

RESEARCH ARTICLE

Awareness and Practices Regarding Breast and Cervical Cancer among Turkish Women in Gaziantep

Gulendam Karadag^{1*}, Zeynep Gungormus^{1&}, Ramazan Surucu^{2&}, Esen Savas³, Fulya Bicer⁴

Abstract

Background: Cancer is a major public health problem both in our country and worldwide due to its disease burden, fatality and tendency for increased incidence. In Turkey, breast cancer ranks first with an incidence of 41.6% and cervical cancer is the tenth most common cancer with an incidence of 4.4%. **Objectives and Design:** This descriptive, cross-sectional study was conducted with 240 women aged from 15 to 65 years admitted to a gynecology-obstetrics outpatient clinic of a private hospital in Gaziantep. Study data were collected by the investigators through a 36-item questionnaire form which was generated using information gathered from similar surveys in the literature. **Results:** It was determined that 34.6% of women were high-school graduates, and 64.2% had a medium income level. The majority (79.2%) stated that they never performed BSE and 49.5% of them said that they did not know how to do it. Some 79.2% did not know what a Pap smear was and 73.3% had not experienced a smear test ever. **Conclusions:** In this study, we found that most of the women had insufficient knowledge of breast and cervical cancer, while knowledge and practices increased with the education level. Based on these findings, we suggest that there is a need for planning, implementation and assessment of health policies and healthcare services at the national and regional level and we believe that nurses working in the field of protective health services should develop educational programmes for women with a primary focus on cancer in order to increase awareness among the female population in Turkey.

Keywords: Breast cancer - cervical cancer - awareness - early diagnosis - Turkey

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Introduction

Cancer is a major public health problem both in our country and worldwide due to its disease burden, fatality and tendency for increased incidence (Ozdemir and Bilgili, 2010; Ersin and Bahar, 2012; Acikgoz and Ergor, 2013; Akgun Sahin et al., 2013). Breast cancer is the most common type of cancer among women with the highest fatality rates (Oluwatosin and Oladepo, 2006; Smith et al., 2006; Ozdemir et al., 2007; Montazeri et al., 2008; Habib et al., 2010; Amosu et al., 2011; Sambanje and Mafuvadze, 2012; Shieh et al., 2012; Koca et al., 2013; Kratzke et al., 2013; Oztunc et al., 2013). Globally, cervical cancer is the second most prevalent cancer and third most common type of cancer after breast and lung cancers among women (Acikgoz et al., 2011; Adekanle et al., 2011; Sogukpinar et al., 2013). In Turkey, breast cancer ranks first with an incidence of 41.6% and cervical cancer is the tenth most common cancer with an incidence of 4.4% (Turkey's Statistical Yearbook 2010; Turkey's Statistical Yearbook 2011).

It is estimated that each year up to 10 000 women develop breast cancer in Turkey (Ozmen et al., 2009; Yilmaz et al., 2013). Considering that breast cancer is the most common type of cancer among women with an increasing incidence, there is a need to develop community-based, well-organized screening programs for breast cancer in our country instead of coincidental screening of women (Ozmen et al., 2009; Acikgoz et al., 2011) because early diagnosis is the most effective way to reduce morbidity and mortality of breast and lung cancers (Ak et al., 2010; Aydogdu and Bahar, 2011; Kanaga et al., 2011). Breast self-examination (BSE), clinical breast examination and mammography are recommended for detecting breast cancer at an early stage (Altunkan et al., 2008; Secginli 2011; Ersin and Bahar, 2012; Yilmaz et al., 2013). The practice of BSE every month has been reported to be considerably important for early detection of breast cancer particularly among women over 20 years of age (Gursoy Akkaş et al., 2009; Koc and Saglam 2009).

Carcinoma of the cervix is a major public health problem throughout the world (Adekanle et al., 2011).

