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Women's health beliefs and breast cancer screening practices in Nigeria

By Adekemi Olowokere, Adenike Onibokun and Omolola Irinoye

Breast cancer is the most common cancer found in women (World Health Organization (WHO), 1996; Ogunbiyi, 2000; Adebamowo and Ajayi, 2000) and one of the leading causes of death among women (Heimann et al, 1998). It is a feared disease, not only because it is life-threatening, but also because it can affect a woman's sense of self-concept, her sexuality and femininity. Previous studies in African countries have shown an increased incidence in a population that was thought to have enjoyed low incidence (Olopade, 2004). Over the years, people have believed that breast cancer is an older woman's disease, and therefore the primary focus has been on prevention, detection and treatment of breast cancer for women who are 50 years and older (Kinnon, 2003). However, studies in the African-American community have shown that the disease can strike at a younger age and this prompted physicians and cancer advocate groups to recommend that women should get baseline mammograms at the age of 40 years. The American Cancer Society (ACS) (2011) also recommends that women, starting at age 20, should be educated on the benefits and limitations of performing a monthly breast self-examination (BSE).

A lot of progress has been made in cancer prevention, early detection and treatment especially in the developed world. However, very little progress has made its way to sub-Saharan Africa (Olopade, 2004). For decades, public health campaigns have targeted women with the message that early detection of breast cancer translates into improved survival chances and that examination of breasts and mammography are the first steps to detection (Crossing and Manaszewicz, 2003). Among all the methods used for early detection of breast cancer, BSE provides a relatively simple and low cost method that can be performed more frequently than other methods, while mammography may pick up tumours long before they can be detected in any other way thus enhancing better prognosis than those whose cancer is detected in other ways (Aldridge, 2005).

Several studies have shown the importance of early detection in enhancing breast cancer prognosis and treatment. However, many women do not participate in screening activities for breast cancer. Despite the varying controversies about the use of BSE regarding its sensitivity and specificity in detecting breast cancer as highlighted by Allen et al (2010), BSE still remains the most readily available method of screening to rural women especially in most parts of low-resource countries where sophisticated diagnostic screening methods are not easily accessible due to affordability and availability. Therefore, it is important for women to be breast aware and also to be able to perform this simple procedure efficiently in order to detect any abnormality in their breasts. Even though

Abstract

Receiving a diagnosis of breast cancer and coping with subsequent treatments can be highly threatening experiences that may influence women's breast screening practices. It is therefore important to have a good understanding of women's beliefs and behaviour where breast cancer may be concerned. This study examined the influence of women's beliefs on breast screening practices (BSE) in four rural communities of Nigeria. Utilizing cross-sectional design, women's beliefs were measured using the Health Belief Model (HBM) scale adapted to Nigerian cultural settings. Women's perceived risk to breast cancer was found to be moderately high. Self-confidence and intention to participate in health-promoting behaviours were the significant variables that influenced the women's practice of BSE ($P=0.000$ and $P=0.021$ respectively). The authors therefore recommend that community health nurses should promote activities geared towards mastery of BSE by promoting self-confidence in women through regular demonstration and reinforcement of health educational sessions at the primary health care level.

BSE still remains the most simple and cost-effective method, many women still do not practice it (Hill et al, 1988; Sadler et al, 2001; Oluwatosin and Oladepo, 2006; Ahuja and Chakkrabarti, 2010) and do not access regular life-saving mammograms. It is important to state that BSE does not replace clinical breast examination and mammography but it can be considered a first line of defence as it increases a woman's comfort level with her body, familiarity with the topography of her breasts and awareness that breast health is part of total wellbeing. The core issue is that women ideally need to know how their breasts feel and look normally, so as to be able to recognize any deviation from the norm.

