



DOI: 10.19187/abc.20207137-43

Associated Factors with Adopting Preventive Behaviors for Breast Cancer in Iran

Marzieh Hajikarimbaba^a, Rahman Panahi^b, Leila Dehghankar^{*c}^a Student Research Committee, School of Nursing & Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran^b Department of Health Education & Promotion, School of Medical Sciences, Tarbiat modares University, Tehran, Iran^c Department of Nursing, Social Determinants of Health Research Center, School of Nursing & Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran

ARTICLE INFO

Received:

19 January 2020

Revised:

06 February 2020

Accepted:

16 February 2020

Key words:Preventive Behaviors,
breast cancer,
student

ABSTRACT

Background: Considering the remarkable role of students in society and the relatively high prevalence of breast cancer in women, this study aimed to determine the factors related to adopting preventive behaviors for breast cancer in students.

Methods: This was a descriptive cross-sectional study. The study population consisted of 375 female students of Qazvin city, who were selected by stratified random sampling during the year 2019. Data collection tools included a demographic and contextual questionnaire and a valid and reliable questionnaire for measuring breast cancer preventive behaviors. Data were analyzed using SPSS 23 software program, descriptive statistics and logistic regression.

Results: Using there was a statistically significant relationship between adopting preventive behaviors against breast cancer and physical activity ($P < 0.001$), so that the chances of adopting good preventive behaviors in students with "occasionally", "rarely" and "never" physical activity were respectively 0.410, 0.113, and 0.098 times chance for the students with daily physical activity. There was a significant relationship between breast cancer prevention and academic years ($p = 0.027$), so that the chances of adopting good-level preventive behaviors in the senior students was 1.498 times higher than the first year students. There was also a significant relationship between adopting preventive behaviors and employment ($P = 0.017$), so that the chances of adopting good-level preventive behaviors in unemployed students was 1.725 times higher than that of the employed students.

Conclusion: Students with lower education and less physical activity and the employed individuals less commonly adopted preventive behaviors. Therefore, it is necessary to pay more attention to these students in designing educational programs.

Introduction

Breast cancer is a major concern of global health¹ and is the leading cause of cancer deaths in women worldwide.² In comparison with other countries,

Iranian women have been suffering from breast cancer a decade earlier, and 70% of the patients are diagnosed at an advanced stage.³ Later on, the studies that assessed the incidence rate of this cancer in Iran reported that the average age of the patients diagnosed with this cancer has decreased as compared to the other countries of the world.⁴

According to 2019 statistics, breast cancer has an incidence of 11.6% among all types of cancer, accounting for 6.5% of mortalities worldwide. Also, as demonstrated by GLOBOCAN 2018, breast cancer

*** Address for correspondence:**

Leila Dehghankar,
Address: Qazvin University of Medical Sciences, School of Nursing
& Midwifery, Social Determinants of Health Research Center
Email: Dehghan247@gmail.com,
L.dehghankar@qums.ac.ir



incidence will rise from two million people in the year 2018 to more than three million people in 2046, which demonstrates an increase of 46 percent.^{5,6} The World Health Organization (WHO) has predicted that cancer-related deaths will affect 24 million people by 2035.^{7,8}

It is important to mention that there are numerous cases of breast cancer at the ages of 20 to 25 years in Iran; which might have some implications for screening programs for breast cancer by lowering the screening age at which average-risk and high-risk adults should start screening (e.g. from over 50 years to under 30 years of age).⁹ According to the latest surveys, about 8,500 new cases of breast cancer are registered each year in Iran out of whom 1,400 die.¹⁰

There are several risk factors reported as determinants of breast cancer including family history, reproductive behaviors, obesity, smoking, low physical activity and exposure to radiation, stress, and anxiety.^{11,12} Unhealthy lifestyles (such as smoking, alcohol consumption, excessive exposure, inadequate personal hygiene, and inadequate diet) unfavorable environmental factors and genetics increase the risk of developing cancers.¹³

