Original Article

Breast Cancer Risk Assessments on Nurses

Sevban Arslan, PhD
Associate Professor, Çukurova University, Faculty of Health Sciences, Surgical Nursing Department, Adana, Turkey

Derya Gezer, MSc
Departments of General Surgery, Cukurova University, School of Medicine. Adana, Turkey

Dudu Alptekin, MSc
Director of Nursing, Cukurova University, School of Medicine. Adana, Turkey

Evşen Nazik, PhD
AssociateProfessor, Çukurova University, Faculty of Health Sciences , Obstetrics and Gynecology Nursing Department, Adana, Turkey

Correspondence: Sevban Arslan, Associate Professor, Çukurova University, Faculty of Health Sciences, Surgical Nursing   Department, Adana, Turkey E-mail: sevbanadana@hotmail.com

Abstract

Objectives: For women, both in the developed and the developing world, breast cancer is the most common form of cancer. Despite progress in the health sciences and development of methods for early diagnosis breast cancer, nevertheless continues to threaten life. It is therefore important to determine the risk level. This study was conducted to determine the risk of developing of breast cancer among nurses in Turkey.

Methods: Using a descriptive and cross-sectional survey design, data was collected from 276 nurses. Data were collected via personal information form and the Breast Cancer Risk Assessment Tool.

Results: It was determined that 48.9% of the nurses were under the age of 30 and that 13.8% were in the 41-50 age range. It was also determined that 90.2% of the nurses did not have any familial breast cancer history, and 98.2% did not have a personal history of breast cancer. Taking into consideration their average risk levels, it was determined that 96% had low risk levels.

Conclusions: The majority of the nurses have a low level of risk. However, with increasing longevity the risk may rise for women in the future, and it is essential that the risk levels for breast cancer are determined and screening programs intensified.

Keywords: Breast, cancer, risk assessment, nurses

Introduction

For women, both in the developed and the developing world, breast cancer is the most common form of cancer (WHO 2014). According to statistics from the Turkish Ministry of Health, Cancer Control Department for 2011, breast cancer, at 45.1 in 100,000, is in the top ranking for Turkish women. The best way to fight cancer is to avoid its development by controlling the known risk factors. Determining the breast cancer risk groups in a society, monitoring these groups and making screening programs widespread, is important for early diagnosis and treatment. Reported risk factors in breast cancer include, advanced age, being a woman, the presence of breast cancer in the family history, early menarche and late menopause, nulliparity, >30 years of age at first labor, alcohol consumption more than one glass a day, and a diet high in fat (Gross 2000; Yalcinoz et al 2012).

Despite progress in the health sciences, the development of methods for early diagnosis, and societies' increasing awareness concerning this issue, breast cancer nevertheless continues to threaten life. Accordingly, it is necessary for every society to identify breast cancer risks, determine the risk groups and extends screening programs (Aslan and Gürkan 2007). Nurses play an important role in providing counseling for risk

assessment, training, psycho-social support, health protection and cancer risk management (Karayurt and Zorukos 2008).It has been observed that there are only a few risk assessment studies for Turkey in the literature (Aslan and Gürkan 2007; Tümer and Baybek 2010; Kocadag et al 2009). It is maintained that studies on this issue will contribute to raising awareness levels in healthcare providers and make a significant contribution to women's health in Turkish society.

The aim of this study was to investigate breast cancer risks in nurses working at a university hospital in Adana, Turkey.

Method

This study used a descriptive and cross-sectional design**.** The study was carried out between 1 March and 1 April 2015, at a university hospital in Adana. The cohort of the study was nurses working at the university hospital during 2015 (N=851). No sampling methodology was used. The 276 nurses included in this study were those who could be contacted and were willing to participate. The nurses were given information about the study and their verbal consent to participate was obtained. The researchers guaranteed the participants that their identities and answers would remain confidential.

The aim of the study and the contents of the questionnaire were explained to each subject, and voluntary participation was requested. Oral consent to participate in this study was obtained. The nurses completed the questionnaire forms at their clinics in approximately 15 minutes. The institutions at which the study was conducted granted official permission. The descriptive form and the breast cancer risk assessment tool were used to collect the research data. The descriptive form included the socio-demographic characteristics of the nurses (age, marital status, education status).

Breast Cancer Risk Assessment Tool

The form used was the Breast Cancer Risk Assessment Tool, which was developed by the American Cancer Society and accepted and recommended by the Turkish Ministry of Health (Aslan and Gürkan 2007; National Family Planning 2000; Spence 2000). The form consisted of 20 questions in six section. The sections were divided into age, the history of breast cancer in the family, individual breast cancer history, childbearing age, menstrual history, and body structure.

1. **Age**: This covered five categories and associated risk levels: under 30years old; between 30-40years old; between 41-50 years old; between 51-60 years old and over 60 years old.

