



Pharmacovigilance Strategy for COVID-19 Vaccine Information Management and Utilization among Health Information Managers in Kwara State, Nigeria

Abdulsalam Abiodun Salman¹, Priscilla Ayooluwa Jacob^{1*}, Saleh Idris²,
Abdullateef Bako³

¹Department of Library and Information Science, University of Ilorin, Nigeria

²Senior Librarian, Abdullahi Fodiyo Library, Usmanu Danfodiyo University, Nigeria

³Department of Urban and Regional Planning, University of Ilorin, Nigeria

*Corresponding Email: priscillakolawole@gmail.com

ABSTRACTS

Diversified opinions on the efficacy of COVID-19 vaccine have necessitated investigation on the pharmacovigilance strategies used to manage COVID-19 vaccine information and perception of health information managers. Narrative research design was adopted while structured interview was used to collect data from respondents and qualitative data analysis technique was employed. Total enumeration was adopted to gather data from eight purposively selected health information managers in the Ministry of Health, Kwara State. The study revealed that majority of the respondents are aware of pharmacovigilance and COVID-19 vaccine information are managed through WHO guideline. Virtual meetings, emergency preparedness and response are some opportunities provided for COVID-19 vaccines information management. Vaccine hesitancy, non-compliance to usage-regulations, misinformation and overwhelmed facility were identified as challenges with acceptance of the vaccine. The study thus recommended that pharmacovigilance be enhanced among health information managers using advance information management technology.

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1. INTRODUCTION

The recent outbreak of the globally dreaded disease, Corona Virus, which the World Health Organization (WHO) declared on the 11th of March 2020 as a pandemic has to a great extent threatened the global public health (Cucinotta & Vanelli, 2020; Mahase, 2020). The Corona Virus also called COVID-19 has infected and led to the death of so many people across the globe. In response to the high rate of death, a number of measures were recommended, especially by WHO, to repress and prevent the spread of the disease. The government of countries all over the globe, Nigeria inclusive, has thus swift into rapid action on prevention measures against the virus.

The responses of various governments to the COVID-19 pandemic have been multifaceted, depending on the intensity at which the virus hits individual countries; these include: outbreak management such as lock down policy (that is, suppression versus mitigation), building and sustaining flexible capacities to respond to viral outbreaks, ensuring sufficient clinical treatment resources for severe cases and implementing strategies to address the economic and psychosocial repercussions of the pandemic (Wolf et al., 2020; Zandvoort, 2020; Onuh, 2021).

However, the news of this virulent disease has activated a massive dissemination of health related information, most of which are about the infection, causes, symptoms, managing, adapting to the 'new normal' (Corpuz, 2021) and ways to overcome when infected. Though the information is at times sensational and distorted, it is being published through all media including print, non-print and especially

social media. Unfortunately, most of the information that goes viral from unprofessional sources is in opposition to those carried by health information managers and experts. This results in difficulty in citizens' decision on use of recently approved COVID-19 drugs and vaccines, imported into countries such as Nigeria. The significance of vaccine is to assist in the fight against particular disease(s) by boosting the immune system of humans. Therefore, information management strategy about newly deployed vaccine(s) becomes imperative, so as to ensure the right flow of information. Likewise, it would help to investigated and scientifically managed people's perception on use of the vaccine.

Findings of some studies have reflected mixed feelings on the efficacy and safety of some currently utilized drugs for the treatment of COVID-19. Some anecdotal evidences have shown that some drugs (such as, Chloroquine, Hydroxychloroquine, Favipiravir, and Umifenovir) approved for the treatment COVID-19 in a country like Nigeria (Chen et al., 2021; Heustess et al., 2021) constitute components that could lead to the ineffectiveness of COVID-19 vaccine. Effects of these rumors on people's perception may include therapeutic errors. Thus, influencing choice and decisions of individual patients on medication and vaccine use, particularly, those who are incessant users of the social media. Therapeutic errors are changes in human behaviour caused by inappropriate information management strategy (Aronson, 2009). These human behaviours may require that pharmacovigilance stakeholders activate risk minimization strategies particularly in relation to recently developed COVID-19 vaccines.

