Effects of Peer and Group Education on Knowledge, Beliefs and Breast Self-Examination Practice among University Students in Turkey

Aims: To determine the effects of peer and group education on knowledge and beliefs about breast cancer and performance of breast self-examination (BSE).

Materials and Methods: The study included a total of 193 female university students, of whom 59 were assigned to peer education and 134 to group education. Data collected at baseline and after six months included sociodemographic characteristics, knowledge of breast cancer and BSE and performance of BSE forms, and Champion’s Health Belief Model Scale. Data were analyzed using the chi-square, McNemar chi-square, independent Student’s t, and paired Student’s t tests.

Results: Mean knowledge scores increased from 42.08 ± 13.89 to 65.26 ± 13.08 after peer education (P < 0.001) and from 41.44 ± 12.79 to 63.74 ± 11.74 after group education (P < 0.001). The rate of regular BSE increased from 25.9% to 55.7% six months after peer education (P < 0.001) and from 45.5% to 62.2% after group education (P < 0.001). Perceived benefits and confidence related to BSE increased and perceived barriers decreased significantly after both interventions.

Conclusions: Knowledge about breast cancer and BSE practice increased and perceived health beliefs improved equally after both interventions. Depending on the resources available, nurses and other health professionals may choose either peer or group education to increase breast awareness among young women.

Key Words: Breast cancer, breast self-examination, health beliefs, peer education, group education

Türkiye’de Üniversite Öğrencilerinde Akran ve Grup Eğitiminin Meme Kanseri ile İlgili Bilgi, İnanç ve Kendi Kendine Meme Muayenesine Etkisinin İncelenmesi

Amaç: Bu çalışmanın amacı, akran ve grup eğitiminin meme kanseri ile ilgili bilgi, inançlar ve kendi kendine meme muayenesine etkisini incelenmektir.

Denekler ve Yöntem: Bu çalışmanın örneklemesi, 59’u akran eğitimi ve 134’ü grup eğitimi verilen toplam 193 kız üniversite öğrencisini oluşturmaktır. Veriler, eğitim öncesinde eğitimlerden altı ay sonra toplanmıştır. Veri toplama araçları sosyodemografik özellikler, meme kanseri ve KKMM bilgi, KKMM uygulama formuları ve Champion Sağlık İnanç Modeli Öğçüdür. Verilerin analizinde ki-kare, McNemar ki-kare, bağımsız gruplarda t, ve bağlı gruplarda t testleri kullanılmıştır.

Bulgular: Akran eğitimi sonrası ortalama bilgi puanları 42.08 ± 13.89’dan 65.26 ± 13.08’e (P < 0.001) ve grup eğitimi sonrası 41.44 ± 12.79 dan 63.74 ± 11.74’e yükselmiştir (P < 0.001). Akran eğitiminden altı aydan sonra düzenli olarak kendi kendine meme muayenesi yapma oranı %25.9’dan %65.7’e (P < 0.001) ve grup eğitiminden sonra %45.5’den, %62.2’ye yükselmiştir (P < 0.001). Kendi kendine meme muayenesi ile ilgili algılanan yararlar ve güven artmış, algılanan engeller azalmıştır.

Sonuç: Her iki eğitim yönteminde benzer şekilde, KKMM bilgisi ve uygulaması artış, algılanan sağlık inançları gelişmiştir. Hemşireler ve diğer sağlık profesyonelleri, genç kadınlarda meme kanserine ilişkin farklılıklar arttırmak için rehberlikçi uygulamaların görece akran veya grup eğitimi seçebilirler.

Anahtar Sözcükler: Meme kanseri, kendi kendine meme muayenesi, sağlık inançları, akran eğitimi, grup eğitimi

Introduction

Breast cancer is the most frequent type of cancer in women in both developing and developed countries (1). According to the most recent reports from the Turkish cancer registry, breast cancer is the most common female cancer, accounting for 26.5% of all
cancers diagnosed in women (2). Although breast cancer is less common in young women, education at an early age about its prevention and early detection including breast self-examination (BSE) sets the stage for adherence to BSE and mammography screening later in life (1).

There are conflicting reports about the usefulness of BSE in the early detection of breast cancer (3-5). However, it is argued that a significant number of women find masses when they are bathing or dressing (6). It is also suggested that breast cancer awareness and culturally sensitive BSE education remain important in countries where resources are limited such as Turkey, Jordan and Iran. Breast awareness provides women with some acknowledgement of the part they can play in being empowered to fight breast disease (7). In Turkey, the Ministry of Health recommends BSE to increase awareness in breast cancer (8).