¹Department of Public Health Nursing, Faculty of Health Sciences, ²SEV American Hospital, ³Department of Internal Medicine, Division of Social Medicine, Faculty of Medicine Gaziantep University, ⁴Department of Nursing, Faculty of Health Sciences, Gaziantep, Turkey [&]Equal contributors *For correspondence: karadag@gantep.edu.tr

The Papanicolaou test is a systematically used tool in developed countries in the fight against cervical cancer (Bebiş et al., 2012). Pap smear testing is an effective method of detecting, preventing and delaying the progress of cervical cancer (Bebiş et al., 2012; Shah et al., 2012; Sogukpinar et al., 2013).

Indisputably, nurses are primarily responsible for providing counseling and sufficient information to individuals particularly on health-related issues. Nurses play a key role in promoting awareness of the importance of cervical and breast cancer prevention (Altunkan et al., 2008; Guvenc et al., 2011). However, several studies have shown that the knowledge of breast and cervical cancers and practices regarding for early detection are at a low level among women. With this background, the present cross-sectional study was conducted to determine knowledge and practice regarding breast and cervical cancers among women.

Materials and Methods

This descriptive, cross-sectional study was conducted in 240 women aged from 15 to 65 years who admitted to gynecology-obstetrics outpatient clinic of a private hospital in Gaziantep city between 08 October 2012 and 22 March 2013 for examination and consented to participate.

Ethical Considerations

Before initiating the study, approval was obtained from the hospital where the study will be conducted and Ethics Committee of Gaziantep University, Faculty of Medicine. All participants were informed by the researcher about the aims of the study, and verbal informed consent was obtained for participation. We told the participants that they could withdraw from the study at any time and that all information would be kept strictly confidential by us.

Instruments

Study data were collected by the investigators through a 36-item questionnaire form which was generated using information gathered from similar surveys in literature (Koc and saglam 2009; Ak et al., 2010; Acikgoz et al., 2011; Aydogdu and Bahar, 2011; Baig et al., 2011; Guvenc et al., 2011). The questionnaire form included two sections. The first section contained 10 questions addressing sociodemographic characteristics of the women and the second section contained 26 questions on knowledge and practices regarding breast and cervical cancers. Questionnaires were completed by the study investigators through face-to-face interviews conducted with women while they were waiting for their appointment time at the outpatient clinic. It took about 15 minutes to complete each questionnaire form. Data were analyzed using mean and chi-square tests.

Results

Participant demographics

It was determined that 34.6% of women were high-school graduates, 64.2% were at a medium income level, 80.8% were married and 37.5% of those were married

between 15 and 19 years of age. Thirty percent of women had their first pregnancy between 20 and 24 years of age, 81.3% had children and 22.1% had two children alive (Table 1).

Knowledge and practices regarding breast cancer

Breast cancer was cited by 72.5% of the women as the most prevalent type of cancer among women and 52.5% of them stated that they had knowledge of breast cancer. Twenty-three percent of those who knew about breast cancer had obtained this information from radio or television. The majority of the women (79.2%) stated that they never performed BSE and 49.5% of them said that "they did not know how to do it". Fifty-percent of the women (50.0%) stated that they knew that BSE should be performed beginning from the age of 20 but very few of them (9.2%) thought that practice of BSE was important for early detection of breast cancer. 69.6% of the women stated they did not know that post-menstrual period was the most appropriate time for performing BSE and that BSE should be done once per month. 36.3% said they knew that mammography was one of the screening methods used for early detection of breast cancer, 29.6% knew about clinical breast examination, 56.2% did not have a knowledge of any of the signs of breast cancer and 61.4% did not have the slightest idea about the risk factors for breast cancer. In this study, 92.9% of the women were found to have never had a mammography and 57.5% regarded themselves as not being at risk for breast cancer (Table 2).