2. **Family History of Breast Cancer:** This covered five categories and associated risk levels: none; an aunt or grandmother; mother or sister; mother and sister; mother and two sisters.

3. **Personal breast cancer history:** In this section, there were two categories: *no previous breast cancer* and *previous breast cancer*, and associated risk levels.

4. **Child bearing age:** Covered three categories: first birth before *30*, first birth after *30* and *no child*.

5. **Menstrual history:** This section covered three categories as the associated risks: *menarche age 15 and above*, *menarche age between 12-14*, *menarche age 11 and under*.

6. **Body structure (build):** This covered three categories: *thin, medium build, overweight"*. Body structure was determined using Body Mass Index (BMI).

Scores below 200 indicate *low risk*; scores between 201-300 indicate *moderate risk*; scores between 301-400 indicate *high risk*, and scores of 400 and above indicate *highest risk*.(Figure 1).

Statistical analyses

Analysis of the data used descriptive statistics, including the mean, median, standard deviation, frequency distributions, and percentages.

Results

In the present study, 276 nurses were assessed with respect to breast cancer risk. Of the nurses, 48.9% were under 30 years of age, and 13.8% are in the 41-50 age group. There was no family history of breast cancer in 90.2% of the nurses and 98.2% had no personal history of breast cancer. It was determined that 49.6% of the nurses had no children, that the menarche age of 69.9% was between 12-14, and that the body mass indices of 67.4% were between the normal limits (Table 1)

The highest average risk points (ARP) contingent on the six risk factors assessed in the study are

follows: contingent on age, 300 (medium risk) in the 51-60 age group; contingent on a family history of breast cancer, 625 (the highest risk) contingent on mother and two sisters with the

Breast Cancer Risk Assessment Tool	
Risk Factors	Score
Age	
Under 30	10
30-40	30
41-50	75
51-60	100
Over 60	125
Family History of Breast Cancer	
No	0
An aunt or grandmother	50
Mother or sister	100
Mother and sister	150
Mother and twin sisters	200
Personal breast cancer history	
No previous breast cancer	0
Previous breast cancer	300
Child bearing age	
First birth before 30	0
First birth after 30	25
No child	50
Menstrual history	
Menarche age 15 and over	15
Menarche age between 12-14	25
Menarche age 11 and under	50
Body structure	
Thin	15
Medium	25
Overweight	50
SCORE CATEGORY	
Under 200	Low risk
201-300	Medium risk
301-400	High risk
400 and over	Highest risk

Figure 1. Breast Cancer Risk Assessment Tool

presence of breast cancer; dependent on a personal breast cancer history, 414.00 (the highest risk) in the group with previous breast cancer; depending on child bearing age, 122.26 (low risk) in the group with no child; depending on menstrual history, 164.00 (low risk) in the group with menarche age 11 and under; and depending on body structure, 136.52 (low risk) in the overweight (obese) group (Table 1). In 96% of the nurses participating in the study, the breast cancer risk level was determined to be low (under 200) (Table 2).

Discussion

The ARP was found to be high in the age group over 40. A woman's lifetime breast cancer risk increases with age, with most breast cancers occurring after age 50 (Jemal et al 2007). Approximately 17% of breast cancers occur amongst women in their forties and 78% of cases are diagnosed in women ages 50 and older (Karayurt and Zorukos 2008; American Cancer Society 2008b). A woman age 60, for example, will have a ten-fold higher risk of developing breast cancer in five years than a woman age 30 (American Society of Clinical Oncology 2007). The results of the study by Tümer and Baybek reports also high ARP for breast cancer in women for the over 40 age group (Tümer and Baybek 2010). The study by Ceber et al. determined the five-year breast cancer risk rate as 17.6% among women over the age of 50, while the Mermer and Meseri study found the risk rate to be 18.1% among women over the age of 40 (Ceber et al 2013; Mermer and Meseri 2011). The study by Eroglu et al., reports breast cancer risk to be 0.05% for the 20 age group, increasing to 1.49% at 40 and to 3.45% at 60 (Eroglu et al 2010). Approximately 15%–20% of women who develop breast cancer have a family history of the disease (Offit and Kauff 2006). A fivefold breast cancer risk exists when two first degree relatives are diagnosed with the disease (American Cancer Society 2008c; Edwards et al. 2009).

In the present study, the highest ARP was found to be 625 (the highest risk) in the group with a mother and two sisters with the presence of breast cancer. In the study by Aslan, 91.7% did not have a family history of breast cancer and the highest ARP was 202.27 (medium risk, n= 26) in the group where the mother or sister had breast cancer (Aslan and Gürkan 2007).

