**Original Article**

# BREAST SELF-EXAMINATION AWARENESS AND PRACTICES AMONG FEMALE UNIVERSITY STUDENTS IN RIVERS STATE, NIGERIA

***Gabriel Uchechi Amadi***

Department of Human Kinetics, Health and Safety Education, Ignatius Ajuru University of Education, Rivers State, Nigeria
DOI: https://doi.org/10.5281/zenodo.13839211

**Abstract:** This study investigated the correlates of breast self-examination among female students in public universities, Rivers State. A descriptive correlational research design was adopted for this study with a population consisting of forty-four thousand, eight hundred and sixty-four (44,864) female university undergraduates in Rivers State. A sample size of 1,200 was selected using a multi-stage sampling procedure. The instrument for data collection was a structured questionnaire with a reliability coefficient of 0.74. Data collected were analyzed using point biserial correlation and regression analysis at 0.05 level of significance. The finding of the study showed that the level of practice of breast self-examination among female undergraduates in higher institutions in Rivers State was low (38.2%). Statistically significant relationship was found between practice of breast self-examination and variables such as family history of breast cancer [$f(1,1172) = 9051.85$, $p<0.05$], self-efficacy [$f(1,1172) = 4187.78$, $p<0.05$], perceived susceptibility [$f(1,1172) = 4820.23$, $p<0.05$], and attitude [$f(1,1172) = 4925$, $p<0.05$]. It was concluded that the practice of breast self-examination among female students in public universities, Rivers State was low and factors correlated with their practice were: family history of breast cancer, self-efficacy, perceived susceptibility, and attitude. It was recommended among others that, healthcare institutions should help the family members of their patients with breast cancer by assigning health officers to their families to counsel, teach and monitor them practice BSE, and undergraduate students should enhance their self-efficacy by taking out time to learn it constantly until they are able to do it appropriately.

**Keywords:** Breast self-examination, Female, Students, Public Universities

## Introduction

Breast self-examination is essential for early detection of breast cancer. Considering that there is no population-based screening programme in Nigeria, breast self-examination becomes important to reduce the surge of breast cancer (National Cancer Institute, 2019). Worldwide, an estimated 1.7 million women were diagnosed with breast

cancer and about 522,000 women died from breast cancer in 2012. Breast cancer incidence rate has increased by more than 20%, while mortality has increased by 14% (World Health Organization, 2018). Breast cancer affects the developed countries of the world. It is said to be the leading cause of death compared to the developed countries. Breast cancer is twice as many among those aged 15–49 years in less developed countries (World Health Organization, 2014). There were over 1.7 million new cases of breast cancer which accounted for 25% of all new cancers in women (American Cancer Society, 2015). In Africa, it was revealed that in Cameroon and Ghana that breast cancer is the most common malignant cancer in women with estimate at 2625 per 100,000 (International Agency for Research on Cancer (IARC), 2014). The situation in Nigeria is not different as the prevalence of breast cancer is also reported to be very high and it is known to be one of the leading causes of death among women. Jeronimo et al. (2014) noted that, it has overtaken cancer of the cervix which hitherto, was the greatest killer of women because of late presentation which is indicative of poor breast self-examination. Despite the foregoing, report indicated that the practice of breast self-examination was low among undergraduate students and that only 9.0% knew how to perform breast self-examination and only 3% had performed breast self-examination regularly (Nade et al., 2015).

Breast self-examination is a process whereby women examine their breasts regularly to detect any abnormal swelling or lumps in order to seek prompt medical attention (American Cancer Society, 2011). Several studies have shown positive associations between breast self-examination alongside other cancer screening behaviors and variables such as self-efficacy and attitudes have proven to be valid for predicting such screening behaviors among women in low- and middle-income countries (Noroozi et al., 2011; Birhane et al., 2015). Johns Hopkins Medical Center (2016) stated that, 40% of diagnosed breast cancers are detected by women who feel a lump, so establishing a regular breast self-exam is very important. Breast self-examination, carried out once monthly, between the 7th and 10th day of the menstrual cycle, goes a long way in detecting breast cancer at the early stages of growth when there is low risk of spread, ensuring a better prognosis when treated (Kayode & Akande, 2005). Muhammed (2014) noted that, early diagnosis has a positive effect on the prognosis and limits the development of complications and disability. Furthermore, it increases life quality and survival. In the present study, the factors influencing the practice of breast self-examination will be limited to self-efficacy, perceived susceptibility to breast cancer, and family history of breast cancer.

