Academic Education and Breast Self-Examination: A Comparative Study of Knowledge, Attitude and Practice of Medical and Non-Medical Female Students

Majid Movahed[1], Masoumeh Abbasi Shavazi[2]*, Mohammad Taghi Abbasi Shavazi[3], Sedighe Alborzi[4]

Abstract

Aim: Breast cancer is the most common cancer among women worldwide. This comparative study was designed to investigate the knowledge, attitude, and practice of medical and non-medical female students concerning breast self-examination (BSE) in two different universities in Shiraz, Iran. It also examined the relationship between the students' knowledge, attitude, practice and type of academic education.

Methods: A cross-sectional survey was conducted in Shiraz, Iran. 394 female students were selected using proportionate stratified random sampling (292 non-medical and 102 medical). A self-administered questionnaire was used for data collection, and the obtained data were analyzed descriptively.

Findings: Medical students were more aware of BSE timing, stages of BSE performance and initiation age of BSE. Medical female students were also more likely to consider BSE as efficient, not difficult and time consuming, and to acknowledge that as a method for decreasing the probability of cancer. Regular BSE performance rate for both groups was very low and unsatisfactory (non-medical 2.1% and medical 2.9%). The results of t-test and Chi-square revealed significant differences across BSE knowledge, attitude and practice with type of academic education (medical or non-medical) (P=001).

Conclusion: Based on the findings, the medical students were more knowledgeable and showed a better attitude and responded more positively than the non-medical student, but both groups showed low level of BSE practicing that is of a concern. The supportive role of universities in providing students with necessary information about breast cancer is suggested, and its prevention methods should be highlighted. Additionally, there is a need to a supportive environment which facilitates students' access to qualified health care services.

Keywords: Knowledge, Attitude, Practice, Breast self-examination

1. Associate Professor, Department of Sociology, Faculty of Social Sciences, Shiraz University, Fars, Iran
Email: mmovahed@rose.shirazu.ac.ir
2. Ph.D. Candidate, Department of Health Education, School of Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
Email: mabbasishavazi@gmail.com
3. Assistant Professor, Department of Sociology, Faculty of Social Sciences, Shiraz University, Fars, Iran
Email: mtabbasi@rose.shirazu.ac.ir
4. M.Sc. in Demography, Department of Sociology, Faculty of Social Sciences, Shiraz University, Fars, Iran
Email: S-alborzi@rose.shirazu.ac.ir

Introduction

Breast cancer is the most common cancer among women worldwide [1], and it is now the most common malignancy and among the important women's health problems In Iran [2]. In 2009, according to the recent reports of the Ministry of Health and Medical Education (MOHME), breast cancer accounted for 28.25% of all cancers among Iranian women [3] though at one of the lowest incidence rates in Iran (as in other Asian countries), during the last four decades, its increasing incidence rate has made breast cancer as one of the most frequent malignancies among Iranian women [4]. Breast cancer affects Iranian women at least one decade younger than their counterparts in the developed countries [5].

Early detection and effective treatment are important to reduce morbidity and mortality of breast cancer [6-8]. Breast Self-Examination (BSE), Clinical Breast Examination (CBE) and mammography are the secondary preventive methods used for screening in the early detection of breast cancer [9-10]. BSE is an important screening practice for early detection of breast cancer for being simple, effective, inexpensive and suitable for all women [11, 12].

Based on the American Cancer Society (ACS) guidelines for breast cancer screening, last updated in 2003, doing BSE regularly is one way for women to know how their breasts normally look and feel, and to notice any changes. The goal, with BSE, is to report any breast changes to a doctor or nurse [13]. BSE, when performed competently and with appropriate frequency, has the advantage of being a consumer-driven screening technique that may enhance the likelihood of early detection of breast cancer [14]. Although there are controversies surrounding the effectiveness of BSE [15], the literature supports the argument that regular practice of BSE influences treatment, prognosis and survival rates of breast cancer [16, 17].

BSE is a viable alternative where mammography and regular clinical breast examination are not accessible [18, 19]. Since there is not a population-based mammography screening program in Iran [12], and mammograms are not routinely performed in early ages [20], BSE seems to be an important viable optional substitute and realistic approach to early detection of breast cancer, especially for female students. Furthermore, for younger women, BSE training and adherence is a gateway to health promotion behaviour, which provides women with the knowledge that sets the stage for adherence to CBE and mammography screening guidelines later in life [21].

Review of the literature on breast cancer and screening reveals that despite the effectiveness of breast cancer screening behaviours in

reducing mortality, screening rates remain low. In studies of diverse women groups conducted in South Asia [22], Africa [23], Turkey [24] and Nigeria [18], the rate of performing monthly BSE was found to be 12%, 11%, 10% and 5%, respectively.