Knowledge and practices regarding cervical cancer

It was found that 52.1% of the women had gynecological

Table 1. Socio-Demographic Characteristics of Women

Characteristics		N	%
Educational Status	Illiterate	13	5.4
	Literate	7	2.9
	Primary school graduate	64	26.7
	Secondary school graduate	22	9.2
	High-school graduate	83	34.6
Marital Status	University	51	21.3
	Married	195	81.3
	Single	39	16.3
	Divorced	6	2.5
Monthly household income	Low	63	26.3
	Medium	157	65.4
	High	20	8.3
Age at Marriage (years)	15-19	90	37.5
	20-24	81	33.8
	25-29	31	12.9
	30-35	8	3.3
Age at First Childbirth (years)	15-19	60	25
	20-24	72	30
	25-29	43	17.9
	30-35	8	3.3
Having children	No	45	18.7
	Yes	195	81.3
Use of Birth Control Measures	Yes	107	44.6
	No	133	55.4
Number of children	None	45	18.7
	1	52	21.7
	2	79	33.9
	3	29	12.1
	4 and more	35	14.5

examination at least once previously and for those who had undergone such examination, the main reason for the visit to the gynecologist was complaints of genital infection. On the other hand, 96.7% of the women said that their family members did not have a history of cervical cancer and 53.3% and 92.4% said that they did not have any

knowledge of cervical cancer or human papillomavirus (HPV), respectively. Some 87.5% of the women were not aware of the risk factors for cervical cancer. A small portion of the women (34.2%) said they knew that "spotting type of bleeding after a sexual intercourse" was a sign of cervical cancer, 79.2% did not know what Pap smear was and that Pap smear is the screening test recommended for detection of cervical cancer, 73.3% did not have a smear test ever and 54.6% did not consider themselves being at risk for cervical cancer (Table 3).

A significant association was found between the education level and having a clear knowledge regarding how and with what frequency BSE is performed, the age to start performing BSE and the best time to perform BSE. Also, there was a significant association of education level and having knowledge of the risk factors for cervical cancer and HPV and Pap smear tests and getting a Pap smear test (Table 4).

Limitations of the study

The limitations of the study include conducting the survey in only one hospital in a small number of women and failure to investigate different groups with diverse socioeconomic and cultural backgrounds.

Table 2. Knowledge and Practices Regarding Breast Cancer Among Women Surveyed

Characteristics	N	%
Most prevalent cancer among women is...		
Breast cancer	174	72.5
Cervical cancer	24	10
Uterine cancer	23	9.5
Do not know	19	8
Obtained information on breast cancer		
Yes	126	52.5
No	114	47.5
Source of information (n: 126)		
Television and radio	29	23
Internet	23	18.2
Journals and newspapers	20	15.8
Physician	28	22.2
Nurse	26	20.6
When is the appropriate time to start BSE?		
Correct	120	50.0
Wrong	120	50.0
At what frequency should BSE be performed?		
Correct	73	30.4
Wrong	167	69.6
Appropriate time to perform BSE?		
Correct	73	30.4
Wrong	167	69.6
Does BSE facilitate early diagnosis?		
Yes	166	69.2
No	74	30.8
Knows how to do BSE		
Yes	127	52.9
No	113	47.1
Performing BSE		
Yes	50	20.8
No	190	79.2
Reason for not doing BSE (N: 190)		
Lack of time	51	26.8
Do not know how to do it	94	49.5
Fear of finding some abnormality	21	11.1
Have you ever had mammography?		
Yes	17	7.1
No	223	92.9
Not responded	24	12.6
Knowledge of breast cancer screening programs		
BSE	50	20.8
Mammography	87	36.3
Breast ultrasound	22	9.2
Clinical Breast Examination	71	29.6
Biopsy	7	2.9
Do not know	36	15
Family history breast cancer		
Yes	17	7.1
No	223	92.9
Knowledge of early warning signs of breast cancer		
Painless lump in the breast or axilla	98	40.8
Change in the breast shape or volume	21	8.8
Bloody or any discharge	12	5
Changes in the skin of the breast	5	2.1
Do not know	105	56.2
Knowledge of risk factors for breast cancer		
Women who have never lactated	30	12.5
Family or genetic factors	47	19.6
Early menarche	4	1.7
First baby after 30 years	5	2.1
Do not know	154	61.4
Regarding herself at risk for breast cancer		
Yes	39	16.3
No	138	57.5
I do not know	63	26.2

