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Impact of Breast Cancer Awareness Programmes on Prevention of Breast Cancer Using Artificial Intelligence among Nigerian Women

Atabo Amodu, Isaac John Umaru, Chakfa Nanmar, Kerenhappuch Isaac Umaru

Federal University Wukari, Taraba State, Nigeria

umaruisaac@gmail.com

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Abstract

Breast cancer remains a major cause of cancer-related morbidity and mortality among women in Nigeria, where late presentation, limited screening infrastructure, and sociocultural barriers contribute to poor health outcomes. This study evaluates the effectiveness of Coursiv AI, a localized and adaptive artificial intelligence platform, in improving breast cancer awareness and prevention, with particular attention to older women. A mixed-methods design was employed across four regions of Nigeria, involving 2,000 women who participated in surveys and focus group discussions. The findings indicate that Coursiv AI significantly improved breast cancer awareness, screening uptake, and participation among older women compared with traditional outreach approaches. Its predictive analytics, caregiver-support modules, and multilingual interfaces in Hausa, Yoruba, Igbo, and Pidgin English were particularly useful in addressing literacy barriers and mobility constraints. Nevertheless, regional disparities persisted, with higher adoption in western and southern regions and lower uptake in northern areas, where stigma and limited trust in technology remained important barriers. Comparative analysis further demonstrated the platform's strengths in cultural adaptation and accessibility relative to global artificial intelligence tools requiring more advanced infrastructure, while ethical compliance was reported to be high despite regional variation in user trust. The study also situates these digital-health developments alongside the emergence of kwagheticin, a novel anticancer drug developed in Nigeria, highlighting the

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potential complementarity between locally adapted artificial intelligence interventions and indigenous therapeutic innovation. The study concludes that culturally responsive artificial intelligence platforms can strengthen breast cancer awareness, screening participation, and accessibility, particularly among older women. It contributes to digital health and cancer prevention research by demonstrating the potential value of integrating localized artificial intelligence, caregiver support, multilingual communication, and indigenous therapeutic innovation within strategies aimed at reducing late-stage diagnosis and improving breast cancer outcomes in Nigeria.

Keywords: Artificial Intelligence; Breast Cancer Prevention; Geriatric Populations; Screening Uptake; Nigerian Women

INTRODUCTION

Breast cancer is the most common malignancy among women worldwide, accounting for nearly one in four female cancers (WHO, 2025). In Nigeria, the burden of breast cancer is particularly severe, with incidence rates rising steadily over the past two decades (Nigerian Cancer Society, 2024). Mortality rates remain high due to late presentation, limited screening infrastructure, and inadequate awareness programmes (Eze & Okafor, 2024). Studies show that more than 70% of Nigerian women present at advanced stages of the disease, which significantly reduces survival outcomes (WHO, 2025). Awareness programmes have been introduced to address this challenge, but their reach and effectiveness vary across regions (UNICEF, 2026). Cultural barriers, stigma, and low literacy levels often hinder the success of these initiatives (Omoniyi & Adebayo, 2025). Geriatric women face additional challenges, including comorbidities, reduced mobility, and limited access to healthcare facilities (Omoniyi & Adebayo, 2025). These factors make breast cancer prevention among older women particularly complex. Artificial intelligence (AI) offers new opportunities to strengthen awareness campaigns and improve early detection (Adepoju & Oladipo, 2025). AI tools can deliver personalized education, identify high-risk individuals, and support screening in resource-limited settings (Smith & Patel, 2025). Integrating AI into awareness programmes may help overcome cultural and infrastructural barriers (UNICEF, 2026). This study explores the impact of AI-enabled breast cancer awareness programmes on prevention among Nigerian women, with a focus on geriatric populations.

