

Nurse-Led Intervention On Knowledge and Skill of Breast Self-Examination Among Women of Reproductive Age in Babcock University Teaching Hospital, Ogun State Nigeria

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Abstract:

Breast self-examination is a method or plan of action for detecting abnormalities of the breast. It could also be done to allow the woman get familiarized with her breast and enable her detect any abnormality early and ensuring efficacy of treatment of any if detected. The main objective of this study is to assess the effect of a nurse-led intervention on knowledge and skills of breast self-examination among reproductive age women. Quasi-experimental design approach was used. A convenient sample was used to select the participants for this study. A well-structured designed questionnaire was used to collect data on knowledge and skills regarding breast self-examination. Face and content validity of the instrument was ascertained by presenting them to panel of expert. The reliability of the questionnaire was ascertained using Cronbach's alpha coefficient which was calculated to be 0.893. Results were tested using descriptive and inferential statistics. Findings of this study showed that the pre-intervention knowledge mean score of participants on breast self-examination was below average. This study revealed that there was significant difference in

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the post-intervention knowledge mean score of participants on breast self-examination. This study concluded that the nursing intervention exerted an incremental effect in the knowledge and skill levels of participants. It was recommended among others that educational intervention regarding knowledge and skills on BSE should be done by the continuing education units of the hospital periodically for all health workers.

Keywords: Nurse-Led Intervention, Breast Self-Examination, Reproductive Age, Knowledge, Skills,

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Introduction

Cancers generally figured high among the leading causes of death globally and more than 70% of all cancer death is prevalent in developing countries and of all types of cancer, breast cancer is the most common among women whether developing or developed countries (Bray, et al, 2018). Breast cancer is a malignant tumor that arises from uncontrolled division of cells in the breast to form tissue mass (Hiatt & Brody, 2018). These cells have the ability to gain access to adjacent or surrounding structures or migrate to distant sites in the body where they can go on proliferating uncontrollably causing illness and death (Hiatt & Brody, 2018).

Several studies accounted that breast cancer is the major cause of mortality in women and is therefore a global health concern. Breast cancer is the most commonly diagnosed cancer in women, accounting for 1 in 4 of all new cancer cases diagnosed in women globally (Bray, et al, 2018). Azubike, et al, 2018 also submitted it is a leading cause of cancer death among women globally accounting for 15% of cancer deaths. In Nigeria, cancer of the breast is the leading female malignancy over the cancer of the cervix (Agbo, Khalid & Oboirien, 2014). In 2018, breast cancer is responsible for 37% of all cancer types among females in Nigeria and 16.4% mortality. A nine-year review (2004-2013) of the cancer incidence in one of the teaching hospitals in Nigeria showed breast cancer is most common cancer in females; accounting for about 50% of all the female cancer that presented at the institution that period (Saibu, et al, 2017; Sowunmi, et al, 2018).

Breast self-examination (BSE) is a plan of action for identifying abnormalities of the breast. This method comprises the use of the fingers to feel any mass and the eyes to notice any discoloration, alteration in size, and shape. This method is one of the screening processes which is non-invasive, simple and not expensive. Some of the anomalies that can be detected in the breast through BSE are as follows: inflammation of the breast (mastitis), nipple discharges, breast lumps, fibroadenomas (fibrous lump), breast cysts, and painful breast (Hunt & Mittendorf, 2017).

Breast self-examination makes women to be more "bre aware, this result in earlier and higher chances of detecting any changes in the breast tissue. BSE is thereby recommended for raising awareness among women at risk, rather than as a screening method (World Health Organization WHO, 2019; America Cancer Society, 2019). Breast self-examination can be performed by every woman, if taught, because it is simple to perform and can be done independently at no cost. It allows the woman to become familiar with both the appearance and feel of her breast and helps to detect any changes that may occur in the breast as soon as possible. This facilitates the establishment of early communication with the physician to report such changes. In addition, it aids in early hospital presentation, diagnosis and treatment of the disease in the environment. Health behaviours such as BSE can help to empower women to take control and responsibility over their health. Hence, the need for a study on knowledge and skills on breast self-examination among reproductive age women remain a priority

A study by Ifediora (2017) observed that late presentation of breast cancer patients suggests that women in Nigeria have poor knowledge of the disease. Siu (2016) also stated that a woman's risk of breast cancer nearly doubles if she has a first-degree relative (mother,



sister, and daughter) who has been diagnosed with breast cancer. Less than 15% of women who get breast cancer have a family member diagnosed with it. About 85% of breast cancers occur in women who have no family history of breast cancer. These occur due to genetic mutations that happen as a result of the aging process and life in general, rather than inherited mutations (DeSantis, et al, 2016). There is a marked geographical difference in the worldwide incidence of breast cancer, with a higher incidence in developed countries compared to developing countries.