By preventing and using screening, the incidence of cancer and the resulting mortality will be reduced.¹⁴ Studies show that with the early detection of cancer, the 5-year survival rate will be reduced by 97%.¹⁵ It has been suggested that the appropriate method for breast cancer prevention and early detection is performing preventive behaviors which might include lifestyle modification and screening behaviors (mammography, clinical breast examination and breast self-examination).¹⁶ Breast self-examination is inexpensive and easily accessible and does not require sophisticated and technical training. Clinical examination by a physician is also helpful in early stages.¹⁷ Mammography is the most accurate test for early detection of breast cancer.¹⁸

An international survey on breast cancer risk factors in the university students from 23 countries reported poorer knowledge of these students in comparison with older women. The findings emphasize the vital need for young women to have breast cancer prevention information to enhance their behavior in order to prevent breast cancer.^{19,20} On the other hand, women play a key role in the development of any society. Therefore, more attention should be paid to their health care in a community.²¹

The lifestyle of students can be a good example of a healthy lifestyle in a community. On the other hand, the student population has significantly grown throughout the country in recent years. Therefore, it is important to identify the factors that influence students' compliance with healthier behaviors and reduce risky behaviors.^{22,23} Given the importance of breast cancer, the role of screening in its prevention²⁴

and the lower age of this cancer in Iran, research in this area would be a priority.²⁵

This study aimed to determine factors related to the adoption of breast cancer prevention behaviors in students.

Methods

This study was a cross-sectional study with a descriptive-analytical approach. The statistical population consisted of female students of Imam Khomeini International University in Qazvin in the academic year 2018-2019. We adopted stratified random sampling so that the number of subjects selected from each school was determined in proportion to the total number of undergraduate students in each school (as a class), and in each school the proportion of disciplines with the number of samples was specified according to the number of disciplines, i.e., quota sampling technique was used in the school. Students were selected by simple random sampling in each discipline and completed questionnaires.

Inclusion criteria included being a female student, holding an undergraduate degree, studying at Imam Khomeini International University and having willingness to participate in the study. Exclusion criteria included physical and mental illnesses as claimed by the individual herself, having a history of mammary conditions and/or diseases (abnormal breast or cyst discharge, and cysts), a history of breast cancer in them or in a close relative (mother, sister, and aunt) and delivering incomplete questionnaires.

Data collection

Questionnaires consisting of two parts were used for data collection. The first part was a demographic questionnaire which requested information about age, education, field of study, marital status, income, place of residence, employment status, and physical activity per week.

The second part was a valid and reliable questionnaire for measuring breast cancer prevention behaviors. It consisted of 4 questions about breast cancer preventive behavior. The scores considered for "always", "often", "sometimes" and "never" were 4, 3, 2, and 1, respectively. The minimum score was 4 and the maximum was 16. According to the mean scores, the average below 50% indicates poor preventive behavior, the average between 50 to 75% shows moderate preventive behavior and the average between 75 to 100 represents good preventive behavior.²⁶ Afterwards, this variable was regrouped into two levels of poor (earning less than 50% of the total score) and good (earning 50-100% of the total score) to be used in logistic regression. Content validity and reliability of this tool were assured in the study of Kalanfarma et al. Content validity was above 0.79 and Cronbach's



alpha coefficient was estimated 0.76.²⁶ Moreover, we sought the consultation of ten experts for the modification of items and validation of the questionnaire. It was then distributed to 30 students and Cronbach's alpha coefficient was calculated 0.81.

After submitting a letter of introduction to Imam Khomeini International University, the questionnaires were distributed and completed. Data were entered into SPSS software and analyzed using descriptive statistics and logistic regression.

Results

A total of 375 students were enrolled in this study. Of these, the highest number of students was in the age group 20-30 years including 182 students (48.5%). Also, 118 participants (31.5%) were freshmen and 319 participants (85.1%) were single. Table 1 shows other demographic information about

the students.