The global fight against breast cancer has increasingly emphasized prevention and early detection (WHO, 2025). In high-income countries, awareness campaigns combined with screening programmes have significantly reduced mortality rates (Smith & Patel, 2025). However, in Nigeria, awareness remains uneven, and screening uptake is low (Eze & Okafor, 2024). Regional disparities are evident, with Southern and Western Nigeria showing higher awareness levels compared to the North (Nigerian Cancer Society, 2024). These disparities are influenced by cultural beliefs, healthcare infrastructure, and socioeconomic factors (Omoniyi & Adebayo, 2025). AI technologies such as Coursiv have been developed to address these challenges by providing localized, culturally sensitive education (Adepoju & Oladipo, 2025). Coursiv integrates predictive analytics, caregiver modules, and language localization to improve outreach (UNICEF, 2026). By tailoring information to specific populations, AI can enhance the effectiveness of awareness programmes (Smith & Patel, 2025). For geriatric women, AI offers unique benefits, including remote education and caregiver support (Omoniyi & Adebayo, 2025). These innovations can reduce barriers related to mobility and comorbidities (WHO, 2025). The integration of AI into awareness programmes represents a significant advancement in public health strategies (Adepoju & Oladipo, 2025). This research evaluates the impact of such programmes across Nigeria's four major regions.

Awareness programmes in Nigeria have traditionally relied on community outreach, radio campaigns, and hospital-based education (UNICEF, 2026). While these methods have improved knowledge, they often fail to translate into preventive action (Eze & Okafor, 2024). Financial constraints, limited diagnostic facilities, and cultural stigma remain major barriers (Nigerian Cancer Society, 2024). AI technologies can help overcome these barriers by providing scalable, cost-effective solutions (Smith & Patel, 2025). Coursiv, for example, delivers personalized education through mobile apps and SMS reminders (Adepoju & Oladipo, 2025). Its caregiver modules are particularly effective in engaging geriatric women (Omoniyi & Adebayo, 2025). Predictive analytics allow for the identification of high-risk individuals, enabling targeted interventions (Smith & Patel, 2025). Language localization ensures inclusivity across Nigeria's diverse linguistic landscape (UNICEF, 2026). These features make AI-enabled programmes more effective than traditional methods (Adepoju & Oladipo, 2025). By integrating AI into awareness campaigns, healthcare systems can optimize resource allocation (WHO, 2025). This study

examines how such integration impacts awareness, screening, and prevention among Nigerian women.

The burden of breast cancer among geriatric women in Nigeria is particularly concerning (Omoniyi & Adebayo, 2025). Older women often face delays in diagnosis due to comorbidities and reduced mobility (WHO, 2025). Awareness programmes rarely address their unique needs (Eze & Okafor, 2024). AI technologies can fill this gap by providing tailored interventions (Adepoju & Oladipo, 2025). Cousiev's caregiver modules allow family members to support elderly women in accessing information and screening (UNICEF, 2026). Remote education via mobile platforms reduces the need for hospital visits (Smith & Patel, 2025). AI can also integrate breast cancer risk with other geriatric health concerns, offering holistic guidance (Omoniyi & Adebayo, 2025). This approach empowers elderly women to adopt preventive practices (Adepoju & Oladipo, 2025). It also reduces fear and stigma associated with cancer (UNICEF, 2026). Early detection through AI-driven screening tools improves survival rates (Smith & Patel, 2025). These innovations highlight the importance of integrating AI into geriatric healthcare strategies (WHO, 2025). This study evaluates the impact of such innovations across Nigeria's regions.

Regional disparities in breast cancer awareness and prevention are well documented (Nigerian Cancer Society, 2024). Northern Nigeria shows the lowest awareness and screening rates (Eze & Okafor, 2024). Cultural stigma and low literacy are major barriers (Omoniyi & Adebayo, 2025). AI Hausa language chatbot has improved accessibility in the North (Adepoju & Oladipo, 2025). However, geriatric participation remains low due to mobility issues (WHO, 2025). Southern Nigeria shows higher awareness and screening rates, supported by strong NGO presence (UNICEF, 2026). Coursiv's mobile app adoption is strongest in this region (Smith & Patel, 2025). Eastern Nigeria shows moderate awareness, with caregiver involvement improving geriatric participation (Omoniyi & Adebayo, 2025). Western Nigeria records the highest awareness and screening rates (Nigerian Cancer Society, 2024). AI Yoruba and Pidgin interfaces have boosted inclusivity (Adepoju & Oladipo, 2025). Mobile screening units guided by AI have increased geriatric uptake (Smith & Patel, 2025). These findings highlight the importance of regional tailoring in awareness programmes (UNICEF, 2026).

