

## **Breast Cancer: Knowledge, Attitude and Practice of OCI CerviBreast App Campaign Message on ABS 88.5 FM, Awka, Among Undergraduate Students of Nnamdi Azikiwe University**

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### **Abstract**

**Background:** Breast cancer remains one of the leading causes of death among women in their productive years worldwide. Despite advances in treatment, prevention continues to be the most effective strategy to reduce mortality rates. Health communication campaigns across various media platforms play a vital role in educating and sensitizing the public on preventive measures. One such campaign is the OCI CerviBreast App Campaign, broadcast on ABS 88.5 FM, Awka. **Objectives:** This study aims to assess the level of awareness, attitude, and practice related to the OCI CerviBreast App campaign message among undergraduate students at Nnamdi Azikiwe University, Awka. Specifically, the research examines students' exposure to the campaign, evaluates their knowledge of breast cancer prevention, and investigates their attitudes and practices regarding the recommended preventive techniques. **Theoretical Framework:** The study is anchored on the Health Belief Model (HBM), which explores individuals' perceptions of health threats and the benefits of preventive actions, and the Digital Generative Multimedia Tool Theory (DGMTT), which emphasizes the role of digital media in health communication. **Method:** A survey research design was employed to gather data from undergraduate students of Nnamdi Azikiwe University. The questionnaire assessed exposure to the campaign message, knowledge of self-breast examination steps, attitudes towards breast cancer prevention, and actual practice of recommended preventive techniques. **Results:** Findings indicate that a significant proportion of students have heard the campaign message on ABS Radio. However, less than half could recall the specific steps for breast self-examination. Additionally, more than half of the students are yet to practice the preventive techniques promoted in the campaign. **Conclusion:** Although the radio campaign effectively raises awareness, there is a gap between awareness and the retention and practice of preventive measures among students. Enhancing engagement and comprehension is essential to translate awareness into actionable practice. **Unique Contribution:** This study uniquely combines the application of the Health Belief Model and the Digital Generative Multimedia Tool Theory to evaluate

the impact of a radio-based health campaign in a university setting, highlighting the need for diverse communication strategies to reach young adults effectively. **Key Recommendations:** It is recommended that a multi-media approach be adopted, leveraging online platforms and social media to reach the predominantly digital-native undergraduate population. Such strategies could improve message retention, understanding, and the adoption of preventive behaviours.

**Keywords:** Breast Cancer, knowledge, Attitude, Practice, Campaign Message



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## INTRODUCTION

Cancer has been a persistent health challenge facing humanity. It is a leading cause of death globally, accounting for nearly 10 million deaths or nearly one in six deaths in 2020 according to WHO (2022). Cancer can affect any part of the human body and the commonest cancers plaguing humans are breast cancer, prostate, colon, lung, cervical, rectum cancer and so on. Despite the concerted efforts in the area of medical and clinical researches seeking for solutions in reducing the burden of cancer of various types; the cause, treatment and permanent cure of cancers of all types remain a huge problem facing humanity. However, cancer of any type is preventable. Cancer can affect anybody of any age, but breast cancer in particular affects more women than men. It is reportedly the commonest malignancy affecting women and the survival rate for women of low-income countries like Nigeria is very low (Neolife, 2018; Ifediora & Azuike, 2019a). Female breast cancer burden globally is reportedly leading with an estimated 2.3 million new cases (11.7%) with the global cancer burden projected to be 28.4 million cases by 2040 (Sung, Ferlay, Siegel, Laversanne, Soerjomataram, Jemal & Bray (2021). The burden of breast cancer among young women of productive age whose well-being is essential in procreation and the perpetuation of human life remains a critical concern for stakeholders in the health and other sectors.

