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Original Article

Awareness of cancer warning signs in a sample of Iranian women in health centers

Iman Sharifikia[1], Camelia Rohani[2*], Fatemeh Estebsari[2], Fatemeh Salmani[3], Mahsa Matbouei[4], Azam Hossein-nejad[5,6], Sedigheh Afrasiabi[7]

[1] MSc in Community Health Nursing, Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran. [2]Assistant Professor, Department of Community Health nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran. [3] PhD Student in Biostatistics, Department of Biostatistics, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran. [4] MSc in Medical-Surgical Nursing, Department of Community Health Nursing, School of Nursing & Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran. [5] PhD Student of Nursing, School of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran. [6] MSc. in Community Health Nursing, Department of Nursing, School of Nursing and Midwifery, Bushehr University of Medical Sciences, Bushehr, Iran. [7] MSc in Midwifery, Department of Midwifery, School of Nursing and Midwifery, Bushehr University of Medical Sciences, Bushehr, Iran.

Correspondence: Camelia Rohani, Assistant Professor, Department of Community Health nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran, e-mail:camelia.rohani@sbmu.ac.ir

ABSTRACT

Background & Objective: The number of new cancer cases in the world is still growing. Success in early detection of cancer largely depends on people's awareness of the early warning signs of cancer. This study aimed to determine the awareness of women about warning signs of cancer and its association with their demographic and clinical characteristics. Methods: This is a cross-sectional study which was carried out on 160 women referred to the four Health Centers affiliated with Bushehr University of Medical Sciences. The data were obtained using two researcher-made questionnaires, including demographic-clinical information questionnaire and knowledge on cancer warning signs questionnaire. The data were analyzed using SPSS software version 22. Results: The mean age of women in this study was 29.9 $\pm$ 7.1 years. According to the results, over 50% of women were not aware of five signs out of 10 warning signs of cancer mentioned in the questionnaire. More than half of the women (56.2%) had low level of awareness and poor knowledge of cancer warning signs. The results of multiple linear regression analysis showed that only the women's level of education was significantly associated with their awareness of the warning signs of cancer ($p = 0.007$, $\beta = 0.28$). In total, 11% of the variations in women's awareness of the warning signs of cancer was predicted by this variable. Conclusion: Considering the low level of knowledge of women about the warning signs of cancer, there is a need to active role of community health nurses for implementing intervention programs in the society from childhood to adulthood, supported by health policy makers.

Keywords: Cancer, Cancer warning signs, Women, Awareness, Community health nurse

Introduction

Cancer is one of the leading causes of death around the world. Following cardiovascular disease, it is the second most common cause of death in developed countries and the third cause of death in less developed countries [1]. The general incidence of cancers is increasing and cancer prevention should be in priority of health programs [2]. Despite various strategies used to screen and control cancer, the number of diagnostic cases in the world has not declined yet. Based on the latest estimates, the prevalence of cancers in developing countries, including Iran, would increase in the next decades, and it will not decrease significantly even in wealthy countries. The World Health Organization (WHO) in 2012 emphasized on cancer prevention and quality of life for cancer patients and predicted that about 40% of the deaths caused by cancers can be prevented by controlling the risk factors and one third of disease load can be reduced with treatment and timely diagnosis [3].In Iran, deaths caused by cancers have the highest rank after cardiovascular

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diseases and accidents [4]. In Iran, the highest percentage of reported cases of cancer is skin, stomach, bladder, prostate, and colorectal cancers, respectively, for men (standardized by age), and breast, skin, colorectal, stomach and esophagus cancers, respectively, for women [5]. Based on report of head of the Bushehr University of Medical Sciences, the death rate of cancer patients in Bushehr province in 2000 was 7.8%, which increased to 12% in 2010. Thus, cancer is the leading cause of death in Bushehr province and has accounted for major part of the population's income [6]. Although the statistics of the cancers seem to be shocking and worrying, what should be considered is the fact that several factors are involved in development of cancers, and the effects of these factors are often moderated, reduced, and even can be deleted. This will cause that at least one third of cancers can be prevented and controlled [7].

