

The effect of classroom lectures on student pharmacists' knowledge, attitude and practice of breast self-examination

DEBORAH OYINE ALUH*, MAXWELL OGOCHUKWU ADIBE, AZUBUIKE AMOS EKWUOFU

Clinical Pharmacy and Pharmacy Management, University of Nigeria Nsukka, Nigeria

Abstract

Background: Women advised about breast self-examination (BSE) by healthcare professionals have greater knowledge, confidence and are more likely to practice it routinely. Many pharmacy organisations and indeed the World Health Organisation (WHO) support the pharmacists' role in public health.

Objective: This study aimed to assess the effect of clinical lectures on breast cancer on knowledge, attitude and practice of BSE among student pharmacists.

Methods: This study was a descriptive pre/post-type survey. Final year students of the largest pharmacy faculty in Nigeria participated in the study. A 17-item pre-tested questionnaire on knowledge, attitudes and practices of BSE was given to each participant before clinical lectures (including a case review) on breast cancer. Six weeks after the lecture, the students were given the same questionnaire. Mean differences of survey item scores were analysed (paired sample *t*-test for pre- and post-test score) using SPSS.

Results: A total of 79 females were sampled, response rates were 91.4% and 75.95% for the pre- and post-surveys respectively. No statistically significant differences ($p < 0.05$) were found between the mean knowledge (2.00 ± 0.93 and 1.92 ± 0.65), mean attitude (19.29 ± 2.32 and 19.48 ± 2.02) and mean practice scores (1.53 ± 1.08 and 1.67 ± 1.03) in the pre- and post- samples of the study.

Conclusion: Health promotion techniques such as BSE should be explicitly taught and incorporated into pharmacy education.

Keywords: *Breast Self-examination, Knowledge, Pharmacy Students, Practice, Public Health*

Introduction

Breast cancer is currently the most common form of cancer amongst females worldwide and was responsible for 571,000 deaths in 2015 (Ferlay *et al.*, 2010; American Cancer Society, 2016). The burden of cancer is steadily on the increase in developing countries which have previously enjoyed a low prevalence of the disease (Kanavos, 2006). This epidemiological transition has been attributed to a growing ageing population, dietary and lifestyle changes (Boutayeb & Boutayeb, 2005; Boutayeb, 2006). Cancer mortality is particularly higher among women in developing countries compared to those in developed countries primarily due to the late-stage presentation (Ajekigbe, 1991; Brinton *et al.*, 2014). Patient-mediated factors associated with late presentation include low educational level, poor breast cancer awareness and use of alternative care medicine (Espina, McKenzie & dos-Santos-Silva, 2017). Early detection of

breast cancer remains the cornerstone of breast cancer control. Despite the sustained efforts to increase breast cancer public awareness via campaigns and public screening programmes, the late presentation remains a major issue among breast cancer patients in Nigeria (Ezeome, 2010; Ibrahim & Oludara, 2012). This implies a lack of adequate knowledge of the importance of regular screening and early presentation among women in the country (Okobia *et al.*, 2006; Irurhe *et al.*, 2010; Ikechukwu *et al.*, 2015). This is a pointer to the need for more strategic means of increasing public awareness about the importance of screening and early breast cancer detection.

Although the American Cancer Society no longer recommends breast self-examination (BSE) as research has shown that breast cancer detection through BSE does not increase survival rates (Coleman *et al.*, 2008), BSE is recommended for raising awareness among women at

*Correspondence: Deborah Oyine Aluh, *Clinical Pharmacy and Pharmacy Management, University of Nigeria Nsukka, Nigeria. Tel: +234 8038793384. E-mail: deborah.aluh@unn.edu.ng*

risk rather than as a screening method. The practice of BSE has been seen to empower women to take responsibility for their health. Women advised about BSE by healthcare professionals have greater knowledge, confidence and are more likely to practice it routinely (Petro-Nustus & Mikhail, 2002; Secginli & Nahcivan, 2006). Pharmacists can play a significant role in increasing breast cancer awareness among women. The paradigm shift from product-oriented functions of dispensing to patient care has greatly expanded the roles of pharmacists. Many pharmacy organisations and indeed the World Health Organisation (WHO) support the pharmacists' role in public health (WHO, 1998; American Society of Health-System Pharmacists, 2008). The unique accessibility of pharmacists places them in the position to advocate, facilitate and provide cancer-related health promotion activities (Giles *et al.*, 2001; Erku & Mersha, 2017). Pharmacists can educate women about BSE through educational programmes in clinical and community settings since they are viewed as one of the most accessible healthcare professionals (Erku & Mersha, 2017). The traditional characteristics of community pharmacists such as the presence of their pharmacies in communities of different sizes and locations, their extended working hours, and the free consultations they provide, make them particularly suited for this role (El Hajj & Hamid, 2013). Pharmacists can educate their patients on how and when to perform BSE or drop flyers and pamphlets in prescription bags. Proper education and training of student pharmacists is necessary for them to fulfil these new roles. Thus there is a need to assess the impact of current training on BSE awareness, attitude and practice among students who are going to be future pharmacists.