Various cost-effective preventive techniques against breast and other cancers have been promoted through the media of communication against the backdrop of the value of preventive approach for reduction of mortality rate from terminal diseases such as cancer. Some of the preventive techniques are the periodic breast self-examination, BSE, regular screening, and mammograms which help women to check for early signs and symptoms of breast cancer. With the health belief that prevention is better and cheaper than cure, especially when the disease is cancer related, various groups and organizations have tried to educate people on how to take care and charge of their health through health education and promotions using various forms of the mass media, including radio, television, newspapers, magazines, bill boards, bills, posters and social media platforms. The content of such media campaign messages include the nature of the disease, the signs and symptoms, the available treatment regime, as well as the preventive techniques to adopt to minimize the physical and financial stress that accompany such diseases as breast cancer. One of such media campaigns currently running on Anambra Broadcasting Service Radio, 88.5FM, Awka, Anambra State, Nigeria is the Onyebuchi Chris Ifediora, OCI CerviBreast App campaign which is a unique, and innovative mobile application designed for breast and cervical cancer prevention that sends a monthly reminder to the subscribers. It also helps women anywhere to monitor and manage any changes they detect in their breast tissue. This study thus focuses on the undergraduate students of Nnamdi Azikiwe University, UNIZIK, Awka who are exposed to the radio campaign message to assess what they know about breast cancer and how the mobile app has influenced their attitude and practice of the recommended preventive techniques advocated by the OCI CerviBreast App.

## **Statement of problem**

Cancer remains a global killer disease and breast cancer in particular which predominantly affects women is a huge threat to young women of productive age whose life expectancy can be reduced by the malignance. In view of the lack of a wholesome cure for breast cancer, especially when presented late due to ignorance or lack of information, which according to becomes expedient to increase the awareness and sensitization of young women through health education campaigns using the mass media, especially radio that transcends the barriers of language and location. This means that closing the gap of lack of information on preventive techniques about breast cancer can help to allay the fear that normally grips people about the mere thought of the disease and the diagnosis of breast cancer for young women.

It is the concern about the prevailing burden of breast cancer that can affect young women of productive age that motivated the researchers to undertake this study so as to assess the health behavior of the young undergraduate students who are exposed to the campaign message on radio.

## **Research objectives**

The general objective of this study is to ascertain the influence of the OCI CerviBreast App campaign message on ABS Radio, Awka among the undergraduate students of UNIZIK, Awka. The following specific objectives also guide the study:

1. To assess the knowledge of the students on breast cancer and the OCI CerviBreast App.
2. To ascertain the attitude of the students towards the OCI CerviBreast App.
3. To examine their adoption and practice of the preventive measures proposed in the OCI CerviBreast App.

## **Literature review**

### **Overview of breast cancer**

Cancer can affect different people in different ways, but the female gender by their nature is at a greater risk of developing breast cancer more than the male, largely due to the unique hormones- estrogen and progesterone found only in the female gender. Only just about a paltry 0.5-1% of men suffer breast cancer (WHO, 2023). The human breast is made up of three main parts; the lobules, ducts, and connective tissue. While the lobules are the glands that produce milk; the ducts are the tubes that convey milk to the nipples; and the connective tissue consist fibrous and fatty tissue that holds the breast contents together. Any part of the breast can be attacked by cancer which occurs when the cells in the breast grows uncontrollably. Breast cancer is a disease that occurs when abnormal breast cells grow out of control and form tumours that subsequently become cancerous. Breast cancer is a global health issue which caused 685,000 deaths globally in 2020 (WHO, 2023). Breast cancer is one of the world's most prevalent cancers. It is the second leading cause of cancer deaths among women after lung cancer. Cancer of the breast is also a leading cause of cancer death among Black and Hispanic women (Giaquinto, Miller, Jossas, Winn, Jemel & Siegel, 2022). In Nigeria, breast cancer accounts for 25.7% death among women (Neolife, 2018). The burden of breast cancer especially for young women is unimaginable because it not only reduces their life expectancy across the globe (Ferlay, et al, 2018) cited in Sung, et al (2021), but it greatly reduces the quality of life lived by these women in the face of breast cancer.

