

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/370057552>

# Efficacy of Teaching Breast Self-Examination Using Traditional Method among Female Secondary School Students in Oyo State, Nigeria: A Pre-Post Quasi Experimental Study

Article · April 2023

DOI: 10.9790/1959-1202031825

CITATIONS

0

READS

11

5 authors, including:



**Eunice Ogunmodede**

Bowen University

4 PUBLICATIONS 1 CITATION

[SEE PROFILE](#)



**Joel OJO Aluko**

University of Ilorin

36 PUBLICATIONS 135 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Awareness, knowledge and practices of breast cancer screening measures among female postgraduate students of a Nigerian Federal University: a cross-sectional study [View project](#)



Disaster Prevention and mitigation [View project](#)

# Efficacy of Teaching Breast Self-Examination Using Traditional Method among Female Secondary School Students in Oyo State, Nigeria: A Pre-Post Quasi Experimental Study

Ogunmodede, E. O<sup>1</sup>; Aluko, J. O<sup>2</sup>; Anorkwuru, R<sup>3</sup>; Olajide, A. O<sup>4</sup>; Ajala, D. E<sup>5</sup>

<sup>1</sup>Department of Nursing, Bowen University, Iwo, Osun State, Nigeria

<sup>2</sup>Department of Nursing, University of Ilorin, Kwara State, Nigeria

<sup>3</sup>School of Nursing and Midwifery, Babcock University, Ilishan-Remo, Ogun State, Nigeria.

<sup>4</sup>Faculty of Nursing, Ladake Akintola University of Technology, Ogbomoso, Oyo State, Nigeria

<sup>5</sup>Clinical Nurse, Bowen University Teaching Hospital, Ogbomoso, Oyo State, Nigeria

## Abstract

**Background:** Breast self-examination is a good approach to detecting breast cancer early and therefore needed to be propagated among the women folk through teaching to enhance their knowledge and practicing skill since breast cancer had become a higher killer among the other cancers. Therefore, since all women are vulnerable to this menace, teaching of breast self-examination (BSE) through traditional method among the younger females is important to boost their knowledge and practice of breast self-examination in readiness to early detection of breast cancer. Hence, the objective of this study is to evaluate the efficacy of traditional method of teaching breast self-examination among female secondary school students in Oyo State.

**Materials and Methods:** This study utilized a quasi-experimental design, conducted among the female students of senior secondary class of Anglican Grammar School, Ogbomoso North Local Government area and Ladigbolu Grammar School in Oyo East, all in Oyo State. The sample size was determined using Cochran formula to be one hundred and seventy-four (174) but one hundred and sixty-one (161) completed both the pre and post intervention test and demonstration of BSE. Structured questionnaire was used to collect data for the cognitive section which has to do with the knowledge of BSE while checklist was used for the psychomotor aspect where practice of BSE was graded per student under poor, average, good and excellent.

**Results:** The findings of this study revealed that larger percentage of the female secondary school students has poor pre-intervention knowledge and practice of BSE but a significant improvement at the post-intervention test and practice using traditional method. Majority (87.6%) of the participants was between age 14-17years and about 68.94% reached menarche at age 10-13years. Almost all (90.7%) had poor pre-intervention knowledge while 65.8% at post intervention had knowledge above average. Also, 85.7% at pre-intervention had poor practice of BSE while 54.7% had practice of BSE above average at post-intervention.

**Conclusion/Recommendation:** Educational interventions through traditional method vis a vis lecture method of teaching brought positive improvement in knowledge and practice of BSE among the female secondary school girls. Therefore, senior secondary school students should be exposed to breast self-examination through traditional method of teaching and probably add it to their curriculum to spread the knowledge and the practice and thereby curb the prevalence of breast cancer in the nearest future.

**Keywords:** Efficacy, breast self-examination, traditional method of teaching, female secondary school students

Date of Submission: 14-03-2023

Date of Acceptance: 30-03-2023

## I. Introduction

The teaching of women on the performance of breast self-examination (BSE) is a promising strategy to reduce breast cancer morbidity and mortality in the societies. Teaching methods are effective teaching strategies that can help students learn in an enjoyable, motivating, and engaging way, they support instructors in carrying out their duty to direct the social and emotional growth of students (Indeed Editorial Team, 2021). These teaching methods according to UGCNETPAPER1 (2019) includes lecture, discussion, tutorial, study, seminar and demonstration to mention view. Many of these methods had been used to teach breast self-examination among different categories of women to aid early detection of breast cancer which according to Sarker et al (1) had become a global health burden and probably one of the leading causes of high mortality among women. Breast cancer according to the Centre for Diseases Control (2) is described as a disease characterized by the

abnormal growth of breast cells and a commonest malignant disorder that mostly claims the lives of women to death. The unmodifiable risk factors contributing to this menace according to Bhargava (2020) is said to be; age, race, dense breast, personal history, genes, menstrual history, radiation and the modifiable ones are obesity, alcoholic intake, intake of contraceptive pills after menopause and reproductive history.

