

# **Doubt and Distrust: Determinants of COVID-19 Vaccine Hesitancy in Nigeria From a Qualitative Perspective**

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## **Abstract**

**Objectives:** This research aimed to understand the determinants of COVID-19 vaccine hesitancy in Nigeria, as well as understand the decision-making process behind the choice to vaccinate or not.

**Methods:** This research employed a qualitative research methodology, utilizing semi-structured interviews. Eighteen participants were selected using a purposive sampling procedure.

**Results:** The determinants of COVID-19 vaccine hesitancy identified in Nigeria were Doubt-based determinants: (1) Doubt in the vaccine, manufacturers and available vaccine knowledge, (2) Distrust and dissatisfaction in the government, and (3) Doubt in COVID-19's existence, (4) Perceptions and beliefs-based determinants and (5) Situational determinants.

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For the decision-making process, three pathways were identified: The Hesitant - Vaccinated Pathway, The Hesitant - Unvaccinated Pathway and The Willing - Hesitant - Unvaccinated Pathway.

Conclusions: Doubt was found to be a prominent determinant. Determinants were not limited to socioeconomic status, or education level.

**Key Words:** COVID-19, doubt, Nigeria, trust, vaccine hesitancy

## 1. Introduction

Vaccine hesitancy has always been a constant in the history of vaccinations, and with COVID-19, it was no different (Pennington, 2021). The World Health Organization's SAGE group defined vaccine hesitancy as 'delay in acceptance or refusal of vaccines despite availability of vaccination services (MacDonald & SAGE Working Group on Vaccine Hesitancy, 2015). Additional to the definition proffered by WHO, vaccine hesitancy is also the situation where the vaccine is taken but with hesitance and concern (Salmon et al., 2015). Summarily, this means vaccine hesitancy is not just the delay in the uptake of vaccines or refusal to take vaccines when they are available, but it also encompasses the acceptance of a vaccine while having concerns about it, portraying a decision made with hesitance.

The COVID-19 pandemic has claimed over 7 million lives worldwide, and the number of cases thus far have been a staggering 774,954,393 (*COVID-19 Cases | WHO COVID-19 Dashboard, 2024; COVID-19 Deaths | WHO COVID-19 Dashboard, 2024*). Nigeria, where this research was situated has had a little over 267,000 Covid-19 cases (*COVID-19 Cases | WHO COVID-19 Dashboard, 2024*). Nigeria has recorded about 3200 deaths, similar to countries like Cambodia, Botswana and Malawi that all recorded between 2800 to 3100 deaths (*COVID-19 Deaths | WHO COVID-19 Dashboard, 2024*).

Lots of research exists about vaccine hesitancy concerning several diseases. For instance, in 2019, in Sudan, a community-based cross-sectional study was done to understand how vaccine hesitancy influences the uptake of the MMR vaccine (Sabahelzain et al., 2022). Additionally, a cross sectional study in a hospital in Uganda showed that of a population size of 385 pregnant women, 74% of them were Hepatitis B vaccine (HBV) hesitant (Afolabi et al., 2022).

Despite its reported effectiveness, COVID-19 vaccines have also received resistance for a myriad of reasons. Previous research has highlighted some factors that affect vaccination decision such as age, COVID-19 knowledge, education, trust, residence, fear, family influence, rumors (Amuzie et al., 2021; Hubach et al., 2022; Ilesanmi et al., 2021; Kabagenyi et al., 2022; Lau et al., 2022; Mann et al., 2022; Mubarak et al., 2022; Ojewale & Mukumbang, 2023; Okafor et al., 2021; Schneider-Kamp, 2022). Nigeria is no stranger to COVID-19 vaccine hesitancy. Out of a population of over 216 million people, only 81.3 million (39%) have received full dosage of the COVID-19 vaccine (*COVID-19 Vaccines | WHO COVID-19 Dashboard*, 2023). This is considered low when compared to other vaccinations in Nigeria such as the measles vaccination which has hovered between 50% to 60% in recent years (Olufadewa et al., 2024). Despite the availability of the COVID-19 vaccines in Nigeria, there has been refusal to vaccinate. There is lack of sufficient research on COVID-19 vaccine hesitancy in Nigeria as majority of the existing research utilized quantitative approaches. Some of these quantitative studies include, but not limited to a cross-sectional online questionnaire-based study that pinpointed sociodemographic factors as predictors of COVID-19 vaccine hesitancy as healthcare workers who were younger had significant association with vaccine hesitancy (Amuzie et al., 2021). Another study done in Southern Nigeria noted distrust in the government as a barrier to vaccination (Ilikannu et al., 2022). Previous research has only scratched the surface of this issue.

Vaccine hesitancy is a public health issue and only serves as a barrier to the implementation of public health interventions and promotion. This study aims to carry out implementation research on the COVID-19 vaccination intervention in Nigeria, to understand the determinants of vaccine hesitancy, and how vaccination decisions are made.

This study aimed to pinpoint the determinants of COVID-19 vaccine

hesitancy in Nigeria and understand the decision-making process that leads to the choice to accept the vaccine or not.

## 2. Methods

### 2.1 Setting

Nigeria, located in West Africa, is the most populous country in Africa, divided into 36 states and six geo-political regions, namely, South-West, South-South and South-East, North Central, North-East and North-West. This research was carried out across three of the regions: South-South, South-East and South-West, where internet coverage is highest with the South-West having the highest concentration of internet users, followed by the South-South region (Nigeria, n.d.). Internet coverage is relevant to this research because the call for participants was made via the internet, as well as the interviews. To facilitate the research, it was considered suitable to work with the selected regions due to the higher concentration of internet users and spread of internet.

The definition of urban, semi-urban and rural is country-specific. In the Nigerian context, an urban area is an area with a population size of  $\geq 20,000$  people, and one that possesses basic social and physical infrastructure, and has been designated so through legal or administrative instruments (Ofem, 2012). A rural area in Nigeria is usually an area with less development than an urban area. Urban areas in Nigeria usually refer to cities, suburbs and towns. They have more development in terms of access to infrastructure and connectivity like airports, ports, railways, housing, roads etc. Rural areas usually do not have much development in terms of infrastructure. Semi-urban areas in Nigeria are in between urban and rural areas. They are more developed and have more population than rural areas but less developed than urban areas, with less population than urban areas. Additionally, access to mobile phones is very

similar in urban and rural areas but access to internet in the urban population (68%) is almost double that of the rural population (36%) (Wambugu & Social and Economic Statistics team, Food and Agriculture Organization of the United Nations, n.d.).