In Nigeria, the duration of the Bachelor of Pharmacy (B.Pharm.) programme is five years and one year of compulsory internship in an accredited centre. The clinical therapeutics course is a prerequisite course for final year students in pharmacy schools in Nigeria. It usually consists of an average of three hours/week/topic classroom lectures for 12–16 weeks. This duration however, varies for different pharmacy schools in Nigeria. The therapeutics lectures generally include didactic lectures on different disease states and their pathophysiology, pharmacological and non-pharmacological management and simulated cases on these disease states. It intends to teach students to understand a disease state and accurately provide a rational drug therapy regimen and effective patient counselling. This study specifically aimed to find out if the clinical lectures on breast cancer had any effect on knowledge, attitude and practice of BSE among female pharmacy students. Several studies have assessed the knowledge, attitude and practice of BSE among female medical students, however, there is a paucity of research among pharmacy students. In many countries including Nigeria, some cultural attitudes make women uncomfortable about receiving information about BSE from male healthcare personnel thus only female pharmacy students were recruited in this study.

Methods

This study was a descriptive pre/post-type survey. Final year female students of the largest pharmacy faculty in Nigeria were recruited for this study. Ethical approval was received from the Health Research Ethics Committee of University of Nigeria. All the final year female students present in the class were approached for verbal consent to participate. The self-designed structured questionnaire, written in English, contained 17 closed-ended questions organised into three sections. Questions were informed by literature on the study topic (Gwarzo, Sabitu & Idris, 2009; Iururhe *et al.*, 2010; Alwan *et al.*, 2012; Okolie, 2012). Section A elicited information on knowledge of BSE; Section B had attitudes towards BSE; Section C consisted of the practice of BSE; while Section D sought for information on socio-demographic data. The knowledge and practice domains comprised 5 and 4 items respectively, some of which were negatively worded. Each correctly answered item was scored '1' and '0' if otherwise, giving maximum total scores of 5 and 4 respectively for all the items in the knowledge and practice domains. The attitude section consisted of 8 items which had 3-level Likert scale of 'Disagree, Unsure, and Agree'. The 'Disagree' option was scored '1'; 'Unsure' scored '2' and 'Agree' scored '3'. This gave a possible maximum total score of 24.

The questionnaire was pre-tested using 20 conveniently sampled female pharmacy students in their penultimate year of study. Analyses were conducted to test the reliability of knowledge, attitude and practice domains. Internal consistency of these sections of the questionnaire was calculated using Cronbach's *alpha* technique (0.78 for knowledge, 0.74 for attitude, 0.69 for practice). The data obtained during the pre-test were not included in the study data. The study aims were explained verbally to the students before the day of data collection. The pre-tested questionnaires on knowledge, attitudes and practices of BSE were given to participants who gave verbal consent before a classroom clinical lecture on breast cancer. A cover letter was attached to the survey instrument which informed respondents of the purpose of the survey and assured them of confidentiality and anonymity. The lecture, which was a clinical lecture on breast cancer, was given for one hour each on two separate days after which a case on breast cancer was discussed for another hour on the second day. BSE was mentioned in passing as a way of detecting breast cancer, however, details about the technique were not given. Lectures were given by qualified pharmacists with at least a master's degree in Clinical Pharmacy. Six weeks after the last lecture on breast cancer, students who had filled the questionnaire the first time were given the same questionnaire. No incentives were given to study participants. The pre- and post-lecture data were collected and entered into a Microsoft Excel spreadsheet and simple descriptive analyses (frequencies, means and, percentages) were conducted. Mean differences of survey item scores were analysed using the SPSS v.20 (paired sample *t*-test for pre- and post- scores) with significance set at <0.05.

