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Utilisation of Indigenous Knowledge System (IKS) and Information and Communications Technologies (ICTs) in Accessing Maternal and Child Healthcare by Pregnant Women in Ebonyi State, Nigeria

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ABSTRACT

Background: Information and Communications Technology (ICT) has been recognized as an important tool for improving access to health information and linking communities to broader healthcare networks and diseases. Research shows that ICT improves antenatal care attendance, nutritional awareness, timely health-seeking behaviour, and skilled birth delivery, particularly among underprivileged women who otherwise might lack access to formal healthcare channels. Despite the overwhelming benefits, the Utilization of IKS and ICT in seeking healthcare remains sub-optimal in Ebonyi State.
Objective: This study investigated how the use of ICT and IKS influence accessing maternal and health child care information and its effectiveness by pregnant women in Ebonyi State, Nigeria.
Method: A mixed-method research design was adopted, combining a survey of 383 pregnant women with three Focus Group Discussions conducted across selected Local Government Areas in the state. Quantitative data were analyzed using descriptive statistics, while qualitative data from the FGDs were analyzed thematically.
Results: The findings indicate that pregnant women in Ebonyi State rely on both IKS and ICT as complementary sources of maternal and child health information. Indigenous sources such as traditional birth attendants and community elders remain influential due to cultural trust and accessibility, while ICT tools, particularly mobile phones and radio, enhance access to timely health information and updates. However, the effective utilization of ICT is constrained by poor network coverage, high data costs, low digital literacy, and unreliable power supply. The study also found that cultural beliefs shape how ICT-based health messages are interpreted and applied, sometimes influencing care-seeking behaviour.
Conclusion: The study concludes that improving maternal and child healthcare in Ebonyi State requires the integration of culturally sensitive communication approaches with ICT-based strategies.
Unique Contribution: this study have offered new insight on the usefulness and efficacy of Information communication technology to seek reliable information on maternal and child health communication initiatives. Thus, it is expected that policy makers and healthcare practitioners will find this fresh insight planning future advocacy programmes on maternal and child healthcare.
Key Recommendation: It, therefore, recommends strengthening ICT infrastructure while actively engaging traditional birth attendants and community leaders in the design and delivery of culturally responsive maternal and child health communication initiatives.

Keywords: Indigenous Knowledge System (IKS), Information and Communications Technology (ICT), maternal and child health, health communication, Ebonyi State.

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INTRODUCTION

Maternal and infant mortality remains one of the most pressing public health challenges confronting sub-Saharan Africa, and Nigeria in particular (Batist, 2019; Obasola, 2021). Globally, approximately 300,000 women die annually from complications related to pregnancy and childbirth, with over 90% of these deaths occurring in low- and middle-income countries where access to quality healthcare services is limited and unevenly distributed (World Health Organization, 2019). Nigeria alone recorded an estimated 917 maternal deaths per 100,000 live births in 2019, indicating the severity of the reproductive health crisis in the country (Batist, 2019; WHO, 2019). Countries in sub-Saharan Africa continue to contribute disproportionately to global maternal mortality figures, underscoring the urgent need for effective health system strategies that improve both access to care and the quality of information received by pregnant women.

The high burden of maternal and child mortality in Nigeria today is as a result of significant socioeconomic, cultural, and structural barriers, such as poverty, inadequate health infrastructure, shortages of skilled health personnel, and geographic isolation of rural communities where healthcare facilities may be distant or poorly resourced (Adejoorin et al., 2024; Okoli et al., 2020). These factors restrict women's ability to seek timely antenatal, delivery, and postnatal care, thereby increasing their risk of morbidity and mortality (Okoli et al., 2020). Consequently, many women resort to informal care practices or delay seeking facility-based services, which can adversely affect health outcomes (Alhaji et al., 2025; Bolarinwa et al., 2025). The lack of reliable and comprehensible health information compounds these challenges, as women may not fully understand danger signs in pregnancy or the importance of skilled birth attendance (Bolarinwa et al., 2014).

Information and Communications Technology (ICT) has been recognised as an important tool for improving access to health information and linking communities to broader healthcare networks (Mramba & Kaijage, 2018; Akpobo & Nwafor 2013). ICT involves a wide range of digital and electronic tools, including mobile phones, radio, television, and internet platforms that can disseminate health information, enable communication between healthcare providers and patients, and support monitoring and decision-making by pregnant women. Research shows that ICT improves antenatal care attendance, nutritional awareness, timely health-seeking behaviour, and skilled birth delivery, particularly among underprivileged women who otherwise might lack access to formal healthcare channels (Obasola & Mabawonku, 2017; Oyeyemi & Wynn, 2015; Saronga et al., 2019). ICT tools contribute positively to maternal health. (Ifiabor, L.W, & Bassey, L.E 2024) Digital health technologies have vastly improved monitoring, diagnosis, and care during pregnancy. (Mohamed, 2025). ICT, thus, serves not only as a channel for information dissemination but also as a critical enabler of informed decision-making and sustained engagement with maternal and child healthcare services, particularly in resource-constrained settings.