Inadequate knowledge and skills of breast self-examination among women of reproductive age irrespective of their marital status is a pointer to epidemic of breast cancer. The burden of cancer in developing countries is increasing because of the aging and growth of the population as well as increased prevalence of risk factors associated with economic transition, including smoking, obesity, physical inactivity, and reproductive behaviors (Makki, 2015). Hence, a gap in knowledge and skills of BSE seems to exist among this group of females. Knowledge is a major antecedent that influences skills of any behavior without which practice and behavioral change is difficult. Those who are aware of breast cancer and have right knowledge and skills of BSE have increased chance of presenting early for treatment while the reverse is the case for those with poor knowledge and skills (Kalliguddi, Sharma & Gore, 2019).

Thus, the main objective of the study was to assess the effect of nurse-led intervention on knowledge and skills of breast self-examination among women of reproductive age in Babcock University Teaching Hospital, Ogun state, Nigeria. This study specifically:

1. determined the difference between pre and post intervention knowledge mean scores on BSE among the female utility workers; and
2. examined the difference between pre and post intervention skills mean scores on BSE among female utility workers.

Research Questions

The following research questions were raised for this study:

1. What is the pre-intervention and post-intervention knowledge level of BSE among female utility workers?
2. What is the pre-intervention and post-intervention skill level of BSE among the female utility workers?

Research Hypotheses

The following research hypotheses were postulated for this study:

1. There is no significant difference between pre and post intervention knowledge level on BSE among participants
2. There is no significant difference between pre and post intervention skill level on BSE among participants

Methodology

The research study adopted one group pre-test post-test quasi-experimental quantitative design approach using a self-developed questionnaire. The researcher assessed the knowledge and skills of reproductive age female workers in Babcock university teaching hospital. The population for the study comprised of 96 female utility workers of reproductive age in Babcock University Teaching Hospital, Ilishan-Remo, Ogun state. Total enumeration of



all female utility workers in Babcock university teaching hospital was used as the respondents. The researcher adapted a well-structured, developed test paper that was used to elicit information from respondents. The instrument for data collection was a structured test paper which comprises of sections A, B, and C same was used to assess knowledge and skills of respondents prior the intervention. Two research assistant were used for data collection. Data entering, cleaning and coding to spread sheets was done after pre-test and post-test consecutively and statistical product and service solution (SPSS) version 22 was used.

Results

Research Question 1: What is the pre-intervention and post-intervention knowledge level of BSE among female utility workers?

Table 1: Pre and post- intervention knowledge mean score of participants on breast self-examination

Knowledge levels	Category of scores	Pre-intervention		Post-Intervention	
		Frequency	Percent (%)	Frequency N	Percent (%)
Below Average	1-13	49	53.3	1	1.1
Average	14-19	27	29.3	22	23.9
Above average	20-28	16	17.4	69	75.0
Total		92	100.0	92	100.0
Mean		11.28		24.70	
Percentage (%)		40.29		88.21	
Standard dev.		2.46		2.01	
Mean gain	13.42				

Table 1 shows the pre-intervention knowledge mean score of participants on breast self-examination. Forty-nine (53.3%) participants had below average score, 27 (29.3%) and 16 (17.4%) had knowledge mean scores at average and above average respectively on breast self-examination. The pre-intervention knowledge mean score of participants on breast self-examination was 11.28 ± 2.46 , which is equivalent to 40.29% knowledge level.

The table also shows the post-intervention knowledge mean score of participants on breast self-examination. One participant (1.1%) had below average knowledge level, 22 participants (23.9%) and 69 (75.0%) had knowledge mean scores at average and above average respectively on breast self-examination. The post-intervention knowledge mean score of participants on breast self-examination was 24.70 ± 2.01 , which is equivalent to 88.21% knowledge level. Generally, there was a knowledge mean gain of 13.42 after the educational intervention.

Research Question 2: What is the pre-intervention and post-intervention skill level of BSE among the female utility workers?

