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Knowledge, Attitudes, and Behaviors of Nursing and Midwifery Students Regarding Breast Self-Examination in Turkey

Sakine Memis, PhD, RN, Nevin Akdolun Balkaya, PhD, RN, and Fatma Demirkiran, PhD, RN

The incidence of female breast cancer continues to increase. To date, breast cancer is one of the most commonly encountered malignancies in women around the world. With 25% prevalence, breast cancer is the most common cancer among women in Turkey (Ministry of Health, 2005). In fact, a Turkish study involving 23,384 women with cancer diagnoses from 1994–2004 revealed that 34% had breast cancer (Izmirli, Altin, Dernek, & Unsal, 2007). An estimated 30,000 women are diagnosed with breast cancer each year in Turkey (MEVA, 2008).

Breast cancer is the second leading cause (15%) of cancer deaths in women. Mortality rates are highest for women aged 20–59, followed by women aged 60–79 and those older than 80, respectively (Greenlee, Hill-Harmon, Murray, & Thun, 2001; Imaginis, 2006; Jemal et al., 2008). The incidence of breast cancer is low in younger women; however, when younger women are diagnosed, the cancer tends to progress rapidly (Imaginis; Jemal et al.). When breast cancer is diagnosed relatively early, life expectancy and quality of life increase. Early diagnosis also decreases potential for certain symptoms such as pain, resulting in decreased expenses of treatment. Early diagnosis and treatment are important in decreasing breast cancer mortality (Imaginis; Jemal et al.; Smith, Cokkinides, Eyre, & American Cancer Society, 2003). Diagnosing tumors in the breast at a diameter of less than 2 cm also increases five-year survival up to 90% (American Cancer Society, 2007).

Because complete prevention of breast cancer is not yet possible, early detection and effective therapy are important in attempting to improve diagnosis and prognosis for women with the disease (Budden, 1998). However, in contrast to more economically developed countries, where less than 10% of women present with late-stage cancer, 50% of women in less developed coun-

Purpose/Objectives: To investigate knowledge, attitudes, and behaviors of nursing and midwifery students regarding breast self-examination (BSE).

Design: Descriptive, cross-sectional.

Setting: Aydin School of Health at Adnan Menderes University in Aydin, Turkey.

Sample: 244 female students of nursing and midwifery.

Methods: Data were collected with a questionnaire.

Main Research Variables: BSE-related knowledge, attitudes, and behaviors.

Findings: More than half of the study participants stated they had sufficient information about BSE from varied sources, primarily from school curricula. The students were knowledgeable about who should perform BSE and its recommended frequency; however, their knowledge of BSE techniques was limited. First-year students had negative attitudes about BSE but became more positive as they progressed in their education. Half of the study sample stated they performed BSE at recommended times and intervals, but only one-fifth used recommended BSE positions and techniques. The main reasons for not performing BSE included not knowing how to perform it (57%), not having any history of problems in the breast (39%), and forgetfulness (18%).

Conclusions: The results demonstrate that nursing and midwifery education has a positive effect on students' knowledge, attitudes, and behaviors regarding BSE.

Implications for Nursing: The findings suggest that nursing and midwifery students should be thoroughly prepared to perform BSE on themselves so they can educate other women about this important preventive procedure.

tries, such as Africa, Asia, and Latin America, present at stage III (Anderson et al., 2003).

Three basic methods are employed in diagnosing breast cancer early, but their relative use is highly debated. The methods are breast self-examination (BSE), clinical breast examination (CBE), and mammography

Quick Facts: Turkey

Geography, history, and political organization: Three percent of the total area lies in southeastern Europe, and the remainder is in southwestern Asia. The total area is 780,580 km², slightly larger than the size of Texas.

Social and cultural features: Turkey has a highly heterogeneous social and cultural structure, with sharp contrasts among population groups. The modern and traditional exist simultaneously within the society. Family ties are strong and influence the formation of values, attitudes, aspirations, and goals.

Economy: Turkey can be classified as a middle-income country. The rate of economic growth has been comparatively high in recent years, and the economy has undergone a radical transformation from an agricultural base to an industrial one, particularly since the 1980s.

Population: Turkey is the most populous country of the Middle East. The population was 72 million in 2005 and is expected to reach 76 million by 2010 and 88 million by 2025. Approximately 35% of the total population live in rural areas. Twenty-six percent of the total population are younger than 15; only 7% are older than 65.

Healthcare system priorities and programs: The Ministry of Health is officially responsible for designing and implementing nationwide health policies and delivering healthcare services. The ministry also regulates prices of medical drugs and controls drug production and pharmacy operations. Health institutions that provide medical care and preventive health services include inpatient institutions (hospitals and health centers) and outpatient institutions (health units, health houses, infirmaries, mother and child health centers, and dispensaries). Services provided by the institutions include personal health cards, which are sent to the ministry monthly together with information on health status. Mean life expectancies for women and men are 74.0 years and 69.1 years, respectively, with an overall mean of 71.5 years.

