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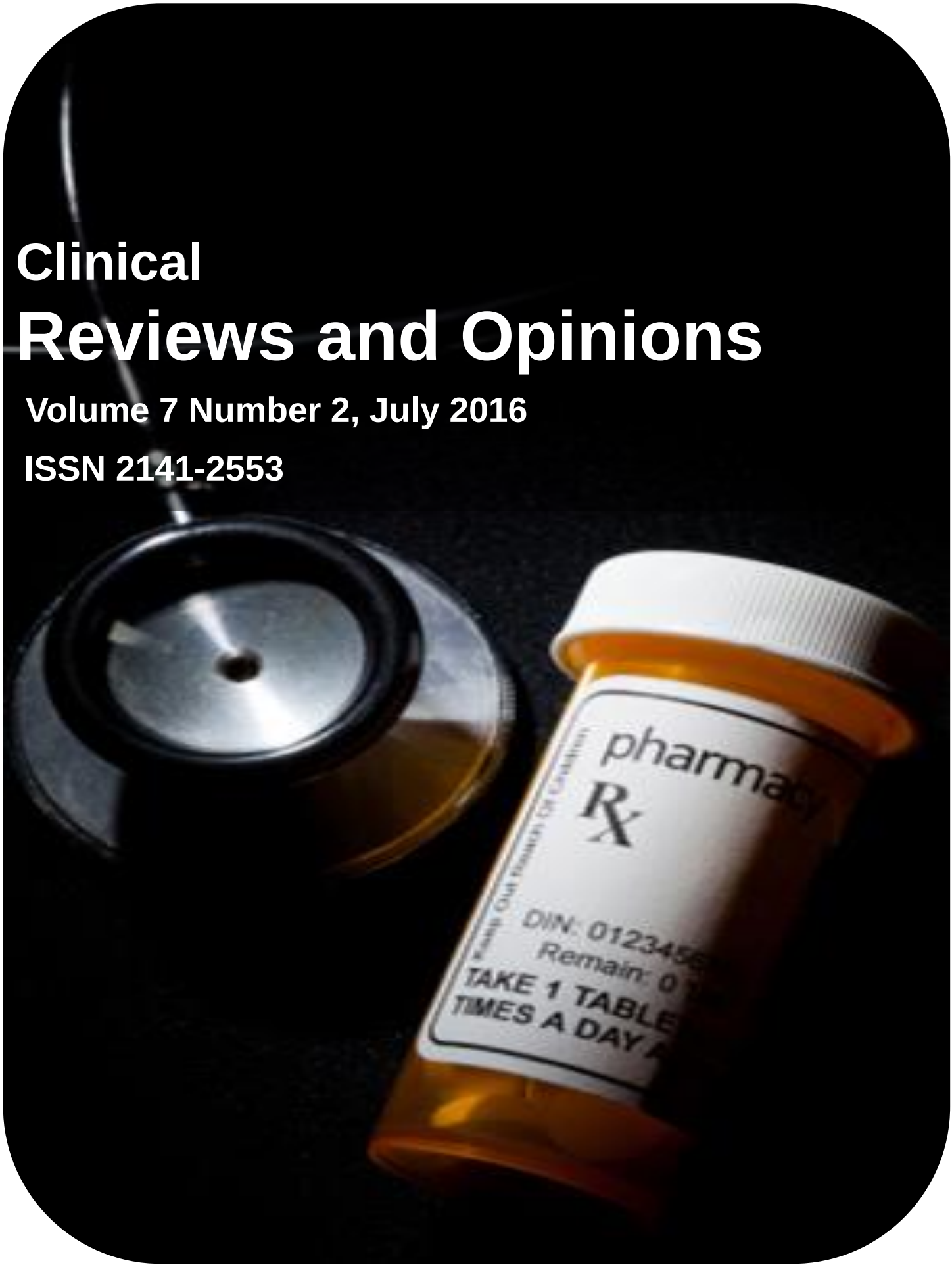

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Clinical Reviews and Opinions

Full Length Research Paper

Breast cancer awareness, attitude and screening practices in Nigeria: A systematic review

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Previous research on the breast cancer awareness, attitude and screening practices has produced divergent results. This systematic review aimed to summarise evidence and to compare all existing evidence on the awareness of breast cancer, attitude and screening practices among women in the six geopolitical zones of Nigeria. Overall, 40 articles were included in the final analysis. The search was limited to articles published in English between 2001 and 2014 were included in review. Majority of the respondents in this review were aware of breast cancer as a disease entity. Electronic media and television (TV) were the leading sources of information on breast cancer in Nigeria, while use of leaflets and internet were unpopular in this regard. The results of the study showed deficiency in screening practices even among those who were aware of the screening methods. Breast self-examination (BSE) was the most common breast screening practice among respondents followed by clinical breast examination (CBE) and mammography. The reasons provided for non-performance were fear of finding a lump and lack of awareness among others. Development of effective educational resources aimed at reducing barriers to breast screening practices and early detection to provoke change and to impact on social norms. Also, campaigns that couple information with other services are more likely to bring sustained changes in behaviour.

Key words: Breast cancer, awareness, attitude, screening practices.

INTRODUCTION

Breast cancer affects women of all races without exception even though severity and survival rate are often diverse. Worldwide, breast cancer is the second most common cause of cancer death in women after lung cancer (American Cancer Society, 2008). Also, the most prominent cause of cancer death among women in low- and middle-income countries is breast cancer, accounting for 269,000 deaths (12.7% of all cancer deaths) in 2008 (Ferlay et al., 2008; Lancet, 2011). The breast cancer burden differs between countries and regions showing variations in incidence, mortality and survival rates (Coughlin and Ekwueme, 2009; World Health Organization, 2009).

There is variation of breast cancer incidence worldwide

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in which Africa is not excluded (Ojewusi and Arulogun, 2016). Incidence of breast cancer varies from 27% of cancers in North African countries (Algeria and Egypt) to 15% in sub-Saharan Africa (Parkin et al., 2003). The actual incidence of breast cancer is generally not known (Boulos et al., 2005) however; an increasing incidence of the disease in many parts of Africa was indicated by several publications (Onwere et al., 2009; Anyanwu et al., 2011). Breast cancer affect women in any age range are at risk of breast cancer and the risks increases with advanced age (Omotara et al., 2012).