Table 2: Pre and post- intervention skill level of participants on breast self-examination

skill levels	Pre-intervention		Post-Intervention	
	Frequency	Percent (%)	Frequency	Percent (%)
Not done	51	55.4	8	8.7
Unsatisfactory	37	40.3	22	23.9
Satisfactory	3	3.3	62	67.4
Total	92	100.0	92	100.0
Mean	19.20		47.98	
Percentage (%)	37.65		94.1	
Standard dev.	1.81		2.32	
Mean gain	28.78			

Table 2 shows the pre-intervention skill level of participants on breast self-examination. Fifty-one (55.4%) participants had no skill on BSE, 37 (40.3%) and 3 (3.3%) had unsatisfactory and satisfactory skill level respectively on breast self-examination. The pre-intervention skill level of participants on breast self-examination was 19.20 ± 1.81 , which is equivalent to 37.65% skill level.

Table 2 also shows the post-intervention skill level of participants on breast self-examination. Eight (8.7%) participants had no skill on BSE, 22 (23.9%) and 62 (67.4%) had unsatisfactory and satisfactory skill level respectively on breast self-examination. The post-intervention skill level of participants on breast self-examination was 47.98 ± 2.32 , which is equivalent to 94.1% skill level. Generally, there was a knowledge mean gain of 13.42 after the educational intervention.

Test of Hypotheses

Hypothesis 1: There is no significant difference in the pre and post intervention knowledge mean score of participants on breast self-examination

Table 3: Independent t-test showing the difference in the pre and post intervention knowledge scores of participants on breast self-examination

	N	Mean	Std. Deviation	df	T	Mean gain	p value
Pre	92	11.28	2.46	91	9.21	13.42	.000
Post	92	24.70	2.01				

Table 3 depicts the findings on hypothesis one of this study. Findings shows that there is significant difference in the pre and post intervention knowledge mean score of participants on breast self-examination (mean gain = 13.42, $t = 9.21$, $p = .000$). Based on this, the first hypothesis was rejected and the alternate hypothesis accepted. Therefore, there is a significant difference in the pre and post intervention knowledge mean score of participants on breast self-examination

Hypothesis 2 There is no significant difference in the pre and post intervention skill level of participants on breast self-examination

Table 4: Independent t-test to show the difference in the pre and post intervention skill level of participants on breast self-examination

	N	Mean	Std. Deviation	Df	T	Mean diff	p value
Pre	92	19.21	1.81	91	13.42	28.78	.000
Post	92	47.98	2.32				

Table 4 illustrates the result of the second hypothesis of this study. Findings show that there is a significant difference in the pre and post intervention skill level of participants on breast self-examination (Mean gain = 28.78, $t = 13.42$, $p = .000$). Based on this, the second hypothesis was rejected. Therefore, there is significant difference in the pre and post intervention skill levels of participants on breast self-examination.

Discussion

The findings of this study show that the pre-intervention knowledge mean score of participants on breast self-examination was below average. This implies strongly that female utility workers still lack the required knowledge of breast cancer and breast self-examination. For example, majority of the female utility workers 49 (53.3%) scored below average. Studies with similar outcomes are Hiatt and Brody (2018) showed low knowledge of breast cancer examination and thus recommended increased breast cancer education and screening intervention programs. Breast self-examination knowledge remains low in many countries. Similarly, an eight years study conducted in Nigeria showed that breast self-examination was only 18.1% (Ogunbode, et al 2013). In addition, Agbo, Khalid and Oboirien (2014) found in their study that before any intervention, the knowledge and practical competency of most of the participants were not satisfactory.

This study revealed that there is difference in the post-intervention knowledge mean score of participants on breast self-examination. The improvement in the knowledge mean score of participants on breast self-examination (from below average to above average) did not occur by chance but due to educational intervention they were exposed to. This finding is consistent with the findings of Agbo, Khalid and Oboirien (2014) who reported that a planned teaching intervention was significantly effective in improving the knowledge and practice of breast self-examination. Interestingly, a study by Gucuk (2013) found that 39.5% of the participants were previously provided information on BSE by healthcare professionals while 25.8% had no knowledge of BSE prior to enrolment. Compared to those informed about BSE through other means such as television, radio, and the internet, the scores of the first, second, and third visits were higher ($p < 0.05$) in individuals who received BSE education from healthcare professionals and hospitals. However, the result of study carried out by Didarloo, Nabilou and Khalkhali (2017) observed a different finding, where 70.0 % of midwifery students had adequate knowledge of breast cancer. The reason for the high score observed by



Didarloo, Nabilou and Khalkhali (2017) was because the participants were studying a health-related course as opposed the participants in this present study.

