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Hesistancy to Covid-19 Vaccine Uptake in Sub-Saharan Africa: a Systematic Review

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Abstract

Background Information: *COVID-19 vaccine coverage in Sub-Saharan Africa (SSA) is behind the rest of the world, given that the region is home to nearly 1.2 billion people which contribute to 15% of the global population. The hesitance to the COVID-19 vaccine in SSA has posed a great challenge to the public health. Therefore, achieving high levels of COVID-19 vaccination in SSA is paramount to containing the pandemic globally. Therefore, this systemic review was carried out to synthesize existing literature on key factors that derailed the uptake of COVID-19 vaccine in Sub-Saharan Africa.*

Materials and Methods: *The study searched and accessed articles from open- research journal through the following databases; Pub-med, Research gate, Scopus, Google Scholar, Academia, and African Index Medicus for studies published from May 1, 2020, to April, 2025, examining hesitancy towards uptake of the COVID-19 vaccine in Sub-Saharan Africa.*

Results: *A total of 30 articles met the eligibility criteria and were included in this review. Majority of the studies included in this review were from pubmed, google scholar and Scopus. The reviewed research studies were from Ethipopia, Botswana, Cameroun, Cote D'Ivoire, DR Congo, Ghana, Kenya, Morocco, Mozambique, Nigeria, Somalia, South Africa, Sudan, Togo, Uganda, Zambia, and Zimbabwe. The major reasons for vaccine hesitancy were; vaccine safety, cultural beliefs and side effects, lack of trust for pharmaceutical industries and misinformation or conflicting information from the media. Factors associated with positive attitudes towards the vaccine included being male, having a higher level of education, and fear of contracting the virus.*

Conclusion: *The review found that there is a combination of misinformation, cultural beliefs, public trust, and concerns on vaccine safety and efficacy as key drivers to hesitancy to COVID-19 vaccine uptake in SSA. Therefore, there is the need for context-specific interventions through tailored communication with culturally and linguistic acceptance among the target population.*

Keywords: Covid-19, Sars-CoV-2, Vaccine, Africa, Covid-19 Pandemic, Hesistancy.

Introduction

The COVID-19 pandemic has profoundly disrupted global public health systems, economies, and social structures. In response, the rapid development and rollout of vaccines have been central to mitigating the impact of the virus. However, in Sub-Saharan Africa (SSA), the uptake of COVID-19 vaccines has remained significantly lower compared to other regions of the world. Despite global efforts to ensure equitable vaccine distribution, challenges such as limited healthcare infrastructure, socioeconomic

disparities, and geopolitical dynamics have exacerbated access issues in many African countries.

Beyond logistical and supply-side barriers, one of the most pressing concerns has been the widespread hesitancy toward the COVID-19 vaccine. Vaccine hesitancy, defined as the delay in acceptance or refusal of vaccination despite availability, is influenced by factors such as misinformation, mistrust in health authorities and pharmaceutical companies, cultural and religious beliefs, and concerns over vaccine safety and efficacy. In SSA, these factors are compounded by historical legacies of medical exploitation, insufficient public health communication, and structural inequities.

Understanding the root causes and patterns of vaccine hesitancy in this region is crucial for designing effective, context-specific public health interventions. This systematic review aims to synthesize existing research to identify the key drivers of COVID-19 vaccine hesitancy in Sub-Saharan Africa and to inform strategies that can enhance vaccine uptake, public trust, and overall pandemic response efforts.

Materials and Methods

Search Engines

A wide-ranging systematic approach following the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) in the following data bases was perfomed to generate the information for this review e.g., Google scholar, Research-gate, Pubmed, scopus, Academia, Web of science, and Africa Journals online). Studies other than full-length research articles, i.e., case reports, review articles, correspondences, and letters, were excluded. Original articles not relevant to the SARS-CoV-2 vaccine hesitance were considered ineligible and also excluded. The study employed Boolean logical operators ('AND' and 'OR') using 'Advanced'search in PubMed and Google scholar selecting "title"/"abstract" as well as title, abstract, or author-specified 'keywords', respectively.