The occurrence of breast cancer according to World Health Organization (3); Mekuria et al, (4) & Dinegde et al, (5) has been on the increase in many regions of the world, in the sense that incidence rates remain higher in developed regions, but mortality is relatively much higher in underdeveloped countries due to a lack of early detection and access to treatment facilities. Globocom (2020) posited that 9.6million die of cancer each year while breast cancer being the second leading cause of death, accounted for 14% globally. Sharma, (6) & Globocom 2020 reported that breast cancer is accounted for 29.5% of all cancers in Africa. Udoh et al, (7) reported in 2018 that, 8.6million new cases of cancer recorded while breast cancer accounted for 24.2% out of which 8.1% occurred in Sub-Saharan Africa (SSA). Also, out of 4.2million mortality from cancer globally, 15% accounted for breast cancer and nearly 11.8% occurs in SSA. Ibitoye & Thupayegale-Tshwenegae (8) also postulated that breast cancer in Nigeria is the leading cause of cancer mortality in women responsible for 33.3 percent annually. BC is said to be on the increase among the adolescents and the elderly women especially the pre-menopausal women (9). According to Abo Al-Shiekh et al. (10), the rate at which breast cancer affected women ranges within 15.6% among ages below forty years (>40), 29.5% among the 40-49 years of age and 27% among the 50-59years group in Gaza Strip. Fitzmaurice et al, (11) presumed that 43.1% of women will die globally as a result of breast cancer out of which 36.8% will occur in a low-middle income countries.

Fondjo et al. (2018) averred that in order to lower breast cancer's morbidity and mortality, early detection is essential and the best method to diagnose breast cancer. The American Cancer Society advises using mammography, clinical breast examinations, and BSE as the three screening techniques but the greatest approach for detecting breast cancer early according to Ayed et al, (12) is mammography. Seifu & Mekonen (13) also postulated that mammography is expensive and difficult to acquire in most underdeveloped nations therefore recommended BSE as an approach that is more convenient, feasible, cost-effective, available and simple procedure that is easy to perform. BSE perform at home according to Dagnechew et al, (14) help to detect 90% of breast cancer whereas only 10% are detected by clinical breast examination (CBE) and mammography. It is free, painless, simple to perform and continues to be the key strategy for increasing breast health awareness and perhaps enable early detection of any anomalies by self.

The American Cancer Society (15) recommends that women from the age of 20, especially after their menstrual cycle, with knowledge on how to do BSE and seek medical care if discovers any warning symptoms such as new lumps, nipple discharge, and abnormal tissue in the breast as well as women who perform this procedure early get more familiar with their breasts, making it simpler for them to notice any alterations that may take place in their breast. For females older than 20, routine BSE testing is advised.

Deficient knowledge, lack of technical know-how, and ignorance have been associated with the late detection and delayed reporting of breast cancer, thereby worsening the prognosis of the disease (16). Studies carried out among women still proved poor knowledge and low skill especially among the adolescents (8). In a study conducted by Ogunmodede et al (17) on a 10 year systematic literature review on knowledge, attitude and practice of BSE among women in Nigeria; knowledge of BSE was recorded low, attitude towards BSE was overall negative while practice was poor. The studies reviewed were on all categories of women but few on the adolescents whereas, these adolescents are at their transition period to adulthood and the future of any nation either developed or underdeveloped (Muhammad et al. 2013). Women at their early stage in life before exposure to breast cancer needed to be taught on how to self-examine themselves through the appropriate methods to support and maintains the knowledge and skills of breast self-examination in order to detect breast cancer early. Different categories of women had been taught breast self-examination through diverse methods of teaching but still knowledge of BSE and practice indeed remain low among women and breast cancer also keep on increasing which could be as a result of method of teaching or teaching a wrong category of women with a wrong method. Therefore, intervention program using traditional method of teaching on BSE developed for senior secondary school girls is very important because they have the potential to be at risk of getting breast cancer but still rare among them and they are at the stage where learning can easily takes place. Hence, this study was conducted to find out the efficacy of the traditional method of teaching breast self-examination on the knowledge and practice of BSE among the female secondary school students in the selected secondary schools in Oyo State which could peradventure become a useful teaching method among the students in the nearest future to get them acquainted to the nature of their breast for early detection of breast cancer and other breast abnormalities.