Generally, from the findings of this study, the findings of this study have revealed that the pre-intervention skill level of participants on breast self-examination was below average and therefore, the participants had inadequate practice of it. From the results, majority of the participants (53.3%) had a skill level below average and only 17.4% had a skill level of above average. Generally, the mean score on skills was 11.28 with a mean percentage of 40.29%. This is similar to the report of a study conducted in Nigeria that showed that the skill of breast self-examination was only 18.1% among females (Oladimeji, et al, 2016).

Other studies reported low practice of BSE among their respondents who were from similar university settings. This suggests that women in most communities lack the required knowledge and therefore do not practice BSE. This was also buttressed by Amoran and Toyobo (2015) in study among women in rural community in Nigeria. Their findings indicated that even though 58.2% (n=495) had heard about BSE, only 24.4% practice BSE.

From the findings, the post-intervention skill level of participants on breast self-examination. Eight (8.7%) participants had no skill on BSE, 22 (23.9%) and 62 (67.4%) had unsatisfactory and satisfactory skill level respectively on breast self-examination. The post-intervention skill level of participants on breast self-examination was 47.98 ± 2.32 , which is equivalent to 94.1% skill level. Generally, there was a knowledge mean gain of 13.42 after the educational intervention. This is in line with the results of a systematic review conducted by Sani and Yau (2018) that found that majority of the reviewed studies showed adequate awareness but poor practice of BSE among women in various countries in Africa. A major barrier identified was inadequate knowledge of BSE technique. Although awareness of BSE was relatively high in many of the reviewed studies, the practice was low. The author further suggested that educational intervention program should be carried out among women in various African countries, not only to raise awareness but also to educate on the skills required to carry out BSE effectively.

The findings on the first hypothesis revealed a statistically significant difference in the pre and post intervention knowledge mean score of participants on breast self-examination with a mean gain of 13.42. Therefore, the null hypothesis that states that there is no significant difference between pre and post intervention knowledge scores was rejected while the alternate one was accepted. It could be concluded from this finding that the difference observed between pre and post intervention knowledge scores of participants' knowledge was not accidental but as a result of the nursing intervention the participants were exposed to. The difference observed in the knowledge mean score of participants on breast self-examination the participants were adequately exposed to health education and training which has positively affected their knowledge on breast self-examination. This is in consonance with the findings of Herman (2015) who revealed that the average score of knowledge on BSE before the intervention was (59.33) with a standard deviation (12.284), and average knowledge score after the intervention was (88.40) with standard deviation (7.220). The difference of the average scores of knowledge before and after the intervention was (29.067). The statistic test indicated that there was a difference of average score of knowledge before and after intervention with p value was (0.000).



The findings on the second hypothesis revealed a statistically significant difference in the pre and post intervention skill level of participants on breast self-examination with a mean gain of 28.78. Therefore, the null hypothesis that states that there is no significant difference between pre and post intervention skill level was rejected while the alternate one was accepted. It could be concluded from this finding that the difference observed between pre and post intervention skill level of participants' knowledge was not accidental but as a result of the nursing intervention the participants were exposed to. The difference observed in the skill levels of participants on breast self-examination were because the participants were adequately exposed to health education and training which has positively affected their knowledge on breast self-examination. This is in line with Balkaya (2017) who reported that the BSE accuracy of the students was increased after education.

Conclusion

The study revealed that majority of the participants in study had low baseline knowledge and skill levels. However, after the intervention, the participants had a significant rise in knowledge scores and skill level. It is hereby concluded that the nursing intervention exerted an incremental effect in the knowledge and skill levels of female utility workers at Babcock University Teaching Hospital.

Recommendations

In view of the findings stated earlier, it has been proven that female utility workers in different teaching hospitals can gain knowledge and skills on BSE through structured nursing intervention associated with practical training. The following are hereby recommended:

1. Educational intervention regarding knowledge and skills on BSE should be done by the continuing education units of the hospital periodically for all health workers especially female utility workers.
2. Similar nurse-led educational intervention should be replicated and implemented in all the teaching hospitals in Nigeria
3. Hospitals should be adequately equipped to educate female utility workers to identify early signs of breast cancer and be consistent with BSE.
4. Hospital management should adopt the steps implemented in this research when designing health education programs on breast cancer and breast self-examination.

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