RESEARCH ARTICLE

Breast and Cervical Cancer Knowledge and Awareness among University Students

Birsen Altay[1], Ilknur Aydin Avci[1]*, Selda Rizalar[1], Hatice Oz[2], Damla Meral[1]

Abstract

Background: Breast and cervical cancers are the most common types of cancer in women worldwide. Previous studies in Asia have shown that related knowledge and awareness is low among female university students. The goal of this study was to assess breast and cervical cancer knowledge, practices, and awareness among female university students in Samsun,Turkey. Materials and Methods: This research was a cross-sectional survey of female university students using a self-administered. questionnaire to investigate participant awareness and knowledge of breast and cervical cancer. A total of 301 female university students participated. Descriptive statistics and chi square tests were used for data analysis. Results: The mean age of the participants in this study was 22.0±5.91 years. Regarding family history, 89.7 % of the students had no known familial history of breast cancer. Students (65.4%) had knowledge about breast self examination and 52.2 % of them had performed breast self examinationm while 55.1% of them had knowledge about prevention of cervical cancer. Conclusions: Although the results are preliminary, the study points to an insufficient knowledge of university students in Samsun about breast and cervical cancer.

Keywords: Turkis university students - breast cancer - cervical cancer - screening - awareness

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Introduction

Cancer continues to be a major health problem both in our country and in the world (Ozdemir and Bilgili, 2010; Ersin and Bahar, 2012; Karadag et al., 2014). In 2012, a total of 14.1 million new cancer cases developed and 8.2 million cancer deaths occurred around the world (Globocan, 2012).

Breast cancer is globally the most common cancer type seen in women (Ozmen et al., 2009; Globocan, 2012; Aydin Avci et al., 2014; www.cancer.org, 2014) and also the one that causes most deaths. One of every four women with cancer in the world has breast cancer (Globocan, 2012; http://kanser.gov.tr.). The incidence of breast cancer in the world was reported to be 25.2% and the mortality rate to be 14.7% (Globocan, 2012). According to the American Cancer Society (ACS), breast cancer is the most common form of cancer among women with 57,650 newly diagnosed cases of in situ breast cancer and 39,520 cases of death from breast cancer (ACS, 2014; Tuna, 2014).

The incidence of cancer in Turkey shows similarities with the world and the world's developing countries (http://kanser.gov.tr.). Considering the types of cancer in Turkey, breast cancer ranks first with an incidence of 45.1 per hundred thousand and cervical cancer ranks ninth with an incidence of 7.1 per hundred thousand (Bora Basara et al, Turkey's Statistical Yearbook, 2013).

Early diagnosis of cancer is crucial in terms of prolonging the lifetime and effective treatment of the disease. Cancer screenings involve inspections and examinations performed in healthy individuals with the aim of early diagnosis at the time when there are no signs and symptoms. Although breast cancer and cervical cancer are the common types of cancer in women, both are two forms of cancer where early diagnosis approach is successful (Gozum and Aydin 2004; Cam and Babacan Gumus 2006; Ozdemir and Bilgili, 2010).

Early diagnosis plays a crucial role in breast cancer. Early diagnosis increases the chances of healing and a longer life expectancy (Aydin Avci et al., 2014). Breast self-examination (BSE), clinical breast examination (CBE) and mammography are recommended for the diagnosis of breast cancer at an early stage (Ozdemir and Bilgili, 2010; Secginli, 2011; Ersin and Bahar, 2012; Aydin Avci et al., 2014). The importance of monthly BSE has been stressed for the early diagnosis of breast cancer especially in women aged over 20 (Karayurt et al., 2008; Akkas Gursoy et al., 2009). Given that breast cancer is the most common type of cancer in female with an increasing incidence, Turkey needs well-organized population-based screening programs (Ozmen et al., 2009; Acikgoz et al., 2011) because the early diagnosis of breast cancer is the most effective way to reduce mortality and morbidity. Studies conducted in our country indicate that breast

*[1]Nursing, School Of Health, Ondokuz Mayis University, [2]Samsun Provincial Health Directorate, Samsun, Turkey, *For correspondence: ilknursezera@hotmail.com*

cancer screenings have increased, but not at the desired level (Ozdemir and Bilgili, 2010; Aydin et al., 2014).

