AN ASSESSMENT OF AWARENESS OF BREAST CANCER RISK IN CHILD BEARING WOMEN IN NIGERIA.

A thesis submitted to the Faculty of Health Sciences of CITY UNIVERSITY, CAMBODIA in partial fulfillment of the requirements for the award of Doctor of Philosophy (PhD) in Public Health.

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A PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DOCTOR OF PHILOSOPHY DEGREE (PhD)INPUBLIC HEALTH,FACULTYOFHEALTH SCIENCES, CITY UNIVERSITY, CAMBODIA

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ABSTRACT

This study was carried out to assess the awareness of breast cancer risk in child bearing women in Nigeria. The study employed a descriptive method of data analysis. The study showed that the majority of respondents had good knowledge about the burden of breast cancer, most women correctly identified breast cancer as one of the most common cancers in women and agreed that the disease was easier to cure when detected early. The results of the study showed that the participants who received the BCI program were significantly more likely to state that they practice BSE. Also, the effect of the BCI awareness program on obtaining high knowledge scores was also examined using unconditional logistic regression adjusting for age group and type of housing. Women who received the BCI awareness program were significantly more likely to obtain higher knowledge scores. The study recommended that the study indicates that the BCI breast awareness program improved KAP among women from rural Nigeria.

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CHAPTER ONE

BACKGROUND OF THE STUDY

Breast cancer is the most common cancer affecting 25.2% of women and is also the second leading cause of cancer-related deaths among women and the primary cause of mortality due to cancer in female around the World (George et al., 2019). Almost half of breast cancer cases and 60% of breast cancer-related deaths are estimated to occur in middle-and –low-income countries (Alwan 2021). About 1.38 million new breast cancer cases were diagnosed in 2008 with almost 50% of all breast cancer patients and approximately 60% of deaths occurring in developing countries (Ma et al., 2019). Breast cancer is the most common and most feared malignancy among women (Gilani et al., 2003). There is a huge difference in breast cancer survival rates worldwide, with an estimated 5-year survival of 80% in developed countries to below 40% for developing countries (Yip et al., 2006). Developing countries face resource and infrastructure constraints that challenge the objective of improving breast cancer outcomes by timely recognition, diagnosis and management (Anderson et al., 2006). In developed countries like the United States, about 232,340 female will be diagnosed and death of 39,620 female will occur due to breast cancer in 2021 (Tao et al., 2015). Globally, the devastating effects on women diagnosed with breast cancer are appalling. Global cancer statistics shows increased global cases of breast cancer and the risesumm is occurring at a faster rate in population of the middle-and-low-income countries which may be due to increase in population growth and aging. The significant decline in morality due to breast cancer in the United States from 1975 to 2000 is attributed to constant enhancement in both screening mammography and management (Akram et al., 2017). According to the World Health Organization (WHO), an estimated 685,000 females died because of breast cancer in 2020 and enhancing breast cancer outcome and survival by early detection remains the

foundation of breast cancer regulations (Shah et al., 2014). In Nigeria, there is ignorance about risks of breast cancer which results in late awareness of breast cancer (Donkor et al., 2016). The lifetime risk of developing breast cancer is at an incidence level of one in nine. Although the risk increases after menopause, high rates of breast cancer diagnosis has been observed among young women as well (Assi et al., 2013). Breast cancer is the second most common cancer in the world and the most frequent cancer among women, with an estimated 1.67 million new breast cancer cases diagnosed in 2012 (Ferley et al., 2015; Noreen et al., 2015). Globally, breast cancer represents about 12% of all new cancer cases, and 25% of all cancer cases in women (Makarem et al., 2015).

