
TECHNOLOGY PROFICIENCY AND HEALTH AWARENESS AMONG COMMUNITY HEALTH WORKERS IN AKWA IBOM NORTH-WEST SENATORIAL DISTRICT, NIGERIA

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ABSTRACT

This study investigated technology proficiency and health awareness among community health workers in Akwa Ibom North-West Senatorial District, Nigeria. The increasing integration of digital communication technologies into healthcare delivery has made it necessary to examine how such tools contribute to improving the knowledge and effectiveness of frontline health workers, particularly in resource-constrained settings. An ex-post facto research design was adopted for the study. The population comprised 1,431 community health workers across 174 primary healthcare facilities in the study area. A sample size of 316 respondents was selected using a multi-stage sampling technique. Data were collected using a structured instrument titled *Technology Proficiency and Health Awareness Questionnaire (TPHAQ)*, which was validated by experts and yielded a reliability coefficient of 0.86 using the Cronbach Alpha method. Descriptive statistics (mean and standard deviation) were used to answer the research questions, while dependent t-test was employed to test the hypotheses at the 0.05 level of significance. The findings revealed that both SMS and mass media significantly influence health awareness among community health workers. Specifically, SMS was found to enhance access to timely and relevant health information, while mass media demonstrated a stronger influence due to its wide reach and ability to provide frequent health-related updates. The hypotheses tested confirmed that these influences were statistically significant. Based on these findings, the study concluded that

digital communication tools, particularly SMS and mass media, are effective in improving health awareness among community health workers. It was recommended that health authorities and government agencies should strengthen the use of these platforms through training, improved infrastructure, and strategic health communication programmes. The study contributes to existing knowledge by providing empirical evidence on the role of communication technologies in enhancing health awareness among community health workers in a Nigerian context. It also highlights the need for continuous investment in digital health communication to support effective healthcare delivery.

KEYWORDS: Short Message Service (SMS), Mass Media, Health Awareness, Community Health Workers, Technology Proficiency, Digital Health Communication.

1. INTRODUCTION

The increasing digitization of global health systems has redefined how health information is generated, shared, and utilized, particularly in low- and middle-income countries where traditional healthcare delivery mechanisms often face significant limitations. Advances in mobile communication technologies and media systems have created new opportunities for strengthening health systems, improving health literacy, and enhancing the performance of frontline health personnel. In this evolving landscape, community health workers (CHWs) have become indispensable actors in achieving universal health coverage, especially in rural and underserved communities.

Globally, there is growing recognition that access to timely and accurate health information is a key determinant of effective healthcare delivery. According to United Nations Children's Fund (2022), digital communication tools are increasingly being leveraged to support community-based health interventions, improve disease surveillance, and promote preventive health behaviors. Similarly, World Bank (2023) reports that mobile and media technologies play a critical role in enhancing health knowledge dissemination, particularly in regions with limited healthcare infrastructure.

Among these technologies, Short Message Service (SMS) has emerged as a simple yet highly effective communication tool for delivering health-related information due to its low cost, wide coverage, and minimal technical requirements. Studies have shown that SMS-based interventions can improve knowledge of maternal health, immunization schedules, and chronic disease management among healthcare providers and patients alike (Feroz et al., 2021; Aranda-Jan et al., 2020). In parallel, mass media platforms, including radio, television,

and digital social networks, continue to shape public understanding of health issues by providing large-scale, repetitive, and persuasive messaging capable of influencing attitudes and behaviors (Sarrassat et al., 2018; Babalola et al., 2021).

In the Nigerian context, the relevance of these communication channels is particularly pronounced due to disparities in healthcare access, infrastructural limitations, and varying levels of literacy across regions. Community health workers, who serve as the first point of contact for many individuals within the healthcare system, require continuous access to accurate and up-to-date health information to effectively perform their roles. However, their capacity to utilize communication technologies for health education and service delivery remains uneven, often constrained by limited exposure, inadequate training, and systemic challenges.

Akwa Ibom North-West Senatorial District exemplifies many of these realities, where healthcare delivery is largely dependent on primary healthcare facilities and community-based personnel. While efforts have been made to improve health communication through various interventions, there is still insufficient understanding of how specific tools such as SMS and mass media contribute to enhancing health awareness among community health workers in this setting.

