

Access to and Utilization of Breast Cancer Prevention Information Among Market Women in Awka, Anambra State

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Abstract

This study examines market women's access to and utilisation of breast cancer prevention information in Ikoka Market, Awka, Anambra State. Adopting a qualitative research approach, in-depth interviews were conducted with 32 market women, selected based on data saturation principles. The findings reveal a high level of awareness of breast cancer but limited knowledge of specific preventive measures. Healthcare facilities, particularly antenatal and postnatal clinics, were identified as the primary sources of information, while mass media played a minimal role. Despite awareness, the utilisation of preventive practices such as breast self-examinations and screenings remained low due to financial constraints, low literacy levels, fear, and economic activities. The study highlights the gap between awareness and actionable knowledge, underlining the need for targeted, community-based interventions. It recommends mobile screening units, simplified health messages, and the integration of breast cancer education into market associations and social gatherings to enhance participation and accessibility.

Keywords: Access, Breast Cancer, Prevention, Market Women, Health Information, Awka

INTRODUCTION

Breast cancer remains a major public health concern globally, with its incidence and mortality rates presenting significant challenges, particularly in developing countries. Although the prevalence varies across regions, its impact on women's health is profound, making it the most frequently diagnosed cancer among women and the second leading cause of cancer-related deaths worldwide. In 2022, there were 2.3 million women diagnosed with breast cancer and 670 000 deaths globally. Breast cancer occurs in every country of the world in women at any age after puberty but with increasing rates in later life (WHO, 2024). In Nigeria, breast cancer incidence and mortality continue to rise, with regional variations in prevalence. For instance, in the North-West geopolitical zone, breast cancer ranks second to cervical cancer, while in the South-West, it is the most common malignancy among women (George et al, 2019). In the North-Central region, it constitutes 22.41% of new cancer cases over a five-year period and accounts for 35.41% of all female cancers (George et al, 2019). Similarly, in North-East Nigeria, it represents 21.91% of all female cancers, contributing significantly to mortality (George et al, 2019). Southeast Nigeria, in particular, has been reported to have a relatively high incidence of breast cancer, yet studies focusing specifically on this region are limited (Ogundiran et al, 2017). Also, studies (Nwozor & Oragudosi, 2023) opined that in Southeast Nigeria, studies have shown a significant lack of awareness about breast cancer symptoms, risk factors, and the importance of early detection. This lack of awareness is a major barrier to early diagnosis and effective treatment. Cultural beliefs and practices play a crucial role in the health-seeking behavior of women in Southeast Nigeria.

Efforts to control and prevent breast cancer have been made at global and national levels. The establishment of cancer registries in Nigeria since 1960 serves as a critical tool for collecting data on cancer incidence, prevalence, and mortality to aid research and policy development. Additionally, the Federal Ministry of Health introduced the National Cancer Policy in 2006, leading to the development of the Nigeria Cancer Control Plan (2008-2013). Despite these measures, the impact of breast cancer prevention initiatives, early detection campaigns, and screening programs remains limited at the state and local levels. The lack of adequate information dissemination and poor health-seeking behaviours among women further worsen the situation. Studies indicate that many Nigerian women in different communities have little or no knowledge of breast cancer, and even those who are aware often exhibit negative attitudes toward screening and treatment, leading to delayed

diagnosis and high mortality. Cultural beliefs also play a role, as fear and stigma often discourage women from seeking medical intervention, particularly in communities where breast cancer is perceived to have negative implications for marriage prospects.

Among the various groups of women, market women are particularly vulnerable to breast cancer due to several factors. Many have lower levels of education, limited socioeconomic resources to prioritize healthcare, and demanding work schedules that keep them in the market for long hours. These constraints often hinder their access to preventive medical care, including breast cancer screenings and early detection measures. Against this backdrop this study investigated study access to and utilization of breast cancer prevention information among market women in Awka, Anambra State, Nigeria.

Statement of the Problem

Market women constitute a significant segment of the female population, and their level of awareness and access to health information can play a crucial role in influencing breast cancer prevention and early detection efforts. However, many market women rely on traditional medicine and often seek medical attention only when the disease has reached an advanced stage. Additionally, socioeconomic factors such as poverty, low educational levels, and lack of health insurance contribute to delays in seeking treatment. Fear of stigmatization and the misconception that breast cancer is a death sentence further discourage women from undergoing screening and seeking early medical intervention (Oluwatosin & Oladepo, 2016).