## 2.2 Participants and Recruitment

Eighteen participants, purposively selected participated in this study. This research utilized a combination of purposive and snowball sampling methods. These participants were distributed across the South-South, South-East and South-West regions in a ratio of 9:5:4. Participants were between the age range of 24-67, and cut across different demographics, consisting of different genders, marital statuses and have different careers. The selection of participants took place from June 2023 to September 2023. The call for participants was made on social media platforms Twitter, WhatsApp, Instagram and through word of mouth. Participants were also asked to spread the word. In a google form attached to the 'Call for Participants', participants were given the opportunity to fill in their contact information (Email address, WhatsApp or Telegram number), their age, region of residence, if they wanted to participate in the research and any questions or comments they had. Appointments were arranged with participants who answered the call and fit the following criteria:

- I. Residence in any of the South-South, South-East and South-West regions of Nigeria since February 2020 (or before) till the time of the interview
- II. Between the ages of 20 to 80.

The names of participants have been changed and they are identified with fake names.

## 2.3 Data Collection

Semi-structured Interviews were carried out online using the participants

preferred mode of communication and utilizing a prepared interview guide (Supplementary file 1). All participants opted for WhatsApp. While the interviews were in video format, they were all audio recorded. Participants' informed and verbal consent was obtained at the start of the interview. The interviews ran concurrently with the call for participants, from June 2023 to September 2023. Interviews were held one to two times, and a few participants were contacted subsequently when additional information was sought. Interviews lasted between 40 minutes to 1 hour, 10 minutes.

The eighteen participants consisted of elderly people, young parents, employed adults, university students, unmarried and young adults. Interviews were concluded when data saturation was reached, and no new information was being received.

## **2.4 Data Analysis**

Interviews were audio recorded and transcribed, anonymized, checked and edited, then coded. NVivo QSR International Version 22 was utilized for data management. Data was read and analyzed using an inductive approach and thematically analyzed. Analysis was qualitative descriptive. The interview questions that addressed the research questions were noted as coding nodes at the start of the research. Then, as data was read repeatedly, new and recurring codes were identified. New and emerging themes were gotten through repeatedly reading the transcripts and getting new information. Data was then grouped together based on their similarity, to form clusters systematically. After which, comparisons were made and themes drawn out. The codes were drawn up by one researcher and discussions and conclusions as well as checking the codes was done by the two researchers. The pathways that every participant followed was subsequently mapped out to show their decision making trajectories.

Table 1

*Characteristics of Participants*

	<b>Characteristics</b>	<b>n=18</b>
Gender	Male	10
	Female	8
Age	21-30	12
	31-40	2
	41-50	-
	51-60	2
	61-70	2
Education	Higher National Degree (HND)	1
	Bachelor Degree	14
	Master Degree	2
	PhD	1
Current place of residence	Rural	2
	Semi-urban	2
	Urban	14
Region of Residence	South-East	4
	South-West	5
	South-South	9
Vaccination status	Fully vaccinated (FV)	5
	Partially vaccinated (PV)	2
	Unvaccinated (UV)	11

Note:

Higher National Degree: It is a degree program that is completed in five years at a polytechnic and includes an industrial placement. This is a pathway some people opt for instead of going to the university.

Urban: Developed area, referring to cities, suburbs and towns. More development in terms of access to infrastructure and connectivity like airports, ports, railways, housing, roads etc.

Semi-urban area: Less development than urban area, more development than rural area.

Rural area: Less development than an urban area.

Fully vaccinated (FV): Participants who had taken complete (two) doses of the vaccine.

Partially vaccinated (PV): Participants who had taken one dose of the vaccine, and had no plans to follow up with the second.

Unvaccinated (UV): Participants who had not taken the vaccine.



Table 2

Participant ID	Gender	Age	Education	Residence	Marital Status	Region	Vaccination status
01 Binta	Female	30	BSc	Urban	Divorced	SE	UV
02 Tayo	Male	28	BSc	Urban	Single	SW	FV
03 Layefa	Female	53	BSc	Semi-urban	Married	SS	UV
04 Sambo	Male	29	BSc	Urban	Single	SW	UV
05 Emeka	Male	25	Master	Urban	Single	SE	FV
06 Obatare	Male	24	BSc	Urban	Single	SS	PV
07 Eloho	Female	62	BSc	Urban	Married	SS	FV
08 Bolu	Female	25	BSc	Urban	Single	SW	UV
09 Uloma	Female	28	Bsc	Urban	Single	SS	PV
10 Ladipo	Male	33	HND	Urban	Single	SS	FV
11 Tobore	Male	24	BSc	Semi-urban	Single	SS	UV
12 Emuobor	Male	29	BSc	Rural	Single	SS	UV
13 Okoro	Male	27	BSc	Urban	Single	SE	UV
14 Tejiri	Male	67	PhD	Urban	Married	SS	UV
15 Efe	Female	57	Master	Urban	Widow	SS	FV
16 Tolani	Female	26	BSc	Urban	Single	SW	UV
17 Oluchi	Female	29	BSc	Urban	Married	SW	UV
18 Obinna	Male	32	BSc	Urban	Single	SE	UV

Note:

Fully vaccinated (FV): Participants who had taken complete (two) doses of the vaccine.

Partially vaccinated (PV): Participants who had taken one dose of the vaccine, and had no plans to follow up with the second.

Unvaccinated (UV): Participants who had not taken the vaccine.

## 2.5 Ethical Statement

This research was approved by the Hualien Tzu Chi Hospital Health Research Ethics Committee, Taiwan (IRB 112-127-B) and National Health Research Ethics Committee, Federal Ministry of Health, Nigeria (NHREC/01/01/2007). The participants were informed of the purpose of