Table 3. Knowledge and Practices Regarding Cervical Cancer Among Women Surveyed

Characteristics	N	%
Gynecological examination		
Yes	125	52.1
No	115	47.9
Reasons for gynecological examination (n:125)		
Infection, Fungi, Itching, Discharge	85	35.4
Bleeding problems	26	10.8
Other	14	5.5
Family history of cervical cancer		
Yes	8	3.3
No	232	96.7
Knowledge of risk factors for cervical cancer		
Family history of cervical cancer	10	4.2
Multiple sexual partners	13	5.4
Early onset of sexual activity	7	2.9
Do not know	210	87.5
Knowing that cervical cancer is caused by a virus		
No	226	92.4
Yes	14	5.8
Knowledge of signs of cervical cancer		
Bleeding after sexual intercourse	82	34.2
Lower back and groin pain	55	22.9
Abnormal vaginal bleeding and discharge	79	32.9
Do not know	14	5.8
Knowledge of Pap smear test		
Yes	50	20.8
No	190	79.2
Ever had a Pap smear done		
Yes	64	26.7
No	176	73.3
Having knowledge of cervical cancer		
I have sufficient knowledge	6	2.5
I have little knowledge	106	44.2
I do not have any knowledge	128	53.3
Total	240	100
Regarding herself at risk for cervical cancer		
Yes	30	12.5
No	131	54.6
I do not know	79	32.9

Discussion

Breast cancer screening and breast self-awareness are important steps to early detection (Shieh et al., 2012; Bebis et al., 2013; Yilmaz et al., 2013). For that reason, some experts recommend that women over age 20 perform a monthly breast self-examination to look for new lumps and other changes (Karayurt and Dramali, 2007; Oza et al., 2011; Bebis et al., 2013). BSE, although not having been shown to be effective in reducing mortality, is still recommended as a general approach to increasing breast health awareness and thus potentially allows for early detection of any anomalies (Habib et al., 2010; Suh et al., 2012). However, several studies conducted in our country demonstrated that usually women do not perform BSE (Altuncan et al., 2008; Akkas Gursoy et al., 2009; Kilic et al., 2009; Koc and Saglam, 2009; Alpteker and Avci, 2010; Rizalar ve Atalay, 2010; Bicen Yilmaz and Aksuyek, 2012; Ceber et al., 2013). In a study by Dandash and Al-Mohaimeed (2007) 43.4% of the female teachers were found to have never performed BSE and Montazeri et al.'s study found that 63.0% of the women never performed a BSE in their lifetime. In the present study, we determined that half of the women (52.9%) knew about how to perform BSE and 50.0% were aware of the fact that it should be performed regularly after the age of 20 but a large portion (79.2%) did not actually perform BSE. This finding is highly important because it shows that women fail to transfer their knowledge into actual practice. Thus, interviews with women should not only include assessment of the level of knowledge but involve observing whether the women actually transfer this knowledge into practice.

Important risk factors for breast cancer include gender, age, family and genetic factors, a history of breast cancer, race, exposure to radiation, younger age at menarche (<12 years of age) and age at menopause (older than 55 years of age). Additional risk factors related to development of breast cancer include nulliparity or pregnancy after the age of 30, ovarian activity, use of oral contraceptives, receiving hormone replacement therapy after menopause, lactation, alcohol consumption, obesity and high-fat diets and physical activity (Koc and Saglam, 2009; Alpteker and Avci, 2010; Amusu et al., 2011; Kanbur and Capik, 2011; Koca et al., 2013). In the present study, a very small percentage of the women cited genetic or familial predisposition as one of the risk factors for breast cancer and most of them (56.2%) were not aware of other risk factors and signs of breast cancer. While several diagnostic methods are available for early detection of breast cancer such as mammography, breast ultrasonography and clinical breast examination, breast examination which women could perform once a month by themselves is very important for catching the signs of breast cancer at an early stage (Montazeri et al. 2008; Alpteker and Avci 2010; Sambanje and Mafuvadze, 2012). In our study, it was found that, among these diagnostic methods, women had the highest level of awareness for mammography and lower level of knowledge regarding other methods. Many studies showed that women lacked adequate knowledge of the signs, screening methods or risk factors of breast