Theoretically, before health-promoting behaviours will occur, a threat must be recognized. For example, in case of BSE, a woman must perceive that breast cancer is both serious and that there is a possibility that she is personally at risk of breast cancer. As breast cancer severity is widely recognized and attitudes toward this are unlikely to vary dramatically,

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perceived susceptibility alone is often used by some researchers as a variable in threat perception. An increase in perceived susceptibility has been linked to an increase in breast cancer screening (Stein et al, 1992; Zapka et al, 1992). In addition to perceived susceptibility, perceived benefits to taking action and perceived barriers to action are central constructs of the Health Belief Model. Perceived benefits refer to the perception of positive outcomes thought to accrue from behaviour; for example, in the case of BSE screening, benefits relate to the potential to discover breast cancer early, thereby avoiding death. Perceived barriers refer to negative attributes related to the health action; with BSE, barriers might include worry about breast cancer, time to perform BSE and lack of privacy to conduct BSE.

Theoretically, a perception of more benefits to screening combined with perception of few barriers will be associated with uptake of breast cancer screening. Many investigators have verified the usefulness of perceived benefits and barriers in predicting breast screening (Champion, 1992; Rakowski et al, 1993; Thomas et al, 1996).

Self-efficacy—or one's confidence in the ability to successfully perform an action—will determine the likelihood that one will practice a particular health-promoting behaviour. For example, a woman's confidence in performing BSE will promote performance of the examination, i.e. the higher the level of confidence she has in performing BSE, the greater the likelihood of practising it regularly. Another added variable in the Health Belief Model are the 'cues to action', that is, one's intention to find or perform preventive behaviour. For example, people who always have intention in performing preventive activities are likely to practice BSE regularly.

This study was conducted to provide information to community health nurses in the rural areas of Nigeria on the influence of women's beliefs on breast screening practices. Screening in this study is limited to BSE because it is the only readily available method in the rural areas. The study also identified leverage points for change which may help to empower nurses in educating women on the positive benefits of breast screening, and help them to develop ways of addressing barriers that the women may experience, while reinforcing beliefs that promote health behaviour among the women.

Problem statement

Breast cancer is a rapidly emerging disease in Africa (Walker et al, 2004). The impact of breast cancer is similar to the impact of HIV on women in terms of the burden of care, but it has received less attention when compared with HIV in terms of publicity, funding (both overseas and nationally) and local research. Breast cancer has significant implications for the affected women who are frequently young and poor, and present with the late stage of the disease.

Despite the fact that the benefits of screening for breast cancer are well-documented, many women, particularly poor, medically under-served, and ethnic minority women, do not participate in the screening programmes. Health beliefs of women have been a strong factor in determining participation in screening programmes. However, this has been found to differ from one community to the other.

The impact of breast cancer and its ensuing treatments can be perceived as highly threatening to women. Therefore, the understanding of women's beliefs and behaviour is indispensable to the promotion of breast screening with the aim of enhancing early detection.

Methodology

Study design

The study adopted a descriptive cross-sectional design involving four local communities in Egbeda Local Government Area of Oyo State.

Sample and participants

The Local Government Authority (LGA) of the study was purposively selected among the 11 LGAs in Ibadan, Oyo State, Nigeria. This LGA was selected as it consists of core rural areas that are ideal for the study. The villages used for the study were purposively selected because they are the core rural settings in the LGA. Six clinics were randomly selected from the 18 clinics in the selected rural areas by simple balloting. The number of women attending each clinic monthly was identified and a proportional method was adopted to select 30% of clinic attendees in each clinic and a total number of 180 women were selected for the study. The inclusion criteria required the women to be within the age range of 20–60 years, attending the clinic at the time of visitation of interviewers and who gave their consent to participate.

Data collection

An interviewer-administered technique was employed. Data were collected using the revised Health Belief Model questionnaire (Champion, 1992) which was modified based on the Nigerian cultural context. Respondents' beliefs were measured on a 5-point Likert scale. Questionnaires were translated into local language to facilitate understanding and uniformity of information by the interviewers. Reliability of the different components of the instrument was done through a test-retest method with alpha (α) correlation of 0.81 to 0.95.

Method of data analysis

The raw data from the field was screened for inconsistencies and duly edited. Analysis of data was done by computer using the Statistical Package for Social Sciences. Results obtained were plotted on frequency distribution. Cross-tabulation was used to examine relationships between variables and associations were tested using the chi-square (χ^2) test.

