

## Sociodemographic drivers influencing the adoption of Breast Self-Examination amongst women in Kaduna State, Northern Nigeria

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### Abstract

Breast cancer is a significant public health concern globally, with a disproportionate impact on women in developing countries such as Nigeria. Early detection through practices like Breast Self-Examination (BSE) is crucial for improving treatment outcomes and survival rates. Breast self-examination is a valuable tool for early breast cancer detection among Nigerian women. This paper examines the current state of BSE practice among Nigerian women, identifying factors influencing its uptake and exploring strategies for enhancing its implementation.

A cross-sectional research study was conducted to assess the socio demographic determinants of uptake of breast cancer screening amongst women in Kaduna state. This study which sampled a total of 254 respondents, out of which a larger proportion (48.8%) of the respondents were between the ages of 25-34 years, reveals that 80.3% of respondents have heard about breast cancer. Amongst screening methods known, BSE is most prevalent with 77.5% (203) and 22% (57) of respondent knowing about BSE and mammography respectively with about 68% being aware of how to conduct Breast Self-Examination. A statistical significance was found between constructs of three selected socio-demographic characteristics - Age ( $p=0.027$ ), level of education ( $p=0.000$ ), and health insurance ( $p=0.000$ ) significantly associated with women's adoption of breast self-examination.

Improving access to quality healthcare, including breast cancer screening and counselling services, is essential to accelerating adoption of BSE. Addressing the complex factors influencing BSE practice requires a comprehensive approach that combines education, community engagement, and reducing the financial barrier to accessing mammography services.

**Keywords:** Breast self-examination; Breast cancer; Nigeria; Women health

### 1. Introduction

Breast cancer is a significant public health concern globally, with a disproportionate impact on women in developing countries such as Nigeria [1]. Breast cancer is one of the leading causes of death for women worldwide, with women in developing nations bearing a disproportionately large share of the burden [2]. With the disproportionate gap in reproductive health access between developed and developing countries, as well as between rural and urban communities, mortality rates are greater among women in Africa [3, 4]. Incidences of breast cancer are lower in developing nations than in developed nations, and this is attributed to late-stage diagnosis [5, 6]. Over 1 million new cases of breast cancer are discovered each year, resulting in over 400,000 deaths each year and about 4.4 million women living with the disease. One in eight women also experience it at some point in their life, making it the most prevalent site-specific malignancy that affects women and the leading cause of cancer mortality in females around the world [12].

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Roman et al., 2019 reported that breast cancer is commonly seen in four stages that represents its progression. In stage I, the disease is confined entirely to the breast [7]. The cancer usually starts as a very tiny growth that cannot yet be felt but can be detected with imaging tests such as mammography and ultrasound. At this first stage, treatment is usually curative and more than 95% of those so detected will survive the disease beyond 5 years. Stage II is a cancer that has involved lymph nodes in the armpit of the same side of the breast, while stage III disease is one that has involved the muscles under the breast. Stages II and III therefore require very aggressive treatment using different modalities to contain the spread of the disease. It is however difficult to cure a patient in stage IV because the disease has spread and may have involved other organs in the body such as the lungs, liver, bones, the brain or the spine [7]. The stage at which breast cancer is diagnosed has a tremendous impact on type of treatment, recovery and survival. In most cases, the earlier the cancer is detected and treated the higher the survival rate for the patient. Late presentation of patients at advanced stages when little or no benefit can be derived from any form of therapy is the hallmark of breast cancer in Nigerian women.

According to the National Cancer Registry, breast cancer is the most prevalent cancer among Nigerian women and is likely to become an important public health issue in coming years [8]. Diagnostic and treatment delays in Nigerian seem to be responsible for the high prevalence of more advanced and higher grade (stage 3 and 4) breast cancer in Nigeria. Adisa et al., (2018) reported that Nigerian breast cancers are often high-grade, late-stage, high-proliferating and occur in a younger population than those of the Western countries [10]. They also reported that in Nigeria, the mean age at presentation of breast cancer is low compared to observation in the developed world. The mean age at diagnosis of breast cancer in Nigeria was 42.7 years (SD 12.2, range 18-85 years) and Patients less than 40 years accounted for 39.8% of the total number of patients with infiltrating breast carcinoma [7].

