THE EFFECT OF PEER EDUCATION ON UNIVERSITY STUDENTS' KNOWLEDGE OF BREAST SELF-EXAMINATION AND HEALTH BELIEFS

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ABSTRACT

Purpose: The purpose of this study was to determine the effect of peer education on breast self-examination (BSE) knowledge and health beliefs.

Methods: The sampling consisted of 180 female students. University students were trained in BSE by the School of Health students with group and individual training methods. Data was gathered in two-stages during a pre-training and one month after training. Questionnaire forms and Champion Health Belief Model scale were used to collect the data.

Results: It was found that students' BSE knowledge increased significantly after the training. Students instructed in groups by their peers showed a much higher degree of BSE knowledge when compared with the BSE knowledge of those taught individually. It was also found that perceived confidence of the students educated both individually and in groups increased afterward. Study results further revealed that the methods used for peer instruction do not affect students' sub-dimensions of health beliefs differently after the education.

Conclusion: Peer education effected the BSE knowledge and perceived confidence of the participants. While individual and group education affected participants' BSE knowledge differently, neither education method had the same effect on health beliefs.

Keywords: breast cancer, early diagnosis, breast self examination, peer education, health belief.

ÜNİVERSİTE ÖĞRENCİLERİNDE AKRAN EĞİTİMİNİN KENDİ KENDİNE MEME MUAYENESİ BİLGİSİ VE SAĞLIK İNANÇLARINA ETKİSİ

ÖZET

Amaç: Araştırmanın amacı akran eğitiminin kendi kendine meme muayenesi (KKMM) bilgisi ve sağlık inançlarına etkisini belirlemektir.

Yöntem: Araştırmanın örneklemini Karadeniz Teknik Üniversitesi'nde öğrenim gören 180 kız öğrenci oluşturdu. Üniversite öğrencileri KKMM konusunda hemşirelik öğrencileri tarafından bireysel ve grup olarak eğitildiler. Veriler soru formları ve Champion Sağlık İnanç Modeli ölçeği ile eğitimden önce ve bir ay sonra olmak üzere iki aşamada toplandı.

Bulgular: Öğrencilerin KKMM bilgilerinin eğitimden sonra anlamlı olarak arttığı belirlendi. Akranı tarafından grup olarak eğitilen öğrencilerin KKMM bilgilerinde, bireysel olarak eğitilenlere göre daha fazla artış saptandı. Gerek bireysel gerekse grup olarak eğitilen öğrencilerin eğitimden sonra güven algılarında anlamlı yükselme olduğu belirlendi. Akran eğitiminde kullanılan yöntemlerin öğrencilerin eğitimden sonraki sağlık inancı alt boyutlarını farklı biçimde etkilemediği saptandı.

Sonuç: Akran eğitimi öğrencilerin KKMM bilgisi ve güven algısını olumlu yönde etkiledi. Akran eğitiminin bireysel ya da grup olarak yapılması KKMM bilgisini farklı yönde etkilerken sağlık inançlarında farklı etki oluşturmadı.

Anahtar sözcükler: meme kanseri, erken tanı, kendi kendine meme muayenesi, akran eğitimi, sağlık inançları.

Introduction

Similar to the cancer types and rates for women throughout the world, breast cancer is the most common cancer in Turkey (1,2). The rate of breast cancer in Turkey is 26.5% and it accounts for the second highest cause of deaths caused by cancer (3).

Early diagnosis is vitally important for breast cancer. The most effective ways to diagnose breast cancer are by breast self-examination (BSE), mammography which is still considered as the "gold standard" for early diagnosis and clinical breast examination (CBE). BSE is easy and can be done by anyone without any special equip-

ment. Furthermore, it is also an economic, secure and non-invasive process. There is also evidence in the literature that 90% of breast cancer is discovered by chance and women doing monthly BSE often recognize a mass in their breasts earlier (1,4–9). Moreover, other articles state that BSE encourages and enables women to take responsibility for their own health matters (5,8,10–13).

The common result of studies on BSE in Turkey shows that the rate of women having adequate knowledge on BSE and doing BSE regularly is extremely low (4,14–17). The results of studies done with university students are very similar to those done with adult women (1,2,18,19).

Educating young women about early diagnostic methods of breast cancer is critically important to increasing their breast cancer awareness. Acquiring the behavior and practice of BSE at an early age will also increase the probability of continuing it later (20,21).

The literature consists of studies that have used different teaching methods for BSE education (22–26). Peer teaching is still another method used to instruct others about BSE. This is a systematic method of instruction that is used for changing the knowledge, manner and behavior of groups having social interaction, equal position, as well as similar language and behavior. This method employs the "Social Learning Theory" which emerges as a result of peers' social interaction and co-operative learning style (27). Peers might be in a more favorable position to judge one another's habitual behaviors, as they are able to observe one another regularly in a wide range of circumstances (28).