Pharmacovigilance is principally concerned with drug safety, evaluation, collection, identification, monitoring, and prevention of ominous impacts of pharmaceutical products (Al-Mustansir, 2013; Akarowhe, 2020). Santosh and Tragulpiankit (2011) further described pharmacovigilance as an ongoing process to monitor drug safety and make available new information about adverse drugs reactions. The concept of pharmacovigilance is on the basis of the advice by the Strategic Advisory Group of Experts (SAGE) in the Oxford University, United Kingdom on immunization, in order to save lives due to the outbreak of the COVID-19 pandemic that has infected and terminated millions of lives across the globe (Keni, 2020). As a matter of urgency, the need for information managers to examine the results of communication deficiency on people's behavior, effects of the dangers arising from this conduct has become vital. Also, it is necessary to investigate the rationale behind the claims of using vaccines vis-à-vis the involvement of stakeholders in emergency management and strategy in order to deal with the COVID-19 vaccine crisis particularly in Kwara State, Nigeria.

1.1. Literature Review

Pharmacovigilance encompasses the scientific and operational efforts involved in identifying, evaluating, comprehending, and mitigating the negative effects of drugs or other issues related to drug usage (Akarowhe, 2020; Tyagi, 2021). Berlin (2005) Declaration on Pharmacovigilance noted the importance of sharing pharmacovigilance data for better reporting and information gathering. They also declared that pharmacovigilance is important for

providing better information, collection of feedback (particularly from drug users and patients) so that governmental or non-governmental institution can commence appropriate studies on specific drug safety concerns). Scott (2021) clarified that health information management involves the gathering, examination, safekeeping, and preservation of high-quality patient health information, which can be in the form of physical documents, a mix of physical and digital records (hybrid), or fully electronic health records.

Information management is very essential in healthcare delivery and particularly under the conditions of global pandemic. According to Gilyarevsky (2019), affirm that the efficiency of information management (IM) in critical situations can be determined by the capability of management systems to develop and implement a proactive strategy within a short time. A survey carried out by Aleinikov, Kurochkin and Maltseva (2021) showed improvement in the communicative efficiency of the anti-crisis information management strategies in the context of the global pandemic. It was discovered that the anti-crisis information management strategies used in Russia have accelerated digitalization of health information to help managers react to the spread of COVID-19. Thus, IM has aid the process of pharmacovigilance in the country.

However, the crises presented by these economic and life-threatening diseases such as the COVID-19 pandemic to public and healthcare organizations are constantly escalating. In response, Taiwan presented a set of operational guidelines for healthcare organizations to launch effective countermeasures against such crises (Wang & Wu, 2020). This was

accomplished through the implementation of efficient knowledge management techniques. Additionally, the utilization of information technology (IT) applications greatly enhances organizations' crisis management and knowledge management capabilities by improving their responsiveness and adaptability. Wang and Wu (2021) emphasized the potential of innovative IT-enabled tools, such as non-contact monitoring devices, intelligent robots, and telemedicine, in minimizing the risk of exposure and facilitating informed decision-making during the COVID-19 crisis. The study findings ascertained the effectiveness IT-enabled knowledge management practices in preventing and minimizing the undesirable consequences of the crisis in Taiwan.

In the same vein, the Nigeria Center for Disease Control (NCDC) with the help of health management institute, have set up guidelines to guide against the spread of infectious, communicable and killer diseases including Ebola, Lassa Fever and COVID-19. The NCDC which was established in Nigeria in 2011 has been authorized to coordinate the surveillance of these communicable diseases (NCDC Act, 2018; Maxmen, 2019; Erameh & Ojatorotu, 2021). NCDC develop guidelines, protocols, surveillance systems, trains personnel at various levels, and shares public health information in order to provide leadership for the closely monitor infectious diseases in Nigeria. However, it appears difficult for citizens to trust the information provided by NCDC (AbdulLateef & Okonkwo, 2021). Also, researchers have been interrogating the noticeable commercialization means by which Nigeria has been responding to the COVID-19 pandemic. These include

falsification of figures, reliance on foreign vaccines, replication of health care projects, scarcity of test, treatment kits and drugs, conflicting government reports and violations of rules by government officials and the perceived non-activity of the COVID-19 taskforce (Erameh & Ojatorotu, 2021).