Empirical evidence indicates that the utilisation of ICT for maternal and child health (MCH) information in Nigeria is increasingly common among women who engage with formal healthcare services (Jennings et al., 2015; Obasola & Mabawonku, 2017). Mobile phones are the most frequently used medium for accessing MCH information, followed by radio and television, enabling pregnant women to receive messages related to antenatal appointments, nutrition, medication use, and breastfeeding (Obasola & Mabawonku, 2017). Despite this level of uptake, the effectiveness of ICT-based health communication remains uneven, as

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structural barriers such as unreliable electricity supply, high data costs, poor network coverage, and limited digital literacy continue to restrict consistent and meaningful use, particularly among women in rural and low-resource settings (Okeke et al., 2025; Anibueze & Nwafor 2011). These constraints suggest that access to ICT alone is insufficient to ensure equitable health communication outcomes and indicate the need to address contextual limitations when implementing digital maternal health interventions.

At the same time, women's engagement with ICT-mediated health information is influenced by cultural beliefs and Indigenous Knowledge System (IKS), which shape how maternal health messages are interpreted and applied (Igbokwe et al., 2024; Opara et al., 2025). In many Nigerian communities, indigenous practices coexist with biomedical knowledge, with some women preferring traditional birth attendants or herbal remedies due to cultural familiarity, social trust, and perceived effectiveness (Opara et al., 2025). Evidence indicates that maternal health information is more likely to be accepted when delivered in local languages and aligned with prevailing cultural frameworks, while communication that disregards indigenous values may generate resistance and reinforce reliance on non-biomedical care pathways (Obasola & Mabawonku, 2018). In addition, women's perceptions of ICT tools vary according to trust, accessibility, and relevance rather than technological sophistication alone (Obasola & Mabawonku, 2018). Consequently, many digital maternal health programmes lack a gender-equity focus and may exclude hard-to-reach women due to limited device access, digital literacy gaps, and social constraints, potentially worsening existing health inequities (Udenigwe & Yaya, 2022).

In Ebonyi State, maternal mortality continues to pose a serious public health concern despite numerous policy interventions aimed at improving maternal and child health outcomes. Although the state government introduced a free Maternal and Child Health Care Programme in 2003 to address financial barriers to care, many women still experience difficulties in accessing timely and reliable health information due to cultural beliefs and limited use of digital platforms (Uneke et al., 2013). To address these challenges, the Ebonyi State First Lady, Mrs. Mary-Maudline Uzoamaka Nwifuru launched the Better Ebonyi Women and Children (BERWO) Initiative in November 2023, targeting 17,000 women across the state with improved maternal health services (*Vanguard*, 2023, November 19). Although such initiatives demonstrate political commitment to improving maternal health, their effectiveness depends largely on how well health information is communicated and how pregnant women engage with both modern ICT tools and indigenous knowledge systems. There have been researches on the effectiveness of the traditional mass media channels in seeking health information, but none on the use of Indigenous Knowledge system and ICT in seeking information by pregnant women in Ebonyi State. There have been similar study on use of ICT in Uganda and Edo State but none in Ebonyi State which have recorded a high rate of maternal mortality. Against this backdrop, this study investigates the utilisation of Indigenous Knowledge System (IKS) and Information and Communications Technology (ICT) by pregnant women in Ebonyi State for health information.

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RESEARCH QUESTIONS

1. To what extent do pregnant women in Ebonyi State utilise IKS and ICT in accessing maternal and child healthcare information?

2. How effective are IKS and ICT in disseminating information on maternal health awareness in Ebonyi State, Nigeria?

3. What are the preferences of pregnant women in Ebonyi State regarding the use of IKS and ICT platforms for obtaining maternal and child health information?

4. What are the major challenges hindering the effective utilisation of IKS and ICT by pregnant women in accessing maternal and child healthcare services in the state?

LITERATURE REVIEW

ICT, Indigenous Knowledge System, and Maternal and Child Healthcare in Nigeria

Extant literature has established the role of Information and Communications Technology (ICT) in improving maternal and child health (MCH) outcomes, particularly in low- and middle-income countries (Obasola, 2021; Obasola & Mabawonku, 2018; Oyeyemi & Wynn, 2015; Saronga et al., 2019). ICT tools such as mobile phones, radio, television, and internet-based platforms have been shown to enhance access to health information, improve antenatal care attendance, promote skilled birth delivery, and support timely health-seeking behaviour among pregnant women (Jennings et al., 2015; Oyeyemi & Wynn, 2015; Saronga et al., 2019). Empirical evidence from Nigeria demonstrates that mobile phone ownership is positively associated with increased maternal health knowledge and utilisation of formal health services, including antenatal and postnatal care (Jennings et al., 2015; Obasola & Mabawonku, 2018). These findings suggest that ICT serves as an important bridge between healthcare systems and women, particularly by overcoming physical distance and information asymmetry.

However, despite these documented advantages, the effectiveness of ICT-based maternal health interventions remains uneven across contexts. Several studies highlight structural and socioeconomic constraints that limit consistent ICT utilisation, including unreliable electricity supply, high data and airtime costs, poor network coverage, and low levels of digital literacy, especially in rural and underserved communities (Obasola, 2017; Obasola & Mabawonku, 2018; Nwafor & Odoemelam 2012; Okeke et al., 2025). This indicates that access to ICT does not automatically translate into effective use, as women's ability to interpret, trust, and act on digital health messages is shaped by their social environment, education, and lived experiences. Consequently, scholars caution against technologically driven interventions that overlook contextual realities, arguing that ICT-based health communication may reinforce existing inequalities if it fails to account for cultural norms and local knowledge systems (Oyeyemi & Wynn, 2015; Saronga et al., 2019).

