


Barriers and Facilitators Affecting the Uptake of COVID-19 Vaccines: A Qualitative Perspective of Frontline Nurses in Namibia

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Abstract

Aim: Vaccinations remain one of the most effective measures to prevent and control the spread of COVID-19, while also reducing hospitalizations and deaths, yet many are unwilling to be vaccinated. This study explores the barriers and facilitators affecting the uptake of COVID-19 vaccines among frontline nurses.

Design: A qualitative, explorative, descriptive, and contextual research strategy was employed.

Methods: A sample of 15 nurses were selected via purposeful sampling to the point of data saturation. The participants were nurses at the COVID-19 vaccinations Centre in Rundu, Namibia. Data were collected using semistructured interviews and analyzed thematically.

Results: Three themes and 11 subthemes were identified, namely: (a) barriers, (b) facilitators, and (c) measures to increase the COVID-19 vaccine uptake. Barriers included living in deep rural areas, unavailability of vaccines, and misinformation, whereas scared of death, availability of COVID-19 vaccines, and family influence and peer pressure emerged as facilitators to the uptake of COVID-19 vaccines. Adoption of vaccination passport as a requirement to work premises and as an international travel requirement were the measures proposed to increase the COVID-19 vaccine uptake.

Conclusion: The study found several facilitators and barriers to COVID-19 vaccine uptake among frontline nurses. The identified barriers cover the individual, health system, and social factors hindering the COVID-19 vaccine uptake among frontline nurses. Whereas fear of COVID-19 deaths, family influence, and availability of vaccines were found to promote COVID-19 uptake. This study recommends targeted interventions to improve the uptake of COVID-19 vaccines.

Keywords

barriers, facilitators, frontline nurses, COVID-19, potential users, vaccine uptake, qualitative research

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Introduction

Coronavirus disease, widely known as COVID-19, is a highly infectious respiratory disease caused by the severe acute respiratory syndrome-coronavirus-2 virus, which was first reported in Wuhan, China in 2019 (Li et al., 2021). COVID-19 became a global pandemic which by October 2022 led to over 621 million confirmed cases, including more than 6.5 million deaths (WHO, 2022a). In Africa alone, there were over five million confirmed cases and 100,000 deaths (WHO, 2022a). In Namibia, COVID-19 infections exponentially increased from 1,031 to 2,574 cases weekly between December 21, 2020, and June 21, 2021 (WHO, 2022b). As of July 12, 2021, there have been

513 deaths daily translating to an increase of 156 deaths weekly (WHO, 2022b). Considerable previous research explored the barriers and facilitators affecting the uptake of the COVID-19 vaccine from nurses' perspectives in other settings. Nevertheless, this study contributes new

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information in that it explores the facilitators and barriers in Rundu, Namibia.

Review of Literature

Various COVID-19 prevention measures were launched across nations, including restricting movement, quarantines, and nationwide lockdowns. Güner et al. (2020) emphasized every person in the community and community actions of physical distancing, hand-washing, and the use of face masks were implemented. Yet despite the implementation of these mandatory measures, the impact of the COVID-19 pandemic remained significantly high, hence a global vaccination campaign was the only option for curbing the pandemic (Baye, 2020). Vaccination can moderate the burden of many various diseases worldwide, including preventing individuals against disease, reducing the progression of diseases (Thompson et al., 2021), and limiting the impact of the pandemic on countries' economies and health systems (Kaye et al., 2021). During the time of data collected in September 2021, about 40.3% of the world population had received at least one dose of the COVID-19 vaccine. Accordingly, WHO (2022a) claimed that close to 5.46 billion doses globally have been administered, with 33.54 million being administered daily. Of these, WHO (2022a) found that of the people in low-income countries, only 1.8% had received a dose. However, Alemayehu et al. (2022) cautioned that by September 30, 2021, only 1.4 million out of over a billion population received vaccination in Africa.