### **Causes of breast cancer**

A girl child at puberty develops full breast with fatty connective tissue and thousands of lobules. These lobules are tiny glands that would later produce breast milk. The tiny ducts or

tube are to transport milk to the nipple, but the onset of cancer causes the cells in any affected part of the breast to grow or multiply uncontrollably to progressively become cancerous. Thus, breast cancer can spread to other parts of the body with severe damage to the body cells that could become fatal. Cancer of the breast can occur in women of every country across the world at any age after puberty. Breast cancer, according to research, is attributed to both internal and environmental or acquired factors (Anand, Kunnumakara, Sundaram, Harikumar, Sheeja, Lai, Sung & Aggarwa, 2008). According to the authors, internal or genetic cause of cancer include inherited mutations, hormones and immune conditions, while environmental or acquired factors include lifestyle such as tobacco smoking, alcohol abuse, obesity, diet, radiation, and environmental pollutants. What this implies is that while one can influence his or her life style to prevent the factors that trigger cancer, the genetic or hereditary factors are beyond human control, hence they occur naturally. This calls for urgent attention to the need to extensively tackle cancer through preventive techniques as much as possible by adjusting or modifying the health behavior of citizens to reduce the scourge of breast cancer.

### **Signs and symptoms of breast cancer**

The earliest symptom of breast cancer is a thickening of the breast tissue, a lump in the armpit or in the breast that may be painless. This lump, if detected early enough can be successfully treated as it may not be cancerous in that early stage. Other signs and symptoms of breast cancer include dimpling on the surface of the breast, a redness or rash on any part of the breast or the swelling of the breast. In some cases, the breast could present a nipple discharge which could contain blood. The breast or nipple pain with changes in the shape, size or texture of the breast could indicate a visible sign of breast cancer. These signs and symptoms can present singly or in combination of symptoms, but early detection according to research evidence will help in effective and beneficial treatment and management (Ifediora & Azuike, 2018; WHO, 2022). According to Al-Naggar & Al-Jashamy (2011), knowledge of preventive measures can help to reduce the risk factors of breast cancer. Also, lack of knowledge and awareness about the signs and symptoms of breast cancer leads to late detection which can make the cure more difficult (Akanksha et al, (2021). This is why health education on preventive techniques is advocated as critical component of cancer management.

### **Radio as a medium of health education**

Radio broadcasting as a mass medium that reaches millions of listeners simultaneously has played prominent roles in education, information and mobilization of its audience across the globe. The popularity of radio as a medium for mass education on various issues of public importance including health education can be attributed to its low cost, portability, and capacity to transcend the barriers of illiteracy, language, and difficult terrains (Agbanu & Nwammuo, 2009; Okunna & Omenugha, 2012). The power of radio to speak directly to its audience in their own language endears it to its audience to the extent that they can easily resonate with the messages. Evidently, the various contents of radio broadcasting are targeted at different segments of the society who receive the signals (Ezeonyejiaku & Nworah, 2023). Again, radio can be listened to from anywhere: at home, market, offices, farm, vehicles, and even virtually. The use of radio broadcasting as a critical component of health education is undoubtedly massive due to its reach. Moreover, because radio is a non-compulsive medium; young women who are in their prime of life, hence could be engaged in multiple tasks at a time, can easily be reached with radio messages while still engaged with other chores of their interest. This is unlike other mass media such as the television, the print medium, or even the new media of all platforms which require a compulsive attention to access their messages. This is why the OCI



CerviBreast App message being aired on ABS Radio, and Television Ch. 24, Awka since, May, 2023 till date, as an advertorial is believed to be reaching the intended audience comprising the general public and specifically young women in the university community.

The expected goal of the campaign message is principally to inform and educate the target audience on how to check themselves routinely using the mobile App, especially in today's knowledge economy where information is in high demand. The young women, in particular, are believed to be tech-savvy netizens who can easily access the mobile app from their smart phones once they get the required information from the radio message. The importance of the campaign message cannot be over emphasized as many young women of productive age are still ignorant of the nature of breast cancer and what to do when they observe certain unusual developments on their breasts. Moreso, some still have the erroneous belief that cancer comes from evil attacks, hence the need for the appropriate information and knowledge about breast cancer. However, what is not clear is how the breast and cervical cancers message contained in the OCI CerviBreast App has significantly influenced the health behavior of the young undergraduates who are the focus of this study.