The family history of breast cancer could enhance a person's familiarity with it and its prevention among every member of the family. Omotara et al. (2012) found that those who practiced BSE, did so because one of their family members had suffered from breast cancer. Also, Agbonifoh (2016) asserted that, family history could be associated with the practice of breast self-examination. Family history may be an essential factor because enhance family support for the younger ones on the practice of breast self-examination. Kissal et al. (2018) identified absence of support from family as one of the barriers to the practice of breast self-examination. The foregoing could be buttressed by the fact that, family history of a disease could raise the consciousness about it in the family, making them to always examine themselves to ascertain if they are developing any lump or not for prompt action to be taken to safeguard their health. The family history could also reflect their perception towards their susceptibility to breast cancer which may propel them to practice BSE.

**Original Article**

Perceived susceptibility to breast cancer is a vital predictor to preventive behaviour towards any diseases. Abu-Helalah et al. (2015) identified perceived susceptibility as one of the factors influencing the practice of breast self-examination. Greater perceived susceptibility regarding the possibility of developing breast cancer results in increased screening behaviors. The findings of Barati et al. (2016) showed that, greater the perceived susceptibility, the more common screening behavior will be including breast self-examination.

Self-efficacy on the other hand was also identified as one major factor that predicts behavior including breast self-examination. Self-efficacy refers to one's ability or efficiency in doing a thing, breast self-examination in this context. Kim et al. (2013) identified self-efficacy as one of the factors which influenced the practice of breast self-examination. In the same vein, Bashirjan et al. (2019) revealed that, self-efficacy can improve the degree to which individuals engage in screening behavior such as breast self-examination. Breast cancer originates from breast tissues, most commonly from the inner lining of milk ducts or the lobules that supply the ducts with milk (Surveillance Epidemiology and End Results [SEER], 2013). Therefore, one needs to have self-efficacy to be able to perform it appropriately.

Breast self-examination if not practiced adequately, can heighten late presentation of breast cancer which becomes difficult to manage or treat, with a higher risk of death. Such consequence can have very high human, social and economic costs. It has devastating effects and commonly affects women in their prime. Breast self-examination poorly practiced also increases the challenges of other methods of breast cancer screening which include limited access to health services and laboratories, no screening programmes, and limited or nonexistent awareness among populations. Several cases of cervical cancer deaths in Rivers State were not as a result of the disease but due to late diagnosis of the disease.

Undergraduates in Rivers State are not left out in this scenario. The researcher's several years of experience working in school hospital has brought about observations of students coming down to the facilities with breast issues, only to discover it was a breast cancer at its late stage. This made treatment very difficult, resulting to the death of some. Most cancers including breast cancer do not exhibit serious symptoms to give signal that it is developing, this makes many females students affected with breast cancer not to know their status until the disease grow to its late stage and become so threating to life before they decide to visit the healthcare facility. At this stage, it becomes difficult for them to manage it plus the high cost of treatment involved which many could not afford thereby leading to death. This is so saddening and calls for urgent public health attention towards breast self-examination which is a simple method to detect any cancerous lump at the breast at a very early stage for easy treatment. Possibly, certain factors could be associated with their practice of breast self-examination which the researcher intends to find out. This study therefore focused on the correlates of breast self-examination among female students in public universities, Rivers State. The study provided answers to the following research questions:

1. What is the relationship between family history of breast cancer and the practice of breast self-examination among female students in public universities, Rivers State?
2. What is the relationship between self-efficacy and the practice of breast self-examination among female students in public universities, Rivers State?