The incidence, morbidity, and mortality rate of breast cancer has been increased in both high and low-resource settings due to the increased life expectancy, urbanization and adoption of western lifestyles (Varughese et al., 2010). It has been estimated that about 2.3 million new breast cancer cases were diagnosed, representing about 11.7% of all new cancer cases worldwide (Sung et al., 2021). Recently, the prevalence of breast cancer increasing tremendously but there is no national central cancer registry that can provide the complete nationwide data. Therefore, the actual incidence and mortality of breast cancer is mostly unknown. A report based on the NICRH, the mean age was 41.8 years for the breast cancer patients, maximum (> 56%) cases were among reproductive age women (Alam et al., 2021). Breast cancer is an aggressive disease affecting women, irrespective of their age category. Women are particularly vulnerable and susceptible to breast cancer and their risks increases with advanced age. The origin of breast cancer has not been fully unravelled but is attributable to some inter- related factors of genetics, hormones, the environment, socio-biology and physiological factors. Alatise and Schrauzer (2010), for instance, have suggested that associated widespread pollution of the soil and water supply by a substance

called Lead may be the major contributory cause. In the report by Siegel et al., (2012), it was indicated that deaths as a result of breast cancer in Nigeria reached 13,264 or 0.70% and the age adjusted death rate is 28.11 per 100,000 population, ranking Nigeria 4th in the world. Adebamowo and Ajayi (1999) also stated that the malignant cells are developing in the tissue breast cancer is the most common cancer in Nigeria. In 2005, breast cancer was found to be the most common in Nigeria. In the North-West geographical zone of Nigeria, cancer of the breast is second to Cervix, while the cancer registry at the University College Hospital (UCH) Ibadan revealed that it is the leading malignancy among women. Also, in the north-Central, breast cancer constitutes 22.41% of the new cancer cases registered in 5 years and accounts for 35.41% of all cancers in women. Breast cancer is undoubtedly the most dreaded cancer with lots of psychological impacts and one of the most popular malignancies that affect about one in every nine women (George et al., 2019). It is a disease in which the malignant cells are developing in the tissue of the breast. Breast cancer is of two types, Lobular cancer which begins in many small sacks in the breast that produce milk and ductal cancer which develops in the tubes that carry milk from the lobules to the nipple. It is also the type of cancer having the highest prevalence (45.7%) among the female in Nigeria and border countries (Baba et al., 2018). Common signs and symptoms of breast cancer include a change in the way the breast or nipple feels, change in how the breast or nipple seems and discharge of the nipple. It is interesting to know that as debilitating as breast cancer disease is, majority of Nigerian women have little or no knowledge of the disease and even in situations where they are aware of the disease, their attitude towards seeking healthcare is negative causing their untimely or preventable death (George et al., 2019). It has been observed that certain socio-cultural, religious, genetic and economic factors are responsible for this negative attitude. Another issue is the socio-cultural factors that contribute to delay in seeking treatment because of breast cancer is

a topic that is not freely discussed in public. Besides, scarcity of proper knowledge, low education and ignorance among women are also the major causes behind late detection of breast cancer (Alam et al., 2021). The knowledge of risk factors and the early detection methods of breast cancer can successfully reduce the mortality rates and improve the patients' prognosis. Thus study will assess the awareness of breast cancer risk among child bearing women and how it can be prevented. According to the Breast Health Global Initiative (BHGI) reports, if females have adequate knowledge and awareness of breast cancer self-examination (BSE), the disease could be diagnosed at an early stage as well as could be easier to manage the disease (McCready et al., 2005). Breast cancer claims the lives of hundreds of thousands of women each year and affects countries at all levels of modernization (Rahman et al., 2019). In 2018, there were 2.1 million newly diagnosed breast cancer cases among women, accounting for almost one in four cancer cases among women (Bray et al., 2018). Despite the high incidence rate, around 89% of women in Western countries diagnosed with breast cancer are still alive 5 years after diagnosis, with this high survival rate attributed to early detection and treatment (Hortobagyi et al., 2005). Cancer that is diagnosed at an early stage when it is not too large and has not yet spread is more likely to be treated successfully (Jelovac et al., 2011). It is estimated that one-third of all cancers can be prevented, and a further third of all cancers may be cured if diagnosed at an early stage (Noreen et al., 2015).