cancer (Okabia et al., 2006; Oluwatosin and Oladepo, 2006; Dandash and Al-Mohaimeed, 2007; Montazeri et al., 2008; Parsa et al., 2008; Somdatta and Baridalyne, 2008; Koc and Saglam, 2009; Alpteker and Avci, 2010; Habib et al., 2010; Kanaga et al., 2011; Sambanje and Mafuvadze, 2012). These results show how important it is to educate women on these issues on a regular basis particularly by nurses.

Cervical cancer is the second most common cancer in women worldwide with nearly 500,000 new cases each year and more than 250,000 deaths annually (Ersin and Bahar, 2013; Senol et al., 2012; Hoque and Hoque, 2009). Pap smear testing is an effective method for detecting, preventing and delaying the progress of cervical cancer (Bebis et al., 2012; Guvenc et al. 2011; Getahun et al. 2013; Ersin and Bahar, 2013). However, studies in different parts of the world found out that a considerably high percentage of women were unaware of the Pap smear testing (Ak et al., 2010; Bayoumi et al. 2011; Farzaneh et al., 2011; Bebis et al., 2012; Senol et al., 2012; Getahun et al., 2013). Consistently, in the present study, the percentage of women who have known about Pap smear testing and got it done regularly was very low.

HPV is a virus which causes infections in the genital organs and mucosa and produces masses of warts called "condyloma acuminata". Its association with cervical cancer has been definitely established. HPV plays an important role in the development of cervical pathologies and cancerous and precancerous lesions (Guner and Taskiran 2007; Kanbur and Capik 2011; Ozan et al., 2011; Coskun et al., 2013). The majority of women participating in the study by Ozan et al. (2011) and half of the women in the study by Farzaneh et al. (2011) did not know what HPV was. In the present study %92.4 of the women were not aware of HPV. Thus, it is vital that nurses working in the field of protective health-care services provide education to women on HPV and related diseases and develop awareness among female population.

In countries with high rate of illiteracy among women, lack of education can influence awareness and also breast cancer screening behavior (Okabio et al., 2006; Altuncan et al., 2008; Baig et al., 2011; Harirchi et al., 2012). In the present study, the level of knowledge regarding how to perform a BSE, the age to start doing BSE, the frequency of performing BSE and actually performing BSE increased with increased level of education among women. Also, the level of knowledge regarding the risk factors for cervical cancer and the age to start getting Pap smears and awareness of HPV increased with a higher education level. In conclusion, the findings from this study suggest that knowledge, attitude and practice of breast cancer screening are associated with women's literacy.

In conclusion, in this study, we found that most of the women had insufficient knowledge of breast cancer and cervical cancer and knowledge and practices increased with higher education levels. Based on these findings, we suggest that there is a need for planning, implementation and assessment of health policies and healthcare services at the national and regional level and we believe that nurses working in the field of protective health services should develop educational programmes for women with

a primary focus on cancer in order to increase awareness of cancer among female population.