**Original Article**

3. What is the relationship between perceived susceptibility to breast cancer and the practice of breast self-examination among female students in public universities, Rivers State?
4. What is the relationship between attitude towards breast self-examination and the practice of breast self-examination among female students in public universities, Rivers State?

**Hypotheses**

The following null hypotheses formulated were tested at 0.05:

1. There is no significant relationship between family history of breast cancer and the practice of breast self-examination among female students in public universities, Rivers State.
2. There is no significant relationship between self-efficacy and the practice of breast self-examination among female students in public universities, Rivers State.
3. There is no significant relationship between perceived susceptibility to breast cancer and the practice of breast self-examination among female students in public universities, Rivers State.
4. There is no significant relationship between attitude and the practice of breast self-examination among female students in public universities, Rivers State.

**Methodology**

A descriptive correlational research design was adopted for this study. The population for the study comprised of forty-four thousand, eight hundred and sixty-four (44,864) female undergraduate students in the three government owned universities in Rivers State. The sample size for the study was 1,200 which was determined using the Taro Yamane formula given below: $n = N / 1 + N (e)^2$. Where n is the sample size, N = population size, and e = margin of error = 5% = 0.05. n was given as 400, but, this value was multiplied by three, representing the three universities to be studied, thus, the sample size was 1,200. A multi-stage sampling procedure was adopted for the study. At the first stage, a simple random sampling technique (balloting without replacement) was used to select two female hostels in each of the universities making it a total of six hostels to be used for the study. At the second stage, the proportionately stratified sampling technique was used to determine how many respondents to be selected from each of the schools and; at the third stage, the simple random sampling technique was used to select the respondents for the study. The data collection instrument was a self-administered questionnaire titled 'Breast Self-examination Questionnaire (BSEQ).' The questionnaire has a reliability coefficient of 0.74. Data was collected by administering the questionnaire to the respondents. Four research assistants were briefed on what to do regarding data collection. The researcher and the assistants administered the questionnaires to the respondents. The aim of the study and methods to be adopted were clearly explained to the respondents. Those who gave their consent were recruited into the study after signing the consent form attached to the questionnaire. The completed copies of the questionnaire were retrieved, coded, and analyzed with the aid of the Statistical Product for Service Solution using point biserial correlation at 0.05 level of significance.

**Results**

The results of the study are shown below:

**Table 1: Point Biserial Correlation showing relationship between family history of breast cancer and the practice of breast self-examination among female university undergraduates in Rivers**

| Variables | Practice | Family history | Remark |
|---|---|---|---|

**Original Article**

| | | | | |
|---|---|---|---|---|
| Practice | Correlation | 1 | 0.94 | Very high |
| | N | 1173 | 1173 | relationship |
| Family history | Correlation N | 0.94 1173 | 1 1173 | |

Guide: 0.00-0.19 = very low, 0.20-0.39 = low, 0.40-0.59 = moderate, 0.60-0.79 = high and 0.80 above is very high relationship

Table 1 showed the Point Biserial Correlation between family history of breast cancer and the practice of breast self-examination among female students in public universities, Rivers State. The result revealed a correlation coefficient, r = 0.94 indicating a high relationship. Thus, the relationship between family history of breast cancer and the practice of breast self-examination among female students in public universities, Rivers State was very high.

**Table 2:** Point Biserial Correlation showing relationship between self-efficacy and the practice of breast self-examination among female university undergraduates in Rivers

| **Variables** | | **Practice** | **Self-efficacy** | **Remark** |
|---|---|---|---|---|
| Practice | Correlation | 1 | 0.64 | High positive |
| | N | 1173 | 1173 | relationship |
| Self-efficacy | Correlation | 0.64 | 1 | |
| | N | 1173 | 1173 | |

Guide: 0.00-0.19 = very low, 0.20-0.39 = low, 0.40-0.59 = moderate, 0.60-0.79 = high and 0.80 above is very high relationship

Table 2 showed the Point Biserial Correlation between self-efficacy and the practice of breast self-examination among female students in public universities, Rivers State. The result revealed a correlation coefficient, r = 0.64 indicating a high positive relationship. Thus, the relationship between self-efficacy and the practice of breast self-examination among female students in public universities, Rivers State was high.