Furthermore, AbdulLateef and Okonkwo (2021) recently investigated Nigerian's hesitation to trust NCDC's information on COVID-19 management using the survey research approach. The research findings indicated that misperceptions and skepticism towards the NCDC were present among all segments of the population, including those who are educated and have higher incomes. The main reasons for this lack of trust were identified as inconsistent and politicized reporting, lack of transparency regarding patients' data, and perceived tendencies towards corruption. Similar misperception occurred in the United States of America (USA) when citizens perceived that COVID-19 information management was politicised. For example, the US president stated that he would not wear a mask on the day the Center for Disease Control (CDC) recommend that the public wear masks (Yamey & Gonsalves, 2020). The US CDC nearly became paralyzed as the administration tended to politicize its messaging while minimizing the agency's scientific credibility. The study recommended increased openness, as the populace would support honest information, and access to persuading information about exercises to diminish the infection, clarity in treatment of COVID-19 and budget spending.

The National Academy of Sciences and National Academy of Medicine (2021) also expressed their concern over

ongoing reports and incidents on politicization of science, such as overriding evidences and advice from public health officials. The reports indicated that the public have been exposed to the danger of the pandemic and often misled through their inability to recognize the significance of the crisis and failure to abide with advice from experts. [Hussain et al. \(2021\)](#), likewise observed a noticeable increase in positive sentiment of the public towards COVID-19 vaccines in the United States. This sentiment led to several discussion groups on the acceptability of the vaccine. As Republican legislators became more engaged in public discussion on vaccine progress, there are increasing implications for COVID-19 vaccine uptake ([Guntuku et al., 2021](#)). For example, anti-vaccination allies have been deeply engaged in discussions and dissemination of misinformation and conspiracy theories ([Germani & Biller-Andorno, 2021](#)).

[Kresps et al. \(2021\)](#) in a survey on attitude of 1096 public members in America toward COVID 19 vaccination examined the relationships between vaccine attributes, financial incentives, and misinformation on public immunisation preferences. The study revealed that higher degrees of vaccine efficacy significantly increased individuals' willingness to receive the COVID-19 vaccine. On the other hand, a high incidence of minor side effects of the vaccine, and emergency use authorisation decreased individuals' willingness to take the vaccine; and vaccine manufacturers do not seem to influence public willingness to be vaccinated. From the study, there was evidence that belief in misinformation about COVID-19 treatments was positively associated with vaccine

hesitancy. These findings therefore have implications for public health strategies intending to increase levels of community vaccination.

[Williams and Dienes \(2021\)](#) explored the public attitudes to COVID-19 vaccines in UK through a qualitative study. The review identified three primary reasons for participants' decision to be vaccinated against COVID-19. Delay due to a perceived need for more information and until vaccine was "required" in the future were revealed as reasons for vaccine hesitancy. The study also identified the perception of the public as vaccination being a social norm, necessity and trust in science as the facilitators of vaccination decision. Furthermore, preference for natural immunity, concerns over possible side effects, distrust in government, perceived lack of information and conspiracy theories were some of the barriers to vaccine uptake. Regardless of the facilitators and barriers posed to the vaccine uptake, globally, being vaccinated seems not to change people's decision to adhere to COVID-19 measures as pharmacovigilance entails.