Thus, alongside digital health innovations, Indigenous Knowledge System (IKS) continue to play a central role in shaping maternal health practices in Nigeria (Igbokwe et al., 2024; Opara et al., 2025). IKS involves traditional beliefs, norms, values, and practices related to

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pregnancy, childbirth, and postnatal care, often transmitted through family networks, community elders, traditional birth attendants, and herbal practitioners (Igbokwe et al., 2024). Research shows that many women rely on indigenous practices due to cultural familiarity, trust, perceived effectiveness, and accessibility, particularly where formal healthcare services are limited or mistrusted (Opara et al., 2024). In several Nigerian settings, traditional explanations of pregnancy-related complications, spiritual causation of illness, and culturally prescribed care pathways strongly influence decisions about where and when women seek care (Opara et al., 2025). This indicates that maternal health behaviour is not determined solely by biomedical information but is significantly shaped by cultural meaning and social context.

The foregoing indicates that while ICT and IKS are often presented as opposing systems, emerging scholarship suggests that they coexist and interact in complex ways. Obasola (2021) notes that women selectively interpret ICT-delivered health messages through the lens of indigenous beliefs, accepting, modifying, or rejecting information based on cultural compatibility. However, most existing research treats ICT and IKS as separate domains, focusing either on digital health interventions (Ebenso et al., 2021; Jennings et al., 2015; Obasola, 2021; Obasola & Mabawonku, 2018; Oyeyemi & Wynn, 2015; Saronga et al., 2019) or on traditional maternal practices (Opara et al., 2024; 2025; Igbokwe et al., 2024), with limited attention to how pregnant women navigate both simultaneously. The tendency to privilege biomedical and digital knowledge over indigenous perspectives has also been criticised for contributing to resistance, scepticism, or disengagement from formal health messages (Obasola & Mabawonku, 2018; Opara et al., 2024).

Although substantial studies have demonstrated the independent roles of ICT and IKS in maternal healthcare (Ebenso et al., 2021; Igbokwe et al., 2024; Jennings et al., 2015; Obasola, 2021; Obasola & Mabawonku, 2018; Opara et al., 2024; 2025; Oyeyemi & Wynn, 2015; Saronga et al., 2019), there remains a significant gap in the literature regarding their combined utilisation. There is limited empirical evidence on how pregnant women integrate ICT-based information with indigenous knowledge in making maternal health decisions, particularly within specific sociocultural contexts such as Ebonyi State. Little is known about the patterns, complementarities, tensions, and challenges associated with using both systems concurrently. This study seeks to address this gap by examining how pregnant women in Ebonyi State simultaneously utilise ICT and IKS to access maternal and child health information, with a view to identifying the factors that hinder the effective integration of both knowledge sources in health decision-making.

THEORETICAL FRAMEWORK

Health Belief Model

This study is anchored on the Health Belief Model (HBM) introduced by Rosenstock (1966) and later expanded by Becker (1974). This model explains health-related behaviours by focusing on individuals' perceptions of risk, benefits, barriers, and self-efficacy (Carpenter, 2010; Jones et al., 2014; Rosenstock, 1974). Its relevance to this study lies in the idea that pregnant women are more likely to use Indigenous Knowledge System (IKS) and Information and Communications Technology (ICT) for maternal healthcare if they perceive themselves as susceptible to complications, believe that preventive actions (such as seeking information) will reduce risks, and have confidence in their ability to act. The Health Belief Model,

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therefore, provides a useful framework for understanding how perceptions influence the adoption, preferences, and utilisation of IKS and ICT among pregnant women in Ebonyi State.

Diffusion of Innovation theory.

Diffusion of Innovation theory was propounded by Everett Rogers in 1962. It explains how new ideas, technologies, or behavior spread through a social system over time. With the digititilization of the heath sector, the use of ICT have been adopted for dissemination of information and rapid sharing of ideas. Knowledge, persuasion, decision making and implementation are gradually influenced by Indigenous knowledge and ubiquitous nature of ICT. New ideas are popularised, pregnant women are made to adopt new behaviours and also to make certain decisions to improve maternal health.

METHODOLOGY

This study adopted a mixed-method research design, combining survey and Focus Group Discussions (FGDs) to provide a thorough understanding of how pregnant women in Ebonyi State utilise IKS and ICT in accessing maternal and child healthcare. This approach was considered appropriate because it enabled the integration of quantitative data on patterns and frequency of ICT and IKS utilisation with qualitative insights into women's lived experiences, beliefs, and perceptions. By employing both surveys and FGDs, the study captures a wider scope of information while allowing for in-depth exploration of contextual factors influencing health-seeking behaviours. This combination of methods enhances the breadth and depth of understanding and strengthens the validity of the findings through methodological triangulation (Creswell & Plano Clark, 2018; Ivankova & Plano Clark, 2016; Plano Clark, 2017).