Cervical cancer was reported to be the fourth most common cancer in women with approximately 428 thousand new cases expected in 2012 in the world (Globocan, 2012). Cervical cancer is a major health problem in the world (Karadag et al., 2014); the incidence and mortality rates are reported to be 7.9% and 7.5%, respectively (Globocan, 2012). 12,360 new diagnoses of invasive cervical cancer and 4,020 deaths from cervical cancer are expected to occur in 2014 in the United States. The mortality rate has decreased depending on the prevention and early detection practices in the last ten years. However, mortality rates in women under 50 years of age remained stable between 2006 and 2010 (www.cancer.org, 2014). The necessity of community-based early diagnosis and screening activities organized at the national level as well as of vaccination is emphasized to prevent cervical cancer (http://kanser.gov.tr/daire-faaliyetleri/kanser-istatistikleri.html.)

The Papanicolaou test (Pap smear test) systematically used in the battle with cervical cancer in developed countries (Kanbur and Capik, 2011; Sogukpinar et al., 2013 Karadag et al., 2014) is an effective, easily applicable, low-cost, harmless and high-sensitive method of early diagnosis which also reduces treatment burden, morbidity and mortality. Pathological changes in epithelial tissues can be diagnosed with a Pap smear test when there is no indication (Ozdemir and Bilgili, 2010). Cervical cancer is the type of cancer which best shows the benefits of early diagnosis of cancer; and rates of invasive cervical cancer have fallen through the use of routine smear test in developed countries in last 50 years (Saraiya, 2003; Waxman, 2005; Ozdemir and Bilgili, 2010).

Nurses are particularly responsible for giving information to and counselling individuals on health issues. Nurses play a key role in the development of awareness about the importance of breast and cervical cancer. However, study has shown that information and application for the early diagnosis of breast and cervical cancer are at a low level (Karadag et al., 2014). But, to evaluate contributing together both breast and cervical cancer screenings was studied less in other researches. This research examined the impact on each other of breast and cervical cancer screening. Based on this background, the present study was designed to assess students' knowledge and awareness about the early diagnosis of breast and cervical cancer.

Materials and Methods

The goal of this study was to assess breast and cervical cancer knowledge, practices, and awareness among female university students in Samsun,Turkey.

Study design

This research. which is in descriptive-type, was made during the dates October 15-December 15. 2013.

Setting and sample

A total of 301 female university students participate at this study.

Ethical consideration

Student were informed about the purpose of the research. The participants were assured of their right to refuse to participate or to withdraw from the study at any stage. Oral and written consents were obtained from the institution and all participants to conduct the research.

Measurements/instruments

The data were collected using a questionnaire about the students' demographic characteristics and a questionnaire for measuring their level of knowledge about breast cancer , cervical cancer and their status of doing BSE.

Data analysis

Data were collected by means of "Personal Information Form" the assessment was carried out via SPSS 21.0 program. Descriptive statistics and chi square tests was used data analysis.

Results

Of the students included in the research, 21.3% are first-grade, 21.6% are second-grade, 30.6% are third-grade, and 26.6% are fourth grade. 89.4% of the participants are single while 10.6% were married. 40.2% do not exercise, 52.2% irregularly exercise, and 7.6% walk 3 days a week. 15.3% smoke while 84.7% do not smoke. 83.4% experienced menarche between the ages of 12 and 14 years, and 11.6% at the age of 15 years and over. 77.7% have a BMI ranging from 18.8 to 25 (normal weight), 12% have a BMI of 25 and over (overweight), and 10.3% have a BMI of 18.5 and under (underweight).

94.7% of the participants do not have any breast problem (have no breast complaints) and 89.7% do not have a family history of breast cancer. 65.4% know breast self-examination (BSE), 97.3% believe in the necessity of doing BSE, 52.2% practice BSE, 33.2% practice BSE irregularly, 18.6% practice BSE once or four times a year, and 33.5% have practices BSE five times and more in the last one year. 42.5% students consider practicing BSE henceforth and 90.4% consider it necessary to see a doctor for the early diagnosis of breast cancer.

55.1% of the students know early diagnosis for cervical cancer prevention and 45.8% consider the Pap smear as the most effective method in the prevention of cervical cancer. 81.7% of the women know sexually transmitted diseases, 60.5% learned this information at school, 31.2% consult a doctor about women' health, and 36.9% undergo regular health check-ups.

