Original Article

Health Behavior and Older Adults' Experiences Using Health Services During the COVID-19 Pandemic in Rural Nigeria: A Qualitative Study Using the Socio-Ecological Model of Health Behavior

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ABSTRACT

Background: Older adults are disproportionately impacted during public health crises, especially in rural settings where healthcare access is limited. Understanding their health behaviors and healthcare utilization is essential for improving geriatric care. **Objectives**: This study investigates the understanding of health behavior and the healthcare experiences of older adults using outpatient services in a rural Nigerian hospital during the COVID-19 pandemic. **Materials and Methods**: The study employed an exploratory qualitative research design through 13 face-to-face semi-structured interviews with older adults aged 60–80 using outpatient health services in a University Teaching Hospital in rural south-eastern Nigeria. The data generated from these interviews were then analyzed using qualitative content analysis, which led to two overarching themes. **Results**: Our findings revealed a complex interplay of personal, interpersonal, societal, and environmental factors that influence health behavior and healthcare utilization among older adults in rural Nigeria during the COVID-19 pandemic. While negative behaviors, such as heightened emotions, poor help-seeking behavior, self-medication for COVID-19 symptoms, and poor diets, were observed due to ignorance and misinformation, there were also positive influences. These included an increased focus on hygiene and enhanced family relationships through staying active, consequently improving physical activity behavior. **Conclusion**: These findings suggest that a resilient healthcare system in rural Nigeria may encourage a proactive stance toward positive behavior and increase healthcare utilization among older adults during crises. We recommend intensifying health literacy campaigns, including digital health literacy, eliminating the digital divide, and creating care protocols tailored for older adults to facilitate optimum healthcare access during crises in rural settings.

KEYWORDS: *COVID-19 pandemic, health behavior, Nigeria, older adults, physical activities*

INTRODUCTION

The virus responsible for the highly contagious COVID-19 disease, SARS-COV-2, has profoundly impacted global health.[1] The World Health Organization has reported approximately 760 million cumulative cases and around 7 million deaths worldwide,

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underscoring the urgent need to understand and mitigate its effects.[1,2] Despite advancements in clinical research, vaccinations, and pharmaceutical treatments, COVID-19 remains a significant global health concern, with its long-term effects still not fully understood.[3,4] Although the pandemic declaration was lifted in 2023, the insights gained during this crisis are essential for enhancing future emergency preparedness.[2]

Like other countries, Nigeria was confronted with the unprecedented and devastating impact of COVID-19.[3] The first case of COVID-19 in Nigeria was documented in February 2020.[5] According to the Nigerian Center for Disease Control (NCDC), the country has since recorded about 267,000 confirmed cases and 3155 COVID-related deaths.[6] Notably, older adults over 60 years have experienced higher rates of severe illness and mortality compared to younger populations.[7] This heightened severity can be attributed to aging, which is a significant risk factor for various comorbidities such as diabetes, cardiovascular diseases, hypertension, cancer, and chronic lung conditions.[7,8] These preexisting conditions can exacerbate COVID-19 symptoms, increasing hospitalization and mortality rates among older adults.[8] Thus, it is crucial to investigate the health behavior practices of this sub-population.

Nigeria is the most populous nation in Africa and has the highest number of older people, ranking 19th globally in terms of the population aged 65 and older.[9] Projections indicate that by 2050, the population of older adults aged 65 and above is expected to triple,[9] further amplifying the need for adequate healthcare strategies tailored to this group. In Nigeria, the pandemic has posed unique challenges for rural healthcare systems and older patients.[10] Implementing lockdown measures and shielding strategies to curb the virus's spread has significantly impacted economic activities, personal well-being, and access to healthcare services.[10,11]

While few studies have delved into the impact of COVID-19 on older adults in both urban and rural contexts,[10-13] there remains limited knowledge on older adults' understanding of health behaviors during the COVID-19 pandemic, especially in rural areas where research is limited. It is also unclear how older adults' understanding of health behavior shaped their experiences of care utilization in rural Nigeria. This lack of insight underscores the rationale for this study.

The socio-ecological model of health behavior provides an interdisciplinary framework that examines the complex interactions among individual, interpersonal, community, and societal factors influencing behavior.[14,15] This model emphasizes a holistic approach to service delivery, social, and environmental challenges by considering multiple influence levels beyond individual factors.[14] We employed this model for this study aimed to gain insights into the health behaviors and healthcare experiences of older adults receiving outpatient services at a rural hospital in Nigeria during the COVID-19 pandemic.