While several studies have examined women's knowledge and attitudes toward breast cancer prevention, there is a paucity of research focusing specifically on market women. Given their unique challenges, understanding their level of awareness, access to prevention information, and barriers to early detection is essential for designing targeted interventions that can improve health outcomes. This study, therefore, seeks to bridge this gap by assessing the access to and utilization of breast cancer prevention information among market women in Awka, Anambra State, Nigeria.

Objectives of the Study

The specific objectives that guided the study are as follows:

1. To examine the level of awareness of breast cancer prevention among market women in Awka, Anambra State.

2. To identify the sources of information through which market women access breast cancer prevention messages.
3. To examine the extent to which market women utilize available breast cancer prevention information.
4. To investigate the factors affecting market women's access to and utilization of breast cancer prevention information.

Research Questions

The study was further guided by the following research questions:

1. What is the level of awareness of breast cancer prevention among market women in Awka, Anambra State?
2. Through what sources do market women access breast cancer prevention messages?
3. To what extent do market women utilize available breast cancer prevention information?
4. What factors affect market women's access to and utilization of breast cancer prevention information?

Literature Review

Overview Breast Cancer and Prevention Measures

Breast cancer is a malignant tumour that originates from the cells of the breast, primarily in the lobules (milk-producing glands) or the ducts (which transport milk from the lobules to the nipple) (Ojewusi, et al, 2016). While less common, breast cancer can also develop in the fatty or fibrous connective tissue of the breast. Although the disease affects both men and women, it is significantly more prevalent among women. Breast cancer arises due to genetic abnormalities, which may be inherited (5–10%) or acquired through aging and environmental factors (85–90%) (George et al, 2019). The symptoms vary but commonly include the presence of a lump or thickened tissue in the breast, changes in breast size, shape, or appearance, alterations in the skin texture (such as dimpling), nipple inversion, peeling or scaling of the areola, and redness or pitting of the breast skin resembling an orange peel (BreastCancer.org).

The American Cancer Society (ACS) provides guidelines for early breast cancer detection, recommending annual mammograms from age 40, clinical breast examinations (CBE) every three years for women in their twenties and thirties, and annual CBEs for women

aged 40 and above (Schousboe et al., 2011). Additionally, Breast Self-Examination (BSE) is encouraged from the early twenties. Mammographic screening remains the most effective method for early breast cancer detection (Conte et al, 2023). While widely adopted in developed countries, its practice in Nigeria and other developing nations remains low due to financial constraints (Egwuonwu et al., 2012). Early detection through breast screening significantly reduces morbidity and mortality associated with breast cancer (George et al, 2009). It increases the likelihood of successful treatment while improving survival rates and reducing the need for invasive procedures (Noel et al., 2004). Ensuring the availability of diagnostic and screening services, coupled with prompt intervention, is critical to improving prognostic outcomes.

Related Studies

Several studies have examined awareness and attitudes toward breast cancer prevention among women globally. Outside Nigeria, Elbarazi et al. (2023) investigated the knowledge, attitudes, and practices of women in Al Ain, UAE, regarding cervical and breast cancer prevention. Using a cross-sectional survey of 300 women aged 30 and above, the study found that 36.7% had good knowledge of breast cancer prevention. Although most participants believed in the life-saving potential of preventive measures, many viewed screening as unnecessary and painful. Aldo, Neville, and Aagard (2024) explored the factors influencing breast cancer awareness and treatment-seeking behaviours among women diagnosed with breast cancer in Sierra Leone. Using a descriptive phenomenological approach with 10 participants, the study identified social structures as key determinants in accessing screening and selecting health facilities. Similarly, Abdulla et al. (2025) assessed the impact of breast cancer awareness programmes on screening uptake among 959 women in the UAE. The study revealed that 31.7% had attended awareness programmes, with attendance associated with younger age, higher education, and single marital status ($p < 0.001$). Among those who attended, 38.5% utilized screening compared to 13.3% of non-attendees ($p < 0.001$), highlighting the influence of education and awareness on screening participation.

