

Research Article

Public Opinion and Attitudes Toward COVID-19 Vaccination Mandates Among Key Populations in Nigeria

Abiodun Folake Abiola¹ , Abiodun Olaiya Paul¹ , Sanni Olaniyi Felix^{2,*} ,
Batholomew Ochonye² , Emmanuel Godwin² , Abiodun Lawrence Ajayi² ,
John Paul Mbah² , Roger Abang² , Abiye Kalaiwo³ , Paul Umoh² 

¹Public Health, Texilla America University, Georgetown, Guyana

²Research and Development Department, Heartland Alliance, Abuja, Nigeria

³Prevention Program, United States Agency for International Development, Abuja, Nigeria

Abstract

Nigeria exhibits a heterogeneous culture and factors that can significantly impact the formation of public opinions toward implementing vaccination requirements, especially among the marginalized population. Examining the prevailing public sentiment and attitudes of the key population is crucial. The study employed a cross-sectional approach. Data was collected from HALG OSS sites in Cross River, Niger, and Lagos, focusing on HIV seropositive and non-HIV positive clients/program beneficiaries. 321 people were sampled, and the data was analysed descriptively using IBM-SPSS. The study findings reveals that social media is the primary information source (33.1%) and is significantly influenced by popular social media figures (35.0%). Support for vaccine mandates was high for arriving visitors (89.1%) and frontline healthcare workers (85.6%) but lower for other groups. Unvaccinated participants cited various reasons, such as time constraints (20.0%) and perceiving vaccination as a personal choice (20.0%). Encouragingly, 80.0% expressed a future intent to get vaccinated. Among unvaccinated individuals, 60.0% reported changed views on vaccination, with 80.0% considering side effects and vaccine effectiveness information persuasive. Participants trusted local media and the Ministry of Health but held low regard for government and opposition politicians. The majority supported measures like handwashing and improved social distancing to combat COVID-19. In Conclusion, Social media, led by popular personalities, significantly shapes COVID-19 vaccination perceptions among Nigeria's key populations. Addressing concerns and using credible sources are essential for vaccine acceptance.

Keywords

COVID-19, Information, KP, HIV/AIDS, Vaccination, Attitudes, Mandate

*Corresponding author: sfelix@heartlandalliancenerigeria.org (Sanni Olaniyi Felix)

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1. Introduction

The COVID-19 pandemic on a global scale has posed an unparalleled obstacle to public health and healthcare systems around the globe [1]. To mitigate the transmission of the virus and safeguard their respective populations, governmental bodies and health authorities have recognized the significance of including vaccination initiatives as an essential element of their strategies to address the ongoing pandemic [2]. Nigeria, similar to several other nations, has implemented extensive COVID-19 vaccination initiatives to attain herd immunity and mitigate the sickness's impact on its populace [3, 4].

Nevertheless, the success of vaccination programs is contingent upon more than just the accessibility of vaccines and healthcare facilities; it also hinges upon the populace's acceptability and inclination to get vaccinations [5]. The comprehension of public sentiment and perspectives about COVID-19 vaccine requirements is crucial for the efficacy of these initiatives. Furthermore, it is crucial to acknowledge the distinct obstacles encountered by critical communities, namely the key populations community, who have frequently encountered prejudice and marginalisation within healthcare system [5].

Nigeria exhibits a heterogeneous culture characterised by a wide range of cultural, religious, and socio-political factors that can significantly impact the formation of public opinions toward implementing vaccination requirements [6]. The KP Communities, which frequently experiences marginalization and discrimination, may possess unique issues and perspectives surrounding government-enforced vaccine mandates [7]. It is of utmost importance to comprehend these viewpoints since the reluctance or rejection of vaccines within any demographic might undermine the shared objective of attaining herd immunity and managing the transmission of the virus [8].

Furthermore, it is imperative to acknowledge that attending to the apprehensions of marginalized populations constitutes a crucial aspect of public health equity. This entails the implementation of vaccination programs that are attuned to the multifaceted requirements and unique encounters of the complete populace [9]. Given the distinct obstacles encountered by the KP community in Nigeria and the crucial significance of vaccination in managing the COVID-19 crisis, this research aims to examine the prevailing public sentiment and attitudes of the KP about COVID-19 vaccine requirements within the Nigerian context. This study's outcomes can contribute valuable insights for policy formulation, healthcare strategies, and public health initiatives to promote inclusion and enhance the efficacy of efforts to address the pandemic within this specific demographic.