Developing countries are not also exempted from these perceptions on COVID-19 vaccine uptake. The existing situation in Nigeria, for instance, suggests the need for strong collaboration among information managers and pharmacovigilance officials. This limitation hampers the National Pharmacovigilance Center's efforts to ensure drug safety and has led to inadequate awareness programs for pharmaceutical practitioners and other healthcare providers. [Vallano et al. \(2005\)](#) suggest that while most doctors are aware of pharmacovigilance programs, there are still some who lack awareness. In addition to medical practitioners, some patients lack sufficient knowledge on

how to ensure the safety of drugs when managing their health conditions. Enger et al. (2013) suggest that patients often have limited understanding of patient-oriented prescription drug information, which may be due to inadequate awareness through traditional information channels such as radio, television, internet, or social media. Therefore, pharmacovigilance systems should strive to provide patients and practitioners with practical and actionable information about the use of medications, including drugs and vaccines (Dal Pan, 2014). Information management systems are therefore needed for provision of valuable and reliable information, particularly in times of health crises.

1.2. Objectives of the Study

The broad objective of this study is to determine the pharmacovigilance strategy used in determining of COVID-19 vaccine information management and utilization among health information managers in Kwara State. Specifically, the study sought to:

- i. investigates the level of pharmacovigilance awareness among health information managers in Kwara State;
- ii. find out the perception of health information managers on management and utilization of COVID-19 vaccine information;
- iii. ascertain the information management strategies available to manage information about COVID-19 vaccines in Kwara State;
- iv. identify the benefits health information managers derive from COVID-19 vaccine information;

v. identifies challenges in the management of COVID-19 vaccines information.

2. MATERIAL AND METHOD

The study adopted a narrative based design. Narrative based design is a way of conducting research in the qualitative mode. The qualitative mode of inquiry involves focusing and studying one or two individuals, gathering data by collecting their stories, reporting their individual experiences and chronologically organizing the meaning of the experiences collated (Czarniawska, 2004).

The study's population consists of eight purposively selected health information managers in various departments in Kwara State Ministry of Health. These information managers are health officials in charge of COVID-19 vaccine information management in the state. This category of health information managers was chosen because they have cogent and vital information on the theme of the study, based on the office they occupy. Therefore, health information managers formed units of sample for the study while interview was used to gather data on their experiences.

The interview schedule was considered appropriate for data collection health officials. The researchers personally visited the ministry of health to conduct face to face interview and the data collected were transcribed, coded and analyzed using narrative based technique. All ethical procedures for the research were ensured.

3. RESULTS AND DISCUSSION

The findings of the study based on the responses from the interview conducted on the eight health information managers in the study location was transcribed and presented based on the objectives of the study.

3.1. Pharmacovigilance Awareness Among Health Information Managers

The responses of participants indicate their high level of awareness of pharmacovigilance and good knowledge of what the concept entails. One of the participants considers pharmacovigilance as a regulation, which assists in reaction to administration of drugs and vaccines. According to another participant, "pharmacovigilance is a practice that helps the monitoring of the adverse effects of drugs or vaccines and in evaluating reports to promote drug safety". Respondent 9 further described the concept as a process of continuous scrutiny, monitoring and evaluation of the drugs, vaccines medicine usage. Other participants rationalized the concept as a 'surveillance method', 'practice of monitoring' and 'sharing information' to guide against the unseemly and side effect of licensed drugs or other pharmaceutical products. These findings indicate that pharmacovigilance is not only a concept but also an established regulation and practice to ensure safety of drugs and pharmaceutical products application and usage.

3.2. Perception of Health Information Managers on Management and Utilization of COVID-19 Vaccine Information

The results of the study on the perception of health information managers on the

management and utilization of COVID-19 vaccines reveal several opinions from both administrators and users of the vaccines. For instance, one of the study participants reported high level of non-compliance to COVID-19 vaccine usage instruction by patients and inadequate health personnel for quick intervention and administration of the vaccine. The situation was said to have led to the loss of many lives. Another participant responded that community members refuse to come back for the second dose as a result of reaction to the first dose of the vaccine. This corroborated with [Hotez, Nuzhath and Colwell \(2020\)](#) that vaccine hesitancy and refusal have become an important problem in recent years. This hesitancy against been fully vaccinated could be adduced to lack or low management of COVID-19 vaccine information, and inadequate sensitization of community members on usage instructions. Also, other study participants expressed fear of side effects and misconception of the purpose and usefulness of the vaccine caused by individual sensitivity to false information about the vaccine and rumors about aftereffects. This is in line with [Adejumo et al. \(2021\)](#) findings on the perceptions of the COVID-19 vaccine and willingness to receive vaccination among health workers in Nigeria. Adejumo reported that slightly more than half of the population of the health workers had positive perceptions of the COVID-19 vaccine and unwilling to receive vaccination.