In many cancers, survival and life span of people are high in the early stages of diagnosis. Success in early diagnosis is largely dependent on people knowledge of warning signs of cancers [8]. Researchers have announced many guidelines on cancer warning signs in the world [9], but most researchers agree on 10 warning signs, including changes in urination and defecation habits, ulcer not recovered after more than three weeks, nausea, unusual bleeding or secretion, stiffness and mass in the breast or other organs of the body, difficulty in swallowing, digestive problems and intake of food (dyspepsia), significant changes in moles and warts, frequent coughing and change in voice, sudden weight loss, and severe pain [10]. Non-exposure to predisposing factors for cancer and reducing the presence of these factors in life will reduce the risk of development of this disease. In addition, recognizing the warning signs of cancer and taking basic measures, such as performing diagnostic tests, can be an effective step in preventing the onset and progression of the disease to developed stages [11]. Thus, evaluating the level of general knowledge about cancer warning signs and determining the factors affecting the level of knowledge can play an important role in the correct directing of health programs in order to control and prevent the disease at the community level [12].

Although the number of studies conducted on the level of knowledge and beliefs of the community about the warning signs of cancers is limited at the national and international levels [13], the results of these studies in the countries of India, England, Scotland, Ireland and France indicate low level of people knowledge on warning signs of cancers [14]. Evidence suggests that lack of knowledge and lack of observing proper health behaviours are inevitable in each community, and individuals and communities require correct health behaviours for recognizing proper life styles and their application [15, 16]. Moreover, health in both genders is a necessary condition for playing social roles [17]. The World Health Organization (WHO) argues that the differences in genders are from birth to end of life around the world [18]. It seems that women need more attention than men [19]. Women consist of half of the country's population, managers, educators, families and community activists, and their health is the base for community health [20]. Given the central role of women in the family and the health of the community, it is clear that if women do not access to desirable knowledge and beliefs, we cannot expect them, as an important link, act well in preventing diseases and enhancing the family health [21]. Thus, given the importance of first-level prevention and community needs, the authors decided to conduct this study in order to evaluate the awareness of women about warning signs of cancer and its association with their demographic and clinical characteristics.

Methods

This is a descriptive study with cross-sectional design. It is a preliminary study from a larger project, which was planned and carried out before the implementation of the main study. By considering the geographical distribution of the total population in Bushehr city, all urban health centers of Bushehr Health Center covered by Bushehr University of Medical Sciences (11 health centers) were classified into the four clusters, and then, sampling was performed in each cluster. In each of the clusters, one health center was randomly selected. Inside the centers, based on the inclusion criteria, the samples were randomly selected (20 women per center). The inclusion criteria of this study included women admitted to urban health centers affiliated to the Bushehr University of Medical Sciences with a health record. In addition to literacy, they were able to answer the questions and were free of cancer at the beginning of the study. In this preliminary study, sample size was determined according to the sampling formula [22], taking into account the effect size of 0.4 and power of 90% and first type error of 0.05. Considering probability of 25% in drop out of samples, a total of 165 people were included in the study. Questionnaires were distributed among 165 women, admitted to health centers, but only 160 questionnaires were collected. Drop-out rate was reported less than 0.5%.

Data were collected by using two researcher-made questionnaires, including demographic-clinical information Questionnaire with 16 questions (age, gender, marital status, educational level, history of cancer in close family members, smoking and alcohol consumption, obtaining previous information on cancer warning signs, Employment status , Education level of spouse, Employment status of spouse, Family monthly income adequacy, Daily exercise, Adherence to healthy diet, Current health status and Level of attention to health) and knowledge on cancer warning signs Questionnaire, after a review of the literature. The 10 questions of knowledge on cancer warning signs Questionnaire were designed with three options of “Yes”, “No”, “I do not know”. To calculate scores, score 1 is assigned to option yes and zero is assigned to options no and I do not know. The range of scores was from 0 to10. Then, answers were then transformed to a scale of 100 and women's knowledge of cancer warning signs was categorized into three categories: zero to 33.3 (weak), 33.3 to 66.3 (moderate) and 66.3 to 100 (high). To determine the validity of the questionnaires, face and content validity of them were evaluated. Accordingly, the views of 10 experts and

faculty members of the Schools of Health and Nursing and Midwifery of Shahid Beheshti University of Medical Sciences with specialties in health promotion, community health nursing, psychiatric nursing and medical-surgical nursing were used. Content Validity Ratio (CVR) and Content Validity Index (CVI) were calculated for a researcher-developed questionnaire based on the views of the experts. The result showed that the CVR for all questions of Knowledge Questionnaire was at least 0.80. CVI in this study was calculated 0.96 for Knowledge on cancer warning signs Questionnaire.