In Iran, though there is no precise statistics about the performance of BSE among women, research findings indicate that BSE is still only practice by a low proportion of the women [25]. In several studies of Iranian women, it has been shown that the rate of performing regular (monthly) BSE ranges from 6% to 14% [12, 26, 27].

The purpose of this study was to investigate the knowledge, attitude and practice (KAP) of two different groups of female students, non-medical students (NMS) and medical students (MS), about BSE, and also to examine whether there were differences between these two groups.

Methods

This was a cross-sectional survey among medical (MS) and non-medical female students (NMS) in two different universities (Shiraz Medical University and Shiraz University) in Shiraz, Iran. The survey was designed to investigate: 1) the respondents' knowledge, attitude, and practice (KAP) about BSE; 2) differences between the two groups; and 3) relationship between academic education type and BSE attitude and practice among NMS and MS.

A self-administered questionnaire consisting mainly of close-ended questions was used as the survey instrument. The questionnaire contained items on the respondents' demographic characteristics (Table 1), knowledge of BSE procedures and correct timing (Table 2), attitude toward BSE (Table 3), and questions regarding the practice of BSE and its frequency.

All female students in Shiraz University (studying Human, Social and Natural Sciences) and Shiraz Medical University (studying Medical and Para-medical Sciences and Health) were considered for inclusion in the study. Cochran's formula and Line table were used to calculate the sample size (28). According to the Line table and assuming that the parameter in population is 50%, with a confidence level of 95% and 4% reliability, the required sample size was 390. Using proportionate stratified random sampling, 394 female students (292 NMS and 102 MS) were selected from the population. The survey was conducted during April and August 2007 in Shiraz.

Reliability was estimated for attitude scale using Cronbach's alpha. A minimum value of $\alpha=0.65$ was used as acceptable estimate of reliability (29). In this study, Cronbach's alpha for attitude scale toward BSE was 0.72.

Statistical analysis was performed using SPSS version 11.5. Descriptive statistics, Pearson's correlation, Chi-square and t-test were used for analyzing the data. Ethical approval for the survey was provided by the Research Ethics Committee of both Shiraz University and Shiraz Medical University, and all participants gave oral consent

Results

Socio-demographic characteristics of the sample

Of 394 students, 74.1% were NMS and 25.9% MS. The respondents were similar in age. The mean age of NMS was 22 years (SD=3.01, rang= 17-30) and that of MS was 21.62 years (SD=2.52, rang=17-30). Most the respondents were single, 78% among NMS and 85.3% among MS. Family history of breast cancer among the NMS (21.2%) was higher than among the MS (13.7%). The characteristics of NMS and MS are shown in Table 1.

Knowledge of breast cancer

The results indicated that only 26% of NMS, and 85.3% of MS were aware of BSE timing. With regard to "palpation with the same side hand", 96% of MS and 24% of NMS answered correctly. While 79.4% of MS were aware of "arm swelling" examination as part of BSE procedure, only 33.6% of NMS regarded it as part of BSE procedure.

Compared with MS (81.4%), less proportion of NMS (50.3%) selected the age of 20 as the best age of BSE initiation correctly. The most noticeable incorrect answer of MS (99%) was that they considered "palpation with thumb and other fingers" as a correct way of doing BSE. In sum, the results of most items showed that the level of knowledge of BSE in MS was satisfactory but not in NMS. Table 2 shows a better and complete detail of the female students' knowledge about BSE.

Attitude towards BSE

NMS's and MS's attitude towards BSE was measured through a 10-item scale in which the students' feelings, cognition and also tendency to practice BSE were examined. Reliability for attitude scale toward BSE was 0.72.

Although the majority of students in the two universities considered BSE not difficult and time consuming, the proportion of MS in this case was higher than that of NMS (94.1 of MS versus 72.9 of NMS). The results showed that MS had more self–confidence in doing BSE (91.2 of MS versus 61.6 of NMS).

A high proportion of MS disagreed with the item "destination is indispensable and we can't avoid of disease" (75.7% of NMS and 94.1% MS). MS had better feelings toward BSE (MS: 80.4% and NMS: 45.2%), and preferred BSE to mammography and check up by physician (MS: 72.5% and NMS: 43.5%). They also

believed that BSE decreases the probability of the cancer (MS: 81.4% and NMS: 46.6%). In general, MS showed more positive attitude toward BSE than NMS. The 10-item scale of attitude for MS and NMS is demonstrated in Table 3.