According to the latest WHO (2014) data published breast cancer Deaths in Nigeria reached 13,264 or 0.70% of total deaths. The age adjusted Death Rate is 28.11 per 100,000 of population ranks Nigeria 4th in the world." Adebamowo and Ajayi (1999) stated that breast cancer is the most common cancer in Nigeria. In 2005, breast cancer was found to be the most common in Nigeria (WHO, 2009). In the North-West geopolitical zone of Nigeria, cancer of the breast is second to cancer of the cervix, while at University College Hospital (UCH), Ibadan (situated in the South-West geopolitical zone of Nigeria) it is leading malignancy among women (Afolayan, 2008; Ogunbiyi et al., 2010). Also, in the North-central geopolitical zone, breast cancer constitutes 22.41% of new cancer cases registered in 5 years and accounts for 35.41% of all cancers in women (Afolayan et al., 2012).

In Western countries, breast cancer is the most commonly diagnosed cancer in women and the second leading cause of mortality and morbidity in women. International Agency for Research on Cancer (IARC) provide statistics on the incidence, prevalence and mortality rates of cancers in 184 countries and reported that breast cancer is affecting women in 145 countries which includes US, UK, Australia, Canada and Denmark were ranked higher than Africa and Asia (International Agency for Research on Cancer (IARC) 2008). Breast cancer is now considered the second most common form of cancer (besides skin cancer) in American women, as well as the second leading cause of cancer-related death, surpassed only by lung cancer (CDC, 2010; NCI, 2009). The current estimates in the United States indicate that 226,870 women are diagnosed with breast cancer, with 39,510 deaths of the disease in the year 2012 (American Cancer Society, 2012).

Early diagnosis of breast cancer is known to be vital not just in the treatment of the disease but also in determining prognosis (El Saghir et al., 2011). Some of the reasons that predict these differences in severity and survival rate are levels of awareness, attitudes or screening behaviours. In developing or low income countries, breast cancer is often characterized by late clinical presentations or advanced stages of the disease, when only chemotherapy and palliative care can be offered, with resulting high mortality (Adeniji, 1999; Anyanwu, 2000; Parkin et al., 2008). Late diagnosis in breast cancer has been shown to impact differently on survival between affluent groups and those from socio-economically deprived backgrounds (Jack et al., 2009; Downing et al., 2007). Awareness and health seeking practices have been shown to be poor in many developing countries, necessitating the need for proper awareness programs (Khokhar, 2009; Montazeri et al., 2008). An international survey showed poor awareness of risk factors for breast cancer among university students from 23 countries, compared to older women (Peacey et al., 2006).

The American Cancer Society guidelines for early detection of breast cancer recommend yearly mammogram starting at the age of forty, clinical breast examination (CBE) about every three years for women in their twenties and thirties, and every year for women at age forty and over and also recommends Breast Self-Examination (BSE) for women starting their twenties (Kerlikowske et al., 2011; Smith et al., 2003). Screening mammography though, is the most effective screening method in the early detection of breast cancer (Islam and Aziz, 2012). It is widely practiced in the developed world (Onwere et al., 2009); but practice is low in Nigeria and other developing countries due to cost (Egwuonwu et al., 2012). Breast screening reduces breast cancer associated morbidity and mortality can and a means to early detection (Austoker et al., 2009), also increases the chances for successful treatment and cure of the disease (Chong et al., 2002; Harmer, 2008), but also improves chances of survival and lessens the need of invasive treatment (Noel et al., 2004). Ensuring availability of early diagnostic and screening services and taking immediate steps have been regarded as the two main strategies for warranting improvement in the prognostic outcome (Burgess et al., 2009; Abulkhair et al., 2010; Forbes et al., 2011).

The establishment of cancer registries by Nigerian government is an attempt to curb the menace of breast cancer disease starting from 1960. These serves as veritable tools for collecting accurate and complete information on cancer incidence, prevalence, and mortality in a given geographical location and they can be used to conduct research, plan and implement cancer control, allocate resources for treatment and prevention, and other public health program planning (Parkin et al., 2008). The cancer registry centers generate information that can contribute to cancer control policies and resource allocation. Federal Ministry of Health set up a committee to draw a National Cancer Policy after the World Cancer Congress in 2006, titled "bridging the gap and transforming knowledge into action". In 2008 Federal Government of Nigeria established a 5-Year Nigeria Cancer Control Plan (2008 - 2013) but the impact of advocacy, awareness creation, cancer prevention, early detection through regular screening and cancer management are not felt. At state level, there are various comprehensive health policies aimed at coping with health care delivery services and breast cancer

awareness campaigns. There is currently no National policy on cancer control in Nigeria; however, control of reproductive cancers is included in the 'National policy on reproductive health and strategic framework' (FMOH, 2004; WHO, 2006b). The aim of this systematic review is to compare all existing evidence on the awareness of breast cancer, attitude and screening practices among women in the six geopolitical zones of Nigeria.

METHODOLOGY

A systematic comprehensive search of all materials related to breast cancer was conducted. Extensive literature was conducted surveyed using PubMed, AJOL, World Health Organization website, HINARI and Google scholar search engines. Relevant documents, technical publications series, systematic reviews, research articles focusing on breast cancer among women only published in the period 2001 to 2014 were included for the review. The search criteria were, "awareness of breast cancer screening methods", "source of information", "screening practices", "attitude", "factors influencing screening practices" and "the impact of socio-demographic factors on screening practices". Limits were applied on the search to only include peer-reviewed publications in English, publications by Nigerian authors and studies carried out in Nigeria (Figure 1). The articles were limited to include only breast cancer among women only. These cross-sectional studies were published in the 6 geopolitical zones (North-Central, North-Eastern, North-Western, South-Eastern, South-South and South-Western) of Nigeria. Overall, 40 articles published in 2001-2014 were included in final analysis (Table 1).

