RESEARCH ARTICLE

Comparison of Direct and Indirect Methods of Teaching Breast Self-Examination – Influence on Knowledge and Attitudes of Iranian Nursing and Midwifery Personnel

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Abstract

Background: Breast cancer is the most common cancer in women. Monthly breast self-examination (BSE) has been presented as one of the best screening methods available. The aim of this study was to compare effects of both direct and indirect methods of teaching of BSE on knowledge and attitudes of nursing and midwifery personnel. **Materials and Methods:** The present study was performed on 89 nursing and midwifery personnel in Valiasr hospital of Borujen city. Participants were randomly divided into a direct and an indirect training group. Researcher-designed BSE knowledge and attitude and demographic information questionnaires were used for data collection. **Results:** Before the education intervention, the mean levels of knowledge and attitude were 9.82±2.79 and 56.5±6.21 in the direct training group and 9.59±2.71 and 54.5±4.51 in the indirect training group; after the intervention, they reached 19.2±0.96 and 62.9±4.21, and 11.0±2.58 and 59.0±3.44, respectively. The difference in the mean levels of knowledge and attitude were significantly higher in the direct training group post intervention (P<0.05). **Conclusion:** It appears that educational planners and hospital personnel education officials should seek to teach aspects of crucial health behavior to female personnel using cooperative and direct training methods.

Keywords: Breast cancer- education- screening method- health personnel

Introduction

Breast cancer is the most common malignancy in women and 10-15% of women might develop the condition in their lifetime (Laufer, Ray, D'Angelo, Jones, and Pugh, 2015). Breast cancer is a slow growing tumor with a good prognosis if detected early (Maeda et al., 2017). Breast cancer was found to be the most common cancer and malignancy among Iranian women with a prevalence of 22.6% (Hallajian, Mahjoubi, and Nafissi, 2017). Nearly 6000 new cases of breast cancer are diagnosed across the country every year, and Iranian women develop breast cancer a decade earlier than their peer in other countries (Karimi, Delpisheh, and Sayehmiri, 2016). Breast cancer mortalities are directly associated with the stage of the disease at the time of diagnosis; that is, 5-year survival is estimated at 80-90% with a stage I diagnosis and is reduced to 22-63% with a stage II diagnosis (Lope et al., 2017; Soroush et al., 2016). Since breast cancer ranks first among cancers diagnosed amongst Iranian women, as the second cause of the death in females of all cancer mortalities, onset age of 10 years earlier than developed countries and the vast majority are diagnosed in advanced stages (Hassan et al., 2015). Early detection and screening, as cornerstones for breast cancer control play a pivotal role in reducing related mortalities (Alwan, Al-Diwan, Wafa'M, and Eliessa, 2012; Brennan, 2016; Heidari, Shahbazi, and Ghodusi, 2015).

In other words, early diagnosis is the key to breast cancer control. Monthly (BSE) is a simple, economical and proper method that involves only the individual's own cooperation requires no specialized personnel or equipment and has been presented as the best screening method available (Hallajian et al., 2017; Laufer et al., 2015; Maeda et al., 2017). It is more crucial to teach (BSE) to women than it is to teach it to physicians (Hagen et al., 2016). In countries where breast cancer is diagnosed at an advanced stage, screening by CBE with the teaching of BSE as an integral component will probably be effective in reducing breast cancer mortality (Miller and Baines, 2011). Despite the benefits associated with BSE, few women regularly perform it and many do not even know how to perform it. There is also evidence that women are more likely to perform BSE effectively when taught by physicians or a nurse (Al-Azmy et al., 2013). By teaching women screening methods such as the BSE, this disease

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can be detected in early stages and before it becomes invasive, even in remote areas of the country (Heidari and Ghodusi, 2015; Laufer et al., 2015).

In countries where breast cancer is diagnosed at an advanced stage, screening by CBE with the teaching of BSE as an integral component will probably be effective in reducing breast cancer mortality (Alaeinejad, Abbasian, and Delurianzadeh, 2007; Hassan et al., 2015; Mojahed, Dehghani, and Dafeei, 2001). BSE have a significant effect in detecting breast cancers at early stages (<3) suggesting they are effective screening tests with high availability and low costs that can be applied at the community level (Avci, Ozcan, Altay, and Cavusoglu, 2008; Lope et al., 2017). Health professionals such as physicians, nurses, midwives and social workers should use their knowledge and skills to teach women to regularly perform BSE in order to become more sensitive to their normal breast shape and to be able to detect any changes in their shape and consequently take immediate action (Schwab, Huang, Schmid, Schötzau, and Güth, 2015). Studies show that although more than half of nurses have the opportunity to train women to perform BSE, only a few make the effort, and although the majority of midwives are themselves trained to teach BSE, they lack the self-confidence required for teaching it, which might be due to having themselves forgotten the method, their deficient knowledge, poor self-confidence, etc. (Hacihasanoǧlu & Gözüm, 2008; Shahbazi & Heidari, 2014). As the main pillar of the health system, nurses and midwives should receive ongoing training; in fact, those of them who work in primary health care (PHC) play a particularly essential role in providing information on BSE and recommending performing it and changing health behaviors related to BSE and developing a positive attitude toward the method (Hacihasanoǧlu and Gözüm, 2008).