**Table 3:** Point Biserial Correlation showing relationship between perceived susceptibility and the practice of breast self-examination among female university undergraduates in Rivers

| **Variables** | | **Practice** | **Perceived susceptibility** | **Remark** |
|---|---|---|---|---|
| Practice | Correlation | 1 | 0.85 | Very high |
| | N | 1173 | 1173 | relationship |

Perceived Correlation 0.85 1 susceptibility N 1173 1173

Guide: 0.00-0.19 = very low, 0.20-0.39 = low, 0.40-0.59 = moderate, 0.60-0.79 = high and 0.80 above is very high relationship

Table 3 showed the Point Biserial Correlation between perceived susceptibility and the practice of breast self-examination among female students in public universities, Rivers State. The result revealed a correlation

coefficient, r = 0.85 indicating a very high positive relationship. Thus, the relationship between perceived susceptibility and the practice of breast self-examination among female students in public universities, Rivers State was very high.

**Table 4:** Point Biserial Correlation showing relationship between attitude towards breast self-examination and the practice of breast self-examination among female university undergraduates in Rivers

| **Variables** | | **Practice** | **Attitude** | **Remark** |
|---|---|---|---|---|
| Practice | Correlation | 1 | 0.44 | Moderate |
| | N | 1173 | 1173 | relationship |
| Attitude | Correlation | 0.44 | 1 | |
| | N | 1173 | 1173 | |

Guide: 0.00-0.19 = very low, 0.20-0.39 = low, 0.40-0.59 = moderate, 0.60-0.79 = high and 0.80 above is very high relationship

Table 4 showed the Point Biserial Correlation between attitude towards breast self-examination and the practice of breast self-examination among female students in public universities, Rivers State. The result revealed a correlation coefficient, r = 0.44 indicating a moderate relationship. Thus, the relationship between attitude towards breast self-examination and the practice of breast self-examination among female students in public universities, Rivers State was moderate.

**Table 5:** Point Biserial Correlation showing significant relationship between family history of breast cancer and the practice of breast self-examination among female university undergraduates in Rivers

| **Variables** | | **Practice** | **Family history** | **Decision** |
|---|---|---|---|---|
| Practice | Correlation | 1 | 0.94 | $H_o$ rejected |
| | Sig. (2-tailed) | . | .002* | |
| | N | 1173 | 1173 | |
| Family history | Correlation | 0.94 | 1 | |
| | Sig. (2-tailed) | .002* | . | |
| | N | 1173 | 1173 | |

*Correlation is significant at the 0.05 level (2-tailed).

Table 5 showed Pearson Correlation between family history of breast cancer and the practice of breast self-examination among female students in public universities, Rivers State. The findings of the study showed that there was a significant relationship between family history and practice (n = 1173; r = 0.94; $p<0.05$). Thus, the null hypothesis which stated that there is no significant relationship between family history of breast cancer and the practice of breast self-examination among female students in public universities, Rivers State was rejected.

**Table 6:** Point Biserial Correlation showing significant relationship between self-efficacy and the practice of breast self-examination among female university undergraduates in Rivers

| **Variables** | **Practice** | **Self-efficacy** | **Decision** |
|---|---|---|---|

**Original Article**

| | | | | |
|---|---|---|---|---|
| Practice | Correlation | 1 | 0.64 | $H_o$ rejected |
| | Sig. (2-tailed) | . | .011* | |
| | N | 1173 | 1173 | |
| Self-efficacy | Correlation | 0.64 | 1 | |
| | Sig. (2-tailed) | .011* | . | |
| | N | 1173 | 1173 | |

*Correlation is significant at the 0.05 level (2-tailed).

Table 6 showed Pearson Correlation between self-efficacy and the practice of breast self-examination among female students in public universities, Rivers State. The findings of the study showed that there was a significant relationship between self-efficacy and practice ($n = 1173$; $r = 0.64$; $p<0.05$). Thus, the null hypothesis which stated that there is no significant relationship between self-efficacy and the practice of breast self-examination among female students in public universities, Rivers State was rejected.

