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Comparing the Effect of Two Different Methods of Education on Breast Self- Examination: Text Messaging and Lecturing

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Abstract

Aim: Using short text messages (SMS) is the easiest and cheapest method of health education programs in order to increase women's' knowledge and early detection of diseases. This study was conducted in 2013 in order to compare the educational effect of breast self examination (BSE) by two different methods of SMS and lecturing in female students who work and study in non- medical fields.

Method: In a quasi-experimental study, 108 twenty- two to thirty year old female students of non- medical fields were chosen by random cluster sampling and then divided into 2 groups. One group was educated by lecturing and the other by SMS. Data collection tool was a questionnaire including demographic, knowledge, attitude and performance sections (KAP) and a check list for direct observation. Collected data were analyzed by SPSS 20 software, using parametric statistical tests (paired T-test) with the significant level of $p<0.05$.

Findings: After education in both groups, a significant difference was observed in the average scores of KAP ($p= 0.001$). Educating by both lecturing and SMS promoted the level of KAP about BSE ($p=0.001$). KAP score of doing BS in text message group was higher than the lecture group ($p=0.001$). SMS was chosen as the best way of BSE education.

Conclusion: Compared KAP scores about the quality of doing BSE in the SMS group were higher than the lecture group; therefore, it is suggested that this educating method can be used in the health education programs especially in controlling breast cancer and maintaining the level of health among women in the society.

Keywords: Breast self examination, Lecture method, Text messaging method, Female students

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Introduction

Breast cancer is the most common cancer in women especially in western countries. Europe and North America are some of high risk areas and Asia is partially at low risk, but generally breast cancer is increasing in most of these places [1], so that 39000 people die per year from 230000 new detection of breast cancer in the United States [2]. Based on the report from the center of disease management in health administration, the prevalence of this disease is increasing but considering the current position of our age pyramid compared with that of developed countries, this index is low and from every 35 women one has the chance to develop breast cancer. The index of age incidence for this disease from 27 per 100000 in 1387 has reached to 33 per 100000 female in 1389. While disease controlling center in the United States has reported a 2% decrease in mortality and 1% decrease in the prevalence of this disease each year [3].

Based on the health administration reports, currently more than 40000 people in Iran suffer from this disease and each year more than 7000 patients are added to this number [4]. While 23% of breast cancers in Iranian women occurs under 40 years and 2.044% is reported to begin under 30 years [5]. Although breast cancer is rare in young and teenage girls but it can happen [6].

Considering some of breast cancer properties including its slow growth, being detectable in early stages and effective treatment in these stages, breast cancer screening tests have a great importance as one of the best ways. Accepted methods for breast cancer screening include the mammography, clinical examination by a doctor and self examination [7].

Breast self examination (BSE) is suggested as a healthy, cheap and none-aggressive method for breast cancer prognosis by the American cancer association in 1950 [8]. Most of the women don't have enough information about monthly breast self examination method while in most of the cases the patient herself detects the cancer, so tumors up to 6 cm are detectable by the person with a correct education [9]. Results from an Iranian study showed that only 6 percent of women do the regular breast self examination [10]. BSE helps women in two ways: women become familiar with both the appearance of their breast and can detect any changes in their breasts as early as possible .According to the literature, it is stated that 90% of the time breast cancer is first noticed by the person herself. Also, several studies have shown that barriers to diagnosis and treatment can be addressed by increasing women's awareness of breast cancer. The American Cancer Society Standards for Screening and Diagnosis of Breast Cancer

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indicated that women between 20-39years need to be "Breast Aware" which means that they should be encouraged and educated on how to conduct breast self-exam to become aware of the feel and shape of their breasts, so that they are familiar with what is normal for them and to report any changes immediately to her healthcare provider [2-11]. In recent decay considerable researches have been done to persuade and educate women about doing breast self examination. Investigation of 33 studies which had different strategies about breast self examination showed that building more qualified connections with the patient yield better results [12].