The hallmark of breast cancer disease in Nigeria, like other developing African countries, is late presentation and this among other factors is majorly responsible for poor treatment outcome in terms of survival. Late-stage diagnosis is often attributed to factors such as limited access to healthcare, financial constraints, and cultural beliefs [9]. Breast Self-Examination (BSE), as a low-cost and accessible screening method, has the potential to significantly impact early detection rates. While early detection through practices like BSE is crucial for improving treatment outcomes and survival rates, at advanced stages, there is less than 10% five-year survival rate in Nigeria [11, 12].

Studies have shown low rates of BSE practice among Nigerian women. Many Nigerian women, both in rural and urban areas possess little or no knowledge about risk factors and symptoms of the disease and in cases where women are aware of these, there is hesitation in seeking healthcare which results in untimely death [13, 21]. Factors such as lack of knowledge about breast cancer and BSE, cultural beliefs, religion, and socioeconomic disparities play a part in women's attitude towards the disease and have been identified as barriers to BSE uptake [2, 14]. Although several studies have been conducted about cancer and breast self-examination, few studies have investigated the sociodemographic drivers influencing the uptake or adoption of BSE in Kaduna state.

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## 2. Material and methods

### 2.1. Study design

This study employed a cross-sectional research design to assess the sociodemographic determinants of uptake of breast cancer screening amongst women in Kaduna state.

### 2.2. Sample size and setting

A convenience-based non-probability sampling method was applied to recruit participant based on the criteria that they are adult females (with or without personal or family history of cancer or cancer screening by mammography screening visits) irrespective of socioeconomic background. Based on confidence level of 95% (Z-value 1.96), confidence interval (5%) and estimated population more than 1 million, a sample size of 354 was estimated for this study. Acceptable response rate was pegged at 70%.

### 2.3. Data Collection

This study was conducted between July and September 2016 with respondents randomly sampled from the three LGAs (Chikun, Kaduna-North and Igabi) from the 3 geopolitical zones in Kaduna State, Northwest, Nigeria. Based on initial sampling criteria which considered a 95% confidence interval at expected response and precision rates of 70% and 5% respectively. A total of 265 complete responses were received through online and paper-based questionnaires. In accordance with research ethics and the objectives of this study, participants informed consent was secured prior to completing the questionnaire. The failure to provide consent was the major exclusion criteria.

### 3. Results

#### 3.1. Sociodemographic characteristics of women

Out of a total of 254 respondents, a larger proportion (48.8%) of the respondents were between the ages of 25-34 years. A large proportion of the respondents had received post-secondary education as reflected in 45.7% attaining university level of education (or its equivalent) and about 34% with post graduate degree. About 59% of the respondents were married however a significant proportion (39%) did not have any form of social security (*see figure 3*). It was however interesting to learn that although majority of respondents (61%) were under either the National Health Insurance Scheme, private or community-based health insurance programmes, health check-ups were reactive rather than preventive as reflected in the low percentage of women (12%) conducting at least 1 check up in a year (*see Table 1*). Furthermore, a large percentage of respondents (91%) had no family history of breast cancer

**Table 1** Sociodemographic characteristics of women

	N	(%)
<b>Age</b>		
Less than 25years	53	20.87
25-34years	124	48.82
35-44years	41	16.14
45-55years	21	8.27
55-65years	8	3.15
More than 65years	7	2.76
<b>Marital Status</b>		
Single	95	35.85
Married	156	58.87
Divorced	0	-
Widowed	14	5.28
<b>Level of Education</b>		
Not educated	9	3.49
Primary School	4	1.55
Secondary School	40	15.50
Tertiary	118	45.74
Post-Graduate	87	33.72
<b>Health Insurance Coverage</b>		
No insurance	93	38.91
Private HMO	43	17.99
NHIS	72	30.13
CBHIS	31	12.97
<b>Frequency of Preventive Health Checkup</b>		
Never	61	23.28
Annually	32	12.21
Biannually	22	8.40
During illness or when required	147	56.11
<b>Family history of breast cancer</b>		