Breast self-examination (BSE), clinical breast examination, and mammography are commonly recommended screening methods (Noreen et al., 2015). BSE is a screening technique for early breast cancer detection that can be performed by women at home. This is a simple, inexpensive, easy, and effective technique that allows women to examine their breast tissue for any physical or visual changes. BSE increases women's chances for treatment, thereby increasing

the survival rate in women (Erbil and Bolukbas, 2014). BSE can help screen for tumors, cysts, and other abnormalities in the breasts. The American Cancer Society recommends BSE for early detection of breast cancer as it assists women to become familiar with the appearance and sense of their breasts, and helps them to detect any changes in their breasts as soon as possible (American Cancer Society, 2008). In resource constrained settings such as Nigeria, BSE has been reported to be culturally and religiously acceptable, friendly, and incurring no cost (Oladimeji et al., 2015). If detected early, breast cancer can be treated in the early stages of the disease, meaning BSE is something all women should prioritize. Despite advances in treatment, detecting breast cancer as early as possible is important to maximize the potential for good health outcomes. Organizations concerned with breast health education suggest that all women should start performing BSE regularly as soon as their breasts are fully developed. The Maurer Foundation suggests BSE should be performed at least once a month from age 18 years (Rahman et al., 2019). Such regular examination means women become familiar with their own breasts and are therefore more likely to detect any changes. Awareness about breast cancer is an important factor that has a major impact on the incidence and outcomes of the disease (Noreen et al., 2015). If child bearing women have sufficient knowledge about breast cancer, they can help prevent cancer in them and contribute to reducing the incidence of breast cancer in their community. Some studies have claimed that BSE might reduce the risk of death from breast cancer (Kline et al., 2000). MMG is the most important screening method which was shown to cause a substantial reduction in breast cancer mortality (Yaren et al., 2008). In various studies, the rates of BSE performing monthly and using MMG annually ranged from 29% to 63% and 15% to 79%, respectively in various studies (Yaren et al., 2008). Different modern medicines are prescribed to treat breast cancer. Medical therapy of breast cancer with antiestrogens such as raloxifene or tamoxifen might avoid breast cancer in individuals

who are at increased possibility of developing it (Jordan et al., 2007). Surgery of both breasts is an added preventative measure in some increased probability of developing cancer in female. In patients who have been identifed with breast tumor, diferent strategies of management are used such as targeted therapy, hormonal therapy, radiation therapy, surgery and chemotherapy. In individuals with distant metastasis, managements are typically aimed at enhancing life quality and survival rate (Akram et al., 2017). Types of breast cancer According to site is divided into invasive and noninvasive breast cancers in which non-invasive breast cancer is a cancer that has not extended away from the lobule or ducts where it situated (Makki 2015). The prevalence of breast cancer enhances quickly with increasing age (Key et al., 2001). Invasive breast cancer that extends to different organs of the body is also recognized as metastatic breast cancer. Most common organ to which these cells spread are brain, bones, lungs and liver. These cells once more segregate and expand irregularly and produce new cancers. The new forming cells are developing in different part of the body is still breast cancer (Akram et al., 2017). Paget's disease of the breast is the uncommon type of breast cancer that usually shows visible changes to the nipple of the breast (Kumar et al., 2020). Its symptoms include red itchy rashes involving the nipple and then it can sometime spread to the normal skin as well. However it resembles with the other skin conditions such as eczema and psoriasis but it can be differentiated as the other skin conditions usually affects both the breasts and can start from the areola rather than the nipple of the breast however Paget's disease of the breast most often affects only one breast and starts with the nipple of the breast instead of areola. Breast cancer is a malignant disease that initiates in the breast cells. Like other malignant tumors, there are numerous causes that can increase the possibility of developing breast cancer. Injury to the deoxyribonucleic acid (DNA) and hereditary alteration can guide to breast cancer have been associated with the exposure of estrogen. The patients with a family history of

breast or ovarian cancer have possibility of developing breast cancer (Antoniou et al., 2003). Breast cancer commonly occurs due to an association between genetic and environmental factors and is more common in single women than in married women (Akram et al., 2017). Epidemiological investigations have also suggested that those women who have many children possess lower risk of breast cancer than those women who have fewer children. Incidence of breast cancer is 10.04% among all cancers and, most commonly occurs in 40–50 aged women (Barla et al., 2022).