Higher levels of education, employment in professional jobs, higher income, marital status, age, social support, knowledge and preventive attitudes, history of breast diseases, family history of breast cancer, seeing a physician regularly, ethnic background, and area of residence have all been found to be significant determinants of adherence to BSE practices (Ogunbode, Fatiregun, and Ogunbode, 2015). The practice of BSE is routine in developed countries, but it is not well-established in developing countries where breast health education is not actively being pursued (Shahbazi and Heidari, 2014). Although it is essential for medical students to learn the techniques of the clinical examination of ''real'' patients, for ethical reasons it is important that these students receive a sufficient level of ''preclinical'' training (Grynberg et al., 2012). Various tools can be used in teaching health behaviors, such as booklets, CD's, pamphlets and direct training with standardized patients (Schubart et al., 2012). Studies show that people memorize 20% of what they hear, 40% of what they see and hear and 70% of what they see and hear and do (Hachfeld, MacWilliams, & Schmidt, 2016; Schubart et al., 2012; Thornton and Pillarisetti, 2008).

The results of some studies indicate that TV and videos have a greater effect on the level of knowledge while other studies take direct, face-to-face training to be more effective on the proper performing of BSE and some others take computer training, pamphlets and booklets to be more effective (Brennan, 2016; Canbulat and Uzun, 2008; Chan, Ip, and Choi, 2016; Ghanbari and Atrkar, 2004; Kearney and Murray, 2009; Sanaei, Hossini, and Jamshidifar, 2014). According to a study conducted by Hadizadeh, teaching through booklets is not as effective as presentation in groups, as learners need to be strongly motivated in order to perform BSE. In addition, psycho-motor skills are also improved through participatory methods (Hadizadeh, Latifinejad, Khoeinejad, and Esmaeili, 2005).

Given the results obtained by the aforementioned studies and given the lack of similar studies conducted on Iran's health personnel and also due to the importance of the role played by nurses and midwives in teaching BSE, the aim of present study to compare the effects of direct and indirect training methods on the level of knowledge in nurses and midwives in Iran.

Materials and Methods

Setting

The present experimental study has a pretest-posttest design with two groups and aims to compare the effects of direct and indirect BSE teaching methods on the level of knowledge and the attitude of whole as nurses and midwives at Valiasr Hospital of Borujen city (n=89) in July to December 2014.

Ethics statement

After obtaining permissions from the university's Research and Technology Deputy and approved by the Ethics Committee (Code: 93-3-11). Also explain the process of research, the participants and get their written consent form.

Study design

Presenting the letter of introduction, the sample population was selected and briefed on participation in the study, and the demographic information and the BSE knowledge and attitude questionnaires were completed. Participants were randomly grouped based on the numbers assigned to them; those with an odd number were placed in the direct training group (n=45) and those with an even number in the indirect training group (n=44). The intervention began after ensuring the homogeneity of the groups as well as the lack of significant statistical differences between them through studying the information provided in their biographic questionnaires. None of the participants or their first degree relatives had a history of breast cancer or a history of participation in BSE training classes except during their years at the university; therefore, none of them had to be excluded. Two 3-hour workshop sessions were held for the direct intervention group over a 2-week period and using the trainer-first and trainee-next method of practice performed on models as well as the group discussion technique. The direct intervention group received training by a trained nurse with a master's degree and experience in teaching. The educational content was prepared using the available resources recommended by the Ministry of Health and was then approved by 3 specialists.

The indirect intervention group received training on the designed educational content through educational booklets containing illustrative pictures. A month after the training period, the two groups completed the knowledge and attitude questionnaire once more. The direct intervention group was asked not to share their learnt information with members of the indirect group and the hospital's training team was asked not to hold any other educational seminars and conferences on this topic. Participants had also made a commitment not to obtain information on this topic from other sources throughout the study period.