2. Methodology

2.1. Study Design

A cross-sectional design was utilized to assess public opinion and attitudes concerning COVID-19 vaccination requirements among KPs in Nigeria. The research was conducted in three Nigerian states: Cross River, Niger, and Lagos. The facilities were Heartland Alliance's LTD/GTE (HALG) One-Stop-Shop (OSS) locations. The cross-sectional descriptive method involved using a research-administered questionnaire to assess the opinions and attitudes of the participants. All key populations were given a standardized questionnaire.

2.2. Study Population

The study population comprised HIV seropositive and non-HIV positive clients. The key population number was about 70,000 in all these regions based on HALG program data for the USAID funded Key Populations Community HIV/AIDS Services Action and Response (KP-CARE 1) project from 2020 to 2022.

2.3. Study Criteria

2.3.1. Inclusion Criteria

The data for the study was collected in two parts (data extraction and interview). Only the data of key populations enrolled with HALG from January 2020 to December 2021 in all OSS were extracted. All key populations aged 18 years and above were included in the interviews.

2.3.2. Exclusion Criteria

Clients below 18 years old were not included in the interview. Clients who are ill and patients with any mental disorder were excluded as they may be unable to withstand the interview's stress.

2.4. Sampling Size Determination

Data of all KP clients enrolled in ART (Anti retroviral therapy) from the OSS were extracted and analysed to determine the number enrolled and eligible for the study. For the interview, the prevalence (36%) of client hesitancy in north-central Nigeria [10] was used to calculate the sample size using the formula below:

$$n = \frac{Z^2 pq}{d^2}$$

Z = Standard normal deviation of alpha set at 1.96 corre-

sponding to 95% confidence level.

p = the prevalence of hesitancy in north-central Nigeria.

$p = 0.36$

d = desired level of precision = 5% = 0.05

$q = (1-p) = 0.64$

$$n = \frac{1.96^2 \times 0.36 \times 0.64}{0.05^2}; n = \frac{0.8851}{0.0025}; n = 354.04$$

Therefore, the minimum sample size is 354.

Anticipated non-response rate = 10%

Non-response rate = 10/100 X 354 = 35.4

Therefore $n = 354 + 35.4 = 389$

For a population less than 10,000 – Finite population correction (FPC) = $N-n/N-1$

Where $N = 2,222$ (Total number of clients receiving care at the two facilities) and $n = 389$

$FPC = 2,222 - 389 / 2,222 - 1 = 0.83$

Therefore $n = 0.83 \times 389 = 321$

2.5. Data Collection and Analysis

2.5.1. Research Tools and Data Collection

A Microsoft Excel data abstraction template was employed for data extraction from the records of clients registered in all OSS. Two skilled abstractors carried out the data extraction and assessment. The researcher double-checked the data for completeness, clarity, and consistency. Data quality assurance was performed to guarantee accurate and dependable data extraction. Two trained research assistants presented a standardised questionnaire to KP client to obtain social-support data.

2.5.2. Data Analysis

The extracted data were exported into IBM-SPSS version 25.0 for analysis. The analysis is primarily descriptive, presenting categorical data and descriptive statistics to charac-

terize the population's information sources, opinions, and support for COVID-19 vaccination mandates.

2.6. Ethical Consideration

The Federal Ministry of Health Research Ethics Committee (MOHREC) was approached for ethical clearance to perform this investigation. Similarly, approval was obtained by the OSS, which recruited the volunteers. All subjects provided informed consent. The questionnaire included personal identifiers such as customer names and facility names. There was little to no bodily injury, and the risk of psychological risks was minimal. Participants with a high viral load were referred to the necessary care.

3. Results

3.1. Vaccinated Persons

Primary Source of Information on COVID-19 Vaccine Situation

Figure 1 illustrates the primary sources of information that respondents rely on to gather information about the COVID-19 vaccine situation. A small fraction of respondents (1.6%) reported that personal internet research is their primary source of information on the COVID-19 situation. Information from family and friends is the primary source for 23 (7.2%) respondents. Private or personal medical sources are the primary information source for 41 (12.8%) respondents. A substantial portion of respondents (18.4%) rely on government or official sources for their primary information about the COVID-19 situation. Local radio, television, and newspapers are the primary information sources for 86 (26.9%) respondents. The most significant proportion of respondents (33.1%) indicated that their primary source of information is social media platforms.