Positive	15	5.75
Negative	237	90.80
don't know	9	3.45

### 3.2. Knowledge and Practice

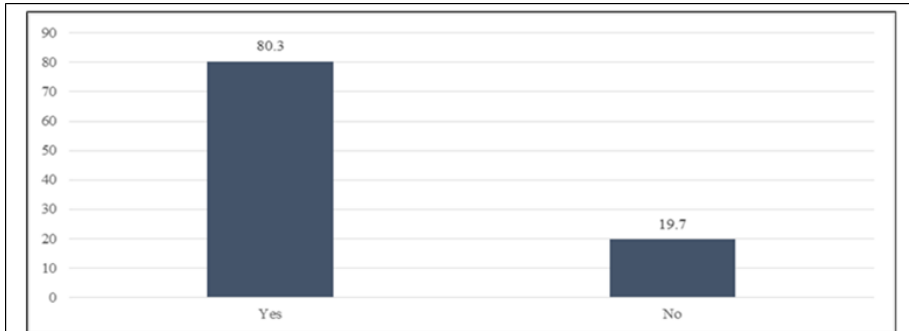


Figure 1a Knowledge of Breast Cancer as a disease

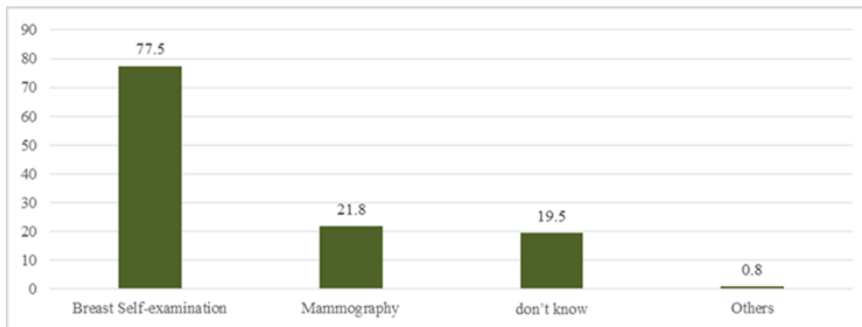


Figure 1b Knowledge of Breast Cancer Screening Methods

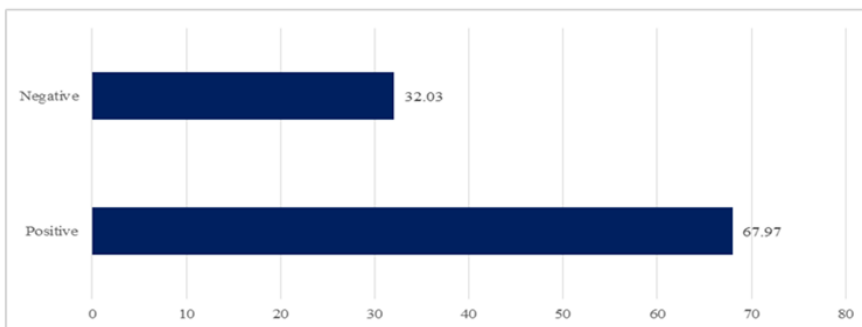


Figure 1c: Knowledge of breast cancer self examination procedure

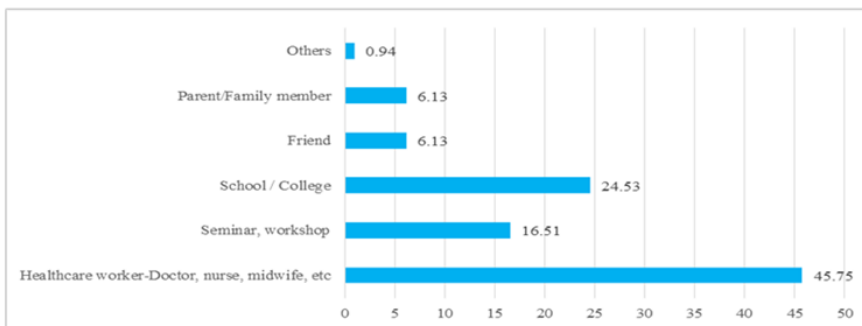


Figure 1d: Source of information on Breast Self-Examination

**Figure 1** Knowledge of women about breast cancer

This study reveals that 80.3% of respondents have heard about breast cancer. Amongst screening methods, BSE is most prevalent with 77.5% (203) and 22% (57 respondents) of respondent knowing about BSE and mammography respectively with about 68% being aware of how to conduct Breast Self-Examination. Healthcare workers (45.8%) were identified as the highest source of information on BSE closely followed by Schools/colleges (24.5%). Peer and family groups were amongst the least sources of information contributing 6% each (See figure 1 above).