Data analysis

Data were collected through the demographic information and the BSE knowledge and attitude assessment questionnaires. The demographic information questionnaire contained details on age, work experience, service department, time since graduation, employment status, position in the department, history of breast cancer in participants and their first-degree relatives and history of participation in BSE training programs in the past 6 months. The BSE knowledge and attitude assessment questionnaire was designed in two parts by researchers. The first part contains 20 multiple-choice questions for the assessment of knowledge, with a score of 0 or 1 assigned

to each and a total score ranging from 0 to 20. Scores from (0 to 5) indicate extremely poor knowledge, (6 to 10) poor knowledge, (11 to 15) moderate and (16 to 20) good knowledge. The second part contains 15 questions for the assessment of attitude and is scored according to a 5-option with the totally disagree, disagree, no comments, agree and totally agree options. Depending on whether the item is positive or negative, responses are given a score from 1 to 5 and the vice versa. The minimum score is 15 and the maximum 75. The validity of the questionnaire confirmed through conducting a pilot study on 30 nursing students in Shahrekord University of Medical Sciences using the test-retest approach and reported the correlation coefficient as $r = 0.64$ for the part on knowledge and $r = 0.71$ for the part on attitude. Another pilot study was conducted on 20 senior nursing students and the Cronbach's alpha of 0.69 confirmed the reliability of the study. Data collected were analyzed in SPSS/19 software using descriptive and analytical statistics such as the Chi-square test the independent t-test and the paired t-test.

Results

The present study was conducted on 89 nurses and midwives working in Valiasr Hospital of Borujen city. The mean age of participants was 31.95 ± 6.57 years.

Table 1. Frequency of Participants' Demographic Variables

Variable	Frequency		Number	Percentage
Study Group	Direct Training		45	50.56
	Indirect Training		44	49.43
Academic Degree	Associate's Degree		2	5.54
	Bachelor's Degree		83	93.50
	Master's Degree		1	1.10
Field of Education	Nursing		76	85.30
	Midwifery		13	14.70
Type of Employment	Permanent		34	37.00
	Sub-contractual		26	28.30
	Temporary		21	22.80
	Contractual		8	11.00
Service Department	Operating Room		11	12.00
	Internal Medicine		11	12.00
	Surgery		7	7.60
	ICU		18	19.60
	Emergency		12	13.00
	Labor		12	13.00
	Maternity and Neonatal		18	23.90
Position	Management		14	15.20
	Staff		75	84.80
BSE	Performs		55	61.79
	Does not perform		34	38.21
Tumor history	Yes	Benign	8	8.98
		Malignant	0	0.00
	No		81	91.02

Table 2. Comparison of the Mean Levels of BSE Knowledge in the Direct and Indirect Training Groups Before and after the Educational Intervention

Stage	Direct Training Mean ± SD	Indirect Training Mean ± SD	P	Statistic
Before Training	9.82 ± 2.79	9.59 ± 2.71	0.936	t = 0.396 df = 87
After Training	19.20 ± 0.96	10.95 ± 2.58	0	t = 19.99 df = 87

Table 3. Comparison of the Mean Levels of BSE Knowledge in the Direct and Indirect Training Groups before and after the Educational Intervention

Stage	Direct Training Mean ± SD	Indirect Training Mean ± SD
Before Training	9.82 ± 2.79	9.59 ± 2.71
After Training	19.20±0.96	10.95 ± 2.58
P	0	0.02
Statistic	t = 4.57	t = 21.76
	Df = 43	Df = 44

Table 5. Comparison of Mean BSE Attitudes in the Direct and Indirect Training Groups before and after the Educational Intervention

Stage	Direct Training Mean ± SD	Indirect Training Mean ± SD
Before Training	56.46 ± 6.21	54.54 ± 4.51
After Training	62.88 ± 4.21	58.95 ± 3.44
P	0.001	0.054
Statistic	t = 0.464	t = 3.474
	Df = 44	Df = 43

Table 4. Comparison of Mean BSE Attitudes in the Direct and Indirect Training Groups before and after the Educational Intervention

Stage	Direct Training Mean ± SD	Indirect Training Mean ± SD	P	Statistic
Before Training	56.46 ± 6.21	54.54 ± 4.51	0.099	t = 1.66 Df = 87
After Training	62.88 ± 4.21	58.95 ± 3.44	0.000	T = 4.819 Df = 87

Their work experience was between 1 and 28 years with a mean of 8.66±7.05 years. The frequency of their demographic information is presented in table1. Before the training course, the level of knowledge was very poor in 7 participants (7.9%), poor in 51 (57.3%), moderate in 30 (33.7%) and good in 1 participant (1.1%). After implementing the educational programs, only 1 person (1.1%) had very poor knowledge, 16 (18%) had poor, 24 (27%) had moderate and 48 (53.9%) had good knowledge, which shows a significant increase in their level of knowledge. The main results of the present study are presented in Tables 2 to 5.

