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# Infodemic and digital skills as major components influencing vaccination acceptance among healthcare workers in Nigeria

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**Abstract**
This study examined infodemics and digital skills of health workers (HWs) in Nigeria toward vaccination acceptance. Descriptive survey research design of the correlational type was adopted. The population of the study consisted of all the health workers in Nigeria. Using the multi-stage sampling technique, a sample size of 850 health workers were selected from the ministries of health of 12 states that were randomly selected across the six geo-political zones with 2 states from each of the selected zones. Qualitative data were collected using a questionnaire. The findings of the study show that: health workers perceived high effect of infodemic on vaccination as misguided information shared about vaccines as well as the fake news. The result also revealed digital skills of health workers were average; levels of vaccination acceptance were high; and challenges posed by infodemic and health workers' digital skills included difficulty in accessing information side effects on vaccination; and lack of record retention period among others. The study concluded that the willingness of health workers to accept vaccinations was curtailed and influenced by their perception of infodemic and digital skills. The study, therefore, recommended that health workers, who should be the advocates of vaccine acceptance, should be imbued with accurate information that will influence their digital skills favourably towards the acceptance and use of vaccination in Nigeria among other recommendations.

**Keywords***:* Infodemic, digital skills, vaccination-acceptance, healthcare workers, Nigeria

## Introduction

Infodemic is a word that blends "information" and "epidemic," and this refers to the rapid spread of information both authenticity in the age of the Internet and social media. The term was coined in 2003 by David Rothkopf to refer to an act of disseminating excessive amount of information about a certain problem, which makes its solution even more difficult (WHO, 2020). United Nations (2020) explained infodemic as a few facts, mixed with fear, speculation and rumour, amplified and relayed swiftly worldwide by modern information technologies, which have affected national and international economies, politics and even security in many countries. For example, Special Anti-Robbery Squad (SARS) is the story of not one epidemic but two, had implications that are far greater than the disease itself. That is because it is not the viral epidemic but rather an "information epidemic" that transformed SARS. The information epidemic or "infodemic" has made the public health crisis harder to control and contain (United Nations, 2020).

Naeem and Bhatti (2020) defined infodemic as excessive amount of information about a problem such that the public finds it difficult to distinguish between evidence-based information and inaccurate misinformation over the media and the Internet. The word infodemic is not the first word that has been borrowed from health. For instance, McKinney and Mulvin (2019) explained that computer viruses are terminology that emerged in the 1990s from an analogy to the HIV/AIDS pandemic. In the same vein, the World Health Organisation (2022) conceptualized infodemic as "too much information including false or misleading information in digital and physical environments during a disease outbreak" (p.57). Infodemic is also seen as a concept that may causes confusion and risk-

taking behaviour, which can eventually harm public health and can lead to mistrust in health authorities and undermine the public health response. According to IGI Global (2025), infodemic refers to excessive amount of information, often inaccurate or misleading, spreading rapidly and widely through communication channels, such as social media, creating challenges in distinguishing between reliable and unreliable information.

Recent events have witnessed the transformation of digital skills of healthcare workers in advanced countries that were most affected by pandemics and have been the focus of WHO in combating any pandemic. Transformation in ICT has opened up new possibilities for healthcare information to contribute to clinical care and public health, including links to biomarkers and genetic databases. Parallel to this progress, patients and clinicians hope for health benefits without risk to privacy or intrusive scrutiny. In the healthcare system, information management, most often, concerns large patient databases, therefore, healthcare workers have to have access to digital solutions as they are better equipped to track patients' progress and monitor sustained treatment. Therefore, with the basic digital health skills, vaccine management and other tasks become less easy, and health workers are better able to deliver high-quality healthcare and respond to emergencies, like disease outbreaks.

Vaccination has a profound positive influence on global health (especially in developing countries) by preventing millions of deaths, eradicating deadly diseases, and building immunity; and healthcare workers had been the front liners in making sure vaccination guideline is strictly adhere and implemented in Nigeria, however, due infodemic tendencies and lack of digital skills among healthcare workers, vaccinations tend to be a bottleneck and a serious concern for the generality of the citizen and more reasons to investigate why in order to combat vaccination rejection.