Ethical considerations

Permission to carry out the study was sought from the Medical Officer in charge of the LGA and each clinic before commencing voluntary recruitment. Informed consent was obtained and participants were assured of the confidentiality of their responses.

Results

The sample consisted of 180 women with an age range of 20–60 years. The mean age of the women was 37.13 years with standard deviation (SD) of 11.94.

Health beliefs of women and screening practices

Respondents' perceived threat of breast cancer was measured using two variables: the perceived susceptibility and seriousness of breast cancer (Table 1). A moderately high percentage of respondents (65.5%; $n=118$) believed that they were at risk of breast cancer and that this could increase as they aged (45.0%; $n=81$). A lesser proportion (39.5%; $n=71$) of women believed they could be prone to breast cancer because someone in their family had cancer in the past. More than 75% of women ($n=139$) believed that breast cancer was a serious disease and were scared when they learned another woman had it (91.6%; $n=165$). The women believed that, if they discovered they had it, it could affect their whole life (80.5%; $n=145$), would threaten their role as a wife and mother (85.6%; $n=154$) and would affect their chances of living (77.2%; $n=139$). The majority of women

(90.5%; $n=163$) also believed that breast cancer could be a disease with high propensity of leading to death.

Perceived benefits and barriers of BSE are shown in Table 2; close to two-thirds (66.1%; $n=119$) of the women agreed that monthly BSE during the next year would decrease their chances of requiring surgery if breast cancer did occur. Other benefits of BSE, such as preventing unnecessary worries about breast cancer and being able to find lumps early before being detected by a doctor or a nurse, were recognized by more than three-quarters of the women (77.8%; $n=140$; 76.7%; $n=138$ respectively). However, a lesser proportion of the women believed or agreed that BSE could increase their worries about breast cancer (43.4%; $n=78$), would take too much time (28.3%; $n=51$); may not be effective to detect abnormalities in the breast (41.7%; $n=75$) or requires privacy and concentration which they may not have where they lived (46.7%; $n=84$).

Table 1. Respondents' perceived threat of breast cancer ($n=180$)

Statement of expression of perceived threat of breast cancer	Correct perception of threat	Wrong perception of threat	
		Uncertain	Wrong perception of threat
Susceptibility to breast cancer			
As a woman, I am at risk of breast cancer	118 (65.6)	17 (9.4)	45 (25.0)
As I grow older, my risk of getting cancer increases	81 (45.0)	36 (20.0)	63 (35.0)
I may be prone to breast cancer because someone in my family has had cancer in the past	71 (39.4)	21 (11.7)	88 (48.9)
Seriousness of breast cancer			
The thought of breast cancer scares me especially when I learn that a woman has it	165 (91.7)	3 (1.7)	12 (6.7)
If I have breast cancer, it will affect my whole life	145 (80.6)	16 (8.9)	19 (10.6)
Breast cancer can threaten a woman's role as a wife and a mother	154 (85.6)	9 (5.0)	17 (9.4)
Breast cancer can threaten one's chances of living	139 (77.2)	25 (13.9)	16 (8.9)
It is better not to develop breast cancer because it is a disease with high incidence of death	163 (90.6)	8 (4.4)	9 (5.0)

Table 2. Respondents' perceived benefits and barriers to breast self-examination ($n=180$)

Benefits of BSE	Perceived good benefits	Perceived no benefits	
		Uncertain	Perceived no benefits
Regular monthly BSE will prevent unnecessary worries about breast cancer	140 (77.8)	16 (8.9)	24 (13.3)
Monthly BSE will allow me to find lump easily	153 (85.0)	16 (8.9)	11 (6.1)
Will decrease chance of requiring disfiguring operation if breast cancer occurs	119 (66.1)	34 (18.9)	27 (15.0)
Will help find a lump which might be cancer before it is detected by a doctor or nurse	138 (76.7)	21 (11.7)	21 (11.7)
Barriers of BSE		Uncertain	Perceived no barrier
Performing BSE can increase my worries about breast cancer	78 (43.3)	21 (11.7)	81 (45.0)
Doing BSE will take too much time	51 (28.3)	32 (17.8)	97 (53.9)
BSE may not be effective to detect abnormalities in the breast	75 (41.7)	39 (21.7)	66 (36.7)
BSE requires privacy and concentration which I may not have where I am living	84 (46.7)	12 (6.7)	84 (46.7)