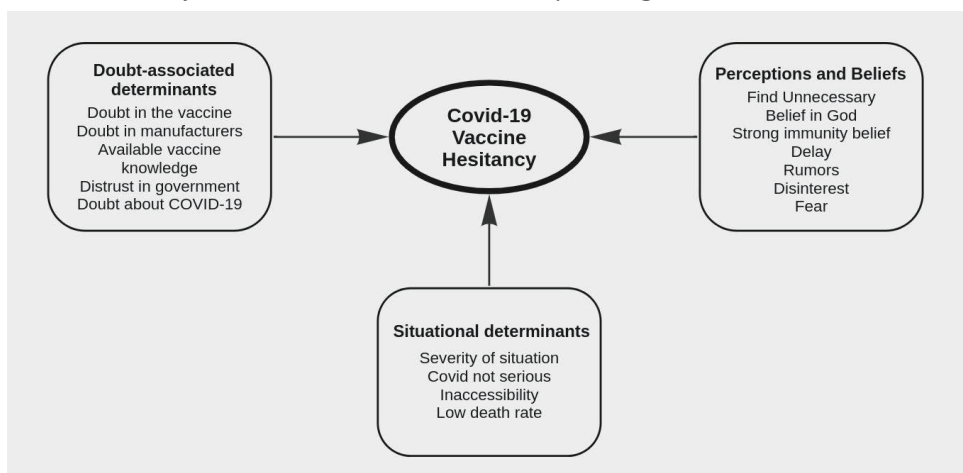
the study and given all relevant information. Participants’ informed consent was given orally at the start of the interview, as well as permission to record interviews. To ensure transparency and prevent misrepresentation, questions were repeated, and answers were also repeated to participants, to ensure there was no miscommunication.

### 3. Results

#### 3.1 Reasons for Vaccine Refusal/Vaccine Hesitancy

The determinants of COVID-19 vaccine hesitancy found in our research were classified under three themes: Doubt-associated determinants, Situational determinants, and Perceptions and beliefs. Several participants were found to fall across different themes. Of the eighteen participants in this study, all but two were initially vaccine hesitant. Among the sixteen that were vaccine hesitant at the start of the vaccination program in Nigeria, seven have been vaccinated.

Figure 1  
*Determinants of COVID-19 Vaccine Hesitancy in Nigeria*



Note: Figure 1 shows the determinants of COVID-19 vaccine hesitancy as identified in this research.

## Doubt-associated Determinants

Among the doubts highlighted by participants that fell in this theme were doubts about the vaccines' safety, manufacturers, and the existing vaccine knowledge, distrust and dissatisfaction in the Nigerian government, and doubt in the existence of COVID-19 itself.

*There was some rush regarding finding a solution to it in the development of the vaccines. One party wants to outshine the other to come up with a solution so quickly – Sambo (29M, UV)*

*It's still in the testing phase, I don't want to endanger myself... I don't have that conviction that it's really stable to use for everybody, it depends on your immune system – Tobore (24M, UV)*

There was a lack of confidence in the vaccine, voiced by four participants, and a doubt in its reliability.

*...I didn't find the vaccine quite reliable and effective.... My understanding of a vaccine is that once you are vaccinated... you don't need to have any fear regarding that virus or disease again... So, at the end of the day, you find out that even these people who took this preventive measure and all of these still have cases. So how else do you want to convince a layman like me that the vaccine is effective? It's supposed to be preventive, right?... I didn't see any logic... – Sambo (29M, UV)*

*...I didn't doubt the efficacy of the vaccine after the work that Pfizer and the rest brought. But my major concern is that, when there is an issue of*

*vaccines, where it is imported from... I am in the health care team... I know that global things like this... the source could be contaminated and so many things could have happened. That was the major reason why I didn't really... – Tejiri (67M, UV)*

The adverse side effects of the vaccines that some participants observed from those around them and afar strengthened their hesitant stance.

*A colleague of mine took the vaccine, after three days... the place had swollen, she was very sick. So I told her not to take the second vaccine. She didn't take the second vaccine... It was what influenced me most... – Layefa (53F, UV)*

The fact that there were numerous vaccines available also fueled these doubts, alongside the contrasting information some participants received.

*...there were so many controversies concerning the vaccine. Today the US is saying this, tomorrow China has released their own... Russia has released their own. So there was no concrete.... Okay, yes, this vaccine now, it's 90% efficient and it works, so let's go with this. Everybody is endorsing theirs... something was... not really adding up.. So there were so many things and I felt like because of that, it wasn't really necessary... I think that was the core reason I didn't want to embark on it. But if they had said, okay, this vaccine is what works, it's been endorsed by NAFDAC, every other country is using it, that's what it is. Then I think maybe I probably would have gone for it. – Emuobor (29M, UV)*

Dissatisfaction in the government's efforts and distrust in the government

were also prominent reasons for not vaccinating. This distrust stemmed from situations preceding the pandemic, connected to the political situation in the country, and for some, this distrust was compounded by the government's actions during the pandemic.

*...I was not happy with the government. I felt the government would have not given us something good. Because if they really wanted to help the people, there were palliatives given during the COVID. At the peak of COVID-19, palliatives were given but, you wouldn't believe, these guys stored them in big warehouses... It was during the EndSARS protests that the youths broke into some of the warehouses and made away with the palliatives... So I was believing that if COVID-19 vaccine was real, these ones in the government would not share it and they were never people-oriented... I think many people died of hunger and then since there were food and other palliatives to give to these ones to keep them from hunger and the government never did, how do we trust the fact that they spent a lot of money to bring in the vaccine and to help the people live? You could have just helped them in the first place by giving them food. And you are not, also you are giving us vaccines, so there was no confidence in what they are doing. – Okoro (27M, UV)*

*I believe some of them thought that the vaccine is more of... maybe their own there is better than the one they gave us here... Theirs is effective... They were now saying, you know, maybe our country has gone to go and get the one that has not finished. They don't trust the vaccine.. – Emeka (25M, FV)*

*I think when the virus was so rampant, you know they were active. Then*

*when the vaccines came about, it was as if everybody stopped talking about it. Nobody was actually... trying to persuade us to go and take it... They were just like, the vaccine has come, everybody just... So, I didn't believe, I don't know. – Bolu (25F, UV)*

Doubt in COVID-19's existence was mentioned recurrently.

*I don't believe in the existence of the COVID-19 and I don't believe in the vaccine. If I don't believe in the existence of COVID, you want me to believe in the vaccine? I know of malaria, so I believe in the vaccine. Typhoid, I believe... I know of those ones, but COVID, no. I don't believe in it.... – Layefa (53F, UV)*

## Perceptions and Beliefs

Several perceptions and beliefs were brought up under this theme. Four participants deemed vaccination unnecessary and saw no reason to vaccinate. Additional to this perception was 'Confidence in one's body immunity'. One participant, Tobore shied away from vaccinating because of the novelty of COVID-19. Another voiced his dislike for syringes.