**Objectives of the study**

The main objective of this study is to investigate infodemic and digital skills as major components influencing vaccination acceptance among healthcare workers in Nigeria. The specific objectives:

1. ascertained the infodemic of healthcare workers on vaccinations acceptance in Nigeria;
2. determined the level of vaccinations acceptance in Nigeria;
3. establish the digital skills of healthcare workers in the management of infodemic towards vaccinations' acceptance in Nigeria; and
4. identified the challenges militating against vaccination acceptance in Nigeria.

**Research questions**

This study provided answers to the following research questions:

1. What are the infodemic of healthcare workers on vaccinations acceptance in Nigeria?
2. What are the levels of vaccinations acceptance in Nigeria?
3. What are the digital skills of healthcare workers in the management of infodemic towards vaccinations' acceptance in Nigeria?
4. What are the challenges militating against vaccination acceptance in Nigeria?

**Literature review**

In the US, Gray (2022), investigated the infodemic of vaccination, findings revealed that misinformation about healthcare topics is nothing new, but the social media, the

polarisation of news sources, and the pace of scientific development have all contributed to an environment that makes it easier than ever for ambiguous information, misinterpretation, and deliberate disinformation to spread. Kazi et al (2024) examine the perception of COVID-19 infodemic and vaccination through mobile health, social media, and electronic media on the attitudes of caregivers and healthcare providers in Pakistan, revealed the usage of mHealth, social media, and electronic media for information spread (both factual and mis/disinformation) related to COVID-19 and its vaccination had a significant impact on attitudes toward COVID-19 vaccination. According to the Australian Government Department of Health (2022), finding accurate, evidence-based answers to questions or misinformation about vaccines has been the task of the Australian government to the importance of credible information. Health authorities accredited media platforms and rely on reputable sources of information to help the public make informed choices and stay up to date on the latest information about vaccines.

Digital health provides solution to optimise time and human resources in the fight against pandemics towards encouraging vaccine acceptance. These solutions facilitate communication between community members, hospitals, and health care providers (Peden, Mohan & Pagan, 2020). Comparing the advantage of adequate digital health information supplied in other countries, for example, the US Centre for Disease Control (CDC) applied Artificial Intelligence that can simultaneously communicate with thousands of callers (Adepoju, 2020). Ethiopia developed a data-driven health information portal with a rapid response component to citizens´ questions using Call Centres (MasterCard Foundation, 2020). Also, Rwanda used Drones to promote health education to unreachable populations (WHO, 2020), and information is preserved in the district health information software 2 (DHIS-2) system on the spot, allowing timely intervention in tracing, isolating and testing suspected cases (Kaseje, 2020). Sierra Leone, South Africa, Morocco, and Tunisia imposed lockdowns and determined citizens´ compliance by issuing alerts and announcements using Drones (Maharana et al., 2020). Ghana, Rwanda and Tunisia have also introduced Robots to monitor patients' vital signs, reducing contact with HWs (Kaseje, 2020).

In Nigeria, contact tracing and mobile health (mhealth) tools to support quality training and surveillance was introduced. The App was designed to directly provide frontline HWs with accurate and up-to-date information about COVID-19. The software also enables them to quickly identify, screen and manage COVID-19 suspects; provide guidance on specimen collection techniques and safety measures to observe within wards and quarantine centres dealing with the disease. However, it was reported that majority of the health workers were not aware of such technology used by any health facilities during COVID-19 response (Fowe et al., 2023). This is because, in the generation of data and patient care records, there is a significant lag in the Electronic Medical Record (EMR) adoption and adherence to traditional (paper-based) patient chart documentation in many African countries including Nigeria.

**Methods**

The research employed descriptive survey research design. As the study covered the whole country, the study population was 850 from 170 vaccination centers under the State Health Ministries in twelve (12) selected States. These include Anambra, Bauchi, Borno, Edo, FCT-Abuja, Imo, Kaduna, Kano, Lagos, Ogun, Plateau and Rivers State, i.e two states in each of the six (6) geo-

political zones in Nigeria that participated in pandemic vaccination (NPHCDA, 2025). Purposive sampling technique was adopted in selecting the target states and 850 was the sample size for the study as the number was manageable. These were chosen based on the highly reported cases they were known for. Self-designed questionnaire was used as instruments for data collection and a four-point Likert-scale was used with 95% response rate. The criterion mean adopted for taking decision and interpretation of the Mean scores is 2.5. Therefore, any mean score that is equal or higher than 2.5 is accepted while lower than 2.5 is rejected for all the tables.