### **Objectives of the Study**

The main aim of the study is to evaluate the efficacy of teaching breast self-examination using traditional method among female secondary school students in Oyo State.

The specific objectives are to:

- i. Assess the pre and post intervention knowledge of breast self-examination among female secondary school students in Oyo State;
- ii. Assess the pre and post intervention practice of breast self-examination among female secondary school students in Oyo State;

### **Research Questions**

- i. What is the pre and post intervention effect on the knowledge of breast self-examination using traditional method of training among female secondary school students in Oyo State?
- ii. What is the pre and post intervention effect on the practice of breast self-examination using traditional method of training among female secondary school students in Oyo State?

### **Research Hypothesis**

**Ho1:** There is no significant relationship between the post intervention knowledge and practice of breast self-examination among female adolescents in selected secondary schools in Oyo State

## **II. Methodology**

### **Research Design**

This study adopted a quasi-experimental using one group with pre and post-test design because it helped in determining the effectiveness of the traditional teaching method showing the difference between the knowledge and practice before and after.

### **Research Setting**

This study was conducted in two government grammar school; one from Ogbomoso north local government and the other from Oyo east in Oyo town.

Ogbomoso is a town located in Oyo State in South-West of Nigeria. It is bordered in the north by Ilorin in Kwara State, Oyo town in the south, linked together by the same main road. It was founded in 1600's in the middle of 17th century and it is one of the largest towns in Nigeria for Yoruba settlement. It has five (5) local government which are Ogbomoso North, South, Oriire, Surulere and Ogo-Oluwa local government areas. Ogbomoso has government secondary schools zoned into all the local government areas.

Anglican Grammar School is situated in Ogbomoso North in Sabo area. It is one of the ancient schools located along Ilorin-Ogbomoso Road. It is a mixed school, initially operated as Modern school but changed to Grammar school in the year 1976.

Oyo town is an ancient city in Oyo State. It has four local government areas which are Oyo East, West, Afijio and Afiba local government areas. It is centrally located along Lagos-Ilorin Road from Ibadan to Ogbomoso. It has many public and private secondary schools out of which Ladigbolu Grammar School, Oyo was selected. Ladigbolu Grammar School was founded on the 20th of January in the year 1965 with the selfless effort of Chief Moses Oyedele Ogunmola as the founder in the ancient city of Oyo kingdom. It is located at Eyinwolu Layout, Ladigbolu area along old Oyo-Ibadan express road in the western part of Oyo town.

### **Population of the Study**

The study involved the female adolescents of 13 – 18 years old among the secondary school girls of senior classes one to three in selected Secondary schools in Ogbomoso zone and Oyo zone in Oyo State. The study calculated population were one hundred and eighty-one (181) participants were enrolled for the study from the two schools i.e Seventy-four (74) from Ladigbolu and one hundred and seven (107) from Anglican Grammar School, Ogbomoso but one hundred and sixty-one (161) participants completed the pre and post study test meaning that hundred (100) participants from Ogbomoso and sixty-one (61) from Oyo.

### **Sample Size Determination**

Cochran's formula was used to determine the calculated sample size

### **Sampling Technique**

Total respondents of one hundred and eighty-one were selected for the study from the two schools using a multi-stage sampling technique. From the five (5) zones in Oyo State, two zones were randomly selected by draw with replacement method, one local government was selected from the five local governments in each of the zones by balloting, one school was purposively selected from the local government and one hundred and seven (107) respondents were randomly selected by balloting in Ogbomoso as well as seventy-four (74) in Oyo.

### **Instrument for Data Collection**

Structured self-administered questionnaire (Instrument I) was used for collection of cognitive data while Check-list (Instrument II) was used to assess the respondent's skills of breast self-examination.

**Reliability of the Instrument**

The pilot test was analyzed to prove the reliability of the instruments; the consistency of the instruments was tested with Cronbach Alpha to yield 0.750 and 0.802 which proved the instrument reliable.