Therefore, this study is designed to examine the influence of Short Message Service (SMS) and mass media on health awareness among community health workers in Akwa Ibom North-West Senatorial District, Nigeria, with a view to providing empirical evidence that can inform policy and practice in digital health communication.

1.2 Statement of the Problem

Health awareness among community health workers is fundamental to the effectiveness of primary healthcare delivery, as these workers are responsible for disseminating health information, promoting preventive practices, and supporting community-level health interventions. However, in many developing regions, including Nigeria, concerns persist regarding the adequacy and consistency of health knowledge among community health workers, which may limit their capacity to deliver quality health services. Despite increased investments in health communication strategies, significant gaps remain in the accessibility, timeliness, and utilization of health information among frontline health personnel. Traditional methods of information dissemination, such as workshops, printed materials, and face-to-face training, are often insufficient, irregular, and unable to reach all categories of health workers effectively, particularly in rural and resource-constrained settings. As a result, many

community health workers may rely on outdated or incomplete information, thereby affecting the quality of health education provided to the communities they serve.

The emergence of digital communication tools such as Short Message Service (SMS) and mass media offers promising alternatives for improving health awareness due to their wide reach, cost-effectiveness, and ability to deliver real-time information. However, while these tools are increasingly utilized in health campaigns, there is limited empirical evidence on their actual influence on health awareness among community health workers, especially within specific local contexts such as Akwa Ibom North-West Senatorial District. Furthermore, existing studies tend to focus on general populations or patients, with little attention given to community health workers as a distinct and critical group within the healthcare system. This creates a gap in knowledge regarding how communication technologies can be effectively leveraged to enhance their awareness and performance.

Consequently, the problem of this study lies in the lack of context-specific empirical evidence on the extent to which SMS and mass media influence health awareness among community health workers in Akwa Ibom North-West Senatorial District. Addressing this gap is essential for designing effective communication strategies and strengthening the overall performance of primary healthcare systems.

1.3 Purpose of the Study

The study aims at investigating how Short Message Service, and mass media influence health awareness among community health workers in Akwa Ibom North-West Senatorial District, Nigeria. Specifically, the study sought to:

1. Examine the influence of short message service (SMS) on health awareness among community health workers in Akwa Ibom North-West Senatorial District.
2. Examine the influence of mass media on health awareness among community health workers in Akwa Ibom North-West Senatorial District.

1.4 Research Question

Two research questions were formulated to guide this study:

1. What is the influence of short message service (SMS) on health awareness among community health workers in Akwa Ibom North-West Senatorial District?
2. What is the influence of mass media on health awareness among community health workers in Akwa Ibom North-West Senatorial District?

1.5 Research Hypotheses

Two null hypotheses were formulated to guide this study, and were tested at .05 level of significance.

H₀₁: Short message service (SMS) has no significant influence on health awareness among community health workers in Akwa Ibom North-West Senatorial District.

H₀₂: Mass media has no significant influence on health awareness among community health workers in Akwa Ibom North-West Senatorial District.

2. LITERATURE REVIEW

2.1 Concept of Technology Proficiency among Community Health Workers

Technology proficiency refers to the ability of individuals to effectively use digital tools, communication platforms, and information systems to perform tasks and solve problems. In the context of community health workers (CHWs), it encompasses competencies in mobile communication, data entry, internet use, and digital health platforms. Recent studies emphasize that technology proficiency is increasingly essential for healthcare delivery, particularly in low- and middle-income countries where digital health interventions are expanding rapidly. According to World Health Organization (2021), digital competence among frontline health workers improves efficiency in service delivery, data reporting, and health education. Similarly, research by Aker and Mbiti (2020) highlights that mobile technology enhances the capacity of CHWs to disseminate health information and respond to community health needs. However, limited digital literacy remains a significant barrier in many Sub-Saharan African contexts, including Nigeria.