In Nigeria, several related studies have been conducted. Fatiregun et al. (2024) examined the relationship between health literacy and breast cancer prevention practices in Lagos State, finding that 78.4% of women had heard of breast cancer. Ohaeri and Aderigbigbe (2019) investigated knowledge and use of breast cancer screening among 204 female

workers in Oyo State. While 82.2% had adequate knowledge of breast self-examination (BSE) and mammography, utilisation rates were relatively low. Similarly, George et al. (2019) assessed women's knowledge and attitudes toward breast cancer in Ogun State, noting high awareness but limited knowledge of mammography. Older women with secondary education, particularly self-employed individuals and housewives, were less likely to attend screenings ($p = 0.000$). Awogbayila et al. (2023) examined breast cancer risk perception, knowledge, and BSE practices among market women in Ondo State. A cross-sectional survey across three markets in Owo found that 78.5% of participants practiced BSE, while 58.5% had been taught how to perform it. However, 41.49% demonstrated poor BSE practices, and less than half felt comfortable undressing for medical examinations. Ajayi and Faleti (2017) also assessed breast cancer awareness and BSE practice among market women in Ido-Ekiti. While 60% were aware of breast cancer, only 40% practiced BSE regularly, with medical personnel being the most common source of information (51%). Foluso and Noela (2017) explored factors influencing the utilisation of breast cancer screening services among women in a private university in Ogun State. Using a cross-sectional study with 187 participants, the findings revealed that 54.5% had moderate knowledge of breast cancer, yet 65.8% failed to practice BSE.

Research gaps

Though the above studies collectively highlight the gap between Breast cancer awareness and positive attitude toward prevention practices. Several gaps exist in the studies, which justify the need for the current study on "Access to and Utilization of Breast Cancer Prevention Information among Market Women in Awka, Anambra State." First, there is a limited focus on market women in Southeastern Nigeria. While studies such as Awogbayila et al. (2023) and Ajayi & Faleti (2017) examined market women's knowledge and breast self-examination (BSE) practices, these were conducted in Ondo and Ekiti States, respectively, both in Southwest Nigeria. There is a lack of research targeting market women in Anambra State, where cultural, economic, and healthcare accessibility factors may differ significantly. Secondly, existing studies place more emphasis on awareness and knowledge rather than how women actually access breast cancer prevention information. Most studies, including those by George et al. (2019) and Fatiregun et al. (2024), assessed general awareness levels but did not explore how women obtain information, the reliability of these sources, and whether this knowledge translates into action. Understanding how market women access prevention information is crucial in designing effective health interventions.

Another key gap is the low utilization of breast cancer prevention services despite high awareness levels. Studies such as Ohaeri & Aderigbigbe (2019) and Foluso & Noela (2017) found that many women knew about BSE and mammography but did not utilize these screening services. However, these studies did not extensively investigate the specific reasons for this low uptake. This study seeks to explore the barriers—whether financial, cultural, or logistical—hindering market women from actively using breast cancer prevention services.

Theoretical Underpinning

This study is anchored on the Health Belief Model (HBM), one of the earliest theories of health behaviour developed by Rosenstock and other psychologists in the 1950s. Originally designed to understand the low uptake of free tuberculosis (TB) screening services in the United States (Rimer & Glanz, 2005), HBM has since evolved into a widely used framework for explaining and predicting health-related behaviours, as well as guiding health interventions. HBM posits that an individual's likelihood of adopting a health-related behaviour is influenced by five key components: perceived susceptibility (the belief that one is at risk of a particular disease), perceived severity (the belief that the disease has serious consequences), perceived benefits (the belief that taking action will be beneficial), perceived barriers (the obstacles preventing action), and cues to action (external or internal prompts that encourage behaviour change). A later addition, self-efficacy, refers to an individual's confidence in their ability to take preventive action (Birhanu et al., 2012). These components interact with modifying factors such as age, gender, ethnicity, socioeconomic status, education level, media exposure, and healthcare costs, all of which shape an individual's health behaviour (Mupepi et al., 2011).

HBM explains health behaviour as a function of an individual's psychological state of readiness to act and their belief that a specific action will reduce the risk of illness. Readiness to act is influenced by perceived vulnerability to a disease and the seriousness of its potential consequences. Although both cognitive and emotional elements shape health decisions, emotional factors tend to exert a stronger influence (Rosenstock, 1966). Cues to action, such as mass media campaigns, serve as motivational triggers that heighten awareness and prompt individuals to take preventive measures (Ogden, 2012).