## Results

This section focuses on the presentation research findings in line with the research questions that were raised in the study.

**Table 1: Demographics characteristics of the respondents**

| S/N | State | Vaccination centre | No. of HCW (Participants Vaccinated) |
|---|---|---|---|
| 1 | Anambra | 16 | 80 |
| 2 | Bauchi | 10 | 50 |
| 3 | Borno | 13 | 65 |
| 4 | Edo | 22 | 110 |
| 5 | FCT-Abuja | 44 | 220 |
| 6 | Imo | 12 | 60 |
| 7 | Kaduna | 05 | 25 |
| 8 | Kano | 12 | 60 |
| 9 | Lagos | 02 | 10 |
| 10 | Ogun | 05 | 25 |
| 11 | Plateau | 21 | 105 |
| 12 | Rivers | 08 | 40 |
| | **Total** | **170** | **850** |

**Sources:** NPHCDA Websites, 2025

Table 1 shows that 80(68.1%) of the respondents were from Anambra State, 50(42.6%) from Bauchi State, 65(55.3%) were from Borno, 110(93.6%) were from Edo and 220(187.1%) from Abuja. Similarly, 60(51.1%) were from Imo, 25(21.3%) were from Kaduna and 60(51.1%) from Kano State. While, only 10(8.6%) from Lagos State, 25(21.3%) were from Ogun, 105(89.3%) were from Plateau and 40(34.1%) from Rivers State. This implies that majority of the respondents were from Abuja and minority from Kano State.

**Research question one:** What are the infodemic of healthcare workers on vaccinations acceptance in Nigeria?

**Table 2: Healthcare workers of infodemic on vaccinations**

| S/N | Perceptions | VH(%) | H(%) | L(%) | VL(%) | Mean | SD |
|---|---|---|---|---|---|---|---|
| 1 | Social media platforms are leading in the spread of misinformation about pandemic vaccination. | 300(21.3) | 292(20.7) | 369(26.2) | 448(31.8) | 2.68 | 1.31 |
| 2 | Exposure to fake news can reduce plan to get people vaccinated. | 288(20.4) | 260(18.5) | 381(27.0) | 480(34.1) | 2.66 | 1.31 |
| 3 | Vaccination rejection is high due to misinformation. | 295(20.9) | 287(20.4) | 340()24.1 | 487(34.6) | 2.27 | 1.15 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | I'm satisfied with the quality of information shared about vaccination. | 305(21.6) | 249(17.7) | 339(24.1) | 516(36.6) | 2.24 | 1.16 |
| 5 | I'm often interested in exchanging information about vaccine. | 265(18.8) | 276(19.6) | 399(28.3) | 469(33.3) | 2.24 | 1.11 |
| 6 | Exposure to fake news may potentially put more people at risk. | 251(17.8) | 285(20.2) | 379(26.9) | 494(35.1) | 2.21 | 1.11 |
| 7 | Government have to be proactive in the information sharing spaces to provide access to trusted and accurate information on vaccination. | 262(18.6) | 292(20.7) | 398(28.2) | 457(32.4) | 2.25 | 1.10 |
| 8 | Harmful information on the vaccines is not taken as seriously as it should be. | 267(18.9) | 300(21.3) | 328(23.3) | 514(36.5) | 2.23 | 1.13 |
| 9 | I'm afraid with the amount of misguided information shared about vaccine. | 272(19.3) | 300(21.3) | 362(25.7) | 475(33.7) | 2.26 | 1.12 |
| 10 | Those who reject vaccination believe in conspiracy theories. | 295(20.9) | 300(21.3) | 349(24.8) | 465(33.0) | 2.30 | 1.14 |

Decision rule: Responses below 2.50 are rejected while above it is accepted: VH (Very High) High (H), Low (L) Very Low (VL)

As shown in Table 1, the result revealed that HWs on the effect of infodemic on vaccinations acceptance in Nigeria were: social media platforms are leading in the spread of misinformation about vaccination ($\bar{x}$=2.68, SD=1.31); and exposure to fake news can reduce plan to get people vaccinated ($\bar{x}$=2.66, SD=1.31), among others. Hence, perceptions of health workers on the level of infodemic on vaccinations acceptance were high.