The Health Belief Model (HBM) has been used in several studies as a theoretical framework to study BSE and other breast cancer detection behaviors. The model is useful in identifying the factors that are associated with women's beliefs about breast cancer and breast cancer screening behaviors. HBM, developed and revised by Victoria Champion, measures the HBM constructs related to breast cancer and screening behaviors. The Champion Health Belief Model (CHBM) consists of 6 concepts: (1) perceived susceptibility to an illness, (2) perceived seriousness of the illness, (3) perceived benefits for the presumed action, (4) perceived barriers for the presumed action, (5) confidence in one's ability, and (6) health motivation (15,29).

The current literature shows that studies which examine the effect of peer education on BSE knowledge and health beliefs are very limited and most of them are only descriptive. On the other hand, though studies examining the effects of peer education with university students on BSE knowledge and health beliefs may have been previously conducted, information about such studies could not be found. Considering these deficits, this study aimed to determine the effect of BSE education using the peer education method on students' BSE knowledge and health beliefs.

Method

Setting and sampling
Two-hundred fifty (250) students from ten different university departments, excluding Health Departments, were chosen at random to take part in this quasi-experimental study. Two-hundred (200) students took part in the education sessions; however, only 180 students were contacted one month after the training sessions.

Data collecting instruments
The data of the study are collected by questionnaire forms and the Champion Health Belief Scale.

Questionnaire forms: Questionnaire forms were piloted on 20 volunteer students out of the main sampling of the study and any necessary modifications were done. Two question forms prepared by the researchers were used in the study. The first one asked for the participants' socio-demographic features (age, residence, health insurance), and information on breast cancer (breast cancer history in family or friends, BSE applications and frequency, and reasons for not doing BSE). The other form (*BSE knowledge questionnaire form*) was to measure the participants' knowledge on BSE technique. In this form, questions related to the participants' knowledge on BSE (BSE technique) were asked and scored. We gave one point for correct answer and zero point for wrong answer. We applied this before education after the education immediately. The total points that can be tallied from the questionnaire are between 0 and 51.

Champion Health Belief Model Scale (CHBMS): The scale used for determining women's beliefs on BSE and breast cancer was prepared by V. Champion and was modified by further studies (1993,1997,1999) (30–32). The latest version of the scale was adapted to Turkish and analyzed for reliability and validity by Karayurt (33). Health Belief Model also contain six subcategories with 43 items in the Turkish Champion Health Belief Model. There are three items in the perceived suspectibility subscale (1–3) and seven items in the perceived seriousness subscale (4–10) related to breast cancer. Regarding the performing of BSE there are five items (11–15) in perceived benefit, and eleven items (16–26) in perceived barrier, ten items (27–36) in perceived confidence and seven items (37–43) in the health motivation subscale.In evaluating the scale, the Likert Scale with five items was used as follows: totally disagree (1), disagree (2), undecided (3), agree (4), totally agree (5). Every sixth sub-dimension of the scale was evaluated independently; therefore, six different points for each participant were added. The Cronbach alpha co-efficient in the original scale was between 0.69-0.90, and the scale adapted to Turkish by Karayurt was between 0.58-0.89. In this study, the Cronbach alpha rate was between 0.56-0.80.

Procedure
Written consent was obtained from the students taking part in the study and from connected departments of the university. At first, eleven volunteer fourth-level students from the School of Health were trained in order to be able to demonstrate and teach peer education. The training for peer educators consisted of the framework of the material that would be given to the students and the principles of group and individual training. The first researcher educated the peer educators in the class through Powerpoint presentations and this session lasted about one hour. The information and training that would be given to the students consisted of topics such as breast cancer frequency in our country, risk factors, early detection methods, breast cancer symptoms, importance of breast cancer early detection methods and how to do BSE. Peer training in that study was conducted individually and in group sessions. In order to minimize any bias due to educators' performance, each student was assigned to attend four education sessions. According to this plan, 32 university students took part in the individual instruction group and 148 students took part in the group education.

Individual sessions lasted about thirty minutes, and the instructor gave a brochure to the student at the end of the session. This

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brochure that was created after a sound literature review by the researchers consists of information and pictures of the subject that will be presented to the students.

In order to implement the group training method, 12 groups were formed, each with 12-13 students. The session lasted for 45 minutes. At the end of the group sessions, the same brochure used in individual training was given to the students. All the training sessions were completed in one week. The data were collected in two phases, a pre-education phase, and one month after the education.

Evaluation of the data
The data were evaluated using the Statistical Package for Science 13.0 (SPSS). Dependent and independent t test, stepwise multiple regression analysis, and bivariate correlation analysis are used for statistical analysis of the data.