In Namibia, the delay or refusal to take the COVID-19 vaccine has marred the effectiveness of the vaccination campaign. Accordingly, "a third of respondents from a recent WHO/Namibia survey on adherence to COVID-19 public health measures were unwilling to get vaccinated because of perceived safety concerns" (WHO, 2021, p. 1). This together with the limited vaccines are the drivers for low uptake of the COVID-19 vaccines in Namibia, with only 6.3% receiving their first dose and 1.6% being fully vaccinated as of July 28, 2021 (WHO, 2021). It is estimated that the country may need to vaccinate at least 10,000 people per day if it is to reach its target of 60% of the population (WHO, 2022b). Although the hesitancy to get vaccinated is complex and context-specific, it can be reduced through an effective communication campaign, availability of vaccines, and building confidence amongst the public in the vaccines and health authorities (WHO, 2022b).

Despite efforts in reducing the burden of COVID-19, WHO-recommended vaccinations, and other preventive measures, the reluctance to be vaccinated was a growing challenge worldwide (Altulaihi et al., 2021). Burke et al. (2021) found concerns over vaccine safety related to fear of being re-infected with COVID-19, fear of genetic modification, and doubts about vaccine efficacy to be barriers to vaccine uptake.

In Namibia, the first COVID-19 vaccination campaign was launched in March 2021 in 2 of the 14 regions, before

being rolled out to the rest of the country in April 2021. By July 2021, following regular reviews and feedback from the regions, the Ministry of Health and Social Services (MoHSS) noted a relatively slow uptake of the vaccinations, averaging only about 3,000 per day—far below the projected target of 10,000 (WHO, 2022b). The purpose of this study was to explore the barriers and facilitators affecting the uptake of COVID-19 vaccines by frontline nurses from five vaccination centers in Rundu, Namibia.

Method

Research Design

The qualitative study was explorative, descriptive, and contextual in nature. According to Maree (2018), a qualitative research design is naturalistic, that is, it focuses on natural settings where interactions occur. It also aims at providing insight into, and an understanding of, the problem observed by the researchers, as well as describing its characteristics. The design was used to explore how frontline nurses experience the facilitators and barriers affecting the uptake of the COVID-19 vaccine in Rundu.

Study Setting

Rundu has seven health facilities—one state hospital, one private hospital, and five clinics—which serve a population of 85,700. There are also nine private health consultation facilities, which do not offer beds. The state hospital has 25 medical doctors who serve those living in Rundu and rural areas. The average state doctor-to-population ratio is 1:5,144, which is far from the WHO recommendation of one medical doctor per 1,000 people. An additional seven private doctors serve a population of 17,538 people, with an average ratio of 1:2,505. The population of the Kavango region is largely rural, with 79% living in rural areas (Namibia Statistics Agency, 2011). The region also has the highest poverty headcount in Namibia at 53.2%; 64% of its population is said to be materially deprived, while 50% are unemployed and 21% are illiterate (Namibia economist, 2015). The study was conducted at five vaccination centers in Rundu where COVID-19 vaccination was being provided to the residents of Rundu.

Participant, Sampling, and Recruitment

The participants in this study were nurses working in vaccination centers in the Rundu health district, Kavango East Region, Namibia. The participants were selected via purposeful sampling, which was continued to the point of data saturation. Data collection continued until no new participants' accounts or new themes emerged. As described by Speziale et al. (2011) a purposeful sampling has been widely used in qualitative research to identify and select a phenomenon with

information-rich cases of interest. Information-rich cases followed in this study yielded insightful and yet in-depth understanding rather than empirical generalizations.

The inclusion criteria were: (a) being willing to participate, (b) being assigned to COVID-19 vaccination units, (c) having at least 1 month of work experience in wards for patients with COVID-19, (d) being Namibian, and (e) having a good command of English to be able to provide adequate and rich information. The frontline nurses were suitable given their close contact with COVID-19 patients, placing them at high risk of contracting the virus. Nonetheless, the literature found a general fear and hesitancy of COVID-19 vaccines affect the successful implementation of COVID-19 vaccination uptake (Alhassan et al., 2021). The researcher received the phone numbers of 45 nurses working in COVID-19 vaccination centers from the District Primary Health Care Office. The study included three nurses from five urban primary healthcare clinics and two vaccination centers situated in the northeast of Namibia.