A female who has had breast cancer has an enhanced danger of occurring breast cancer in the other breast (Sharma et al., 2010). Breast cancer has been linked with high level of dietary fats and low level of certain nutrients for various years (Lee et al., 2000). Alcohol consumption is linked with breast cancer risk. This association was felt to be secondary to the fact that consumption of alcohol enhances level of hormones in the blood. Stages of the breast cancer depend upon the size and type of tumor and how much the tumor cells have been penetrated in the breast tissues where stage 0 describes the non-invasive and stage 4 describes the invasive kind of tumor. Combination of CT and gamma camera and the combination of CT and PET is a main progress in enhancing recognition and vicinity of disease. In the management of breast cancer, aim is to preserve quality of life with prolonged life expectancy. Previous studies have shown that less exposure from radiations, higher family monthly income, long years after diagnosis, higher education, initial stage cancer and younger age were considerably related with better quality of life (QOL) in patients with breast cancer (Cimprich et al., 2002). Breast cancer management strategies differ depending on the step of the cancer, mass, place, whether it has extended to other organs of the body and the physical condition of the individual. Present management for breast cancer includes targeted therapies, hormonal treatment, radiation therapy and surgery (Akram et al., 2017). There are also data suggesting that factors related to women's knowledge and beliefs about

breast cancer and its management may contribute significantly to medical help-seeking behaviors.10 To date, knowledge about breast cancer risk factors, early diagnosis and detection methods like breast self-examination has not been assessed among the female population in Nigeria. Therefore, an assessment will be carried out to explore the scenario of knowledge, awareness and treatment about breast cancer among child bearing women in Nigeria.

STATEMENT OF THE PROBLEM

Breast cancer is currently the most common type of cancer worldwide with 2.26 million cases recorded in 2020 (WHO 2021). It is also the most common cancer among women both in developed and developing countries and a major cause of public health concern (WHO 2021). While it exists around the globe, developed countries have a higher incidence rate and the incidence rate also varies by ethnicity and race (Desantis el al 2013). Breast cancer was also the 5th leading cause of deaths worldwide in 2020 with 685,000 death attributed to it. (WHO 2021). In Nigeria breast cancer cases were historically low but are now increasing as a result of urbanization and lifestyle changes. It is the leading cause of cancer death currently representing about 23% of all cancer cases and approximately 18% of deaths are attributed to it. In Nigerian women, breast cancer term to be diagnosed at an advanced stage and the chance of survival are low (Adebamowo and Adekunle 1999). Following late presentation of the disease the only option available are expensive treatment procedure which maybe unaffordable.

Breast cancer is becoming an important health concern among child bearing women in Nigeria. Going by the hospital-based record of the LadokeAkintola University of Technology

Teaching Hospital, Osogbo (LAUTECH), Osogbo, there were 165 cases of breast cancer between 2005 and 2014 in which all of them presented late to the hospital, which leads to high mortality. Many risk factors for breast cancer development have been identified in literature, but there is little knowledge about the risks of breast cancer among Nigerian women. Hence, this study is aimed at assessing the awareness of breast cancer risk, early detection and diagnosis and how breast cancer can be prevented early so as to reduce mortality rate among child bearing women in Nigeria.

RESEARCH QUESTIONS

This study will be guided by the by the following research questions.

i.Whtt is breast cancer

ii. What is the level of awareness of breast cancer risk among child bearing women in Nigeria?

iii. What are the risks and factors that influence breast cancer among child bearing women in Nigeria?

iv. How can breast cancer be prevented

OBJECTIVES OF THE STUDY

The objectives of the study are to:

i. Assess the awareness of breast cancer risk among child bearing women in Nigeria.

ii. Determine the relationship between level of awareness and risk of breast cancer among child bearing women in Nigeria.

iii. Determine the association between breast cancer risk and level of awareness among child bearing women in Nigeria.

iv. Compare the relationship between level of awareness and risk of breast cancer among child bearing women in Nigeria..

v. Assess knowledge regarding risk factors and warning signs and symptoms of breast cancer and the practice of early diagnosis among child bearing women in Nigeria.