Health education is based on educational methods and techniques. Therefore, investigating and comparing the use of educational breast self examination methods and choosing an effective one increases the quality of education, and also elevating the women knowledge level changes their attitudes and practical skills, thus doing the regular breast self examination would be a normal hygienic habit in target population [13]. The lecture method is the main educational method which has been used by most of the educators for several years [14]. Lecturing is the easiest and oldest educational method that can directly transfer the information from the educator to the learner. In this method the teacher presents the new information by use of various educational methods and connective tools to the learners [9]. Using short text messaging is the easiest and cheapest way for increasing knowledge level about subjects which may get less attention. Studies show that the best educational impact of short text messaging is seen among the young and teenage people. Also in health educational programs using text messages is a common way for increasing the general knowledge about prevention from diseases or other related problems and expansion of health-based behaviors in the society. Effective text messaging can increase the audience motivation for learning important issues about preventing from health problems [15].

Considering the prevalence of breast cancer and the importance of doing breast self examination by women, this study was done to observe and compare the effect of breast self examination by two different ways of short text messaging and lecturing in female students of none medical fields in 2013.

Method

This quasi-experimental study was conducted on 108 students between 22-30 years of age with none-medical backgrounds at Tarbiat Modares University. The number of needed samples was calculated about 108 students, based on the experts' statistical opinion and

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through formula. Our study covers 2 groups (A and B) of 54 samples. Two steps of random cluster sampling were done in order to choose samples. After getting permission from relevant organs and presenting certificates, the dormitory manager was asked to allow the presence of the researcher during office hours to be in direct contact with the students. Then, the aims of the study were explained to the subjects in 10 to 15 minutes and they were asked to answer a short questionnaire to determine their eligibility as for participating in the study in terms of the inclusion criteria. After that, the subjects were asked for their phone number in order to receive the educational text messages based on confidentiality and considering the sociocultural and humanitarian grounds. Six dormitories were randomly chosen from the list of 14 girls' dormitories at Tarbiat Modares University and then random clusters were selected based on the inclusion criteria which include: not being educated about breast self-examination before, not having breast cancer (due to their statements, not having breast biopsy, no history of breast cancer in first-degree relatives (mother or sister) and no history of checking for breast cancer (mammography, sonography, breast self examination)) and not being athletes, under weight (< 45 kg) or overweight (> 100 kg) and they were verbally chosen by the researcher. Research samples were randomly divided into 2 groups, group A lecture education and group B short text messaging. Samples with mentioned properties were chosen from 3 dormitories outside the University for Group A and from 3 dormitories inside the University for Group B. They were asked to complete the questionnaires 2 times, once before education and then 3 months later. Data collection tool was a researcher-made questionnaire which had 2 sections. Section 1 included 16 questions about demography and section 2 included 10 questions about knowledge, 10 about attitude, 10 performance and the last 10 questions were a checklist for direct observation about the quality of doing breast self examination. Maximum point in the knowledge part was 10 (1 point for each correct answer and zero point for wrong ones). In order to investigate the attitude part, the students were asked to express their opinion in a 5 degree scale (I completely agree, I agree, I have no idea, I disagree, I completely disagree). For each question in this part we considered a point from 0-5 and after calculating the points, they were divided into 2 groups, one as the negative attitude (points between 10-30) and the other as the positive attitude (points between 30-50). In the performance part, each correct answer had 1 point and zero point for wrong ones.

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Finally pointing the direct observation checklist was just like the performance part.

In this study the educational program was prepared based on the information collected from the pre test and educational needs of the studied society.