The study population comprised pregnant women residing in Ebonyi State, Nigeria, estimated at approximately 120,000 in 2025. This estimate was derived from the National Bureau of Statistics (2022) projection of 1,244,671 women of reproductive age (15–49 years) and a fertility rate of 4.5 births per woman. The sample size for the survey was **383**, calculated using an online sample size calculator at a 95% confidence level and a 5% margin of error, ensuring representativeness of the target population (Calculator.net, n.d.).

Sample Size Calculator

Find Out The Sample Size

This calculator computes the minimum number of necessary samples to meet the desired statistical constraints.

Result

Sample size: 383

This means 383 or more measurements/surveys are needed to have a confidence level of 95% that the real value is within ±5% of the measured/surveyed value.

Confidence Level: 95%
Margin of Error: 5 %
Population Proportion: 50 % Use 50% if not sure
Population Size: 120000 Leave blank if unlimited population size.
Calculate Clear

Source: Calculator.net (n.d).

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A multistage sampling technique was employed to ensure broad geographic coverage and enhance the representativeness of the study population across Ebonyi State. Multistage sampling is particularly appropriate for studies conducted over large and heterogeneous populations, as it allows for systematic selection across administrative and spatial units while reducing logistical constraints and sampling bias (Creswell & Creswell, 2017). Accordingly, the three senatorial zones of Ebonyi State (Ebonyi North, Ebonyi Central, and Ebonyi South) were first considered to capture zonal variations in maternal health experiences. One Local Government Area (LGA) was then randomly selected from each zone to ensure impartiality and minimise selection bias (Kothari, 2004). Within each selected LGA, communities were randomly chosen, after which eligible pregnant women were selected using systematic or simple random sampling from antenatal clinic registers or community listings. This probabilistic approach enhances the validity and generalisability of the findings by giving all eligible participants an equal chance of selection (Bryman, 2016).

Table 1: Distribution of Sample Size across Selected LGAs and Communities in Ebonyi State (n = 383)

Senatorial Zone	Selected LGA	Selected Communities	Number Selected per Community	Total per LGA
Ebonyi North	Abakaliki	Kpirikpiri	43	128
		Azuiyiokwu	42	
		Amachi	43	
Ebonyi Central	Ezza North	Umuoghara	42	127
		Inyimagu	43	
		Okposi Umuoghara	42	
Ebonyi South	Afikpo North	Ozizza	43	128
		Unwana	42	
		Amogu Akpoha	43	
Total	3 LGAs	9 Communities	383	383

For the Focus Group Discussions (FGDs), purposive sampling was adopted to allow for the selection of pregnant women with diverse socio-demographic characteristics and experiences relevant to the study objectives. Purposive sampling is widely recommended in qualitative research where the aim is to gain in-depth insights into participants' lived experiences, beliefs, and perceptions rather than statistical representation (Patton, 2014). Three FGDs, each comprising 6–10 participants, were conducted across the selected LGAs, with the results analysed and presented thematically (Braun & Clarke, 2006). This group size is considered optimal for facilitating interaction while allowing participants sufficient opportunity to express their views (Krueger, 2014). The use of FGDs enabled a deeper exploration of how pregnant women interpret and navigate ICT-based information alongside Indigenous Knowledge Systems within their sociocultural contexts.

Structured questionnaire was administered to the respondents for the survey to determine usage patterns, frequency, preferences and challenges of IKS and ICT. Out of the 383 copies of the questionnaire distributed, only 369 were returned and considered valid for analysis, leaving a mortality rate of 3.7%.The quantitative data were analysed using SPSS version 20, with the results presented in frequencies and percentages. Qualitative FGD transcripts were

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thematically analysed to identify recurring themes and relationships. Ethical considerations (informed consent, confidentiality, voluntary participation) were strictly observed.

DATA ANALYSIS AND PRESENTATION

Results from the survey:

Table 2: Utilisation of IKS and ICT for Maternal and Child Healthcare Information

	Frequency	Percent	Valid Percent	Cumulative Percent
IKS only	118	32.0	32.0	32.0
ICT only	64	17.4	17.4	49.4
Both IKS and ICT	152	41.2	41.2	90.6
Neither	35	9.5	9.5	100.0

Table 2 shows how pregnant women in Ebonyi State utilised IKS and ICT for maternal and child healthcare information. Result from the table indicates that 41.2% of the respondents reported using both IKS and ICT concurrently, indicating that many women integrate traditional and digital sources when making health decisions. 32% of them relied solely on IKS, while 17.4% used only ICT, demonstrating the continued importance of indigenous practices alongside modern digital tools. However, a smaller proportion (9.5%) reported using neither source, suggesting that a minority of women may lack access to reliable maternal health information. These findings indicate that combining ICT with IKS is the dominant strategy for accessing maternal and child healthcare knowledge among women in Ebonyi State.

Table 3: Frequency of use of IKS and ICT for maternal and child health communication

	Frequency	Percent	Valid Percent	Cumulative Percent
Daily	79	21.4	21.4	21.4
Weekly	125	33.9	33.9	55.3
Occasionally	135	36.6	36.6	91.9
Rarely	30	8.1	8.1	100.0

Table 3 shows that the use of IKS and ICT for maternal and child health communication in Ebonyi State is fairly regular among respondents. A majority of the women reported using these sources either occasionally (36.6%) or weekly (33.9%), indicating sustained but non-daily engagement for most participants. 21.4% of respondents use IKS and ICT daily, suggesting a smaller group with high dependence on these communication channels. However, only 8.1% use them rarely, implying that limited engagement is relatively uncommon. The findings indicate that most pregnant women in Ebonyi State actively rely on IKS and ICT for maternal and child health information, though the intensity of use varies.