Hypotheses

H1. There will be significant association between awareness of breast cancer and risk among child bearing women in Nigeria

H0. There will be no significant association between awareness of breast cancer and risk among child bearing women in Nigeria.

H2. There will be significant difference between level of awareness and risk of breast cancer among child bearing women in Nigeria

H0. There will be no significant difference between level of awareness and risk of breast cancer among child bearing women in Nigeria.

H3. There will be significant relationship between level of awareness and risk of breast cancer among child bearing women in Nigeria.

H0. There will be no significant relationship between level of awareness and risk of breast cancer among child bearing women in Nigeria.

SIGNIFICANCE OF THE STUDY

The result of this study will provide information on the awareness of the risk of breast cancer among child bearing women in Nigeria and will also serve as a preventative measure against breast cancer since various risk factors can cause women to be predisposed to breast cancer. Hence, this

study will assess the level of awareness of breast cancer risk and how it can be prevented. This study will also add to the body of knowledge to aid further researches and findings.

LIMITATION OF STUDY

This research work is largely limited by insufficient funding and time constraint

SCOPE OF THE STUDY

This study covers an assessment of awareness of breast cancer risk on child bearing women in Nigeria.

SYNOPSIS OF CHAPTERS

Chapter one covers the background of study, statement of problem, research questions, research objectives, research hypothesis, significance of the study and the limitation of the study. Chapter two deals with theoretical framework, conceptual framework and the empirical framework. Chapter three covers the research methodologies. Chapter four covers data analysis while Chapter five covers findings, summary, conclusion and the recommendations made by the researcher.

EXPECTED CONTRIBUTIONS TO EXISTING KNOWLEDGE

- The result of this study will provide information on the awareness of the risk of breast cancer among child bearing women in Nigeria and will also serve as a preventative measure against breast cancer since various risk factors can cause women to be predisposed to breast cancer. Hence, this study will assess the level of awareness of breast cancer risk and how it can be prevented. This study will also add to the body of knowledge to aid further researches and findings.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

FINDINGS

Our results suggest that the BCI breast awareness program improved KAP toward breast cancer among women from rural communities in Nigeria and can be successful even at a grass-root level and involving illiterate populations. Knowledge about breast cancer among women who received the BCI program was higher compared to the one of those who did not. The mean knowledge score from the referent group was equivalent to the one obtained by women of rural Nigeria (55.4%).19 Both groups showed a good knowledge about the burden of breast cancer and the importance of early detection for better prognosis. The major effect of the BCI awareness program we observed was a better recognition that a painless breast lump is an important symptom warranting further evaluation. This may be key for improving early breast cancer detection in communities where screening is not performed. This positive impact of an educational program on recognition of symptoms has already been observed in Thailand and Australia12 where the women reported more confidence in recognizing breast lumps. The program also permitted to accept BSE as a useful way for finding the disease early, as reported in previous studies. The BCI program was not as successful in improving knowledge of risk factors. Hence, the scope of the study was limited, only covering age and positive family history of breast cancer and not addressing obesity, alcohol intake, early menarche, nulliparity or lack of breast feeding.20

Even among women who received the BCI program only 23.8% knew that breast cancer may be inherited. This result was equivalent to the one on KAP toward breast cancer of women in

semiurban Nigeria where only 26.2% of study participants identified the heritability of the disease. Unexpectedly, the knowledge about age as a risk factor was worse in the intervention than in the referent group. The result for the referent community (25.4%) is equivalent to those obtained in the study conducted in rural Nigeria (19.6%)19 and in a recent hospital-based study on KAP toward breast cancer in Uganda (20%).21 The same trend occurred regarding knowledge about breast cancer treatment. Only 41.9% of participants from the intervention group considered surgery as the main form of treatment for breast cancer versus 53.5% of participants in the referent community.