Results

The students' age average was 20.4±1.6 (min:17, max:28). Of the students 46.7% reported having heard or read about BSE. Their knowledge of BSE respectively came from radio and TV (36.9%), other people (20.2%), doctors (13.1%), and nurses (9.5%). Regular BSE was performed by 5.6% of the students. The first reason for not doing BSE was reported by the students as "lack of knowledge related to BSE."

Results related BSE knowledge
All the students' pre-education BSE mean score was 15.4 ±10.7 and their post education mean score was 38.0±8.7. The difference between their knowledge before and after the training sessions was exceptionally significant (p= 0.000).

T-test in dependent groups was used to determine the effects of different training methods in peer education on BSE knowledge (Table 1). Results showed that the students taught both individually(p=0.000) and in groups showed a significant increase in BSE knowledge (p=0.000). Again the t-test in independent groups was used to find out whether there is a difference between two group (group training group and individual training group) in terms of BSE knowledge. The results showed that a significant difference existed between the groups both before (p=0.012) and after (p=0.009) the education. The difference between pre and post-training BSE knowledge levels was higher for students who received group education than for those who received individual training.

Results related Health Belief
Another subject that was investigated in this study was the effect of peer education on students' health beliefs. In the subscales of CHBM, the difference between pre- and post-education in the groups was analyzed by t-test in both dependent and independent groups (Table 2). Test results indicated that perceived confidence after the training increased significantly for students instructed both individually (p=0.001) and in the groups (p=0.000). The difference between the students' (both the ones individually taught and the ones educated in groups) health belief other subscales after the education was not significant (p>0.05).

Table 1. Pre and post-BSE knowledge according to education methods

| | BSE knowledge score | | | | | |
| | Pre-education | | Post-education | | | |
Education method	$\overline{X}$	SD	$\overline{X}$	SD	Difference	p
Group education	14.5	10.3	37.2	8.9	22.7	*p=0.000
Individual education	19.7	11.2	41.6	6.9	21.9	*p=0.000
p		+p=0.012	#p=0.009			

* Intra group difference between pre and post-education knowledge
\+ Inter groups difference in pre-education knowledge
\# Inter groups difference in post-education knowledge

Table 2. Health belief subscales in pre and post-education

| | Individual Education | | | | | Group Education | | | | | | |
| | Pre-education | | Post-education | | | Pre-education | | Post-education | | | | |
	$\overline{X}$	S	$\overline{X}$	S	p*	$\overline{X}$	S	$\overline{X}$	S	p *	p+	p#
Susceptibility	7.43	2.60	8.06	2.43	0.291	7.83	2.11	7.66	2.02	0.245	0.337	0.329
Seriousness	20.15	5.71	22.43	5.42	0.067	22.77	5.21	21.88	5.14	0.066	0.012	0.586
Benefit	19.71	5.24	21.21	2.69	0.118	20.28	4.99	20.37	4.30	0.834	0.586	0.293
Barrier	23.15	5.57	22.40	6.25	0.484	23.64	6.39	23.14	5.78	0.415	0.691	0.517
Confidence	31.81	6.96	37.65	8.53	0.001	30.48	6.59	37.25	6.34	0.000	0.308	0.759
Health Motivation	24.68	3.53	26.12	4.85	0.122	24.70	4.87	25.16	3.59	0.326	0.987	0.201

* Intra groups difference between pre and post-education CHBM subscales
\+Inter groups difference in pre-education period CHBM subscales
\# Inter groups difference in post-education period CHBM subscales

Table 3. Regression analysis on BSE knowledge before education

	Beta	Simple Correlation	T	p
Ever heard/read about BSE	-0.536	-0.536	-6.506	0.000
Cancer experience in the family	- 0.122	- 0.144	- 1.480	0.142
Cancer experience in the circle of friends	0.048	0.057	0.581	0.563
Breast cancer experience in the family	0.033	0.039	0.402	0.689
The state of BSE Application	0.016	0.016	0.168	0.867

(R= 0.287, F= 42.326, Sig.F= <0.01)

Table 4. Regression analysis on BSE knowledge after education

	Beta	Simple Correlation	T	p
Education method	0.257	0.257	2.724	0.008
Cancer experience of friends	- 0.100	- 0.103	- 1.055	0.294
Ever heard/read about BSE	- 0.070	- 0.072	- 0.735	0.464
Breast cancer experience of the family	- 0.052	- 0.053	- 0.545	0.587
The state of BSE Application	- 0.027	- 0.028	- 0.286	0.775
Cancer experience in the family	-0.004	0.004	-0.037	0.971

(R= 0.066, F= 7.420, Sig.F= <0.01)

The significant variables that affect students' BSE knowledge before (Table 4) and after (Table 5) the education were also analyzed by using Stepwise Multiple Regression Analysis. Ever hearing or reading about BSE accounted for a total of 28.7% variance in BSE knowledge before the training. The type of instruction used for educating students accounted for a total of 6.6% variance in BSE knowledge after training was completed.