Therefore, it is important to improve the knowledge of the benefits of BSE, a health-promoting behavior. There have been a number of studies on factors that affect BSE performance (9-11), and several studies have used the Health Belief Model (HBM) as a theoretical framework (11-13).

Numerous studies have explored the usefulness of educational approaches such as peer education (14,15), group education (16,17), film, and written documents (18-22) with women of different ages. These studies used various educational approaches but none compared the effects of peer education with those of group education, both methods that hold promise for application in university students.

Therefore, the purpose of the study was to investigate the effects of peer and group education on knowledge and beliefs about BSE and the performance of BSE among female university students. Knowing the outcomes of different educational approaches will help nurses and other health professionals choose the most effective programs depending on their applicability and availability for the female university student population.

Health Belief Model

The HBM proposes that an individual’s attitudes and beliefs about health action and his or her environment influence performance of a health behavior. It was originally introduced in the 1950s by psychologists working in the US Public Health Service (23). The original four concepts in this model were: (a) susceptibility: perceived personal vulnerability to or subjective risk of a health condition, (b) seriousness: perceived degree of personal harm from the condition, (c) benefits: perceived positive attributes of an action, and (d) barriers: perceived negative aspects related to an action. Two other concepts, health motivation and confidence, were later added to the original HBM. Health motivation refers to beliefs and behaviors related to the state of general concern about health, while confidence is defined as the belief that action will then lead to a desirable outcome (24-26).

According to the HBM, women who believe that they are susceptible to breast cancer and that breast cancer is a serious condition are more likely to perform BSE. Moreover, women who perceive more benefits from BSE and fewer barriers are more likely to perform BSE, and the more motivated women are in promoting their health and the more confident they are in their ability to perform BSE, the more likely they are to practice BSE (26).

Materials and Methods

A pre-test and post-test design was used to compare two different interventions, peer and group education. The study was conducted during the 2006-2007 academic year in the female student dormitory of a university located in Izmir, a city in the western part of Turkey. There were 500 female university students living in the dormitory, of whom 60 were excluded because they were enrolled in either nursing or medicine and had received education about breast cancer and BSE in their program. Of the remaining 440 students, 193 (44%) agreed to participate.

Students were recruited using two methods. In the first, peer trainers invited students for one-to-one education and those who accepted to participate were assigned to peer education (N=134). In the second method, students were invited to take part in the study through written posters placed throughout the dormitory and oral announcements read frequently by the management of the dormitory. The students who responded to these invitations formed the group education (N=59).
Characteristics of the Sample

The mean age of the participants was 19.96 ± 1.49 in the peer education group and 19.57 ± 1.44 for those enrolled in the group education. All but three of the participants were single and most did not have a family member or friend with breast cancer (89.7% peer education and 91.3% group education). There were no significant differences in age, marital status or presence of breast cancer in a family member or a friend between the participants who received peer and group education (P > 0.05).

Approval was obtained from the Ethics Committee, School of Nursing, Dokuz Eylül University, and the regional directorate of the Grants and Dormitories Institute.

Peer education intervention. Peer education was conducted in the dormitory at a mutually chosen time and each of 15 peer trainers offered education to about 9 students. They used interactive methods and visual material in a one-hour theoretical session. A one-hour practice session followed, which involved demonstrations of BSE on themselves with observation and feedback from their peer trainer.

The peer trainers were nursing students enrolled in a four-year Bachelor of Nursing program who had completed an elective nursing course related to women’s health in their third year, where they learned about theories of health behavior, breast cancer and BSE and had supervised practice in the clinical skills laboratory. They received additional education about breast cancer and BSE in the fourth year before becoming peer trainers. To become peer trainers, they had to obtain at least 80 out of 100 from theoretical courses and 100 out of 100 from BSE skills. All the volunteer peer trainers had at least 90 from theoretical courses and 100 from their practice. As a result, they were equipped with the knowledge and skills necessary to convey information about breast cancer and to teach BSE.

Group education intervention. Since it is recommended that 12-15 students represent an effective group size (27), we formed four groups of 15 students and one with 14. Group education was conducted by two faculty members from the School of Nursing who specialized in breast cancer and BSE. The trainers offered a one-hour theoretical lecture about breast cancer and BSE. The lecture was followed by a one-hour practice session for BSE using silicon breast models.