Applied to this study on access to and utilization of breast cancer prevention information among market women in Awka, Anambra State, HBM suggests that a woman's behaviour

towards breast cancer prevention will depend on her perception of personal susceptibility to the disease, the severity of its consequences, and the benefits of early detection and screening. Additionally, the likelihood of adopting preventive measures increases if the perceived cost of screening is manageable and if individuals receive external encouragement through media campaigns and other communication strategies.

METHODS

This study adopted a qualitative research approach, using in-depth interviews to explore market women's access to and utilization of breast cancer prevention information in Ikoka Market, Awka, Anambra State. The choice of Ikoka Market was based on its status as one of the largest markets in Awka, with a high concentration of women engaged in various forms of trade. The study population comprised market women in the area, and a sample size of 32 participants was selected. The sample size was determined based on the principle of data saturation, which occurs when no new information or themes emerge from further interviews. Saturation is the point at which additional data collection no longer contributes to deeper insights or new patterns in qualitative research. This ensures that the data collected is rich, comprehensive, and reflective of the participants' experiences and perspectives. Data collection involved conducting face-to-face interviews using a semi-structured interview guide, allowing for flexibility in responses while ensuring that key themes were explored. The interviews focused on participants' awareness, sources of information, challenges in accessing breast cancer prevention messages, and their attitudes towards screening and early detection. The data obtained was analysed using thematic analysis, a widely used qualitative method for identifying, analysing, and reporting patterns (themes) within data. Thematic analysis allowed for the categorization of responses into meaningful themes that provided insights into how market women perceive and utilise breast cancer prevention information.

RESULTS

RQ 1: What is the level of awareness of breast cancer prevention among market women in Awka, Anambra State?

The interviews conducted to explore the level of awareness of breast cancer prevention among market women in Awka, Anambra State, yielded two key themes: high awareness of breast cancer and moderate awareness of prevention information but poor knowledge of prevention.

High Awareness of Breast Cancer

Many participants demonstrated a high level of awareness about the existence of breast cancer, acknowledging that it is a serious health issue affecting women. However, their understanding was often limited to general knowledge rather than specific preventive measures. Participant 1 explained that:

I know that breast cancer is a dangerous disease that affects women. I have heard people talk about it and how it can lead to death if not treated on time. I know it is something that should be taken seriously, but I am not sure how it starts or what exactly puts a person at risk. I only hear people say that women should be careful, but I don't know what specific actions to take to prevent it.

Similarly, Participant 4 stated that:

Breast cancer is something we all fear because we have seen or heard of people suffering from it. We know it exists, but I don't really know what causes it or how to stop it. I have heard that it can be dangerous and that people who have it may need surgery or expensive treatment, but I don't know if there are things we can do early to prevent it from happening.

Moderate Awareness of Prevention Information but Poor Knowledge of Prevention

While some respondents had come across information related to breast cancer prevention, their understanding of preventive practices remained limited. Most were unsure about the specific steps required for early detection and prevention. For instance, Participant 5 states that:

I have heard that women should check their breasts regularly, but I don't know how to do it or what to look for. I am not sure if there is a specific way to do the checking or if I

need someone to help me. I also don't know how often it should be done or if there are any signs I should be looking out for...

Corroborating, Participant 8 opined that:

Some people say that going to the hospital for screening is important, but I don't know if it is necessary if I don't feel any pain. I have never gone for a breast cancer screening before, and I don't know anyone around me who has done it. I feel like it is something that only sick people or older women should be concerned about.

RQ 2: Through what sources do market women access breast cancer prevention messages?

The interview questions designed to measure the above research question revealed that the dominant source of breast cancer information is hospitals and clinics. Many women reported that they learned about breast cancer prevention when they visited healthcare facilities, particularly during antenatal or postnatal check-ups. Healthcare providers, including nurses and doctors, often provided brief education on breast cancer screening and self-examinations during these visits. Additionally, a few women mentioned hearing about breast cancer prevention through traditional mass media, such as radio and television, but these sources were less common compared to healthcare facilities.

Participant 6 explained that:

I only hear about breast cancer when I go to the hospital. The nurses usually talk about it when we go for antenatal or postnatal care. They tell us to check our breasts and go for screening, but they don't always explain how to do it properly. If not for those visits, I might not have heard anything about it because I don't see many people discussing it in the market or at home...