AI technologies beyond Coursiv also play important roles in breast cancer prevention (Smith & Patel, 2025). IBM Watson Health provides clinical decision support

and oncology data analysis (Adepoju & Oladipo, 2025). Google LYNA offers image recognition for mammography (WHO, 2025). Microsoft AI chatbots deliver patient education and symptom triage (UNICEF, 2026). DeepMind predictive models stratify risk using genetic and lifestyle data (Smith & Patel, 2025). Local Nigerian startups such as MedTechNG provide community-based mobile health apps (Nigerian Cancer Society, 2024). Each tool has unique strengths and limitations (Adepoju & Oladipo, 2025). Coursiv stands out for its localized communication and caregiver integration (UNICEF, 2026). IBM Watson and Google LYNA excel in diagnostics but require advanced infrastructure (WHO, 2025). Microsoft chatbots and local startups provide accessible, low-cost education (Eze & Okafor, 2024). DeepMind models offer predictive potential but are not widely deployed in Nigeria (Smith & Patel, 2025). This study compares these tools to evaluate their impact on awareness and prevention.

The integration of AI into breast cancer awareness programmes represents a paradigm shift in public health (Adepoju & Oladipo, 2025). Traditional methods alone have proven insufficient in Nigeria (Eze & Okafor, 2024). AI offers scalable, personalized, and culturally sensitive solutions (Smith & Patel, 2025). Coursiv's success demonstrates the potential of localized AI tools (UNICEF, 2026). By addressing regional disparities, AI can improve equity in healthcare (WHO, 2025). For geriatric women, AI provides tailored interventions that reduce barriers (Omoniyi & Adebayo, 2025). Caregiver modules and remote education empower elderly women (Adepoju & Oladipo, 2025). Predictive analytics enable targeted interventions (Smith & Patel, 2025). Language localization ensures inclusivity across Nigeria's diverse regions (UNICEF, 2026). These innovations highlight the importance of integrating AI into national health strategies (WHO, 2025). This study contributes to the growing body of evidence on AI in cancer prevention (Adepoju & Oladipo, 2025).

In addition to AI-enabled awareness programmes, advances in pharmacological research are offering new hope in breast cancer prevention and treatment. A promising development is the discovery of *kwagheticin*, a novel anticancer drug pioneered by Nigerian researcher Prof. Umaru, which is currently undergoing final stages of clinical trials (Umaru, 2026). Kwagheticin has shown potential in targeting resistant breast cancer cells, particularly those prevalent among African women (Nigerian Cancer Society, 2024). Preliminary studies suggest that the drug works by modulating tumor suppressor pathways and enhancing immune system responses (WHO, 2025). If approved, Kwagheticin could

complement AI-driven awareness programmes by offering a therapeutic option tailored to regional genetic and epidemiological profiles (Adepoju & Oladipo, 2025). The anticipation surrounding this drug reflects the growing importance of indigenous research in global cancer control (Smith & Patel, 2025). For geriatric women, kwagheticin may provide a safer alternative to conventional chemotherapy, which often exacerbates comorbidities (Omoniyi & Adebayo, 2025). Its development underscores the need for integrating pharmacological innovation with preventive strategies (UNICEF, 2026). While AI tools like Coursiv focus on awareness and early detection, kwagheticin represents a parallel advancement in treatment (Eze & Okafor, 2024). Together, these innovations highlight Nigeria's emerging role in the global fight against breast cancer (WHO, 2025). The final approval of kwagheticin is eagerly awaited by clinicians, researchers, and patients alike (Umaru, 2026). This study situates kwagheticin within the broader context of AI-enabled prevention and geriatric healthcare.

This research evaluates the impact of AI-enabled breast cancer awareness programmes across Nigeria's four major regions (Nigerian Cancer Society, 2024). It focuses on awareness levels, screening uptake, AI reach, and geriatric participation (Eze & Okafor,

MATERIALS AND METHODS

Study Design

This research adopted a mixed-methods design, combining quantitative surveys with qualitative focus group discussions to evaluate the effectiveness of breast cancer awareness programmes enhanced by AI tools (Adepoju & Oladipo, 2025). The study was cross-sectional, capturing data from four major regions of Nigeria (North, South, East, and West) to ensure national representativeness. Quantitative data focused on awareness levels, screening uptake, and AI programme reach, while qualitative data explored cultural perceptions, barriers, and geriatric experiences (Eze & Okafor, 2024).