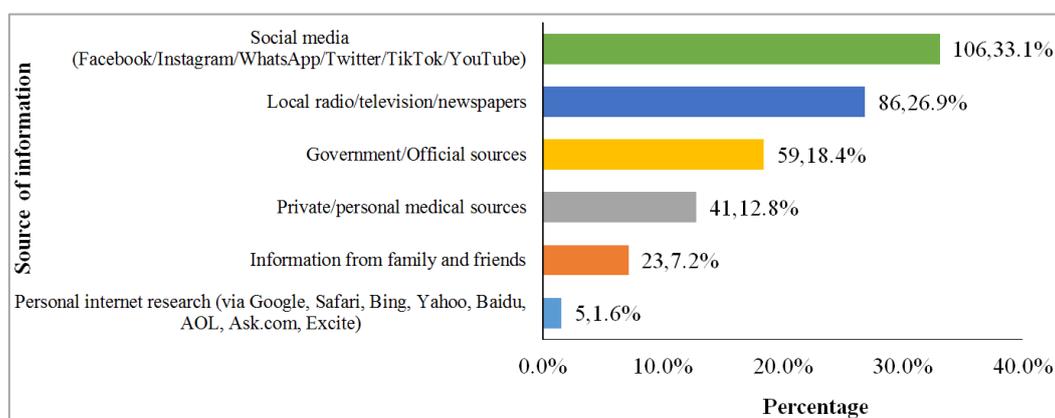


Figure 1. Primary source of information on the COVID-19 vaccine situation.

Public perceptions of the information popular personalities convey on social media regarding COVID-19-related matters.

Figure 2 illustrates respondents' perceptions of the information conveyed by popular personalities (both local and international) on social media regarding COVID-19-related matters. A notable portion of respondents (13.1%) indicated that they find the information conveyed by popular personalities on social media unhelpful, distracting, or misleading in forming their opinions on COVID-19-related matters. Most

respondents (48.4%) expressed that they find the information popular personalities convey on social media somewhat helpful. A smaller percentage of respondents (3.4%) remained unsure or did not provide a definitive response. A significant proportion of respondents (35.0%) stated that they find the information conveyed by popular personalities on social media very helpful in forming their opinions on COVID-19-related matters.

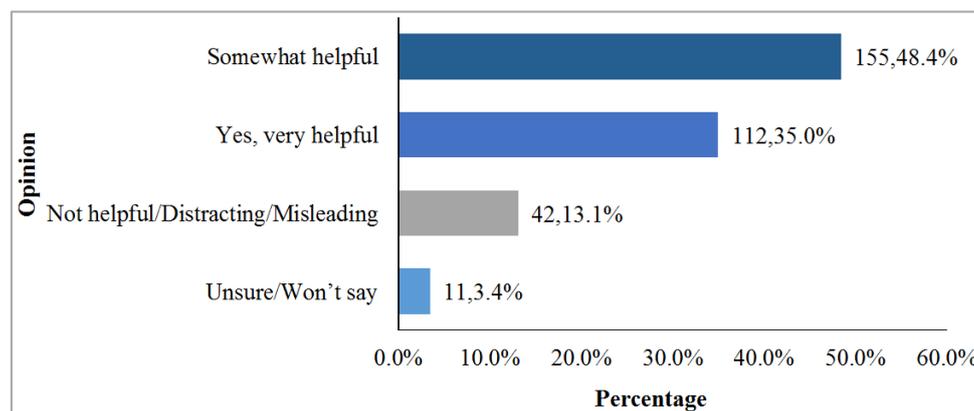


Figure 2. Respondents' opinions about information concerning COVID-19.

Support for the imposition of COVID-19 vaccine mandates for various groups.

Table 1 presents the respondents' perspectives on whether they would support the imposition of COVID-19 vaccine mandates for various groups. Most respondents (89.1%) indicated they would support the imposition of COVID-19 vaccine mandates for arriving visitors. A smaller proportion (9.1%) expressed a lack of support for such mandates, and a minority (1.9%) were unsure or chose not to provide a definitive response. Similarly, a significant percentage of respondents (85.6%) said they would support COVID-19 vaccine mandates for "Frontline medical/Eldercare workers." Regarding "Public servants," 75.3% of respondents indicated their support for COVID-19 vaccine mandates for this group.