Inclusion and Exclusion Criteria

Study done between 1ST May, 2020 to April, 2025 in Africa on Covid-19 vaccine hesitance, language in English and Peer-reviewed studies. Grey literature (unpublished research work, powerpoints, and conference items) was excluded from this study. Data from clinical trials was excluded from this review

Study Selection Criteria

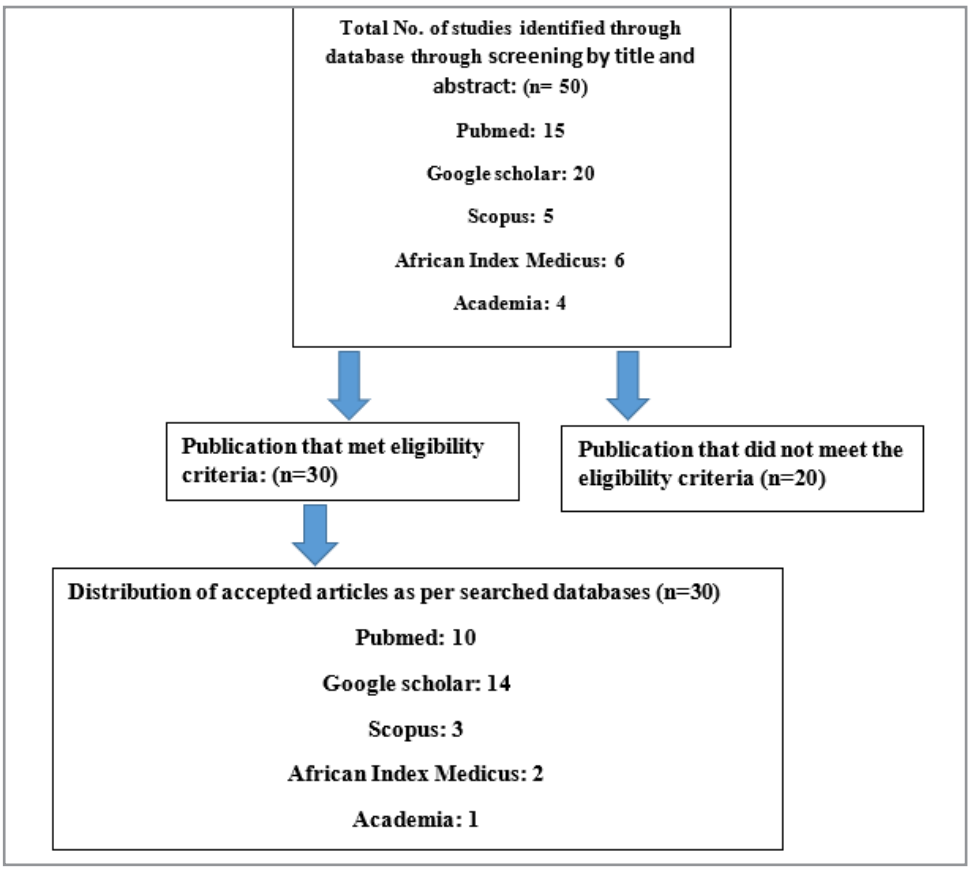

Figure 1: A simplified PRISMA Diagram for Article Generation from the Search Engines Through Thematic Analysis and Narrative Synthesis with PRISMA Guidelines.

Results and Discussion

In this current systematic review of 30 articles both systematics and open access articles, we found that the following discussed factors below as the key drivers to COVID-19 VACCINE hesitance in Sub-Saharan Africa; Age and gender, distrust with the ruling governments and health systems, misinformation and fal-

lacy, safety, efficacy and side effects on the vaccine, religious and cultural beliefs, limited resources and access to vaccines as hindrances to uptake of the vaccine in Sub-Saharan Africa. Furthermore we found that rural population, Adolescents and youths, low level of education as greatly influences the uptake of the vaccines. This factor are further expressed in the discussion below

Age and Gender

In this review we found that pregnant mothers, youths, individuals with low education levels and low social economic status were more reluctant to undertake the vaccine which agrees with studies carried by [1, 2]. In year 2022 in Tanzania, Sia et al., suggested that need targeted messages among females on vaccine uptake is of paramount importance. The further suggested that efforts are also needed to increase the vaccine uptake rate among younger people aged <30 years in Tanzania. According to [3]. individuals aged 10-35 years had high resistant to COVID-19 vaccine with adolescents expressing 30.7% resistant and youths showing 41.6% resistance to the vaccine intake. Additionally, 46% of health workers influenced in SSA were against the vaccination of this critical and target age which is the future of the SSA and globally this continent has the highest youth population which is believed as the economic drivers in the near future [4].