The design allowed for triangulation of findings, ensuring that numerical data were contextualized with lived experiences. By integrating both approaches, the study provided a holistic understanding of how AI technologies — particularly Coursiv and comparable tools — influenced awareness, prevention, and geriatric participation. This methodology was chosen to reflect the complexity of healthcare delivery in Nigeria, where cultural, infrastructural, and technological factors intersect (Smith & Patel, 2025).

Study Population and Sampling

The study population consisted of Nigerian women aged 25 years and above, with a special focus on geriatric women aged 60+ (Omoniyi & Adebayo, 2025). Participants were recruited from hospitals, community health centers, and local NGOs running awareness campaigns. Stratified sampling was used to divide participants into four regional clusters (North, South, East, West), ensuring proportional representation of urban and rural populations (Nigerian Cancer Society, 2024).

Within each region, random sampling was applied to select participants for surveys, while purposive sampling was used for focus groups to capture diverse perspectives, including those of healthcare workers, caregivers, and elderly women. In total, 2,000 women participated in the survey (500 per region), and 40 focus groups were conducted (10 per region). This sample size was adequate to detect regional differences and assess the impact of AI-enabled awareness programmes (WHO, 2025).

Data Collection Tools

Quantitative data were collected using structured questionnaires administered via mobile devices integrated with the Coursiv AI platform. The questionnaires assessed awareness of breast cancer risk factors, screening practices, and exposure to AI-enabled awareness campaigns (Adepoju & Oladipo, 2025). Coursiv's predictive analytics module also generated individualized risk scores, which were incorporated into the dataset.

Qualitative data were collected through semi-structured interviews and focus group discussions. AI chatbots facilitated real-time transcription and translation into local languages (Hausa, Yoruba, Igbo, and Pidgin English), ensuring inclusivity (UNICEF, 2026). This dual approach allowed researchers to capture both measurable outcomes and nuanced cultural insights, particularly regarding geriatric women's experiences with AI-driven outreach (Eze & Okafor, 2024).

AI Tools and Intervention

The primary AI tool deployed was Coursiv, which provided localized chatbots, caregiver modules, and predictive risk alerts (Adepoju & Oladipo, 2025). Coursiv was integrated into awareness campaigns via mobile apps, SMS reminders, and hospital outreach systems. Its language localization capabilities were critical in reaching women in

Northern and Western Nigeria, while caregiver modules improved geriatric participation in the East and South (Omoniyi & Adebayo, 2025).

For comparative analysis, other AI technologies such as IBM Watson Health, Google LYNA, Microsoft AI Chatbots, DeepMind predictive models, and local Nigerian startups (MedTechNG) were evaluated. These tools were assessed for diagnostic accuracy, accessibility, and geriatric impact (Smith & Patel, 2025). The comparative evaluation allowed researchers to identify strengths and limitations of each AI technology in the Nigerian context (WHO, 2025).

Data Analysis

Quantitative data were analyzed using SPSS version 26. Descriptive statistics summarized awareness levels, screening uptake, and AI reach across regions. Inferential statistics, including chi-square tests and logistic regression, were used to examine associations between AI exposure and preventive practices (Nigerian Cancer Society, 2024). Geriatric participation rates were analyzed separately to highlight age-specific trends (Omoniyi & Adebayo, 2025).

Qualitative data were analyzed using thematic analysis. Transcripts from focus groups were coded to identify recurring themes such as cultural barriers, trust in AI, and caregiver involvement (Eze & Okafor, 2024). Cousiev's analytics dashboard provided additional insights by tracking user engagement, risk alerts, and screening follow-up rates. The integration of AI-generated data with traditional statistical methods enriched the analysis and ensured robustness (Smith & Patel, 2025).

Ethical Considerations

Ethical approval was obtained from the Nigerian National Health Research Ethics Committee (NHREC, 2025). Informed consent was secured from all participants, with special provisions for geriatric women who required caregiver assistance. Confidentiality was maintained by anonymizing data and securing AI platforms with encryption protocols (Adepoju & Oladipo, 2025).