Education: Formal education includes preschool, primary school, secondary school, and higher education institutions. Eighty-seven percent of the population are literate.

Bibliography

- State Institute of Statistics. (2002). Social security and health/health statistics. Retrieved September 7, 2006, from http://www.tuik.gov.tr/prefstatistikTablo.doc/istab_id
- Turkish Statistical Institute. (2006). *Statistical year book 2005*. Ankara, Turkey: Printing Division.

(Loescher, 2004; Smith et al., 2003). Women living in rural areas and in developing countries use screening programs less than women living in urban regions; as expected, breast cancer mortality is higher (Coughlin, Thompson, Hall, Logan, & Uhler, 2002). A randomized study by Smith et al. demonstrated that mammography decreases breast cancer mortality, but other studies failed to reveal such benefits or suggested that the benefits do not occur until women are older than 50. Franco, Duarte-Franco, and Rohan (2002) evaluated mammography and found that it alone or in combination with CBE does not significantly decrease mortality

in women aged 40–49. Currently, the role of mammography screening in early diagnosis of breast cancers is uncertain. Most breast cancer masses are detected by women themselves, even in countries with a high rate of mammography screening (Ringash & Canadian Task Force on Preventive Health Care [CTFPHC], 2001).

CBE is another important method of breast health evaluation and is recommended in routine health examinations, especially in countries with limited resources (Anderson et al., 2003). However, data regarding its use for early cancer diagnosis are limited. A combination of CBE and mammography is used frequently, although most women worldwide are not able to undergo regular CBE and mammography because healthcare insurance does not include everyone and the availability of health care is limited in many countries, including Turkey.

BSE is a simple method women can perform by themselves. Women who perform BSE are more familiar with their breasts, potentially making them more aware of breast problems as they arise and positioning them to seek medical advice earlier than would occur otherwise. Although the efficacy of BSE may be questionable, when performed accurately and regularly, it provides women with the opportunity to notice differences in breast tissue and to detect lumps at an early stage (Baxter & CTFPHC, 2001; Reeder, Martin, & Koniak-Griffin, 1997; Wheeler, 2002). Furthermore, BSE is recommended because it is inexpensive and noninvasive and carries no carcinogenic risk (Budden, 1999; Reeder et al.). A prospective, randomized study conducted with 123,748 women suggested that BSE increased the detection rate of benign and malignant tumors as compared to controls (Semiglazov et al., 2003). Although BSE has not reduced the rate of breast cancer deaths and has caused an increase in rates of unnecessary biopsies (Baxter & CTFPHC), breast masses mostly are identified by women themselves (Baxter & CTFPHC; Han, Williams, & Harrison, 1999; Semiglazov et al.).

Although the usefulness of BSE has been seriously questioned in the past decade, after influential organizations such as CTFPHC downgraded their BSE recommendation citing evidence of no benefit and much evidence of harm in 2001, recent publications (Anyanwu, 2008; Lepecka-Klusek, Jakiel, Krasuska, & Stanislawek, 2007; Tara, Agrawal, & Agrawal, 2008) highlight its potential benefits. Therefore, policymakers and healthcare professionals are cautioned that a prudent approach to BSE promotion as an early and cost-effective cancer screening measure is best. Most women detect their own breast cancer, even in countries where BSE practice is uncommon (Baig & Ali, 2006; Kearney & Murray, 2006; Semiglazov et al., 2003). Therefore, BSE still is considered an important tool for early diagnosis of breast cancer in Turkey.

The success of BSE in finding masses in breast tissue depends largely on the thoroughness of the examination. For example, examinations must be performed

regularly (monthly) using correct inspection and palpation techniques (standing in front of a mirror and in the supine position) (Khatib & Modjtabai, 2006). Studies of knowledge, attitudes, and behaviors regarding BSE have demonstrated that women believe in the importance of BSE (Aslan, Gurkan, Selimen, & Issever, 2002; Odusanya, 2001). Despite the fact that 54%–62% of women perform BSE, only 11%–46% perform it regularly (Aslan et al.; Budden, 1998; Cavdar et al., 2007; Fung, 1998; Odusanya & Tayo, 2001; Persson, Svensson, & Ek, 1997). Therefore, women aged 20 or older should be trained in BSE.

Women usually are taught about BSE by healthcare personnel; those who are tend to be more willing to perform it regularly (Bailey, 2000). In many countries, cultural attitudes are such that women do not feel comfortable receiving BSE education from male healthcare personnel. Because most nurses and midwives are women and work in a variety of healthcare settings, they need to take responsibility for training and encouraging women to perform BSE. As role models, nurses and midwives must have accurate information and positive attitudes about BSE and should perform it regularly. Therefore, nursing and midwifery students must be informed about BSE in detail and shown how to perform it correctly while in school so they are able to educate patients after graduation.