**Table 7:** Point Biserial Correlation showing significant relationship between perceived susceptibility and the practice of breast self-examination among female university undergraduates in Rivers

| **Variables** | | **Practice** | **Perceived susceptibility** | **Decision** |
|---|---|---|---|---|
| Practice | Correlation | 1 | 0.85 | $H_o$ rejected |
| | Sig. (2-tailed) | . | .001* | |
| | N | 1173 | 1173 | |
| Perceived susceptibility | Correlation | 0.85 | 1 | |
| | Sig. (2-tailed) | .001* | . | |
| | N | 1173 | 1173 | |

*Correlation is significant at the 0.05 level (2-tailed).

Table 7 showed Pearson Correlation between perceived susceptibility and the practice of breast self-examination among female students in public universities, Rivers State. The findings of the study showed that there was a significant relationship between perceived susceptibility and practice ($n = 1173$; $r = 0.85$; $p<0.05$). Thus, the null hypothesis which stated that there is no significant relationship between perceived susceptibility and the practice of breast selfexamination among female students in public universities, Rivers State was rejected.

**Table 8:** Point Biserial Correlation showing significant relationship between attitude and the practice of breast self-examination among female university undergraduates in Rivers

| **Variables** | | **Practice** | **Attitude** | **Decision** |
|---|---|---|---|---|
| Practice | Correlation | 1 | 0.44 | $H_o$ rejected |
| | Sig. (2-tailed) | . | .008* | |
| | N | 1173 | 1173 | |

| | | | |
|---|---|---|---|
| Attitude | Correlation | 0.44 | 1 |
| | Sig. (2-tailed) | .008* | . |
| | N | 1173 | 1173 |

*Correlation is significant at the 0.05 level (2-tailed).

Table 8 showed Pearson Correlation between attitude towards breast self-examination and the practice of breast self-examination among female students in public universities, Rivers State. The findings of the study showed that there was a significant relationship between attitude towards breast self-examination and practice ($n = 1173$; $r = 0.44$; $p<0.05$). Thus, the null hypothesis which stated that there is no significant relationship between attitude towards breast self-examination and the practice of breast self-examination among female students in public universities, Rivers State was rejected.

**Discussion of findings**

The findings of the study are discussed below:

The findings of the study revealed that there was a significant relationship between family history of breast cancer and the practice of breast self-examination [$f(1,1172) = 9051.85$, $p<0.05$]. This finding is expected thus not surprising because, when there is a particular health issue in any family, other family members seem to become aware and start taking precaution against it. By implication, this finding could be explained by the fact that, having a family member suffering a particular illness raises more concerns about that illness in that family. The finding of this study is akin to the result of Getu et al. (2018) among female undergraduate students in Addis Ababa University, Ethiopia which indicated a significant relationship between family history of breast cancer and practice of breast self-examination. The finding of this study is in keeping with that of Ossai et al (2019) whose study among female undergraduates of Ebonyi State University, Abakaliki, Nigeria revealed that there was a statistically significant relationship between family history of breast cancer and practiced breast self-examination on a monthly basis. The finding of this study is in keeping with that of Kalayu et al. (2018) whose study on the practices of breast self-Examination and associated factors among Female Debre Berhan University Students showed a significant relationship between family history of breast cancer and practice of breast self-examination. However, the findings of this study differ from that of Kratzke and Amatya (2013) whose study on breast cancer prevention among college women revealed that there was no significant relationship between knowledge and practice of breast self-examination. The difference was due to the fact that the previous study targeted older women, aged 40 years and above while the present study was conducted among university undergraduates who are mainly very younger.