In 2021 according to in US-Arkansas, 58% adolescent aged between 12 to 15 year were hesitant to take the COVID-19 vaccine amid the skyrocketing rates of the infections [5]. Similarly, a study among Swedish, 46 % of the adolescents had not decided if they wanted to get a COVID-19 vaccine [6]. On the contrary, in China 76% of the adolescent population would accept the COVID-19 vaccine [7].

Trust in Government and Health Facilities

According to a wide Public distrust in the COVID-19 outbreak response on the African continent has been attributed to delayed response activities by the government of many African countries and public health experts [8]. This was further worsened by lack of border closure from high risk areas because some of the political moguls across Africa ensured that their relatives from COVID-19 high-risk countries such as China, Germany, and the United States exited to Africa. Such prejudice and lack of community engagement despite social distancing, hand washing and hygiene could have derailed the containment of the pandemic. However, a study in Congo Brazzivile in 2022 by WHO stated that to increase Vaccine uptake in Africa there is need for collaboration between the government and the stake holders what is known as public participation. This claim are further exaggerated by historical neglect and corruption among African governments which fuel public cynicism [9]. Additionally, there is also mistrust towards pharmaceutical companies due to previous concerns on Sub-Saharan regional government exploitation and unethical medical practices regards as Dark continent and whose population are easily manipulated to act as research dummies [10].

Religious and Cultural Beliefs

Due to fear of neo-colonisation some of the religion, religious leaders influence their followers to desist from Vaccination which is framed as ungodly, gratuitous and harmful to their well-being [1]. According to Ekwebelem et al. (2021), the social cultural diversity and complexity in sub-Saharan Africa derails the utilization of the various Vaccines. This has led to fears, misinformation and conspiracy theories that are spread by anti-vaccinists, social influencers, religious leaders and political leaders that there is conspiracy by the developed to world to reduce the Africa rising population and neocolinise them through microchips in their bodies. Furtherance, to this there in need for community engagements of key influencers to educate the public on how to address the misconceptions in a culturally sensitive manners and streamline disrespect.

There is also need to adopt ethically consistent strategies that promote human rights to education and informed decision making rather than relying on solely coercive public policies. Additionally, the engagement of community stakeholders help to discredit false reports on the COVID-19 vaccine and ensure health education on the benefits of the COVID-19 vaccine. According to community participation promotes a sense of ownership of any health intervention. Adoption of traditional top-down approach while planning the COVID-19 vaccination activities in Africa, rejection of the vaccine would result in many settings, the purpose of procuring the vaccine would be defeated, and wastage of resources would ensue [11].

Concerns About Vaccine Safety and Adverse Effects

Fear on vaccine safety and effectiveness has halted global public health attributes on stemming down vaccine preventable diseases. In systematic study carried out by Emmanuel et al. (2022) in Nigeria, they found that concerns about safety, effectiveness, teratogenicity, as the key impediment on Covid-19 vaccine uptake in SSA. In current COVID-19 vaccines the fastened rate of development, production, ethical clearance and lack of clear clinical trial undertaking undermined their acceptance. Addition, the witnessed global emergency authorization of the vaccine use led to suspicion for their long-term use [12]. Furthermore, africal states and their population are current cautious about donated product in their nations [13]. A study in 2021 by Kollamparambil, Oyenubi, and Nwosu from South Africa found that Poor confidence in COVID-19 vaccines due to safety concerns, regarding the hasty production and roll-out, deployment of mRNA vaccine technology and records of serious or life-threatening side effects have been reported as some of the reasons for low COVID-19 vaccine uptake [14].