*I was not sick, as at the time the vaccine came. I have a very strong immune system and I don't have to go for it... Yes, I am very strong. I hit the gym. – Okoro (27M, UV)*

*As far as it concerns me, I don't need that vaccine for my immunity, that was the thing on which I really did not take the vaccine. – Tejiri (67M, UV)*

Religion also played a role for some participants like Okoro who, alongside believing in his body's immunity, voiced his belief in God's protection.

*I am a firm believer of God and so I believe God was taking care of me and secondly, I was strong then just like now so I felt I didn't need the vaccine. – Okoro (27M, UV)*

Rumors, the notions and stances of others also played a big role in the decision to not vaccinate for some participants.

*...I used to be a very strong person... I don't follow trends in a lot of things but then I could say, because I'm being sincere to myself, I was influenced by the media, by what people were saying about the vaccine and that also gave me a lot of notions not to take the vaccine, apart from the fact that the government never did well. – Okoro (27M, UV)*

## Situational Determinants

When compared to other countries, the situation in Nigeria was not perceived as serious, likewise COVID-19 itself.

*The number of death cases which we witnessed in other countries never happened in Nigeria. That is the number one reason... I don't have anybody close to me or anybody who I can point to that I say, yes, I lost this person during COVID, but I know people died due to it. That one is true... Many people died... – Obinna (32M, UV)*

*Others had this understanding that COVID-19 is just like malaria for us, it*

*will come and it will go. – Uloma (28F, PV)*

Inaccessibility of the vaccines also contributed to these situational determinants. Inaccessibility in our research refers to ease of vaccination (not accessible easily and poor coordination) and cost of vaccination. These factors had a dissuading impact on vaccination. Some participants reported that at the start of vaccination, the vaccines were expensive in some places. Participants described not being able to get the vaccine easily due to difficulty in finding vaccination sites, delays and shortages.

*I actually registered to take the vaccine, sincerely, at a point... you register online, you choose your choice of primary care center, all of that. I was supposed to get a notification, giving me a date and time when I would go for my vaccination and I did that in 2021. Up till this moment I have not gotten a text to come for vaccination... – Sambo (29M, UV)*

### **3.2 Vaccine Decision Making Pathways**

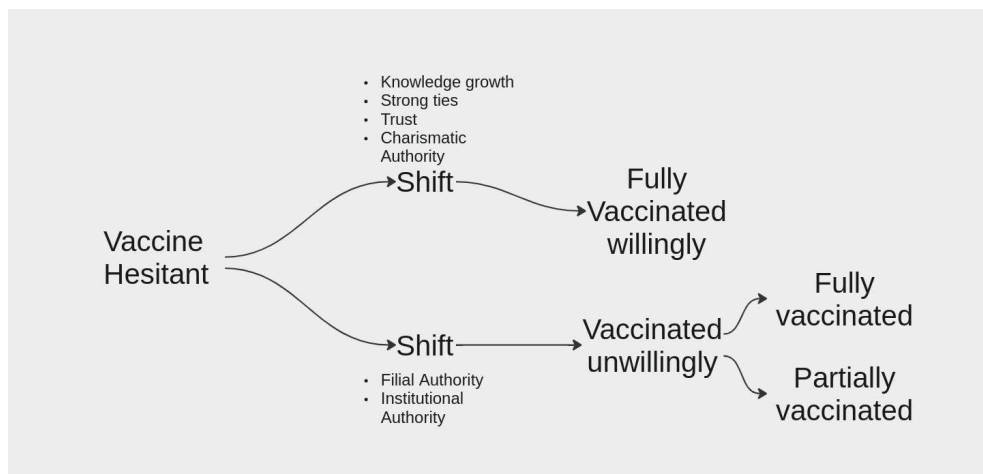
Three vaccine decision making pathways were identified in our research. These pathways explain vaccine decision making from the initial stance of vaccine hesitancy leading up to the final decision and current stance of participants, as well as the reasons for their shifts to the decision to vaccinate. These pathways have helped understand the COVID-19 vaccine decision-making process. Seven participants had been vaccinated at the time of interviews.

#### **The Hesitant-Vaccinated Pathway**

Seven participants followed this pathway.



Figure 2  
The Hesitant-Vaccinated Pathway



**Vaccinated willingly.** Eloho, Emeka, Tayo and Efe went through shifts that caused their initial stance to change and they accepted the vaccines willingly. Emeka’s shift was brought about by seeing people around him vaccinate without issues. He also chose to trust his cousins who informed him that their vaccination was without side effects. Despite opposition, he opted to take the vaccine.

*I didn't believe them. At first, I was just like, let me be sure... I discussed with her (his mother) and a lot of my friends. We talked about it, we joked about it. But when I wanted to take the vaccine, some of them were saying, no, no, don't go and take... I said, I should go and take this... because I don't know... At first she said no, why would I go and hurt myself? Then I had to educate her... My mother believes that people should do what they want to, provided it's their choice and they are ready to take the consequences of their actions. – Emeka (25M, FV)*

While at first, Tayo opted to delay and paid no attention to the vaccines,

the experience of the people he knew, his trust in his parents as well as the knowledge he gained caused his shift to a willing and vaccinated position. Efe, who was not interested and was hesitant to take the vaccine, opted to take it first when she saw someone who she held in high esteem get vaccinated (Charismatic Authority). And she also decided to protect herself after gaining knowledge.

*Before it came, I said I was not going to take it, because of the information... If it's health information, it's me. But COVID time, they didn't believe me. But other times, I am highly relied upon. It's me that everybody would call, complain to first, but COVID time, everybody had their personal view. They were looking at me, whether I was going to die... But I said, nothing will happen to me. And I won, at least nothing happened to me.. – Efe (57F, FV)*

**Vaccinated Unwillingly.** Uloma, Ladipo and Obatare followed this pathway, with the reason for their shift being Authority. Uloma and Ladipo were compelled by institutional authority and Obatare was compelled by filial authority. While Uloma's stance has shifted slightly, with her believing the vaccine is effective for some people, Ladipo and Obatare still consider the vaccine unnecessary. Uloma and Obatare are partially vaccinated, with no plans to complete their doses.

*A hundred and one percent, yes, I do think they are effective... For me, I don't subscribe to the vaccine. I still wouldn't have taken the vaccine. But generally, yes, I'm sure there are those that have benefited from the vaccine... I trust the immunity of my body. I'm sure they'll be proud of me right now. – Uloma (28F, PV)*

In Ladipo's opinion, the vaccine did nothing for him.