Furthermore, the respondents expressed varying opinions on how information about COVID-19 vaccines is managed in the state. Their responses show that sensitization is ongoing in the state through various medium such as the social media, fliers, bill boards, seminars

and trainings. Though most of the respondents maintained that information about COVID-19 is strictly confidential, as such, much information on its management were conceived and reserved for health professionals. However, the respondents submitted that more sensitization is needed on COVID-19 vaccine. One of the respondents also noted that the sensitization should be on a weekly basis and address how the vaccine's side effects can be prevented or attended to. The findings also revealed that database on screening, treatment and management of the vaccine procurement, administration and usage are maintained in the state. Besides, it was noted that all the COVID-19 protocols are observed when taking and administering the first and second doses of the COVID-19 vaccine. Also, it was revealed through the findings that demand for the vaccine increased with proper mobilization and awareness. The respondents noted that the vaccine and its accompanying information are kept in the state 'cold store' where the team named KWASPHCDA oversees the activities.

3.3. Availability of Information Management Strategies to Manage COVID-19 Vaccines in Information

The results of the study reveal several approaches used by information managers to manage COVID-19 vaccine information in Kwara State. From the results, response of Respondent 1, 2, 3 and 6 revealed that sensitization is done through the media to pass information about the reaction of any vaccine introduced to members of the community. In addition, the vaccine consumers are encouraged to report adverse reactions while effective

documentation of reports is ensured. Respondent 5 indicated early detection of adverse event of drugs (including vaccine) by questioning and monitoring as the information management strategy in use. The findings imply that sensitization on different media, report documented by the immune surveillance system, and records taken from reports and monitoring team is regarded as a major pharmacovigilance strategy available for COVID-19 vaccine information management in the state. Though a few of the respondent could not identify which strategy is being used for pharmacovigilance, some identified leaflets, posts, frequently asked questions, availability of cards (for data capture), e-registration, manual registration (register), and healthcare personnel in case of adverse events as alternative information strategies used.

3.4. Benefits of COVID-19 Vaccine Information to Health Information Managers

From the study findings several benefits of COVID-19 vaccine information were identified by the health information managers interviewed. The respondents all agreed that COVID-19 vaccine provided protection for health workers by boosting their immunity and creating opportunity for physical and virtual meeting without fear of getting infected by the virus. They likewise asserted that the vaccine has helped in guaranteeing the wellbeing of their loved ones (family, friends and relatives), updating their knowledge about preventive measures during pandemic. Some other benefits identified by the participants include: provision of efficient management of scarce resources such as anti-viral drugs and disease protective tools COVID-19

kit, free and fast access to the vaccine as it can be administered at a nearest facility to community members, reduction in mortality rate, reduction in unnecessary retainment of patients in the hospital, protection from contracting the virus while carrying out their duties as health officials, creation of more job opportunities for health workers and improved economy. Moreover, the COVID-19 pandemic and information on the vaccine have provided juicier opportunities for health care providers. The study findings on opportunities provided by the COVID-19 vaccine in the state revealed that health care providers enjoyed free face masks and hand sanitizer, alongside some COVID-19 containment tools. The result of the interview shows that these tools were also distributed free to the members of the public by the government. One of the study participants noted that the opportunity for meetings on virtual platform to reduce cost and stress of physical meeting, as well as trainings on emergency preparedness and response. Some other opportunities included: increased global hygiene, research and vaccine production and opportunity to strengthen the health system.