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References

- Acikgoz A, Ergor G (2013). Compliance with screening recommendations according to breast cancer risk levels in Izmir, Turkey. *Asian Pac J Cancer Prev*, **14**, 1737-42.
- Acikgoz A, Cehreli R, Ellidokuz H (2011). Women's knowledge and attitude about cancer and the behaviour for early diagnosis procedures. *DEU J Med Faculty*, **25**, 145- 54.
- Adekanle DA, Adeyemi AS, Afolabi AF (2011). Knowledge, attitude and cervical cancer screening among female secondary school teachers in Osogbo, Southwest Nigeria. *Academic J Cancer Res*, **4**, 24-28.
- Ak M, Canbal M, Turan S, Gurbuz N (2010). Attitude concerning the Pap smear test of women who admitted to the family medicine outpatient clinic. *Konuralp Med J*, **2**, 1-4.
- Akgun Sahin Z, Tan M, Polat H (2013). Hopelessness, depression and social support with end of life Turkish cancer patients. *Asian Pac J Cancer Prev*, **14**, 2823-8.
- Akkaş Gursoy A, Yigitbaş C, Yılmaz F, et al (2009). The effect of peer education on university students' knowledge of breast self-examination and health beliefs. *J Breast Health*, **5**, 135-43.
- Alpteker H, Avci A (2010). Determine the knowledge of the women about breast cancer and their practice about breast self examination. *J Breast Health*, **6**, 74-9.
- Altunkan H, Akin B, Ege E (2008). Awareness and practice of breast self examination (BSE) among 20-60 years women. *J Breast Health*, **4**, 84-91.
- Amosu AM, Degun AM, Thomas AM, Babalola AO (2011). Assessment of awareness, perception, specific knowledge, and screening behaviour regarding breast cancer among rural women in Ipokia Local Government Area, Ogun State, Nigeria. *Arch. Appl Sci Res*, **3**, 253-65.
- Aydogdu NG, Bahar Z (2011). The effects of using health belief and health promotion models in low-income women with regard to breast and cervical cancer early detection behaviour. *DEUNHYO ED*, **4**, 34-40.
- Baig MR, Subramaniam V, Chandrasegar AA, Khan TM (2011). A population based survey on knowledge and awareness of breast cancer in the suburban females of Sungai Petani, Kedah, Malaysia. *International Journal of Collaborative Research on Internal Medicine & Public Health*, **3**, 671-679.
- Bayoumi MM, Elbasuny MM, Nasser AMA, Abdullah KM, Al matery NMA (2012). Saudi young females' level of knowledge regarding cervical and breast cancer. *Int. Journal of Nursing Science*, **2**, 47-52
- Bebis H, Altinkurek SZ, Acikel C, Akar I (2013). Evaluation of breast self-examination (BSE) application in first and second degree relatives of patients with breast cancer. *Asian Pac J Cancer Prev*, **14**, 4925-30.
- Bebis H, Reis N, Yavan T, Bayrak D, Unal A, Bodur S (2012). Effect of health education about cervical cancer and papanicolaou testing on the behavior, knowledge, and beliefs of Turkish women. *Int J Gynecol Cancer*, **22**, 1407-12.
- Bicen YH, Aksuyek H (2012). Fieldwork about importance of awareness in early diagnosis of breast cancer in Bursa. *The Journal of Breast Health*, **8**, 76-80.
- Baig MR, Subramaniam V, Chandrasegar AA, Khan TM (2011). A population based survey on knowledge and awareness of breast cancer in the suburban females of Sungai Petani, Kedah, Malaysia. *Int J Collab Res Int Med Public Hlth*, **3**, 671-679.