*The colleague of mine we lost in the vessel took a vaccine and still, he got infected with the COVID virus... I think it's more of your own immune system and not really the vaccine because we saw a lot of people that took the vaccine and they died, first, second and even booster dose... So someone that his or her immune system is already bad, it's easy for that person to die if infected with the COVID virus... I don't believe in COVID-19 vaccine... In my own confined space, my personal life, I take my own decisions myself... If I had a chance, I wouldn't have taken it. I've already taken it, so no regrets. Anything that wants to happen can happen. – Ladipo (33M, FV)*

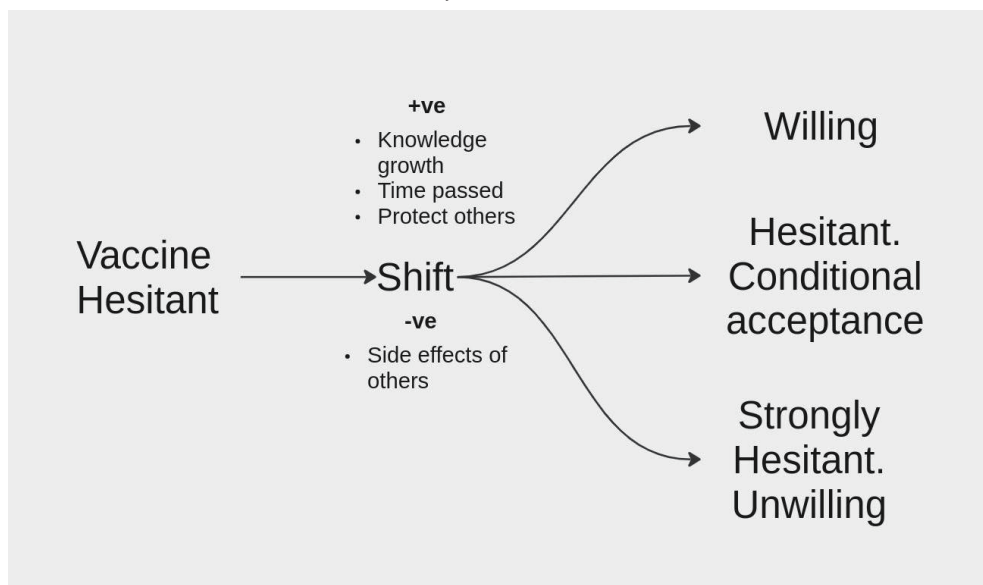
Unlike his parents, Obatare does not believe that COVID-19 exists.

*I don't think they had experience but we are different people (referring to his parents) ... I did not see anyone with COVID-19. I literally did not see any single person that had COVID-19. And people will just have a normal common cold, and... immediately in their head, their brain has already registered, I can't taste any more, and it's COVID-19... – Obatare (24M, PV)*

## The Hesitant-Unvaccinated Pathway

This pathway explored the decision-making process of nine participants who had not vaccinated and were unwilling to. Over time, positive and negative shifts played a role in their trajectories. One has moved to the point of willingness, six to the point of hesitancy, but conditional acceptance, and two are still strongly hesitant.

Figure 3  
The Hesitant-Unvaccinated Pathway



Note: Figure 3 shows the hesitant-unvaccinated pathway, detailing the reasons for the positive and negative shifts. +ve indicates positive shifts and –ve indicates negative shifts.

**Willing.** Binta started off distrusting the vaccine, and was swayed by the notions of others. But as she gained knowledge, she made a positive shift to vaccinate.

*I just came back from training on Tuesday. They talked about it religiously, and currently with the knowledge I have gotten, I will plan towards it because currently we don't have it in the office, but once it arrives, with the knowledge I have now, I will... – Binta (30F, UV)*

When asked about her parents who are against her vaccinating, she noted:

*...Literally all my life I've always done everything, even when I say no, at*

*times, I still have to tilt... Definitely they'll be against it, but I'm not going to tell them before taking the vaccine now. It's my life, it's my body. So, yeah.*

**Hesitant. Conditional Acceptance.** These participants encountered factors that caused a shift in their stance. They are still hesitant and are only willing to vaccinate under certain conditions. So, while they will not go seeking for the vaccines, they will vaccinate under those conditions.

Okoro was strongly unwilling, and even considered himself anti-vaccine, as he also discouraged others. He became less rigid as he learned more. He noted previously, it had been easy to discourage people since they were already skeptical. He is willing to vaccinate only if necessary.

*As time passed, I understood that yes, there was COVID-19 and secondly people are not dying, we are not seeing dead bodies on the road as we expected to see as a result of taking the vaccines... since some people actually took the vaccine, I believe it's safe and I was also beginning to reconsider that since I've taken other vaccines. I've also attended conferences here in Nigeria where a lot of elaborations were made to clear the air about what the vaccines really were and how safe it was to the system... Knowledge happened and I believe I can take it now. – Okoro (27M, UV)*

Tobore, Emuobor and Bolu also followed the journey that led to conditional acceptance. Emuobor is more open to vaccinating so as to protect those around him, only if the pandemic worsens. He has no regret that he has not taken the vaccine as he found it unnecessary.

**Strongly Hesitant. Unwilling.** Tejiri and Layefa have no interest in the

vaccine. Tejiri believes COVID-19 is real but does not have confidence in the vaccines. Layefa had a negative shift which reinforced her stance when someone she knew got sick after vaccinating.

Like Layefa, Tolani does not believe that COVID-19 exists. She opined that if COVID-19 existed in other parts of the world, it never existed in Nigeria. Despite conversations she had with her parents who tried to convince her (after they vaccinated), her mind was made up. According to her, the only person who could have convinced her was an uncle she respected. This brings in filial authority, as a drive behind Tolani's vaccination if she had gotten it.