Table 4: Effectiveness of IKS and ICT in disseminating information on BERWO Initiative and promoting maternal health awareness

	Frequency	Percent	Valid Percent	Cumulative Percent
Very Effective	128	34.7	34.7	34.7
Effective	140	38.0	38.0	72.7
Fairly Effective	56	15.2	15.2	87.9
Not Effective	45	12.1	12.1	100.0

Table 4 indicates that IKS and ICT are largely perceived as effective in disseminating information on the BERWO initiative and promoting maternal health awareness among pregnant women in Ebonyi State. A substantial proportion of respondents rated these channels as effective (38%) or very effective (34.7%), giving a combined 72.7% positive assessment. Meanwhile, 15.2% considered them fairly effective, suggesting moderate impact. Only 12.1% perceived IKS and ICT as not effective, indicating relatively limited dissatisfaction. These findings suggest that IKS and ICT play a significant role in enhancing awareness of maternal health initiatives among pregnant women in the state.

Table 5: Preferences for IKS and ICT platforms

	Frequency	Percent	Valid Percent	Cumulative Percent
Indigenous birth attendants (IKS)	94	25.5	25.5	25.5
Community elders/traditional healers (IKS)	47	12.7	12.7	38.2
Mobile phone (ICT)	101	27.4	27.4	65.6
Radio/TV (ICT)	82	22.2	22.2	87.8
Internet/social media (ICT)	45	12.2	12.2	100.0

Table 5 shows respondents' preferences for different IKS and ICT platforms used for maternal and child health communication. Mobile phones were the most preferred platform, accounting for 27.4% of responses, followed by indigenous birth attendants at 25.5%. Radio and television were also widely preferred (22.2%), reflecting their continued relevance in health communication. However, community elders and traditional healers (12.7%) and internet/social media (12.2%) were less preferred. The findings suggest that pregnant women value a combination of both ICT-based platforms and trusted indigenous sources, indicating the complementary roles of modern and traditional communication channels in maternal health information dissemination.

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Table 6: Challenges hindering effective utilisation of IKS and ICT

	Frequency	Percent	Valid Percent	Cumulative Percent
Poor network and internet access	103	27.9	27.9	27.9
High cost of mobile data/airtime	86	23.3	23.3	51.2
Low digital literacy	71	19.2	19.2	70.4
Cultural beliefs and misconceptions	59	16.0	16.0	86.4
Unreliable power supply	50	13.6	13.6	100.0

Table 6 outlines the key challenges hindering the effective utilisation of Indigenous Knowledge Systems and ICT for maternal and child health communication. Poor network and internet access constituted the most significant challenge, reported by 27.9% of respondents, indicating infrastructural limitations within the study context. This was followed by the high cost of mobile data and airtime (23.3%), which constrains regular access to ICT-based health information. Low digital literacy also posed a notable barrier (19.2%), indicating difficulties in navigating and interpreting digital health content. In addition, cultural beliefs and misconceptions (16%) continued to influence women's acceptance and use of health information, while unreliable power supply (13.6%) further limited consistent ICT usage. These findings show that technological, economic, and socio-cultural constraints significantly affect the effective use of IKS and ICT in maternal health communication.

Results from the FGDs:

Analysis of the Focus Group Discussions further revealed three key themes relating to pregnant women's use of IKS and ICT for maternal and child health information in Ebonyi State: (1) trust and cultural relevance of indigenous sources, (2) accessibility and timeliness of ICT-based information, and (3) complementary use of IKS and ICT in maternal and child health decision-making.

1. Trust and cultural relevance of Indigenous Knowledge Systems

Participants consistently expressed strong trust in indigenous sources of maternal health information, particularly traditional birth attendants, elderly women, and community elders. These sources were perceived as culturally grounded, experienced, and sensitive to local beliefs and practices surrounding pregnancy and childbirth. Many participants felt more comfortable discussing pregnancy-related concerns with individuals who shared their cultural background and understood community norms.

One participant stated:

"The traditional birth attendant understands our customs and explains pregnancy issues in a way that makes sense to us." (FGD 1, Participant 5)

Another participant noted that indigenous sources were often consulted first, especially when pregnancy-related symptoms were interpreted within cultural or spiritual frameworks:

"When something feels wrong, I first talk to the elderly women or the birth attendant(s) because they have experience and know what our people believe." (FGD 3, Participant 2)

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2. Accessibility and timeliness of ICT-based health information

Participants also highlighted the importance of ICT tools, particularly mobile phones and radio, in providing quick and convenient access to maternal health information. ICT platforms were valued for enabling communication with healthcare providers, receiving reminders, and accessing health education messages without the need to travel long distances to health facilities.