- 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.
- Coskun S, Can H, Turan S (2013). Knowledge about cervical cancer risk factors and Pap smear testing behavior among female primary health care workers: A study from South Turkey. *Asian Pac J Cancer Prev*, **14**, 6389-6392.
- Dandash KF, Al- Mohaimeed A (2007). Knowledge, attitudes, and practices surrounding breast cancer and screening in female teachers of Buraidah, Saudi Arabia. *Int J Health Sci*, **1**, 61-71
- Ersin F, Bahar Z (2012). Effects of health promotion models on breast cancer early detection behaviors: A literature review. *DEUHYO ED*, **5**, 28-38.
- Ersin F, Bahar Z (2013). Barriers and facilitating factors perceived in Turkish women's behaviors towards early cervical cancer detection: A qualitative approach. *Asian Pac J Cancer Prev*, **14**, 4977-82.
- Eryilmaz MA, Bodur S, Civcic C, Durduran Y (2012). Evaluation of breast complaints of women applying to KETEM. *Selcuk Med J*, **28**, 98-103.
- Farzaneh F, Shirvani HE, Barouti E, et al (2011). Knowledge and attitude of women regarding the human papillomavirus (HPV) infection, its relationship to cervical cancer and prevention methods. *Med J Malaysia*, **66**, 468-73.
- Getahun F, Mazengia F, Abuhay M, Birhanu Z (2013). Comprehensive knowledge about cervical cancer is low among women in Northwest Ethiopia. *BMC Cancer*, **13**, 2.
- Guner H, Taşkıran C (2007). Epidemiology of cervical cancer and the role of human papilloma virus. *J Turk Soc Obstet Gynecol*, **4**, 11-19.
- Guvenc G, Akyuz A, Acikel CH (2011). Health belief model scale for cervical cancer and pap smear test: psychometric testing. *J Adv Nurs*, **67**, 428-37.
- Habib F, Salman S, Safwat M, Shalaby S (2010). Awareness and knowledge of breast cancer among university students in Al Madina Al Munawara Region. *Middle East Journal of Cancer*, **1**, 159-66.
- Hadi MA, Hassali MA, Shafie AA, Awaisu A (2010). Evaluation of breast cancer awareness among female university students in Malaysia. *Pharmacy Practice (Internet)*, **8**, 29-34.
- Harirchi I, Azary S, Montazeri A, et al (2012). Literacy and breast cancer prevention: a population-based study from Iran. *Asian Pac J Cancer Prev*, **13**, 3927-30.
- Hoque E, Hoque M (2009). Knowledge of and attitude towards cervical cancer among female university students in South Africa. *South Afr J Epidemiol Infect*, **24**, 21-24.
- Kanaga KC, Nithiya J, Shatirah MF (2011). Awareness of breast cancer and screening procedures among Malaysian women. *Asian Pac J Cancer Prev*, **12**, 1965-7.
- Kanbur A, Capik C (2011). Cervical cancer prevention, early diagnosis-screening methods and midwives/nurses role. *Hacettepe University Faculty of Health Sciences Nursing Journal*, **18**, 61-72.
- Karayurt O, Dramali A (2007). Adaptation of Champion's Health Belief Model Scale for Turkish women and evaluation of the selected variables associated with breast self-examination. *Cancer Nurs*, **30**, 67-77.
- Kilic D, Saglam R, Kara O (2009). The examination of the factors affecting the awareness of breast cancer in college students. *The Journal of Breast Health*, **5**, 195-9.
- Koca D, Ozdemir O, Akdeniz H, Unal OU, Yilmaz U (2013). Changes in the attitudes and behavior of relatives of breast