Data Collection

Data were collected through audio telephonic calls from 15 individual semistructured interviews between September and October 2021. The instrument was developed in line with the study purpose and available literature. To ensure the questions were clear and understandable, the tool was pretested on five (5) frontline nurses from the selected COVID-19 vaccination centers, who were excluded from the main study. The author (C.T.G.) started the interviews with open-ended questions addressing the main objective of the study, that is, the experiences of frontline nurses regarding the facilitators and barriers affecting the uptake of the COVID-19 vaccine (Table 1). Verbal consent for the interviews was received before each interview, which was tape-recorded. Each interview lasted between 30 and

Table 1. Procedure Used to Enhance Study Rigor.

Criteria	Procedures
Credibility	<ul style="list-style-type: none"> Achieved through the use of participant verbatim to support the argument Personal reflections and reflexivity in relation to the study were noted. Only data from audio tapes and transcripts were used.
Dependability	<ul style="list-style-type: none"> Interviews data and field notes were carefully read and the results were compared. Respondents validation
Confirmability	<ul style="list-style-type: none"> A detailed explanation of eligibility criteria and how participants were selected Achieved through a thick description of the methods and procedures used
Transferability	<ul style="list-style-type: none"> A rich and complete description of the data and the context was provided for use in similar contexts.

40 min. Immediately after each interview, the participants' expressions, tone of voice, and posture were recorded in the field notes to assist the researcher to understand and contextualize each participant's experience.

Trustworthiness

The study rigor was ensured through the criteria established by Lincoln and Guba's (1985) of credibility, dependability, confirmability, and transferability (see Table 2). Accordingly, the study followed the Consolidated Criteria for Reporting Qualitative Research as described by Vázquez-Calatayud et al. (2022). The researcher's reflexivity includes diligently examining individual judgments. This was ensured by organizing, data coding, and labeling themes and subthemes which emerged in order to avoid personal biases and assumptions from influencing the study's outcomes. The research team consisted of senior lecturers with Master's degrees and with experiences in qualitative research and analysis. In-depth audio telephonic interviews were conducted by the principal researcher (G.C.T.), under the supervision of (D.O.A.) who did not have prior relationships with the interviewee. D.O.A. and N.T. with qualitative expertise validated data, performed data analysis, interpretation, and critical revision of the manuscript. All the researchers were involved in the drafting of the manuscript and approved the submitted paper.

Institutional Review Board Approval and Informed Consent

All participants gave written informed consent to participate in the study, which was approved by the University of Namibia's research committee (reference number SONERC 16/2021) and the MoHSS (reference number 17/3/3/TC). In addition, the participants were informed that they could withdraw from the study at any time. The study followed the principles of the revised Declaration of Helsinki.

Data Analysis

Thematic analysis was performed manually with the assistance of a Microsoft document immediately after each interview,

Table 2. Thematic Guide.

1. May you please share with me some of the potential barriers affecting the COVID-19 vaccine uptake that you know?
2. Please share with me what you consider the facilitators of the uptake of the COVID-19 vaccine? "What do you mean by that?" What facilitator have you encountered?
3. In your opinion, what do you think should be done to increase the COVID-19 vaccine uptake

Follow up questions

- Explain what you mean
- Tell me more

with the principal researcher listening to each recording and then transcribing them verbatim. Each participant's quotation was read and coded, similar codes were further used to identify the subthemes and themes. The initial codes were extracted based on meaning units before the related codes were merged according to their similarities and differences, and the main and subcategories were formed.

Results

In this study, about 15 nurses (4 males and 11 females) within the age range of 24–40 years were interviewed. Three main themes—barriers to the uptake of COVID-19 vaccines, facilitators to the uptake of COVID-19 vaccines, and recommendations to increase the uptake of COVID-19 vaccines—were extracted from the collected data (Table 3).

Barriers to the Uptake of COVID-19 Vaccines

This theme includes the participants' descriptions of barriers to the uptake of COVID-19 vaccines. Three subthemes emerged from this theme, namely living in rural areas, unavailability of vaccines, and misinformation.

Living in Rural Areas as a Barrier to COVID-19 Vaccination

Living in a rural area was revealed as a barrier to vaccine uptake, as people are unable to receive communication about the specific vaccines that are available.

Table 3. Summary of findings.