A participant explained:

"Sometimes I use my phone to call the nurse or listen to radio programmes so I can know what the hospital is saying." (FGD 2, Participant 4)

Radio programmes were frequently mentioned as accessible sources of health education, especially for women with limited literacy or internet access. Mobile phones were seen as useful for seeking clarification and confirming information obtained from other sources.

3. Complementary use of IKS and ICT in maternal and child health decision-making

Rather than viewing IKS and ICT as competing sources, participants described using both systems together when making maternal and child health decisions. Indigenous knowledge was often relied upon for culturally meaningful guidance, while ICT-based information was used to verify advice or obtain biomedical perspectives.

One participant noted that:

"After hearing advice from the birth attendant, I still listen to health talks on the radio to be sure I am doing the right thing." (FGD 1, Participant 7).

This pattern reflects a pragmatic approach in which pregnant women selectively draw on multiple information sources based on trust, relevance, and perceived usefulness. The findings indicate that maternal and child health information-seeking practices among pregnant women in Ebonyi State are shaped by the coexistence of indigenous and digital knowledge systems. The findings support the quantitative data by confirming that combining IKS and ICT enhances maternal health awareness and decision-making, despite challenges like poor network connectivity, cost, and limited digital literacy.

DISCUSSION

Consistent with the literature, the results confirm that maternal health information-seeking behaviour among women in Nigeria is shaped by both digital and culturally grounded sources rather than reliance on a single system (Obasola, 2021; Obasola & Mabawonku, 2018; Opara et al., 2024). The study demonstrates that pregnant women actively draw from both systems to inform their health decisions, reflecting the continued relevance of indigenous knowledge alongside growing access to ICT-based health communication.

The study further reveals that a majority of respondents perceived IKS and ICT as effective in disseminating information in promoting maternal health awareness among pregnant women in Ebonyi State. This finding aligns with the position that ICT can improve awareness of maternal health programmes when communication channels are accessible and trusted (Obasola, 2021; Saronga et al., 2019). The study shows that indigenous birth attendants and community elders remain important sources, alongside ICT tools such as mobile phones and

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radio. This finding is in consonance with earlier studies which emphasize that traditional birth attendants and elders continue to play a major role in maternal healthcare decisions due to cultural trust, accessibility, and shared worldviews (Opara et al., 2024; Igbokwe et al., 2024). At the same time, the strong preference for mobile phones supports evidence that mobile technology has become a central channel for maternal health communication in Nigeria, particularly for receiving reminders, health tips, and updates (Jennings et al., 2015; Obasola & Mabawonku, 2018).

The qualitative findings from the FGDs strengthen understanding of this pattern by showing how pregnant women in Ebonyi State negotiate advice from multiple sources. Participants reported valuing traditional birth attendants and elders for guidance that reflects cultural norms, while also relying on ICT tools to confirm information or seek clarification from health professionals. This supports the view of scholars that maternal health behaviour in Nigeria is shaped by social relationships and cultural meaning, not solely by biomedical knowledge (Opara et al., 2024; Igbokwe et al., 2024). The FGDs demonstrate that women exercise agency in deciding which information to follow, rather than passively accepting advice from any single source.

The challenges identified in the study further explain uneven utilisation of ICT and IKS. Poor network access, high data and airtime costs, low digital literacy, unreliable power supply, and cultural misconceptions were all reported as barriers. These findings closely mirror those reported in previous studies, which highlight infrastructural and socioeconomic constraints as major limitations to ICT-based maternal health communication in Nigeria (Obasola, 2017; Obasola & Mabawonku, 2018). The persistence of these barriers suggests that ICT interventions alone cannot resolve information gaps without broader improvements in infrastructure and digital inclusion.

The consistency between quantitative and qualitative findings in this study strengthens the credibility of the results and supports the value of mixed methods in health communication and social science research (Creswell & Plano Clark, 2018; Ivankova & Plano Clark, 2016). The findings show that patterns of use observed in the survey are grounded in women's lived experiences, beliefs, and practical realities. This study, therefore, addresses a key gap identified in the literature by examining the combined use of ICT and IKS rather than treating them separately as found in previous studies (Jennings et al., 2015; Obasola & Mabawonku, 2018; Opara et al., 2024). It demonstrates that pregnant women routinely draw on both systems in making health decisions, indicating the need for maternal health communication approaches that recognise this reality and support informed decision-making through respectful integration of both knowledge sources.

CONCLUSION

Based on the findings, the study concludes that IkS and ICT are not competitive sources of health information but each have unique attributes and should be judiciously used in the digital era to seek more information on health related issues so as to help reduce maternal mortality.

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RECOMMENDATIONS

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

1. Maternal health communication programmes in Ebonyi State should adopt an integrated approach that combines ICT-based platforms with Indigenous Knowledge System, ensuring that health messages are culturally appropriate and aligned with local beliefs and practices.

2. Government and health stakeholders should strengthen ICT infrastructure in rural and semi-urban areas of Ebonyi State by improving network coverage, ensuring more reliable electricity supply, and reducing the cost of mobile data to enhance sustained access to maternal health information.

3. Targeted digital literacy initiatives should be introduced for pregnant women, particularly those with limited formal education, to improve their ability to access, understand, and use ICT-based maternal and child health information effectively.

4. Traditional birth attendants, community elders, and other custodians of indigenous knowledge should be actively engaged and trained as partners in maternal health communication to support accurate information sharing and timely referral to formal healthcare services.