Materials and methods

Ethical approval

Ethical approval for this study was sought and obtained from the Institutional Review Board (IRB) of the University of Nigeria Teaching Hospital Health Research Ethics Committee, with approval number: NHREC/05/01/2008B/-FWA00002458-IRB00002323, UNTH/HREC/2021/04/288 and the Ethics and Research Governance Online (ERGO II), the University of Southampton, United Kingdom, ID:65465. Participation in this study was voluntary, and written informed consent was obtained from participants before recruitment. The study was conducted in accordance with the ethical principles of Helsinki Declaration.

Study area

The study was conducted in a teaching hospital in Ituku-Ozalla in Enugu, south-eastern Nigeria. Despite being rural, the hospital understudy is a referral hospital for most health facilities in south-eastern Nigeria. The older people in this community are mainly of Igbo ethnic origin, one of the three major ethnic groups in Nigeria: Hausa, Igbo, and Yoruba.[16,17] Like the Nigerian healthcare system, most payments for healthcare services (90%) are out-of-pocket.[18] In addition, COVID-19 severity was similar across all states and rural communities in Nigeria's different geopolitical zones.[5] Hence, there was no specific reason for selecting this study area other than our ability to recruit rural-dwelling older adults from the community.[16]

Sample size calculation

This is not required for a qualitative design.

Study population

This study involved 13 older adults who attended the Geriatric Outpatient Department at the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu, within the study period. We used the purposive sampling method because the sampling was done through pre-determination of selection criteria to include only older adults aged 60 years and over, receiving outpatient health services in a rural hospital in Nigeria,[19] determining the participants' socio-demographic attributes to ensure participants were

Table 1: Socio-demographic characteristics of participants

Socio-demographic factors	Total number of participants (n = 13)
Age range	
60–70	10
71–80	3
Sex	
Male	5
Female	8
Marital status	
Married/cohabiting	10
Single	0
Widowed	3
Occupation	
Farmer	3
Cleaner	1
Teaching	1
Retired (nurse, teacher)	4
Low-scale business	1
Welder	1
Clergy	1
Carpenter	1
Education	
None	1
Primary school	2
High school	6
University/higher	4
Ethnicity	
Igbo	13
Hausa	0
Yoruba	0

drawn from different backgrounds and are also rural-dwelling to obtain rich data. This sample size of 13 was driven by data saturation, and the data generated was sufficient to conduct a qualitative study[20] [Table 1].

Research design

This study employed an exploratory qualitative research design to better understand the views, opinions, and experiences of older adults receiving health services in rural Nigeria during the COVID-19 pandemic. Critical realism was the adopted philosophical stance because it makes inferences about the causal mechanisms behind the experiences observed in the social world,[21] making it suitable for this study.

Data collection

Data were collected through face-to-face semi-structured interviews using an interview guide developed by the first author, EPU. All the interviews were conducted in Igbo, the participant's language of choice. The interviews were audio-recorded and transcribed verbatim in Igbo language. The transcripts were independently translated by the first author (EPU) from Igbo to English language. The first and third authors met to review the transcripts to ensure that the meaning of the words was not lost or given a different meaning. The interview lasted 45 to 60 min for each participant, using probes to uncover the deep thoughts of participants regarding the subject matter. The first question in the interview guide was about their understanding of healthy behavior. This was followed by exploring participants' thoughts on the influence of COVID-19 on healthy behavior and other relevant experiences during the COVID-19 pandemic.

Data analysis

We employed qualitative inductive content analysis to describe the phenomenon understudy in a conceptual form.[22] The content analyst views data as representations of texts, images, and expressions created to be seen, read, interpreted, and acted on for their meanings.[23] We followed the three essential steps of qualitative content analysis: preparation, organization, and data reporting.[22]

The data from the interview were sorted and stored in a retrievable and searchable format using the program NVivo 13, as well as manual procedures such as audio recording, verbatim transcription, and analysis for common categories. The first and second authors thoroughly read the transcripts to familiarize themselves with the data. Notes were written in the margins, including a basic summary of the key ideas for each participant. The first author independently coded the transcripts. The authors met to discuss the emerging codes, and discrepancies were resolved. The codes were then merged into appropriate categories and then sub-themes. We reflected on these codes, categories, and sub-themes to ensure they are relevant to our research question. All the authors met to discuss the emerging sub-themes and themes. The details of the analysis and results are presented in Table 2.