The findings of the study revealed that there was a significant relationship between self-efficacy and the practice of breast self-examination [$f(1,1172) = 4187.78$, $p<0.05$]. The finding of this study may not be doubted because, self-efficacy which implies being able or having the ability to do a thing plays a great role in any health practice. By implication, any health practice may continue to record low practice if the target population do not have the

ability to perform it applying the appropriate method and technique, including breast self-examination. The finding of this study is in tandem with that of Myrna et al. (2017) whose study among women in Lebanon revealed a significant relationship between self-efficacy and the practice of breast self-examination. The finding of this study is in keeping with that of Kalayu et al. (2018) whose study on the practices of breast self-Examination and associated factors among Female Debre Berhan University Students showed a significant relationship between self-efficacy and practice of breast self-examination. The finding of this study is in keeping with that of Oyedunni and Peter-Kio (2012) whose study in Southwest Nigeria revealed a significant relationship between self-efficacy and breast cancer screening. The finding of this study is in keeping with that of Kratzke and Amatya (2013) whose study on breast cancer prevention among college women revealed a significant relationship between self-efficacy and practice of breast self-examination

The findings of the study revealed that there was a significant relationship between perceived susceptibility and the practice of breast self-examination [$f(1,1172) = 4820.23$, $p<0.05$]. This finding is also not surprising because if female students think nothing can make them develop any lump or breast cancer, they may not pay attention to it by checking it on monthly bases using breast self-examination. The Finding of this study gives credence to that of CarlsonBabila et al (2017) whose study on breast self-examination among female undergraduate students in Cameroon revealed a relationship between perceived susceptibility and practice of breast self-examination. The finding of this study is in tandem with that of Myrna et al. (2017) whose study among women in Lebanon revealed a significant relationship between perceived susceptibility and the practice of breast self-examination. The finding of this study is in keeping with that of Kalayu et al. (2018) whose study on the practices of breast self-Examination and associated factors among Female Debre Berhan University Students showed a significant relationship between perceived susceptibility and practice of breast self-examination. The finding of this study is in keeping with that of Oyedunni and Peter-Kio (2012) whose study in Southwest Nigeria revealed a significant relationship between perceived susceptibility and breast cancer screening.

The findings of the study revealed that there was a significant relationship between attitude and the practice of breast self-examination [$f(1,1172) = 4925$, $p<0.05$]. It can be deduced from the finding of the study that, attitude which is a person's readiness to engage in a health practice is a key variable influencing health practices, including breast self- examination. The finding of this study corroborates that of Faronbi and Abolade (2012) whose study on breast self-examination among female secondary school teachers in Oyo State, Nigeria showed that there was a significant relationship between attitude and practice of breast self-examination. The finding of this study is in tandem with that of Myrna et al. (2017) whose study among women in Lebanon revealed a significant relationship between attitude and the practice of breast self-examination. The finding of this study is akin to the result of Getu et al. (2018) among female undergraduate students in Addis Ababa University, Ethiopia which indicated a significant relationship between attitude and practice of breast self-examination.

**Conclusion**

Based on the findings of the study, it was concluded that, the correlates of breast self-examination among female students in public universities, Rivers State were: family history of breast cancer, self-efficacy, perceived susceptibility, and attitude towards breast cancer prevention.

**Recommendations**

Based on the findings of the study, the following recommendations were made:

1. The result showed a relationship between family history and BSE practice hence, healthcare institutions should help the family members of their patients with breast cancer by assigning health officers to their families to counsel, teach and monitor them practice BSE.
2. The result showed a relationship between self-efficacy and BSE practice hence, undergraduate students should enhance their self-efficacy by taking out time to learn it constantly until they are able to do it appropriately.
3. The result showed a relationship between perceived susceptibility and BSE practice hence, public health practitioners should positively influence the perception of students through public health education using the media.
4. Health educators should also help to influence the attitude of students by carrying out extensive health educational program on breast self-examination across the tertiary institutions.

**REFERENCES**

Abu-Helalah, M. A., Alshraideh, H. A., Al-Serhan, A. A., Kawaleet, M., & Nesheiwat, A. I. (2015). Knowledge, barriers and attitudes towards breast cancer mammography screening in Jordan. Asian Pacific Journal of Cancer Prevention, 16(9), 3981–3990.

Agbonifoh, J.A. (2016). Breast self-examination practice among female students of tertiary institutions in Edo State, Nigeria. Journal of Education and Practice, 7(12), 11-18. American Cancer Society (2018). Cancer Facts & Figures 2007 (PDF). American Cancer Society American Cancer Society (2011). Cancer facts and figures. American Cancer Society.