For "Workers in the Hotel/Tourism sector," just over half of the respondents (52.8%) supported COVID-19 vaccine mandates. Most respondents (69.7%) supported COVID-19 vaccine mandates for "Taxi/Minibus drivers and conductors." A notable portion (21.6%) did not support such mandates, and 8.8% were unsure. For "Secondary/Tertiary school children," 52.5% of respondents supported COVID-19 vaccine mandates. A similar percentage (38.4%) did not support such mandates, and 9.1% were unsure. Lastly, a smaller percentage of respondents (14.4%) supported COVID-19 vaccine mandates for "Primary school children." A more significant proportion (74.4%) did not support such mandates for primary school children, and 11.3% were unsure.

Table 1. Responses on the imposition of COVID-19 vaccine mandates for various groups.

n = 320	Yes n (%)	No n (%)	Unsure/Won't say n (%)
Arriving visitors	285 (89.1)	29 (9.1)	6 (1.9)
Frontline medical/Eldercare workers	274 (85.6)	28 (8.8)	18 (5.6)
Public servants	241 (75.3)	61 (19.1)	18 (5.6)
Workers in the Hotel/Tourism sector	169 (52.8)	123 (38.4)	28 (8.8)

n = 320	Yes n (%)	No n (%)	Unsure/Won't say n (%)
Taxi/Minibus drivers and conductors	223 (69.7)	69 (21.6)	28 (8.8)
Secondary/Tertiary school children	168 (52.5)	123 (38.4)	29 (9.1)
Primary school children	46 (14.4)	238 (74.4)	36 (11.3)

3.2. Unvaccinated Person

Reasons for Not Being Vaccinated Among the Unvaccinated Participants

Figure 3 explains why some respondents have chosen not to vaccinate against COVID-19. Among the 30 unvaccinated respondents, a significant proportion (20.0%) indicated that they had not been vaccinated because they did not have the time to go or perceived the lines to be too long. Another 20.0% of

unvaccinated respondents mentioned that vaccinating against COVID-19 is a personal choice, and they have consciously decided not to do so. Similarly, another 20.0% of unvaccinated respondents mentioned that they did not qualify to receive the vaccine before. An additional 20% of unvaccinated respondents said they had not received the vaccine as it was not mandatory for their work. Lastly, a segment of unvaccinated respondents (20%) indicated no specific reason for not taking the vaccine; they have chosen not to do so.

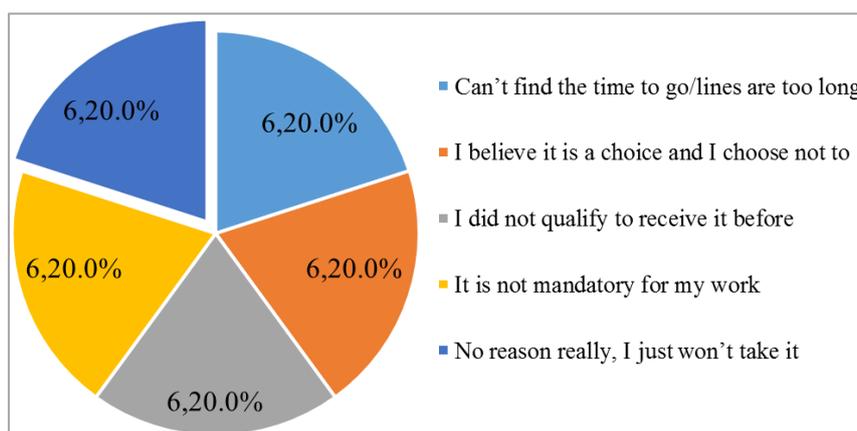


Figure 3. Reasons why some respondents were not vaccinated.

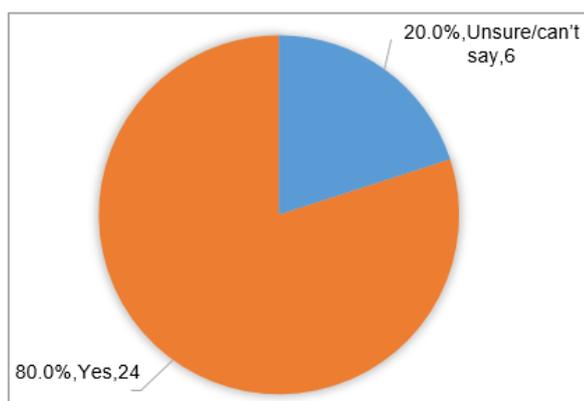


Figure 4. Intention to be vaccinated in the future among unvaccinated participants.