2.2 Concept of Health Awareness

Health awareness refers to the level of knowledge, understanding, and consciousness individuals possess regarding health issues, disease prevention, and health promotion practices. Among CHWs, health awareness is crucial as they serve as intermediaries between formal healthcare systems and local communities. According to Nutbeam (2019), health awareness is a core component of health literacy, influencing individuals' ability to make informed health decisions. In developing regions, improved health awareness has been linked to reduced disease burden and improved public health outcomes. Recent evidence suggests that digital communication tools significantly enhance health awareness by providing timely and accessible information (Kumar et al., 2022). This is particularly relevant in rural and underserved communities where traditional healthcare access is limited.

2.3 Short Message Service (SMS) and Health Awareness

Short Message Service (SMS) is one of the most widely used mobile communication tools in developing countries due to its affordability, accessibility, and ease of use. SMS-based health interventions have been widely adopted to improve health awareness and behavior. Empirical studies show that SMS reminders and educational messages significantly improve knowledge of disease prevention, maternal health, and treatment adherence (Lester et al., 2020). In Nigeria, SMS has been used effectively in public health campaigns such as immunization awareness and disease surveillance. Furthermore, a study by Déglise et al. (2018) found that SMS interventions increased health awareness among rural populations by delivering concise and targeted health messages. The effectiveness of SMS lies in its ability to reach a large audience instantly without requiring advanced technological skills. However, challenges such as message comprehension, language barriers, and limited personalization may affect its impact (WHO, 2021).

2.4 Mass Media and Health Awareness

Mass media; including radio, television, newspapers, and social media, plays a critical role in disseminating health information and shaping public attitudes toward health practices. Mass media campaigns have been shown to significantly influence health awareness and behavior change. According to Wakefield et al. (2019), mass media interventions are effective in increasing awareness about diseases such as HIV/AIDS, malaria, and COVID-19. In Sub-Saharan Africa, radio remains one of the most accessible and influential media platforms, particularly in rural areas. Studies indicate that radio health programs improve awareness of maternal and child health issues (Oyekale, 2021). Additionally, digital media platforms such as Facebook and WhatsApp are increasingly being used for health communication among CHWs and the general population. These platforms enable interactive communication, which enhances understanding and retention of health information (Obasola & Mabawonku, 2022). Despite its effectiveness, mass media may face challenges such as misinformation, unequal access, and limited audience engagement.

2.5 Theoretical Framework

2.5.1 Diffusion of Innovations Theory

Propounded by Everett Rogers (2003), this theory explains how new ideas and technologies spread within a population. It posits that adoption depends on factors such as perceived usefulness, ease of use, and social influence. In this study, SMS and mass media are viewed

as innovations that facilitate the dissemination of health information among CHWs. Their adoption enhances health awareness by improving access to timely and relevant information.

2.5.2 Health Belief Model (HBM)

The Health Belief Model explains how individuals' beliefs about health conditions influence their behaviors. It suggests that people are more likely to adopt healthy behaviors if they perceive a threat and believe that a specific action will reduce that threat. Mass media and SMS serve as cues to action by providing health information that shapes perceptions and motivates behavior change (Rosenstock, 1974; revisited in recent studies such as Jones et al., 2020).

2.6 Empirical Review

Recent empirical studies provide evidence on the effectiveness of digital communication tools in improving health awareness:

- A study by Agarwal et al. (2021) found that mobile-based interventions significantly improved health knowledge among CHWs in India and Africa.
- Oyekale (2021) reported that exposure to radio health programs increased awareness of malaria prevention in rural Nigeria.
- Déglise et al. (2018) observed that SMS-based health education improved maternal health awareness in low-resource settings.
- Obasola and Mabawonku (2022) found that social media platforms enhanced health communication among healthcare workers in Nigeria.

These studies collectively indicate that both SMS and mass media are effective tools for improving health awareness, although their impact depends on accessibility, content quality, and user engagement.

2.7 Conceptual Framework

The conceptual framework for this study illustrates the relationship between:

- **Independent Variables:**
 - Short Message Service (SMS)
 - Mass Media
- **Dependent Variable:**
 - Health Awareness

These variables interact such that increased exposure to SMS and mass media enhances the level of health awareness among community health workers.