Similarly, Participant 10 stated thus:

"Most of what I know about breast cancer comes from my visits to the clinic. When I was pregnant, the nurses advised us to always examine our breasts and visit the hospital if we notice anything unusual. I have also heard about breast cancer on the radio a few times, but I don't always pay attention because they don't explain in detail. The hospital is where I get the most information.

RQ 3: To what extent do market women utilize available breast cancer prevention information?

Based on the interviews conducted to address *Research Question 3: To what extent do market women utilize available breast cancer prevention information?*, the data revealed a dominant theme of *low utilization of breast cancer prevention information*. While some women acknowledged receiving information about breast cancer prevention, many admitted that they did not actively apply it in their daily lives. Participant 3 stated that:

I have heard about breast self-examination and screening, but I have never done any of them. I am afraid that if I check and find something, I won't know what to do. Also, going for screening at the hospital costs money, and I have other pressing needs, so I don't bother with it...

Similarly, Participant 9 explained thus:

I remember the nurse telling us during antenatal that we should examine our breasts regularly, but I have not done it even once. I keep thinking about it, but I always forget or feel it is not necessary because I don't have any pain or signs of sickness. Unless I feel something unusual, I don't see the need to check...

RQ 4: What factors affect market women's access to and utilization of breast cancer prevention information?

Based on the interviews conducted to address research question 4 above, revealed several emergent themes. The dominant factors identified include financial constraints, low literacy levels, fear and misconceptions about breast cancer, and lack of time due to economic activities. These factors significantly hinder market women from accessing and utilising available breast cancer prevention information, despite their awareness of its importance.

Financial Constraints

Many market women expressed concerns about the cost of screening and medical consultations, making it difficult for them to prioritise preventive healthcare. Participant 17 stated:

I know it is good to go for screening, but when I think of the money I will spend at the hospital, I just forget about it. I have children to feed, school fees to pay, and other

expenses, so spending money on a check-up seems unnecessary when I am not feeling sick."

Similarly, Participant 12 said:

I would like to go for breast screening, but sometimes the money is not there. Even transport fare to the hospital is a problem. If the government or NGOs can make it free and bring it closer to us, I would gladly participate...

Low Literacy Levels

Some women admitted that they do not fully understand breast cancer prevention messages due to limited education or exposure to health campaigns. Participant 6 explained that:

Sometimes when health workers talk about breast cancer, they use big medical words that I do not understand. I wish they could explain it in simple language so that women like me who did not go far in school can understand what to do."

Additionally, Participant 15 also shared that:

We hear about breast cancer, but I don't know much about what causes it or how to prevent it. If they can teach us in the market or during women's meetings, I think more people will take it seriously.

Fear and Misconceptions about Breast Cancer

Some market women avoid seeking preventive care due to fear of a cancer diagnosis or misconceptions about the disease. Participant 10 said:

I don't want to go for screening because I am scared of what they might find. Some people say that once they tell you that you have breast cancer, there is no cure, and you will just die. So, I prefer not to know.

Participant 18 added:

I have heard people say that checking your breasts too much can make you have problems. Some also say that surgery for breast cancer means they will remove the whole breast. I don't want to go through that, so I just pray to God for protection.

Lack of Time Due to Economic Activities

Many women prioritise their businesses and daily survival over health check-ups, leaving them with little time to seek or use breast cancer prevention information. Participant 12 explained:

Every day, I leave my house very early in the morning to open my shop, and I return late in the evening. If they tell me to go for screening, when will I have the time, If I don't sell, who will take care of my family?

Similarly, Participant 14 stated:

I want to learn more about breast cancer prevention, but I am always busy in the market. If they can come to us and do free tests here in the market, more women will participate.

DISCUSSION

The findings reveal a high awareness of breast cancer but only moderate awareness of prevention strategies, with poor knowledge of specific preventive measures. This aligns with studies such as Fatiregun et al. (2024), which found that while most women in Lagos had heard of breast cancer, their knowledge of preventive measures was limited. Similarly, George et al. (2019) reported that while women in Ogun State were generally aware of breast cancer, they lacked knowledge about mammography and screening techniques. The results indicate that while breast cancer is a well-recognised health concern among market women, the gap between awareness and actionable knowledge is significant. This can be attributed to a lack of targeted health education programmes within informal sectors like marketplaces, where women spend most of their time. Theoretical models like the Health Belief Model (HBM) suggest that perceived susceptibility and severity influence preventive actions. However, the study findings indicate that even with high awareness, the absence of clear, practical knowledge reduces the likelihood of proactive behaviour.