Group A was educated about the importance of breast cancer, control methods and breast self examination by lecture and group B by short message method. In lecture method educational subjects were presented in 6, 2 hours sessions for 10 people groups. (session1: breast anatomy and physiology, breast cancer. Session2: signs and symptoms of breast cancer. Session3: breast cancer prevention, breast cancer screening. Session 4: importance of breast cancer screening, treatment methods. Session 5: breast self examination and its steps. Session 6: breast self examination practice with educational films). In order to persuade and encourage the samples to do the breast self examination and continue it as a habit, we used training aid tools (booklet, brochure and films). At the end of each session, 30 minutes question and answer time was allocated. In short text messaging method every days of the week at a special hour (9 AM) and with a fixed title, 28 educational text messages were sent to the studied samples. In order to unify the education in both groups we gave the same booklet to the text message group and also 2 hours lecture was presented to all samples. Post test was done after 3 months. Operational test was taken from the samples before and after the educational intervention by creating a private examination room. One by one practice was tested by researcher and the results were written in the direct observation checklist. Justifiability of the questionnaire was evaluated by 10 faculty members of the nursing and midwifery college. Its stability was evaluated based on the information collected from the pilot study which was done on 20 female students of Ahwaz medical university and Cronbach's alphabet was 0.77 [16]. Data analysis was done by SPSS 20 software using parametric statistical (paired T-test) and none-parametric tests with a significant level of $p<0.05$.

Findings

The average age of participants was about 26 and most of them were single (91 participants =68.5%). 17 participants were (31.4%) married. The percentage of single people in group A was 79.6% (43 people) and 48 ones (88.9%) in group B. The percentage of married people was 11 in group A (20.4%) and 6 in group B (11.1%) respectively. Based on the samples' statement in group A, the first information source about breast self examination covered the health personnel

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(51.9%), second source covered books or friends (16.7%) and the third was T.V information (13%). In group B, the first information source were books (20.4%), the second , the health personnel (18.5%) and friends (13%) were put in the third information source. Furthermore, about the reason of not doing breast self examination, the samples stated that they had no problem in their breasts and did not think it was necessary (17.6%). The second reason was the lack of knowledge (14.8%) and the third one was the lack of enough time (20.2%). Short text messaging method was chosen as the first educational priority with 47.2% by the samples. Lecturing method with 38.9% became the second preferred priority and the third one was the booklet with 13.9%. Therefore short text messaging method was confirmed.

Considering the results of table 1, Kelmograph index was higher than 0.05 and since our data was normal, we could use the statistical paired T-test to compare the knowledge level, attitude and performance points in groups A and B.

Table 1 Comparing the knowledge point about breast self examination before and after intervention in both studied groups

Group	**A**				**B**			
knowledge	After intervention		Before intervention		After intervention		Before intervention	
Weak	11	20/4	0	0	21	38/9	0	0
Intermediate	31	57/4	11	20/4	25	46/3	10	18/5
desirable	5	9/3	41	75/9	8	14/8	43	79/6
N0 answer	7	13	2	3/7	0	0	1	1/9
Total	54	100%	54	100%	54	100%	54	100%
M (SD)	5±1/9		7/8±0/8		4/6±2/1		8/6±1/2	
P value	0/001				0/001			

Findings indicate that the maximum knowledge level belonged to group B and was increased by 79%. The results show that a significant difference in the knowledge point about breast self examination is seen in both lecturing method group (p=0.001) and text messaging method group (p=0.001) before and after our educational intervention (table 1).

Based on our findings the maximum effect of attitude belonged to group B and its increase was 100%. The results of table show that significant difference in attitude points is seen in both text messaging group (p=0.001) and lecturing group (p=0.001) before and after educational intervention (table 2). The average point of positive attitude about breast self examination in group A reached from 10.4 to 11.1 and the average point of negative attitude reached from 8.1 to 6.1 after intervention, these changes show a significant difference in positive attitude point before and after the intervention (p=0.001), also in negative

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attitude before and after intervention (p=0.001) (table 3).

