygiene, and COVID-19 is a disease of the cities and did not affect people in rural areas and, if it did, it was because it came from the cities. While it's understandable that people perceive disease burden to be higher in the cities, there should still be an understanding that people in rural areas are at risk as well. According to some of the respondents only health care providers receive general knowledge on the disease and COVID-19 vaccines. The general population was not enlightened, which resulted in knowledge and information gaps and might be responsible for the low uptake of COVID-19 vaccine.

Overall, there is limited understanding among most of the respondents on how the COVID-19 vaccination can protect against COVID-19. It is therefore critical for governments to conduct mass awareness and demand generation activities to clear up these misconceptions. This recommendation is in line with Maccaro et al.



(2022) that one of several reasons for COVID-19 vaccine hesitancy was a lack of clear information on the vaccine from the national governments and scientific institutions, aggravated by the circulation of inaccurate information via social media and the internet, referred to by the WHO as “infodemics.” In addition, misinformation and conspiracy theories give room to conflicts and confusion, which then trigger skepticism and distrust in some groups and communities (Alagarsamy et al., 2022; Allington et al., 2021; Fisher et al., 2020). Therefore, giving timely, accurate, and transparent information about the COVID-19 vaccine to ease apprehensive minds could positively affect vaccine acceptance and uptake (Alagarsamy et al., 2022; Bendau et al., 2021). Information on COVID-19 and COVID-19 vaccines can be passed through medical professionals and trusted individuals/institutions (Bendau et al., 2021). According to Reiter et al., 2020, people whose health care provider recommended COVID-19 vaccine had lower hesitancy to get the vaccine.

### 3. EFFECTIVE MESSAGES, MESSENGERS, AND MESSAGING PLATFORMS/CHANNELS OF COMMUNICATIONS THAT CAN PROMOTE COVID-19 VACCINE ACCEPTANCE OR REDUCE HESITANCY AMONG THE PRIORITY POPULATIONS

We found for most of the young respondents that COVID-19 vaccination messages should clearly state the disease it protects them from, what they stand to benefit from getting vaccinated, and the consequences of not getting vaccinated. Some respondents noted that these messages may be especially relevant in rural areas. Pregnant and lactating mothers would want the message to stress that the vaccine protects both themselves and the baby they are carrying/nursing. Respondents with disabilities want the message to communicate that COVID-19 vaccine is meant to protect on you and others from COVID-19 disease and that one’s disability is not a hindrance. These points raised are supported by findings from a study by Alagarsamy et al. (2022), which suggested that values and knowledge about COVID-19 vaccine and the impact of the program can positively influence vaccine uptake intentions. Females and younger people have a higher hesitancy to COVID-19 vaccination (Fisher et al., 2020).

We found that the best channels of communication as mentioned by all the respondents are health workers (i.e., doctors, nurses associated with the CSBs and health facilities). This agrees with the findings that trust in the healthcare sector positively influences vaccine uptake intentions (Alagarsamy et al., 2022). Other trusted messengers are peers who have been vaccinated, influential persons like traditional leaders, the fokontany chiefs, community agents, and specific influential actors like athletes. In addition, respondents liked to receive messages on posters, at places of worship, and via the telephone.

Although the older adult respondents trust messages passed through a combination of national radio (i.e., National Malagasy Radio) and other radio shows (i.e., Mampita) as channels of communication, they prefer the door-to-door communication approaches to reach those in the rural areas where access to radio is a major challenge. Using door-to-door sensitization and other interpersonal approaches to reach those in the rural areas is important, even if it entails higher programmatic effort, as rural dwellers may have higher levels of vaccine hesitancy and refusal. Although there are no published COVID-19 vaccine acceptance surveys from Madagascar to confirm if there are different rates of hesitancy or acceptance between rural and urban areas, findings from neighboring countries such as South Africa suggest that rural dwellers are more likely to be hesitant to accept COVID-19 vaccine (Sallam et al., 2022; Katoto et al., 2022). Given that respondents reported that COVID-19 was perceived as a disease of the city dwellers, rural dwellers may have lower risk perception and higher vaccine hesitancy. This suggests that more needs to be done to promote COVID-19 vaccine acceptance in rural areas to achieve vaccine equity.