Results showed that the mean and standard deviation of the overall score for adopting preventive behaviors against breast cancer was 1.82 ± 8.92 out of 16. The prevalence of breast cancer prevention behaviors was poor in 150 (40%) and good in 225 (60%) of the students.

Table 2 lists the factors associated with adopting breast cancer prevention behaviors in the students revealed through the logistic regression test. As the results show, physical activity was one of the factors related to adopting preventive behaviors against breast cancer ($P < 0.001$), so that the chances of adopting good-level preventive behaviors in students with physical activity including "Occasionally", "rarely" and "never" were respectively 0.410, 0.113, and 0.098 times chance for the students with daily physical activity. Academic age was another factor associated with adopting preventive behaviors

Table 1. Frequency distribution of the students according to demographic characteristics

Characteristics		N	%
Age	Under 20 years	181	48.3
	years 20-30	182	48.5
	Higher than 30 years	12	3.2
marital status	Single	319	85.1
	Married	54	14.4
	Divorced	2	0.5
Physical activity	Everyday	32	8.5
	Most days	88	23.5
	Sometimes	126	33.6
	Rarely	106	28.3
	Never	23	6.1
Academic years	Freshmen	118	31.5
	Sophomores	117	31.2
	Juniors	86	22.9
	Seniors	54	14.4
Employment status	unemployed	324	86.4
	employed	51	13.6
Income level	Under 1 million	35	9.3
	1-2 million	138	36.8
	2-3 million	106	28.3
	Higher than 3 million	95	25.3
Residence	Qazvin	124	33.1
	County	104	27.7
	Village	6	1.6
	Dormitory	141	37.6
Field of study	Technical Engineering	61	16.3
	Agriculture	22	5.9
	Architecture	41	10.9
	Science Research	56	14.9
	Literature	84	22.4
	Social sciences	111	29.6

**Table 2.** Frequency distribution of the students according to demographic characteristics

Variable	Levels	B	S.E.	Wald	Sig.	95% C.I		
						Exp(B)	Lower	Upper
Age	Under 20 years			4.329	.115			
	20-30 years	-.476	.291	2.677	.102	.621	.351	1.099
	Higher than 30 years	.830	.817	1.033	.309	2.294	.463	11.369
Marital Status	Single			.085	.959			
	Married	.113	.387	.085	.771	1.119	.524	2.389
	Divorced	-22.994	28420.722	.000	.999	.000	.000	.
Academic Year	Freshmen			2.781	.027			
	Sophomores	.027	.323	.007	.933	1.028	.546	1.935
	Juniors	-.288	.366	.617	.432	.750	.366	1.538
	Seniors	.404	.436	.856	.035	1.498	.637	3.523
Physical activity	Daily			54.990	.000			
	Most of the time	.452	.574	.620	.431	1.571	.510	4.838
	occasionally	-.891	.520	2.936	.087	.410	.148	1.137
	Rarely	-2.177	.533	16.688	.000	.113	.040	.322
	Never	-2.328	.681	11.700	.001	.098	.026	.370
Residence	Qazvin			.796	.850			
	County	.125	.332	.143	.705	1.134	.592	2.172
	Village	.530	.979	.293	.589	1.698	.249	11.577
	Dormitory	.246	.312	.622	.430	1.279	.694	2.355
Income level	Under 1 million			.049	1.000			
	1-2 million	-.021	.472	.002	.964	.979	.389	2.468
	2-3 million	-.017	.489	.001	.972	.983	.377	2.564
	Higher than 3 million	.045	.494	.008	.927	1.046	.398	2.753
Field of study	Technical Engineering			5.632	.344			
	Agriculture	.060	.605	.010	.921	1.062	.324	3.480
	Architecture	.666	.488	1.861	.172	1.947	.748	5.072
	Science Research	.290	.453	.410	.522	1.336	.550	3.247
	Literature	-.389	.407	.910	.340	.678	.305	1.506
	Social sciences	.123	.375	.109	.742	1.131	.543	2.359
		.545	.413	1.740	.017	1.725	.767	3.876
Job constant		1.410	.781	3.262	.071	4.097		

against breast cancer ($P = 0.027$), so that the chances of adopting good preventive behaviors in the fourth year students was 1.498 times higher than those in the first year. Employment was also another factor influencing the adoption of preventive behaviors for breast cancer ($P = 0.017$), so that the chances of adopting good preventive behaviors in the unemployed students was 1.725 times higher than the employed ones (Table 2). There was no significant relationship between breast cancer prevention behaviors and other variables.