Secondly, the findings highlight healthcare facilities, especially antenatal and postnatal clinics, as the primary sources of breast cancer prevention information. This corresponds with the study by Abdulla et al. (2025), which found that women who attended awareness programmes at hospitals were more likely to participate in screening. The dominance of hospitals as information hubs suggests that preventive education is mainly integrated into

maternal healthcare services rather than independent public health campaigns. However, the limited role of traditional mass media in disseminating breast cancer prevention messages is concerning. Studies such as Elbarazi et al. (2023) indicate that radio and television play a crucial role in health education, yet the present findings suggest these channels are underutilised. This underutilisation may be due to the non-specificity of health messages in the media or the lack of targeted programming for market women. Given that previous studies (e.g., Aldo, Neville, & Aagard, 2024) highlight the influence of social structures on health information dissemination, interventions must consider culturally and socially embedded communication strategies.

Thirdly, the findings indicate low utilisation of breast cancer prevention practices. Many market women do not perform breast self-examinations (BSE) or attend screenings. This aligns with Ohaeri and Aderigbigbe (2019), who found that while 82.2% of female workers in Oyo State had knowledge of BSE and mammography, actual screening rates were low. Similarly, Abdulla et al. (2025) demonstrated that attendance at awareness programmes increased screening uptake, but overall participation remained low due to financial and cultural barriers. The findings suggest a dissonance between awareness and action, which can be explained using the Protection Motivation Theory (PMT). While participants recognise the severity of breast cancer, their perceived self-efficacy regarding prevention is low.

Furthermore, the study identifies financial constraints, low literacy levels, fear and misconceptions, and economic activities as major barriers to accessing and utilising breast cancer prevention information. These findings are consistent with research such as Awogbemi et al. (2023), which found that women in rural Nigeria often cite financial and cultural barriers as reasons for low participation in health screenings. Additionally, Fatiregun et al. (2024) highlighted the role of low health literacy in limiting preventive health behaviours. Fear and misconceptions emerged as significant deterrents, with many women believing that a cancer diagnosis is equivalent to a death sentence. This supports previous findings (e.g., Aldo, Neville, & Aagard, 2024) that demonstrated how social beliefs shape health-seeking behaviour. The Health Belief Model (HBM) further explains this reluctance, as perceived barriers outweigh perceived benefits for many market women. Without targeted interventions to correct misinformation, fear will continue to hinder participation in preventive measures. Additionally, the economic activities of market women limit their availability for health screenings, as they prioritise daily earnings over

preventive healthcare. This suggests that mobile screening services or market-based health interventions could be more effective in reaching this demographic. Research by George et al. (2019) supports this approach, showing that decentralised, community-based interventions improve participation rates.

CONCLUSION

The study brings to light a critical gap between awareness and practical application of breast cancer prevention measures among market women in Awka. While healthcare facilities play a vital role in information dissemination, their reach is limited, and media channels are underutilised. Additionally, socio-economic and cultural factors significantly hinder utilisation. The findings underscore the need for tailored, community-based interventions that address financial, educational, and structural barriers. Future health campaigns should leverage mobile screening units, simplify health messages, and integrate breast cancer education into social gatherings and market associations to enhance engagement and participation.