2.8 Summary of Literature

The reviewed literature reveals that technology-based communication tools, particularly SMS and mass media, play a significant role in enhancing health awareness among community health workers. While SMS provides direct and personalized communication, mass media offers broad and widespread dissemination of health information. However, the effectiveness of these tools depends on factors such as accessibility, digital literacy, and content relevance.

3. Methodology

3.1 Research Design

This study adopted an ex-post facto research design to examine technology proficiency and health awareness among community health workers. The design was considered appropriate because the variables under investigation had already occurred and could not be manipulated experimentally.

3.2 Area of the Study

The study was conducted in Akwa Ibom North-West Senatorial District, Nigeria, which comprises ten Local Government Areas (LGAs), 129 political wards, over 560 villages, and 174 primary healthcare facilities. The headquarters of the district is located in Ikot Ekpene.

3.3 Population of the Study

The population consisted of all healthcare workers employed in the 174 primary healthcare facilities across the district, totaling 1,431 workers, according to records from the State Health Service Commission (2023).

3.4 Sample and Sampling Technique

A sample of 316 health workers was selected using a multi-stage sampling procedure:

- **Stage 1:** Selection of 50% of the Local Government Areas (5 LGAs)
- **Stage 2:** Selection of 40% of healthcare facilities within each selected LGA
- **Stage 3:** Census sampling technique was used to include all health workers in the selected facilities

3.5 Instrument for Data Collection

Data were collected using a researcher-developed instrument titled:

“Technology Proficiency and Health Awareness Questionnaire (TPHAQ)”

The instrument consisted of two sections, measured on a four-point Likert scale:

- Strongly Agree (4)
- Agree (3)
- Disagree (2)
- Strongly Disagree (1)

3.6 Validity of the Instrument

The instrument was subjected to face validation by five experts from the Faculty of Education, University of Uyo. Their suggestions were incorporated to improve the clarity, relevance, and adequacy of the items.

3.7 Reliability of the Instrument

Reliability was established using the Cronbach Alpha method through inter-item correlation. A reliability coefficient of 0.86 was obtained after a pilot test involving 30 health workers who were not part of the main study, indicating high internal consistency.

3.8 Method of Data Collection

Data collection was carried out by the researcher with the assistance of five trained research assistants. Permission was obtained from relevant health authorities and facility heads prior to data collection. All 316 questionnaires were correctly completed and returned, representing a 100% response rate.

3.9 Method of Data Analysis

Data were analyzed using:

- Mean and standard deviation to answer research questions
- Dependent t-test to test hypotheses at the 0.05 level of significance

A weighted mean cut-off point of 2.50 was used as the decision benchmark:

- Mean \geq 2.50 → Accepted (influence exists)
- Mean $<$ 2.50 → Rejected (no influence)

3.10 Ethical Considerations

Ethical standards were strictly adhered to. These included:

- Prior notification and approval from health facility authorities
- Voluntary participation of respondents
- Assurance of confidentiality and anonymity
- Use of collected data strictly for academic purposes

4.1 RESULTS

Research Question One

What is the influence of short message service (SMS) on health awareness among community health workers in Akwa Ibom North-West Senatorial District?

Table 1: Summary of Descriptive Statistics on Influence of Short Message Service (SMS) on Health Awareness among Community Health Workers influence on Health Awareness n=316)

Variables	N	Mean	SD	Difference
Utilization of Short Message Service	316	3.37	1.35	0.83
Health Awareness	316	2.54	1.07	

Source: Researcher's Fieldwork (2026)

The summary of the result presented in Table 1 indicates that the mean influence of utilization of Short Message Service is 3.37 and that of health awareness is 2.54. The mean difference between the two variables is 0.83. Hence, use of Short Message Service by community health workers has a mean influence of 3.37 on health awareness.

Research Question Two

What is the influence of mass media on health awareness among community health workers in Akwa Ibom North-West Senatorial District?