Reflexivity

This strategy eliminates researchers' biases in the study's findings.[24] A reflexive note acknowledges that the researchers' backgrounds as healthcare professionals might have influenced participants' expressions of healthy behaviors, potentially leading to biased responses aimed at impressing the researchers. Participants were informed that the researchers' identities were irrelevant, promoting honest feedback. However, the researchers' profession seemed to have a minimal impact on the findings, as many participants shared psychosocial beliefs, such as the belief that religious practices could prevent COVID-19. Conducting interviews in the Igbo language could have introduced bias, but measures like audio recording, note-taking, and independent review

Table 2: Showing how data were coded and categorized into sub-themes and themes

A unit of analysis	Categories	Sub-themes	Themes
"*I heard it is a foreign disease… But truth be told, I have never seen anybody from this community that it killed.*"	•COVID-19 is a foreign disease •Religious exercises (praying and fasting) can cure COVID-19 •Denial of the existence of COVID-19 •Poor awareness	Poor help-seeking behavior during the pandemic	Theme 1: Negative behaviors as barriers to healthcare utilization
"I even took anti-malaria medication then so I would not be infected."	•Treated with anti-malaria medication/antibiotics •Distrust in the skills of healthcare workers •Avoiding hospital visits •Waiting in a long queue before seeing a doctor	Self-medication during COVID era	
"A lot being said about this condition has caused me great fear and has stressed me mentally even to take care of my health…. eat good food, stay active and all."	•Fear •Depression •Ignorance •Lack/misinformation •Stress due to lockdown	Heightened emotions	
"Scarcity of materials because of this lockdown cut short our farming work."	•Reduced food security •High cost of farming resources •High cost of labor •Neglect	Food shortages lack of access to healthy food	
"If that is, the case, I will always wash my hands and clean my house so this infection can go."	•Practicing handwashing •Wearing mask •Sanitation •Physical and social distancing	Maintaining hygiene	Theme 2: Positive Behavior as facilitators to healthcare utilization
"I played box games with my children just to ease the stress of the lockdown."	•Playing favorite games •Indoor games	Lockdown-induced physical activity	
"*I went to the farm with my children. We could not stay indoors; we also had to eat.*"	•Discovering oneself •Bonding with loved ones •Continued farming activities •Discovering oneself	Staying active during	

of transcripts helped mitigate this risk. This method facilitated more thorough data collection and a clearer understanding of participants' gestures and expressions.

Reporting guideline

This study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) to ensure completeness, transparency, and methodological rigor in reporting.

Results

Two major themes emerged from the data analysis. Due to complex factors, there was a mixed understanding of health behavior during the COVID-19 pandemic, which resulted in negative and positive behaviors and subsequently impacted healthcare utilization.

Theme 1: Negative behaviors as barriers to healthcare utilization

Many negative experiences during the COVID-19 pandemic stemmed from a combination of ignorance and misinformation that circulated widely. As people confronted rapid lifestyle changes—including altered daily routines—they often felt overwhelmed. This atmosphere of uncertainty fostered a heightened sense of anguish and anxiety, mainly due to the pervasive fear of contracting the virus. This led to a troubling cycle where misinformation led to misguided treatment choices, exacerbating existing health concerns.

Poor help-seeking behavior during the COVID-19 pandemic

Despite receiving healthcare for different ailments, the participants showed numerous assumptions regarding COVID-19, which discouraged them from seeking help and utilizing appropriate measures stated by the NCDC to combat the spread of the infection, such as dialing the COVID-19 helpline and self-isolation when having symptoms of COVID. When asked what COVID-19 is, a few regarded it as a foreign disease. When probed to ascertain whether they attempted dialing the helpline or self-isolating when they experienced symptoms of COVID-19, a few participants were ignorant of the measures. Few denied the existence of COVID-19 simply because they believed it had gone away and could no longer infect them. This theme exposed that diverse health beliefs due to ignorance resulted in older adults' poor help-seeking behavior during the pandemic.

Heightened emotions during the COVID-19 pandemic

A profound sense of fear and anguish emerged as a significant contributor to depression among the participants in this study. Older adults expressed that their feelings of depression during the pandemic severely disrupted their healthy behavior practices and overall mental well-being. This sub-population faced heightened anxiety, mainly due to the relentless spread of misinformation within Nigerian communities. Many older individuals lacked accurate knowledge regarding the symptoms of COVID-19 and the essential precautions necessary to safeguard their health. As a result, they often perceived the virus as exceedingly lethal, which intensified their feelings of fear and anxiety.