RESULTS

Awareness of breast cancer

Awareness about breast cancer varied among communities and population groups worldwide. Studies among nurses (Bello et al., 2011), female undergraduate (Okolie and Uchenna, 2011) and among female senior secondary schools student (Isara and Ojedokun, 2011) reported 100% breast cancer awareness respectively. Breast cancer awareness among healthcare workers was 97.1% (Eguvbe et al., 2014) and 89.25% (Gali 2013). Studies among market women also recorded a high level of awareness 77.7% (Obaji, 2013), 98% (Agwu et al., 2007), 93.7% (Bassey et al., 2011). Ninety seven percent (97.2%) of female undergraduates (Salaudeen et al., 2009) were of breast cancer, while less than sixty percent of (58.2%) rural women indicated that they were of BC (Omotara et al., 2012). Almost seventy percent (69.9%) of female senior secondary schools student had heard of BC (Ajayi et al., 2013), which is low compare to female secondary school teachers 97% (Irurhe et al., 2012), 96.1% (Sule, 2011) and 88.8% (Aniebue and Aniebue, 2008). Among the women attending out-patient clinic, 92.3% had heard of BC (Obi, 2015). Some respondents who were aware of breast cancer as a disease entity knew that breast cancer was the most common cancer among women worldwide (Yakubu et al., 2014); breast cancer could be treated if detected early (Obaji 2013); knew that breast cancer was associated with a high incidence of death (Yakubu et al., 2014; Agwu, 2007) and indicated that early detection could improve the chances of survival (Bassey et al., 2011).

Sources of information

Sources of information varied among the population but the prominent ones were television (Nwagbo and Akpala, 1996; Saludeen et al., 2009; Bello et al., 2011), radio (Nwagbo and Akpala, 1996; Saludeen et al., 2009; Bello et al., 2011) hospital (Bello et al., 2011), healthcare workers (Eguvbe, 2014; Omotara et al., 2012), school (Eguvbe 2014; Irurhe NK 2012), newspaper (Eguvbe et al., 2014), text books (Oche et al., 2012), print media (Saludeen et al., 2009), friends (Saludeen et al., 2009; Omotara et al., 2012), relation (Saludeen et al., 2009), parents (Irurhe NK 2012), religious organizations (Irurhe NK 2012), guardians (Irurhe, 2012), and Non-Government Organisations (Agwu et al., 2007).

Awareness of breast self-examination

In Nigeria, about two thirds of women with breast cancer are diagnosed at an advanced stage, with the possibility of metastatic spread (Akaro-Anthony et al., 2010). Regular BSE has been suggested as part of an overall health promotion concept (Plesnicar et al., 2004). Self-breast examination awareness level varied among populations; while view record very high awareness (Nasiru and Olumuyiwa, 2009; Agboola et al., 2009; Yakubu et al., 2014; Akpo et al., 2009; Okolie, 2012; Bello et al, 2011; Nasiru and Olumuyiwa, 2009; Eguvbe et al., 2014; Agwu et al., 2007; Oluwole 2008; Gali 2013) but some were very low (Abimbola and Oladepo, 2006; Hope, 2012). Traders 31.7% of the traders were aware of breast self-examination (Balogun and Owoaje, 2005) and 38.9% (Obaji et al., 2013), 71.6% (Olajide et al. 2014). Among female teachers 95.6% were aware of BSE (Kayode et al., 2005), 90.8% (Aniebue and Aniebue, 2008). Female undergraduates respondents 92% of the participants were aware of BSE procedure (Odeyemi and Oyediran, 2002), 97.3% (Bassey et al., 2011), 81.9% (Saludeen et al., 2009), 73.3% (Uche, 1998), Among female secondary school students only 38.7% were aware of Breast Self-Examination as a method for detection of breast cancer (Omotara et al., 2012), only 58.5% had heard of BSE (Irurhe et al., 2012), 56.4% had heard of BSE (Isara and Ojedokun 2011). Among non-health professionals, 69% were aware of breast self-examination as screening tools (Bello et al., 2011), and BSE by 93(80.9%). In sub urban and urban communities 52.8% claimed to have heard about BSE 52.8% attested that they have heard about breast self-examination (Olowokere et al., 2012).

Table 1. Critical appraisal of included studies on breast cancer research in Nigeria (2001-2014).

SN	Author	Year	Age group (years)	Respondents	Geopolitical zones	Research design	Broad objectives
1	Oche et al.	2012	25-54	female health workers	Usmanu Danfodiyo University Teaching Hospital Sokoto, North Western Nigeria	Cross-sectional	Knowledge of female health workers about breast cancer and their attitude and practice of mammography.
2	Bello et al.	2011	20-60	277 female nurses and lay Women	Osogbo, South Western, Nigeria.	Cross-sectional	Knowledge and Practice of Breast Cancer Screening Among Female Nurses and Lay Women in Osogbo, Nigeria.
3	Hope and Yvonne	2012	21-85	691 members of medical Women Association of Nigeria	Rivers State, South-South, Nigeria	Cross-sectional	Knowledge, Attitude and Practice of Breast Self-Examination among Women in Rivers State, Nigeria.
4	Eguvbe et al.	2014	21-58	424 female healthcare workers	Delta State, South-South Nigeria.	Cross-sectional	Knowledge of Breast Cancer and Need for its Screening Among Female Healthcare Workers in Oshimili South Local Government Council Area of Delta State, Nigeria.
5	Ibrahim and Odusanya	2009	18- 57	207 female healthcare professionals	Lagos, South West, Nigeria	Cross-sectional	Knowledge of risk factors, beliefs and practices of female healthcare professionals towards breast cancer in a tertiary institution in Lagos, Nigeria.
6	Gali	2013	20-61	Female health workers	Maiduguri, North-Eastern Nigeria	Cross-sectional	Breast cancer awareness and screening practices among female health workers of university of Maiduguri teaching hospital.
7	Agboola et al.	2009	20-41	115 female health worker	Sagamu, Ogun State, South West, Nigeria	Cross-sectional	Knowledge, Attitude and Practice of Breast Self-Examination in Female Health Workers in Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria.
8	Yakubu et al.	2014	20-59	female nurses	Kano, North-Western, Nigeria	Cross-sectional	Knowledge, attitude, and practice of breast self-examination among female nurses in Aminu Kano teaching hospital, Kano, Nigeria.

Table 1. Cont'd.