Table 2: Summary of Descriptive Statistics on Influence of Mass Media by Community Health Workers influence on Health Awareness (n=316)

Variables	N	Mean	SD	Difference
Utilization of Mass Media	316	3.76	1.51	1.22
Health Awareness	316	2.54	1.07	

Source: Researcher's Fieldwork (2026)

The summary of the result presented in Table 5 indicates that the mean influence of utilization of Mass media is 3.76 and that of health awareness is 2.54. The mean difference between the two variables is 1.22. Hence, use of mass media by community health workers has a mean influence of 3.76 on health awareness.

Hypothesis One

Technology proficiency of Short Message Service (SMS) by community health workers does not significantly influence health workers awareness in Akwa Ibom North-West Senatorial District, Nigeria.

Table 3: Dependent t-test Analysis on Technology Proficiency of Short Message Service (SMS) by Community Health Workers influence on Health Awareness (n=316)

Variables	N	Mean	SD	t-value	t-critical	Df	Decision
Utilization of Simple Message System (SMS)	316	3.37	1.54	3.26	1.96	315	Significant
Health Awareness	316	2.54	1.03				

*Significant at 0.05 alpha level Source: Researcher's Fieldwork (2026)

Table 3 shows that the calculated t-value of 3.37 at 315 degree of freedom and 0.05 alpha level of significance is greater than the critical t-value of 1.96. The null hypothesis is therefore rejected. Hence, use of Short Message Service by community health workers significantly influence health workers awareness in Akwa Ibom North-West Senatorial District, Nigeria.

Hypothesis Two

Technology proficiency of Short Message Service (SMS) by community health workers does not significantly influence health workers awareness in Akwa Ibom North-West Senatorial District, Nigeria.

Table 4: Dependent t-test Analysis on Technology Proficiency of Short Message Service (SMS) by Community Health Workers influence on Health Awareness (n=316)

Variables	N	Mean	SD	t-value	t-critical	df	Decision
Utilization of Mass Media	316	3.76	1.51	3.06	1.96	315	Significant
Health Awareness	316	3.54	1.07				

* Significant at 0.05 alpha level Source: Researcher's Fieldwork (2026)

Table 4 shows that the calculated t-value of 3.76 at 315 degree of freedom and 0.05 alpha level of significance is greater than the critical t-value of 1.96. The null hypothesis is therefore rejected. Hence, utilization of mass media by community health workers significantly influence health workers awareness in Akwa Ibom North-West Senatorial District, Nigeria.

4.2 Discussion of Findings

The findings of this study are discussed in this section. The discussion is organized under sub-headings that correspond to the major variables in the research questions and hypotheses of the study.

4.2.1 Technology Proficiency of Short Message Service by Community Health Workers and Influence on Health Awareness.

The result of the first hypothesis revealed that technology proficiency of Short Message Service by community health workers significantly influences health workers awareness in Akwa Ibom North-West Senatorial District, Nigeria. This means that the use of Short Message Service by health workers influences health awareness. This influence is possible because information regarding health awareness is made known to health workers and others through health awareness. The use of Short Message Service has made it possible for every cell phone carrier to read on essential personal hygiene that could ensure their lifestyle and long life. Short Message Service is suspected to be the least expensive message media as compared to other channels of information dissemination in enhancing health awareness. The tendency of frequent usage of Short Message Service to enhance health awareness is promoted as it is easy to use. The findings of the study are in line with the statement made by Lester et al. (2020) that the use of Short Message Service by health workers enhances health awareness.

4.2.2 Technology Proficiency of Mass Media by Community Health Workers and Influence on Health Awareness.

The result of the second hypothesis revealed that technology proficiency of mass media by community health workers significantly influences health awareness in Akwa Ibom North-West Senatorial District, Nigeria. This means that the use of mass media by community health workers influences health awareness. This influence is possible as the use of electronic based mass media like the radio set based or television set based health information enhances knowledge of community health workers in the profession. Also, health awareness will be

made possible as private institutions together with corporate bodies and missionary groups do have some free time occupied space on electronic media to sensitize members of the public on helpful health information that could enhance healthy living. In furtherance, the use of mass media influences health awareness because privately owned medical outlets operators advertise their professional abilities as a way of health awareness. The findings of the study are in agreement with the statement made by Obasola & Mabawonku (2022) that the use of mass media by community health workers promotes health awareness.