As seen in Table 1, marital status does not influence the knowledge of early diagnosis of cervical cancer ($p>0.05$). 87% of the individuals who reported walking three days a week know BSE. 42.1% of those who do not exercise do not practice BSE. Thus, this difference was found significant in terms of the knowledge of BSE ($p<0.05$). Having a family history of breast cancer does not influence the knowledge of BSE ($p>0.05$).

It was found out that 90.4% of 150 students who reported knowing early diagnosis of cervical cancer as

Table 1. Relationship Between Some Variables and Knowing Breast Self-Examination (n=301)

Variable	Knowing breast self-examination			
	Yes N (%)	No N (%)	Statistics x^2	p
Marital status				
Married	16 (50.0)	16 (50.0)	0. 067	0.796
Single	141 (52.4)	128 (47.6)		
Exercise				
Does not	70 (57.9)	51 (42.1)	8.301	
Irregular	107 (68.2)	50 (31.8)		0.016*
Every week (walking for 3 days)	20 (87.0)	3 (13.0)		
Having a Breast problems				
Yes	6 (37.5)	10 (62.5)	5.837	0.016*
No	191 (67.0)	94 (33.0)		
Having a Breast cancer in the family				
Yes	23 (74.2)	8 (25.8)	1.169	0.280
No	174 (64.4)	96 (35.6)		
Knowing early diagnosis of cervix				
Knowing	150 (90.4)	16 (9.6)	1.016	0.000**
Unknowing	47 (34.8)	88 (65.2)		

*p<0.05 and **p<0.001

Table 2. Relationship Between Some features Related With Marital Status, Exercise and Breast and The Status of Making Breast Self-Examination (n=301)

Variable	Making the BSE		Statistics x^2	p
	Yes N (%)	No N (%)		
Exercise				
Does not	48 (39.7)	73 (60.3)	17.789	0.000*
Irregular	90 (53.7)	67 (42.7)		
Every week (walking for 3 days)	19 (82.6)	4 (17.4)		
Having a Breast problems				
Yes	5 (31.2)	11(68.8)	2.961	0.085
No	152 (53.3)	133 (46.7)		
Having a Breast cancer in the family				
Yes	17 (54.8)	14 (45.2)	0.099	0.753
No	140 (51.9)	130 (48.1)		
Knowing early diagnosis of cervix				
Knowing	125 (75.3)	41(24.7)	79.433	0.000*
Unknowing	32 (23.7)	103 (76.3)		

*p<0.001

well as 34.8% of 47 students who reported not knowing early diagnosis of cervical cancer knew BSE, and the relationship was found statistically significant (p<0.05). The students who know BSE also know early diagnosis of cervical cancer approximately 18 times more than those who do not know BSE (OR=17.553; 95%Cl 9.39, 32.81).

As seen Table 2, 82.6% of the individuals who reported walking three days a week practice BSE. 60.3% of those who do not exercise also do not practice BSE, and the difference was found significant in terms of practicing BSE (p<0.05). Having a breast problem in the family and a family history of breast cancer does not influence the practice of BSE (p>0.05).

75.3% of 125 students who reported practicing BSE as well as 23.7% of 23 students who do not practice BSE know early diagnosis of cervical cancer, and the relationship was found statistically significant (p<0.05). The students who said they practiced BSE knew early diagnosis of cervical cancer approximately 10 times more than those who do not practice BSE (OR= 9.813; 95%Cl 5.77, 16.69).

Discussion

Although cancer is seen mostly in older women, students are also at risk and Clinical evidence has shown that mortality is higher in breast cancer patients at a young age due to late diagnosis of the disease (Rosenberg and Levi-Schwartz, 2003). Young women should be helped to acquire health habits which will facilitate the early diagnosis of breast cancer and strategies should be developed to raise awareness (Ludwick and Gaczkowski, 2001; Mafuvadze et al 2013).

As mentioned in prior studies, the most known risk factor of breast cancer is a positive family history (Mc Menamin et al., 2005; Mafuvadze et al., 2013). The present study found that 94.7% of the students had no breast problem and 89.7% had no family history of breast cancer. The study of Aydin Avci et al. reported that 90.5% students experienced no breast problem in the past and 93.7% had no family history of breast cancer (Aydin et al 2008). In a study conducted on university students in Poland, 4.4% students had a positive family history of breast cancer

(Książek et al., 2013); and a study conducted on 237 female students indicated that 20.7% had a positive family history of breast cancer (Akhtari-Zavarel et al 2013).