**Research question two:** What are the levels of acceptance of pandemic vaccinations in Nigeria?

**Table 3: Respondents' levels of acceptance of pandemic vaccination**

| S/N | Levels of acceptance | VH(%) | H(% | L(%) | VL(%) | Mean | SD |
|---|---|---|---|---|---|---|---|
| 1 | Vaccination is an effective way to prevent pandemic diseases. | 383(27.2) | 470(33.4) | 282(20.0) | 274(19.4) | 2.68 | 1.07 |
| 2 | Management of information is a major factor of vaccine acceptance. | 383(27.2) | 470(33.4) | 282(20.0) | 274(19.4) | 2.68 | 1.07 |
| 3 | Health authorities recommendation is an important factor in vaccination decision-making. | 400(28.4) | 445(31.6) | 296(21.0) | 268(19.0) | 2.69 | 1.08 |
| 4 | Vaccination is the important aspect of patient safety. | 368(26.1) | 477(33.9) | 252(17.9) | 312(22.1) | 2.63 | 1.09 |
| 5 | It is a moral responsibility for the public to accept vaccine. | 370(26.3) | 468(33.2) | 289(20.5) | 282(20.0) | 2.65 | 1.07 |
| 6 | Vaccine is personal choice that should be respected. | 335(23.8) | 499(35.4) | 283(20.1) | 292(20.7) | 2.62 | 1.06 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7 | Discouragement from religious leaders that vaccine is targeted at reducing population. | 396(28.1) | 480(34.1) | 250(17.7) | 283(20.1) | 2.71 | 1.07 |
| 8 | Nigerian culture does not encourage vaccination. | 391(27.8) | 471(33.4) | 306(21.7) | 241(17.1) | 2.72 | 1.05 |
| 9 | Feeling pressured by authorities to get vaccinated. | 362(25.7) | 470(33.4) | 293(20.8) | 284(20.2) | 2.65 | 1.07 |
| 10 | The vaccines are coming from enemies' countries. | 376(26.7) | 509(36.1) | 271(19.2) | 253(18.0) | 2.72 | 1.05 |
| 11 | The vaccines are coming from foreign countries. | 369(26.2) | 502(35.6) | 267(18.9) | 271(19.2) | 2.68 | 1.06 |
| 12 | Likely to get vaccinated against new preventable diseases. | 373(26.5) | 462(32.8) | 266(18.9) | 308(21.9) | 2.64 | 1.01 |

Decision rule: Mean score 2.50 are rejected while above it is accepted: VH (Very High) High (H), Low (L) Very Low (VL).

As shown in the Table 2, the result revealed that the levels of acceptance of vaccinations among the respondents were that: Nigerian culture does not encourage vaccination ($\underline{x}$ =2.72, SD=1.05); vaccines are coming from enemies' countries ($\bar{x}$=2.72, SD=1.05); discouragement from religious leaders that vaccine is targeted at reducing population ($\bar{x}$=2.71, SD=1.07); health authorities recommendation is an important factors in vaccination decision making ($\bar{x}$=2.69, SD=1.08), among others. Therefore, level of vaccination acceptance was high (base on the decision rule) as indicated in the table.

**Research question three:** What are the digital skills of healthcare workers in the management of infodemic towards vaccinations acceptance in Nigeria?