Figure 4 presents the intentions of unvaccinated participants regarding their future vaccination against COVID-19. Among the unvaccinated participants, 80.0% expressed their intention to be vaccinated in the future. On the other hand, 20.0% of unvaccinated participants remained unsure or could not provide a definitive response regarding their intention to be vaccinated in the future.

3.3. COVID-19 Vaccine Hesitancy Survey Report 2021

Figure 5 provides insights into how respondents' views on COVID-19 vaccination have evolved. Among the unvaccinated respondents, 60.0% indicated that their view on COVID-19 vaccination has changed, and they are now more

inclined to take the vaccine. Conversely, 20.0% of respondents mentioned that their view on COVID-19 vaccination has changed, and they are now less inclined towards taking the vaccine. A similar percentage (20.0%) of respondents stated that their view on COVID-19 vaccination has not changed, and they remain unwilling to take it.

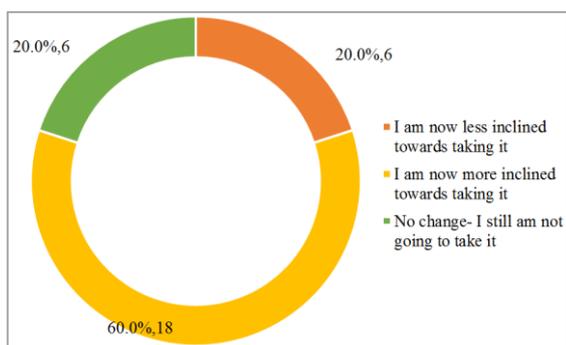


Figure 5. Respondents' current view on the COVID-19 vaccination.

Table 2 provides insights into the type of information on the COVID-19 vaccine that would encourage unvaccinated participants to take the vaccine. For the variables “The side effects of the vaccine” and “How effective the vaccine is,” 80.0% of respondents considered this helpful information in encouraging them to take the vaccine. Regarding “The numbers of people who got sick/died and their vaccination status,” “The different types of vaccines available,” and “Location of vaccination sites,” all respondents (100.0%) indicated that these types of information would be useful in motivating them to take the vaccine. In terms of “The position of my Church or Religious leader,” “The impact of the vaccine on my sexual health,” and “The impact of the vaccine on my ability to have children,” 80.0% of respondents considered these types of information to be useful in influencing their decision to take the vaccine. For “The impact of the vaccine on my ability to have children,” 60.0% of respondents indicated that this information would be helpful, while 40.0% found it not particularly useful.

Table 2. Type of information on the COVID-19Vaccine that will encourage the unvaccinated participant to take the vaccine.

Variable (n = 30)	Yes, useful n (%)	Not particularly useful n (%)
The side effects of the vaccine	24 (80.0)	6 (20.0)
How effective is the vaccine is	24 (80.0)	6 (20.0)
The number of people who got sick/died and their vaccination status	30 (100.0)	0 (0.0)
The different types of vaccines available	30 (100.0)	0 (0.0)
Location of vaccination sites	30 (100.0)	0 (0.0)
The position of my Church or Religious leader	24 (80.0)	6 (20.0)
The impact of the vaccine on my sexual health	24 (80.0)	6 (20.0)
The impact of the vaccine on my ability to have children	18 (60.0)	12 (40.0)

Table 3 provides insights into the conditions that would persuade unvaccinated respondents to change their minds and take the COVID-19 vaccine. All respondents (100.0%) indicated that they would be influenced to take the vaccine if they needed to secure or maintain a job. Regarding “If it would allow them to access social activities more freely,” 80.0% of respondents indicated that this condition might persuade them to take the vaccine. Similarly, 80.0% of respondents expressed that If they were given more scientific or medical

information, they could be persuaded to take the vaccine. For “If I saw people I care about getting sick/dying from COVID-19,” 60.0% of respondents indicated that this condition might persuade them to take the vaccine. Conversely, 60.0% of respondents stated, “If I saw influential people who now oppose it, switch their position”, would not persuade them to take the vaccine. Additionally, 60.0% of respondents indicated that “If it were required for them to travel overseas,” they could be persuaded to take the vaccine.

Table 3. Conditions that would persuade unvaccinated respondents to change their minds and take the COVID-19Vaccine.