9	Oluwole	2008	23-50	Female Health Workers	Ondo State, South West, Nigeria	Cross-sectional	Knowledge and Practice of Breast-Self Examination amongst Female Health Workers in A Nigerian Community.
10	Akhigbe and Omuemu	2009	39.2 ± 9.9	393) female health workers	Benin-City, Edo State, South-South, Nigeria	Cross-sectional	Knowledge, attitudes and practice of breast cancer screening among female health workers in a Nigerian urban city.
11	Akpo et al.	2010	21-26	18 medical students	Warri, Delta State, South-South, Nigeria	Cross-sectional	Breast cancer knowledge and screening practices among Nigerian medical students. Internet Journal of Health
12	Okolie and Uchenna	2012	21-25	200 female undergraduates	Enugu, Southeast Nigeria	Cross-sectional	Breast self-examination among female undergraduates in Enugu, Southeast, Nigeria.
13	Bassey et al.	2011	15-26	135 nursing students	Lagos, South West, Nigeria	Cross-sectional	Knowledge, attitude and practice of breast self-examination among nursing students in Lagos University Teaching Hospital, Nigeria.
14	Salaudeen et al	2009	16 - 28	682 female undergraduates Kwara State Polytechnic	Ilorin, Kwara State, North-Central, Nigeria	Cross-sectional	Knowledge and Attitudes to Breast Cancer and Breast Self-Examination Among Female Undergraduates in a State in Nigeria.
15	Onwere et al.	2009	18-49	100 women attending antenatal clinic	Abia, South Eastern, Nigeria	Cross-sectional	Breast self-examination as a method of early detection of breast cancer: Knowledge and practice among antenatal clinic attendees in South Eastern Nigeria.
16	Olajide et al.	2014	19-84	218 patients breast cancer patients attending a clinic	Lagos, South West, Nigeria	Cross-sectional	Awareness and practice of breast screening and its impact on early detection and presentation among breast cancer patients attending a clinic in Lagos, Nigeria.

Table 1. Cont'd.

17	Azubuike and Okwuokei	2013	19-49	365 women of reproductive age attending Immunization Clinic.	Oredo local, Government, Benin City, Nigeria	Cross-sectional	Knowledge, Attitude and Practices of Women Towards Breast Cancer
18	Emmanuel	2011	20-80	122 women visiting the outpatient clinic	Niger delta , South-South, Nigeria	Cross-sectional	Breast Cancer Awareness And Breast Examination Practices Among Women
19	Oluwatosin and Oladepo.	2006	20-60	420 rural women	Akinyele Local Government Area, South West ,Nigeria	Cross-sectional	Knowledge of breast cancer and its early detection measures among rural women
20	Okobia et al.	2006	15-91	826 community dwelling women a semi-urban community	Edo State, South-South, Nigeria	Cross-sectional	Knowledge, attitude and practice of Nigerian women towards breast cancer: A cross-sectional study.
21	Ogechi and Oluwatosin	2014	20-71	440 rural women	Umuduru Mbano, Imo State, South-East, Nigeria	Cross-sectional	Perceived health believes of breast cancer and knowledge of its early detection measures among rural women in South-East, Nigeria
22	Omotara et al	2012	20-29	Rural Women	Adamawa and Borno, North- East, Nigeria	Cross-sectional	Awareness, Attitude and Practice of Rural Women regarding Breast Cancer in Northeast Nigeria
23	Ajayi et al	2013	18-35	276 rural women in Ona-Ara Local Government Area, Ibadan	Oyo State, South West, Nigeria	Cross-sectional	Breast and Cervical Cancers Awareness and Screening Practices among Rural Women in Ona-ara Local Government Area, Ibadan, Nigeria
24	Irurhe et al	2012	12-18	Female senior secondary schools	Lagos, State, South West, Nigeria	Cross-sectional	Knowledge and Awareness of Breast Cancer among Female Secondary School Students in Nigeria.
25	Isara and Ojedokun	2011	13– 22	Female senior Secondary school students	Abuja, FCT, Nigeria	Cross-sectional	Knowledge of breast cancer and practice of breast self-examination among female senior secondary school students in Abuja, Nigeria.

Table 1. Cont'd.

26	Kayode et al	2005.	35– 44	Female secondary school teachers	Ilorin, North-Central, Nigeria	Cross-sectional	Knowledge, attitude and practice of breast self-examination among female secondary school teachers in Ilorin, Nigeria.
27	Tobin and Okeowo	2014	20–69	300 secondary school teachers	Edo state, South-South, Nigeria	Cross-sectional	Breast self-examination among secondary school teachers in South-South, Nigeria: A survey of perception and practice.
28	Aniebue and Aniebue	2008	20-55	428 teachers in government owned secondary schools	urban Local government area of Edo state, South-South, Nigeria	Cross-sectional	Awareness of Breast Cancer and Breast Self-Examination Among Female Secondary School Teachers in Enugu Metropolis, South Eastern Nigeria.
29	Akhigbe AO and Omuemu VO	2009	20-60	393 female health workers	Enugu Metropolis, South Eastern, Nigeria	Cross-sectional	Knowledge, attitudes and practice of breast cancer screening among female health workers in a Nigerian urban city.
30	Amoran et al	2014	19-63	495 participated in a Community Based Study among Women in Sagamu Local Government Area,	Ogun State, South-Western Nigeria	Cross-sectional	Breast Cancer Screening Awareness and Practice among Women in Sagamu Local Government Area, South-Western Nigeria: A Community Based Study.
31	Aderounmu et al	2006	15 -72	832 educated and non-educated women in semi-urban and rural area	South West, Nigeria	Cross-sectional	Knowledge, attitudes and practices of the educated and non-educated women to cancer of the breast in semi-urban and rural areas of south west, Nigeria.
32	Osime et al	2008	30-34	385 Civil servants	Benin City, Edo, South South, Nigeria	Cross-sectional	Knowledge attitude and practice about breast cancer among civil servants in Benin City, Nigeria.
33	Balogun and Owoaje	2005	16-80	281 female traders	Ibadan, south west, Nigeria	Cross-sectional	Knowledge and practice of breast self-examination among female traders in Ibadan, Nigeria.
34	Gwarzo et al	2009	16 – 28	221 female undergraduate students of Ahmadu Bello University	Zaria, North Western, Nigeria	Cross-sectional	Knowledge and practice of breast self-examination among female undergraduate students of Ahmadu Bello University

Table 1. Cont'd.