To assess the Knowledge Questionnaire reliability, split-half method with evaluation of the Spearman-Brown correlation coefficient was used. The amount of this correlation was estimated 0.76. The values between 0.65 and 0.80 represent significant agreement [23]. In addition, the reliability of the knowledge Questionnaire was tested by test-retest method. The Intra-Class Correlation Coefficient (ICC) was estimated after the double use of the questionnaire in a sample of 15 participants, separately from the main sample of this research with an interval of 15 days (ICC =0.98). The first author started to sampling at these health centers after obtaining permission from the Shahid Beheshti and Bushehr Universities of Medical Sciences and Bushehr health centers. Oral and written consent were obtained from all the participants. Data were analyzed by using SPSS 22 software. Univariate and multiple linear regression analyses tests were applied to evaluate the effect of independent demographic-clinical variables on women's knowledge level.

Results

The results of this study showed that 43.1% and 39.4% of women in this study were in the age group of 20-29 and 30-39 years old. The mean age of women in this study was 29.9 ± 7.1 years. Most of the women in this study were married (86.6%) and housewives (67.5%). Nearly 48% of them had academic level of education, and most of them had no prior information about cancer warning signs (53.7%). The largest source of information on warning signs of cancers for women participating in the study was media (books, newspapers, magazines, the Internet, radio, television, etc.) (61.3%). Other demographic and clinical information is shown in Tables 1 and 2.

Table 1: Demographic characteristics of women participating in the study (n = 160)

Demographic variables		n	%
Marital status	single	19	7.9
	married	129	86.6
	divorced	9	4.2
	Spouse deceased	3	1.3
Education level	Elementary	7	4.4
	Secondary	21	12.0
	High school	8	5.0
	diploma	47	30.4
	academic	77	48.1
Employment status	employed	51	31.9
	housewife	108	67.5
	Retired	1	0.6
Education level of spouse	Elementary	10	6.3
	Secondary	19	11.8
	High school	10	6.3
	diploma	41	25.6
	academic	80	50.0
Employment status of spouse	employed	144	90.0
	retired	3	1.9
	unemployed	13	8.1
Family monthly income adequacy	yes	52	32.5
	no	108	67.5

Table 2. Clinical characteristics of women participating in the study (n=160)

Clinical variables		n	%
Family history of cancer	yes	33	20.6
	no	127	79.4
Previous information on cancer warning signs	yes	74	41.3
	no	86	58.7
Adherence to healthy diet	somewhat	50	31.3
	yes	95	59.3
	no	15	99.4
Smoking	somewhat	13	8.1
	yes	12	7.5
	no	135	84.4
Daily exercise	somewhat	52	32.4
	yes	54	33.8
	no	54	33.8
Alcohol consumption	somewhat	11	6.9
	yes	7	4.4
	no	142	88.7
Current health status	bad	1	0.6
	moderate	14	8.8
	good	64	40.0
	Very good	52	32.5
	excellent	29	18.1
Level of attention to health	low	7	5.0
	moderate	49	30.0
	high	104	65.0

Table 3 shows all questions of knowledge on cancer warning signs Questionnaire and the way of women's response to them. Out of the 10 cancer warning signs, most women reported that their knowledge of sign of stiffness and mass in the breast or other organs (51.9%), while their knowledge of two signs of changes in urination and defecation habits (15%) and problem in digestion and absorption (dyspepsia) (15%) was lower compared to other cancer warning signs. More than 50% of women stated that out of 10 cancer warning signs, they had no knowledge of five signs (I do not know option).

Table 3. The Frequency of women's answers to knowledge on cancer warning signs Questionnaire

cancer warning signs	Answer	n	%
Significant changes in the moles and warts	yes	54	33.8
	no	85	53.1
	I do not know	21	13.1
Sudden weight loss	yes	56	35.0
	no	28	17.5
	I do not know	76	47.5
Ulcer not recovered after three weeks	yes	34	21.3
	no	38	23.7
	I do not know	88	55.0
Unusual bleeding or secretion	yes	43	26.8
	no	42	26.3
	I do not know	75	46.9
Changes in urination and defecation habits	yes	24	15.0
	no	44	27.5
	I do not know	92	57.5
Problem in swallowing food	yes	52	32.5
	no	36	22.5
	I do not know	72	45.0
stiffness and mass in the breast or other organs	yes	83	51.9
	no	31	19.4
	I do not know	46	28.7
Difficulties in digestion and intake of food (dyspepsia)	yes	24	15.0
	no	47	29.4
	I do not know	89	55.6
Severe pain	yes	32	20
	no	43	26.9
	I do not know	85	53.1
Repeated cough or violence and change in voice	yes	27	16.9
	no	49	30.6
	I do not know	84	52.5
Mean and SD		23.22±53.23	

The classification of women's knowledge level in three classes of weak and moderate and good is shown in Table 4. The results of the Table indicate that the knowledge level of women participating in the study on cancer warning signs was low (56.2%).