To reach all eligible groups with COVID-19 vaccination and have them fully vaccinated, the government of Madagascar should ensure messages on COVID-19 vaccination emphasize its benefit and the consequences

of not getting vaccinated. These messages should be communicated through the best communication channels that can reach COVID-19 priority groups as recommended by the respondents. This agrees with the findings from India that demonstrated that COVID-19 vaccine uptake intentions can directly or indirectly be attributed to the government's vaccine communication strategy (Alagarsamy et al., 2022).

#### 4. STRATEGIES IMPLEMENTED BY EPI MANAGERS IN MADAGASCAR FOR COVID-19 DEMAND GENERATION AND THE BARRIERS AND CHALLENGES FACED IN THE IMPLEMENTATION OF THESE STRATEGIES

From the respondents, we found that the government of Madagascar had made efforts to make the COVID-19 vaccine free of charge for the eligible population, with the government or partners covering all costs, from supply to delivery. There were some efforts to mobilize the populace to increase demand for the COVID-19 vaccine via mass media campaigns and IEC materials. However, some of the messages in the IEC materials lacked the necessary information to motivate people to get the vaccine. Top political office holders, including the president, were not seen getting vaccinated publicly with the COVID-19 vaccine, which could be why some people had doubts about the COVID-19 vaccine and high rates of vaccine hesitancy was reported. Another key challenge that negatively affected the demand for COVID-19 vaccine is that the vaccination sites or centers are far from most fokontany. In addition, there are not enough vaccination sites to cover all fokontanys. There were reports of stockout of COVID-19 vaccines, particularly the single-dose vaccine preferred by most people.

To create demand for COVID-19 vaccine, the respondents recommended that His Excellency the President of Madagascar and other political office holders should be seen publicly getting the COVID-19 vaccine, that enough of the single-dose vaccine should be made available at all vaccination centers. Of key importance is the suggestion that more vaccination centers should be created to reach rural fokontanys and settlements. This is corroborated by a recent study that found that where there are inadequate numbers of health centers to serve large communities, large crowds and long queues at health centers created practical barriers that reduced vaccine uptake (Alagarsamy et al., 2022). In addition, people living in rural areas, with lower household incomes and with poorer education were more likely to be hesitant to COVID-19 vaccine (Khubchandani et al., 2021; Bell et al., 2020; Katoto et al., 2022; Paul et al., 2021). To keep the focus on demand generation, a strong COVID-19 vaccine demand coordination mechanism should be in place, as part of the overall operational coordination center for COVID-19 that began in March 2020 in Madagascar.

#### LIMITATION OF THE STUDY

While this study included areas with poor COVID-19 vaccine coverage, the study areas may not be representative of some areas in Madagascar, which would hinder generalizability in Madagascar and other contexts. In addition, the burden of COVID-19 disease, vaccine norms, issues relating to access to care (i.e., distance, quality of roads), and sociodemographic profiles may differ across settings and may limit the application of findings to some settings. In including multiple respondent types, we had to select a limited number of respondents per respondent type, which may limit the breadth of responses that could be received. Nonetheless, because we designed the study and selected the number of respondents per group based on expected data saturation we are able to produce rich and nuanced insights from the different respondent types. The interviews were conducted in French or Malagasy and translated to English for the analysis so some concepts may not have translated well and may have been lost in the analysis.

## CONCLUSIONS

The government of Madagascar made vaccines freely available for the eligible population to get vaccinated against COVID-19. Despite the vaccine being given free of charge, hesitancy to COVID-19 vaccine remains among some people.