Barati, M., Amirzargar, M. A., Bashirian, S., Kafami, V., Mousali, A. A., & Moeini, B. Psychological predictors of prostate cancer screening behaviors among men over 50 years of age in Hamadan: perceived threat and efficacy. Iranian Journal of Cancer Prevention, 9(4), e4144.

Bashirian, S., Barati, M., Shoar, L. M., Mohammadi, Y., & Dogonchi, M. (2019). Factors Affecting Breast Self-examination Behavior Among Female Healthcare Workers in Iran: The Role of Social Support Theory. Journal of Preventive Medicine and Public Health, 52(4), 224 – 233

Birhane, N., Mamo, A., Girma, E., & Asfaw, S. (2015). Predictors of breast self-examination among female teachers in Ethiopia using health belief model. Archives in Public Health, 73(1), 39-44.

Faronbi, J., & Abolade, J. (2012) Breast self-examination practices among junior secondary school teachers in a rural community in Oyo State, Nigeria. Open Journal of Nursing, 2(2), 111-115.

Getu, M. A., Kassaw, M. W., Tlaye, K. G., & Gebrekiristos, A. F. (2018). Assessment of breast self-examination practice and its associated factors among junior undergraduate students in Addis Ababa University, Addis Ababa, Ethiopia. Breast Cancer, 2(11), 21— 28.

International Agency for Research on Cancer (2014). Leading cause of cancer death for women.

IARC.

**Original Article**

Jeronimo, J., Bansil, P., & Lim, J. (2014). A multicountry evaluation of careHPV testing, visual inspection with acetic acid, and papanicolaou testing for the detection of cancer. International Journal of Gynecological Cancer, 24(3), 576-585.

Johns Hopkins Medical Center (2016). National Breast Cancer Foundation.

PLC http://www.nationalbreastcancer.org/breast-self-exam.

Kalayu, K. (2018). Practices of breast self-examination and associated factors among junior debre berhan university students. International Journal of Breast Cancer, 2017, 1-6

Kayode, F. O., & Akande, T. M. O. G. (2005). Knowledge, attitude and practice of breast self- examination among female secondary school teachers in Ilorin, Nigeria. European Journal of Scientific Research, 10(3), 1-3.

Kim, M.Y., Kang, E.H., & Byun, E.K. (2013). Factors influencing the practice of breast selfexamination among women in their 30s and 40s in Busan, Korea. Journal of East-West Nursing Research, 19(1), 37-45.

Kissal, A., Vural, B., Ersin, F., & Solmaz, T. (2018). The effect of women's breast cancer fear and social support perceptions on the process of participating in screening. Global Health Promotion, 25(3), 52–59.

Muhammed, E. S. (2014). Knowledge of students toward breast cancer and breast self-examination practice at high school nursing in basra city. Journal of Kufa for Nursing Science, 4(1), 1-7.

Nade, F. P., Assob, J. C., & Kwenti, T. E. (2015). Knowledge, attitude and practice of breast selfexamination among female undergraduate students in the University of Buea. BioMedical Central Research Notes, 8(1), 43-49.

National Cancer Institute (2019). Surge of breast cancer. National Cancer Institute.

Noroozi, A., Jomand, T., & Tahmasebi, R. (2011). Determinants of breast self-examination performance among Iranian women: an application of the health belief model. Journal of Cancer Education, 26(2), 365–374.

Omotara, B., Yahya, S., Amodu, M., & Bimba, J. (2012). Awareness, attitude and practice of rural women regarding breast cancer in Northeast Nigeria. Journal of Community Medicine and Health Education, 2, 148-155.

Surveillance Epidemiology and End Results (2013). Cancer facts and the war on cancer. National Cancer Institute, http://training.seer.cancer, gov/disease/war.

World Health Organization (2013). Breast cancer: prevention and control. WHO.

World Health Organization (2018). Global report on the leading cause of cancer death for women. WHO.