Table 2 Comparing attitude points about breast self examination before and after intervention in both studied groups

Group	**A**				**B**			
Attitude	Before intervention		After intervention		Before intervention		After intervention	
weak	27	50	14	25/9	9	16/7	0	0
Intermediate	23	42/6	37	68/5	45	83/3	54	100
Desirable	0	0	0	0	0	0	0	0
No answer	4	7/4	3	6/6	0	0	0	
Total	54	100%	54	100%	54	100%	54	100%
M (SD)	30/7±2/7		39/9±9/7		37/5±7/1		44/6±3/2	
P value	0/001				0/001			

Table 3 Evaluation of attitude points (positive and negative) in samples before and after intervention in both groups

Group	**A**			
Attitude	**Positive attitude**		**Negative attitude**	
	Before intervention	After intervention	Before intervention	After intervention
M (SD)	10/4±2	11/1±1	8/1±1/4	6/1±0/5
P value	0/001		0/001	

Group	**B**			
Attitude	**Positive attitude**		**Negative attitude**	
	Before intervention	After intervention	Before intervention	After intervention
M (SD)	9/7±2	10/7±1/4	8/4±1/2	6/7±1/3
P value	0/001		0/001	

The results also show that the best performance belonged to group B which had 79% good performance. Based on our findings there is a significant difference in the performance point before and after intervention in both lecturing group (p=0.001) and text messaging group (p=0.001) (table 4).

Table 4 Comparing performance points about breast self-examination before and after intervention in both studied groups

Group	**A**				**B**			
Performance	Before intervention		After intervention		Before intervention		After intervention	
Weak	39	72/2	2	3/7	44	81/5	1	1/9
Intermediate	11	20/4	14	25/9	5	9/3	10	18/5
Desirable	4	7/4	38	70/4	5	9/3	43	79/6
Total	54	100%	54	100%	54	100%	54	100%
M (SD)	2±3/2		8/2±2		1/5±2/7		8/6±1/3	
P value	0/001				0/001			

Based on our findings, the maximum effect on check list belonged to group B with 87% good performance in breast self examination check list points before and after intervention in both lecturing group (p=0.001) and text messaging group (p=0.001) (table 5).

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Table 5 Comparing check list points (direct observation of performance) about breast self examination before and after intervention in both groups

Group	**A**				**B**			
Check List	Before intervention		After intervention		Before intervention		After intervention	
Very weak	4	7/4	1	1/9	13	24/1	0	0
Weak	41	75/9	0	0	37	68/5	1	1/9
Intermediate	9	16/7	15	27/8	3	5/6	6	11/1
desirable	0	0	38	70/4	1	1/9	47	87
Total	54	100%	54	100%	54	100%	54	100%
M (SD)	1/6±1/7		8/3±1/4		1/1±2		8/6±1/8	
P value	0/001				0/001			

Regarding the best method of teaching breast self-examination in the subjects, text messages were the first priority (47.2 %) from the subjects' point of view. Lecturing was the second preferred method (39.8%) for educational intervention and educational booklet was the third (13.9%). Therefore, educational text messages were approved.

Discussion

The reason of choosing this age group is that 23 percent of breast cancers in Iranian women occur under 40 and 2.044% of breast cancers have been reported in women under 30 years old. Iranian women compared with their western counterparts develop this disease 10 years earlier [17]. The limitations of the study, fear of the name of breast cancer and exposure to BSE behavior and lack of awareness of the know-how of self-examination, were resolved by the researcher with proper explanation and training given to the subjects .To know whether the subjects in the three months between the two tests conducted breast exams, we asked them questions. Knowing that the study was just an academic one, the subjects answered all the questions honestly and wholeheartedly. The problem of cultural and personal differences in the subjects was resolved after the aims of the study were explained clearly by the researcher. The subjects were also asked to inform the researcher if they didn't receive the text messages on the due time.