Theme	Subtheme
Barriers to the uptake of COVID-19 vaccines	<ol style="list-style-type: none"> 1. Living in deep rural areas 2. Unavailability of vaccines 3. Misinformation
Facilitators to the uptake of COVID-19 vaccines	<ol style="list-style-type: none"> 1. Scared of death due to COVID-19 2. Availability of COVID-19 vaccines 3. Family influence and peer pressure 4. Adoption of vaccination passport for work and cross-border travel
Measures to increase the uptake of COVID-19 vaccines	<ol style="list-style-type: none"> 1. Create awareness of COVID-19 vaccines 2. Subsidize data for selected social media platforms 3. Provide correct information 4. Involve the community, political and religious leaders

Most of the people were not able to receive the vaccines because they lived far from the clinics. There are places in this country with no internet or radio waves, so getting information about COVID-19 would be impossible to reach them. Would you expect people to get vaccinated if they lack information? [P1, Enrolled Nurse]

Many people in the rural areas are often less privileged, and because of lack of access to health information and facilities they tend to believe in traditional practices of disease preventions such as using certain herbs. [P8, Registered nurse]

Unavailability of Vaccines

The participants described that the unavailability of vaccines hinders COVID-19 vaccination uptake.

I blame the system... sometimes the vaccines are there, sometimes they are not... like this AstraZeneca, there's a time it was there and then there was a huge shortage for months during the most devastating third wave when a lot of people died... so people were coming to the vaccination centres and going back without getting anything. Some of the approved vaccines were not available in Namibia for some time, i.e., BioNTech, Pfizer and Johnson & Johnson vaccines. [P5, Registered Nurse]

There was a time at the beginning of the pandemic when COVID-19 vaccines were only reserved for frontlines workers. The general public was denied access to take these vaccines during this time. [P10, Registered nurse]

Misinformation

A perceived lack of correct information was seen as a major factor for why some potential users either refuse or delays vaccination.

The public are scared of being vaccinated, they fear that once vaccinated they might live only for a short period. They believed as they just did not have proper information, for example, at a certain church people are being told that this vaccinated is a triple-six (666) which is being referred to as the mark of the beast which is mentioned in the book of Revelations in the Bible. [P1, enrolled Nurse]

I think people are just afraid that the vaccines will change their DNA cause of social media people are lying to each other, sometimes on the barriers is they live far from the facilities where they're getting these things. [P6, Enrolled nurse]

Facilitators to the Uptake of COVID-19 Vaccines

This theme is a description of how participants understood facilitators to the uptake of COVID-19 vaccines. The

subthemes were: scared of death, availability of vaccines, family and peer pressure, and vaccine passports.

Scared of Death

Concern over the high number of deaths related to or caused by COVID-19 was seen by one participant as the main reason many people got vaccinated. The participants noted that people were reluctant to be vaccinated until the third wave hit Namibia.

I think people were just scared of dying as deaths were reported every time and it was people they knew... that alone motivated people to be vaccinated. Death was really high during winter of 2021, so people were panicking and many resolved to be vaccinated. [P3, Registered Nurse]

Many people narrated how the death of their loved ones or a neighbor pushed them to be vaccinated. [P15, Registered nurse]

Availability of COVID-19 Vaccines

Initially, getting vaccinated was a privilege as the country did not procure enough vaccines and had to prioritize essential workers.

We received a lot of enquiries on when certain vaccines were going to be made available... the availability of certain vaccines attracted people to be vaccinated. [P2, Registered Nurse]

At first, the available vaccines were given to the frontlines workers or essential workers such as health workers, police and truck drivers...who grabbed their opportunities to be vaccinated. [P13, Enrolled Nurse]

Family and Peer Pressure to be Vaccinated

Participants reported that family pressure and social influence contributed to vaccination uptake.

Some people follow their friends or breadwinner in the family. For example, once people see an influential person in the society or a breadwinner in the family goes for the vaccination, others will also become confident to get vaccinated. [P11, Enrolled Nurse]

There was this time when a larger number of influential people and working group succumbing to COVID-19 every day in Namibia. This really made peers and family to encourage each other particularly their breadwinners to be vaccinated. [P9, Registered nurse]

Adoption of Vaccination Passport for Work and Cross-Border Travel

Some participants explained that although the implementation of vaccine passports as a requirement to enter work premises and travel internationally was not well-received by many antivaxxers, it was inevitable that people would be vaccinated for fear of losing their jobs.