### 3.3. Relationship between BSE and selected sociodemographic characteristics

A chi-square analysis was carried out to assess the relationship between selected sociodemographic characteristics of women and uptake of breast self-examination. Age ( $p=0.027$ ), level of education ( $p=0.000$ ), and health insurance ( $p=0.000$ ) were the only variables significantly associated with women's adoption of breast self-examination. Further details are shown in table 2 below.

**Table 2** Association between women's sociodemographic variable and uptake of Breast cancer examination in Kaduna state

Variable Uptake of BSE			
	No	Yes	X <sup>2</sup> (p-value)
Age			(0.027)
Less than 25 years	44 (65.67)	25 (34.33)	
25-34 years	59 (22.03)	75 (55.97)	
35-44 years	17(40.48)	25 (59.52)	
45-54 years	4 (66.67)	2 (33.33)	
55-64 years	1 (33.33)	2 (66.67)	
Level of education			0.000
Below secondary	15 (83.33)	3 (16.67)	
Secondary education	42 (76.36)	13 (23.64)	
University education	49 (50.52)	48 (49.48)	
Post graduate education	18 (23.08)	60 (76.92)	
Marital status			0.488
Married	73 (48.34)	78 (51.66)	
Single	47 (50.00)	47 (50.00)	
Widowed	5 (71.43)	2 (28.57)	
Health Insurance			0.000
No Health Insurance	71 (65.74)	37 (34.26)	
Community Based Health insurance	12 (41.38)	17 (58.62)	
National Health Insurance scheme	24 (42.11)	33 (57.89)	
Private HMO	3 (8.57)	32 (91.43)	

## 4. Discussion

In Nigeria, many studies had reported low level of practice of BSE among women. The findings from this study were consistent with similar study conducted in Sokoto State, Northern Nigeria where majority (89.8%) of the respondents had information about the practice of BSE yet only sixty five percent (65.3%) of the respondents practiced BSE [15]. In northern Nigeria, the trend of low level of practice of BSE among women can also be compared to similar studies from Southern Nigeria [18]. In several studies conducted in Nigeria, only 28.94% practiced BSE in Rivers state [16], only

24.4% community dwellers in Edo State which showed that only few women practiced BSE monthly [11], and 27.3% of women in Oyo state conducted BSE but only 11.7% practiced it regularly [17].

A statistical significance was found between constructs of three selected socio-demographic characteristics and the uptake of Breast Self-Examination among women in Kaduna state. This relates to a previous study by Valderrama et al., (2018) where it was reported that an increase in age will reduce the performance of BSE [18]. It was found that women aged less than 50 years held stronger positive attitudes towards performing BSE than the older age group. This is because they believe that performing BSE can detect breast cancer at an early stage [19]. Older women, on the other hand probably refused to perform BSE due to a lack of confidence and ignorance on breast cancer knowledge [18].

The level of education of women and the uptake of BSE were also significantly related. A strong correlation exists between knowledge about breast cancer and BSE and the likelihood of performing self-examination [22]. The level of education influences the performance of BSE as women with high education tends to be able to obtain information on breast cancer by themselves [23]. This is consistent with earlier research, which showed that having a high level of education will boost breast self-exploration practice in identifying any differences in their breasts since they will have the necessary information and abilities to perform BSE [24]. Mass media campaigns, health education programs, and community-based initiatives can contribute to increased awareness and knowledge on BSE. Additionally, Cultural beliefs and attitudes towards breast cancer and body image can impact BSE practice [9]. Past studies also showed that older women did not like to touch their bodies and felt embarrassed to do so [20]. Addressing these beliefs through culturally sensitive education and community engagement through a multi-channel approach is essential.