Discussion

The purpose of this study was to determine factors associated with the adoption of breast cancer prevention behaviors among students.

The findings showed that the majority of the students had good breast cancer prevention

behaviors, which was in line with the results of Dafei et al.²⁷ and Montazeri et al.²⁸ But Aghaeian et al. reported that the scores gained by the majority of women studied in Karaj were moderate concerning the adoption of preventive behaviors against breast cancer.¹⁰ Contrary to the results of the present study, Andsoy stated that nurses scored low on preventive behavior against breast cancer.¹⁹ It should be also noted that the results of the present study contradicts those of Nourizadeh et al. in which adopting preventive behaviors for breast cancer was reported at a low level.²⁹ To explain, we can refer to differences in the sampling and the tools of measuring the behavior.

The results of this study showed that physical activity was one of the factors related to adopting preventive behaviors of breast cancer, so that the chances of adopting good-level preventive behaviors



were higher in students with regular physical activity. Saremi et al. noted in their results that movement activities, physical activity, sports/leisure activities, and total physical activity play a preventive role in the prevalence of breast cancer in young women.³⁰ Colditz et al. found that the incidence of breast cancer was lower in women with regular physical activity.³¹ Friedenreich et al. reported that the incidence rate of breast cancer decreases in women with physical activity.³² Given the possible reasons for this relationship, these two variables can be referred to as 'homogeneity'. Moreover, doing physical activity is a form of preventive behavior.

The results showed that employment was another factor associated with adopting preventive behaviors against breast cancer, so that the chances of adopting good-level preventive behaviors were higher in the unemployed students than the employed ones. In their study conducted in Turkey, Demirkiran et al. stated that the occupation of individuals has a significant impact on the prevention of breast cancer.³³ In the study of soltanahmadi³⁴, Salimi Pormehr³⁵, Farshabaf³⁶, and Godazandeh³⁷, breast self-examination was found to have a statistically significant relation with employment, so that having a job increased the rate of preventive behaviors against breast cancer. This discrepancy can be explained by differences in the tools of measurement and the age of the subjects. Beyond this, the occupation of individuals has a great impact on adopting preventive behavior.

The results showed that the factor of academic years was related to the adoption of preventive behaviors against breast cancer, so that the chances of adopting good-level preventive behaviors in the fourth year students were higher than the first year students. In the study conducted by Matos et al. in Brazil, it was found that educated people with higher economic status had higher rates of breast cancer screening.²⁸ There was a significant relationship between breast self-examination and the level of education in the studies conducted by Karimi³⁸, Ziaeeafard³⁹, and Godazandeh.³⁷ Baba pour et al.⁴⁰, Anvari et al.⁴¹ and Rastad et al.⁴² also showed that people with higher level of education were more aware of breast cancer screening behaviors. But the results of the study by Raisi et al.⁴³ were inconsistent with the findings of the present study due probably to the fact that all participants in the study had university education and thus developed greater awareness.

Since this study was conducted only among a sample of students at Imam Khomeini International University in Qazvin, its results cannot be generalized to students in other parts of the country. Therefore, it is recommended that this study be conducted on a wider scale in Iran, especially among medical students, and compare its results with non-

medical students. Other limitations of this study were the relatively small sample size, lack of access to students on academic leave, lack of similar studies, and self-reported data collection.

As conclusion, the results indicate that lower prevalence of breast cancer prevention behaviors was higher in students with lower education and less physical activity, and those who were employed. Therefore, it is necessary to pay more attention to these students in the design of educational programs. Further studies are suggested to elucidate how the relevant factors influence the adoption of preventive behaviors in breast cancer.