BSE=Breast self-examination

Table 3. Respondents' confidence to perform breast self-examination (n=180)

Level of confidence	Confident to perform BSE	Uncertain	Not confident to perform BSE
I know how to perform BSE	62 (34.4)	30 (16.7)	88 (48.9)
I am confident I can perform BSE correctly	50 (27.8)	31 (17.2)	99 (55.0)
I would be able to find a lump by performing BSE	77 (42.8)	27 (15.0)	76 (42.2)
I am able to identify normal and abnormal breast tissue when I do BSE	87 (48.3)	17 (9.4)	76 (42.2)
When looking in the mirror, I can recognize abnormal changes in my breast	126 (70.0)	17 (9.4)	37 (20.6)

BSE=Breast self-examination

Table 4. Respondents' intention to participate in health-promoting behaviour (n=180)

Intention	Positive health motivation	Neutral	Negative health motivation
Want to discover health problems early	173 (96.1)	3 (1.7)	4 (2.2)
Monitoring good health is extremely important to me	173 (96.1)	6 (3.3)	1 (0.6)
I search for and like to listen to new information that can improve my health	173 (96.1)	5 (2.8)	2 (1.1)
I have regular health check-ups even when I am not sick	120 (66.7)	8 (4.4)	52 (28.9)
I feel it is important to carry out activities which will improve my health	175 (97.2)	2 (1.1)	3 (1.7)



Almost all the women (96.1%; n=173) intended to seek and perform preventive activities like discovering health problems early, good health maintenance, and searching for and listening to new information that could improve their health.

Table 3 shows the women's confidence in performing BSE. The study showed that the majority of the women lack confidence (55.0%; n=99) and skill to perform BSE (48.9%; n=88). About equal proportion of women agreed (42.8%; n=77) and disagreed (42.2%; n=77) that they would be able to find a lump by doing BSE. A good proportion of women agreed that they recognized abnormal changes in their breast (70.0%; n=126) and 48.3% (n=87) agreed that they could identify normal and abnormal breast tissue when performing BSE.

Respondents' intention to seek and perform preventive activities was classified as shown in Table 4. Almost all the women (96.1%; n=173) intended to seek and perform preventive activities like discovering health problems early, good health maintenance, and searching for and listening to new information that could improve their health. Two thirds of respondents (66.6%; n=120) intended to have regular health check-ups even when they had no illness.

Table 5 presents the relationship between various HBM variables and screening practices. No significant relationship was found between perceived threat of breast cancer and screening practices (P=0.82), perceived benefits and screening practices (P=0.24) and perceived barriers and screening practices (P=0.66). However, the women's intention in seeking healthy behaviour and performing BSE were significantly related (P=0.02). A significant relationship was also found between women's self-confidence in performing BSE and screening practice (P=0.00). It could therefore be concluded that women who had intention in seeking healthy behaviour are more likely to practise BSE than others who did not have health-promoting intentions. Also, women who had confidence had a higher tendency to practise BSE.

Demographic variables such as age, marital status and religion had no significant association with the women's screening practices. However, a significant association was found between the educational status of women and their screening practices ($X^2=23.70$, degree of freedom (DF)=3, P=0.000), meaning that the higher the educational level, the higher the likelihood of a woman performing BSE (Table 6).

Discussion

Examining the relationship between health beliefs of the women (using the Health Belief Model variables) and practice, the study found that self-efficacy (self-confidence) and intention to seek health-promoting behaviour were significant predictors of BSE. The present results support the assertion of Rosenstock et al (1988) that the Health Belief Model should be expanded to include individuals' confidence in their ability to perform a recommended behaviour. The study is also consistent with previous studies that have reported significant effects for self-efficacy in relation to BSE (Hallal, 1982; Alagna and Reddy, 1984; Murray and McMillan, 1993; Chalmers and Luker, 1996). Self-efficacy was the strongest predictor of BSE in this study (Table 5).