Content of both peer and group education. The material used in the education sessions was prepared by the faculty members who conducted the group education sessions. The content was the same in both types of education and included the structure of the breast, risk factors for breast cancer, signs of the disease, prevention and the importance of early diagnosis.

Data were collected on enrollment to the study and after six months, including sociodemographic status, knowledge of breast cancer and BSE, BSE practice and Champion’s Health Belief Model Scale (CHBMS).

Knowledge of breast cancer and BSE form. Knowledge of breast cancer and BSE was assessed with 20 multiple-choice questions, of which 8 were about breast cancer and 12 about BSE (28). Five points are awarded for each correct answer for a possible score of 100. The content and language validity of the scale were confirmed for the Turkish population by Tuna-Malak and Dicle (15).

BSE practice form. The BSE performance form was composed of two questions. The participants were asked whether they performed BSE and if they answered “yes”, they were asked to state how often. Depending on the frequency of BSE, the participants were categorized as regular (those who performed BSE every month) and not regular (those who occasionally performed BSE).

Champion’s Health Belief Model Scale. The CHBMS was developed in 1984 and later revised by Champion. CHBMS has a total of 42 items and uses a 5-point Likert scale, from 1 “strongly disagree” to 5 “strongly agree”. It is comprised of six subscales: 3 items related to susceptibility (range 3-15); 7 to seriousness (range 7-35); 4 to benefits (range 4-20); 11 to barriers (range 11-55); 10 to confidence/self-efficacy (range 10-50), and 7 items related to health motivation (range 7-35) (29-32).

It was adapted for Turkish women by Karayurt and Dramali (11). Cronbach alpha coefficient for the internal consistency reliability of CHBMS-Turkish subscales ranged from 0.58 to 0.89, and the test-retest reliability ranged from 0.89 to 0.99. The content (face validity) and construct (factor analysis) validity of the instrument are current (11). In this study, Cronbach alpha coefficient of CHBMS-Turkish subscales ranged from 0.68 to 0.88.
Data were analyzed with chi-square, McNemar chi-square, independent Student’s t, and paired Student’s t tests. The Statistical Package for Social Sciences v 11.0 was used for all analysis.

Results

Effects of Peer and Group Education on Knowledge of Breast Cancer and BSE

Within group differences. Mean scores on knowledge about breast cancer and BSE increased significantly from baseline to six months for participants in both the peer and group education interventions (Table 1).

Between group differences. The mean scores on knowledge of breast cancer and BSE of the participants in peer education did not differ significantly from those in group education either at baseline or six months after the intervention (Table 1).

Effects of Peer and Group Education on Subscale Scores of the CHBMS

Within group differences. There were significant within group differences on three of the CHBMS subscales, with increases in perceived benefits and confidence and a decrease in barriers at six-month follow-up after peer and group education. Susceptibility, seriousness and health motivation scores did not change significantly (Table 2).

Between group differences. There were no significant differences in the mean scores for any of the six subscales of CHBMS between the participants who were assigned into peer or group education either at baseline or six months after education (Table 3).

Effects of Peer and Group Education on Performance of BSE

Within group differences. Within group rates of performance increased significantly following both peer

### Table 1. Between and within group knowledge at baseline and after education.

<table>
<thead>
<tr>
<th>Mean Scores</th>
<th>Peer (n=134)</th>
<th>Group (n=59)</th>
<th>t*</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X ± SD</td>
<td>X ± SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline</td>
<td>42.08 ± 13.89</td>
<td>41.44 ± 12.79</td>
<td>0.31</td>
<td>0.760 NS</td>
</tr>
<tr>
<td>After education</td>
<td>65.26 ± 13.08</td>
<td>63.74 ± 11.74</td>
<td>0.764</td>
<td>0.446 NS</td>
</tr>
<tr>
<td>t** = 4.22</td>
<td>P = 0.000***</td>
<td>t** = 10.62</td>
<td>P = 0.000***</td>
<td></td>
</tr>
</tbody>
</table>

* Between group differences
** Within group differences
*** P < 0.001
NS: Not-significant