*That's my uncle... he is the only person in my house that my parents can report me to. So, at that point, he called me too. But... we were not within reach. There was nothing he could do. So, he told me, 'What if you need the card tomorrow?' I told him, 'Sir, I've heard you'. And that was just the end of the story... Not fear. Let me say it's just respect. – Tolani (26F, UV)*

When asked how she would feel if the pandemic got worse and if she heard of the death of someone she knows from COVID-19, she said:

*I will just believe it's another strategy from the government just like the first one... There's still no way I can believe that it's COVID. Even if the person died, it's just the person's time to die...*

Oluchi, who worked in the hospital, was also not interested in vaccinating. She had no confidence in the vaccines and the negative notions of people around her also affected her. Oluchi was surrounded by health practitioners who had vaccinated, and those that did not vaccinate. Her mother was against her children vaccinating while her sister was an advocate for vaccination. Regarding her

mother, Oluchi stated:

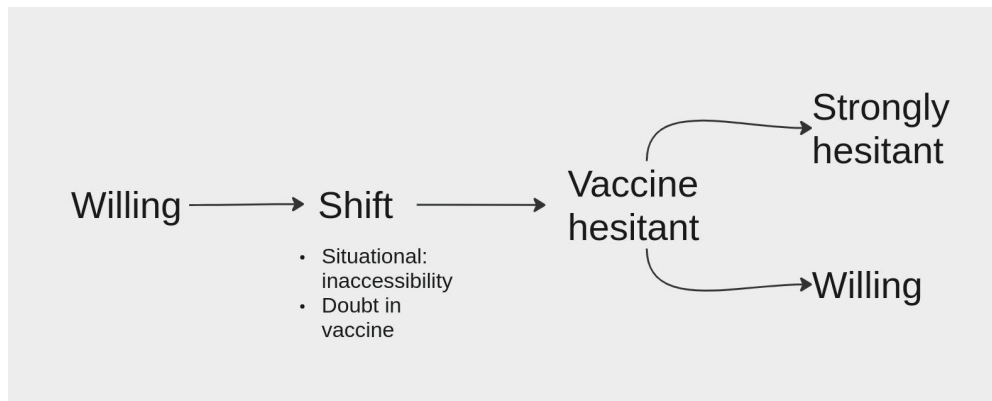
*And even though I wanted to take it, and she had said no, her choice doesn't really influence my decision, you know, concerning the COVID vaccine. – Oluchi (29F, UV)*

### The Willing-Hesitant-Unvaccinated Pathway

The two participants in this pathway, Sambo and Obinna were willing to vaccinate initially, but several shifts occurred, discouraging them. Currently, Obinna is willing and Sambo is strongly hesitant and refuses to vaccinate, except under certain conditions.

Figure 4

#### *The Willing-Hesitant-Unvaccinated Pathway*



Note: The figure shows the willing-hesitant-unvaccinated pathway which discusses two participants who were initially willing, then moved to hesitancy.

Inaccessibility was the common string between Sambo and Obinna. Being unable to access the COVID-19 vaccine had a negative toll on their decisions to vaccinate.

*I would have taken it because in the beginning I was actually interested in taking it until it dragged on and I just saw it as a waste of time. I just lost interest... The inaccessibility also was a contributory factor because at the point that I was contemplating on whether to take it or not, if it was actually made available to me at that point, I would have just given it a trial. – Sambo (29M, UV)*

Sambo's shift was also caused by his doubt in the vaccine's reliability. There was also his perception regarding syringes.

*The only thing someone can tell me that would make me want to vaccinate is if I have to leave the border of this country, and it's compulsory, then I would... Except, okay maybe not here, somewhere else that people have actually proven this vaccine if you take it... it's not the usual one you heard about like the one that people have taken it and still got infected actually and I can see that.. they weren't infected... I'll feel okay, I can trust this particular one, let me give it a try.... apart from that... if there are publications or research that have been conducted that can actually validate the fact that this vaccine does not have any side effects, I may want to try... – Sambo (29M, UV)*

When asked about what he would have done if he had wanted to vaccinate and his family tried to prevent him, he stated:

*“...I don't care what anybody has to say. At the end of the day, it's my life...”*

For Obinna, he trusts the government and health agencies. His only obstacle was getting the vaccines. It was not easy for him to access them. He convinced



others to vaccinate. Regarding his religious leader's influence:

*...he is a man who I confide in, who has given us a lot of reliable information. He is not just any type of religious leader, he is not one who will just cloud the mind of his followers under the influence of religion... And if he had said that we should not take the vaccine, it would have been difficult because I have known him for a very long time. But thank God during that period he said, this thing is just like other pandemics. We should take precautionary measures, take the vaccine and go about our normal activities... Due to the exposure and the research I have done now, I will go ahead and take it, because he is not a medical personnel. – Obinna (32M, UV)*

When asked if he would take the vaccine now if he had the chance, his response was:

*“Definitely I will.”*

Table 3

*Reasons for Positive Shift*

Reasons for Positive Shift	Comments
Institutional Authority	<i>“...in my own organization, I know some people who took the undertaking not to take the vaccine. But, weeks later, the pressure got so intense, it was almost ‘take the vaccine or lose your job’. Nothing was said, but the handwriting was clear. So, at that point, we were left with no other option...” – Uloma (28F, PV)</i>

(continued)

Table 3. (continued)

Filial Authority	<i>“I think in an African home, you really have no choice. They told me I should take the vaccine, and I did. This one was like a mandatory thing.” – Obatare (24M, PV)</i>
Charismatic Authority	<i>“So my MD, a medical doctor and a consultant, he was the one first to be vaccinated. When I saw that he did not decline, I said, for him to agree to take it, he must have reviewed it.... I respect intelligence, so I said let me go ahead to take it.” – Efe (57F, FV)</i>
Knowledge and Self Preservation	<i>“So I asked a lot of questions, what about those of us who are on routine drugs, like BP drugs? Or those who are diabetic, is it good for that? And they lectured... the reason that made me take the vaccine is that I didn't want to be infected and didn't want to die... ” – Eloho (62F, FV)</i>
Trust and Strong Ties	<i>“I have some people that have taken it that are close to me. I asked them... they didn't give me that bad impression...” – Emeka (25M, FV)</i> <i>“People I know that took the vaccines. That was more like a major effect on my decision.” – Tayo (28M, FV)</i>

## 4. Discussion

Our findings showed that the determinants of vaccine hesitancy in Nigeria spanned three themes: Doubt-associated, perceptions and beliefs and situational determinants, with doubt being most prominent.

## 4.1 Comparison with Existing Literature

Previous research reported concerns about the safety of the COVID-19 vaccine and fear of side effects, agreeing with our research where participants identified hearing about and seeing others experience the side effects as a discouraging factor as well as an encouraging factor, depending on the experience. Rumors also played a role in the decision to vaccinate and have been seen in previous studies, such as the Zwawua & Kor (Zwawua & Kor, 2023) study which highlighted ‘Fear of receiving the devil’s mark’. Belief in God was also identified as a perception-based determinant in our research.