Results

Table I: Knowledge of breast self-examination among final year female students

Items	Pre-test (Correct) N (%)	Post-test (Correct) N (%)
When is the most appropriate time to do BSE?	32 (44.4)	39 (65.0)
Who should perform BSE?	57 (79.2)	55 (91.7)
How many positions are there to perform BSE?	27 (37.5)	31(51.7)
BSE is the only method for early detection of breast cancer [†]	31 (43.1)	21 (35.0)
Females at your age should continue to perform BSE even when abnormalities are not felt	54 (75)	43 (71.7)

[†] The question score was reversed before analysis

Table II: Attitudes towards breast self-examination among final year female students

Items	Pre-test (Agree) N (%)	Post-test (Agree) N (%)
Screening for abnormality of BSE is important and useful	70 (97.2)	57 (95.0)
BSE is embarrassing	13 (18.1)	8 (13.3)
BSE is useless	4 (5.6)	0 (0.0)
Screening for early detection of breast cancer should be the responsibility of healthcare professionals	18 (25.0)	15 (25.0)
BSE is complicated, a waste of time and does not give accurate results	3 (4.2)	1(1.7)
BSE can increase your risk of having breast cancer	1 (1.4)	2(3.3)
You are afraid of performing BSE because you might detect breast cancer	34 (47.2)	25 (34.7)
I dislike talking about breast cancer	13 (18.1)	8 (13.3)

Table III: Mean knowledge, attitude and practice scores

Domains	No of items	Pre-test Mean (SD)	Post-test Mean (SD)	Mean difference	p-value
Knowledge	5	2.00 (0.93)	1.92 (0.65)	-0.08	0.802
Attitude	8	19.29 (2.32)	19.48 (2.02)	+0.19	0.966
Practice	4	1.53 (1.08)	1.67 (1.03)	+0.14	0.442

Seventy-two students (of the 79 sampled; response rate 91.13%) agreed to participate and completed the survey instrument before the clinical lecture. Two students

declined the invitation to participate in the study, no reason was given. Only 60 students who had attended all the lectures completed the survey instrument in the post-survey (response rate of 75.95%). No statistically significant differences ($p>0.05$) were found between the mean age (23.6 ± 1.99 and 23.5 ± 1.97 years) in pre- and post- samples of the clinical lecture. Television/radio was the most named source of information on BSE (54.2% and 52.2% in the pre- and post- samples respectively) while lecturers were among the least mentioned source of information on BSE (19, 26.4%). For the practice question 'Did you do a breast self-examination last month?' The positive response rates were 41 (56.9%) and 30 (50.0%) in pre- and post- samples of the clinical lecture.

Discussion

This is the first time the effect of classroom lectures on pharmacy students' knowledge, attitude and practice of breast self-examination has been evaluated. The mean age of the respondents in this study was 23 which is slightly older than the mean ages from similar studies carried out among undergraduate students in Lagos and Sokoto where the mean age was 21 years (Iruhe *et al.*, 2010; Adamu, Shuaibu & Adamu, 2016). This difference may be because this study was carried out among final year students only while the other studies were carried out among students in all academic levels of study. The proportion of students who knew that BSE should be performed after menstruation increased from 44% to about 65% after the clinical lecture. This is in keeping with findings from a similar study carried out among undergraduate students in Sokoto (Adamu, Shuaibu & Adamu, 2016).

Findings from this study indicate that in this school of pharmacy, the curriculum may not have sufficiently included health promotion. This finding is reflective of the inadequacies of the current clinical lectures in addressing health promotion through BSE. Previous studies among Nigerian undergraduates have shown good knowledge of BSE which is generally not translated into practice (Gwarzo, Sabitu & Idris, 2009; Iruhe *et al.*, 2010; Okolie, 2012). There was a decrease in the proportion of students who had a BSE in the previous month in the post-survey. This may be attributed to the reduced response rate in the post-survey as the non-responders may have been students who performed BSE the previous month. The poor practice of BSE among respondents in this study is particularly worrisome since the students surveyed are future health professionals expected to be reliable sources of information on this practice. It is not clear however if the poor practice of BSE will affect their willingness to recommend it to patients. The primary source of information on BSE among the students surveyed was the television/radio which is consistent with similar studies conducted among other undergraduate students in the country (Nwagbo, 1996; Iruhe *et al.*, 2010; Okolie, 2012).