Additionally, Socioeconomic disparities influence access to healthcare and health information, impacting BSE practice [13]. Cancer had been said to have a greater economic impact than all other diseases with lung cancer, colorectal cancer and breast cancer on the lead. Breast cancer can exacerbate the problem of poverty which is worsened by weak financing of sexual reproductive health programs at national and sub-national levels [27], and poor or non-existing health insurance for citizens – thereby depleting household and individual income [25, 28]. Although there had not been many studies on the socioeconomic impact of the disease in sub-Saharan African, a 2009 study in Ibadan, Nigeria reported about 85% of those diagnosed with breast cancer were income earners, and of this 70% had an annual income of less than 12,500.00 Nigerian Naira (~ 100USD) [26]. In a country with suboptimal investment in population health, the burden of managing the financial implication of late breast cancer detection can be enormous. These socioeconomic consequences are further compounded as Breast cancer could become an obstacle to female education, as many young females might be taken out of school to either attend to their ailing mothers or take up some of the roles that their mothers might no longer be able to perform due to illness or death [25].

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## 5. Conclusion

Improving access to quality healthcare, including breast cancer screening and counselling services, is essential to accelerating adoption of BSE. Addressing the complex factors influencing BSE practice requires a comprehensive approach that combines education, community engagement, and reducing the financial barrier to accessing mammography services. Targeted interventions addressing the needs of women from disadvantaged backgrounds are crucial as women with greater incomes were seen to engage in BSE more frequently. It is recommended that comprehensive social behaviour change communication programs to address normative and social barriers to BSE adoption targeting women of all ages, should be implemented. BSE should also be integrated into routine maternal and child health services can enhance coverage. These programs should include information about breast cancer, the importance of early detection, and step-by-step BSE techniques.

### *Limitations of the Study*

Collecting information on BSE behaviours through self-report was a limitation as a lot of questionnaires had to be screened out for entry errors and conflicting documentations. The cross-sectional nature of this study although was limiting, future work may consider designing and implementing similar research in an interventionist manner.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of ethical approval*

The present research work does not contain any studies performed on animals/human subjects by any of the authors. Informed consent was obtained from all individual participants included in the study.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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## References

- [1] World Health Organization. (2024). Retrieved from Breast Cancer: <https://www.who.int/news-room/factsheets/detail/breast-cancer>
- [2] George TO, A. A. (2019). Knowledge and attitudes about breast cancer among women: A Wake-Up call in Nigeria. *Open Access Macedonian Journal of Medical Sciences*, 2019;7(10):1700–5.
- [3] Bolarinwa, O. N. (2022, September). Prevalence and predictors of long-acting reversible contraceptive use among sexually active women in 26 sub-Saharan African countries. *International Health*, 14(5), 492–500, <https://doi.org/10.1093/inthealth/ihab053>.
- [4] Bose K, M. K. (2021). Scaling Access to Contraception for Youth in Urban Slums: The Challenge Initiative's Systems-Based Multi-Pronged Strategy for Youth-Friendly Cities. *Front. Glob. Womens Health*, 2:673168. doi: 10.3389/fgwh.2021.673168.
- [5] Ogunsiji OO, K. C. (2017). Breast cancer screening practices of African migrant women in Australia: A descriptive cross-sectional study. *BMC Women's Health*, 17(1):1–10.
- [6] Soylar P, F. G. (2017). The Treatment Approach and Social Support Needs for Patients with Breast Cancer. *Journal of Breast Health*, 12(2):56–62.
- [7] Román M, S. M. (2019). Personalized breast cancer screening strategies: A systematic review and quality assessment. *PLoS ONE*, 14(12):1–18.
- [8] Global Cancer Observatory. (2022). International Agency for Research on Cancer. Retrieved from Nigeria: <https://gco.iarc.who.int/media/globocan/factsheets/populations/566-nigeria-fact-sheet.pdf>
- [9] Olopade, O. I. (2008). Breast cancer in African women. *The Lancet*, 372(9634), 346–354.
- [10] Adisa AO, L. O. (2018). Paradox of wellness and nonadherence among Nigerian women on breast cancer chemotherapy. *Journal of Cancer Research and Therapeutics*, 4(3):107–110.
- [11] Okobia, M., & Osime, U. (2021). Clinicopathological study of carcinoma of the breast in Benin City. *Afr J Reprod Health*, 5(2): 56–62.
- [12] American Cancer Society. (2023). Breast Cancer Basic Facts & figures 2019-2020. Retrieved from American Cancer Society: <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/breast-cancer-facts-and-figures/breastcancer-facts-and-figures-2019-2020.pdf>
- [13] Akinyemi, O. O., Olopade, O. I., & Fawole, A. O. (2015). Breast self-examination practice among women in a rural community in Nigeria. *African Journal of Reproductive Health*, 19(2), 118–124.
- [14] Ohaeri, U. U., & Aderigbigbe, A. O. (2019). Knowledge and practice of breast self-examination: A cross-sectional study of women at selected health centers in Oyo State, Nigeria. *Continental Journal of Oncology*, 27(2), 104–111.
- [15] Sani, A., & Yau, S. (2018). Relationship between knowledge and practice of breast self-examination among female workers in Sokoto, Nigeria. *Obstet Gynecol Int J*, 9(3):157–162. DOI: 10.15406/ogij.2018.09.00323.
- [16] Bellgam, H., & Buowari, Y. (2012). Knowledge, Attitude and Practice of Breast Self -Examination among Women in Rivers State, Nigeria. *The Nigerian Health Journal*, 12(1):16–18.
- [17] Olowokere, A., Onibokun, A., & Oluwatosin, A. (2012). Breast cancer knowledge and screening practices among women in selected rural communities of Nigeria. *J Public Health and Epi.*, 4(9):238–245.
- [18] Valderrama-Urreta, A., Jiménez-Báez, M., & Rodríguez, J. (2018). Social and demographics factors associated with the breast self-examination (BSE) in women in primary care. *J Fam Med Dis Prev*, 4: 1–6.
- [19] Dewi, T., & Zein, R. (2017). Predicting intention perform breast self-examination: application of the theory of reasoned action. *Asian Pac J Cancer Prev*, 18: 2945–2952.