Intention to seek preventive health behaviour was found to have a strong influence on practice of BSE. These findings also supported the addition of behavioural intention as a mediator between the Health Belief Model dimensions and behaviour as reported in other findings (e.g. Norman, 1995).

Table 5. Association between Health Belief Model variables and practice of breast self-examination (n=180)

Health Belief Model variables	Practice	Number	Mean score for the variable	Standard deviation	Test statistics	P value
Perceived threat of breast cancer	Yes	36	30.69	6.24	2510.00	0.82
	No	143	30.59	6.77		
Perceived benefits	Yes	36	17.03	2.21	2264.50	0.24
	No	144	15.69	4.17		
Perceived barrier	Yes	36	11.36	4.33	2468.00	0.66
	No	144	11.36	4.13		
Self-confidence	Yes	36	19.22	4.67	1173.00	0.000
	No	144	13.34	5.91		
Health motivation	Yes	36	22.92	2.69	1956.50	0.02
	No	144	2.98	2.48		

Table 6. Influence of respondents' demographic characteristics on breast self-examination practice (n=180)

Characteristics		Do not practice BSE	Practice BSE	Total	X ²	P value
Age (years)	20–29	48 (26.7)	9 (5.0)	57 (31.7)	3.36	0.34
	30–39	43 (23.9)	8 (4.4)	51 (28.3)		
	40–49	30 (16.7)	12 (6.7)	42 (23.3)		
	50+	23 (12.8)	7 (3.9)	30 (16.7)		
Education	No formal education	33 (18.3)	3 (1.7)	36 (20.0)	23.70	0.000
	Primary	32 (17.8)	4 (2.2)	36 (20.0)		
	Secondary	47 (26.1)	6 (3.3)	53 (29.4)		
	Tertiary	32 (17.8)	23 (12.8)	55 (30.6)		
Marital status	Single	23 (12.8)	3 (1.7)	26 (14.4)	4.67	0.32
	Married	111 (61.7)	31 (17.2)	142 (78.9)		
	Separated	7 (3.9)	0 (0.0)	7 (3.9)		
	Divorced	1 (0.6)	1 (0.6)	2 (1.1)		
	Widowed	2 (1.1)	1 (0.6)	3 (1.7)		
Religion	Christianity	87 (48.3)	26 (14.4)	113 (62.8)	3.30	0.19
	Islam	56 (31.1)	9 (5.0)	65 (36.1)		
	Traditional religion	1 (0.6)	1 (0.6)	2 (1.1)		

BSE=Breast self-examination

In contrast to other studies which stated that perceived benefit (Hallal, 1982; Calnan and Rutter, 1986; Champion, 1992), perceived barriers (Calnan and Rutter, 1986; Champion, 1987) and perceived susceptibility (Calnan and Rutter, 1986; Champion, 1987; 1992; Hallal, 1982; and Massey, 1986) are the consistent predictors of preventive behaviours, the present study has shown no significant relationship between these variables and respondents' screening practices.

The findings of this study support the findings of Barron et al (1997) which indicated that perceived benefits, seriousness and susceptibility were not predictors of BSE. However, the significant finding in their study was that perceived barriers were the most consistent health belief concept related to

BSE and this contrasts with the findings of the present study. Like some other studies, the present findings report a non-significant effect of perceived severity (Owens et al, 1987; Rutledge and Davis, 1988; Murray and McMillan, 1993).