Self-medication for COVID-19 symptoms

Participants indicated that they frequently resorted to antibiotics, anti-malaria, and painkillers when experiencing COVID-19 symptoms. Among older adults, a prevailing belief exists that they might contract COVID-19 from healthcare workers in hospitals, contributing to a tendency for self-medication. This belief fosters a preference for avoiding hospital visits, except for essential routine checkups, as they think this will minimize their risk of infection from healthcare providers. Additionally, long wait times for doctor consultations encourage self-medication, reducing healthcare utilization. Many expressed concerns that healthcare workers may not be sufficiently trained or equipped to prevent the spread of the virus. Consequently, they often choose to manage COVID-19 symptoms on their own rather than seek medical attention.

Eating just for survival during the COVID-19 pandemic

The Nigerian government rapidly imposed specific lockdown measures based on the guidelines, which had unprecedented consequences on the food supply and production in rural Nigeria. Participants mentioned reduced food security as a common factor. Rural older adults were greatly challenged to have access to healthful food. Most participants were farmers who relied on their low-scale agricultural produce to survive. Increased costs of livestock, poultry feeds, and fertilizers, along with a reduced workforce, were the culprits. The government providing COVID-relief materials, such as food items, in rural communities is believed to combat hunger due to hardship. Participants complained of neglect from the local council and government authorities. They showed their understanding of the benefits of eating healthy. However, they struggled to balance their meals during the pandemic. Hence, they resort to cheap food items. Their main goal of eating during the pandemic shifted from maintaining good health to ensuring survival by eating what they could afford.

Theme 2: Positive behaviors as facilitators of healthcare utilization

While COVID-19 had a negative influence, few positive impacts were mentioned.

Maintaining hygiene

The common factor that emerged was a remarkable commitment to upholding personal and environmental hygiene as a critical means of preventing infection. Participants expressed a strong understanding of the importance of hygiene practices, particularly in the context of the COVID-19 pandemic. Despite their evident discomfort with the lockdown restrictions imposed to curb the virus's spread, participants were determined to do everything necessary to protect themselves and their communities. They emphasized the significance of regular handwashing as a fundamental practice. Many shared insights into their routines, highlighting how frequent handwashing with soap and water had become a part of their daily lives, especially after returning home or contacting public surfaces.

Additionally, the participants showcased a keen awareness of proper environmental sanitation. They discussed adopting measures like routinely disinfecting high-touch surfaces in their homes and being conscious of their surroundings in public spaces. Some expressed their involvement in community efforts to promote cleanliness, indicating a sense of collective responsibility in fighting the pandemic. Despite living in a community with a limited water supply, most participants still maintained that they practice regular handwashing, as that is the only way they believe could curb the spread of COVID-19 infection.

Physical activity behavior by staying active

During the lockdown period, participants characterized their experiences as a meaningful "phase of discovering oneself." Many shared that the unprecedented pandemic allowed them to invest more time in family relationships, fostering deeper connections that had previously been difficult to prioritize. They explored various ways to remain active and engaged, highlighting the importance of maintaining a sense of normalcy even amidst the uncertainty. This sentiment was echoed by others, who found joy in rediscovering indoor games and activities that had drawn them together. Despite the constraints imposed by the pandemic, many participants continued to work on their farms, representing their primary livelihood source. This determination reflected a broader commitment within

the community to sustain their agricultural activities, emphasizing the essential role of farming not only as a means of economic survival but also as a way to counteract the emotional toll of isolation. While most participants did not explicitly frame their activities regarding health benefits, they clearly articulated how staying active and engaging in social interactions improved their overall mood and mental well-being. They found that participating in farming alongside family members and maintaining social bonds provided a crucial sense of purpose and motivation and served as a vital source of resilience, illustrating remarkable adaptability and resourcefulness in the face of crisis.

Discussion

We applied the socio-ecological model to explore how understanding health behavior shaped experiences of healthcare utilization during the COVID-19 pandemic among older adults in a rural Nigerian hospital. The findings from this study highlight the complex interplay of personal, interpersonal, societal, and environmental factors influencing healthy behavior practices among older adults receiving outpatient care in a rural hospital in Nigeria during the COVID-19 pandemic. As a population already vulnerable due to age and underlying health conditions, older adults faced unique challenges exacerbated by the pandemic, including misinformation, fear, and barriers to accessing healthcare. The duality of COVID-19 as both a barrier and facilitator of health behaviors underscores the need for nuanced understanding and targeted interventions.

Our study reveals that adherence to preventive measures, such as handwashing and environmental sanitation, increased among older adults during the pandemic. This finding is in tandem with a previous study that reported similar outcomes, which was particularly significant among the younger age groups.[25] This shift indicates a growing awareness of the importance of hygiene in preventing infections.[25] Staying active improved physical activity behavior, and a positive influence of COVID-19 on healthy behaviors was reported. It has been shown that advancing age significantly influences exercise habits among adults in Nigeria, even during crises.[13] These behaviors reflect a proactive stance toward health in the face of uncertainty and illustrate the potential for positive health behavior change during crises.