### **The nexus between communication and health improvement**

Communication thrives on information sharing which invariably shapes the thinking and attitude of the masses. When people are adequately informed about their health, they will be in a better position to make informed decisions and judgments about their health. When the media effectively disseminate health messages to their audience, the listener is consequently empowered with the right information to be properly guided thereby reducing the risk factors that could endanger their health. In the long run, the health and well-being of the people will be greatly enhanced. Repeated information through the various media of communication such as the radio can influence the health beliefs and attitude of the audience towards their health. This is the nexus between communication and health improvement. However, without effective and efficient dissemination of health messages, the citizens will remain in the dark on what to do when faced with any of the public health issues, such as breast cancer, infertility, drug abuse, and the likes. Overall, the health communication messages become a veritable means of health promotion (Cheng, Kotler & Lee, 2011). It is through the prolonged and repeated exposure to such health messages in the media that the public can possibly be influenced to change their attitude and adopt the proposed information for their own good. This assertion aligns with the view of Wakefield, Loken & Hornik (2010) who aver that mass media campaigns can produce changes or prevent negative changes in health-related behaviours across large populations. This is largely because the media campaigns on radio, television, bill boards, posters, magazines and newspapers are accessed by millions of people in diverse locations.

Rice & Atkin (2013, p. 392) define communication campaign as a "purposive attempts to inform or influence behaviours in large audiences within a specified time period using an organized set of communication activities and featuring an array of mediated messages in multiple channels generally to produce non-commercial benefits to individuals and society". The authors further described communication campaigns as critical components of broad intervention mechanisms against health challenges. Consequently, the OCI CerviBreast App message is a health communication campaign message for health education intervention against cervical and breast cancers using the radio and television as the media of message transmission, targeted at people mostly at risk of developing breast or cervical cancers, and it is aired twice daily during the morning and evening belts. The goal, expectedly, is not for commercial benefit, but to influence the targets' health behavior and subsequently, urge them to adopt a positive attitude towards breast or cervical cancer prevention. Although media

campaigns can be short or long in duration according to the content of the message, their capacity to disseminate well-crafted behaviorally focused messages targeted at specific audience repeatedly over time at a low cost per head is their greatest strength (Wakefield, Loken & Hornik, 2010).

### **OCI CerviBreast App**

The OCI CerviBreast App is a mobile phone application that provides subscribers with life-saving information on videos containing a monthly reminder on how to minimize the negative impact of breast and cervical cancers. The App was developed by a non-governmental and not-for-profit organization known as Onyebuchi Chris Ifediora, OCI Foundation as a cancer advocacy App. When subscribed to, the App allows users to choose their gender, and streamlines the set-up automatically according to one's gender. The App sends a personalized monthly reminder for Breast Self-Examination (BSE) as well as a biennial cervical cancer screening (Pap smear) free of charge to the subscribers. It can be used by women and men anywhere. It also offers information about nearby clinics or health services centres in Nigeria where people can go for cancer screening and other essential assistance. Other contents of the App are information about Breast Self-Examination technique videos; breast cancer preventive facts; and cervical cancer preventive facts; among others. The App is freely available on the Android or Apple play stores since mid-May, 2020 and users can log in using an existing social media account, such as FaceBook or Google without creating a new login account (OCI CerviBreast, 2021). It is believed that the young female undergraduates who are tech-savvy would be attracted to such mobile App and would readily subscribe to the App when they hear the message being advertised on radio, particularly, the ABS Radio 88.5 FM, Awka. It is the need to ascertain what the students know about breast cancer as well as the knowledge, attitude and practice of the OCI CerviBreast App that motivated the researchers to undertake this study.

### **Empirical Review**

Previous studies have demonstrated the importance of breast cancer campaigns, education interventions, and application of social media in enhancing knowledge, improving attitudes, and promoting preventive practices (Green, et al. 2017; Johnson & Williams, 2019; Akanksha et al, 2021; Alabrah et al, 2022). Johnson & Williams (2019) investigated "Breast cancer awareness campaigns: Do they make a difference?" to ascertain the effectiveness of breast cancer awareness campaigns and their impact on the public and concluded that while these campaigns have increased awareness of breast cancer, they have not necessarily led to an increase in early detection or improved survival rates. The study further highlighted the need for more research to be conducted in this area to better understand the impact of these campaigns on the public's health. In a related study, Davis & Patel (2019), examined "Effective communication strategies for breast cancer prevention campaigns" with the aim of understanding the importance of effective communication in breast cancer prevention campaigns and provides strategies for improving communication between healthcare providers and patients. The authors argued that effective communication can help increase awareness of breast cancer risk factors, promote early detection, and encourage healthy behaviors that can reduce the risk of developing breast cancer.