A risk factor for breast cancer is early menarche. Early menarche means the occurrence of the first menstruation before the age of 11.5% of the students included in the present study experienced early menarche. Obesity is considered a risk factor for breast cancer whereas exercising shows a breast-protective effect. 12% of the students had a BMI value over 25 and 40.2% reported that they did not exercise. However, emphasis on the effects of obesity and physical activity on health in recent years raises expectations about higher awareness on this issue. Although some risk factors for breast cancer cannot be changed, obesity and physical inactivity can be easily altered.

Previous studies have suggested an unprovable relationship between breast cancer and smoking; however, the evidence presented by Xue et al. (2011) indicates that risk of developing breast cancer is higher in a woman who started smoking early. Breast cancer risk increases with the duration of smoking, which does not come as a surprise. Luo et al. (2011) suggested that these results are sufficient justification to train students on the relationship between breast cancer and smoking habits. Trainings aiming to prevent the number of smokers from increasing are critical (Mafuvadze et al., 2013). The present study has found that 15.3% of the students smoke and what is desired is that the rate would fall to zero.

The present study has concluded that 65.4% of the students knew BSE, 97.3% confirmed the necessity of BSE, and 52.2% practiced BSE. Studies emphasizes that students do not practice BSE enough. In the Midwestern United States, breast cancer awareness of 355 college and 132 high school students was examined and considered as insufficient; 66% of the college students and 40% of the high school students were trained on how to practice BSE; however, only half of them were reported to practice BSE enough (Mafuvadze et al., 2013). Akhtari-Zavare et al. (2013) reported low level of practicing BSE among female students (36.7%). Similar results were found in other studies;

Sonmez et al. (2012) found out that only 33.2% of 334 women practiced BSE, and Karayurt et al. (2008) reported that 27% of the participants practiced BSE. It is a dramatic result that 79.2% of the women involved in the study of Karadag et al. (2014) never practiced BSE. Some studies have found more positive results; Aydin Avci et al. (2008) reported 81.7% of the students knew BSE and 75.4% practiced BSE. 63% of the participants involved in the study of Aslan et al. and 60.2% of the participants in the study of Ozdemir and Bilgili (2010) stated that they practiced BSE.

BSE can be very useful in the early diagnosis of breast malignancies particularly in younger women unsuitable for mammography screening (Książek et al. 2013). According to the recommendations of the American Cancer Society, benefits and limitations of BSE should be explained to women from the age of 20 years; the importance of communicating healthcare personnel in case of an abnormal change should be indicated; and examination methods of women who want to do BSE should be checked (SeCginli, 2011 Książek et al., 2013 http://www.cancer.org, 2014). BSE should be done as part of a periodic health examination once every 3 years between the ages of 20-39 and once a year from the age of 40 years (SeCginli 2011; http://www.cancer.org, 2014).

The present study found that 18.9% of those practicing BSE do regularly and 33.2% do irregularly. Although the rates of BSE knowledge and confirming its necessity among students are high, the rare of regular BSE performance is considerably low. Study examining the rates of BSE performance in women over the age of 18 years reported that 65.1% never did BSE, 19.45% did occasionally (less than once every three months), 5.4% did every two or three months, and 10.1% did regularly every month (Bora Basara, 2013). Similar results in various studies are noteworthy. Sonmez et al. (2012) reported the rate of those performing BSE regularly every month as 23.4%, Aslan et al. (2007) reported this rate as 41.3%, Avci et al. (2008) reported it as 46.3%, Książek et al. (2013) reported it as 25%, Ozdemir and Bilgili, (2010) reported it as 60.2%, and Yaren et al. (2008) reported it as 74.4%.

In the present study, 55.1% of the students knew early diagnosis of cervical cancer, 45.8% considered the Pap smear as a protective method, and 8% considered vaccination as a protective method. Cervical cancer is the fourth most common cancer in women in the world. The necessity of community-based early diagnosis and screening activities organized at the national level as well as of vaccination is emphasized to prevent cervical cancer which is preventable (http://kanser.gov.tr/daire-faaliyetleri/kanser-istatistikleri.html.; (http://www.Cancer.org, 2014).