Table 4. Classification of scores of women's knowledge level of cancer warning signs

Level of knowledge	n	%
weak	90	56.2
moderate	58	36.3
good	12	7.5
total	160	100
Mean and SD	18.51±37.09	

To examine the relationship between knowledge and clinical-demographic variables, in a set of univariate linear regression tests, independent variables were selected among these variables (marital status, educational level, employment status, spouse education, spouse employment, family history of cancer, obtaining previous information on cancer, health status evaluation, level of attention to health). Then, a multivariate regression test was conducted between the knowledge variable as a dependent variable and the significant demographic and clinical variables as independent variables (Table 5). The results of this test showed that after controlling demographic-clinical variables, only the women's education level had significant relationship with their level of knowledge of cancer warning signs was significant ($P = 0.007$, $\beta = 0.28$). This means that as the level of education of women increases, their level of knowledge of cancer warning signs also increase. This variable could predict 11% of the variations in women's knowledge of cancer warning signs.

Table 5. Results of the multiple linear regression model in the relationship between women's knowledge of cancer warning signs and clinical-demographic variables

Independent variables	Dependent variable: knowledge		
	standardized β	t	p
Marital status	0.092	1.124	0.260
Educational level	0.286	2.727	**0.007**
Employment status	0.065	- 0.735	0.463
Spouse education	- 0.12	- 1.257	0.221
Spouse employment	- 0.014	- 0.243	0.834
Family history of cancer	0.085-	- 1.053	0.297
Previous information on cancer warning sign	0.193-	- 2.364	0.116
Current health status	0.006	0.082	0.938
Level of attention to health	0.135-	-1/266	0.763
R Square		0.106	

Discussion

This study was conducted to evaluate women's level of knowledge of cancer warning signs and their relationship with their demographic and clinical characteristics in 160 women admitted to urban health centers covered by Bushehr University of Medical Sciences. The general results of this study showed that women's level of knowledge of the warning signs of cancer was weak. In addition, the education level of women was the only significant variable affecting their knowledge. Although the mean level of women's knowledge of cancer warning signs in this study was 37.31 ± 18.51, classification of the scores showed that the level of knowledge of about 60% of women was weak. In addition, more than half of the women stated that out of a total of 10 warning signs of cancer, they did not have knowledge of five signs (ulcer not recovered after more than 3 weeks, unusual bleeding or secretion, changes in urination and defecation habits, problem in digestion and intake of food, frequent coughing or violence and changes in the voice).

Its reason might be attributed to paying inadequate attention to importance of first level prevention and focus on treatment in

the existing health system of the country. Increasing people's knowledge about cancer and providing education on risk factors is very important. In a population-based descriptive- cross-sectional study on risk factors of cancer in Morocco, the results showed that while people's knowledge about some of the risk factors, such as smoking and alcohol, was higher than others, but in order to prevent disease, people's knowledge of risk factors should increase [24]. In another study in Malaysia on people's knowledge of oral cancer and its determinant factors, the results showed that this population lacked general information about risky habits, early signs and symptoms, and the benefits of disease diagnosis in early stages [25].

The results of the multivariate linear regression model in this study showed that women's knowledge of the warning signs of cancer was related only to their educational level. After controlling all of the demographic and clinical variables, women's education predicted about 11% of their knowledge on cancer warning signs. In addition, examining the demographic characteristics of the research subjects showed that about 48% of women admitted to the health care centers had academic level of education. Various studies indicate that there is a relationship between the level of education and women's knowledge of cancer warning signs. As the level of education of women increased, the knowledge level of research subjects on warning signs of cancer increased (in general and in the case of specific cancers) [26, 27]. Studies conducted by Godazandeh et al. [28] on women in Sari-Iran, Rastad et al. [29] in Fasa-Iran showed that women's knowledge of breast cancer and screening programs at the moderate in women living while it was at weak level in women living in Fasa city.