Contrary to previous findings like that of Hubach et al. (Hubach et al., 2022), our research did not identify limited COVID-19 knowledge as a determinant of vaccine hesitancy, as more than half of our participants stated that COVID-19 knowledge was abundantly available to almost everyone. However, our study found limited knowledge about the vaccines to be a situational determinant. This is in line with previous research (Ilesanmi et al., 2021). Highlighting severity of the COVID-19 situation in Nigeria as a situational determinant, our study agreed with previous research done in Nigeria (Zwawua & Kor, 2023).

Previous study done regarding COVID-19 vaccine in 2023, also identified vaccine accessibility and affordability issues as factors influencing decision to vaccinate (Iwuagwu et al., 2023). Availability of vaccines and ease of accessibility can encourage immediate vaccination. As seen from the decision making trajectory of the participants in the Willing-Hesitant-Unvaccinated pathway, when the vaccines were not easily accessible, it deterred vaccination.

## 4.2 Doubt and Distrust

Doubt was a prominent and recurring determinant found in this research. We

found that doubt was associated with the vaccines, manufacturers of the vaccine, knowledge regarding the vaccine, the Nigerian government and COVID-19's existence, and in social relationships.

Previous research identified concerns over insufficient testing of vaccines for safety and perceived vaccine ineffectiveness (Ojewale & Mukumbang, 2023). Distrust in manufacturers, vaccines and the associated lack of confidence in the vaccines was also found in some past studies (Ilesanmi et al., 2021; Ogueji & Okoloba, 2022; Osuagwu et al., 2022). In tandem with previous research (Iwuagwu et al., 2023; Ogueji & Okoloba, 2022), our research also identified distrust and dissatisfaction in the government. Distrust in the government and the system was driven by past antecedents. Some people are unwilling to accept the vaccines as the government is in charge of the process.

Another concern associated with doubt-associated determinants raised by a couple of participants in our study not seen in previous COVID-19 related research was the availability of multiple COVID-19 vaccines. Multiple options led to confusion and distrust in the vaccines, and a state of uncertainty with participants wondering if there were ulterior motives. Doubt in COVID-19's existence was also a new finding of our research, as well as personal beliefs bordering on confidence in one's own immunity and the vaccine deemed unnecessary.

For some participants, they did not believe COVID-19 existed, for others, it existed but not in Nigeria, and there were those who felt COVID-19 in Nigeria was exaggerated and not a true representation. The minds of some of those who doubt COVID-19's existence are quite firm and most stated nothing can change their opinion, like Obatare. Doubt in COVID-19's existence stemmed from distrust with the government, effectiveness of malaria medication for COVID-19 treatment in some cases, having no encounter with COVID-19 patients, and similarity of the symptoms to malaria symptoms.

Our research has shown that Doubt and lack of trust has proven to be very important in the decision to vaccinate. Doubt proved to be an overarching theme in this research, highlighted by participants who focused on it so strongly. The Nigerian atmosphere is one that has led participants to be disillusioned with the Nigerian government, and this also encompasses a doubt in the manufacturers of the vaccine, and the existence of the COVID-19 pandemic itself. This research has shown how relevant the presence of trust is and the consequences when trust is gone and doubt settles in.

### **4.3 Reasons for Shift**

For many who vaccinated willingly, it was done in a bid to protect themselves, among other reasons. This desire to protect oneself was after gaining knowledge about the vaccines. Everyone in the Hesitant-Vaccinated pathway that vaccinated willingly mentioned this as one of the reasons that led to their shift to vaccinate. While seven participants in our study had vaccinated, three of them vaccinated unwillingly, a decision forced by authority, bringing to the fore the impact authority plays in decision making. Worthy of note is the fact that two of those forced to vaccinate were only partially vaccinated, showing that when the external force was removed, they reverted to their initial stance.

Filial authority in the form of family influence has been identified in a previous study by Lau et al. (2022), which identified family influence as having a great influence on the decision to vaccinate, and the influence of friends having a lesser impact. Filial authority arose in this research, identified by one participant. This participant was living with his parents and had been compelled by them to vaccinate.

### **4.4 Family Influence and Trust**

Our research showed how family did not have a major role in the decision to

vaccinate. Discussions with seven participants highlighted this. Besides the filial authority reported by one participant, this study did not find that family had a strong influence on the decision-making process of vaccination. While a couple of participants such as Eloho and Tayo, vaccinated after getting advice from trusted family members (with existing delay period), more participants made the decision by themselves even after discussions with their family.

‘It’s my life, it’s my body’ was a phrase stated by several participants, who opted to vaccinate and not vaccinate respectively. For some of these participants like Emeka and Tolani, they ignored their family’s concerns or encouragements, regarding vaccination, with Emeka vaccinating and Tolani not vaccinating. It is important to note that the only participant that actually gave into the compelling filial authority of his parents was a participant still dependent on his parents. Some participants who were parents also mentioned that they did not pressure their children to vaccinate or otherwise, but let them make their decisions.

Efe stated that while she was usually the go-to person in her family for health matters, she was not trusted for COVID matters, putting forward again how doubt played a big role in COVID decisions. Some participants also opined how the vaccination decision was a different case, with their minds already made up. This shows that family influence was not considered important in the case of COVID-19, unlike other decisions. COVID-19 vaccination was seen as an individual choice, involving one’s health and body. Among the reasons for this were: COVID-19 being a health issue and changing the dynamics of trust, strong mindsets and beliefs, the thought that the other party is not educated enough on the issue, COVID-19 being novel.

## 4.5 Limitations

Recall bias was one of the limitations of this research as some of our participants could not recall clearly all conversations they had at the start of

the pandemic. Another limitation of our research is the lack of diversity in the participants' level of education. The call for participants was done online, and the lowest level of education of the participants in this research was the Higher National degree. The perspectives of people not on the internet was unfortunately not as easily gotten. We acknowledge that exempting people not on the internet could have resulted in bias. Additionally, considering most of our data was collected from participants in urban areas, we admit that this could have also been a source of bias.

Despite this, our research still had a heterogeneous group of participants, a strength, as this study included participants in varying age groups, marital statuses, vaccination statuses and at different stages in their lives, leading to rich perspectives.