3.5. Challenges with Managing COVID-19 Vaccine Information

The study results on challenges faced in the management of COVID-19 vaccines' information in the state. Some participants referenced that "certain individuals perceived that when you take the vaccine, after 2years you will die'. Likewise, they reported that people decline from been vaccinated due to some erroneous beliefs and rumors such as 'after taking the COVID-19 vaccine, the blood in the whole system will clot and

will result to death immediately or any time soon'. Other challenges identified include that of lack of acceptance, mistrust and unbelief in the government. Some of participants reported that "some of the community members do not believe COVID-19 is real", "some believe it is rich-men disease", "some others believe that the government is using COVID-19 pandemic to make money", "some likewise figure that the vaccine can kill" and "many saw it as a population reduction strategy, religious conviction or myth". Hence, masses do not trust government intervention, thereby making the work of health information managers and workers quite difficult.

4. DISCUSSION

The study indicates high level of awareness of pharmacovigilance among health information managers. The findings of [Oshikoya and Awobusuyi \(2009\)](#) and [Fadare, Enwere, Afolabi, Chedi and Musa \(2011\)](#) contradicts the current study opposes on lack of awareness on the availability and existence of national pharmacovigilance among healthcare providers in Northern Nigeria. This indicates much improvement in the level of awareness of pharmacovigilance in Nigeria. [Opadeyi, Fourier-Réglat and Isah's \(2018\)](#) investigation in South-South Nigeria established an increasing level of awareness of pharmacovigilance. Similarly, [Adisa and Omitogun \(2019\)](#) confirmed that about three quarters of the health workers in Ibadan, Nigeria, were already aware of pharmacovigilance. This finding also corroborates the description of pharmacovigilance as a means of detecting, evaluating and preventing undesirable effects of drugs as explained by [Al-Mustansir \(2013\)](#), [Akarowhe \(2020\)](#) and [Tyagi \(2021\)](#).

Likewise, the study findings agree with Santosh and Tragulpiankit (2011) that pharmacovigilance is an ongoing process to monitor drug safety and to make available new information and knowledge about adverse drug reactions. It can be deduced from the results that there is a positive increase in the level of awareness of pharmacovigilance among health managers. The study therefore reveals pharmacovigilance as a usual and beneficial practice among health information managers in the state.

It can also be deduced from the findings on the perception of health information managers on the management and utilization of COVID-19 vaccines, that effective national implementation of COVID-19 vaccination depends on the ability to access, receive and share information rapidly between health information managers and staff at all levels. In order to facilitate informed decision-making from diverse sources related to COVID-19, such as local epidemiology, vaccination readiness, performance and coverage tracking, vaccine and supply management, vaccine safety, and immunization waste management, should be gathered, analyzed, and disseminated effectively. Real-time monitoring of COVID-19 vaccine uptake, safety, and effectiveness could be enhanced by employing electronic information platforms, although paper-based or partially digital systems may also be suitable.

The results on availability of strategies employed in managing COVID-19 vaccine information by health information managers in Kwara State indicate the multifaceted approaches used. Some of these approaches have generated diverging opinions about the

management of the vaccine. This type of behavior may be due to inappropriate information management strategy and largely fall into the category declared by Aronson (2009) as therapeutic errors which require that pharmacovigilance stakeholders reactivate risk minimization strategies. Along with the ability to organize a system of emergency medical care, the communicative effectiveness of government has come to the fore during the current pandemic. In this regard, it seems relevant to use the concept of "communicative efficiency," relating to information management strategy as risk minimization strategies. Crowley et al. (2021) utilized the theory of motivated information management (TMIM) to examine the associations between uncertainty about COVID-19 illness and information management. The results revealed that perceived uncertainty, anxiety, and strategies for managing information were significant predictors of adopting COVID-19 preparation and prevention behaviors.

Several studies also support that information on COVID-19 vaccine is beneficial to health workers as well as individuals in a community. Hoge (2021) highlighted the benefits of COVID-19 vaccines to include: opportunity to organize and attend small events in person, travelling safely without fear of infections, reconnection with family, loved ones and co-workers, in addition to the immediate health and long term benefits. It can be stated expressively that health workers are largely benefitting from the vaccine information, seeing they usually are at the front-line when there is an outbreak. Thus, opportunities and benefits provided by COVID-19 vaccine (UNESCO, 2021) calls for considering the vaccine as a general public good and

ensuring its ideal, affordable and timely access.