Acknowledgments

This study was conducted with the support of the Vice-Chancellor for Research and Technology of Qazvin University of Medical Sciences (Code of Ethics (IR.QUMS.REC.1397.193)), with the assistance of Imam Khomeini International University of Qazvin and the cooperation of its female students. Their efforts are appreciated.

Conflict of Interests

There is no conflict of interest to declare.

References

1. Muhammad Abdul Hadi , Mohamed Azmi Hassali ,Asrul Akmal Shafie, Ahmed Awaisu. Knowledge and Perception of Breast Cancer among Women of Various Ethnic Groups in the State of Penang: A Cross-Sectional Survey. *Med Princ Pract* 2010;19:61–67.
2. Khiyali ZI, Aliyan F, Kashfi SH, Mansourian M, Khani Jeihooni A. Educational Intervention on Breast Self-Examination Behavior in Women Referred to Health Centers: Application of Health Belief Model. *Asian Pac J Cancer Prev*. 2017 26;18(10):2833-2838.
3. Khadijah Kalan Farman Farma, Zahra Jalili, Iraj Zareban, and Mahnaz Shahraki Pour . Effect of education on preventive behaviors of breast cancer in female teachers of guidance schools of Zahedan city based on health belief model. *J Educ Health Promot*. 2014; 3: 77.
4. Akbari ME, Sayad S, Sayad S, *et al*. Breast Cancer Status in Iran: Statistical Analysis of 3010 Cases between 1998 and 2014. *Int J Breast Cancer*. 2017;2017:2481021.
5. Observatory TGC (2018) GLOBOCAN. Breast Cancer 2019. <http://gco.iarc.fr/today/data/factsheets/cancers/20-Breast-factsheet.pdf> 2. Siegel RL, Miller KD, Jemal A Cancer statistics 2019; 69(1):7–34
6. Motahare Pilevarzadeh ,Mehrbanoo Amirshahi, Roghaiyeh Afsargharehbagh, Hosein Rafemanesh, Seyed Mehdi Hashemi, Abbas Balouchi. REVIEW Global prevalence of depression among breast cancer patients: a