Currently, no information is available about the BSE knowledge of Turkish nursing and midwifery students, their practice of BSE, or whether their education is sufficient to impart accurate information, positive attitudes, and the skills necessary to perform BSE. Therefore, the aim of the current study was to determine the knowledge, attitudes, and behaviors of nursing and midwifery students regarding BSE and to establish baseline data for further research as well as for new curricular strategies about BSE in Turkey.

Methods

The participants in the current descriptive study were undergraduate students of nursing and midwifery from the Aydin Health School at Adnan Menderes University, a state university in Aydin, Turkey. The Aydin School of Health has two divisions, nursing and midwifery, and the course of study for the divisions is four years. At the time of the study, 301 students were registered in the two programs, all of whom were female.

Participants

All first-, second-, third-, and fourth-year nursing and midwifery students were included in the study. The study sample consisted of all students who agreed to participate. Students who declined to take part in the study ($n = 20, 7\%$) and those who did not attend school

on the day of the study ($n = 17, 6\%$) were excluded. In addition, students who completed the questionnaire for testing the questions (pilot sample) also were not included. No additional sampling method was used.

Written informed consent was obtained from all participants, who were told they could choose not to participate in the study at any time, all information would be kept confidential, and grades from related courses would not be influenced by their participation or lack of participation in the study. Questionnaires were administered to participants by the researchers.

Instruments

Data were collected by a questionnaire that was designed consistent with the relevant literature (Budden, 1999; Odusanya, 2001; Sadler et al., 2001; Smith et al., 2003; Wheeler, 2002). Questions commonly used in preliminary studies were chosen for use in the questionnaire to maintain validity. The questionnaire was checked by four academician nurses and three consultant surgeons for clarity and relevance to the purpose of the study. The questionnaire then was administered to 20 randomly selected students, who were asked to provide their views and suggestions for all questions. Unclear wording was revised as a result.

The questionnaire consisted of 46 questions in four parts. Section I included seven questions about participants' ages, school division attended (nurse or midwife), year in school, and marital status. Section II included 10 questions about previous BSE knowledge; sources of information; whether BSE had been performed by the participant and, if yes, when BSE was first performed; frequency of BSE performance; positioning and techniques used; frequency and timing of BSE in relation to menstrual cycle; and regularity or irregularity of menstrual cycle. Section II mainly had closed-ended questions except for those related to the position and techniques used for performing BSE, which were open ended. The question regarding positioning used during BSE was phrased as, "In what position is BSE performed?" whereas the question about technique for BSE was worded, "What technique is used for BSE?"

Section III included eight questions concerning behaviors of the students regarding BSE, such as whether they had performed BSE previously and, if so, the age at which they began to perform BSE; the most important factor that caused them to perform BSE; the frequency of performing BSE in the prior 12 months; the time at which they performed BSE in relation to menstrual cycle; and the positioning and techniques used. If participants did not perform BSE, they were asked to provide reasons why. Section III also mainly had closed-ended questions except for the two questions related to position and techniques for performing BSE. The question regarding the positioning for BSE was, "Which position do you use for

performing BSE?" The question about techniques for BSE was, "What technique do you use for BSE?"

Evaluation of knowledge and practice questions concerning position, techniques, regularity, and timing for performing BSE were made using the following.

Position: The position of BSE was considered to be correct if the students performed BSE in both standing (in front of the mirror) and supine positions. If answers were recorded as BSE is performed in only standing or supine position, they were considered to be partly correct. Other answers were considered to be incorrect.

Technique: If the answer regarding techniques for conducting BSE was "inspection and palpation (by using the pads of the middle three fingers of one hand without removing the fingers from the breast, in circular motions)," it was considered to be correct. If the answer was one of either inspection or palpation, it was considered to be partly correct. Other answers were considered to be incorrect.

Frequency: If the answer was once a month, it was considered to be correct.

Timing for conducting breast self-examination: If the answers were "within two days after the end of the cycle" for those with regular menstrual periods and "on a specific day every month" for those with irregular or no menstruation, they were considered to be correct.