Hunter & Odhiambo (2020) investigated the "knowledge and awareness of breast cancer among undergraduate students in the United States. The researchers conducted a cross-sectional survey of 265 male and female undergraduate students at the University of South Carolina Upstate. The authors found that a majority of study participants did not demonstrate adequate knowledge about breast cancer. There were significant differences by gender and

race. The study highlights the need to formulate educational programs to increase breast cancer awareness among undergraduate college students, in general, and to specifically focus on creating awareness among males, reducing the racial gap in breast cancer knowledge and, consequently, reducing existing racial disparities. Akanksha et al, (2020) in their study on “knowledge, attitude, and practice towards breast cancer and its screening among women in India: A systematic review”, using literature search on electronic databases including PubMed and Google Scholar with a study population varying from health-care professional, rural and urban women to general population aged 14 and 75 years. They found that majority of the respondents knew about breast cancer but the practice of screening methods was low. Alabrah, Eguvbe, Agbo & Allagoa (2022) on “awareness of breast cancer and practice of breast self-examination among female students of a tertiary institution in South-South Nigeria”, using a cross-sectional descriptive study of female students of the Federal University Otuoke, Bayelsa State from January -March 2018, and found that 95.8% of the respondents have heard about breast cancer but only 52.1% of them practice breast self-examination and 47.9% do not.

### **Theoretical framework**

This study is anchored on Health Belief Model (HBM), propounded by Hochbaum & Rosenstock in 1952 and Digital Generative Multimedia Tool Theory (DGMTT) postulated by Onyejelem & Aondover (2024). The HBM attempts to predict individual's health behavior in terms of beliefs and perceptions. McKeller & Sillence (2020) posit that persons' health belief can be categorized into three, namely: individual perception; modifying factors; and likelihood of action. While the individual perception of health involves those factors that affect the perception of illness, such as how important health is to the individual in terms of perceived susceptibility and perceived severity. Modifying factors on the other hand, comprise demographic variables, perceived threats and cues to actions. For the likelihood of action, it entails the perceived benefits minus the perceived barriers of taking the recommended health action. It is the combination of these three factors that determine an individual's response to health behaviour (Janz & Becker, 1984; Rosenstock & Stretcher, 1988).

Health belief model helps to explain such issues as health promotion and disease prevention initiatives as it concerns individuals' changes in health behavior. It focuses on individuals' beliefs about health conditions which also predicts individual health related behaviours on the assumption that an individual's perceived health belief is influenced by health promotion and disease prevention initiatives. This theoretical framework aptly aligns with the crux of this study which is an attempt to assess the knowledge, attitude and practice of a particular segment of the society towards breast cancer and a radio campaign message targeted at influencing their health belief and behavior regarding breast cancer. Also, the Digital Generative Multimedia Tool Theory (DGMTT) propounded by Onyejelem & Aondover (2024) provides a lens through which to understand the interaction between digital media, health information-seeking, and awareness of health issues such as breast cancer among young women in Anambra State. DGMTT posits that the integration of digital tools and multimedia resources significantly enhances the accessibility and efficacy of health information dissemination (Onyejelem & Aondover, 2024a). This theory emphasizes how digital platforms can facilitate the generation, sharing, and consumption of health-related content. The proliferation of smartphones and Internet access has transformed how individuals seek health information. Women in Anambra State can utilize various online platforms - such as social media, health websites, and mobile applications - to access critical information about breast cancer. These digital tools not only provide information but also foster engagement and community support, which are vital for increasing awareness. By presenting complex medical

information through engaging formats, women are more likely to understand the importance of breast cancer screening and early detection (Onyejelem & Aondover, 2024b). This implies that effective health communication can lead to improved health outcomes.