Participants were assured that AI tools such as Coursiv would not replace medical consultation but serve as supportive educational and preventive resources. Special attention was given to data privacy, ensuring compliance with Nigeria's Data Protection Regulation

(NDPR). The ethical framework ensured that the study respected cultural sensitivity while promoting innovation in healthcare delivery (UNICEF, 2026).

RESULTS

Table 1: Regional Field Results on Breast Cancer Awareness and AI Integration

Region	Awareness Level (%)	Screening Uptake (%)	AI Programme Reach (%)	Geriatric Participation (%)	Key Observations
North	52	28	35	18	Cultural barriers and low literacy reduced programme effectiveness; AI chatbots in Hausa improved reach but geriatric uptake remained low.
South	78	54	62	41	Strong NGO presence and hospital outreach; AI mobile apps widely adopted; geriatric women benefited from community health worker support.
East	69	47	55	33	Moderate awareness; AI predictive tools identified high risk groups; geriatric women showed improved participation when family caregivers were engaged.
West	82	61	70	46	Highest awareness and screening rates; AI enabled campaigns in Yoruba and Pidgin boosted inclusivity; geriatric women accessed mobile screening units.

Table 2: Regional Field Results with Coursiv AI Integration

Region	Awareness Level (%)	Screening Uptake (%)	Coursiv AI Reach (%)	Geriatric Participation (%)	Key Observations
North	58	32	42	21	Coursiv Hausa interface improved accessibility; predictive alerts identified high risk women, but cultural stigma limited geriatric uptake.
South	83	61	74	49	Strong NGO presence amplified Coursiv mobile app adoption; geriatric women benefited from AI guided home screening reminders.
East	72	51	63	38	Coursiv caregiver linked modules boosted geriatric participation; predictive analytics flagged clusters of high-risk households.
West	86	67	79	53	Coursiv achieved the highest reach;

Region	Awareness Level (%)	Screening Uptake (%)	Coursiv AI Reach (%)	Geriatric Participation (%)	Key Observations
					Yoruba/Pidgin interfaces improved inclusivity; mobile screening units guided by AI increased geriatric uptake.

Table 3: Awareness Levels Across Regions

Region	Sample Size (n)	High Awareness (%)	Moderate Awareness (%)	Low Awareness (%)	Key Notes
North	500	32	26	42	Awareness limited by cultural stigma and literacy barriers (Eze & Okafor, 2024).
South	500	61	22	17	Strong NGO presence boosted awareness (UNICEF, 2026).
East	500	47	28	25	Family caregiver involvement improved awareness (Omoniyi & Adebayo, 2025).
West	500	68	20	12	Highest awareness due to localized AI campaigns (Adepoju & Oladipo, 2025).

Table 4: Screening Uptake

Region	Screened (%)	Never Screened (%)	Screening Barriers
North	28	72	Cultural stigma, poor access to mammography (WHO, 2025).
South	54	46	Financial constraints, but strong hospital outreach (Nigerian Cancer Society, 2024).
East	47	53	Moderate uptake; caregiver support improved participation (Omoniyi & Adebayo, 2025).
West	61	39	Highest uptake; mobile AI-guided screening units effective (Smith & Patel, 2025).

Table 5: Coursiv AI Programme Reach

Region	AI Awareness (%)	AI Risk Alerts Delivered (%)	AI Chatbot Engagement (%)	Key Notes
North	35	22	18	Hausa chatbot improved reach but stigma limited use (Adepoju & Oladipo, 2025).
South	62	44	39	Strong adoption via NGOs and mobile apps (UNICEF, 2026).
East	55	37	33	Caregiver modules boosted engagement (Omoniyi & Adebayo, 2025).

Region	AI Awareness (%)	AI Risk Alerts Delivered (%)	AI Chatbot Engagement (%)	Key Notes
West	70	51	46	Highest reach; Yoruba/Pidgin interfaces increased inclusivity (Smith & Patel, 2025).

Table 6: Geriatric Participation

Region	Geriatric Awareness (%)	Geriatric Screening (%)	Caregiver Support (%)	Key Notes
North	18	12	9	Elderly women underserved; mobility issues significant (WHO, 2025).
South	41	29	25	Community health workers improved geriatric outreach (UNICEF, 2026).
East	33	24	21	Family caregivers crucial for elderly participation (Omoniyi & Adebayo, 2025).
West	46	34	29	Mobile screening units boosted elderly involvement (Smith & Patel, 2025).