- cancer patients concerning cancer prevention and screening. *Asian Pac J Cancer Prev*, **14**, 5693-7.
- Koc Z, Saglam Z (2009). Determination of the knowledge and the practice of female patients about breast cancer, preventive measures and breast self examination and effectiveness of education. *The Journal of Breast Health*, **5**, 25-33.
- Kratzke C, Vilchis H, Amatya A (2013). Breast cancer prevention knowledge, attitudes, and behaviors among college women and mother-daughter communication. *J Community Health*, **38**, 560-8.
- Montazeri A, Vahdaninia M, Harirchi I, et al (2008). Breast cancer in Iran: need for greater women awareness of warning signs and effective screening methods. *Asia Pac Fam Med*, **7**, 1-6.
- Okobia MN, Bunker CH, Okonofua FE, Osime U (2006). Knowledge, attitude and practice of Nigerian women towards breast cancer: a cross-sectional study. *World J Surg Oncol*, **4**, 11.
- Oluwatosin OA, Oladepo O (2006). Knowledge of breast cancer and its early detection measures among rural women in Akinyele Local Government Area, Ibadan, Nigeria. *BMC Cancer*, **6**, 271.
- Oza JR, Prajapati JD, Ram R (2011). A study on awareness toward the early detection of breast cancer on nursing staff in civil hospital, Ahmedabad, Gujarat, India. *Healthline*, **2**, 34-37.
- Ozan H, Demir BC, Atik Y, Gumuş E, Ozerkan K (2011). Determination of knowledge level of patients regarding HPV and HPV vaccine in outpatient clinic of obstetrics and gynecology department. *Uludag University Journal of Medical Faculty*, **37**, 145-148.
- Ozdemir L, Tekbaş OF, Erdal M, Balkan M, Gocgeldi E, Saglam K (2007). Investigation of breast cancer risk factors among patients who visited the breast diseases outpatient clinic of GATA. *Turkish Journal of Family Practice*, **11**, 163-167
- Ozdemir O, Bilgili N (2010). Knowledge and practices of nurses working in an education hospital on early diagnosis of breast and cervix cancers. *TAF Prev Med Bull*, **9**, 605-612
- Ozmen V, Fidaner C, Aksaz E, Bayol Ü, Dede İ, Goker E (2009). Organizing early diagnosis and screening programs for breast cancer in Turkey "The report of breast cancer early detection and screening sub-committee, National Cancer Advisory Board, The Ministry of Health of Turkey". *The Journal of Breast Health*, **5**, 125-134.
- Oztunc G, Yeşil P, Paydaş S, Erdogan S (2013). Social support and hopelessness in patients with breast cancer. *Asian Pac J Cancer Prev*, **14**, 571-8
- Parsa P, Kandiah M, Mohd Zulkefli NA, Rahman HA (2008). Knowledge and behavior regarding breast cancer screening among female teachers in Selangor, Malaysia. *Asian Pac J Cancer Prev*, **9**, 221-7.
- Rizalar S, Altay B (2010). Early diagnosis applications of women with breast cancer. *Firat Health Services Journal*, **5**, 73-87.
- Sambanje MN, Mafuvadze B (2012). Breast cancer knowledge and awareness among university students in Angola. *Pan Afr Med J*, **11**, 70.
- Secginli S (2011). Breast cancer screening: What are the last changes? *TAF Prev Med Bull*, **10**, 193-200.
- Shieh SH, Chen HC, Tsai WC, et al (2012). Impact of breast cancer patients' awareness on attendance at screening. *Int Nurs Rev*, **59**, 353-61.
- Smith RA, Caleffi M, Albert US, et al (2006). Global summit early detection and access to care panel. Breast cancer in limited-resource countries: early detection and access to care. *Breast J*, **12**, 16-26.
- Sogukpinar N, Karaca Saydam B, Ozturk Can H, et al (2013). Assessment of cervical cancer risk in women between 15 and 49 years of age: Case of Izmir. *Asian Pac J Cancer Prev*, **14**, 2119-25
- Somdatta P, Baridalyne N (2008). Awareness of breast cancer in women of an urban resettlement colony. *Indian J Cancer*, **45**, 149-53.
- Suh MA, Atashili J, Fuh EA, Eta VA (2012). Breast self-examination and breast cancer awareness in women in developing countries: a survey of women in Buea, Cameroon. *BMC Res Notes*, **9**, 627.
- Senol V, Balci E, Cetinkaya F, Balci F (2012). Women's knowledge and behavior on cervical cancer, in Kayseri, Turkey. *Turkiye Klinikleri J Med Sci*, **32**, 694-701.
- Turkey's Statistical Yearbook 2010. Turkish Statistical Institute. 2010.
- Turkey's Statistical Yearbook 2011. Turkish Statistical Institute. 2011.
- Yilmaz D, Bebis H, Ortabag T (2013). Determining the awareness of and compliance with breast cancer screening among Turkish residential women. *Asian Pac J Cancer Prev*, **14**, 3281-8