35	Kayode et al	2005	35-44	Female Secondary School Teachers.	Ilorin, Nigeria	Cross-sectional	Knowledge, Attitude and Practice of Breast Self-Examination among
36	Obaji et al	2013	20-65	238 market women	Ebonyi State Southeast Nigeria.	Cross-sectional	Awareness and Practice of Breast-Self Examination
37	Odunsanya OO	2001.	20- 55	204 nurses	Lagos, South West, Nigeria	Cross-sectional	Breast Cancer: Knowledge attitude and practice of nurses in Lagos Nigeria.
38	Agwu et al	2007	20- 55	98 nurses	Ebonyi State , South-Eastern, Nigeria	Cross-sectional	Knowledge, attitude and practice of breast self-examination among nurses
39	Olowokere, Onibokun and Oluwatosin	2012	20-60	180 Women in selected rural areas	Oyo State, South-Western, Nigeria	Cross-sectional	Breast cancer knowledge and screening practices among women in selected rural communities of Nigeria
40	Mbanaso A, Adisa A, Okoye C, Mbana C	2005		94 non health professionals	Abia State , South-Eastern, Nigeria	Cross-sectional	Breast self-examination among non-health professionals in Nigeria.

Practice of breast self-examination

Although opinions conflict about the value of BSE, there is no uniform agreement for breast screening (Al-Abadi, 2001; Gehrke, 2000). BSE still remains the most readily available methods of screening particularly in low resource countries where accessibility, affordability and availability of sophisticated diagnostic screening methods are difficult to access in terms of cost. Akpo et al. (2009) stated that all the participants (100.0%) practice breast self-examination but 50.0% knew how to correctly do breast self-examination (Akpo et al., 2009). Performance of self-breast examination among female health workers remain low and variable in different respondents; nurses 54% (Oche et al., 2012), 55.6% (Bello et al., 2011), 30% (Agboola et al., 2009), 13.0% (Agwu et al., 2007), and 47.9% (Mbanaso et al., 2005) had ever carried out BSE. In the studies done among doctors 68% (Agboola et al., 2009), 28.94% (Hope, 2012) and 41.2% (Yakubu et al 2014) performed BSE. Another study conducted on non-health professionals indicated 34.6% (Bello et al., 2011) and 95% (Nasiru and Olumuyiwa, 2009) had ever done BSE. According to Oluwole (2008) in the study conducted among general practitioners (GP) most respondents (80%) practiced BSE while less than half 40(50%) practiced BSE as recommended monthly and in a similar study, Gali (2013) indicated that there is an overall 40.4% with excellent, 51.2% good and 8.4% with poor level of BSE practice.

Among market women it was observed that 18.1% had ever checked their breast (Balogun and Owoaje, 2005), while in a similar study only 21.8% (Obaji et al., 2013) and 57% (Gwarzor et al., 2009) had practiced BSE. The study among female undergraduate revealed that majority, 92.4% (Okolie and Uchenna, 2012) and 84.3% (Bassey et al., 2011) claimed to have carried out breast self-examination. Among antenatal clinic attendees, 45.5% (Sule, 2011), 78% (Onwere et al., 2009) and 56.0% (Olajide et al., 2014) regularly perform self-breast examination. Less than forty percent (34.9%) have carried out breast self-examination among semi urban community dwelling women and among rural women practice of BSE varying from 6.4 to 51.6% (Abimbola and Oladepo, 2006; Olowokere, 2012). Kayode et al. (2005), and Aniebue and Aniebue (2008) reported that 54.8 and 47.9% of female secondary schools teachers practice BSE, and only 10.1% female secondary schools students had ever performed

BSE (Isara and Ojedokun, 2011).

Factors that influence practice of breast self-examination

The reasons provided for non-performance of BSE included not having a family history of breast cancer (Isara and Ojedokun, 2011), fear of finding a lump (Isara and Ojedokun, 2011; Aniebue and Aniebue, 2008; Bassey et al., 2011; Okolie, 2012; Isara and Ojedokun, 2011), forgetfulness (Aniebue and Aniebue, 2008), ignorance of technique (Aniebue and Aniebue, 2008), not considering it necessary (Aniebue and Aniebue, 2008; Okolie, 2012; Bassey et al., 2011) and feeling of discomfort at touching the breast (Aniebue and Aniebue, 2008) were other reasons provided for non-performance of BSE.

Many studies expressed that the most important factor for not doing BSE is lack of knowledge regarding the conduct of BSE (Bassey et al., 2011; Agboola et al., 2009; Isara and Ojedokun 2011; Aniebue and Aniebue 2008), some believed they can never have breast cancer (Bassey et al., 2011; Okobia et al., 2006; Isara and Ojedokun, 2011), others felt they were violating their bodies by palpating their breasts (Bassey et al., 2011; Aniebue and Aniebue, 2008; Gali, 2013). Few others factors hindering performance of BSE were: Did not believe in the efficacy of the test (Bassey et al., 2011); they did not have any symptom/they did not have any problem with their breasts (Bassey et al., 2011; Omotara et al., 2012), while some said they did not have time (Okolie, 2012), forgetfulness (Okolie, 2012; Okobia et al., 2006; Aniebue and Aniebue, 2008), procrastination (Okolie, 2012), laziness (Okolie, 2012), as lack of trust in their ability to perform BSE/ lack of self-confidence to do it (Okolie, 2012; Olowokere et al., 2012), anxiety (Okolie, 2012; Okobia et al., 2006) and lastly, lack of awareness (Okobia et al., 2006).

Determinants of breast self-examination performance

There are numerous variables that showed strong relationships between socio-demographic characteristics and performance of breast self-examination (BSE) among various populations. Age was found to significantly affect the practice of BSE (Eguvbe, 2014; Nasiru and Olumuyiwa, 2009). No association was found between practice of BSE and age (Yakubu et al., 2014; Aniebue and Aniebue, 2008; Olajide et al., 2014). Educational level was found to affect the practice of BSE significantly (Eguvbe, 2014; Balogun and Owoaje, 2005; Olowokere, 2012; Obi, 2015; Okobia et al., 2006) while (Aniebue and Aniebue, 2008) indicated no association between practice of BSE and educational attainment (Aniebue and Aniebue, 2008).