Hence, the need for an extensive health promotion intervention should enhance the community's knowledge of the benefits of COVID-19 vaccines, clearly communicating their short- and long-term side effects [15].

Misinformation and Conspiracy Hypothesis

Low literacy, falsified information, and rumours are key drivers of vaccines unacceptability. These factors have generated conspiracy theories about their ingredients and countries of origins hence raising eyebrows to the consumers [16]. Our study found there is need for improved exchange of information between the government, health care professionals and their citizens to provide full disclosure of vaccination information at the point of delivery. This agrees with a systemic review study carried out by Elizabeth (2023) who found that there was great mistrust between the governing authority and the public [16].

Furtherance, the African governments need to debunk on social and traditional myths that the continent is immune to viral infections due to its geographical positioning and tropical climate conditions. A study by reported that hesitance to uptake of polio-vaccine 2003-2004 due to distrust and fallacies led to five-fold increase in Polio incidences in Nigeria [17]. This perception derail the achievement of herd immunity, posing more danger to individuals and global community to infectious diseases.

Education Knowledge and Health Literacy

According to he demonstrated that good knowledge and positive attitudes about COVID-19 and vaccination have a significant impact on virus prevention and vaccine uptake across the globe. Therefore, optimal community knowledge and awareness on COVID-19 and vaccines is a key preventive measure for such pandemics [18]. According to recognition of community health influencers in vaccination campaigns is crucial to effective uptake of the vaccines [19]. Consequently, the knowledge of the available vaccines in the market, how they work, their advantages, who can be vaccinated, and where people can obtain the vaccines is vital for successful utilization of such pharmaceuticals.

Such interventions should go in hand with providing appropriate information to healthcare providers and community stakeholders to educate the public on the vaccines at hand. In reference to Community participation was found to support mobilization efforts by identifying and addressing local barriers to vaccination by making sure people have clear information about where and when to get vaccinated [20]. Similarly, community participation can help to debunk myths and rumors as well build confidence on vaccine safety and help Government intervention to fruition as depicted by [21].

Availability of Logistics and Consumables

In this review we found that geographical and logistical barriers, derails vaccines access to the local poor communities. This is supported by claims escalated by which stated that once vaccines are developed, shortages, hoarding, export restrictions, and differences in the purchasing power of nations leads to inequities in vaccine access with high-income countries at an advantage, leaving low- to-middle-income countries behind [22]. Such, inequity poses a challenge to the global fight to end the pandemic because scientists predicted that vaccine coverage rates of 70-85% was required to achieve herd immunity and end the pandemic across the globe. This is further, exonerated by lack of electricity that hasten the cold-chain process and hence low efficacy and ineffective doses of the vaccines. Similarly, lack of sufficient health personnel to deliver and administer the vaccines affect their utilization [23]. Additionally, fear of white aprons among the vulnerable population disrupt the use of the vaccines [24].

Lastly, our search strategy has limitations because our decisions did not to include grey literature, such as conference proceedings, reports, opinion pieces and commentaries, and non- English texts which could have limited the available data. There could have been other measurements of vaccine hesitancy, refusal or acceptance around COVID -19 vaccine in SSA reported in the excluded literature and in languages other than English. Also the heterogeneity in study designs and publication barriers could have affected our review findings [25, 26].

Conclusion

This current review found that there is need for improved health communication and public-trust building among the governments, pharmaceutical industries and health professionals on utilization of available vaccines [27]. Additionally, there is the need for context-specific interventions through tailored communication with culturally and linguistic acceptance among the target population [28-30].

Ethics and Dissemination

The current study published systematic review data, and thus it is unnecessary to obtain ethical approval. Additionally, the findings of this systematic review will be published in a peer-reviewed journal.

Limitations of the Study

The following limitations could have affected our study findings namely;

Limited number of high-quality published studies from most of the African countries hence less data availability on this topic.

Variations in the study setup and designs hence making comparison and synthesis of the information from the studies difficult to the reviewer hence introducing heterogeneity.

Publication bias could have been witnessed from some of the studies since most embrace significant results and avoiding negative results.

There was lack of complete data breakdown among some of the studies hence hindering better comparison of the study results.

Competing Interests

None declared.

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