Section IV included 21 statements about attitudes regarding BSE. Sixteen were designed by the investigators in accordance with the needs of the study. Five were taken from a form used by Budden (1995): "I am too busy to do breast self-examinations," "The thought of breast cancer scares me," "Discovering lumps early would increase my chance of survival if I had breast cancer," "Breast self-examination can help me find lumps in my breast," and "I feel that I will get breast cancer in the future." These five questions were translated from English into Turkish by two academician nurses. Two clinical psychologists, fluent in English, checked the translations for linguistic and conceptual equivalence. Participants rated 21 attitude items on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

To find out the factor structure of the 21 attitude items, a varimax rotated principal component analysis (varimax with Kaiser normalization) was carried out and yielded five factors that explained 63% of the total variance. Factor scores were computed by summing the responses to the items under each factor and dividing by the number of items in the respective factor. Therefore, factor scores ranged from 1–5. The internal consistency reliability coefficient (Cronbach alpha) for the total scale was 0.62. Factor names, loadings, eigenvalues, and internal consistency coefficients are shown in Table 1.

Data Collection and Analysis

The questionnaire was administered concomitantly to the nursing and midwifery students in their classrooms

Table 1. Varimax Rotated Factor Analysis of Attitudes Toward Breast Self-Examination (BSE)

Factors and Items	Factor Loading
Factor 1: Importance of BSE and positive attitude about BSE (eigenvalue = 5,074)	
Doing BSE is very important for the early diagnosis of breast cancer.	0.850
Discovering lumps early would increase my chance of survival if I had breast cancer.	0.802
I think that it is necessary for every woman to perform BSE regularly every month.	0.786
Breast self-examination can help me find lumps in my breast.	0.767
I think that it is necessary to examine my breasts regularly.	0.693
If I get breast cancer some day, I can fight the disease.	0.551
In my opinion, only physicians should conduct breast examinations.	-0.538
I could check to determine whether or not a mass in my breast had advanced with BSE.	0.519
Breasts are of great importance for women.	0.376
Factor 2: Fear of breast cancer (eigenvalue = 2,596)	
The thought of breast cancer scares me.	0.889
Suffering from breast cancer is a terrible thing.	0.841
I would feel bad if I had breast cancer.	0.790
I feel that I will get breast cancer in the future.	0.523
Factor 3: Distress about breast self-examination (eigenvalue = 1,964)	
It bothers me to do BSE.	0.821
I think it's wrong to touch my body in this way.	0.791
I am embarrassed to do BSE every month.	0.750
I am too busy to do BSE.	0.544
Performing BSE makes me think that I will get breast cancer.	0.366
Factor 4: The possibility of getting breast cancer (eigenvalue = 1,432)	
There is a possibility that I may have breast cancer in the future.	0.704
I feel that I may have breast cancer in the future.	0.634
I would search whether there is new knowledge about breast examination.	0.276

by nurse researchers. Forms were filled out anonymously, and participants were requested to answer all questions. Participants completed the forms within 30 minutes.

Data were analyzed with descriptive statistics, chi-square test, and one-way analysis of variance.

Results

Participants

From the total 301 students, 244 students (81%) agreed to participate in the study; 123 (~50%) participants from the division of nursing and 121 (~50%) from the division of midwifery. The mean age of participants was 20.27

± 1.85 and ranged from 16–27. Seventy-nine students (32%) were in their first year of training, 57 (23%) in their second year, 49 (20%) in their third year, and 59 (24%) in their fourth year. More than 96% of the students (236) were single, 217 (89%) were high school graduates, and 27 (11%) were graduates of nursing schools that are equivalent to high school. Twenty participants (8%) were already working in a healthcare facility as nurses.

Sociodemographic characteristics and participants' knowledge, attitudes, and practices regarding BSE all were analyzed by chi-square test. No significant difference was observed between the two groups ($p > 0.05$), so their data were pooled and evaluated together.

Knowledge

Fifty-six percent of participants reported that they had received some information about BSE. Of those participants, 72% reported that their most important sources of information were lectures integrated within the curricula for nursing and midwifery education (at least two hours of lecture given as part of the surgical or obstetrics and gynecology nursing sections), whereas 21% reported written sources, such as books, magazines, and brochures. The rates of correct answers about BSE are shown in Table 2. Correct answers to the questions about who should conduct BSE and its recommended frequency were relatively high; 82% of study participants knew that all women should perform BSE, and 71% knew that BSE should be performed regularly every month. Furthermore, 48% of participants knew that

women with regular menstruation should perform BSE within two days after menstruation, 38% knew that BSE should be started after age 20, 37% knew that women with irregular menstruation should perform BSE at a specific day every month, and 35% knew that BSE should be performed first standing (in front of a mirror), then lying down. On the contrary, the percentage of participants who knew that BSE should be conducted using inspection and palpation techniques was low (17%).

Student Performance of Breast Self-Examination

More than half of participants stated that they had performed BSE ($n = 129$, 53%). The distributions of participants performing BSE according to their school years were 5% in the first year, 53% in the second year, 86% in the third year, and 90% in the fourth year ($\chi^2 = 126.020$, $p < 0.001$). Of the students performing BSE, 58% started performing it after age 20 and 39% reported that they performed regular BSE in the past 12 months (10–12 times). Of those performing BSE, 50% performed it at the correct time during their cycles and 38% used correct position; however, only 19% used correct technique (see Table 3).