**Method of Data collection**

Data was collected in three phases which are pre-visit, pre-intervention and post-intervention phases. During the pre-visit phase: Approval letter was taken from the Ministry of Education, Ibadan, Oyo State to use the student in the selected schools; the researcher then visited the schools, submitted the approval letter to the school head and met with both the school head and the staff members to explain the purpose of the study as well as the method of the study. The time of the study was agreed upon with the school head and the staffs for full participation. The participating students were selected by balloting based on the determined sample size, consent form was given to them to take home for their parents to give their consent since majority of them were below eighteen (18) years of age. A conducive hall with privacy and other amenities was assigned for the study. In the pre-test phase; the selected respondents were gathered together to the allocated place, the consent forms were first and foremost collected from them, pretest was done with administration of questionnaire and demonstration of BSE though poorly, teaching of breast self-examination was done using traditional method. The post-test phase was eight (8) weeks after the pretest, the same questionnaire used for the pre-test was administered after which the breast self-examination was demonstrated and graded with checklist.

**Method of Data Analysis**

Statistical Package for the Social Sciences 25version was used to analyze the data collected using descriptive and inferential statistics to answer research questions and tested hypotheses. Results were presented in tables and figures (bar charts).

**Ethical Considerations**

The consent was firstly taken from the Ministry of Education, Oyo State, from the schools Management and then from the parents through and with the respondents' interest before the study was conducted. All information were kept confidential and identification names were chosen by each participant for easy collation of result after the study.

**III. Results**

**Table 1: Demographical Characteristics of Female Secondary School students**

s/n	Variables	Labels	Frequency	Percentage
1	Age as at last birthday	10-13 years	11	6.8
		14-17 years	141	87.6
		18 and above years	9	5.6
		<b>Total</b>	161	100.0
2	Class	SSS 1	87	54.0
		SSS 2	52	32.3
		SSS 3	22	13.7
		<b>Total</b>	161	
3	Age at Menarche (first menses)	Less than 10 years	2	1.24
		10-13 year	111	68.94
		14-17 years	47	29.2
		18 and above years	1	0.62
		<b>Total</b>	161	100
4	Father's level of education	No formal education	5	3.1
		Primary education	23	14.3
		Secondary education	76	47.2
		Tertiary education	57	35.4
		<b>Total</b>	161	100
5	Mother's level of education	No formal education	12	7.5
		Primary education	19	11.8
		Secondary education	72	44.7
		Tertiary education	58	36.0
		<b>Total</b>	161	100.0
6	Local Government Area	Ogbomosho North	100	62.1
		Oyo East	61	37.9
		<b>Total</b>	161	100.0
7	Ethnicity	Yoruba	156	96.9
		Igbo	4	2.5
		Hausa	1	0.6
		<b>Total</b>	161	100.0

Table 1 showed the demographical characteristics of female adolescents in selected secondary school in the study. Majority, 141(87.6%) falls between age 14-17years and only 9(5.6%) are above 18years; 2(1.24%) female adolescents reached menarche at less than 10 years of age, 111(68.94%) started between 10-13 years, 47(29.2%) started between 14-17 years of age while only 1(0.62%) reached menarche above 18years; Only 57-58 parents had tertiary education while others had no formal, primary or secondary education.

**Research Question 1:** What is the pre and post intervention knowledge of breast self-examination using traditional method of training among female secondary school students in Oyo State?

**Table 2: Pre and Post-intervention Knowledge of Breast Self-Examination using traditional method among female secondary school students**

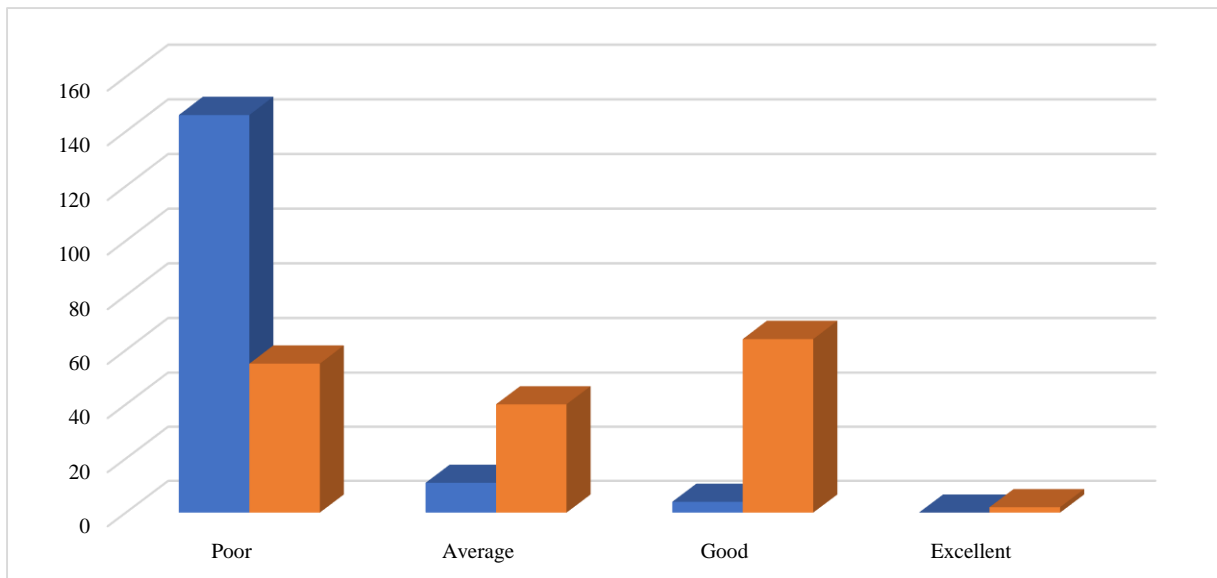
Interval	knowledge of breast self-examination	Frequency			
		Pre-Intervention	Percentage (%)	Post-Intervention	Percentage (%)
Less than 50	Poor	146	90.7	55	34.2
50 – 69	Average	11	6.8	40	24.8
70 – 89	Good	4	2.5	64	39.8
90 and above	Excellent	-	-	2	1.2