Discussion

The results of the present study showed that, before the educational intervention, there were no significant differences in the mean level of BSE knowledge between the direct and indirect groups. However, after holding the training sessions, the mean level of BSE knowledge had significantly improved in the direct training group compared to the indirect training group. Ogunbode and et al. showed the prevalence of BSE was found to be high,

especially in those with tertiary education and in those with a past personal or family history of breast disease. In resource-constrained countries, BSE is a screening tool that can be employed to help reduce the breast cancer burden because routine mammography screening is not yet feasible. Women need to be informed about the when and how to perform BSE. The role of education to increase awareness for reducing health disparity must be emphasized in clinical care. The implication of this study is that education of women in developing countries like Nigerianeeds to be further encouraged (Ogunbode et al., 2015). BSE educational interventions lead to the correction of examination techniques and the early detection of tumors with a greater accuracy. A study conducted by Hacihasanoglu and Gozum showed that the implementation of BSE educational programs and the promotion of BSE in women increases their knowledge, self-sufficiency and the frequency of performing BSE (Hacihasanoğlu and Gözüm, 2008).

According to a study conducted by Hadizadeh et al. training through booklets is not as effective as presentation in groups, as learners need to be strongly motivated in order to perform BSE. In addition, participatory methods increase psycho-motor skills (Hadizadeh et al., 2005). In study of Ghanbari and Atrkar compared the results of BSE training through CD's and through booklets in 50 nursing and midwifery students and found that computer-based training through CD's facilitates the achievement of training needs and can be used more effectively for improving the students' health behaviors since it provides a more effective method for increasing knowledge and competence compared to presenting different pamphlets (Ghanbari and Atrkar, 2004).

In another study, Ësmaeli examined video and face-to-face methods of teaching BSE to women visiting health centers across Ghaem-Shahr using two demographic questionnaires and through the observation

of the women's performance. The results of the study showed that using any of the available means of education, including face-to-face and audio-visual techniques, has the effect of promoting women's knowledge (Ësmaeli, 2001).

In study of Grynberg et al. teaching sessions for pelvic and breast examination, which make combined use of videos and training models, are associated with a high degree of satisfaction from students. it is noticeable that students rated the use of a silicone training model with a higher degree of satisfaction than the video clip, with respect to its contribution to an improvement in their self-confidence before performing the first real breast examination. Teaching sessions for pelvic and breast examination, which make combined use of videos and training models, are associated with a high degree of satisfaction from students. On the basis of the results of this study, they recommend this type of approach for pre-clinical teaching (Grynberg et al., 2012).

Al-Azmy et al., (2013) reported health education programs should be initiated to improve women's practice of BSE. Health education programs are essential to encourage and improve women's practice of BSE. Schubart et al., (2012) reported medical students who learned the CBE on breast palpation simulators performed as well or better than those who learned on standardized patients; however, a subgroup analysis revealed that the benefit was limited to students with less clinical experience. Alwan et al., (2012) in her study showed knowledge and practice can be endorsed by promoting nationwide public health awareness comparing and establishing sustained educational framework and policy guidelines.

The results of the present study showed that, to ensure the greater effectiveness of the educational program, training should be performed with the direct presence and full participation of women; as in the present study, too, the effectiveness of direct training was much greater than indirect training through pamphlets. Laufer et al. in their study recommended patterns differed across the 2 models in line with existing practice guidelines. Additionally, differences in practice patterns between primary care and specialty providers may represent varying clinician capabilities, healthcare resources and individual preferences. Their work showed that stimulation may be used to track adherence to practice guidelines for breast masses (Laufer et al., 2015). These results suggest that, perhaps in many other subjects as well, quality retraining courses should be held from time to time for health professionals as fitting their specialization, so that the latest techniques are adopted and the correct performance of different procedures is ensured. The application of more effective educational techniques is the main principle in the implementation of educational programs. Plans should therefore be devised in a way that educational needs are thoroughly discovered, investigated and planned out, and the full participation and presence of individuals are ensured, so that satisfaction and confidence is achieved in the effectiveness of the program. Given the consistency of results between the present study and others, findings of the study can be extended to other nursing and midwifery graduates and can be adopted in other educational programs.

The results of the present study showed that face-to-face training has a significant effect on the level of knowledge and the attitudes of nurses and midwives and can be adopted by planners, designers, teachers and users of nursing education programs so that in service training programs are designed in a way that the practical skills of individuals are utilized more favorably and tangibly and their level of knowledge is also taken into consideration and so that they can proceed with solving the patients' problems through the full use of their techniques and skills.

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