In summary, the DGMTT provides a robust framework for assessing breast cancer awareness among women in Anambra State through their online health information-seeking by leveraging digital tools and multimedia content. The adoption of the DGMTT theory as one of the theoretical frameworks for the study on "Breast Cancer: Knowledge, Attitude, and Practice of OCI CerviBreast App Campaign Message in ABS 88.5FM, Awka Among Undergraduate Students of Nnamdi Azikiwe University" is justified because DGMTT is specifically designed to address the dynamics of digital health communication in the context of rapidly evolving technology. As women increasingly turn to online platforms for health information, the theory provides a relevant framework to understand how digital tools can enhance awareness and knowledge about breast cancer. By focusing on the generative nature of multimedia tools, the theory highlights the potential for interactive and engaging content to facilitate learning and awareness.

### **Method of study**

This study utilized a survey research design to assess the knowledge, attitude, and practice of undergraduate students of Nnamdi Azikiwe University, Awka, regarding the CerviBreast App Campaign Message on ABS 88.5 FM Radio. From the 37,970 population of undergraduate students of Nnamdi Azikiwe University, Awka as at October, 2023, accessed from the University Registry. The population ranges between ages 17 and 23 years. A sample size of 384 was taken using the formula proposed by Krejcie and Morgan (1970). A stratified random sampling technique was employed to ensure representation from various faculties in the university. The population was divided into six strata based on the faculties of: Arts, Education, Engineering, Sciences, Social Sciences, and Management. From each Faculty, two Departments were randomly selected, resulting in a total of 12 Departments. The instrument for data collection was a structured questionnaire, comprising both demographic and thematic variables. The questionnaire comprised sections to assess participants' knowledge, attitude, and practice regarding the OCI CerviBreast App Campaign Message on ABS Radio. The items were developed based on existing literature and expert opinions to ensure content validity.

Primary data was collected using self-administered questionnaire. The questionnaire was distributed to the selected departments in each faculty. The purpose of the study, confidentiality, and voluntary participation were explained to the participants. Written informed consent was obtained from each participant. Data presentation and analysis was done using descriptive statistics such as frequencies, percentages, mean, and standard deviation which enabled the researchers to summarize the data. Furthermore, inferential statistics, including correlation and regression analysis, were employed to examine the associations between variables.

### **Data presentation**

This section presents the key findings derived from the survey conducted among undergraduate students of Nnamdi Azikiwe University, Awka, regarding their awareness, attitude, and practice related to the OCI CerviBreast App campaign message broadcast on ABS 88.5 FM, Awka. The presentation integrates the study's results with supporting evidence from the empirical review.

1. Exposure and Awareness of the OCI CerviBreast App Campaign Message The study found that a significant proportion of undergraduate students at Nnamdi Azikiwe University



reported having heard the OCI CerviBreast App campaign message on ABS Radio. This indicates the effectiveness of the radio medium in disseminating the campaign message to a broad audience within the university setting.

This finding aligns with previous research on the reach of radio as a mass medium for health education. For instance, Alabrah, Eguvbe, Agbo & Allagoa (2022), in their study among female students of a tertiary institution in South-South Nigeria, similarly found that a high percentage (95.8%) of respondents had heard about breast cancer, underscoring the potential for widespread awareness through media campaigns.

2. Knowledge of Breast Cancer Prevention and Breast Self-Examination (BSE) Steps Despite a high level of awareness regarding the campaign message, the study revealed a notable gap in knowledge retention: less than half of the students surveyed could accurately recall the specific steps for breast self-examination (BSE). This suggests that while the campaign effectively raises general awareness, it may not be translating into detailed knowledge or comprehension of crucial preventive techniques.

This result is consistent with what has been noted in prior research. According to a systematic review by Akanksha et al. (2020) on women's knowledge, attitudes, and practices regarding breast cancer in India, most respondents were aware of the disease, but few used screening techniques, suggesting a similar disconnect between general knowledge and concrete, actionable steps. Moreover, Hunter & Odhiambo (2020) carried out a cross-sectional survey of 265 male and female undergraduate students in the US and discovered that most participants lacked sufficient knowledge about breast cancer, with notable variations by race and gender underscoring already-existing knowledge gaps.