Table 2 showed the percentage of pre and post intervention knowledge of breast self-examination using traditional method among female secondary school students.

**Pre-Intervention:** 90.7% (n=146) participants had poor knowledge of breast self-examination, 6.8% (n=11) had average knowledge, and 2.5% (n=4) had a good knowledge of breast self-examination. Therefore there is a poor level of knowledge of breast self-examination among female secondary school students in the pre-intervention with traditional methods.

**Post-Intervention:** 34.2% (n=55) participants had poor knowledge of breast self-examination, 24.8% (n=40) had average knowledge, 39.8% (n=64) had a good knowledge, and 1.2% (n=2) had an excellent knowledge of breast self-examination. Hence, there is an average knowledge of breast self-examination among female secondary school students in the post-intervention with traditional methods.

Therefore, there is an improvement (i.e. from poor to good) in the knowledge of breast self-examination among female secondary school students using traditional method of teaching.



**Fig 1:** Multiple Bar charts showing the pre and post intervention knowledge of Breast Self-Examination using traditional method

**Research question 2:** What is pre and post intervention practice of breast self-examination using traditional method of training among female adolescents in selected schools in Oyo State?

**Table 3: Pre and Post-intervention practice of Breast Self-Examination using traditional among female secondary school students in Oyo State**

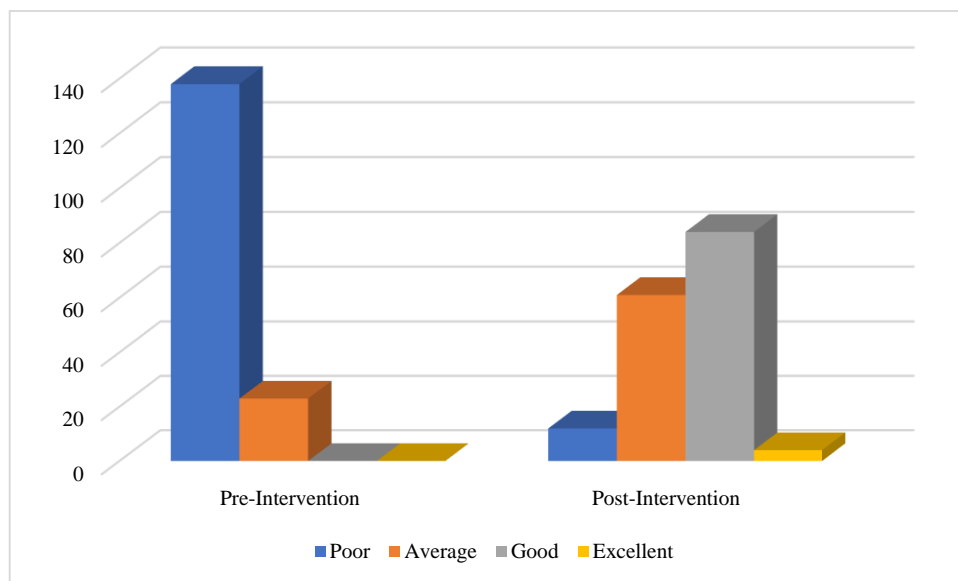
Interval	Level of practice of breast self-examination	Frequency			
		Pre-Intervention	Percentage (%)	Post-Intervention	Percentage (%)
Less than 50	Poor	138	85.7	12	7.5
50 – 69	Average	23	14.3	61	37.9
70 – 89	Good	-		84	52.2
90 and above	Excellent	-		4	2.4

Table 3 showed the percentage pre and post intervention practice of breast self-examination using traditional method among female adolescents in selected secondary schools.