## **4.6 Implications for Policy and Practice**

This research has been relevant in showing that public health initiatives to increase vaccination uptake should not take a one-size-fits-all approach as there are many reasons people choose not to vaccinate and otherwise. While authority was a main reason participants vaccinated, this research also showed that once the authoritative body is removed, there was a pattern of not following up with completing vaccinations. If the goal is to increase uptake of vaccinations, authority, while seemingly an effective solution, is one that takes away freewill and serves as a temporary solution. Interventions to address knowledge gaps should be designed, and these interventions should not be generic, but rather customized to target doubts and rumors. As our research showed, some participants changed their attitudes when exposed to more knowledge regarding COVID-19 and the vaccines. This shows how relevant it is to incorporate proper knowledge dissemination in tackling vaccine hesitancy, not just for COVID-19, but other diseases. While there are other determinants of vaccine hesitancy,

increasing spread of knowledge would definitely serve to tackle hesitancy rooted in ignorance and improve attitude. Government could seek to provide knowledge through different channels to prevent misinformation and disinformation.

Doubt, a key determinant identified in this research has several root causes and while the current pandemic under discussion is COVID-19, it is daunting to imagine future situations. The government needs to rebuild and regain trust of the masses, an action that will not be easy as the grave distrust is as a result of a compilation of different actions over the years, for instance, the government hoarding COVID-19 palliatives, which is a tip of the iceberg. And there are some people who have very strong opinions regarding the vaccines, and refuse to vaccinate because that is their mindset. Effective program of interventions should be encompassing to address each and every one of these determinants, considering context as well. This research informs public health policymakers and is relevant in tackling vaccine hesitancy in Nigeria.

## **5. Conclusion**

It is very crucial to understand that the determinants identified in our research were not limited to socioeconomic status, or education level, as this in-depth research has shown that vaccine hesitancy goes beyond these demographic parameters.

Doubt in COVID-19's existence is a new finding which stood out in this research. As found in the course of this research, there are participants who are completely doubtful of COVID's existence and even if there is a resurgence, they will be doubtful and not vaccinate. This goes down to the distrust in government and systems. Distrust in the government and all associated with them, in this case, the vaccines and their actions surrounding the COVID-19 pandemic was strongly highlighted.



Family influence was found to not be a major determinant, despite the collectivist society Nigeria is. This has shown that the choice to make decisions as a unit varies depending on the decision being made. Additionally, the Willing-Hesitant-Unvaccinated pathway showed how a reverse trajectory can take place as participants moved from a willing stance to a hesitant stance. This showed that when conditions are unfavorable, vaccine hesitancy can also plant roots. It is interesting to note that the two participants who followed this pathway have different current stances, with the participant who fully trusts the government still willing to vaccinate, showing how individual mindsets, beliefs, trust and context plays a role.

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## **Declaration of interest**

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## Supplementary File 1

### Interview Guide

Demographic data will be collected, consisting of age, gender, occupation, level of education, place of residence

Setting the background. Finding out stance about the pandemic.

- What do you know about the Covid-19 pandemic?
- What do you think about it?
- What did you think about the safety guidelines that were recommended? Did you follow them? Why/Why not? What do you do to protect yourself?

What are the influencers? Factors that influence uptake?

- Do you use social media? Which do you use most?
- If you needed to confirm an information about a health issue, where do you go to? Newspaper? The news? Websites? Social media?
- Think of the government's communication during the pandemic. In your opinion, has it been good? What do you think of the government and the pandemic?

Thoughts/Opinions about the vaccines:

Trust, Efficacy, Uptake or not? Feasibility

- In your opinion, are vaccinations effective generally?
- Do you know there are vaccines against Covid-19?
- Have you taken the Covid vaccine? How many doses? Which? What are some reasons you did not accept/accepted the vaccine?
- Have you heard any rumors about the vaccines? What did you think of them?
- Why do you feel differently about this vaccine?

How do the opinions of those close matter? (Bonds and connections, Strong ties)

- When you are confused about a decision, who is the first person you think to consult? Why do you trust this person?
- What kind of friends do you have? What do you talk about?

- Do you discuss Covid-19 and vaccinations with your friends/family? Do you share the same thoughts?
- Have those close to you taken the vaccine? Have you heard of anyone that had side effects of the vaccine/Did you see anybody? Tell me about it.
- Those you know who have taken the vaccine, what did they say about it?
- How did you make the decision to vaccinate?
- Tell me about those you consulted when you found out about the vaccine. Did you contact your religious leader?

How do the opinions of those distant matter? (Weak ties)

- When you are sick, do you go to the doctor or you treat yourself at home?
- Do you trust that your friends would be honest than someone you are not close to?
- Where have you gotten more information about Covid-19? From those you are close to or those you are not close to?
- When you hear those you are not close to talk about covid vaccination, does it urge you to get vaccinated too?
- Do you communicate often with people outside your close circle about the pandemic?
- Have you had a different opinion with someone regarding the pandemic? How did it change your mind?

Decision making process and conflict

- Who has authority in the family? Tell me about the person your family holds in high esteem? Whose words are always believed?
- Tell me about your relationship with your parents. Do you do everything they say? What about your siblings? Do you argue often?
- When disputes or disagreements occur in your family or friend group, how are they resolved?
- Regarding the decision to vaccinate, the discussions that have taken place within your family, are they similar to other discussions that have been made about other decisions? What is different?
- Who are the members of your family that have the same thoughts regarding vaccination? Tell me about them

# 懷疑與不信任：從質性角度探討 奈及利亞 COVID-19 疫苗猶豫 的決定因素

Awwersuoghene Onobrakpeya\* 許良因\*\*

## 摘要

目的：本研究旨在探討奈及利亞民眾對 COVID-19 疫苗猶豫的決定因素，並分析他們在接種 COVID-19 疫苗過程中的決策方式。

方法：本研究採用質性研究方法，透過半結構式訪談，受訪者共有十八位。

結果：研究結果顯示，奈及利亞民眾對 COVID-19 疫苗的猶豫主要來自懷疑與不信任，其表現於以下幾方面：(1) 對疫苗、製造商及現有疫苗知識的懷疑，(2) 對政府的不滿與不信任，(3) 對 COVID-19 疫情是否在的懷疑，(4) 基於個人感知和信念的決策，以及 (5) 特定情境下的決定因素。此外，受訪者的決策過程呈現出三種不同的路徑：(1) 猶豫後決定接種疫苗，(2) 猶豫後選擇不接種疫苗，(3) 起初願意接種但經過猶豫後最終未接種疫苗。

結論：本研究發現，懷疑與不信任是奈及利亞民眾對 COVID-19 疫苗猶豫的主要決定因素。值得注意的是，這種疫苗猶豫的現象並不限於特定社會經濟地位或教育程度的人。

關鍵詞：COVID-19、懷疑、奈及利亞、信任、疫苗猶豫

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