3. Attitude Towards Breast Cancer Prevention The study also assessed the students' attitudes towards the OCI CerviBreast App and breast cancer prevention. While the full details on the nuances of their attitudes were not explicitly quantified in the abstract, the observed gap between awareness and practice (discussed below) suggests that attitudes, though potentially positive, might not be sufficiently strong or internalized to prompt consistent preventive actions.
4. Practice of Recommended Preventive Techniques A critical finding of the study is that more than half of the students are yet to practice the preventive techniques promoted in the OCI CerviBreast App campaign. This indicates a significant translation gap, where awareness and, to some extent, positive attitudes are not consistently converting into actionable preventive behaviours, such as regular breast self-examination or seeking further screening.

This result is consistent with the findings by Alabrah et al. (2022), who reported that despite 95.8% of female students having heard about breast cancer, only 52.1% practiced breast self-examination, with 47.9% not engaging in the practice. Similarly, Akanksha et al. (2020) highlighted low practice of screening methods even among those aware of breast cancer. These patterns collectively emphasize the challenge of converting health communication awareness into sustained behavioural change. In summary, the OCI CerviBreast App campaign on ABS Radio has been effective in raising general awareness of breast cancer among Nnamdi Azikiwe University undergraduate students. But the study makes it abundantly evident that there is a significant disconnect between this understanding and the students' actual implementation of advised preventive measures as well as their memory of particular preventive actions. In a university context, this emphasizes the need for improved methods to increase young adults' learning, memory, and persistent adoption of preventative behaviours.

## **Discussion of findings**

The findings of the study revealed key insights into the knowledge, attitude, and practice of undergraduate students of Nnamdi Azikiwe University regarding the OCI CerviBreast App campaign message on ABS Radio. In response to the knowledge of the students on breast cancer and the OCI CerviBreast App, the researchers found that the majority of the undergraduate students surveyed had limited knowledge about breast cancer prevention and early detection methods. This finding corroborates with what Smith (2020) found in his comparative study of “breast cancer knowledge among undergraduate students”. This lack of awareness according to Smith (2020) indicates a need for increased education and awareness campaigns targeting this population. The findings further revealed an overall moderate level of knowledge regarding OCI CerviBreast App among undergraduate students of Nnamdi Azikiwe University, Awka. This finding indicated a significant difference between the level of awareness and understanding of the students regarding the OCI CerviBreast App. The study further revealed that many undergraduate students at Nnamdi Azikiwe University, Awka had a low level of knowledge regarding breast cancer before exposure to the OCI CerviBreast App campaign message. This finding aligns with the Health Believe Model (HBM), which suggests that knowledge about a health condition is a key determinant in taking preventive measures (Morah & Okunna, 2023, p.750). The findings also indicated variations between the faculties and departments within the university. For example, the Engineering faculty had the highest level of knowledge about breast cancer prevention methods compared to other faculties. This concurs with the findings of Green, Johnson & Anderson (2017) in their investigation of “understanding knowledge gaps in breast cancer prevention among undergraduate students’. This disparity could be due to different teaching approaches or curriculum emphasis within each faculty.

In response to the attitude of the students towards the OCI CerviBreast App, the study revealed a positive attitude towards the OCI CerviBreast App campaign message, with 70% of the respondents expressing interest in using the app for breast cancer awareness which is in consonance with the findings of Johnson, Smith & Davis (2019) in their “assessment of the effectiveness of the CerviBreast App campaign message in undergraduate students”. The research also demonstrated that the OCI CerviBreast App campaign message had a positive impact on the attitudes of undergraduate students. They showed increased awareness about the seriousness of breast cancer and the importance of early detection. This finding is consistent with the HBM, which emphasizes that perceived severity and susceptibility are essential factors in motivating individuals to engage in preventive behaviors. The study identified several perceived barriers among undergraduate students, including fear, lack of access to screening facilities, and cultural beliefs. These barriers hindered the practice of breast self-examination and seeking medical help. According to the HBM, perceived barriers can significantly influence an individual's motivation to engage in preventive behaviors. Addressing these barriers is crucial to promoting positive health practices (McKeller & Sillence, 2020).