**Table 4: Digital skills of healthcare workers in the management of infodemic towards vaccination acceptance**

| S/No. | Digital skills | VH(%) | H(%) | L(%) | VL(%) | Mean | SD |
|---|---|---|---|---|---|---|---|
| 1 | My health institution uses digital health technologies for vaccination exercise. | 266(18.9) | 281(19.9) | 474(33.6) | 388(27.5) | 2.30 | 1.07 |
| 2 | I have adequate training on digital skills to manage vaccinations. | 269(19.1) | 282(20.0) | 444(31.5) | 414(29.4) | 2.29 | 1.08 |
| 3 | I have the ability to create digital health information for vaccinations. | 286(20.3) | 255(18.1) | 468(33.2) | 400(28.4) | 2.31 | 1.09 |
| 4 | I have the ability to code digital health information for vaccinations. | 262(18.6) | 284(20.2) | 435(30.9) | 428(30.4) | 2.26 | 1.09 |
| 5 | I have the ability to share digital health information for vaccinations. | 283(20.1) | 287(20.4) | 444(31.5) | 395(28.0) | 2.33 | 1.09 |
| 6 | I can apply digital tools to managed vaccination records. | 289(20.5) | 303(21.5) | 439(31.2) | 378(26.8) | 2.36 | 1.08 |
| 7 | I have the ability to assess health records in my clinic. | 276(19.6) | 273(19.4) | 461(32.7) | 399(28.3) | 2.30 | 1.08 |
| 8 | I have ability to evaluate credibility of online in my health institution. | 275(19.5) | 302(21.4) | 457(32.4) | 375(26.6) | 2.34 | 1.07 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 9 | My clinic used mobile Apps to tract vaccination. | 297(21.1) | 286(20.3) | 413(29.3) | 413(29.3) | 2.33 | 1.11 |
| 10 | My clinic use digital contact tracing apps for vaccine administration. | 279(19.8) | 285(20.2) | 456(32.4) | 389(27.6) | 2.32 | 1.08 |
| 11 | My clinic used cloud-based records in screening public for vaccination. | 278(19.7) | 287(20.4) | 419(29.7) | 425(30.2) | 2.30 | 1.09 |
| 12 | Generating public data for vaccination. | 275(19.5) | 277(19.7) | 466(33.1) | 391(27.8) | 2.31 | 1.07 |

Decision rule: Responses below 2.50 are rejected while above it are accepted: VH (Very High) High (H), Low (L) Very Low (VL).

As shown in the Table 3, the result revealed that the digital skills of health workers in the management of infodemic towards the vaccination acceptance include: applying digital tools to managed vaccination records ($\bar{x}$=2.36, SD=1.08); ability to evaluate credibility of online sources ($\bar{x}$=2.34, SD=1.07); used mobile Apps to tract vaccination ($\bar{x}$=2.33, SD=1.11); as well as ability to share digital health information for vaccination ($\bar{x}$=2.33, SD=1.09), among others; which implies that majority of the respondent had average (responses within) digital skills.

**Research question four:** What are the challenges militating against vaccinations acceptance in Nigeria?

**Table 5: Challenges militating against vaccinations' acceptance**

| S/No. | Challenges | VH(%) | H(%) | L(%) | VL(%) | Mean | SD |
|---|---|---|---|---|---|---|---|
| 1 | Harmful information on vaccination is difficult to access. | 269(19.1) | 304(21.6) | 445(31.6) | 391(27.8) | 2.32 | 1.08 |
| 2 | Funding constraints for digital health record management during pandemic vaccination. | 289(20.5) | 285(20.2) | 439(31.2) | 396(28.1) | 2.33 | 1.09 |
| 3 | Lack of preservation policy of digital health records on vaccination. | 260(18.5) | 272(19.3) | 454(32.2) | 423(30.0) | 2.26 | 1.08 |
| 4 | Lack of timely access to digital health records. | 268(19.0) | 302(21.4) | 426(30.2) | 413(29.3) | 2.30 | 1.09 |
| 5 | Unstable electricity supply. | 263(18.7) | 274(19.4) | 476(33.8) | 396(28.1) | 2.29 | 1.07 |
| 6 | Unstable Internet network facility. | 296(21.0) | 259(18.4) | 469(33.3) | 385(27.3) | 2.33 | 1.09 |
| 7 | Use of outdated diagnosis forms. | 299(21.2) | 278(19.7) | 440(31.2) | 392(27.8) | 2.34 | 1.09 |
| 8 | Use of outdated registered. | 282(20.0) | 293(20.0) | 432(30.7) | 402(28.5) | 2.32 | 1.09 |
| 9 | Use of outdated vaccination forms. | 255(18.1) | 288(21.2) | 451(32.0) | 404(28.7) | 2.26 | 1.07 |
| 10 | Lack of record retention period. | 292(20.7) | 292(20.7) | 465(33.0) | 360(25.6) | 2.37 | 1.08 |
| 11 | Problems of handling digital health data. | 296(21.0) | 263(18.7) | 455(32.3) | 395(28.0) | 2.33 | 1.09 |
| 12 | Overlapping data. | 302(21.4) | 291(20.7) | 428(30.4) | 388(27.5) | 2.36 | 1.10 |
| 13 | Decentralization of information. | 299(21.2) | 293(20.8) | 404(28.7) | 413(29.3) | 2.34 | 1.11 |
| 14 | Legal issues. | 282(20.0) | 277(19.7) | 463(32.9) | 387(27.5) | 2.32 | 1.08 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 15 | Lack of standard policies. | 296(21.0) | 273(19.4) | 454(32.2) | 386(27.4) | 2.34 | 1.09 |
| 16 | Lack of digital records management. | 261(18.5) | 283(20.1) | 458(32.5) | 407(28.9) | 2.28 | 1.07 |
| 17 | Vaccination is full of propagandists seeking to manipulate and mislead the public. | 275(19.5) | 309(21.9) | 423(30.0) | 402(28.5) | 2.32 | 1.09 |