A significant relationship was found between higher levels in work experience and BSE practice (Yakubu et al., 2014), rates of BSE by participants in this study were found not to be influenced by profession (Nasiru and Olumuyiwa, 2009), there was a significant association between knowledge of BSE and practice (Isara and Ojedokun, 2011), there was no trend in relationship between marital status and regular practice of BSE (Aniebue and Aniebue, 2008), rates of BSE by participants were found not to be influenced by knowledge of risk factors (Nasiru and Olumuyiwa, 2009), no significant relationship was found between family history of breast cancer and practice of BSE (Aniebue and Aniebue, 2008), there was also no significant association between previous removals of breast lump with practice of BSE (Aniebue and Aniebue, 2008). Also, there was no predictive factor on whether a patient would or would not practice BS after attending or viewing a BS education program (Olajide et al., 2014).

Attitude

Breast cancer awareness and attitude have been described as a common denominator to several factors determining the stage at which patients with breast cancer present to the hospital (Muguti, 1999). Issues relating to the attitude to BSE showed that 91.4% nurses, 65.2% laboratory scientists and 90.9% doctor respectively thought that BSE was necessary (Agboola et al., 2009). All the respondents (100%) unanimously agree that BSE is useful, with up to 86 (84.3%) of the respondents saying that they encourage others to do BSE (Yakubu et al., 2014). Most of the respondents who were nursing students 98.5% thought breast self-examination was necessary (Bassey et al., 2011). Majority of the women (61.1%) who were not practicing BSE would like to start doing it (Olowokere, 2012), while few of the women (11.7%) did not see any reason for examining their breasts on a regular basis.

According to them, every human being must experience what he/she had been destined to experience and therefore, there was no reason to worry themselves over what they did not have control over (Olowokere, 2012). The fear of having breast cancer in the future propelled some of the nurses, laboratory scientists and medical doctors to practicing BSE (Agboola et al., 2009). However, majority of the female secondary schools students who had never performed BSE were willing to practice it if they were taught how to do so (Isara and Ojedokun, 2011). According to Kayode et al. (2005) majority (75.0%) had positive attitude to BSE. 17.9% had fair attitude while only 7% of them had negative attitude to BSE (Kayode et al., 2005). Participants in our study had the right attitude towards breast cancer as majority indicated visiting the doctor for breast complaints (Okobia et al., 2006).

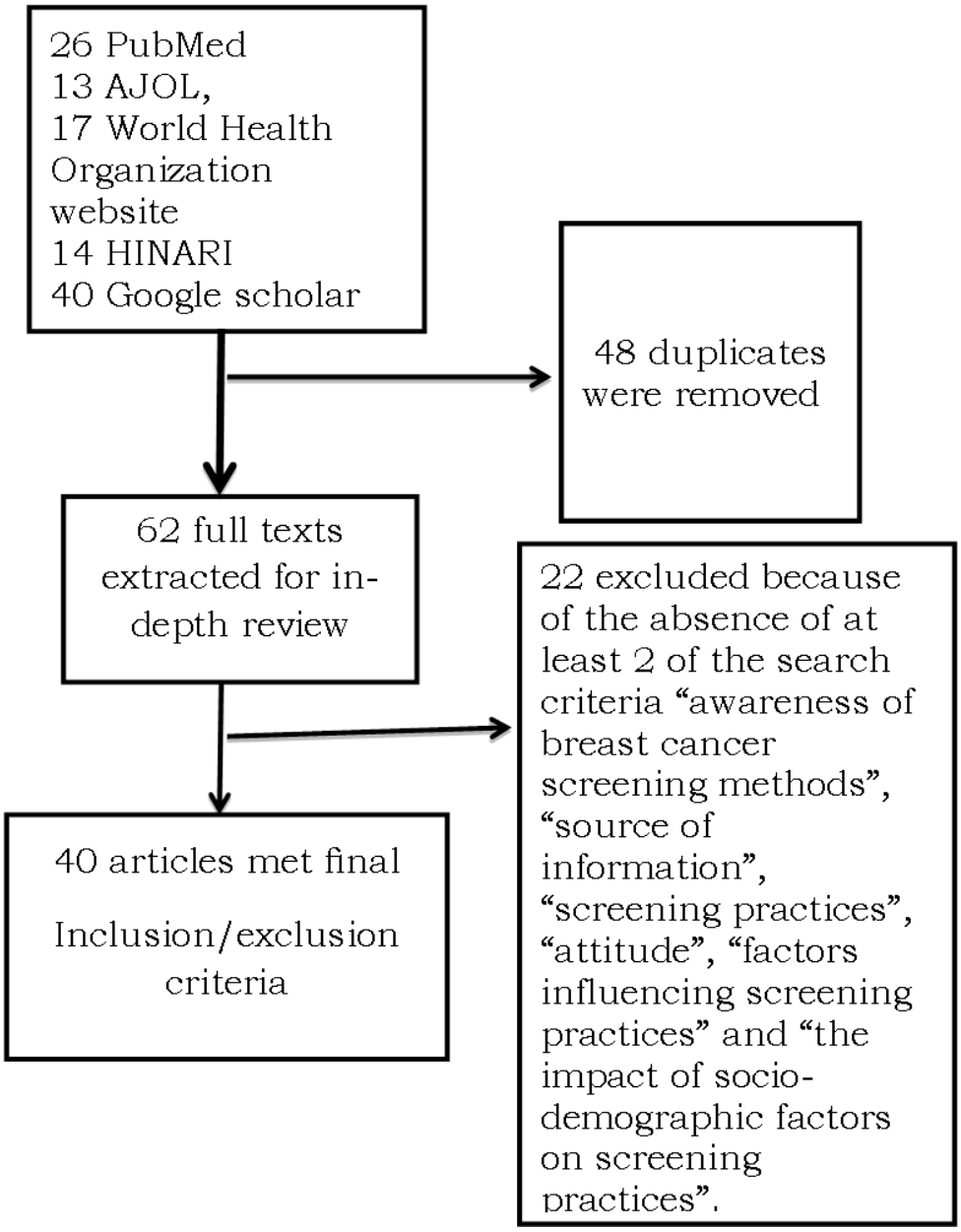

Figure 1. Study selection flowchart.