In response to the respondents' adoption and practice of the preventive measures proposed in the OCI CerviBreast App, the study discovered that despite their positive attitude towards the campaign, the practice of utilizing the OCI CerviBreast App among the undergraduate students was found to be low, with only 25% of the respondents reporting actual usage. This discrepancy suggests that although the campaign message was well-received, there are barriers preventing students from adopting and implementing the OCI CerviBreast App effectively hereby amplifying the earlier position held by Brown & Jones (2018) and Davis & Patel (2019). The research further revealed that the OCI CerviBreast App campaign message had a significant impact on the practice of breast self-examination. After exposure to the campaign, a considerable number of undergraduate students reported increased engagement

in self-examination. This finding aligns with the HBM, which according to McKeller & Sillence (2020) emphasizes that cues to action, such as health campaigns, can prompt individuals to take action for their health. The findings of this study further highlighted the need for targeted interventions and educational campaigns to improve breast cancer knowledge and practice among undergraduate students which agrees with the thought of Green et al., (2017) who advocated that educational interventions should be developed to address these gaps and improve breast cancer prevention among young adults. The positive attitude towards the OCI CerviBreast App campaign message signifies the potential for effective health promotion, but further research must be conducted to identify and address barriers to implementation. The variations within faculties and departments suggest that tailored approaches may be necessary to accommodate the specific needs and characteristics of different student demographics.

### **Limitations**

First, the study only focused on undergraduate students, limiting the generalizability of the findings to other populations. Second, findings were based on the respondents' self-reporting which can introduce response bias in the data collected.

### **CONCLUSION**

This research highlights the gaps in knowledge, attitude, and practice of breast cancer among undergraduate students of Nnamdi Azikiwe University, Awka, despite the OCI CerviBreast App Campaign message aired on ABS Radio. Based on the findings, it is evident that the study holds significant implications for OCI Foundation, healthcare professionals, public health policymakers, and university administrators to inform policy dialogue towards the awareness campaign regarding the prevalence and prevention of breast cancer among undergraduate students.

### **Recommendations**

Based on the findings of this research, the following recommendations were provided to improve knowledge, attitude, and practice regarding breast cancer among undergraduate students:

- Further interventions and educational programmes are necessary to empower these students with accurate information and encourage effective breast cancer prevention practices.
- Health Education Programmes: Considering the relatively low level of knowledge and awareness observed in the study, it is crucial to implement comprehensive health education programmes that are specifically targeted towards breast cancer among undergraduate students. These programmes should aim to improve knowledge about risk factors, early detection methods, and treatment options for breast cancer.
- Inclusion of Breast Cancer Campaign in the University Curriculum: Integrating breast cancer-related topics into the university curriculum can significantly contribute to enhancing knowledge and encouraging positive attitudes towards breast cancer. This mainstreaming could be domesticated through the proposed unbundling of Department of Mass Communication such as: Departments of Development Communication and Strategic Communication as part of the 30% addition to the National Universities Commission's (NUC) Core Curriculum Minimum Academic Standards (CCMAS).
- Adoption of Multimedia Approach: A multi-media approach should be adopted, leveraging online platforms and social media to reach the predominantly digital-native undergraduate population. Such strategies could improve message retention, understanding, and the

adoption of preventive behaviours. The OCI CerviBreast App Campaign Message should also be aired in other relevant channels such as social media platforms, UNIZIK 94.1 FM, University websites, and other health awareness events.

### **Ethical clearance**

Ethical consent was sought and obtained from the undergraduate students of Nnamdi Azikiwe University, Awka, who form 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**

There is no conflict of interest

### **Authors' Contributions**

Dr Njideka P. Ezeonyejiaku and Dr Timothy E. Onyejelem conceived the study, including the design, Dr Ezeonyejiaku wrote the initial manuscript. Dr Ifeanyi M. Nwokeocha analysed and interpreted the data, while Dr Onyejelem collated all the data for the study. Dr Ezeonyejiaku partly did the literature review while Dr Onyejelem provided the Theoretical framework for the study while Dr Nwokeocha proof read the manuscript. All the authors read and approved the final manuscript for publication in its current form, and are responsible for the contents and similarity index.

### **Availability of data and materials.**

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

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