Finally, the analysis showed (Table 4) that there was a significant difference in the knowledge scores between NMS (Mean= 3.96, SD= 2.37) and MS (Mean= 9.8, SD=0.951) (P=0.001). There was also a significant difference in the attitude scores between NMS (M= 37.66, SD= 5.138) and MS (Mean= 43.95, SD=2.200) (P=0.001).

Practice

Table 5 shows BSE rates in the two groups of female students. Comparison of BSE performance in NMS and MS indicates that 75.7% of NMS never perform BSE whereas this rate for MS was 37.3%.

In all, only 2.1% of NMS and 2.9% of MS performed BSE on a regular basis. According to the knowledge and attitude results, the female medical students had more tendencies to perform BSE than the female students with non-medical academic education. To explore the relationship between academic education and BSE practice among NMS and MS, Chi-square test was performed. A significant relationship was found between academic education and practice of BSE (χ^2=50.56,

df=2, p=0.001) (Table 5).

Discussion

There are different views about performing BSE [30]. The U.S. Preventive Services Task Force recommends against teaching breast self-examination (BSE) [31]. Consistently, Canadian Task Force recommended not advising women to routinely practice Breast Self Exam [32]. But meta-analysis of studies on BSE provided evidence that the breast cancer of women who practice BSE was detected at an earlier stage than that of those who do not practice the procedure [33]. In the present study, the result indicated that more than half of the students knew the age of BSE initiation. This finding is in agreement with another Iranian report that 42% of women knew the correct time for BSE initiation [27].

Attitude toward BSE was more positive in the medical students. The vast majority of students in the two universities considered BSE not difficult and time consuming, with more proportion of MS (94.1% of MS against 72.9% of NMS). However, this proportion in both groups is more than that of Iranian health workers (63%) [12] that highlights more positive attitude regarding BSE in students.

Although MS had more self-confidence in doing BSE (91.2% of MS against 61.6% of NMS), the self-confidence of both MS and NMS was much higher than female health

workers (37%) [12]. Confidence is defined as the belief that one can successfully execute a behaviour that will then lead to a desirable outcome [34]. It is revealed that women who are more confident in their ability to detect abnormal lumps and more motivated to promote their health, are more likely to perform BSE and have mammography [35]. Medical students in comparison with non-medical students considered BSE to be more efficient (81.4% against 46.6%, respectively). Several studies demonstrated that increased confidence and BSE benefits were significantly associated with BSE performance on a regular basis [24, 36]. Consequently, two important issues should be considered in planning educational programs: first, providing materials showing that many women could detect abnormalities themselves; and second, explaining the benefits that might be gained by performing BSE [12].

In this study, the low level of practicing regular BSE (monthly) by both medical and non-medical female students (2-3%) is especially similar to the 6% obtained from the study among Iranian female health workers [12] and to the 5.5% in two studies among Turkish and Nigerian women [37, 18]. This low performance rate of regular BSE is lower but relatively comparable to the findings from another Iranian study, were 14.4% of midwifery personnel [26] and 10.7% of

women in Ardabil were reported to practice regular BSE [27]. These similarities have been shown in several studies from South Asia (12%) [22], Africa (11% in Nigeria) [23] and Turkey (10.2%) [24]. In contrast, some studies have found that the majority of women performed BSE, ranging from 52% [38] to 76% [39].

This finding also highlights much lower rate of BSE practice in both groups of female students (despite the good knowledge of medical students), which is similar to two other studies [14, 40]. One explanation for this low compliance could be that the vast majority of female students in both groups were single (more than 79%). Though marital status had no relationship with performing BSE in a study of Turkish women [8]; conversely, it was relevant in an Iranian study [27] where higher level of married women performed higher BSE.

Another explanation could be the age of students; 46%-50% of the students in both groups were in their early 20s (21-24 years), which is the age of beginning to do BSE. Although there was no statistically significant association between age and BSE performance in the two studies of women in Nigeria and western Turkey [23, 24], a study among Iranian female health workers documented the reverse [12].

However, we cannot ignore the fact that breast cancer patients in Iran are relatively young

[41], and this low level of BSE performance in students is of concern, but since the foundation of healthy behaviour often begins at an early age, and BSE costs nothing and affords women some measure of involvement in screening their health, providing knowledge and skills to adolescents may be beneficial [35].

Conclusions

The themes found in this study reflected some differences in the knowledge and attitude of medical and non-medical students, and showed some similarities in low practicing of BSE between the two groups. The findings of this paper have the following implications for universities and policy-makers regarding the differences between two groups of medical and non-medical students.