Researchers argue that higher education in research subjects was the cause of this difference (about 46% of women living and 22% of women living in Fasa had academic level of education). Similar results were observed in studies conducted by Shahnazi et al. [30] and Charkazi et al. [31], and increase in the level of knowledge of people had significant relationship with higher education level. Results of studies conducted in developed countries show that although knowledge level of older people is less than that of other age groups, there is a uniform with upward trend was found between age of people and their recognition of cancer and warning signs [32]. In the current study, other demographic and clinical variables were not effective in predicting variations in knowledge level of this group of women. We can refer to different reasons, including the methodological differences between studies and the effect of these variables on each other. In contrast to results of this study, the results of the study conducted by Jamal et al [33] showed that marital status is an effective variable in people's level of knowledge on cancer warning signs. They introduced the increased attention of married people to their health and responsibility towards the family as reasons for the higher level of knowledge among the married people in their study. In addition, in previous studies, contrary to our study, two variables of family history of cancer and previous information on cancers were effective in increasing the level of knowledge of people [34]. Results of our study, similar to other studies [25,27], showed that two behavioural variables, smoking and drinking alcohol, did not affect women's level of knowledge of cancer warning signs. In general, the results of this study indicate that studied women have no adequate level of knowledge of cancer warning signs. This issue indicates the necessity of proper nursing interventions to enhance their knowledge and education by using modern practices from school level to adulthood. It is recommended that community health nurses, with the support of health policy-makers, develop comprehensive plans for designing appropriate educational interventions from childhood to adulthood at the community level in order to achieve to a healthy life.

Conclusion

Given the low level of women's knowledge about cancer warning signs, the urgent need for active role of the community health nurses and the implementation of effective educational interventions in the field of cancer warning signs by applying active teaching methods, supported by health policy-makers, are being felt more than ever. Thus, the results of this research can pave the way for next studies to design educational interventions and its implementation from childhood to adulthood at the community level.

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References

1. Hirokawa K, Utsuyama M, Kikuchi Y, Kitagawa M. Scoring of immunological vigor: trial assessment of immunological status as a whole for elderly people and cancer patients. Immunosenescence: Springer; 2007. p. 15-23.
2. Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D. Global cancer statistics. CA: a cancer journal for clinicians. 2011;61(2):69-90.
3. Alireza S, Mehdi N, Ali M, Alireza M, Reza M, Parkin D. Cancer occurrence in Iran in 2002, an international perspective. Asian Pacific journal of cancer prevention. 2005;6(3):359.
4. Murray CJ, Vos T, Lozano R, Naghavi M, Flaxman AD, Michaud C, et al. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: a