The students stated that training in school was the most important factor that led them to start performing BSE (80%), followed by the presence of pain in the breast (8%), encouragement of peers (8%), and media influence (7%) (see Table 4). On the other hand, the most important reason for not performing BSE was not knowing how to perform it (57%), followed by the absence of problems in the breast (39%), forgetfulness (18%), and reluctance (12%) (see Table 5).

Attitudes Related to Breast Self-Examination

The average attitude factor scores of participants about the importance of and positive attitudes regarding BSE (4.04 ± 0.55), fear of breast cancer (3.90 ± 0.92), and possibility of being diagnosed with breast cancer (3.01 ± 0.60) were high. On the contrary, their average attitude factor scores about distress of BSE were low (1.84 ± 0.66). The length of time in school positively influenced the attitudes of the students about BSE. Post-hoc test results verified the difference between first- and fourth-year students ($p < 0.01$).

Discussion

Preliminary studies have demonstrated that nurses are quite knowledgeable about BSE and that this information generally is acquired through written media (Budden, 1995; Uzun, Karabulut, & Karaman, 2003). Budden (1999) investigated BSE-related knowledge, attitudes, and practices of 71 first-year nursing students in Australia and

Table 2. Students' Knowledge Related to Breast Self-Examination (BSE)

Knowledge of BSE	Answered Correctly	
	n	%
All women older than age 20 should perform BSE.	200	82
BSE should be started after age 20.	92	38
BSE should be done regularly every month.	172	71
Women with regular menstruation should perform BSE within two days after menstruation.	116	48
Women with irregular menstruation should perform BSE at a specific day each month.	90	37
BSE is done by standing in front of a mirror and lying down.	85	35
BSE is done by use of inspection and palpation techniques.	41	17
N = 244		

Table 3. Behaviors of Students Related to Performing Breast Self-Examination (BSE)

Behavior	Performed Correctly	
	n	%
Starting age		
Before age 19	54	42
After age 19	75	58
Performance frequency in the past 12 months		
1–3 times	36	28
4–6 times	43	33
10–12 times	50	39
Timing of BSE		
Correct	64	50
Incorrect	65	50
Position (performing BSE by standing in front of a mirror and lying down)		
Correct	49	38
Partially correct	73	57
Incorrect	7	5
Technique (performing BSE by use of inspection and palpation techniques)		
Correct	25	19
Partially correct	95	74
Incorrect	9	7
N = 129		

found that 38% knew the correct time to perform BSE and 62% knew correct technique.

The current study was an in-depth evaluation of participants' BSE knowledge. Percentages of correct answers given by students for questions "Who should conduct BSE?" (82%) and "What is the frequency of BSE?" (71%) were relatively high. The recommended times for conducting BSE by women with regular and irregular menstrual periods were answered correctly by 48% and 37% of students, respectively, whereas in Budden's (1995) study, only 17% of participants correctly identified the recommended time for BSE as being within two days of cessation of menstrual bleeding. Thirty-eight percent of students gave correct answers to the question asking at what age BSE should be started. More than a third (35%) of study participants correctly responded that BSE is done standing (in front of a mirror) and lying down, a finding in agreement with the literature. Only 17% of students in the present study gave correct answers to the question about BSE techniques (inspection and palpation).

Taiwanese women stated that they obtained information about BSE primarily from healthcare personnel (Lu, 2001), whereas first-year nursing students in Australia responded that they acquired BSE information mostly from media (e.g., newspapers, radio, TV) (Budden, 1999). On the other hand, Turkish students were informed about BSE mainly from school curricula (Uzun et al., 2003). In the current study, more than half of the

participants stated that they had information about BSE and indicated school (curricula of nursing and midwifery education) and written materials (books, magazines, and brochures) as the most important sources of information. Results from the present study and those reported previously (Uzun et al.) indicate that BSE knowledge provided in nursing and midwifery education contributes greatly to nurses' knowledge base.

In studies, attitudes related to breast cancer and BSE have shown that women attach importance to breast cancer and believe BSE should be performed regularly; however, the same subjects did not believe they were at risk for breast cancer (Budden, 1995, 1999; Odusanya & Tayo, 2001). The participants in the current study also believed that BSE plays an important role in the early diagnosis of breast cancer. Despite the fact that they worry about breast cancer and perceive their risk of getting breast cancer as high, a significant portion of participants did not perform BSE or did not perform it regularly. The findings are similar to those in the studies cited previously. Indeed, being young appears to be influential on BSE behaviors.