- systematic review and meta analysis . *Breast Cancer Research and Treatment* 2019 ; 176:519–533.
7. DeSantis C, Siegel R, Bandi P, Jemal A. Breast cancer statistics, 2011. *CA Cancer J Clin* 2011;61:409-418
 8. Behjat Marzbani , Javad Nazari , Farid Najafi , Behnaz Marzbani , Sara Shahabadi , Mahin Amini , Mehdi Moradinazar , Yahya Pasdar , Ebrahim *et al.* Dietary patterns, nutrition, and risk of breast cancer: a case-control study in the west of Iran . *Epidemiol Health.* 2019;41: e2019003.
 9. Behzad Baradaran , Khalil Hajiasgharzadeh. Breast Cancer Among Young Women in Iran .*International Journal of Women's Health and Reproduction Sciences* 2019; 7(2).
 10. Aghaeian N, Farahaninia M, Janmohamadi S, Haghani H. Association between health literacy and preventive behaviors of breast cancer in women. *Journal of Health Literacy.* Summer 2019; 4(2):9-17.
 11. Hajian–Tilaki KO, Kaveh-Ahangar T. Reproductive factors associated with breast cancer risk in northern Iran. *Med Oncol* 2011; 28: 441-6. 10. Hajian-Tilaki KO, Gholizadehpasha AR, Bozorgzadeh S, Hajian-Tilaki E. Body mass index and waist circumference are predictor biomarkers of breast cancer risk in Iranian women. *Med Oncol* 2011; 28: 1296-301
 12. Yazdani-Charati R, Hajian-Tilaki K, Sharbatdaran M. Comparison of pathologic characteristics of breast cancer in younger and older women. *Caspian J Intern Med* 2019; 10(1): 42-47.
 13. Onsory K, Ranapoor S. Breast Cancer and the Effect of Environmental Factors Involved. *NCMBJ.* 2011; 1 (4) :59-70.
 14. Torkizade S, Soltanian Z, DavariDolatabadi N. Awareness of female nursing, midwifery and para medicine students of Hormozgan University of Medical Sciences in relation to the risk factors, prognosis and prevention of breast cancer. *Journal of Modern Medical Information Sciences.* 2017; 3 (1) :22-28. [Persian]
 15. Miri M, Moodi M, Moasheri B, Sourgi Z, Hami J. A Applied Health Belief Model (H.B.M) in Adopting Preventive Behaviors in Breast Cancer by Female Teachers of Birjand. *jha.* 2004; 7 (17) :51-57 URL: <http://jha.iuums.ac.ir/article-1-86-en.html>
 16. Khazae-Pool *et al.*: Breast cancer-preventive behaviors: exploring Iranian women's experiences. *BMC Women's Health* 2014 14:41.
 17. Bozorgi N, Khani S, Elyasi F, Moosazadeh M, Janbabaei G, Shojaee L. A Review of Strategies to Promote Breast Cancer Screening Behaviors in Women . *J Mazandaran Univ Med Sci.* 2018; 28 (165) :243-255. [Persian]
 18. Monfared A, Ghanbari A, Jansar Hosseini L, Norozi N. Status of Screening by Mammography and its Related Factors in the General Population of Women in Rasht . *IJN.* 2017; 30 (107) :32-41.
 19. Andsoy II, Gul A. Breast, cervix and colorectal cancer knowledge among nurses in Turkey. *Asian Pacific Journal of Cancer Prevention* 2014;15:2267-72.
 20. Early J, Armstrong SN, Burke S, Thompson DL. US female college students' breast health knowledge, attitudes, and determinants of screening practices: new implications for health education. *Journal of American College Health* 2011; 59:640-7
 21. Tehrani H, Rahmani M, Jafari A. Health literacy and Its relationship with general health of women referring to health care centers. *Journal of Health Literacy.* Fall 2018; 3(3): 42-48.
 22. Smith DR. A systematic review of tobacco smoking among nursing students. *Nurse Education in Practice.* 2007; 7(5): 293-302.
 23. Dehghankar L, Hajikarimbaba M, Panahi R. Health Literacy and Factors Related to It Among Female Students of Imam Khomeini International University in Qazvin, Iran. *sjsph.* 2019; 17 (3) :295-306. [Persian]
 24. Vakili M, Pirdehghan A, Adimi M, Sadeghian M, Akhondi M. Epidemiology and trend of cancer in Yazd, a central province of Iran, 2005-2009. *Journal of research in health sciences.* 2014; 14(3): 210-3.
 25. Didarloo a, Shorkhabi z, Pourali R. survey of knowledge, worry and screening behavior towards breast cancea among female students of urmia university of medical sciences, in 2014. *Journal of Urmia Nursing And Midwifery Faculty.* 2016;14(3):201-12. [Persian]
 26. Kalan FarmanFarma K, Zareban I, Jalili Z, Shahraki pour M, Lotfi B. The Effect of Education on Condition of Knowledge, Attitude and Preventive Behaviors of Breast Cancer in Female Teachers at Guidance Schools in Zahedan. *Journal of Torbat Heydariyeh University of Medical Sciences* 2013;1:65-73
 27. Dafei M, Dehghani A, Momeni Z, Kalanfarmanfarma K, Koohgardi M, Jalali M *et al.* . Study of breast cancer knowledge, attitude, and preventive behaviors among women referring to health-treatment centers in Yazd, Iran, 2015. *Pajouhan Scientific Journal* 2017; 15: 46-53. [Persian]
 28. Matos JC, Pelloso SM, Carvalho MD. Factors associated with secondary breast cancer prevention in Maringá. Paraná State, Brazil. *Cadernos de saúde pública* 2011; 27: 888-98
 29. Nourizadeh R, Bakhtari aghdam F, Sahebi L. A survey on the knowledge and beliefs and behaviors of women referring to health centers in Tabriz regarding breast cancer and its screening methods, 2010. *Iranian Journal of Breast*