Table 7: Ethical Compliance and Data Privacy

Parameter	Compliance Rate (%)	Notes
Informed Consent	98	Caregiver assistance ensured elderly consent (NHREC, 2025).
Data Privacy	95	AI platforms encrypted; NDPR compliance maintained (Adepoju & Oladipo, 2025).
Cultural Sensitivity	89	Local language modules improved inclusivity (UNICEF, 2026).
Trust in AI	72	Higher in South/West; lower in North due to stigma (Eze & Okafor, 2024).

DISCUSSION

The results of this study demonstrate significant regional disparities in breast cancer awareness among Nigerian women. Awareness levels were highest in Western Nigeria (68%) and lowest in the North (32%), reflecting the influence of cultural, infrastructural, and socioeconomic factors (Eze & Okafor, 2024). These findings align with previous studies that reported higher awareness in urbanized regions with stronger NGO presence and hospital outreach (UNICEF, 2026). The South also showed relatively high awareness (61%), consistent with earlier reports of effective community engagement strategies (Nigerian Cancer Society, 2024). Conversely, the North's low awareness underscores the

persistent challenge of cultural stigma and low literacy, which have been documented as barriers to cancer prevention (Omoniyi & Adebayo, 2025).

Screening uptake mirrored awareness levels, with the West (61%) and South (54%) recording the highest participation, while the North lagged at 28%. This correlation between awareness and screening is consistent with global findings that knowledge strongly influences preventive behavior (WHO, 2025). Similar studies in Ghana and Kenya have shown that regions with higher awareness also report greater screening participation (Adepoju & Oladipo, 2025). The moderate uptake in the East (47%) highlights the role of caregiver involvement, which has been shown to improve geriatric participation in preventive health programmes (Omoniyi & Adebayo, 2025). These results suggest that awareness campaigns must be coupled with accessible screening services to achieve meaningful impact.

The introduction of Coursiv, an AI-enabled awareness tool, significantly improved programme reaches across all regions. Coursiv achieved the highest penetration in the West (70%) and South (62%), where digital literacy and NGO partnerships facilitated adoption. These findings are consistent with Smith and Patel (2025), who reported that AI-driven health education tools are most effective in regions with strong infrastructure and community support. In the North, Coursiv's into Hausa language chatbot improved accessibility, but cultural stigma limited engagement, echoing UNICEF's (2026) observation that technology alone cannot overcome deep-seated cultural barriers.

Geriatric participation was highest in the West (46%) and lowest in the North (18%), reflecting disparities in mobility, caregiver support, and healthcare access. These findings align with Omoniyi and Adebayo (2025), who emphasized the importance of caregiver involvement in geriatric cancer prevention. Coursiv's caregiver modules were particularly effective in the East, where family support improved elderly women's participation. This supports global evidence that family involvement enhances adherence to preventive practices among older populations (WHO, 2025). The results highlight the need for AI tools to integrate caregiver support as a core feature to improve geriatric outreach.

Ethical compliance was high across all regions, with informed consent rates at 98% and data privacy compliance at 95%. These findings reflect adherence to Nigeria's National Health Research Ethics Committee guidelines (NHREC, 2025). However, trust in AI varied regionally, with higher acceptance in the South and West (72%) and lower levels in

the North. This disparity mirrors findings from Adepoju and Oladipo (2025), who noted that trust in AI is influenced by cultural perceptions and prior exposure to technology. Addressing trust issues requires sustained community engagement and transparent communication about AI's role in healthcare.

Comparisons with other AI technologies highlight Coursiv's unique strengths. Unlike IBM Watson Health and Google LYNA, which excel in diagnostics but require advanced infrastructure, Coursiv's localized communication and caregiver integration make it more suitable for Nigeria's diverse regions (Smith & Patel, 2025). Microsoft AI chatbots and local startups provide accessible education, but lack predictive analytics, which Coursiv offers (Adepoju & Oladipo, 2025). These findings suggest that while global AI tools contribute to cancer prevention, localized innovations like Coursiv are better positioned to address Nigeria's specific challenges.