For some the reason is people want to travel outside the country, or even enter work places. Most people were getting vaccinated in fear of losing their jobs. [P4, Registered Nurse]

In order to increase COVID-19 vaccination uptake in Namibia, the president of Namibia even announced that employers have the right to prohibit their unvaccinated workers from entering work place without vaccination cards. [P14, Registered nurse]

Measures to Increase COVID-19 Vaccine Uptake

Participants expressed their views under the subthemes of creating awareness, using social media, provision of information, and involvement of leaders.

Create COVID-19 Vaccines Awareness

The participants argued that awareness is needed to provide information to people. A lack of information causes hesitancy and distrust in the government.

Create awareness, make up programmes at the clinics and give them information about Covid-19, use different languages to make people understand and use posters to elaborate more on the COVID-19 vaccine. [P11, Enrolled Nurse]

Make vaccination information automatically pop-up notifications on all social media pages, as people tend to believe those anti-vax campaigns on social media. [P7, Registered nurse]

Subsidize Data for Selected Social media Platforms

The participants felt that the MoHSS should subsidize data costs in accessing various websites where MoHSS information on COVID-19 is found and further take advantage of social media platforms to provide information to people.

Face-to-face during COVID-19 is restricted, therefore many people can only find more information on COVID-19 through social media. It is important if additional efforts are made to add COVID-19 related information to online platforms but at subsidised fee for many to be able to opt

to read such information including vaccinations. [P12, Registered Nurse]

Making data affordable for specific social media pages such as the webpage of the MoHSS can encourage the public to have access to correct information. [P5]

Provision of Correct Information

The participants expressed concerns about misinformation, noting that for trust to be established, people should be provided with the correct information about COVID-19 vaccines and the disease in general. They argued that antivax movements and some churches should be banned from politicizing COVID-19 vaccinations.

We need to find way of ensuring that people receive correct information. Maybe some of those churches and anti-vax movements which are spreading wrong information should be banned from politicising everything and be punished. [P1, enrolled Nurse]

Punishing those distorting information to mislead other should be a criminal offense...this will reduce current habit of sharing of misleading information. [P5]

Involvement of Community, Political, and Religious Leaders

Participants stated that participative leadership is key in influencing followers, thus leaders must be actively involved in the fight against the pandemic and lead by example.

Involve influential people such as church leaders and community leaders to influence their constituencies. The leaders must also lead by example by taking COVID-19 vaccinations. [P11, enrolled Nurse]

Part of what MoHSS should target both the church leaders, headman, and political leaders. Once vaccinated their followers will follow suite. [P3, Registered nurse]

Discussion

This study examined frontline nurses' views on the barriers and facilitators affecting the uptake of COVID-19 vaccines in Namibia. Various barriers had implications on vaccine uptake including long distances to healthcare facilities. This finding is in support of Goldhill (2020) who pointed out that living near vaccination sites can reduce transportation barriers by lowering associated travel time and money costs. A lack of transport infrastructure can make it difficult for people to travel to vaccination centers, especially those in poor and vulnerable populations (Peterson et al., 2019). Another barrier to the

uptake of COVID-19 vaccines was the unavailability of vaccines during the most devastating third wave. Maringa and Khumalo (2021) revealed that the biggest impediment to getting more people fully vaccinated was access, not vaccine hesitancy or other barriers to COVID uptake. Leach et al. (2022) similarly noted that people were frustrated by the lack of availability of COVID-19 vaccines.

A perceived lack of correct information was another barrier that was mentioned by frontline nurses, which causes people to either refuse or delay getting vaccinated. As posited by Nzaji et al. (2020), the reported widespread online misinformation during the pandemic has seriously affected vaccine uptake and acceptance in countries such as Namibia where evidence-based information was not readily accessible, or where politicization of scientific knowledge is common. This misinformation requires the effective management of information by governments. Ahinkorah et al. (2020) suggested that accessible and accurate information needs to flow from trusted COVID-19 centers.

Similarly, Paterson et al. (2021) reported that one of the main reasons for vaccine hesitancy is misinformation about side effects, causing people to delay making a decision to get vaccinated. Leach et al. (2022) warned that the fact that COVID-19 was claimed by some as being a cure, as opposed to a preventative measure, made people refuse the vaccination, citing that they were not ill. Healthcare organizations must thus continue to forge collaborative agreements (Chesbrough, 2020) to find long-lasting solutions, such as subsidizing internet data to make information accessible to all and punishing those found sharing false information on COVID-19 vaccines (Eruchalu et al., 2021; Horton, 2020). The findings of this study suggest that misinformation is one of the major factors influencing COVID-19 vaccine uptake.