5. Maternal and child health programmes should prioritise the use of trusted and accessible communication channels, such as mobile phones and radio, while delivering messages in local languages and familiar contexts to improve comprehension, acceptance, and utilisation of health information among pregnant women.

Ethical clearance
Ethical consent was sought and obtained from the participants used in this study. They were made to understand that the exercise was purely for academic purposes, and their participation was voluntary.

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Conflict of Interest
The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Authors' Contributions
Chime-Nganya C.R and Ezema V. O conceived the study, including the design, so and so collated the data, and so and so handled the analysis and interpretation, while so and so the initial manuscript. All authors have critically reviewed and approved the final draft, and are responsible for the content and similarity index of the manuscript.

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The datasets on which conclusions were made for this study are available on reasonable request.

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REFERENCES

Adejoorin, M. V., Salman, K. K., Adenegan, K. O., Obi-Egbedi, O., Dairo, M. D., & Omotayo, A. O. (2024). Utilization of maternal health facilities and rural women's well-being: towards the attainment of sustainable development goals. *Health Economics Review*, *14*(1), 40. https://doi.org/10.1186/s13561-024-00515-5

Akpobo, E. S. & Nwafor, K. A. (2013). Information Technologies (ICTs), Development, and Crime Prevention and Control in Nigeria. *Benin Mediacom Journal, 6(1), 154-163.*

Alhaji, M.M., Umar, L., Yusuf, M.A., Nyaga, R., Singh, J., Okafor, A., Meyo, F., Shayau, Z.H., Isah, Z.I., Abubakar, M. and Umar, A.I. (2025). Supply and demand barriers to PHC maternal care services uptake: qualitative and behavioural insights from Gombe State, Nigeria. *BMC Pregnancy and Childbirth*, *25*(1), 939. https://doi.org/10.1186/s12884-025-08071-4

Anibueze, S. & Nwafor K. A. (2011). Level of Awareness and Use of ICTs Among Residents of Abakaliki Metropolis of Ebonyi State. *Journal of Media Studies, ESUTH, III (1),* 55-65

Batist, J. (2019). An intersectional analysis of maternal mortality in Sub-Saharan Africa: a human rights issue. *Journal of Global Health*, *9*(1), 010320.

Becker, M. H. (1974). The health belief model and sick role behavior. *Health Education Monographs*, *2*(4), 409-419. https://doi.org/10.1177/109019817400200407

Bolarinwa, O. A., Ameen, H. A., Durowade, K. A., & Akande, T. M. (2014). Mapping knowledge management resources of maternal, newborn and child health (MNCH) among people living in rural and urban settings of Ilorin, Nigeria. *Pan African Medical Journal*, *17*(1).

Bolarinwa, O., Tadokera, R., & Tiwari, R. (2025). A policy brief on improving reproductive and maternity services utilisation among women of reproductive age in Nigeria. *Frontiers in Global Women's Health*, *6*, 1608774.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101.

International Journal of Sub-Saharan African Research (IJSSAR)
Vol. 4, Issue 1, pp. 224-240, March 2026, ISSN: 3043-4467 (Online), 3043-4459 (Print)
doi:10.5281/zenodo.19202439

Bryman, A. (2016). *Social research methods*. Oxford University Press. Calculator.net (n.d.). Sample size calculator. https://www.calculator.net/sample-size-calculator.html?type=1&cl=95&ci=5&pp=50&ps=120%2C000&x=Calculate

Carpenter, C. J. (2010). A Meta-Analysis of the Effectiveness of Health Belief Model Variables in Predicting Behavior. *Health Communication, 25*(8), 661–669. https://doi.org/10.1080/10410236.2010.521906

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

Ebenso, B., Okusanya, B., Okunade, K., Akeju, D., Ajepe, A., Akaba, G.O., Yalma, R.M., Dirisu, O., Tukur, J., Abdullahi, M.K., & Okuzu, O. (2021). What are the contextual enablers and impacts of using digital technology to extend maternal and child health services to rural areas? Findings of a qualitative study from Nigeria. *Frontiers in Global Women's Health*, *2*, 670494. https://doi.org/10.3389/fgwh.2021.670494

Igbokwe, C. C., Ihongo, J. T., Abugu, L. I., Iweama, C. N., Ugbelu, J. E., Iweama, C., & Ugbelu Sr, J. E. (2024). Influence of cultural beliefs on the utilization of integrated maternal, newborn, and child health services in Benue State, Nigeria. *Cureus*, *16*(1).

Ivankova, N. V., & Plano Clark, V. L. (2016). *Mixed methods research: A guide to the field.* SAGE Publications.

Jennings, L., Omoni, A., Akerele, A., Ibrahim, Y., & Ekanem, E. (2015). Disparities in mobile phone access and maternal health service utilization in Nigeria: a population-based survey. *International journal of medical informatics*, *84*(5), 341–348. https://doi.org/10.1016/j.ijmedinf.2015.01.016

Jones, C. L., Jensen, J. D., Scherr, C. L., Brown, N. R., Christy, K., & Weaver, J. (2014). The Health Belief Model as an Explanatory Framework in Communication Research: Exploring Parallel, Serial, and Moderated Mediation. *Health Communication, 30*(6), 566–576. https://doi.org/10.1080/10410236.2013.873363

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.