### Table 2. Within group CHBMS scores before and six months after education.

<table>
<thead>
<tr>
<th>CHBMS Subscales</th>
<th>Peer Education (n=134)</th>
<th>Group Education (n=59)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At baseline</td>
<td>6 months</td>
</tr>
<tr>
<td>Susceptibility</td>
<td>8.56 ± 2.85</td>
<td>8.89 ± 3.25</td>
</tr>
<tr>
<td>Seriousness</td>
<td>20.48 ± 7.23</td>
<td>21.54 ± 7.00</td>
</tr>
<tr>
<td>Benefits</td>
<td>14.14 ± 5.88</td>
<td>16.88 ± 5.94</td>
</tr>
<tr>
<td>Barriers</td>
<td>24.61 ± 4.78</td>
<td>21.29 ± 8.81</td>
</tr>
<tr>
<td>Confidence</td>
<td>26.83 ± 9.58</td>
<td>33.76 ± 10.51</td>
</tr>
<tr>
<td>Health Motivation</td>
<td>24.28 ± 5.26</td>
<td>25.07 ± 4.05</td>
</tr>
</tbody>
</table>

*P < 0.05, **P<0.001

CHBMS: Champion’s Health Belief Model Scale.
Table 3. Between group CHBMS scores before and six months after education.

<table>
<thead>
<tr>
<th>CHBMS Subscales</th>
<th>Peer Group at baseline</th>
<th>Group Education at baseline</th>
<th>Peers Group at education</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=134)</td>
<td>(n=59)</td>
<td>(n=134)</td>
<td>(n=59)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>X ± SD</td>
<td>X ± SD</td>
<td>X ± SD</td>
<td>X ± SD</td>
<td></td>
</tr>
<tr>
<td>Susceptibility</td>
<td>8.55 ± 2.85</td>
<td>8.06 ± 1.56</td>
<td>8.89 ± 3.25</td>
<td>8.49 ± 2.76</td>
<td>1.51</td>
</tr>
<tr>
<td>Seriousness</td>
<td>20.48 ± .23</td>
<td>21.01 ± 5.10</td>
<td>21.54 ± 7.00</td>
<td>21.96 ± 6.46</td>
<td>0.58</td>
</tr>
<tr>
<td>Benefits</td>
<td>14.14 ± 5.88</td>
<td>14.50 ± 5.73</td>
<td>16.88 ± 5.94</td>
<td>16.44 ± 4.60</td>
<td>0.39</td>
</tr>
<tr>
<td>Barriers</td>
<td>24.61 ± 4.78</td>
<td>24.50 ± 5.32</td>
<td>21.29 ± 8.81</td>
<td>21.91 ± 6.80</td>
<td>-0.13</td>
</tr>
<tr>
<td>Confidence</td>
<td>26.83 ± 9.58</td>
<td>28.15 ± 7.54</td>
<td>33.76 ± 10.51</td>
<td>32.76 ± 10.15</td>
<td>1.02</td>
</tr>
<tr>
<td>Health Motivation</td>
<td>24.28 ± 5.26</td>
<td>24.33 ± 5.58</td>
<td>25.07 ± 4.05</td>
<td>25.13 ± 4.48</td>
<td>0.06</td>
</tr>
</tbody>
</table>

All P values >0.05.
CHBMS: Champion’s Health Belief Model Scale.

Table 4. Within group performance and frequency of BSE.

<table>
<thead>
<tr>
<th></th>
<th>Peer Education</th>
<th>Group Education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At baseline</td>
<td>After education</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Perform BSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27</td>
<td>20.1</td>
</tr>
<tr>
<td>No</td>
<td>107</td>
<td>79.9</td>
</tr>
<tr>
<td>BSE Frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>7</td>
<td>25.9</td>
</tr>
<tr>
<td>Not regular</td>
<td>20</td>
<td>74.1</td>
</tr>
</tbody>
</table>

P < 0.001.
BSE: breast self-examination.
the first study to compare the effects of peer and group education, there have been studies showing an increase in knowledge about breast cancer and BSE following either peer (15) or group education (16,33). In addition, Thomas et al. (20) compared the effects of pamphlet and pamphlet plus classroom education and Ortega-Altamirano et al. (21) compared the effects of a video and an educational booklet, and in these studies there was an increase in knowledge, consistent with the results of the present study.

Both peer and group education resulted in significantly increased mean scores on the CHBMS subscales of perceived benefits and confidence and significantly decreased perceived barriers. Turning preventive health knowledge into preventive health behavior depends on the balance between the increased perceived benefits an individual expects to obtain and the decreased perceived barriers an individual faces (23,25,30). In this study, both peer and group education resulted in an increase in perceived benefits and a decrease in barriers. It is also expected that confidence should increase following education. In this study, the increased knowledge of BSE and improved performance of BSE following education suggest that the education strengthened the students’ confidence that they can perform BSE. In fact, the students had stronger beliefs that they would be able to detect breast masses. This may have been a result of their experience with BSE performance during peer and group education.