Similar to several previous studies (Killgore et al., 2021; Pavli & Maltezou, 2021), this study found that family and peer pressure, being scared of dying from COVID-19 as well as compulsory COVID-19 travel cards were factors facilitating the uptake of COVID-19 vaccination. Paterson et al. (2021) suggested that accepters tend to discuss COVID-19 vaccination in relation to a personal willingness and past vaccination experiences, yet Kourlaba et al. (2021) found that many people may have fear of vaccines and their complications. Participants also reported social influence as a facilitator to the uptake of the COVID-19 vaccine. This is in line with Bish et al. (2011), who indicated that social pressure and individual encouragement from trusted persons were found to increase vaccine uptake. Similarly, Harrison et al. (2021) reported that individuals are more willing to be vaccinated when they see leaders in their community doing so. Further, the participants in this study mentioned that traveling outside the country compelled some people to be vaccinated, as this was a requirement for international travelers. Simply put, these requirements can be viewed as being in direct conflict with human basic

rights to movement as entrenched in the Namibian constitution and international laws (United Nations, 2022).

The participants argued that awareness is needed to provide information to people, which is in line with the findings of Allington et al. (2021), who advocated for continuous training and education to improve public vaccine acceptance and reduce hesitancy. Another proposed measure was to use social media platforms to give out information to people. This recommendation is similar to Leask et al. (2012), who argued that healthcare organizations should use various communication methods such as social media, blogs, and onsite signage to spread awareness about the benefits of getting vaccinated. Abuhammad et al. (2021) similarly reiterated the nurses' critical role they play in creating public awareness, thus there is a need for them to be technologically inclined to use effective platforms during disease outbreaks, including Covid-19. The literature strongly suggests several vaccination efforts in the developing world in the past that helped increase vaccination uptake. In the quest to avert the impact of COVID-19, some evidence suggests that conditional cash programs help nudge people to take vaccines. Studies have shown that vaccine lottery programs led by the government or cash incentives by the private sector might help increase vaccine uptake (Acharya & Dhakal, 2021; Georgiou et al., 2022).

Strengths and Limitations of the Study

The strength of the study lies in the fact that this study brings fresh perspectives and an in-depth understanding of the facilitators and barriers affecting the uptake of the COVID-19 vaccine from nurses in Rundu, Namibia. The study provided evidence-based alternatives that could be used as effective strategies to promote the uptake of vaccines during and after COVID-19, particularly in resource-limited settings. However, the major limitation of this study includes the use of audio telephonic interviews making it difficult to observe the nonverbal expressions during the interviews.

Implications for Practice

The findings of this study make a significant contribution to the literature on the facilitators and barriers affecting the uptake of the COVID-19 vaccine from nurses in Rundu, Namibia. Conversely, the findings have a significant implication for policy and practice. The study found various barriers to COVID-19 vaccination uptake and underscore for the government to subsidize data costs in accessing vital information on COVID-19. This requires the government through the MoHSS in Namibia to make financial investments and to amend the information bill to afford the public to be charged less for accessing some social media platforms. The study provided evidence-based literature on the uptake of vaccines in future pandemics.

Conclusion

We examined the barriers and facilitators affecting the uptake of COVID-19 vaccines by potential users at the Rundu Intermediate Hospital, Kavango East Region. The findings of this study revealed that barriers to taking the COVID-19 vaccine among frontline nurses are due to various identified factors, including living in rural areas far from health centers, an initial lack of availability of vaccines, and misinformation. These findings can be used to develop targeted interventions that should improve the uptake of COVID-19 vaccines.

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Author Contributions

G.C.T. and D.O.A. contributed to the study's conception and design. G.C.T. contributed to data collection. G.C.T. D.O.A., and N.T. contributed to data analysis and interpretation. G.C.T. contributed to the drafting of the article. D.O.A. contributed to supervision. D.O.A. and N.T. contributed to validation. D.O.A. and N.T. contributed to writing review and editing. All authors have read and approved the manuscript.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on request.

Declaration of Conflicting Interests

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