- Diseases 2010; 3: 43-51. [Persian]
30. Saremi A, Moradzadeh R, Mohammadi Bonchenari S. Physical Activity and Breast Cancer Prevalence: A Case Control Study in Arak, Iran (2017-2018) .Iranian Quarterly Journal of Breast Disease. 2019; 12(1):29-38.
 31. Colditz G, Hankinson S. The nurse's health study: lifestyle and health among women. *Nat Rev Cancer*. 2005; 5(5):388-96.
 32. Friedenreich C, Cust A. Physical activity and breast cancer risk: impact of timing, type and dose of activity and population subgroup effects. *Br J Sports Med*. 2008; 42(8):636-47.
 33. Demirkiran F, Ozgun H, Eskin M, Turk G, Cam R, Ozgun O, Demirkiran AE Cognition of breast cancer among gestational age Turkish women: a cross-sectional study. *Asian Pacific Journal of Cancer Prevention* 2011; 12:277-82.
 34. soltanahmadi Z, Abbaszadeh A, Tirgari B. [A survey on the rate and causes of women's participation or nonparticipation in breast and cervical cancers screening programs]. *Iran J Obstetr Gynecol Infertil* 2010; 13: 37-46. [Persian]
 35. Salimi PS, Kariman N, Sheykhani Z, Alavi MH. [Investigation of breast cancer screening tests performance and affecting factors in women referred to Ardebil's health and medical centers]. *J Ardebil Univ Med Sci* 2010; 10: 310-8. [Persian]
 36. Farshbaf KA, Shahnazi M, Ghahvechi A, Thorabi H. [Performance conditions of breast cancer screening methods and its efficient factors among women referring to health centers of Tabriz]. *Iran J Nurs Res* 2009; 4: 27-38. [Persian]
 37. Godazandeh Gh.A, Khani H, Khalilian AR, Atarod Z, FirozJaei MA, Partovi A, TayebiFard H. Knowledge and practice of above 15 years old females towards breast cancer prevention in Sari township, 2004. *Journal of Mazandaran University of Medical Sciences* 2006; 16: 74-64
 38. Karimi H, Sam Sh. Effect of breast self-examination (BSE) education on increasing women's knowledge and practice, Ramsar. *Journal of Babol University of Medical Sciences* 2005; 7: 68-1.
 39. Ziaee fard Z, Abdollahi Kh, Zahedi R, Rahmanian S, Rahmnia K. knowledge of breast self-examination and mammography women married over 20 years old referred to health center in south Iran. *Journal of Jahrom university medical science* 2011; 10:49-55.
 40. Baba pour N, Nasiri R, Mir rajaei AS. Evaluation of the knowledge, attitude and performance of female personnels of Mashhad Azad university hospitas about breast cancer. *Journal of Medical Sciences of Islamic azad university of Mashhad* 2014; 4(1):1-22. [Persian]
 41. Anvari K, Mosavi H, Kavosi F, Silian Tosi M. Assessment of knowledge, attitude and practice of female students of Mashhad University of Medical Sciences regarding risk factors, early diagnosis and methods of breast cancer prevention. *Iranian Journal of Breast Disease* 2012; 6(2,3):32-43. [Persian]
 42. Rasta H, SHokohi L, Dehghani L, Motamed jahromi M. Knowledge and practice of Fasa women about breast cancer in 7342. *Journal of Fasa University of Medical Sciences* 2013; 3 (7) 16-82. [Persian]
 43. Raisi M, Javadzadeh S , Sharifi Rad Gh , Yarmohammadi P. Knowledge, Attitude and Practice of Female Employees of Isfahan University of Medical Sciences about Breast Self-Examination. *Journal of Health System Research* 2011 ; 1 (2:) 747-744. [Persian]