The correlation between CHBM subscales and BSE knowledge was analyzed using Bivariate Correlation Analysis. After the instruction, a positive and significant correlation between BSE knowledge and perceived confidence (r=0.028, p=0.002) and health motivation (r=0,199, p=0.007) was noted. There was also a negative and significant correlation with perceived barrier (r=- 0.164, p=0.028). The correlation between CHBM other subscales and BSE knowledge was not significant (p>0.05).

Discussion

Less than half of the students who took part in the study had knowledge on BSE. This rate is 12.0% in Tuna Malak and Dicle's study (34) and 33.0 in Sandal et al's study (26). Lack of knowledge on BSE has been a common finding of many different studies in Turkey (1,2,18). Students reported radio and TV as the principal sources of BSE knowledge, whereas nurses were reported as the very last source for receiving BSE knowledge. In other similar studies, media are the first sources for receiving information on this subject (1,2,35). This study showed that the rate of students performing BSE regularly is discouragingly low (5,6%). Other studies demonstrate a variation for the rate of students doing BSE from 6.4% to 55.5% (34,35,36).

Breast cancer presents a very formidable health threat to all world populations. Educating and informing youth about this serious disease is both a challenge and important investment in the health of future generations of women. We need to educate young people about BSE to help them develop behaviors

and practices which can encourage them to become proactive in taking responsibility for their health issues, in this case, breast health (1). According to Erikson, identity in late adolescence demonstrates dependence on peers with regard to development of personal values. Young people in late adolescence prefer to spend time with their peers instead of their parents (37). Thus the peer groups become not only very important to most young people but they also exert a great impact on this age group. Ericson's theory supports the approach of using peers to train and instruct young people in late adolescence about health. Using this method participants help each other in order to increase and assure their success, and they support each other's learning attempts, encourage, guide, and reward group members. Jobanputra et al. educated adolescent medical school students by using peer education methods to present information about sexual issues (38). They found that this method produced better results when compared with other instructional methods such as using videos or getting information from teachers, etc. There are sources that recommend using peers for health education so as to reach larger groups of society (39,40). Consequently, there are studies demonstrating the success of peer education in different branches of health (28,38–42). Regarding breast cancer education, peer education has been used for educating adult women, nurses and mid-wives (43,44).

The study showed that the students' knowledge on BSE increased significantly after the training. Other studies which used peer education to educate about BSE also presented similar results (26,34,35,45).

Another question of the study was whether using different education methods in peer training have any different effects on BSE knowledge or not. The surprising result was that students instructed in groups had increased their BSE knowledge compared

with those instructed individually. Other studies, using both individual (1,26,34,35) and group (18) methods proved that education increases BSE knowledge.

This study also investigated the effects of peer education on health beliefs of the participating students. According to the results, peer instruction enhances perceived confidence in a positive way. Furthermore, the type of education method does not affect health beliefs. Sandal's study confirmed an increase in perceived confidence and susceptibility after peer education (26).

With the aim of finding out the significant variables that affect students' BSE knowledge, researchers used Stepwise Multiple Regression Analysis. It was discovered that having ever heard or read about BSE affects the level of BSE knowledge before the education (28.7%). Regarding the type of peer education method, the study confirmed that it has a very low effect on BSE knowledge after the education (6.6 %).

The results of Bivariate Correlation Analysis confirmed that perceived confidence and health motivation increase in accordance with BSE knowledge, and perceived barrier decreases. As also stated in the model, increased perceived confidence would affect BSE performance positively. Rachel and Dunn's studies (46) and Gerçek et al's studies (40) showed that people having BSE knowledge and doing BSE have higher perceived confidence.

Limitations

The number of students educated individually and in groups was not equal because of too few peer educators in the study. Results of the study can not be generalized to include all university students throughout Turkey; they relate only to those students from certain departments who actually took part in the study. In this study, the effect of education on knowledge was evaluated one month later; though it would have been better to repeat the evaluation once again at a later time. The effects of peer education on BSE knowledge and health beliefs were evaluated but its effects on BSE performance were not studied. These elements are the limitations of the study.

Conclusion

The first step to increasing the number of women using early diagnostic methods for breast cancer can be accomplished by creating awareness and disseminating information about breast cancer. Education can be successful as long as its target group comprises future adult women in addition to the women of today. For years, BSE has been a primary field of interest for many researchers. However, both in Turkey and in other countries studies using peers as related to BSE education are very limited. Motivated by this gap in the research, the results of our study supply data about the effects of peer education on late adolescent students' BSE knowledge. It also provides data on the effects of education on health beliefs, which had not been studied before. In these ways, this study contributes positively to the research that will most certainly continue regarding BSE and the effects of BSE peer education in furthering awareness and knowledge about this important health issue.

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