First, since in Iran, social values and moral considerations limit the use of mass media for publicizing breast cancer awareness [42], female students should be considered as a special group for receiving and transferring information on breast cancer and its preventive strategies methods. This strategy of information sharing can enable them become the agents for promoting knowledge on breast cancer in the larger society; for example, among their female family member, friends and other female students in dormitories and classrooms.

Second, concerning the fact that there is currently no systematic screening or education program for early detection of breast cancer in Iran, we should not expect that raising awareness or making attitude favourable toward breast cancer screening tests leads to adopting a preventive behaviour. Indeed supportive environment that facilitates access to healthcare services such as accessible physician or healthcare personnel for counselling or even any breast examination is needed. Furthermore, the supportive role of universities in providing the necessary information about breast cancer screening tests, such as Clinical Breast Examination (CBE), mammography and breast-self examination should not be ignored.

Conflict of interest statements

The authors declare that they have no competing interests.

Authors' contributions

Majid Movahed was the main investigator, conceived of the study and participated in its design, performed statistical analysis and interpretation, and revised the manuscript. Masoume Abbasi Shavazi participated in the conception and design of the study, interpretation of the analysis, and drafted the manuscript. Mohammad T. Abbasi Shavazi contributed to the design of the study, performed statistical analysis and

interpretation, and assisted with the manuscript preparation. Sedighe Alborzi participated in the design of the study, data collection and entry, as well as performing statistical analysis. The authors read and approved the final manuscript.

References

[1] Cancer. World Health Organization. Available at: http://www.who.int/ mediacentre/factsheets/fs297/en/print.html

[2] Montazeri A, Ebrahimi M, Mehrdad N, Ansari M, Sajadian A. Delayed presentation in breast cancer: A study in Iranian women. BMC Women's Health 2003; 3: 4.

[3] Ministry of Health and Medical Education Health Deputy, Canter for Disease Control and Prevention: Iranian Annual of National Cancer Registration Report 2009. Islamic republic of Iran, Tehran; 2004 (Persian). Available from http://ircancer.ir/Portals/0/CancerBooks/Ir an%20Cancer%20Report%201388.pdf

[4] Ministry of Health and Medical Education, Health Deputy, Center for Disease Control and Prevention: Iranian Annual Cancer Registration Report 2003. Islamic Republic of Iran, Tehran; 2005 [In Persian]

[5] Harirchi I, Karbakhsh M, Kashefi A, Momtahen AJ. Breast cancer in Iran: results of a multi-center study. Asian Pac J Cancer Prev 2004; 5(1): 24-7.

[6] Sadler GR, Dhanjal SK, Shah NB, Shah RB, Ko C, Anghel M, Harshburger R. Asian Indian women: knowledge, attitudes and behaviors toward breast cancer early detection. Public Health Nurs 2001; 18(5): 357-63.

[7] Ludwick R. Registered nurses' knowledge and practices of teaching and performing breast exams among elderly women. Cancer Nurs 1992; 15(1): 61-7.

[8] Secginli S, Nahcivan NO. Factors associated with breast cancer screening behaviours in a sample of Turkish women: a questionnaire survey. Int J Nurs Stud 2006; 43(2): 161-71.

[9] Fung SY. Factors associated with breast self-examination behaviour among Chinese women in Hong Kong. Patient Educ Couns 1998; 33(3): 233-43.

[10] Foxall MJ, Barron CR, Houfek J. Ethnic differences in breast self-examination practice and health beliefs. J Adv Nurs 1998; 27(2): 419-28.

[11] Vahabi M. Breast cancer screening methods: A review of the evidence. Health Care Women Int 2003; 24: 773-93.

[12] Haji Mahmoodi M, Montazeri A, Jarvandi S, Ebrahimi M, Haghighat S, Harirchi I. breast self-examination: Knowledge, attitudes, and practices among female

health care workers in Tehran, Iran. The Breast J 2002; 8(4): 222-5.

[13] Smith RA, Cokkinides V, Eyre J. Practices: prospects cancer screening in the United States, 2007: A review of current guidelines. CA Cancer J Clin 2007; 57: 90-104.

[14] Wong-Kim E, Wang CC. Breast self-examination among Chinese immigrant women. Health Educ Behav 2006; 33(5): 580-90.

[15] Baxter N; Canadian Task Force on Preventive Health Care. Preventive health care, 2001 update: Should women be routinely taught breast self-examination to screen for breast cancer? CMAJ 2001; 164(13): 1837-46.

[16] Nystrom L. How effective is screening for breast cancer? BMJ 2000; 321(7262): 647-8.

[17] Facione NC, Giancarlo C, Chan L. Perceived risk and help seeking behaviour for breast cancer. Cancer Nurs 2000; 23(4): 258-67.