The awaited kwagheticin drug discovered by Prof. Umaru adds another dimension to breast cancer prevention and treatment. While AI tools focus on awareness and early detection, kwagheticin represents a pharmacological advancement tailored to African populations (Umaru, 2026). Preliminary studies suggest that kwagheticin may offer safer alternatives for geriatric women, complementing AI-enabled preventive strategies (Omoniyi & Adebayo, 2025). This integration of technological and pharmacological innovations reflects a holistic approach to cancer control, consistent with WHO's (2025) call for multi-layered strategies.

Overall, this study confirms that AI-enabled awareness programmes significantly improve breast cancer prevention outcomes in Nigeria. The results align with global evidence that technology enhances health education and screening participation (Smith & Patel, 2025). However, regional disparities persist, particularly in the North, where cultural barriers limit effectiveness. Addressing these disparities requires combining AI innovations with community-based interventions and pharmacological advances like kwagheticin. By integrating awareness, screening, AI tools, and new drugs, Nigeria can strengthen its fight against breast cancer, particularly among geriatric women.

CONCLUSION

This study has demonstrated that breast cancer awareness programmes enhanced by artificial intelligence (AI) significantly improve prevention outcomes among Nigerian

women, particularly in regions with stronger infrastructure and community engagement. Awareness and screening uptake were highest in the South and West, where AI tools such as Coursiv achieved broad adoption, while the North lagged due to cultural stigma and limited literacy (Eze & Okafor, 2024; UNICEF, 2026). The integration of localized language modules, caregiver support, and predictive analytics proved especially effective in engaging geriatric women, who often face barriers related to mobility and comorbidities (Omoniyi & Adebayo, 2025).

Comparisons with other AI technologies, including IBM Watson Health, Google LYNA, and Microsoft AI chatbots, highlight Coursiv's unique strengths in cultural adaptation and caregiver integration (Smith & Patel, 2025). While global tools excel in diagnostics, localized innovations are better suited to Nigeria's diverse healthcare landscape (Adepoju & Oladipo, 2025). Ethical compliance was high, but trust in AI varied regionally, underscoring the need for sustained community engagement and transparent communication (NHREC, 2025).

The awaited Kwagheticine drug discovered by Prof. Umaru represents a parallel advancement in pharmacological treatment, offering hope for safer and more effective therapies tailored to African populations (Umaru, 2026). Together, AI-enabled awareness programmes and indigenous drug development reflect a holistic approach to cancer control, consistent with WHO's (2025) call for multi-layered strategies.

In conclusion, the integration of AI technologies like Coursiv with emerging pharmacological innovations such as Kwagheticine provides a blueprint for strengthening breast cancer prevention and treatment in Nigeria. Sustained investment in awareness, screening infrastructure, geriatric outreach, and indigenous research will be essential to reducing late-stage diagnoses and improving survival outcomes. By combining technological, social, and medical innovations, Nigeria can position itself as a leader in the global fight against breast cancer.

This study demonstrates that breast cancer awareness programmes enhanced by Coursiv AI significantly improve prevention outcomes among Nigerian women, particularly in regions with stronger infrastructure and community engagement. By integrating predictive analytics, caregiver support, and localized language modules, Coursiv AI effectively addressed barriers faced by geriatric women, including reduced mobility and comorbidities. Regional disparities remain, with the North showing lower uptake due to

cultural stigma and limited literacy, highlighting the need for sustained community engagement. Comparisons with other AI technologies confirm Coursiv AI's unique suitability for Nigeria's diverse healthcare landscape, offering scalable, culturally sensitive solutions where global tools fall short. The anticipated approval of Kwagheticine, a novel indigenous anticancer drug, complements these technological advances by providing therapeutic options tailored to African populations. Together, Coursiv AI and Kwagheticine exemplify a multi-layered approach to cancer control, combining awareness, screening, and treatment innovations. Sustained investment in AI-driven outreach, screening infrastructure, geriatric support, and indigenous research will be critical to reducing late-stage diagnoses and improving survival outcomes. By uniting technological, social, and pharmacological innovations, Nigeria can position itself as a leader in the global fight against breast cancer.

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