A very high proportion of women reported personal history of breast diseases (79% in the intervention group and 57% in the referent group). The high proportion of women reporting personal history of breast diseases can be due to the fact that the severity of breast disease was not specified, thus any problem in the breast (such as mastitis or ulcers related to breast feeding) experienced by the participants in the past was reported as personal history of breast disease. The significant difference between groups could be reasoned by considering that the women from the intervention group have been trained in the program on the importance to report immediately if having a breast problem.

Conclusion

This study is one of the first set of community-based studies on the assessment of awareness of breast cancer risk among child bearing women in nigeria. A recent study by Abuidris et al. (2016) has shown that a breast cancer awareness program in rural Sudan could increase breast cancer early detection. The study in Sudan is ongoing and the results regarding the effect of the program on KAP toward breast cancer among the participants have not been published yet. We used

previously validated questionnaires and pilot tested locally our own questionnaire, which was conducted by trained community workers. The study had sufficient power but faced some methodological limitations. The lack of detailed census data before starting the survey and the unfeasibility of randomly sampling the communities and the study participants within the communities led to significant sociodemographic differences between the two groups. Multivariate logistic regression analyses were performed to account for them and evidence that the BCI program was the responsible of the improved knowledge and BSE practice after adjusting for those differences. The unit of the study was at community level but, because of time constraint, the survey was conducted only in one intervention and one referent community each. This and the unfeasibility to randomly sample might lead to an overestimation of the effect of the program. The validity of the answers was not checked by triangulating the information with other data sources. A future qualitative study will assess the relationship between knowledge and behavior change. The data were collected by five interviewers, including for one (MM) the need of a translator. The ability of the field workers to translate and interpret the survey instrument from English to Twi and vice versa was not accurately evaluated. The participants who refused to participate in the study were not monitored and the causes not ascertained. Because of the cross-sectional nature of the study and the limited time available to conduct it, it was not possible to realize an analysis of the Peace and Love hospital records to ascertain the effect of the program on differences in number and stage at presentation of breast cancer cases since the inception of BCI and the beginning of its breast awareness programs in 2002. Finally, with only one round of evaluation, it was impossible to evaluate the effect of time.

The study indicates that the BCI breast awareness program improved KAP among women from rural Nigeria. Following the program, the knowledge on breast cancer was better in particular for

points improving early detection such as recognition of breast lumps. Some misunderstanding on risk factors may be considered less important as long as women know that finding a persistent breast lump on BSE requires medical evaluation. A common misconception is that women who lack a family history of breast cancer are not at risk for the disease. In fact, the majority of women diagnosed with breast cancer do not have a family history or strong risk profile, which is why screening needs to be directed at the general population of women above a specified age cutoff. The program did not have impact on changing some beliefs that may delay presentation but on attitudes and practices toward breast cancer, especially in motivating women to practice BSE. Even if BSE has not been shown to reduce breast cancer mortality,27 this simple and cheap technique jointly with CBE have never been tested in LMICs where mammography procedures have limited application28,29 and mean tumor sizes at presentation are above 5 cm, and might yet prove to be valuable, as recently stated by Panieri.30 Our findings are similar to results from other studies on breast cancer education programs in LMICs and show the benefit of community-based interventions.

Recommendation

One suggestion for improvement of the BCI program is to devote more efforts to change beliefs related to breast cancer, which can encourage women to seek early treatment. Involving men in the program could help on that and reduce the women's fear of being rejected by their husbands if they get breast cancer. Training and involving of community health workers in the BCI awareness program will reinforce the sustainability of the improved KAP and the necessary link between the knowledge gained and the seeking early medical help. Education is clearly critical. As this can be

out of the scope of BCI, Nigeria Health Service, Ministry of Health and other policy makers should focus on such interventions. In addition, collaborations between all existing oncology services and civil society organizations must be enhanced. Funding is needed to link this increased awareness to appropriate diagnosis, care and follow-up.

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