Decision rule: Responses below 2.50 are rejected while above it are accepted: VH (Very High) High (H), Low (L) Very Low (VL)

As shown in the Table 4, the result revealed that major challenges militating against vaccinations acceptance include: lack of record retention period ($\bar{x}$=2.37, SD=1.08); issues with handling digital health data ($\bar{x}$=2.33, SD=1.09); overlapping data ($\bar{x}$ =2.36, SD=1.10); decentralization of information ($\bar{x}$=2.34, SD=1.11); and lack of standard policies ($\underline{x}$ =2.34, SD=1.09); among others. This implies that challenges militating against vaccinations acceptance were also moderate (responses within the weighted mean) as indicated in the table.

**Discussion**

In response to the first research objective, which sought to assess HWs on the level of infodemic on vaccinations in Nigeria was found to be high, especially information shared about pandemic vaccines was largely misguiding. This finding corresponds with those of several studies. Gray (2022) investigated the infodemic of vaccination, with key findings revealing that misinformation about healthcare topics was not new in the US, but the social media, polarisation of news sources, and the pace of scientific development have all contributed to an environment that makes it easier than ever for ambiguous information, misinterpretation, and deliberate disinformation to spread.

Similarly, Brennen et al (2021) reported that much of the misleading information about pandemic, like the conspiracy theory originated from fake news, which can be associated with photo-shopped pictures usually used as fake pieces of evidence and can be spread easily through social media. IGI Global (2025) depicted infodemic as excessive amount of information, often inaccurate or misleading, spreading rapidly and widely through communication channels, such as social media, creating challenges in distinguishing between reliable and unreliable information.

On the second research objective, which establish high levels of acceptance of the pandemic vaccinations, the findings conformed to that of Duran and Nazan (2024) found that health workers generally had positive level toward vaccination acceptance, as well as Lazarus (2021), which scored the fact that majority of its participants reported that they would be very positive to take vaccine. Also, similar to this was that of Malik (2021), which upon investigating the determinants of vaccine acceptance in the US, found that majority were willing to accept the vaccine, if it is recommended for them. Chan (2025) asserted that COVID-19 vaccines help to prevent the immune response to SARS-CoV-2 infection from running wild. On the finding suggesting important aspect of patient safety and information from the government that encouraged vaccination acceptance, this was contrary to that of Lindholt, Jorgensen, and Bor (2021) whose assessment of public acceptance of vaccines and data revealed large variations in acceptance; ranging from high in Denmark to low in France and Hungary. Lack of vaccine acceptance is associated with a lack of trust in authorities

and scientists, conspiratorial thinking, and a lack of concern about disease, paving serious danger for vaccine administration. With some HWs in this study revealing that vaccines are personal choice that should be respected, the finding conforms with the position of WHO (2020), which identified a key strategy for behavioral consideration for acceptance and uptake of the pandemic vaccine as social responsibility.