**Pre-Intervention:** 85.7% (n=138) participants had poor practice of breast self-examination, and 14.3% (n=23) had an average level of practice of breast self-examination. Therefore there is a poor level of practice of breast self-examination among female adolescents in pre-intervention with traditional methods.

**Post-Intervention:** 7.5% (n=12) participants had poor practice of breast self-examination, 37.9% (n=61) had an average practice, 52.2% (n=84) had a good practice, and 2.5% (n=4) had an excellent level of practice of breast self-examination. Hence, there is a good skill of practice of breast self-examination among female adolescents in the post-intervention with traditional methods.

Therefore, there is a huge improvement (i.e. from poor to good) in the practice of breast self-examination among female secondary school students using traditional method of training.



**Fig 2:** Multiple Bar chart showing the pre and post teaching practice of Breast Self-Examination using traditional method

**H<sub>0</sub>1: There is no significant relationship between the post intervention knowledge and practice of breast self-examination among female adolescents in selected secondary schools in Oyo State**

Pearson Product Moment Correlation (PPMC) showing the relationship between the knowledge and practice of breast self-examination among female adolescents

Table 4.11 showed that there is a significant relationship between the knowledge and practice of breast self-examination among female adolescents in selected secondary schools in Oyo State (r=.152, n=276, p=.011<.05). Hence, the knowledge of breast self-examination influenced/enhanced the practice of breast self-examination in the study.

#### **IV. Discussion of Findings**

This section discussed the results as analyzed and interpreted based on the research objective and questions. The most effective strategy to reduce the rate of breast cancer mortality globally has by far been early identification of the disease. Since BSE is a relatively straight forward and economical approach in resource-constrained situations, it has been suggested for early detection in underdeveloped countries. Having the good knowledge of one's breast at early stage of life according to Abo Al-Shiekh et al. (2020), it will help in early detection of any abnormal development. This therefore brought about the teaching of BSE among the female secondary school students to evaluate the effectiveness of the traditional teaching method on their knowledge and practice peradventure this could be used as a general tool to equip women from this transition stage of life with the knowledge and skill of breast self-examination for early identification of breast cancer which is now a global burden.

The findings of this study revealed the demographic characteristics of the female secondary school students; Majority, 141(87.6%) falls between age 14-17years and only 9(5.6%) are above 18years; this denotes that several of them are in middle adolescent stage according to Cunha (2021), 2(1.24%) female adolescents reached menarche at less than 10 years of age, 111(68.94%) started between 10-13 years, 47(29.2%) started between 14-17 years of age while only 1(0.62%) reached menarche above 18years, this findings corroborate the classification of age at menarche between 10 and 16years according to Marques et al (2022) Only 57-58 parents had tertiary education while others had no formal, primary or secondary education. All these findings were found to probably attributed to the respondent's low knowledge and practice of breast self-examination due to their level of motivation and exposure.

According to this study, among the one hundred and sixty-one (161) secondary school girls that responded and complete the pre and posttest, majority (146) respondents had poor knowledge in the pre-intervention test but reduced to 55 in the post-intervention test, 138 had poor practice of breast self-examination which reduced to 12 after intervention. This proved that majority had poor knowledge and practice, this result is in line with the study conducted by Gurjar (18) and Zain et al (19) who observed the participants having poor knowledge and practice of breast self-examination in the pre-intervention test but increased in the post-intervention test.

This study also affirmed that there is significant increase in the post intervention knowledge and practice of breast self-examination which corroborate the finding of Nazeer & Sajai (20) that intervention program enhances the knowledge of BSE among secondary school girls. The difference in the knowledge and practice of breast self-examination in the pre and post-intervention test of this study were statistically good; meaning that from ranges of average-good-excellent of 15 (9.3%) of knowledge to 65% while that of practice increased from 23 (14.3%) to 92.5%; this findings corroborate the studies conducted by Sarker et al (1); among the University female students on breast cancer knowledge and breast self-examination where poor knowledge and practice were reported in pre-intervention test but increased in the post-intervention test. The poor pre-intervention knowledge and practice of breast self-examination in this study probably resulted from the participant's level of education which ran against the findings of Dewi et al. (21) in their study where higher level of education positively affected the knowledge and practice of breast self-examination. This study revealed that both knowledge and practice were poor in the pre-intervention test and both were enhanced during the post-intervention test and this supported the submission of Tewelde (22) that affirms that an element of increase in the total score of knowledge of BSE improved the chances of practicing BSE. The findings of this study also go in line with the findings of Ahmed et al (23) that reported that inadequate knowledge affect the practice of BSE. Therefore, the more the knowledge, the better the practice skill of BSE.