However, despite this newfound commitment to hygiene, a peculiar finding of this study is that adherence to other preventive measures was inconsistent. Misconceptions about COVID-19, including beliefs that it was a "foreign disease" or that it no longer posed a threat, significantly hindered help-seeking behaviors. Living in rural Nigeria, where having access to the constant power supply and internet for the simplest communication gadgets such as mobile phones is a challenge, could have caused them to miss out on important information concerning COVID-19.[26] This highlights a critical gap in public health communication. Effective dissemination of accurate information is essential to combat misinformation and encourage older adults to engage with available health services.

The pandemic created a paradoxical environment for health-seeking behaviors among older adults. While some adapted by enhancing hygiene practices, many expressed reluctance to seek medical help due to fears of exposure to the virus in healthcare settings.[27] Others sought help as a last resort. This hesitancy was compounded by cultural beliefs that prioritized alternative healing methods, often leading to self-medication. Such behaviors jeopardize health outcomes and perpetuate cycles of misinformation and inadequate care.

The reluctance to seek care and poor adherence to care guidelines during a health crisis point to a broader systemic issue within rural healthcare settings. The existing healthcare infrastructure often struggles to meet the needs of older adults, and the pandemic further strained these resources.[11,12] Addressing these challenges requires an integrated approach that includes enhancing the capacity of healthcare facilities, training healthcare workers to communicate risks better, and fostering trust within communities[27]

Accessing care during the pandemic presented significant challenges for older adults. Poor doctor's consultations or prescriptions for ailments, owing to factors such as low income, ignorance, poor health insurance, and poor community health service delivery in Nigeria, are the associated factors.[28,29] The economic impacts of lockdowns led to food insecurity and heightened stress, further diminishing their overall health and well-being. Many participants reported that the focus of their health efforts shifted from maintaining good health to mere survival, underscoring the urgent need for targeted interventions that address both health and socioeconomic factors.

Moreover, the neglect rural communities experienced regarding support and resources during the pandemic calls for policy-level changes to ensure equitable healthcare access. Implementing community-based health programs that prioritize the needs of older adults can help bridge the gap in care accessibility and improve health outcomes.

The findings of this study have significant implications for geriatric care in rural settings. There is a pressing need for tailored interventions that address the unique challenges older adults face, particularly during health crises. Strategies should focus on enhancing health literacy in hospitals, including digital literacy, eliminating the digital divide for enhanced information communication, and improving access to healthcare services during crises by creating care protocols tailored for older adults and their healthcare professionals.

Limitations of the study

The generalizability of these findings may be questioned. However, researchers can compare the socio-demographic factors of the participants when judging transferability in their settings. This study is limited to a single institution; a nationwide study would be beneficial.

Conclusion

This study underscores the dual impact of the COVID-19 pandemic on the health behaviors of older adults in rural Nigeria. While challenges abound, the potential for positive behavior change and community engagement presents an opportunity for improved health outcomes. By addressing the underlying barriers to health-seeking behavior and enhancing access to care, healthcare systems can foster resilience and promote the well-being of this vulnerable population in rural settings in preparedness for future crises.

Declaration of Helsinki

The study was conducted according to the ethical principles of the Helsinki Declaration.

Declaration of patient consent

Participation in this study was voluntary, and written informed consent was obtained from each participant before enrollment into the study.

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Author contributions

EPU conceptualized and designed the study. EPU and SSE were involved in data collection, and EPU and OA analyzed the data; All authors (EPU, OA, SSE, and ECN) were involved in the writing and revising of the manuscript for intellectual content. All authors reviewed the final manuscript and approved its publication. We, the authors, hereby state that this manuscript has been read and approved by all the authors, that the requirements for authorship, as stated earlier in this document, have been met, and that we believe that the manuscript represents honest work.

Data availability

Authors are available and ready to supply the data upon any request through the corresponding author.

Ethical approval

Ethical approval for this study was sought and obtained from the two institutions, the Ethics and Research Governance Online (ERGO II), University of Southampton, United Kingdom, Reference ID: 65465, and the University of Nigeria Teaching Hospital Health Research Ethics Committee, Approval number: NHREC/05/01/2008B/-FWA00002458-IRB00002323.

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Conflicts of interest

There are no conflicts of interest.

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