Cervical cancer comes first among cancer types which is preventable through early diagnosis in women because it has a long period of pre-invasive stage. The Pap smear test detects cervical cancer before its clinical manifestation with an accuracy of up to 90-95% (Kanbur and Capik, 2011). The incidence of invasive cervical cancer has declined after the widespread use of the Pap smear (Kanbur and Capik, 2011; http://www.cancer.org,2014). Study conducted in Turkey reported that 77.9% of the women over the age of 15 years never underwent a Pap smear (Bora Basara, 2013). A study on the cervical cancer awareness of 102 nursing students between the ages of 17 and 20 years indicated that 30% of the students knew cervical cancer, 30.8% knew protective vaccination, 30% were aware of the existence of a screening method, and 17.5% knew the Pap smear (Poonam, 2012). Karadag et al. found out that 53.3% of women in the community did not know cervical cancer, and 9.2% did not knew the Pap smear as a screening test for cervical cancer (Karadag, 2014).

The present study found that BSE was more known and performed by the students who took exercise as well as those who knew early diagnosis of cervical cancer. Those who visited a doctor about women's health constituted 31.2% of all participants and those who underwent regular check-ups constituted 36.9% all participants in the study. Książek et al. (2013) reported that 73.9% of the students underwent regular general medical examination.

Nurses who constantly intertwined with the community should inform the public about proper health habits by providing health counselling about the matter. It is thus highly important for nurses to inform the society, in particular individuals at risk, about the prevention and early diagnosis of cancer. In general people do not go for a general health check-up, unless there is a complaint. However, when healthcare personnel make necessary warnings to individuals at risk, people usually visit a healthcare facility and they can thus change from passive to active role for the improvement of health (Kanbur and Capik, 2011). During their education, students are expected to develop such desired health behaviours.

In conclusion, the study has shown that there is a lack of knowledge and awareness about breast and cervical cancer among university students. Based on the study results, knowledge and awareness can be raised through trainings emphasizing the importance and prevention of breast and cervical cancer. Students are expected to both protect and improve their own health and to provide effective service to the public health in the future. Students should be made aware of acquiring such responsibilities during their education.

References

Acikgoz A, Cehreli R, Ellidokuz H (2011). Women's knowledge and attitude about cancer and the behaviour for early diagnosis procedures. *Dokuz Eylul University J Med Faculty*, **25**, 145-54.

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.

Akhtari-Zavare1 M, Juni MH, Said SM, Ismail IZ (2013). Beliefs and behavior of Malaysia undergraduate female students in a public university toward breast self-examination practice. *Asian Pac J Cancer Prev*, **14**, 57-61.

Akkas Gursoy A, Yigitbas C, Yilmaz 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.

Aslan A, Temiz M, Yigit Y, et al (2007). The knowledge attitude and behaviorus of nursery students about breast cancer. *TAF Prev Med Bulletin*, **6**, 193-198.

Aydin Avci I, Altay B, Kocaturk B (2008). Midwifery students' health beliefs intended for breast self examination *Breast Health J*, **4**, 25-28 (in Turkish).

Aydin Avci I, Kumcagiz H, Altinel B, Caloglu A (2014). Turkish female academician self-esteem and health beliefs for breast cancer screening. *Asian Pac J Cancer Prev*, 15, 155-60.

Benford Mafuvadze A, Angellar Manguvo B, et al (2013). Breast cancer knowledge and awareness among high school and college students. *Int J Sci Edu, Part B: Comm Public Engagement*, **3**, 144-58.

Bora Basara B, Guler C, Yentur GK, et al (2012). T.C. health ministry Turkey's statistical yearbook, **2013**, 34.

Cam O, Babacan Gumus A (2006). Psychosocial factors affecting the behavior of early detection of breast and cervical cancer. *Ege University Nurs School J*, **22**, 81-93 (in Turkish).

Ersin F, Bahar Z (2012). Effects of health promotion models on breast cancer early detection behaviors: a literature review. *Dokuz Eylul Univers Nurs School J*, **5**, 28-38.

GenCturk N (2013). Kadin saglik profesyonellerinin meme kanseri erken tani yontemlerini bilme ve uygulama Durumlari. *J Breast Health*, **9**, 5-9.

http://www.cancer.org/research/cancerfactsstatistics/cancerfactsfigures2014/. Accessed: 30 June 2014.

http://globocan.iarc.fr/Pages/fact_sheets_population.aspx. Accessed: 1.7.2014.

http://kanser.gov.tr/daire-faaliyetleri/kanser-istatistikleri.html Accessed: 5. July 2014.