The study by Eroglu et al., reports no family history of breast cancer in 94.4% and the highest ARP was 280.48 (medium risk, 0.4%, n= 21) in the group of mother and sister with the presence of breast cancer (Eroglu et al 2010). In patients with a personal history of breast cancer, the risk of cancer development in the remaining breast tissue and the other breast increases five-fold (Onat and Basaran 2003). In the present study, the highest ARP, depending on personal breast cancer history, was found to be 414.00 (the highest risk) in the group of individuals with

breast cancer. In the study by Aslan, 99.8% of the women did not have a history of breast cancer, and in those having breast cancer, the ARP was 395.00 (the highest risk, 0.2%, n= 2)

ÊAslan and Gürkan 2007). In the study by et al., 99.7% (n= 4985) did not have a personal history of breast cancer, and in those

Table 1. The Distribution of Breast Cancer Risk Scores of Nurses

Risk Factors	Category	n	%	Average Total Risk Score	SD
Age	Under 30	135	48.9	101.41	40.08
	30-40	102	37.0	101.67	36.07
	41-50	38	13.8	169.47	108.72
	51-60	1	0.4	300	---
	Over 60	---	---	---	---
Family History of	No	249	90.2	102.37	42.07
Breast Cancer	An aunt or grandmother	21	7.6	168.57	70.74
	Mother or sister	4	1.4	211.25	34.73
	Mother and sister	1	0.4	300	---
	Mother and twin sisters	1	0.4	625	---
Personal Breast	No previous breast cancer	271	98.2	106.01	35.66
Cancer History	Previous breast cancer	5	1.8	414.00	201.10
Child Bearing Age	First birth before 30	124	44.9	99.84	66.54
	First birth after 30	15	5.4	111.33	26.42
	No child	137	49.6	122.26	53.11
Menstrual History	15 and over	78	28.3	99.94	48.62
	12-14	193	69.9	114.95	62.44
	11 and under	5	1.8	164.00	58.35
Body Structure	Thin	57	20.7	109.82	86.12
	Medium	186	67.4	107.72	46.60
	Overweight	33	12.0	136.52	63.80

Table 2. Breast cancer risk levels of nurses

Risk level	Frequency	%
Low	265	96.0
Medium	7	2.5
High	1	0.4
Highest	3	1.1
Total	276	100.0

having breast cancer, the ARP was 461.33 (the highest risk 0.3%, n= 15) (Eroglu et al 2010). Therefore, regular follow-ups of women who have been diagnosed and treated for breast cancer must be made with respect to recurrence, spread and the probability of second breast cancer. Labor at an early age is one of the most important factors for reducing the risk of breast

cancer (American Cancer Society 2008c). Suggesting labor as an option for the 15-20 age group is not compatible with educational requirements and professional careers in developed societies. In the present study, the highest ARP was determined to be 122.26 (low risk), dependent on childbearing age in the group with no labor. In the study by Aslan and Gürkan, the first labor before 30 was 60.9% (n= 661) and the highest ARP was 105.17 (low risk, 35.3%, n= 383) in the group of women with no labor, and in the study by Eroglu et al., the first labor before 30 was 94.1% (n= 4707) and the highest ARP was 143.15 (low risk, 1.9%, n= 95) in the group of women with first labor before 30 (Aslan and Gürkan 2007; Eroglu et al 2010).

A reproductive history of menarche before age 12, late onset of menopause after age 55 has been associated with a higher breast cancer risk (American Cancer Society 2008c; Breast Cancer Risk Factors in Breast Cancer Facts & Figures 2013-2014). In case-controlled studies, it was determined that for every year the menarche was delayed, the risk of breast cancer is reduced by 20% (Onat and Basaran 2003). In the present study, the highest ARP contingent with menstrual history was determined as 164.00 (low risk) in the group with a menarche age of 11 and under. In the study by Aslan, the highest ARP was 119.23 (low risk, 7.2%, n= 78) in the 12-14 age group, and in the study by Eroglu et al., it was determined that the menarche age of 80.6% the women was in the 12-14 age group, the highest ARP being 145.72 (low risk, 2.6%, n= 131) in the group with menarche age under 11 (Aslan and Gürkan 2007; Eroglu et al 2010).

Upon understanding the relationship between estrogen production in fat cells and breast cancer, estrogen, now the effects of obesity on breast cancer is on the agenda. Obesity increases the risk of breast cancer two-fold, particularly in postmenopausal women. In the present study, the highest ARP with respect to body structure was 136.52 (low risk) in women with overweight body structures. In the study by Eroglu et al., most of the women were overweight (75.9%, n= 3794), and have the highest ARP being 136.38 (low risk) (Eroglu et al 2010). Although the effect of excess BMI weight on breast cancer is at a low risk level, it will subsequently gain importance, considering that this risk increases with age.