Factors that influence practice of breast self-examination

The reasons provided for non-performance of BSE included not having a family history of breast cancer (Isara and Ojedokun, 2011), fear of finding a lump (Isara and Ojedokun, 2011; Aniebue and Aniebue, 2008), forgetfulness (Aniebue and Aniebue, 2008), ignorance of technique (Aniebue and Aniebue, 2008), not considering it necessary (Aniebue and Aniebue, 2008; Okolie, 2012; Bassey et al., 2011) and feeling of discomfort at touching the breast (Aniebue and Aniebue, 2008) were other reasons provided for non-performance of BSE.

Many studies expressed that the most important factor for not doing BSE is lack of knowledge regarding the conduct of BSE (Bassey et al., 2011; Agboola et al., 2009, Isara and Ojedokun, 2011; Aniebue and Aniebue, 2008), some believed they can never have breast cancer (Bassey et al., 2011; Okobia et al., 2006; Isara and Ojedokun, 2011), others felt they were violating their bodies by palpating their breasts (Bassey et al., 2011; Aniebue and Aniebue, 2008; Gali, 2013) while some were scared of being diagnosed with breast cancer (Bassey et al., 2011; Okolie, 2012; Okobia, 2006; Isara

and Ojedokun, 2011; Aniebue and Aniebue, 2008).

Few others factors hindering performance of BSE were: did not believe in the efficacy of the test (Bassey et al., 2011), they did not have any symptom/ they did not have any problem with their breasts (Bassey et al., 2011; Omotara et al., 2012), while some said they did not have time (Okolie, 2012), forgetfulness (Okolie, 2012; Okobia et al., 2006; Aniebue and Aniebue, 2008), procrastination (Okolie, 2012), laziness (Okolie, 2012), as lack of trust in their ability to perform BSE/ lack of self-confidence to do it (Okolie 2012; Olowokere et al 2012), anxiety (Okolie 2012; Okobia et al., 2006) and lastly, lack of awareness (okobia et al., 2006).

Clinical breast examination

Clinical breast examination is one of the recommended options for early detection of breast cancer especially in low resource countries like Nigeria where access to mammography is difficult in terms of cost and hospital proximity. Among the nurses, 93.2% clinical breast examination as screening tool (Bello et al, 2011). Only 26% have had the procedure in the past 1 year (Bello et al, 2011). Only 30% had clinical breast examination done by a medical doctor while the rest (70%) never had clinical breast examination (Oluwole, 2008). Onwere et al. (2009) in Aba, Nigeria in which only 1% and 2% of their respondents had clinical breast examination performed by doctors and nurses respectively. CBE as a screening method is reassuring as 51.0% of the respondents agree to have their breast examined by doctors when they find any abnormalities with their breast but majority of the nurses and other health workers did not agree to routine CBE thus the practice of CBE by study participants is rather poor (Gali, 2013). Thirteen percent (13%) were able to identify CBE as screening method (Obaji et al., 2013).

All study participants (100%) identified clinical breast examination as methods for breast cancer detection or screening. Clinical breast examination had been ever in 15.6% of the women (Sule, 2011) while only 5(1.2%) identified clinical breast examination (Abimbola and Oladepo, 2006). Less than one-tenth of the respondents (9.1%) had clinical breast examination (CBE) in the past year (Okobia et al., 2006). Odusanya and Tayo (2001) reported that 34.3% had practiced CBE. Clinical breast examination (CBE) was known to 51.7% of the women and 31.7% of them confirmed that they have had breast examination by health professionals, however, 38.9% of the women could not correctly ascertain the ideal frequency for performing CBEs (Olowokere, 2012).

However, a significant association was found between the educational status of women and their screening practices ($p = 0.000$ for CBE) which means that the higher the educational status of women, the more the likelihood that they are going to participate in screening test for breast cancer (Olowokere, 2012). Bello et al. (2011) mentioned that rates of CBE by participants were found not to be influenced by age, profession or knowledge of risk factors (Bello et al., 2011). The main reasons advanced for not having clinical breast examination (CBE) include not having a breast problem and being unaware of the need for CBE (Okobia et al., 2006).

Mammography

A total of 84(84%) of the respondents were aware of mammography as a way of detecting cancer of the breast with more than half (56%) having adequate knowledge about mammography and its ability to detect early cancer of the breast (Oche et al., 2012). One hundred and eighty-eight participants (91%) were aware of mammography as a screening method for breast cancer and only 8% ever had mammogram (Ibrahim et al., 2009). The screening mammography rate by age grouping revealed poor uptake of mammography as only 22(38.6%) of those within the ages 40-49, 3(27.3%) of those within the ages 50-59 had a screening mammography and only one person above 60 year has had screening mammography (Gali, 2013).

Three hundred and seventeen (80.7%) of the respondents were aware of mammography as a breast cancer diagnostic method (Akhigbe and Omuemu, 2009). Majority, 91.84% knew about mammography (Okolie and Virginia, 2012). It was found that 16 participants had done one diagnostic mammogram (Olajide et al., 2014). A total of 117 respondents (41.9%) knew about breast mammography (Eguvbe et al., 2014). Olowokere et al. (2012) said 40(22.2%) had heard about the mammography as screening method out of which 3.9% (n=7) of them confessed that they had the screening for the purpose of knowing whether they have breast cancer (Olowokere et al., 2012). Reasons for low practice of mammographic examination included lack of awareness, absence of national screening programs, and lack of facilities for mammography (Bello et al., 2011).

DISCUSSION

The current systematic review summarize and compare existing evidence on the awareness of breast cancer, attitude and screening practices among women in the six Geopolitical zones of Nigeria from 2001 to 2014. Awareness of a disease like breast cancer precedes knowledge and screening practices. Patients in communities with high level of awareness is usually present with less advanced stages of breast cancer as a result of adoption of screening methods (Parkin et al., 2005); those in communities with low level of awareness often present late (Adebamowo and Ajayi, 1999); Lannin et al., 1998). It is good to know that awareness concerning breast cancer as a disease entity in Nigeria

shows a lot of variation among different population though in the last decade has actually received a major boost. The general heightened of breast cancer awareness as a disease entity may be attributed to the unrelenting effort, contributions and involvement of individuals and groups which includes health workers, government and non-government organization (NGO). Apart from the aforementioned, education is also a key important factor that influenced awareness of breast cancer. Studies in other parts of the world have shown that general breast cancer awareness increases with level of education (Matalqah et al., 2011). The variation in awareness of breast cancer was also confirmed by studies carried out in India by Kumar and Kashyap (2016) awareness of breast cancer among the participants was 75.9% which was higher than the study done by Somdatta (2008) in urban resettlement colony in Delhi where awareness was only 56%. Awareness was only 53.4% in the study conducted at community level in Delhi by Dey et al. (2015). Some respondents who were aware of breast cancer as a disease entity knew that breast cancer was the most common cancer among women worldwide (Yakubu et al., 2014); breast cancer could be treated if detected early (Obaji, 2013); knew that breast cancer was associated with a high incidence of death (Yakubu et al., 2014; Agwu et al, 2007) and indicated that early detection could improve the chances of survival (Bassey et al., 2011).