Neither of the educational strategies resulted in a significant change in the mean scores for susceptibility, seriousness or motivation in our study. Previous studies have produced conflicting results. Attia et al. (22) reported that an educational film increased perceived benefits and decreased barriers, consistent with the results of this study. However, they reported an increase in susceptibility, which is not consistent. Similar results were reported in a Canadian study where personal education increased benefits and susceptibility and decreased barriers (14). Lu (17) also showed that group education increased benefits and decreased barriers, although susceptibility decreased. Aydın and Gözüm (19), in a study from Turkey on the effects of a video plus demonstration on a model, revealed that both methods increased confidence, consistent with the results of the present study. However, Aydın reported that susceptibility decreased, which differs from this study.

Susceptibility involves an individual’s beliefs about the possibility of developing breast cancer. In other words, if you think that you are at a high risk of breast cancer, you have increased beliefs about susceptibility (25,30). In this study, there was no change in susceptibility. This is likely due to the young age of the participants and their lack of exposure to family or friends with the disease. The items about seriousness determine the degree to which a woman is able to accept changes in her life as a result of breast cancer (25,30). In this study, there was no change in perceived seriousness. This may also be due to the

<table>
<thead>
<tr>
<th>Perform BSE</th>
<th>Peer (n=134)</th>
<th>Group (n=59)</th>
<th>Peer (n=134)</th>
<th>Group (n=59)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>27 20.1</td>
<td>11 18.6</td>
<td>70 52.2</td>
<td>37 62.7</td>
</tr>
<tr>
<td>No</td>
<td>107 79.9</td>
<td>48 81.4</td>
<td>64 47.8</td>
<td>22 37.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Peer (n=134)</th>
<th>Group (n=59)</th>
<th>Peer (n=134)</th>
<th>Group (n=59)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>7 25.9</td>
<td>5 45.5</td>
<td>39 55.7</td>
<td>24 64.9</td>
</tr>
<tr>
<td>Not regular</td>
<td>20 74.1</td>
<td>6 54.5</td>
<td>31 44.3</td>
<td>13 35.1</td>
</tr>
</tbody>
</table>

*Fisher’s exact test.
BSE: breast self-examination.

Table 5. Between group performance and frequency of BSE.
participants’ age and the lack of family history or to the fact that Turkish women believe in fate and act in accordance with tradition.

In this study, there was also no change in health motivation. Health motivation refers to beliefs and behaviors related to the state of general concern about health. In this subscale, items such as “I eat a well-balanced diet” and “I have regular health check-ups even when I am not sick” are used. This result may be explained by their restricted living conditions, where such things are somewhat controlled.

The rates of performance of BSE increased significantly following both peer and group education. More students performed BSE and the frequency of performance also increased. Similar improvements in rates of BSE have been reported in other studies (14,15,34). Increased frequency of BSE following peer and group education can be attributed to increased knowledge about and skills for BSE, increased perceived benefits and confidence, and decreased barriers.

We found no differences in any of the outcomes when peer and group education were compared, as both strategies led to similar results. While this is a useful finding, it is not surprising, given the similarities between the two approaches. The content presented was the same in both approaches and a practice session was provided with feedback offered by a skilled individual. Although the peer strategy emphasized peer interaction, there was also an opportunity for discussion among peers in the group approach.

This study has several limitations that must be acknowledged. One is the use of convenience sampling rather than randomization. Participants volunteered for one of the two strategies and thus likely chose the one with which they were most comfortable. Another limitation is self-report of BSE. Although there was no pressure to report increased performance of BSE, participants may have tended to over-report knowing it was the expected action following the education. Students attending university do not represent all young women, so conducting the study with a sample of young women not pursuing secondary education would increase our understanding of effective approaches to improving breast self-care in a wider range of the population. A longer follow-up time would also be useful to determine the sustainability of behavior and retention of knowledge.

In conclusion, the aims of interventions directed toward young women are to help familiarize them with their breast tissue, to detect changes early, and to start a lifetime habit of breast self-care, including BSE. For this reason, it is important to select accurate and effective education methods to increase knowledge about breast cancer and to improve BSE practice and perceived health beliefs. This study revealed that peer and group education were equally effective in reaching the aims of increased knowledge about and frequency of BSE. Therefore, nurses and other health professionals may choose either peer or group education to increase breast awareness among young women.

References