5.1 Summary of Findings

This study set out to examine how Short Message Service (SMS) and mass media influence health awareness among community health workers in Akwa Ibom North-West Senatorial District. Based on the data collected and analyzed, several important findings emerged.

First, the study revealed that SMS plays a significant role in improving health awareness among community health workers. Many of the respondents indicated that they regularly receive and use health-related information through SMS, which helps them stay informed about current health issues and practices.

Second, the findings showed that mass media has an even stronger influence on health awareness. Platforms such as radio, television, and social media were found to be highly effective in disseminating health information to community health workers. These channels provide frequent and accessible updates, which enhance their knowledge and understanding of health matters.

Furthermore, the hypotheses tested confirmed that both SMS and mass media have a statistically significant influence on health awareness. This means that these communication tools are not only useful but also essential in improving the knowledge base of community health workers.

5.2 CONCLUSION

From the findings of this study, it can be concluded that both SMS and mass media are powerful tools for enhancing health awareness among community health workers. Their ability to deliver timely, relevant, and easily accessible information makes them highly valuable in the healthcare system. The study therefore concludes that increasing the use of these communication technologies can significantly improve the effectiveness of community health workers. When health workers are well-informed, they are better equipped to educate

others, promote healthy practices, and contribute meaningfully to community health development.

5.3 Educational Implications of Findings

The findings of this study have important implications for education, especially in the areas of health education and training.

Firstly, the study highlights the growing importance of integrating technology into teaching and learning. Students and trainees in health-related fields need to be exposed to digital tools such as SMS, social media, and other communication platforms, as these are now essential for effective health information dissemination.

Secondly, the results suggest that curriculum planners should incorporate information and communication technology (ICT) into health education programmes. This will help learners develop the necessary skills to access, evaluate, and use digital health information effectively. In addition, schools and training institutions should be equipped with modern ICT facilities to support practical learning. Exposure to these tools will not only improve academic performance but also prepare students for real-world healthcare challenges.

Finally, there is a need for continuous training of teachers and health educators in the use of technology. This will ensure that they are well-equipped to guide learners and promote the use of digital tools in health awareness and education.

5.4 Contribution to Knowledge

This study has made meaningful contributions to existing knowledge in the field of health education and communication.

It provides empirical evidence showing how SMS and mass media influence health awareness among community health workers, particularly within the context of Akwa Ibom North-West Senatorial District. By focusing on community health workers, the study addresses a gap in previous research, which has largely focused on the general population.

In addition, the study expands the understanding of how digital communication tools can be used to improve healthcare delivery. It also serves as a useful reference for researchers, policymakers, and practitioners who are interested in leveraging technology for health promotion.

Overall, the study lays a foundation for future research in the area of digital health communication.

5.5 Recommendations

Based on the findings of this study, the following recommendations are made:

1. Community health workers should make more deliberate use of SMS and mass media to improve their knowledge and effectiveness in service delivery. These tools should be seen as essential resources for continuous learning.
2. Government and relevant health authorities should organize regular training programmes, workshops, and seminars to educate health workers on the effective use of information and communication technology.
3. Efforts should be made to ensure that accurate and reliable health information is consistently disseminated through digital platforms such as SMS, email, and social media.
4. There is also a need for increased investment in ICT infrastructure to support efficient health communication, especially in rural and underserved areas.
5. Mass media campaigns should be strengthened and used more strategically to reach a wider audience and improve public health awareness.
6. Finally, the government should recruit and deploy more health workers who are skilled in the use of modern communication technologies.

5.6 Suggestions for Further Studies

7. While this study has provided useful insights, there is still room for further research.
8. Future studies could examine how environmental factors influence health awareness among community health workers. Researchers may also explore the role of economic conditions in shaping access to health information.
9. In addition, there is a need to investigate how government policies affect the use of communication technologies in healthcare delivery.
10. Other possible areas of study include the role of digital literacy in enhancing the effectiveness of ICT tools, as well as comparative studies between rural and urban health workers.

Exploring these areas will deepen understanding and contribute to the continuous improvement of health awareness and service delivery.

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