According to Zakaria et al (24), the process of knowledge generation starts when information is taken in through the perceptual process, stored in memory, and then exhibited again. Also, there are two ways that adolescents respond to the knowledge they are given i.e assimilation by which they integrate new information into existing knowledge and accommodation which is the adjustment to new information. The more knowledge and understanding the adolescents have about themselves, the better it is to be able to detect diseases early.

#### **V. Recommendations**

This study recommends that BSE should be taught in the secondary school level among male and female students to get them acquainted with their breasts' symmetry, size, shape, texture and the colour in order to discover any anomalies as early as possible.

Traditional method (lecture method) of teaching is readily available for teaching BSE at every level and allows both lecturers and the students to communicate directly without application of any technological device, therefore, the teachers should be carried along.

Secondary Schools Education Policy Makers should incorporate Breast self-examination through traditional method into the secondary school curriculum.



## VI. Conclusion

Based on the findings from this present study, it was concluded that the secondary school girls in their transition stage to adulthood especially in such a setting used in the study has no good knowledge and practice of breast self-examination but through teaching especially through traditional method of teaching, they were able to acquire knowledge and skill of breast self-examination. This simply implied that, traditional method of teaching breast self-examination among the adolescents is highly efficacious and could be used effectively to teach BSE without doubt among the secondary school students to prepare them for early detection of breast cancer or other breast abnormalities. Students can apply their knowledge and skills to their personal life and future livelihoods if they can deeply absorb facts and practice skills in the classroom.