- [20] Silva, P., & Riul, S. (2011). Breast cancer: risk factors and early detection “(in Portuguese)”. *Rev Bras Enferm*, 64: 1016– 1021.
- [21] Akila, D., Akinola, O., Omotoso, O., Ohkubo, S., Adefila, A., Yohanna, P., . . . Bose, K. (2024). Improving contraceptive service quality and accessibility for adolescents and youth through proprietary patent medicine vendors in four Nigerian states. *Glob Health Sci Pract*, 12(Suppl 2):e2200225. <https://doi.org/10.9745/GHSP-D-22-00225>.
- [22] Mayana, A., Owolabi, O., & Owolabi, A. (2020). Knowledge and practice of breast self-examination in a cohort of women in Oyo State, Nigeria. *Journal of Cancer Education*, 35(1), 142-147.
- [23] Miri, M., Moodi, M., Miri, M., Sharifzadeh, G., & Eshaghi, S. (2017). Breast self-examination stages of change and related factors among Iranian housewives women. *J Health Sci Technol*, 1: 41–48.
- [24] Godfrey, K., Agatha, T., & Nankumbi, J. (2016). Breast cancer knowledge and breast self-examination practices among female university students in Kampala, Uganda: a descriptive study. *Oman Med J*, 31: 129–134.
- [25] Azubuiké, S., Muirhead, C., Hayes, L., & McNally, R. (2018). Rising global burden of breast cancer: the case of sub-Saharan Africa (with emphasis on Nigeria) and implications for regional development: a review. *World J Surg Onc*, 16, 63 (2018). <https://doi.org/10.1186/s1>.
- [26] Ntekim, A., Oluwasanu, M., & Odukoya, O. (2022). Breast Cancer in Adolescents and Young Adults Less Than 40 Years of Age in Nigeria: A Retrospective Analysis. *Int J Breast Cancer*, 2022:9943247. doi: 10.1155/2022/9943247.
- [27] Igharo, V., Ananaba, U., Omotoso, O., Davis, T., Kioko, M., & Finkle, C. (2024). Innovations in public financing for family planning at subnational levels: sustainable cofinancing strategies for family planning with Nigerian states. *Glob Health Sci Pract*, 12(Suppl 2):e2200242. <https://doi.org/10.9745/GHSP-D-22-002>.
- [28] Samuel, O. A., Colin, M., Louise, H., & Richard, M. (2018, March 22). Rising global burden of breast cancer: the case of sub-Saharan Africa (with emphasis on Nigeria) and implications for regional development: a review. Retrieved from *World Journal of Surgical Oncology*: <https://wjso.biomedcentral.com/articles/10.1186/s12957-018-1345-2>