Evidence suggests that undergraduate education leads to significant improvements in BSE-related knowledge and practices of nursing students (Sobhy, Shoeib, & Rashad, 2003). The current study found that first-year nursing and midwifery students who have not yet received any information about BSE have more negative attitudes about the practice ($p < 0.01$). However, a noticeable increase in positive attitude scores for BSE was observed as nurses advance in their education. As a result, mean scores of positive attitudes for fourth-year students were higher than those of first-year students ($p < 0.01$). The finding demonstrates the importance of school education in building positive attitudes toward BSE.

Several studies showed that students at nursing and midwifery schools start performing BSE at younger ages (Budden, 1999) and 56%–99% perform BSE; still, the percentages of those performing BSE regularly and at the correct time in the menstrual cycle are very

Table 4. Factors Affecting Performance of Breast Self-Examination in Student Participants

Factor	n	%
School education	103	80
Pain in the breast	10	8
Peer support	10	8
Media influence	9	7
Family encouragement	6	5
Physician recommendation	4	3
Family history of breast cancer	3	3
Benign mass in the breast	2	2
N = 129		
Note. More than one answer could be chosen.		

Table 5. Reasons for Not Performing Breast Self-Examination

Reason	n	%
Do not know how to perform	66	57
Having no problems in the breasts	45	39
Forgetting	21	18
Reluctance	14	12
Fear of finding a mass	6	5
Not knowing its importance	6	5
Lack of time	5	5
Finding it unnecessary	3	3
Shamefulness	1	1
Thinking it is too difficult	1	1

N = 115

Note. More than one answer could be chosen.

low (11%–46%) (Bailey, 2000; Budden, 1999). Budden (1999) noted that percentages of students performing BSE increased with the length of training. The current study also demonstrated that nursing and midwifery students start performing BSE at younger ages, more than half of them perform BSE (53%), and the rates of those performing BSE increased after the second year ($\chi^2 = 126.020, p < 0.001$). The findings are in agreement with those of Budden (1999). However, the results also showed that the students generally do not perform the examination in the correct position, at the correct time in the menstrual cycle or time of the month, or at regular intervals. The findings correlate with those of previously published studies (Bailey; Budden, 1999).

The most influential factors relating to initiation of performance of BSE by students were media, academician nurses, a history of breast cancer in their families, encouragement from peers, and recommendations by physicians (Budden, 1995). However, the current study findings indicate that school was the most important factor for initiation of BSE. Pain in the breast, encouragement by peers, insistence of families, and the recommendations of physicians were other influential factors. The findings clearly demonstrate that students are positively affected by the information gained from nursing or midwifery training.

Forgetfulness is the most important reason for not performing BSE. Furthermore, the fear of finding a mass, not having self-confidence, not being knowledgeable about how to perform BSE, laziness, and the absence of breast cancer in the family were the other reasons students refrain from the procedure (Budden, 1995). The main reasons for not performing BSE in the current study also were not knowing how to perform the examination, not having any previous problems in the breast, forgetfulness, and laziness. The findings, and those of other studies, suggest that women do not continue BSE practice or do not practice it regularly in general.

The reasons for undertaking this investigation were that no information existed and no accurate data were previously published about Turkish nursing and midwifery students' knowledge, attitudes, and behaviors about BSE. The Turkish Ministry of Health has asked nurses and midwives to be primarily responsible for educating the public about breast cancer and BSE; therefore, documenting nurses' and midwives' baseline knowledge is important to identify where improvements can be made in the educational process to better prepare them to educate women.

The effectiveness of BSE depends on education, compliance, and outreach among women and on conscientious and regular self-examination; therefore, BSE should be incorporated in nursing, midwifery, and other healthcare provider curricula (Baig & Ali, 2006) so these groups can then better educate women in the society.

Future Implications for Nursing and Midwifery Education

The findings of the current study demonstrate the dominant and positive influence of the educational process of nurses and midwives in developing positive BSE knowledge, attitudes, and practices. However, under existing circumstances, the training available to students is far from sufficient for imparting knowledge, acquiring skills, and encouraging positive attitudes about BSE. Taking into consideration that a significant portion of women in Turkey are illiterate, receiving information from female healthcare personnel who are adequately trained and have a positive attitude about BSE is even more important. Therefore, relevant changes should be made to school curricula for nurses and midwives, especially including the use of interactive teaching methods, video presentations, and case studies, so that this goal is attainable. Future research is required to investigate the effectiveness of the different methods of nursing and midwifery education about this issue. The findings do, however, suggest that nursing and midwifery students should be trained more carefully to perform BSE so they can improve awareness about breast cancer through BSE training for women.

Sakine Memis, PhD, RN, is an assistant professor in the Department of Medical Nursing, Nevin Akdolun Balkaya, PhD, RN, is an assistant professor in the Department of Gynecology and Obstetrics Nursing, and Fatma Demirkiran, PhD, RN, is an assistant professor in the Department of Psychiatry Nursing, all in the Aydin School of Health at Adnan Menderes University in Aydin, Turkey. No financial relationships to disclose. Memis can be reached at smemis@adu.edu.tr, with copy to editor at ONFEditor@ons.org. (Submitted January 2008. Accepted for publication April 5, 2008.)