Based on Rafat research, because of the race-related differences (like onset of monthly periods in lower ages) this cancer affects younger patients more than others in our country. But the second reason can be the fact that our country has a younger population than western countries. These factors show that screening programs in our country should be launched at lower ages [18]. Choosing healthy subjects who didn't have any breast problem was in consistence with Michillutte's study in 1999. In such researches the necessity of choosing healthy people is the educational purpose for early detection of breast cancer so

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women who have been diagnosed with this disease are not in this target range [19].

The major reason for not going to the doctor and being examined is lack of knowledge. Considering the results of this study, we can say that in the education field, knowledge has been the most important and effective factor. Short text messaging was selected as the first educational priority by the samples, lecturing method with 38.9% as the second priority and booklet with 13.9% became the third one. Therefore the text messaging method was confirmed. Based on the results of comparing health educational methods, text messaging was more effective than lecturing method. This result is confirmed by Wei's study and Deglise's research which showed that text messaging method for medical education has a greater acceptance and impact on samples and can help to prevent from many diseases in developing countries [20-21]. The results show that there is a significant difference in knowledge scores about breast self examination in both lecture group (p=0.001) and text message group (p=0.001) before and after interfere. In other words, our educational intervention was effective because an increase is seen in the scores of both groups after intervention. T-test results showed that knowledge, attitude and performance about breast cancer and the quality of doing breast self examination in text messaging group was higher than lecturing one (p=0.001).

Results in various studies done in the world like Rosmawati's study and Doshi's research and Alwan's study were similar to our study [22-23-24].

The results of this study show that students extremely need educational programs to increase their knowledge about breast cancer screening tests and findings of various studies done in Iran indicate the impact of education on knowledge. For example the results of Alipour's research with the title of "comparing the effect of breast cancer education by two methods of short text messaging and the traditional education method in genecology residents in 2012" indicated that text messaging educational method can be an effective and interesting method for knowledge promotion in higher educational degrees [25]. Besides there was a significant difference in attitude scores about breast self examination in both lecturing group (p=0.001) and short text messaging (p=0.001) before and after intervention. In other words, intervention was effective because a point increase was seen in both groups after intervention. In the present study, students of the positive attitude in group B had more increase and the students with negative attitude had more decrease in group A. A significant

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statistical correlation was seen between knowledge level and attitude (p=0.001). The results indicate that education promotes knowledge level, improves attitude and quality of doing breast self examination among students. Thus, it is suggested that operational education classes about breast self examination should be continuously presented for students and public. Before our education, knowledge and attitude about breast self examination was not enough even in students and likely it's lower among women. Proper educational programs about breast self examination should be designed even in higher educational environments. In Mutttappallyalil and his colleagues' study, people's attitude about breast self examination and screening method was evaluated to be positive (91.4%) [26] which matches our results. It's obvious that presence of negative attitude about screening methods for detection of breast cancers is a concern and we should resolve this problem with knowing, monitoring and correcting its causes and also by promoting knowledge level among these groups of people. There was a significant difference between the average score of performance and direct observation check list about breast self examination before and after interfere in both lecturing group (p=0.001) and text messaging group (p=0.001). Findings of this study showed that self examination education had a positive and stable effect on performance improvement in the students of both groups. Our results are in consistence with Motamedi's study.

Check list scores before our education compared with the scores after were increased. Education had a positive and stable effect for 2 years on the samples' performance about breast self examination [27]. Considering the results of the impact of education on female students' knowledge, attitude and performance about breast self examination, usage of both ways of lecturing and text messaging in health and treatment centers can be beneficial but educating by text messaging method has a greater impact. Text message features such as permanent access to them, feasibility of the process and the high speed of their circulation, interactivity, having no limitations of time and place, wide range of coverage, variety of audience and being offline have resolved the problems of education. Therefore, a positive attitude towards education through cell phones and about its effective role in health education programs is necessary.

Conclusion

The scores of knowledge, attitude and performance about breast cancer and the quality of doing breast self examination in text messaging group were higher than lecturing

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group. Thus we suggest using this educational method in health education programs especially for breast cancer controlling and maintaining hygiene and health in the women's population.

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