systematic analysis for the Global Burden of Disease Study 2010. The lancet. 2012;380(9859):2197-223.
5. Mohagheghi M-A, Mosavi-Jarrahi A, Malekzadeh R, Parkin M. Cancer incidence in tehran metropolis: the first report from the tehran population-based cancer registry. Arch Iran Med. 2009;12(1):15-23.
6. Schoen C, Osborn R, Squires D, Doty M, Rasmussen P, Pierson R, et al. A survey of primary care doctors in ten countries shows progress in use of health information technology, less in other areas. Health affairs. 2012;31(12):2805-16.
7. Young RC, Wilson CM. Cancer prevention: past, present, and future. Clinical Cancer Research. 2002;8(1):11-6.
8. Robb K, Stubbings S, Ramirez A, Macleod U, Austoker J, Waller J, et al. Public awareness of cancer in Britain: a population-based survey of adults. British Journal of Cancer. 2009;101(S2):S18.
9. Lana A, Del Valle MO, López S, Faya-Ornia G, López ML. Study protocol of a randomized controlled trial to improve cancer prevention behaviors in adolescents and adults using a web-based intervention supplemented with SMS. BMC public health. 2013;13(1):357.
10. Tom SE, Wyman A, Woods NF, Anderson Jr FA, Adachi JD, Chapurlat RD, et al. Regional Differences in Incident Prefrailty and Frailty. Journal of Women's Health. 2017;26(9):992-8.
11. Ziarat HM, Tovfighian T, Chenari HA, Sarvandian S, Jesmi AA, Gorjian Z. Knowledge Assessment of Abadan HighSchool Female Teachers about Seven Warning Signs and Effective Factors of Cancer in 2013-2014. Advances in Bioresearch. 2016;7(3).
12. San Turgay A, Sarı D, Türkistanlı EÇ. Knowledge, attitudes, risk factors, and early detection of cancer relevant to the schoolteachers in Izmir, Turkey. Preventive medicine. 2005;40(6):636-41.
13. Mazloomy Mahmoodabad S, Noorbala M, Rahaee Z, Mohammadi M. Knowledge, attitude and performance study of secondary school teachers of Yazd city regarding skin cancer. Journal of the European Academy of Dermatology and Venereology. 2010;24(4):424-8.
14. McMenamin M, Barry H, Lennon A-M, Purcell H, Baum M, Keegan D, et al. A survey of breast cancer awareness and knowledge in a Western population: lots of light but little illumination. European Journal of Cancer. 2005;41(3):393-7.
15. Keshtkaran A, Mirahmadizadeh A, Heidari A, Javanbakht M. Cost-effectiveness of methadone maintenance treatment in prevention of HIV among drug users in Shiraz, South of Iran. Iranian Red Crescent Medical Journal. 2014;16(1).
16. Moon TJ. The Process of Supportive Communication and its Therapeutic Benefits in a Smartphone-Based Addiction Treatment Group: The University of Wisconsin-Madison; 2017.
17. MacKian SC. What the papers say: Reading therapeutic landscapes of women's health and empowerment in Uganda. Health & place. 2008;14(1):106-15.
18. Siddiqui FG, Shaikh JM, Memon MM, Rathor MY, Rani A, Fauzi M, et al. EthxWeb Search Results. Journal of Medical Ethics. 2010;36(11):652-5.
19. Neghab M, Habibi M, RAJAEIFARD A, Choubineh A. Home Accidents in Shiraz during a 3-year Period (2000-2002). 2008.
20. Parvizi S, Seyed Fatemi M, Kiani K. Family dynamism & women's health. Women Social and Psychologic Studies Quarterly. 2009;7(2):54-7.
21. Zare M, Ghodsbin F, Jahanbin I, Ariafar A, Keshavarzi S, Izadi T. The effect of health belief model-based education on knowledge and prostate cancer screening behaviors: a randomized controlled trial. International journal of community based nursing and midwifery. 2016;4(1):57.
22. Plichta SB, Kelvin EA, Munro BH. Munro's statistical methods for health care research: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2013.
23. Poortaghi S, Raiesifar A, Bozorgzad P, Golzari SE, Parvizy S, Rafii F. Evolutionary concept analysis of health seeking behavior in nursing: a systematic review. BMC health services research. 2015;15(1):523.
24. Lewis SM. Lewis's Medical-surgical Nursing: Assessment and Management of Clinical Problems: Elsevier Australia; 2007.
25. Gammage KL, Francoeur C, Mack DE, Klentrou P. Osteoporosis health beliefs and knowledge in college students: the role of dietary restraint. Eating behaviors. 2009;10(1):65-7.
26. Montazeri A, Vahdaninia M, Harirchi I, Harirchi AM, Sajadian A, Khaleghi F, et al. Breast cancer in Iran: need for greater women awareness of warning signs and effective screening methods. Asia Pacific family medicine. 2008;7(1):6.
27. Lykins EL, Graue LO, Brechting EH, Roach AR, Gochett CG, Andrykowski MA. Beliefs about cancer causation and prevention as a function of personal and family history of cancer: a national, population-based study. Psycho-Oncology. 2008;17(10):967-74.
28. Godazandeh G, Khani H, Khalilian A, Atarod Z, Firozjaee M, Partovi A, et al. 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(52):64-76.
29. Rastad hM, L. Peasant, l. And trusted Jahromy, M. The knowledge and practice of women than breast cancer in 2011. Fasa University of Medical Sciences Journal. 2012;3(1):75-80.
30. Shahnaz eS, SA. Sharifirad, c. Mir Karimi, K. And Hassanzadeh, a. The effect of education on health belief model of anxiety in nulliparous pregnant women. Journal of education and health promotion. 2015;4.
31. Charkazi A, Samimi A, Razzaghi K, Kouchaki GM, Moodi M, Meirkarimi K, et al. Adherence to recommended

breast cancer screening in Iranian Turkmen women: the role of knowledge and beliefs. ISRN preventive medicine. 2013;2013.

32. Abreu MA, Pimentel DRN, Silva OM, Blachman IT, Michalany NS, Hirata CHW, et al. Carcinoma espinocelular do lábio: avaliação de fatores prognósticos. Revista Brasileira de Otorrinolaringologia. 2004.
33. Jamali J, Feizi A, Hosseini S, Kazemnejad A, Parsayekta Z. Knowledge level of the warning signs of cancer and its affecting factors in Tehran's population above 18 years. Journal of Birjand University of Medical Sciences. 2010;17(4):296-307.
34. Lynch L, Happell B. Implementation of clinical supervision in action: part 2: implementation and beyond. International Journal of Mental Health Nursing. 2008;17(1):65-72.