Variable (n = 30)	Possibly Yes n (%)	No n (%)	Unsure n (%)
If it were necessary for me to secure or maintain a job	30 (100.0)	0 (0.0)	0 (0.0)
If it would allow me to access social activities more freely	24 (80.0)	6 (20.0)	0 (0.0)
If I was given the more scientific or medical information	24 (80.0)	0 (0.0)	6 (20.0)
If I saw people I care about getting sick/dying from COVID-19	18 (60.0)	12 (40.0)	0 (0.0)
If I saw influential people who now oppose it switch their position	0 (0.0)	18 (60.0)	12 (40.0)
If it was required for me to travel overseas	18 (60.0)	6 (20.0)	6 (20.0)

Table 4 provides insights into respondents' opinions and regards for various sources of information related to COVID-19. The table includes each source's mean and standard deviation values and remarks based on a scale of 1 to 10. Respondents' opinions about local newspapers are moderately diverse, with a mean score of 5.60. This suggests that some respondents have a relatively neutral view about the reliability and accuracy of information provided by local newspapers. Respondents regard local radio stations more positively, with a mean score of 6.80. This indicates that a significant portion of respondents trust information from local radio stations to a relatively high extent. Like local radio stations, respondents have a favourable opinion about local television as a source of COVID-19 information, with a mean score of 6.60. Respondents had very low regard for information coming from government politicians, as indicated by the mean score of 1.20. This suggests a lack of trust in information from this source. Like government politicians, respondents perceive opposition politicians with low regard, with a mean score of 1.20.

Opinions about trade union leaders as a source of information are moderately varied, reflected by a mean score of 3.20. This suggests that some respondents might consider

trade union leaders reliable sources, while others might not. Similarly, opinions about information from private sector leaders are moderately diverse, with a mean score of 3.60. Some respondents may have confidence in the information provided by these leaders, while others may not. Respondents' opinions about university leaders as a source of information are relatively low, with a mean score of 2.00. This suggests that respondents might not consider university leaders as highly reliable sources.

Respondents have a relatively high regard for information from the Ministry of Health, with a mean score of 7.20. This indicates that a significant portion of respondents trust the information provided by this official health authority. Like the Ministry of Health, private doctors are regarded with a relatively positive opinion, as indicated by the mean score of 6.80. Respondents' views about family members as a source of information are moderately diverse, with a mean score of 5.00. This suggests that while some respondents trust their family members' knowledge, others might have reservations. Social media influencers are regarded with a moderate level of opinion diversity, as reflected by the mean score of 4.40. This suggests that while some respondents find them credible, others may be more skeptical.

Table 4. Respondents' opinions and regards for sources of information on COVID-19.

Variable	Mean	Standard Deviation	Remark
Local newspapers	5.6	3.892	Moderate
Local radio stations	6.8	3.986	Moderate to High
Local television	6.6	4.248	Moderate to High
Government politicians	1.2	0.407	Very Low
Opposition politicians	1.2	0.407	Very Low
Trade Union leaders	3.2	3.488	Moderate
Private sector leaders	3.6	3.44	Moderate

Variable	Mean	Standard Deviation	Remark
University leaders	2	1.576	Low
Ministry of Health	7.2	3.547	High
Private doctor	6.8	3.986	Moderate to High
Family members	5	4.169	Moderate
Social Media Influencers	4.4	3.379	Moderate

Table 5 provides insights into respondents' opinions regarding various options for combating COVID-19, apart from vaccinations.

About 20.0% of respondents perceived the option of considering COVID-19 as a hoax and not needing any interventions as a good choice. In contrast, the majority (80.0%) of respondents felt this option was wrong. Also, 20.0% of respondents saw natural immunity as letting the vulnerable get sick and allowing the rest to continue their lives as a good option. A significant portion (60.0%) viewed this as wrong. A further 20.0% were unsure about this option. Similarly, 20.0%

of respondents considered comprehensive lockdowns a good option for combating COVID-19. Conversely, 80.0% of respondents deemed comprehensive lockdowns as a lousy choice.

A significant proportion (80.0%) of respondents viewed handwashing as a good option for combating COVID-19. None of the respondents considered this option a wrong choice. However, 20.0% were unsure about its effectiveness. Also, 60.0% of respondents believed better social distancing is a good option for combating COVID-19. Only 20.0% saw it as a wrong choice, and 20.0% were uncertain about its impact.

Table 5. Respondents' opinions regarding various options for combating COVID-19 from vaccinations.