In 96% of the nurses in this study the level of breast cancer risk was determined to be low (under 200). In the results of the study by Tümer and Baybek, it was determined that 96.3% of the women were at a low risk for breast cancer (Tümer and Baybek 2010). Similarly, the study by Aslan and Gürkan, reported that 98.5% of the women has low breast cancer risk (Aslan and Gürkan 2007). In the study by Eroglu et al., once again, the majority of women were at a low risk of breast cancer (Eroglu et al 2010).

As a result, it will be appropriate to say that the nurses within the scope of the present study have low breast cancer risk factors. Although breast cancer risk assessment provides an indication on the level of risk, it does not give absolute information on the probability of having breast cancer. Nurses, in their role as healthcare providers, have crucial roles to play in the early breast cancer detection program. They should recognize these misconceptions and be aware of their own risks; consequently, be able to provide many women with effective risk counseling. Nurses and midwives should recognize their responsibility in cancer prevention through counseling women about the risks of breast cancer.

References

Aslan FE, Gürkan A (2007) The Rısk of Breast Cancer at the Women. *The Journal of Breast Health* 3, 63–68. (http://www.memesagligi.dergisi.org)

American Cancer Society (2008b) What are the key statistics for breast cancer? http://www.cancer.org/cancer/breastcancer/detailedguide/breast-cancer-key-statistics. Accessed: 15.07.2015.

American Society of Clinical Oncology (2007) ASCO curriculum cancer prevention.   Alexandria, VA: Author

American Cancer Society (2008c). What are the risk factors for breast cancer? http://www.cancer.org/cancer/breastcancer/detailedguide/breast-cancer-risk-factors.Accessed: 15.07.2015.

Breast Cancer Risk Factors in Breast Cancer Facts & Figures (2013-2014) http://www.cancer.org/acs/groups/content/@resear

ch/documents/document/acspc-042725.pdf Accessed: 15.07.2015.

Ceber E, Mermer G, Okcin F, et al (2013) Breast Cancer Risk and Early Diagnosis Applications in Turkish Women Aged 50 and Over. *Asian Pac J Cancer Prev* 14, 5877-82.

Edwards QT, Maradiegue A, Seibert D, Saunders-Goldson S, Humphreys S (2009) Breast Cancer Risk Elements and Nurse Practitioner's Knowledge, Use and Perceived Comfort Level of Breast Cancer Risk Assessment. *J Am Acad Nurse Pract*. 21, 270–277.

Eroglu C, Eryılmaz MA, Cıvcık S, Gürbüz Z (2010) Breast Cancer Risk Assessment: 5000 Cases. *UHOD* 1(20), 27-33

Gross RE (2000) Breast Cancer: Risk Factors, Screening and Prevention. *Seminars in OncolNur* 16, 176-84.

Jemal A, Siegel R, Ward E, Murray T, Xu J,&Thun J (2007) Cancer statistics. CA A *Cancer Journal for Clinicians* 57, 43–66.

Karayurt Ö, Zorukos SN (2008) Feel of Women at a Hıgh Rısk for Breast Cancer and Meetıng, Theır Needs for Knowledge and Support. *The Journal of Breast   Health*   4,   56–61. (http://www.memesagligi.dergisi. org)

Kocadag S, Ocaktan ME, Akdur R (2009) Evaluation Breast Cancer Risk Levels and Breast Self-Examination of Knowledge and Application Status of 20 Years and Over Women's at Park Health Center Region. Report abstract. 6. National Reproductive Health and Family Planning Congress 23–25 Aprıl, Sheraton Hotel – Ankara

Mermer G, Meseri R (2011) Evaluation of Breast Cancer Risk Status of Women Aged 40   And Above, Living in Kemalpasa District, Izmir. *STED J* 20, 51-6.

National Family Planning (2000), Service Directory. 3rd Edition, Damla Printing Press, Vol I, Ankara.

Offit K, Kauff ND (2006) Reducing The Risk of Gynecologic Cancer in The Lynch   Syndrome (Editorial). *N Engl J Med* 354, 293-295.

Onat H, Basaran M (2003) Breast Cancer Risk Factors and Protection. Topuz E, Aydıner   A, Dinçer M. Breast Cancer. 1st edition. İstanbul: Nobel Medical Bookstores 90-107.

Spence W (2000). Health EDCO.A Division of WRS Group, Inc, Waco, Texas.

Tümer A, Baybek H (2010)The Rısk Level of Breast Cancer at the Working Women. *The Journal of Breast Health* 6 (1), 17-21.

WHO (2014) Breast cancer: prevention and control. http:// www. who.int/cancer/ detection / breastcancer/en/index1.   html.   (Accessed: 25.06.2015).

Yalcinoz Baysal H, Polat H (2012) Determination of the Breast Cancer Risk Levels and   Health Beliefs of Women with and Without Previous Mammography in the Eastern Part of Turkey. *Asian Pacific J Cancer Prev* 13 (10), 5213-5217.