Electronic media, TV and health professionals were the leading sources of getting information on breast cancer in Nigeria, while leaflet and internet was not mentioned at all. A message can be conveyed through a number of different channels and since the nineteenth century, messages on posters, the radio and more recently television and the internet have been used to educate the public and persuade them to live a healthy life (King's Fund, 2008). Sources of information are an important aspect of awareness of health related disease and most especially breast cancer. The credibility, clarity and effectiveness of any information source on health related issues determine its impact on the target audience. Information sources are essential in public health campaigns because they are seen as the cornerstone for health communication interventions (Kreps and Sivaram, 2009; Okorie, 2011) and that mass media outlets have the capability of enlightening heterogeneous audiences, while interpersonal channels have been more influential in affecting behavioural change (Kreps, 2008; Kreps and Sivaram, 2009; Okorie, 2011). The influence of mass media cuts across social and geographical barriers in society (Soola, 2003; Okorie, 2011), as they disseminate information to target audiences in society. Mass media outspreads to almost every segment of society that is exposed to their programmes (Okorie et al., 2014). According to the study done by Ojewusi and Arulogun (2016) among secondary schools teachers mentioned that the least reported primary source of information on breast cancer in their study was internet and this should be addressed in any future programs targeted towards health education through the use of the internet.

Breast self-examination (BSE) was the most common breast screening practice among respondents followed by clinical breast examination (CBE) and mammography. Breast self-examination awareness level varied among populations; while view record very high awareness (Nasiru and Olumuyiwa, 2009; Agboola et al., 2009; Yakubu et al., 2014; Akpo et al., 2009; Okolie 2012; Bello et al., 2011; Nasiru and Olumuyiwa, 2009; Eguvbe et al., 2014; Agwu et al., 2007; Oluwole, 2008; Gali, 2013) but some were very low (Abimbola and Oladepo, 2006; Hope, 2012). Practice of Breast Self-examination was high among some of the participants that claimed to had ever carried out breast self-examination (Akpo et al., 2009; Nasiru and Olumuyiwa 2009; Onwere et al., 2009) but less than half practiced breast self-examination as recommended monthly. The practice of women regarding BSE corroborated the studies by Hill et al. (1988), Sadler et al. (2001) and Ahuja and Chakkrabarti (2010) that many women do not practise BSE. Performance of clinical breast examination range from 1 to 51% in all the papers reviewed. It was mentioned that higher educational status of women, the more the likelihood that they are going to participate in clinical breast examination (Olowokere, 2012). The main reasons advanced for not having clinical breast examination (CBE) include not having a breast problem and being unaware of the need for CBE (Okobia et al., 2006).

Mammography is the only breast screening procedure for which empirical evidence exists to have significantly reduced breast carcinoma mortality by about 63% (Tabar et al., 2001) but mammography screening rate in this review revealed poor uptake of mammography despite having had of the screening method. This is low compared to other countries, for example 72% of the target population in Canada reported to have had a mammogram in the past two years (Statistics Canada, 2009). It has been mentioned that mammography has limited application in Nigeria, where facilities and expertise are largely unavailable, therefore, breast self-examination if properly carried out remains the most cost effective method for the early detection of breast cancer (Chioma and Asuzu, 2007; Onyije et al., 2010; Saludeen et al., 2009).

Limitation

Like any other review article, this review is subject to bias such as the influence of the authors' personal viewpoints, gaps in literature research that may lead to omission of relevant research, errors in translation of data from primary literature to summarization in the review, misrepresentation or misinterpretation of original data sources. Efforts were made to minimize the influence of

these potential sources of bias by considering the primary data thoroughly before examining the review items. Our understanding of the subject matter allowed us to critique the review articles and improve upon them. Our search is limited to include only those articles which are written in English. Secondly in this review the emphasis is more towards breast self-examination practice rather than clinical examination and mammography. Moreover, the included articles reported lack of generalization in their result findings which itself serves as a limitation of our review.

CONCLUSION AND RECOMMENDATION

The results of the study showed deficiency in screening practices even among those who were aware of the screening methods. Several studies have emphasized that early detection through appropriate uptake of breast cancer screening intervention remains key to its prevention and cure (Anderson et al., 2008; Yip et al., 2008). These educational efforts must be continued and expanded to include signs of breast cancer and advice as to changing life patterns to avoid cancer. Sources and methods of education, development of effective educational resources aimed at reducing removing barriers like fear to breast health promotion and early detection must be combined with high levels of exposure among audience to provoke change and to impact on social norms. But it is difficult for information alone to impact on complex and habitual lifestyle behaviours, campaigns that couple information with other services is more likely to bring sustained changes in behaviour. This might involve, for example, using mass media channels to plant storylines in soap operas, or getting celebrities or likable characters to convey a message like soap operas for HIV/AIDS campaign in Nigeria.

Information campaigns through audience segmentation could be used in promoting behavior. Educational leaflets can be disseminated in settings where time, educator preparation, cost, recipient attention span, and generally limited resources are constraints. Dissemination of information leaflets is a brief educational approach that is low in complexity and cost, and is not designed to be demanding of clients and the staff who implement it. Emphasis should be on susceptibility and the seriousness of not making a change and should outline the costs of unhealthy behaviours and the benefits of change. Information can also act as a cue or trigger in those already contemplating change through advertising campaigns that direct people to services or leaflets that provide information on how to be healthier. Emphasis should be on educating women on “breast awareness”.

Conflict of Interests

The authors have not declared any conflict of interests.

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