Variable (n = 30)	Good option n (%)	Bad option n (%)	Unsure n (%)
No need for any options; COVID-19 is a hoax	6 (20.0)	24 (80.)	0 (0.0)
Natural immunity (let the vulnerable get sick, and the rest of us get on with life)	6 (20.0)	18 (60.0)	6 (20.0)
Comprehensive lockdowns	6 (20.0)	24 (80.0)	0 (0.0)
More handwashing	24 (80.0)	0 (0.0)	6 (20.0)
Better social distancing	18 (60.0)	6 (20.0)	6 (20.0)

4. Discussion

This study examines the opinion and attitudes toward COVID-19 vaccination mandates among Key populations (KP) in Nigeria. As nations strive to mitigate the spread of the virus and protect their populations, vaccination programs have become pivotal components of the pandemic response. Understanding this key population's public opinion and attitudes toward COVID-19 vaccination mandates is critically important, particularly in a country marked by diverse sociocultural influences and unique challenges [11].

Information Sources and Their Influence on the Vaccinated

Respondents.

A pivotal finding in this study concerns the sources of information influencing perceptions about the vaccine. While globally, there has been a massive drive to promote scientific literacy and ensure the dissemination of accurate information through trusted channels [12], our study paints a diverse picture. Social media platforms emerged as the most significant source of information (33.1%). At the same time, fewer respondents cited medical or government sources as their primary information channel on the COVID-19 vaccine situation. The heavy reliance on social media as a primary information source can be attributed to the platform's widespread accessibility, ease of information dissemination, and the influential role of peers and celebrities in shaping public opinion. While

this might offer a rapid means of information dissemination, it also carries the risk of promoting misinformation. This heightened dependence on social media also raises concerns about the potential dissemination of misinformation and vaccine-related myths. Therefore, it underscores the critical need for fact-checking and promoting credible sources of information to combat vaccine hesitancy. A study by Erinc *et al.* [13] substantiates the potential correlation between social media exposure and vaccine hesitancy, underscoring the need for targeted interventions to counteract misinformation on these platforms. The findings revealed that 35.0% of the respondents found the information conveyed by popular personalities on social media highly valuable in forming their opinions on COVID-19-related matters. This positive perception of popular personalities on social media underscores these figures' influential role in shaping public opinion. It suggests a potential avenue for promoting accurate information and encouraging vaccination among key populations. A study by Limaye *et al.* [14] demonstrated that public figures' endorsements significantly impact vaccine acceptance, particularly among specific demographic groups, thus reinforcing the importance of leveraging these influences.

Furthermore, a concerning finding was the low level of trust in government politicians and opposition politicians. This has severe implications for government-led health campaigns and underscores the importance of leveraging trusted community figures or platforms for effective public health communication. Previous research by Nair *et al.* [15] and Muric *et al.* [16] has shown that anti-vaccine activists have used social media platforms to seed doubt and worsen vaccine hesitancy, making accurate information dissemination even more crucial. Given the global concern over 'fake news' and misleading narratives spread via social media [17], which has been termed as an 'infodemic' by the World Health Organization [18], it is pertinent for online public health campaigns to prioritise accurate, compelling and efficient information dissemination through these platforms.

The study observed that most respondents (89.1%) supported implementing COVID-19 vaccine mandates for arriving visitors, while 85.6% supported such mandates for frontline medical/eldercare workers. Similarly, 69.7% of respondents supported vaccine mandates for taxi/minibus drivers and conductors. This high level of support for vaccine mandates in specific groups may be attributed to public health and safety concerns, especially in roles that involve direct interactions with the public. Implementing vaccine mandates in these groups is a strategic measure to boost vaccine coverage. A study by Aslam *et al.* [19] highlights the pivotal role of vaccine mandates in achieving higher immunisation rates, particularly among key populations, thus supporting the significance of this approach.

4.1. Unvaccinated Respondents

The study uncovered various reasons for not receiving the COVID-19 vaccine among unvaccinated respondents. Among these were logistical challenges such as time constraints and long queues, alongside more personal or ideological factors like perceiving vaccination as a personal choice and vaccine mandates not applicable to their work. Moreover, some respondents cited previous ineligibility for vaccination. These multifaceted reasons highlight the complexity of individual decision-making processes regarding vaccination [20]. These factors reflect individual autonomy, time constraints, and eligibility criteria significantly shaping the decision to abstain from vaccination. As 20.0% cited a lack of time, another 20.0% perceived vaccination as a personal choice, and an additional 20.0% reported ineligibility; it is clear that addressing these specific concerns requires tailored interventions. One potential approach could be to provide flexible vaccination schedules to accommodate individuals facing time constraints [21].