The belief of risk reported by women in this study is in contrast with the findings among African-Americans (Fields, 2004), that the women underestimated their risk of cancer significantly. This is demonstrated by participants' responses of the severity of breast cancer and its fatality. As affected family members died of breast cancer, women believed that having breast cancer could affect their whole life. This study showed a moderately high perception of risk among the study population of women who believed that they could be at risk of getting breast cancer because someone in their

Key Points

- Breast cancer among women is a major health concern that needs prompt attention
- Women's beliefs play a significant role in women's participation in screening programmes for the prevention of breast cancer
- Breast self-examination is the most readily available screening method in the rural areas of low-resource or poor countries
- Breast self-examination, if taught effectively can assist women to identify abnormality or changes in their breasts

family had had it in the past (39.5%; $n=71$). This number is very significant when compared with the total population of women who participated in the study. This further reiterated the need to promote breast cancer screening among women in this area.

Most women had a good perception of the benefits of BSE and they did not perceive many barriers in relation to practice.

Recommendations

The present study highlighted a number of reasons for encouraging regular BSE performance among women especially those with a family history of breast cancer. In particular, nurses who are the closest to the community (most especially in the rural areas) should continue to promote the positive benefits of performing regular BSE as well as developing ways to address the barriers that women may experience. This needs to be emphasized in the rural areas as many women aged 30 years and above are not even aware of mammography screening.

For many communities in Nigeria and other low-resource or poor countries, mammography screening is not easily accessible and where it is available, affordability is a major challenge. BSE remains the most accessible and cost-effective method for rural women and this need to be promoted.

In view of the strong relationship of self-efficacy to BSE, nurses should seek to enhance women's confidence in their ability to perform regular BSE. BSE will assist women in detecting any deviation from normal in their breast topography and structure if they have the self-efficacy to do so.

“In contrast to other studies that stated that perceived benefit, perceived barriers and perceived susceptibility are the consistent predictors of preventive behaviours, the present study has shown no significant relationship between these variables and respondents' screening practices.”

Bandura (1986) outlined four useful sources in improving self-efficacy:

- Personal mastery, achieved by splitting BSE into various sub-behaviours so that mastery of each is achieved in turn
- Vicarious experiences, in which interventions may be designed to provide practical demonstration of BSE
- Standard persuasive techniques could be used, such as informative, educative and communication materials like pamphlets and video clips to enhance self-efficacy
- Relaxation techniques could be taught by nurses and health professionals to address high levels of anxiety which may be exhibited by individuals.

Women can also be encouraged to come for annual breast examination with their primary health care providers in the health centers close to their homes. However, if any symptoms suggestive of breast cancer are found, women need to promptly attend the hospital, and this must be emphasized. While mammography as a method of breast screening is not easily accessible to rural dwellers, there is a need for them to be well informed on this as the need for it may arise in the future. Women should be prepared for such tests, thereby reducing the perceived barriers that may be associated with such screening.

This study is purely a descriptive study and based on past behaviour. There may be need for an intervention study to be able to further ascertain the relationship between the variables identified in the Health Belief Model and screening practice in Nigeria. An intervention study will also help to explore the effectiveness of using the Health Belief Model variables to educate women in Nigeria. Such studies should be designed to explore a greater number of women in the rural areas for a better representation.

Conclusions

This study has identified self-confidence and intention to participate in health-promoting behaviour as key predictors of BSE practice among rural women. Community health nurses should focus on these predictors to educate and enhance mastery of BSE as a way of promoting early detection of breast abnormality and better prognosis of the disease when a woman has it. The study was conducted in the core rural communities where primary health care remains the major source of health care to the largest percentage of the population. The focus of primary health care is prevention. Therefore, community health nurses at this level should endeavour to integrate educational programmes geared towards breast cancer prevention into their daily educational intervention for the different categories of women receiving care.

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Acknowledgements: The authors thank Professor Victoria Champion of Indiana University School of Nursing for providing the 1999 revised Health Beliefs Model instrument and other useful materials for this study. Special appreciation to the Medical Officer of Health of Egbeda Local Government Area who gave the permission on behalf of the local government for the study. The health care workers in the selected health facilities are also thanked for their support for the successful conduct of the study, as are the community health mobilisers (Egbeda Community Women Action Group) for creating awareness on the study in the selected villages. All women who participated in the study are also thanked for their time and willingness to provide information.

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