On the results of challenges faced in the management of COVID-19 vaccines' information, the erroneously passed information about the vaccine seem to have formed a belief in people's consciousness, subsequently denying further penetration of significance and advantages of the vaccines in the individual's minds. Since there is probably no successful exercise an organization can undertake with surviving some challenges. Thus, efficient data sharing strategies must be ensured in managing COVID-19 information. Some of the study participants indicate the need for more sensitization in order to disabuse the public's negative perception about the COVID-19 vaccination. In a study conducted by [Gao et al. \(2020\)](#) on the management and sharing of information during the COVID-19 pandemic, it was found that data management systems are encountering numerous challenges and issues. These challenges include data decentralization, inconsistencies, security and legal concerns, limited financial support, international communication, standardization, and globalization. They accordingly suggested the development of several integrated platforms or models for national and worldwide data-sharing and management in order to overcome and resolve the identified problems. The health information management system if well designed will help to meet the unprecedented need and demand for COVID-19 vaccine information sharing and research worldwide.

4.1. Summary of Findings

The study reveals that majority of the respondents are well aware and have knowledge of pharmacovigilance as it

pertains to their organization and the state understudied. Furthermore, the findings declare expression of fear on rumours on side effects and misconception of the purpose and usefulness of the vaccine as factors affecting management and utilization of COVID-19 vaccine information. However, the vaccines' information sources are managed through WHO guidelines on COVID-19 vaccines. Though several information management strategies are available, however, there strategies are diverse including sensitization on different media, report documentation using surveillance system, monitoring team, and healthcare personnel in case of adverse events. The development of Covid-19 vaccines has also created various benefits and opportunities for health information managers; including: immunity boost, virtual meetings, access to scarce of health resources, prevention of severe illness and reduction of hospitalization, trainings on emergency readiness and response, improvement in personal hygiene and research, reinforced national health system and protection for family and friends and the community. The study identified vaccines hesitancy, refusal, non-compliance to immunizations, fear of unknown, false reports, misinformation, overwhelmed health facilities and government's deceit, as some of the challenges affecting the management of COVID-19 vaccines information.

5. CONCLUSION

The prevailing demand to carry on research as part of the continuing all-inclusive response to COVID-19 vaccine has driven the conduct of this small-scale population-based prevalence survey particularly in Kwara State in order to

determine the prevalence COVID-19 vaccine information management strategy and utilization in the State. Though the health information managers in the state are well informed of pharmacovigilance and its importance, they however are affected by rumours and fear of side effects and misconception of the populace on the usefulness of the vaccine. Thus, factors affecting how COVID-19 vaccine information is being managed. As such, the complex but very diverging strategies used in response to proper management have given way for alternatives which are misleading. The study findings call for an urgent intervention in the level of sensitization of community members, as well as health information managers on benefits of the vaccine. This can be specially achieved at the primary health care level due to their closeness to the community.

The restricted precautionary choices in the state can be enhanced with the development of health surveillance and information management systems, and the reformation of pharmacovigilance control. Such a survey could be a platform for generating reliable data on the epidemiology of COVID-19 vaccine of public health importance. Procurement of the vaccine's variant is more in

consistence with our realities if we are going to achieve a nationwide coverage. Finally, health information managers in charge of vaccine in Kwara State are in position to effectively and efficiently maximize vaccination campaign and positively utilized information against negative COVID-19 misinformation in the state culminating in eradication of COVID-19 in Nigeria. The provision of advance information management technology is hereby recommended to enhance pharmacovigilance among health information managers in state. Also, there ought to be harmony in the information management strategies available, so they can serve as a guide for information managers. Information about how COVID-19 vaccines should further be managed in cognizance with WHO guidelines of COVID-19 vaccines. Similarly, the benefits derived from health information managers through COVID-19 vaccine should be advocated through sensitization and campaigns to increase level of awareness. An independent integrated platform model for data-sharing and management would help to overcome the difficulties in the management of COVID-19 vaccines' information in the country.

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