Idris SA, Hamza AA, Hafiz MM, Ali MEA, Gamal E. H. A. El Shallaly GEHA (2013). Knowledge, attitude and practice of breast self examination among final years female medical students in Sudan. *Int J Public Health Res*, **1**, 6-10.

KaCaroglu V, KoCyigit C, Kabak N (2010). Determination of the Breast Cancer and BSE Knowledge level among university students. maltepe university. *J Nurs Sci Art*, **338**.

Kanbur A, Capik C (2011). Cervical cancer prevention, early diagnosis-screening methods and midwives/nurses role. *Hacettepe University Health Science Faculty Nurs J*, **18**, 61-72.

Karadag G, Gungormus Z, Surucu R, Savas E, Bicer F (2014). Awareness and practices regarding breast and cervical cancer among Turkish women in Gazientep. *Asian Pac J Cancer Prev*, **15**, 1093-8.

Karayurt O, Ozmen D, CakmakCi Cetinkaya A (2008). Awareness of breast cancer risk factors and practice of breast self examination among high school students in Turkey. *BMC Public Health*, **8**, 1-8.

Książek J, Habel A, Cieszynska M, Kruk A (2013). The self-assessment of lifestyle and prevention of breast cancer on the example of female students from selected high schools in Tricity. *Zdrowie Publiczne*, **123**, 139-43

Ludwick, R, Gaczkowski, T (2001). Breast self-exams by teenagers. *Cancer Nurs*, **24**, 315-9.

Luo J, Margolis KL, Wactawski-Wende J, et al (2011). Association of active and passive smoking with risk of breast cancer among postmenopausal women: A prospective cohort study. BMJ, 342, d1016. Accessed July 10, 2014, from http://www.bmj.com/content/342/bmj.d1016.full.pdf.

Mc Menamin M, Barry H, Lennon A, et al (2005). A survey of breast cancer awareness and knowledge in a Western population: Lots of light but little illumination. *Eur J Cancer*, **41**, 393-7.

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 Bulletin*, **9**, 605-12.

Ozmen V, Fidaner C, Aksaz E, et al (2009). Organizing earlydiagnosis 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". *J Breast Health*, **5**, 125-34.

Poonam RN, Nagaraj K, Nirgude AS (2012). Awareness of cervical cancer and effectiveness of educational intervention programme among nursing students in a rural area of Andhra Pradesh. *Healthline*, **3**, 41-5.

Rohan, TE (2011). Association of active and passive smoking with risk of breast cancer among postmenopausal women: A prospective cohort study. BMJ, 342, d1016. Retrieved Feb 17,2012,fromhttp://www.ncbi.nlm.nih.gov/pmc/articles/PMC3047002/?tool=pubmed

Rosenberg R, Levi-Schwartz, R (2003). Breast cancer in women younger than 40 years. *Int J Fertility Women's Med*, **48**, 200-5.

Saraiya UB (2003). Preventable but not prevented: the reality of cervical cancer. *J Obstet Gynecol Res*, **29**, 351-359.

Secginli S (2011). Breast cancer screening: What are the last changes? *TAF Preventive Medical Bulletin*, **10**, 193-200.

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.

Sonmez Y, Nayir T, Kose S et al (2012). Bir saglik ocagi bolgesinde 20 yas ve uzeri kadinlarin meme ve serviks kanseri erken tanisina iliskin davranislari. *S.D.U. Med Faculty J*, **19**, 124-30.

Tuna A, Unsal Avdal E, Cinar Yucel S, et al (2014). Effectiveness of online education in teaching breast self-examination. *Asian Pac J Cancer Prev*, **15**, 3227-31.

Waxman AG, Saraiya UB (2005). Guidelines for cervical cancer screening, history and scientific rationale. *Clin Obstet Gynecol*, **48**, 77-97.

Xue, F, Willett WC, Rosner BA, et al (2011). Cigarette smoking and the incidence of breast cancer. *Arch Int Med*, **171**, 125-33.

Yaren A, Ozkilinc G, Guler A, Oztop I (2008). Awareness of breast and cervical cancer risk factors and screening behaviours among nurses in rural region of Turkey. *Eur J Cancer Care*, **17**, 278-84.