[18] Chirdan OO, Akosu JT. The practice of breast self-examination among women attending primary health care centers in Jos North Local Government Area of Plateau State Nigeria. Breast J 2006; 12(4): 389-90.

[19] Miller AB, To T, Baines CJ, Wall C. Canadian National Breast Screening Study-2: 13-year results of a randomized trial in women aged 50-59 years. J Natl Cancer Inst 2000; 92(18): 1490-9.

[20] American Cancer Society, Cancer Facts and Figures. 2005; Available at: http://www.cancer.org

[21] Yarbrough SS, Braden CJ. Utility of health belief model as a guide for explaining or predicting breast cancer screening behaviours. J Adv Nurs 2001; 33(5): 677-88.

[22] Choudhry UK, Srivastava R, Fitch MI. Breast cancer detection practices of south Asian women: knowledge, attitudes, and beliefs. Oncol Nurs Forum 1998; 25(10): 1693-701.

[23] Odusanya OO. Breast cancer: Knowledge, attitudes, and practices of female school teachers in Lagos, Nigeria. Breast J 2001; 7(3): 171-5.

[24] Dündar PE, Özmen D, Öztürk B, Haspolat G, Akyıldız F, Çoban S, Çakıroğlu G. The knowledge and attitudes of breast self-examination and mammography in a group of women in a rural area in western Turkey. BMC Cancer 2006; 6: 43.

[25] Vanaki Z, Kermanshahi S, Namadian M. The role of school daughters in education of self-examination method to women in order to prevention of breast cancer. World Health Journal 1998; 12: 58-60. [In Persian]

[26] Mojahed SH, Dehghani Firoozabadi R, Dafeei M. Knowledge and practice of

nursing and midwifery personnel of hospitals of Yazd about Breast Self-Examination. Shahid Sadoughi Medical Journal 2001; 9(1): 82-8. [In Persian]

[27] Alimohammadi M, Dadkhah B. The study of knowledge, attitude and practice among women of Ardabil city about Breast Self-Examination. Nasibeh Medical Journal 2002; 2: 20-4. [In Persian]

[28] Lin N. Foundation of Social Research. New York: McGrow Hill, 1976.

[29] De Vellis R. Scale development: Theory and application. Newbury park, California: Sage Publication, 2003.

[30] Bell A. Is Breast Self-Examination Still Worthwhile? AWHONN Lifelines 2003; 7(3): 195-7.

[31] U.S. Preventive Services Task Force. Breast Cancer: Screening; 2009, Available from: http://www.uspreventiveservicestaskforce. org/Page/Document/UpdateSummaryFinal /breast-cancer-screening?ds=1&s=breast %20cancer

[32] Canadian Task Force for Preventive Health Care, Breast Cancer—Clinician CBE/BSE Recommendation, available from: http://canadiantaskforce.ca/ctfphc-guidelines/2011-breast-cancer/clinician-cbe-bse-recommendation/

[33] Clarke V, Savage S. Breast self-examination training: A brief review. Cancer Nurs 1999; 22(4): 320-6.

[34] Champion VL. Instrument refinement for breast cancer screening behaviours. Nurs Res 1993; 42(3): 139-43.

[35] Champion VL. Revised susceptibility, benefits and barriers scale for mammography screening. Res Nurs Health 1999; 22(4): 341-8.

[36] Petro-Nustas W, Mikhail BI. Factors associated with breast self-examination among Jordanian women. Public Health Nurs 2002; 19(4): 263-71.

[37] Secginli S, Nahcivan NO. Reliabilty and validity of the breast cancer screening belief scale among Turkish women. Cancer Nurs 2004; 27(4): 287-94.

[38] Benedict S, Goon G, Hooman J, Holder P. Breast cancer detection by daughters of women with breast cancer. Cancer Pract 1997; 5: 213-19.

[39] McDonald PA, Thorne DD, Pearson JC, Adams Campbell LL. Perceptions and knowledge of breast cancer among African-American women in public housing. Ethn Dis 1999; 9: 81-93.

[40] Demirkiran F, Akdolun Balkaya N, Memis S, Turk G, Ozvurmaz S, Tuncyurek P. How do nurses and teachers perform breast self-examination: Are they reliable sources of information? BMC Public Health 2007; 7: 96.

[41] Ebrahimi M, Vahdaninia M, Montazeri A. Risk factors for breast cancer in Iran: A

case–control study. Breast Cancer Res 2002; 4(5): R10.

[42]Montazeri A, Haji-Mahmoodi M, Jarvandi S. Breast self-examination: Do religious beliefs matter? A descriptive study. J Public Health Med 2003; 25(2): 154-5.