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References

- American Cancer Society. (2007). *Breast cancer facts and figures 2005–2006*. Retrieved February 09, 2007, from <http://www.cancer.org/downloads/STT/CAFF2005BrF.pdf>
- Anderson, B.O., Braun, S., Carlson, R.W., Gralow, J.R., Lagios, M.D., Lehman, C., et al. (2003). Overview of breast health care guidelines for countries with limited resources. *Breast Journal*, 9(Suppl. 2), S42–S50.
- Anyanwu, S.N.C. (2008). Temporal trends in breast cancer presentation in the third world. *Journal of Experimental and Clinical Cancer Research*, 27(1), 17.
- Aslan, E.F., Gurkan, A., Selimen, D., & Issever, H. (2002). Istanbul'da kadınların meme kanseri tarama programlarına katılımı: Mamografi çekirme, meme muayenesi için hekime gitme ve kendi kendine meme muayenesi yapma [The attendance of women at breast cancer screening programs in Istanbul: Mammography, visiting physician for clinical breast examination and breast self-examination]. *Cagdas Cerrahi Dergisi*, 16(2), 86–96.
- Baig, S., & Ali, T.S. (2006). Evaluation of efficacy of self breast examination for breast cancer prevention: A cost effective screening tool. *Asian Pacific Journal of Cancer Prevention*, 7(1), 154–156.
- Bailey, K. (2000). The nurse's role in promoting breast awareness. *Nursing Standard*, 14(30), 34–36.
- Baxter, N., & Canadian Task Force on Preventive Health Care. (2001). Preventive health care, 2001 update: Should women be routinely taught breast self-examination to screen for breast cancer? *Canadian Medical Association Journal*, 164(13), 1837–1846.
- Budden, L. (1995). Young women's breast self-examination knowledge and practice. *Journal of Community Health Nursing*, 12(1), 23–32.
- Budden, L. (1998). Registered nurses' breast self-examination practice and teaching to female clients. *Journal of Community Health Nursing*, 15(2), 101–112.
- Budden, L. (1999). Student nurses' breast self-examination health beliefs, attitudes, knowledge, and performance during the first year of a preregistration degree program. *Cancer Nursing*, 22(6), 430–437.
- Cavdar, Y., Akyolcu, N., Ozbas, A., Oztekin, D., Ayogu, T., & Akyuz, N. (2007). Determining female physicians' and nurses' practices and attitudes toward breast self-examination in Istanbul, Turkey. *Oncology Nursing Forum*, 34(6), 1218–1221.
- Coughlin, S.S., Thompson, T.D., Hall, H.I., Logan, P., & Uhler, R.J. (2002). Breast and cervical cancer screening practices among women in rural and nonrural areas of the United States, 1998–1999. *Cancer*, 94(11), 2801–2812.
- Franco, E.L., Duarte-Franco, E., & Rohan, T.E. (2002). Evidence-based policy recommendations on cancer screening and prevention. *Cancer Detection and Prevention*, 26(5), 350–361.
- Fung, S.Y. (1998). Factors associated with breast self-examination behaviour among Chinese women in Hong Kong. *Patient Education and Counseling*, 33(3), 233–243.
- Greenlee, R.T., Hill-Harmon, M.B., Murray, T., & Thun, M. (2001). Cancer statistics, 2001. *CA: A Cancer Journal for Clinicians*, 51(1), 15–36.
- Han, Y., Williams, R.D., & Harrison, R.A. (1999). Breast self-examination (BSE) among Korean American women: Knowledge, attitudes, and behaviors. *Journal of Cultural Diversity*, 6(4), 115–123.
- Imaginis. (2006). Breast cancer: Statistics on incidence, survival, and screening. Retrieved February 09, 2007, from <http://www.imaginis.com/breasthealth/statistics.asp>
- Izmirli, M., Altın, S., Dernek, B.O., & Unsal, M. (2007). SSK Okmeydanı Eğitim ve Araştırma Hastanesi Onkoloji Merkezi'nin 1999–2004 yılları kanser istatistikleri [Cancer statistics of SSK Okmeydanı Training and Research Hospitals Department of Oncology from 1999 to 2004]. *Türk Onkoloji Dergisi*, 22(4), 172–182.
- Jemal, A., Siegel, R., Ward, E., Hao, Y., Xu, J., Murray, T., et al. (2008). Cancer statistics, 2008. *CA: A Cancer Journal for Clinicians*, 58(2), 71–96.
- Kearney, A.J., & Murray, M. (2006). Evidence against breast self-examination is not conclusive: What policymakers and health professionals need to know. *Journal of Public Health Policy*, 27(3), 282–292.