In a promising development, the study also revealed a substantial shift in the intention to vaccinate among unvaccinated participants. An encouraging 80.0% of unvaccinated individuals expressed their intention to receive the COVID-19 vaccine in the future. This high intention suggests the potential for changes in vaccine hesitancy over time, likely due to evolving circumstances, access to new information, and shifting perceptions of vaccine safety and efficacy [22]. To capitalise on this shift, implementing targeted education campaigns and ensuring access to vaccines will be crucial for further boosting vaccine coverage among this group [23].

Furthermore, the findings from the COVID-19 Vaccine Hesitancy Survey Report 2021 revealed that 60.0% of unvaccinated respondents indicated that their views on COVID-19 vaccination had changed, with an increased inclination towards accepting the vaccine. This shift in views can be attributed to various factors, including increased knowledge, evolving circumstances, and the effectiveness of public health campaigns [24]. To leverage this changing landscape, it is imperative to continue providing accurate information and addressing the concerns that have led to vaccine hesitancy, facilitating further changes in attitudes towards vaccination [25].

Additionally, the study identified diverse opinions among respondents regarding various sources of information about COVID-19. While some sources, like the Ministry of Health, received higher trust ratings, others were viewed with skepticism. This variation in trust ratings is influenced by these sources' perceived credibility and reliability, underlining the importance of building trust in reliable sources and improving the credibility of less trusted ones. Effective communication strategies should prioritise these trusted sources to convey accurate information and engage with hesitant individuals [26]. The study also noted varying levels of support for different strategies aimed at combating COVID-19, apart from

vaccinations. Strategies like handwashing and better social distancing received relatively high levels of approval, indicating the influence of cultural and contextual factors on public perceptions. These findings underscore the need for nuanced and targeted approaches to address vaccine hesitancy and promote public health strategies among HIV/AIDS key populations in Nigeria, emphasising the dynamic nature of individual decision-making and the importance of credible information sources and context-specific interventions.

4.2. Limitation of the Study

One notable limitation of this study, particularly within Nigeria's strict socio-legal attitudes towards the KP community, is the potential for response bias. The prevailing anti-LGBT environment, characterised by legal penalties and societal hostility, may influence participants to underreport or overreport their behaviours and beliefs regarding COVID-19 vaccination mandates. This could be driven by a desire to conform to perceived societal norms or to avoid negative consequences. As a result, the credibility of the data may be compromised, potentially leading to misguided public health interventions.

5. Conclusion

This study examined the views of Nigeria's KP community on COVID-19 vaccination mandates. Social media emerged as the primary information source, raising concerns about potential misinformation. Respondents viewed popular social media personalities as influential, indicating a potential avenue for promoting accurate information. The study found low trust in government politicians, suggesting the need for alternative communication strategies. High support for vaccine mandates among specific groups highlighted their importance for public health. Unvaccinated participants' reasons for non-vaccination varied, including logistical challenges and personal beliefs. Encouragingly, there was a significant shift towards intending to get vaccinated in the future. The evolving views of unvaccinated respondents also indicate the potential for changes in vaccine hesitancy. The study underscores the importance of nuanced, context-specific interventions and credible information sources in shaping public opinion and promoting vaccination among key populations.

Abbreviations

ART: Anti Retroviral Therapy
 HALG: Heartland Alliance's LTD/GTE
 KP: Key Population
 OSS: One-Stop-Shop

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Ethics Approval and Consent to Participate

The Federal Ministry of Health Research Ethics Committee (MOHREC) was approached for ethical clearance to perform this investigation. Similarly, approval was obtained by the OSS, which recruited the volunteers. All subjects provided informed consent. The questionnaire included personal identifiers such as customer names and facility names. There was little to no bodily injury, and the risk of psychological risks was minimal. Participants with a high viral load were referred to the necessary care.

Author Contributions

Abiodun Folake Abiola: Conceptualization, Investigation, Writing – original draft

Abiodun Olaiya Paul: Conceptualization, Investigation, Supervision, Writing – original draft

Sanni Olaniyi Felix: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

Batholomew Ochonye: Methodology, Supervision, Visualization, Writing – original draft

Emmanuel Godwin: Data curation, Methodology, Project administration

Abiodun Lawrence Ajayi: Methodology, Writing – review & editing

John Paul Mbah: Methodology, Project administration, Visualization

Roger Abang: Investigation, Methodology, Writing – original draft

Abiye Kalaiwo: Funding acquisition, Supervision

Paul Umoh: Methodology, Writing – review & editing

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Conflicts of Interest

The authors declare no conflicts of interest.

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