REFERENCES

- Abdulla, R. A., Kareem, N. A., Assadi, R. A., Sanaullah, A. A. R., Nandagopal, S., Wazil, S. M., & Muttappallymyalil, J. (2025). Impact of breast cancer awareness program on breast screening utilization among women in the United Arab Emirates: A cross-sectional study. *BMC Public Health*, 25(1). <https://doi.org/10.1186/s12889-025-21512-1>
- Ajayi, D., & Faleti, D. (2017). Level of awareness on breast cancer and practice of breast self examination among market women in Ido Community, Ido-Ekiti, Ekiti State, Nigeria. *Journal of Cancer and Tumor International*, 5(2), 1–12. <https://doi.org/10.9734/jcti/2017/32464>
- Awogbayila, M., Onasoga, O., Jibril, U., et al. (2023). Assessment of breast cancer risk perception, knowledge, and breast self-examination practices among market women in Owo, Ondo State, Nigeria. *BMC Women's Health*, 23, 556. <https://doi.org/10.1186/s12905-023-02711-7>
- Conte, L., De Nunzio, G., Lupo, R., Mieli, M., Lezzi, A., Vitale, E., Carriero, M. C., Calabrò, A., Carvello, M., Rubbi, I., & Federico, M. (2023). Breast cancer prevention: The key role of population screening, breast self-examination (BSE) and technological tools. Survey of Italian women. *Journal of Cancer Education*, 38(5), 1728–1742. <https://doi.org/10.1007/s13187-023-02327-3>
- Elbarazi, I., Alam, Z., Abdullahi, A. S., Alawi, S. A., AlKhanbashi, M., Rabaa, A., Aryani, A. A., Ahmed, L., & Al-Maskari, F. (2023). Knowledge, attitudes and practices of

- women in the UAE towards breast and cervical cancer prevention: A cross-sectional study. *Cancer Control*, 30. <https://doi.org/10.1177/10732748231211459>
- Fatiregun, O. A., Kuyinu, Y., Alabi, A., Sowunmi, A., Okunuga, N., Popoola, A. O., Olatunji Agunbiade, T., Ademola, O., Atulomah, N. O., & Awotayo, O. (2024). Health literacy and breast cancer preventive practices among market women in Oshodi Local Government Area of Lagos State, Nigeria. *Ecancer*, 18, 1785.
- Foluso, O., & Noela, M. (2017). Factors predicting the utilization of breast cancer screening services among women working in a private university in Ogun State, Nigeria. *Asian Journal of Medicine and Health*, 8(1), 1–9. <https://doi.org/10.9734/ajmah/2017/37013>
- George, T. O., Allo, T. A., Amoo, E. O., & Olonade, O. (2019). Knowledge and attitudes about breast cancer among women: A wake-up call in Nigeria. *Open Access Macedonian Journal of Medical Sciences*, 7(10), 1700–1705. <https://doi.org/10.3889/oamjms.2019.221>
- Neville, A., & Aagard, M. (2024). Experiences of women in Sierra Leone relating to accessing breast cancer treatment. *Journal of Social Change*, 16(1), 1–12. <https://doi.org/10.5590/JOSC.2024.16.1.01>
- Nwozor, C. M., & Oragudosi, A. L. (2023). Breast cancer awareness and screening practices among women in Onitsha, Nigeria. *MedSurg Nursing*, 22(5), 313–318.
- Ohaeri, B., & Aderigbigbe, M. (2019). Knowledge and use of breast self-examination and mammogram among women of reproductive age in Oyo State Secretariat, Ibadan, Oyo State, Nigeria. *European Journal of Midwifery*, 3(April). <https://doi.org/10.18332/ejm/105858>
- Ojewusi, A. A., Obembe, T., Arulogun, O. S., & Olugbayela, T. (2016). Breast cancer awareness, attitude and screening practices in Nigeria: A systematic review. *Clinical Reviews and Opinions*, 7(2), 11–25. <https://doi.org/10.5897/cro16.0101>
- Ogundiran, T. O., Huo, D., Adenipekun, A., Campbell, O., Oyeseun, R., et al. (2017). Case control study of body size and breast cancer risk in Nigerian women. *American Journal of Epidemiology*, 166(5), 985–993.
- Oluwatosin, O. A., & Oladepo, O. (2016). Knowledge of breast cancer and its early detection measures among rural women in Akinyele Local Government Area, Ibadan, Nigeria. *BMC Cancer*, 6(1), 271.
- Schousboe, J. T., Kerlikowske, K., Loh, A., & Cummings, S. R. (2011). Personalizing mammography by breast density and other risk factors for breast cancer: Analysis of health benefits and cost-effectiveness. *Annals of Internal Medicine*, 155(1), 10–20. <https://doi.org/10.7326/0003-4819-155-1-201107050-00003>
- World Health Organization. (2024, March 13). Breast cancer. WHO. <https://www.who.int/newsroom/fact-sheets/detail/breast-cancer>