Lecturers were among the least reported sources of information on BSE. It was somewhat surprising that the source of information on BSE reported by the students did not change pre- vs. post-. This may be because the BSE technique was not discussed in detail during the lectures, more emphasis was placed on pharmacological management of breast cancer. These are pointers to the low priority placed on health promotion strategies such as BSE in pharmacy curricular.

In the authors' quest to find the pharmacist's role in public health, especially in developing countries, education of pharmacists-to-be should cover more direct and practical inclusion of basic health promotion strategies such as BSE in the academic curriculum and training of pharmacy students. Lectures that only focus on pathophysiology and treatment of breast cancer may not be enough for these future pharmacists to fulfil their anticipated public health roles. There is an urgent need to include public health principles into the curriculum of pharmacy schools in Nigeria, since they are future health advisors. Pharmacy students should be educated on health promotion strategies such as BSE since they are expected to educate members of society.

Some limitations are acknowledged for this study. Only the most basic study design was used with no control group. This research was conducted in a single institution and despite being the largest in the country, results may not be generalisable to other schools of pharmacy with different detailed curricula, teaching models and local healthcare cultures. Further research is needed to know if students will practice BSE more if it is taught and demonstrated in the classroom, and if they would be willing to recommend and teach BSE to their patients.

Conclusion

This study has shown that the clinical lectures on breast cancer that were undertaken by the final year class of a pharmacy school in Nigeria had no significant effect on their knowledge, attitude and, practice of BSE. There is a need for lecturers, advisors and, mentors in pharmacy schools to adjust curricula and explore opportunities to incorporate principles of public health in didactic and experiential curricula, co-curricular or extracurricular activities, and postgraduate training.

References

Adamu, H., Shuaibu, K. & Adamu, A.N. (2016). Knowledge, Attitude and Practice of Breast Self Examination among Female Students of a Tertiary Institution in Sokoto, North-West Nigeria. *Annals of International medical and Dental Research*, **2**(4), 74-79 doi:10.21276/aimdr.2016.2.4.23

Ajekigbe, A.T. (1991). Fear of mastectomy: The most common factor responsible for late presentation of carcinoma of the breast in Nigeria. *Clinical Oncology*, **3**(2), 78-80. doi:10.1016/S0936-6555(05)81167-7

Alwan, N.A.S., Al-Diwan, J.K.A., Al-Attar, W.M. & Eliessa, R.A. (2012). Knowledge, attitude & practice towards breast cancer & breast self examination in Kirkuk University, Iraq. *Asian Pacific Journal of Reproduction*, **1**(4), 308-311. doi:10.1016/S2305-0500(13)60098-6.

American Cancer Society. (2016). Cancer Facts & Figures 2016, American Cancer Society. doi: 10.1177/0300985809357753

American Society of Health-System Pharmacists. (2008). ASHP Statement on the Role of Health-System Pharmacists in Public Health. *American Journal of Health-System Pharmacy*, **65**(5), 462-467. doi:10.2146/ajhp070399

Boutayeb, A. (2006). The double burden of communicable and non-communicable diseases in developing countries. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, **100**(3), 191-199. doi:10.1016/j.trstmh.2005.07.021

Boutayeb, A. & Boutayeb, S. (2005). The burden of non communicable diseases in developing countries. *International Journal for Equity in Health*, **4**(2). doi:10.1186/1475-9276-4-2

Brinton, L. A. Figueroa, J.D., Awuah, B., Yarney, J., Wiafe, S., Wood, S.N., Ansong, D., Nyarko, K., Wiafe-Addai, B. & Clegg-Lampsey, J.N. (2014). Breast cancer in Sub-Saharan Africa: Opportunities for prevention. *Breast Cancer Research and Treatment*, **144**(3), 467-478. doi:10.1007/s10549-014-2868-z.