Results from the study identified average digital skills of health workers in the management of infodemic towards vaccination acceptance. This put them in a normal position that needed improvement. It was also found that majority of the respondents had average ability to evaluating credibility of online sources. This represents ordinary users of online sources without much expertise. This was in tandem with those of Cory and Stevens (2020), which indicated that digital health uses ICT to improve health services, and holds transformational potential for healthcare around the world but however, under-utilized. A study carried out by Ye (2020) also confirmed the role of health technology and informatics in a global public health emergency, concluding that the application of emerging health technologies and digital practices in healthcare have become powerful "weapons" to fight against the pandemic and provide strong support in its prevention and control but still, not successful in developing countries. Global Strategy on Digital Health (2025) reported that the 2030 agenda for sustainable development on digital health highlights that the spread of ICT and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies in countries with inadequate health facilities. Feroz, Khoja, and Saleem (2021) suggested that the current situation has necessitated the use of digital tools for the delivery of pandemic-related tasks and other essential healthcare services at the community level. On the use of mobile Apps to tract vaccination schedule, it was found to be practiced in many of the health institutions studied, with Saleem (2021) corroborating this by underscoring the fact that there was a significant digital transformation to support the health workers in critical times, including remote data collection and health assessments, apply digital tools to manage vaccination records, for health education, and the use of digital megaphones for encouraging behaviour change, and digital contact tracing.

Furthermore, the findings identified several challenges against vaccination acceptance by HWs, among them is the difficulty in accessing harmful information on vaccination as a major issue, lack of record retention period and issues with handling digital health data. This corroborates that of Gorin (2025), which reported that the challenge of increasing the reach of vaccination worldwide remains; even as vaccine hesitancy is still not fully understood. Therefore, multi-level approaches with individuals, parents, clinical teams, healthcare institutions, engaged community stakeholders, and policy-makers have been found to be effective in increasing vaccine uptake. Again, Yaya et al (2015), who investigated records management practices in two health institutions in Lagos State, Nigeria identified such challenges faced in handling health records in the surveyed hospitals to include poor funding, inadequate computer, and other ICT devices, poor skill in computing, harsh environmental conditions, and lack of preservation and conservation policy. Furthermore, other challenges revealed in this study were lack of record retention period, problems of handling digital health data, overlapping data, decentralisation of information and lack of standard policies.

**Conclusion**

Based on the findings, it was concluded that vaccination in Nigeria was largely affected by the health workers' inaccurate information and poor digital skills towards its acceptance. Therefore, infodemic and digital skills of health workers were the factors that influenced vaccination acceptance among HWs in Nigeria, which implied that infodemic tendencies and inadequate digital skills could be a threat to the successful vaccination campaign in Nigeria. This is because, with every survey conducted, vaccination acceptance has continually reduced, especially in rural areas. Thus, the study has provided an insight into the present obtainable level of vaccine acceptance among HWs in Nigeria.

Based on the findings of this study and the conclusion drawn, the recommendations are as follows:

1. Based on the findings that level of infodemic (misinformation, fake news, rumor etc) about vaccination as perceived by HWs were high despite it contributed to difficulty in vaccination acceptance in Nigeria, it is recommended that all the concerned agencies, including the fact-checking ones, should not only identify infodemic and debunk them but should also engage social media companies to spread factual information in this regard.
2. The government, through its agencies like NCDC, and NPHCDA, should regularly educate and sensitise HWs and provide safe and effective vaccines that can influence their acceptance of vaccination as vaccine-preventable diseases contribute significantly to morbidity and mortality rate, so that pandemic could be prevented. Programmes on sensitisation, expanded programmes on vaccination, intensification of routine immunisation services and vaccination campaign to be piloted by NPHCDA in collaboration with WHO and UNICEF should be organised for improved vaccination acceptance among the health workers in Nigeria.
3. Since HWs were found to have digital skills in the management of infodemic towards vaccinations acceptance in Nigeria, it is recommended that health authorities and government at all levels, especially at the primary healthcare, should increase their digital skills through proficiency and training while providing modern health technologies for combating infodemic (harmful information) towards achieving a more effective pandemic vaccination in the country.
4. Given the identified impediments against the vaccination acceptance, it is recommended that government, policy makers, medical librarians and other stakeholders should carefully devise means of combating vaccination rejection among the health workers, which shall go a long way towards encouraging vaccination acceptance in Nigeria.

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