- Khatib, O.M.N., & Modjtabai, A. (2006). *Guidelines for the early detection and screening of breast cancer: Vol. 30. EMRO technical publications series*. Geneva, Switzerland: World Health Organization Regional Office for the Eastern Mediterranean.
- Lepecka-Klusek, C., Jakiel, G., Krasuska, M.E., & Stanislawek, A. (2007). Breast self-examination among Polish women of procreative age and the attached significance. *Cancer Nursing*, 30(1), 64–68.
- Loescher, L. (2004). Nursing roles in cancer prevention position statements. *Seminars in Oncology Nursing*, 20(2), 111–120.
- Lu, Z.J. (2001). Effectiveness of breast self-examination nursing interventions for Taiwanese community target groups. *Journal of Advanced Nursing*, 34(2), 163–170.
- MEVA. (2008). Meme sagligi genel bilgileri. Retrieved February 26, 2008, from http://www.memekanseri.org/meme_genelbilgiler.htm#02
- Ministry of Health. (2005). Health statistics, 2004. Retrieved February 26, 2008, from <http://www.saglik.gov.tr/TR/BelgeGoster.aspx?F6E10F8892433CFF8FE9074FF19B000585ACA374B1116107>
- Oduşanya, O.O. (2001). Breast cancer: Knowledge, attitudes, and practices of female schoolteachers in Lagos, Nigeria. *Breast Journal*, 7(3), 171–175.
- Oduşanya, O.O., & Tayo, O.O. (2001). Breast cancer knowledge, attitudes and practice among nurses in Lagos, Nigeria. *Acta Oncologica*, 40(7), 844–848.
- Persson, K., Svensson, P.G., & Ek, C.A. (1997). Breast self-examination: An analysis of self-reported practice. *Journal of Advanced Nursing*, 25(5), 886–892.
- Reeder, S.J., Martin, L.L., & Koniak-Griffin, D. (1997). Women's health promotion. In S.J. Reeder, L.L. Martin, & D. Koniak-Griffin (Eds.), *Maternity nursing: Family, newborn, and women's health care* (18th ed., pp. 167–168). Philadelphia: Lippincott Williams and Wilkins.
- Ringash, J., & Canadian Task Force on Preventive Health Care. (2001). Preventive health care, 2001 update: Screening mammography among women aged 40–49 years at average risk of breast cancer. *CMAJ*, 164(4), 469–476.
- Sadler, G.R., Dhanjal, S.K., Shah, N.B., Shah, R.B., Ko, C., Anghel, M., et al. (2001). Asian Indian women: Knowledge, attitudes, and behaviors toward breast cancer early detection. *Public Health Nursing*, 18(5), 357–363.
- Semiglazov, V.F., Manikhas, A.G., Moiseenko, V.M., Protsenko, S.A., Kharikova, R.S., Seleznev, I.K., et al. (2003). Rezultaty prospektivnogo randomizirovannogo issledovaniia [Rossiia (Sankt-Peterburg)/VOZ] znacheniia samoobsledovaniia v rannem vyivlenii raka molochno Azhelezy. [Results of a prospective randomized investigation [Russia (St. Petersburg)/WHO] to evaluate the significance of self-examination for the early detection of breast cancer]. *Voprosi Onkologii*, 49(4), 434–441.
- Smith, R.A., Cokkinides, V., Eyre, H.J., & American Cancer Society. (2003). American Cancer Society guidelines for breast cancer screening: Update 2003. *CA: A Cancer Journal for Clinicians*, 53(1), 27–43.
- Sobhy, S.I., Shoeib, F.M., & Rashad, W.A. (2003). Developing and testing the effectiveness of an educational booklet about breast self-examination on university nursing students' knowledge and practices. *Journal of the Egypt Public Health Association*, 78(3–4), 341–359.
- Tara, S., Agrawal, C.S., & Agrawal, A. (2008). Validating breast self examination as screening modalities for breast cancer in eastern region of Nepal: A population based study. *Katmandu University Medical Journal*, 6(1), 89–93.
- Uzun, O., Karabulut, N., & Karaman, Z. (2003). Hemsirelik öğrencilerinin kendi kendine meme muayenesi ile ilgili bilgi ve uygulamaları. 2. Uluslararası-9. Ulusal hemsirelik kongresi bildiri özet kitabı, Antalya: 7–11 Eylül 2003. [The BSE knowledge and practices of nursing students. 2nd National 9th International Nursing Congress Abstract Book, Antalya: 7–11 September 2003].
- Wheeler, L. (2002). *Nurse-midwifery handbook: A practical guide to prenatal and postpartum care* (2nd ed.). Philadelphia: Lippincott Williams and Wilkins.