Krueger, R. A. (2014). *Focus groups: A practical guide for applied research*. SAGE Publications.

Mramba, B. P. & Kaijage, S. F. (2018). Design of an interactive mobile application for maternal, neonatal and infant care support for Tanzania. *Journal of Software Engineering, 11*, 569–584.

Vol. 4, Issue 1, pp. 224-240, March 2026, ISSN: 3043-4467 (Online), 3043-4459 (Print)
doi:10.5281/zenodo.19202439

National Bureau of Statistics (2022). Statistical report on women and men in Nigeria 2022. https://www.nigerianstat.gov.ng/pdfuploads/2022_Statistical_Report%20on%20Women%20and%20Men_%20in%20Nigeria.pdf

Nwafor, K. A., & Odoemelam, C. C. (2012). An Appraisal of the Knowledge of ICTs among Residents of Nsukka Urban of Enugu State and Abakaliki Capital of Ebonyi State. *Journal of Contemporary Communication, 1(1),* 190-197.

Obasola, O. (2021). Experiences of health care providers using Information and Communications Technology for maternal and child health care in selected health facilities in Nigeria. *Library Philosophy and Practice*, 1-22.

Obasola, O. I. (2017). *Mothers'perceived health worker information and communication technology use and disseminated information on maternal health practices in Nigeria* (Doctoral dissertation, University of Ilorin).

Obasola, O. I., & Mabawonku, I. M. (2017). Women's use of information and communication technology in accessing maternal and child health information in Nigeria. *African Journal of Library, Archives and Information Science*, *27*(1), 1-15.

Obasola, O. I., & Mabawonku, I. M. (2018). Mothers' perception of maternal and child health information disseminated via different modes of ICT in Nigeria. *Health Information and Libraries Journal*, *35*(4), 309–318. https://doi.org/10.1111/hir.12235

Okeke, E. B., Forman, D., Taylor, E., Hyde, E., Parente, F., Kanmodi, K. K., & Wordsworth, S. (2025). Barriers and facilitators to digital health adoption: a thematic analysis of healthcare professionals' perspectives in rural Oyo State, Nigeria. *BMC Digital Health*, *3*(1), 85. https://doi.org/10.1186/s44247-025-00227-8

Okoli, C., Hajizadeh, M., Rahman, M. M., & Khanam, R. (2020). Geographical and socioeconomic inequalities in the utilization of maternal healthcare services in Nigeria: 2003-2017. *BMC Health Services Research*, *20*(1), 849. https://doi.org/10.1186/s12913-020-05700-w

Opara, U. C., Iheanacho, P. N., & Petrucka, P. (2024). Cultural and religious structures influencing the use of maternal health services in Nigeria: a focused ethnographic research. *Reproductive Health*, *21*(1), 188. https://doi.org/10.1186/s12978-024-01933-8

Opara, U. C., Iheanacho, P. N., & Petrucka, P. (2025). Visible and invisible cultural patterns influencing women's use of maternal health services among Igala women in Nigeria: a focused ethnographic study. *BMC Public Health*, *25*(1), 133. https://doi.org/10.1186/s12889-025-21275-9

Oyeyemi, S. O., & Wynn, R. (2015). The use of cell phones and radio communication systems to reduce delays in getting help for pregnant women in low-and middle-income countries: a scoping review. *Global Health Action*, *8*(1), 28887.

Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. SAGE Publications.

Plano Clark, V. L. (2017). Mixed methods research. *The Journal of Positive Psychology*, *12*(3), 305-306.

Rosenstock, I. M. (1966). Why people use health services. *The Milbank Memorial Fund Quarterly, 44*(3), 94–127. https://doi.org/10.2307/3348967

Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, *2*(4), 328-335. https://doi.org/10.1177/109019817400200403

Saronga, N. J., Burrows, T., Collins, C. E., Ashman, A. M., & Rollo, M. E. (2019). mHealth interventions targeting pregnancy intakes in low and lower- middle income countries: systematic review. *Maternal & Child Nutrition*, *15*(2), e12777.

Udenigwe, O., & Yaya, S. (2022). Leaving no woman or girl behind? Inclusion and participation in digital maternal health programs in sub-Saharan Africa. *Reproductive Health*, *19*(1), 54. https://doi.org/10.1186/s12978-022-01358-1

Uneke, C. J., Ndukwe, C. D., Ezeoha, A. A. & Urochukwu, H. (2013). Improvement of Government's Free Maternal and Child Health Care Programme using Community-Based Participatory Interventions in Ebonyi State Nigeria. An Evidence-Based Policy Brief. https://s3-eu-west-1.amazonaws.com/s3.sourceafrica.net/documents/120145/FMCHCPPOLICYBRIEFEBONYI.pdf

Vanguard (2023, November 19). Ebonyi irst Lady to build GBV centre, inaugurates pet project. https://www.vanguardngr.com/2023/11/ebonyi-first-lady-to-build-gbv-centre-inaugurates-pet-project/

World Health Organisation (2019). WHO Fact sheet 2019. https://www.who.int/news-room/fact-sheets/detail/maternal-mortality