Coleman, M.P., Quaresma, M., Berrino, F., Lutz, J.M., De Angelis, R., Capocaccia, R., Baili, P., Rachet, B., Gatta, G., Hakulinen, T., Micheli, A., Sant, M., Weir, H.K., Elwood, J.M., Tsukuma, H., Koifman, S., E Silva, G.A., Francisci, S., Santaquilani, M., Verdecchia, A., Storm, H.H., Youngm J.L. & CONCORD Working Group. (2008). Cancer survival in five continents: A worldwide population-based study (CONCORD). *The Lancet Oncology*, **9**(8) doi:10.1016/S1470-2045(08)70179-7

El Hajj, M.S. & Hamid, Y. (2013). Breast cancer health promotion in Qatar: A survey of community pharmacists' interests and needs. *International Journal of Clinical Pharmacy*, **35**(3), 376-85. doi: 10.1007/s11096-010-9449-y

Erku, D.A. & Mersha, A.G. (2017). Involvement of community pharmacists in public health priorities: A multi-center descriptive survey in Ethiopia. *PLoS ONE*, **12**(7). doi:10.1371/journal.pone.0180943

Espina, C., McKenzie, F. & dos-Santos-Silva, I. (2017). Delayed presentation and diagnosis of breast cancer in African women: a systematic review. *Annals of Epidemiology*, **27**(10), 659-671. doi:10.1016/j.annepidem.2017.09.007

- Ezeome, E.R. (2010). Delays in presentation and treatment of breast cancer in Enugu, Nigeria. *Nigerian Journal of Clinical Practice*, **13**(3), 311-316
- Ferlay, J., Shin, H.R., Bray, F., Forman, D., Mathers, C. & Parkin, D.M. (2010). Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *International Journal of Cancer*, **127**(12), 2893–2917. doi:10.1002/ijc.25516
- Giles, J.T., Kennedy, D.T., Dunn, E.C., Wallace, W.L., Meadows, S.L. & Cafiero, A.C. (2001). Results of a community pharmacy-based breast cancer risk-assessment and education program. *Pharmacotherapy*, **21**(2), 243-253. doi:10.1592/phco.21.2.243.34100
- Gwarzo, U., Sabitu, K. & Idris, S. (2009). Knowledge and practice of breast-self examination among female undergraduate students of Ahmadu Bello University Zaria, Northwestern Nigeria. *Annals of African Medicine*, **8**(1), 55-58. doi:10.4103/1596-3519.55766
- Ibrahim, N.A. & Oludara, M.A. (2012). Socio-demographic factors and reasons associated with delay in breast cancer presentation: A study in Nigerian women. *Breast*, **21**(3), 416-18. doi:10.1016/j.breast.2012.02.006
- Ikechukwu, C., Omaka-Amari, Nnenna, L., Nwimo, I.O., & Onwunaka, C. (2015). Breast Cancer Knowledge among Women in Ebonyi State, Nigeria: Implication for Women Breast Cancer Education. *Journal of Health Education Research & Development*, **3**(2). doi:10.4172/2380-5439.1000129.
- Irurhe K., Olowoyeye, A., Arogundade, A., Bassey, B. & Onajole, T. (2009). Knowledge, Attitude And Practice Of Breast Self-Examination Among Female Medical Students In The University Of Lagos. *The Internet Journal of Health*, **12**(1). Available at: <http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2011266410&site=ehost-live>
- Kanavos, P. (2006). The rising burden of cancer in the developing world. *Annals of Oncology*, **17**(Suppl. 8), 15-23. doi:10.1093/annonc/mdl983
- Nwagbo D.F & Akpala C.O. (1996). Awareness of breast cancer and breast self-examination among women in Enugu urban, Eastern Nigeria. *J Coll Med.*, **1**, 34–36
- Okobia, M.N., Bunker, C., Okonofua, F. & Osime, U. (2006). Knowledge, attitude and practice of Nigerian women towards breast cancer: A cross-sectional study. *World Journal of Surgical Oncology*, **4**(11). doi:10.1186/1477-7819-4-11
- Okolie, U.V. (2012). Breast self examination among female undergraduates in Enugu, Southeast, Nigeria. *International Journal of Nursing and Midwifery*, **4**(1),1-7 doi: 10.5897/IJNM11.038
- Petro-Nustus, W. & Mikhail, B.I. (2002). Factors associated with breast self-examination among Jordanian women. *Public Health Nursing*, **19**(4). doi:10.1046/j.1525-1446.2002.19406.x.
- Secginli, S. & Nahcivan, N.O. (2006). Factors associated with breast cancer screening behaviours in a sample of Turkish women: A questionnaire survey. *International Journal of Nursing Studies*, **43**(2), 161-171. doi:10.1016/j.ijnurstu.2005.02.004.
- WHO [World Health Organisation]. (1998). The role of the pharmacist in self-care and self-medication. Report of the 4th WHO Consultive Group on the Role of the Pharmacist. doi:WHO/DAP/98.13.