Respondents noted that one of the key factors that might be responsible for the high COVID-19 vaccine hesitancy is that most people have negative thoughts and feelings about COVID-19 and COVID-19 vaccination. These negative perceptions and emotions were due to rumors or misinformation about COVID-19, which the government of Madagascar had not adequately addressed through its communication strategies. Some of the gaps in the communication strategies, according to the most respondents in this study, include inadequate content of the messages about COVID-19 vaccination and inadequate use of appropriate channels of communication to reach the eligible population. Other factors that may be responsible for the high rate of hesitancy to COVID-19 vaccination is that top political office holders, including the president, were not seen publicly getting vaccinated with the COVID-19 vaccine, making people have their doubts on the COVID-19 vaccine. In addition, vaccination sites or centers are inadequate and the ones available are far from most fokontanys.

## RECOMMENDATIONS AND IMPLICATION FOR PROGRAM AND RESEARCH

To create demand for the COVID-19 vaccine, immunization program managers and partners in Madagascar should review and revise existing messaging about COVID-19 vaccines and vaccination and use the best channels for communication to reach the eligible populations, as recommended by the respondents in this study. Some of the key recommendations by the respondents to improve advocacy, community engagement, messaging on COVID-19 vaccination, and vaccine delivery can be categorized into the following groups:

1. Advocacy and community engagement
  - Advocacy visits by local authorities as mayors, fokontany chiefs, church leaders, and traditional leaders to sensitize them to create awareness on COVID-19 vaccination in their communities
  - Health care workers, youth representatives, and women organizations empowered with knowledge on COVID-19 vaccines and COVID-19 disease to mobilize their peers in the communities
  - Community agents/community leaders conduct door-to-door awareness creation and mobilization
  - Program managers/services providers conduct community dialogue with parents or eligible target populations
2. Messaging on COVID-19 vaccination
  - Update COVID-19 vaccination messages to contain vaccine type, eligible target population, benefits, safety, where to get vaccines, and how to manage AEFI
  - Print and distribute IEC materials on COVID-19 vaccination to the fokontany/communities to create awareness
  - Use social media handles (Facebook, Instagram, Twitter, WhatsApp, etc.) to send COVID-19 vaccination messages
  - Use testimonies of people who received the COVID-19 vaccination (recorded or live) to create awareness on vaccination

### 3. Service delivery

- Deliver COVID-19 vaccine along with other products, such as mosquito nets, soaps, etc.
- Motivate or reward hard-working teams, program managers, service providers, or community leaders
- Establish outreaches and mobile teams or temporary fixed post team to reach distant communities
- Offer daily COVID-19 vaccination at health facilities/CSBs
- Engage gendarmes (rural areas) as part of COVID-19 vaccination team
- Use social gatherings or events (e.g., canoe course), marketplaces, and strategic locations in commercial places to deliver COVID-19 vaccines

We recommend that immunization program managers in Madagascar disseminate the findings from this study at national strategic and operational working groups so that stakeholders can co-design plans to implement recommendations that could improve uptake of COVID-19 vaccines in the country. More studies should be conducted to determine the magnitude of COVID-19 vaccines hesitancy after implementation of the government's interventions that result from this study.

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## APPENDIX A: DETAILED FINDINGS BY THEMATIC AREA AND RESPONDENT TYPE

### PRELIMINARY FINDINGS OF THE STUDY ON COVID VACCINE HESITANCY AND ACCEPTABILITY IN MADAGASCAR (COVHARIM), 2022

See slides 29–58:

[https://docs.google.com/presentation/d/1l7eZMZGtq9wRLWj8dW0HGqniCbX7OrTa/edit?usp=drive\\_web&oid=104829593941953724303&rtpof=true](https://docs.google.com/presentation/d/1l7eZMZGtq9wRLWj8dW0HGqniCbX7OrTa/edit?usp=drive_web&oid=104829593941953724303&rtpof=true)



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