## References

- [1]. Sarker R, Islam MS, Moonajilin MS, Rahman M, Gesesew HA, Ward PR. Effectiveness of educational intervention on breast cancer knowledge and breast self-examination among female university students in Bangladesh: a pre-post quasi-experimental study. *BMC Cancer* [Internet]. 2022;22(1):1–7. Available from: <https://doi.org/10.1186/s12885-022-09311-y>
- [2]. CDC. Breast Cancer Statistics. Vol. 92, JNCI: Journal of the National Cancer Institute. 2020. p. 445–445.
- [3]. WHO. WHO Cancer Report 2020 Global Profile [Internet]. World Health Organisation. 2020. Available from: [www.paho.org](http://www.paho.org)
- [4]. Mekuria M, Nigusse A, Tadele A. Breast Self-Examination Practice and Associated Factors Among Secondary School Female Teachers in Gammu Gofa Zone, Southern, Ethiopia. *Breast Cancer (London)* [Internet]. 2020 [cited 2022 Mar 27];12:1. Available from: [/pmc/articles/PMC6996229/](https://pubmed.ncbi.nlm.nih.gov/33177868/)
- [5]. Dinegde NG, Demie TG, Diriba AB. Knowledge and Practice of Breast Self-Examination Among Young Women in Tertiary Education in Addis Ababa, Ethiopia. *Breast cancer (Dove Med Press)* [Internet]. 2020 [cited 2022 Mar 27];12:201–10. Available from: <https://pubmed.ncbi.nlm.nih.gov/33177868/>
- [6]. Sharma R. Breast cancer burden in Africa: Evidence from GLOBOCAN 2018. *J Public Heal (United Kingdom)*. 2021 Dec 1;43(4):763–71.
- [7]. Udoh RH, Tahiru M, Ansu-Mensah M, Bawontuo V, Danquah FI, Kuupiel D. Women’s knowledge, attitude, and practice of breast self-examination in sub-Saharan Africa: A scoping review. *Arch Public Heal*. 2020 Sep 22;78(1).
- [8]. Ibitoye OF, Thupayegale-tshwenegae G. The Impact of Education on Knowledge Attitude and Practice of Breast Self-Examination Among Adolescents Girls at the Fiwasaye. *J Cancer Educ*. 2019;36:39–46.
- [9]. Fondjo LA, Owusu-afriyie O, Sakyi SA, Wiafe AA, Amankwaa B, Acheampong E, et al. Comparative Assessment of Knowledge , Attitudes , and Practice of Breast Self-Examination among Female Secondary and Tertiary School Students in Ghana. 2018;2018.
- [10]. Abo Al-Shiekh SS, Alajerami YS, Etewa BB, Elsous AM. System Delay in Breast Cancer Diagnosis in Gaza Strip, Palestine. *J Oncol*. 2019;2019:1–7.
- [11]. Fitzmaurice C. Global, Regional and National Cancer Incidence, Mortality, Years of Life Lost, Years Lived with Disability, and Disability-Adjusted Life-Years for 29 Cancer Groups, 1990 to 2017. *jamanetwork.com* [Internet]. 2019 [cited 2022 Apr 1];5(12):1749–68. Available from: [https://jamanetwork.com/journals/jamaoncology/articlepdf/2752381/jamaoncology\\_fitmaurice\\_2019\\_oi\\_190065\\_1611691230.74331.pdf](https://jamanetwork.com/journals/jamaoncology/articlepdf/2752381/jamaoncology_fitmaurice_2019_oi_190065_1611691230.74331.pdf)
- [12]. Ayed, Ahmad, Faeda Eqtaït, Lubna Harazneh Imad, Imad Fashafsheh Sewar, Sewar Nazzal, Bian Talahmeh, Deena Hajjar RA. Breast Self-Examination in Terms of Knowledge, Attitude, and Practice among Nursing Students of Arab American University/ Jenin. *J Educ Pract* [Internet]. 2015;6(32):27–31. Available from: [www.iiste.org](http://www.iiste.org)
- [13]. Seifu W, Mekonen L. Breast self-examination practice among women in Africa: a systematic review and Meta-analysis. Vol. 79, *Archives of Public Health*. BioMed Central Ltd; 2021.
- [14]. Dagnechew D, Tesfaye S, Wasihun M. Breast Self-Examination Practice and Associated Factor Among Female Health Workers At Gambella Public Health Facilities in Gambella Town, South West Ethiopia: a Cross Sectional Study, 2019. *Indo Am J Pharm Res* [Internet]. 2019;9(12):561–71. Available from: [www.iajpr.com/www.iajpr.com](http://www.iajpr.com/www.iajpr.com)
- [15]. American Cancer Society. American Cancer Society recommendations for early breast cancer detection in women without breast symptoms. 2014.
- [16]. Adeloye D, Sowunmi OY, Jacobs W, David RA, Adeosun AA, Amuta AO, et al. Estimating the incidence of breast cancer in Africa: A systematic review and meta-analysis. *J Glob Health*. 2018;8(1).
- [17]. Ogunmodede EO, Aluko JO, Anorkwuru R. Knowledge, Attitude and Practice of Breast Self-Examination in Nigeria: A 10 Year Systematic Review. *African J Heal Nurs Midwifery*. 2022;5(4):139–54.
- [18]. Gurjar NR. Impact of an Educational Programme on Knowledge on Breast Cancer and Practice of Breast Self Examination among Women. *Indian J Contin Nurs Educ*. 2020;21:155–8.
- [19]. Zain NM, Mut NA, Bakar NH, Kamal I, Suhaimi SA, Mohammad NM, et al. The Effectiveness of Educational Intervention Program on Knowledge of BSE among Secondary School Girls in Seremban, Negeri Sembilan. *J Sains Kesihat Malaysia*. 2019;17(2):73–9.
- [20]. Nazeer G, Sajai B. A Quasi Experimental Study to Evaluate the Effectiveness of Health Awareness Programme on Prevention of Breast Cancer and Developing Skill on Breast Self-Examination among Women at Selected Area in Alnamas. *Saudi J Nurs Heal Care*. 2019;2(8):269–75.
- [21]. Dewi TK, Massar K, Ruitter RAC, Leonardi T. Determinants of breast self-examination practice among women in Surabaya, Indonesia: an application of the health belief model. *BMC Public Health*. 2019;19(1581):1–8.
- [22]. Tewelde B, Tamire M, Kaba M. Breast self - examination practice and predictors among female secondary school teachers in Addis Ababa, Ethiopia: using the health belief model. *BMC Womens Health* [Internet]. 2022;22(317):1–8. Available from: <https://doi.org/10.1186/s12905-022-01904-w>
- [23]. Ahmed S, Sayeed A, Mallick T, Syfuddin HM. Knowledge and Practices on Breast Cancer among Bangladeshi Female University Students: A Cross-sectional Study. *Asian Pacific J Cancer Care*. 2020;5(1):19–25.
- [24]. Zakaria F, Ali RN, Datau O. The Effect of Demonstration Method on Breast Self-Examination in Young Women at SMAN 1 Telaga Biru. *J Community Heal Provis*. 2021;1(2):40–7.