

The Impact of Education on Knowledge and Attitudes of Families about Breast Cancer

Susan Azizmohammadi¹, Hasan Salehi² and Sima Azizmohammadi^{1*}

¹Department of Gynecology, AJA University of Medical Sciences, Tehran, Iran

²AJA University of Medical Sciences, Tehran, Iran

Abstract

Objective: The aim of the present study is to investigate the effect of education on knowledge and attitude of military families with regard to breast cancer.

Method: The research is a descriptive-analytic study. Two models of library research and field study were conducted using a survey technique. Data collection was done by a questionnaire including knowledge and attitude questions. The research variables were measured on a nominal and ordinal scale of the measurements and the questionnaire was compiled and measured on a Likert scale. Descriptive and inferential statistics were used to analyze the data.

Results: After education, the total score of knowledge of the units increased from 28.88 to 50.62 ($p=0.001$). Also, the total score of attitude ranged from 25.26 to 52.62 ($p=0.0001$). A comparison of awareness and attitude changes indicated that people with higher education, younger and married people and those who had been trained, had a significant difference with other groups.

Conclusion: Based on the findings of the present research, the effect of education on knowledge and attitude of the military families is indicative of the positive impact of education. The higher the level of knowledge of people in the society and their positive attitude reinforce, in this case, the better performance they will have in this regard.

Keywords: Education; Knowledge; Attitude; Breast cancer

***Correspondence to:** Sima Azizmohammadi, Department of Gynecology, AJA University of Medical Sciences, Tehran, Iran, Tel: 00989121057715; Email: dr.azizmohammadi@gmail.com

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Introduction

Breast cancer is the most common type of malignancy in women throughout the world (1) which is the second leading cause of death among women (2). According to the statistics announced by the American Cancer Society (ACS), 232,340 new patients with breast cancer were identified in 2013 among women in the United States of America (USA). It is also expected that 39,620 women died due to the breast cancer in the same year (3). In the United States, one out of eight women suffers from breast cancer in their lifetime (4). In Asian countries, especially in Iran, an increase in the incidence of breast cancer has turned such a disease into the most common cancer which has worried Iranian women, however, there are few reports of breast cancer (5). According to the study by the Ministry of Health and Therapy and Medical Education, 10,000 women in the country suffer from cancer, at the age of 15 to 10 years lower than other countries. Iran is one of the countries with an average prevalence in terms of breast cancer. This means that the incidence is between 25 to 30 out of 100,000 population and 7 to 9,000 patients with breast cancer are detected annually in the country (6). Based on the guidelines for reducing the risk of breast cancer, health care providers should consider components in risk assessment of breast cancer including inheritance, menstrual status, fertility

history, age increase, hormone therapy, body mass index (BMI), breast density, Smoking and alcohol consumption, exposure to chest X-ray, family history, and affliction of first-degree relatives (1,7). Of course, occupational stress (8), night working hours in women and unhealthy lifestyle behaviors (9) are also considered as risk factors (10). Based on the World Health Organization (WHO)'s key message of increasing breast cancer, especially in developing countries, women's knowledge, attitude and practice have to be promoted in relation to preventive self-regulatory behaviors for breast cancer. Early diagnosis of this disease is very effective in reducing mortality and medical costs, but the major cause of death and other adverse consequences of the disease in Iran are late referral of women to a doctor (11). 70% of Iranian women lose their lives following late diagnosis of breast cancer (12). Because of the negative attitude toward medical assistance, perceived low-level behavioral control and negative perceptions about the implications of breast cancer are reasons for late referral of women to a doctor (13). Thomas et al. (2011) found out there was a lack of knowledge of the risk of breast cancer, refraining from pre-emptive medical advice, denying the severity of the disease, and not having an active role in screening in most Iranian women (14). Many oncologists believe that screening and early diagnosis programs are the key elements which reduce the



Table 1. Frequency distribution and percentage of knowledge questions about breast cancer before the educational program.

Correct Answer		Unanswered		Wrong Answer		Knowledge Questions
Percent	Frequency	Percent	Frequency	Percent	Frequency	
24-Apr	54	9-May	21	May-42	94	What percentage of breast cancer accounts for cancers which are specific to women?
24-Sep	55	23-Jan	51	28-May	63	At what level is the breast cancer among the most common cancers that lead to women's death?
Sep-71	159	3-Jun	8	Sep-00	2	emaciation
0/67	148	¼	9	5-Apr	12	Excessive obesity
Jun-65	145	7-Feb	16	3-Jun	8	High-fat diet
0/57	126	12-Feb	27	7-Feb	16	The history of breast cancer in mother, sister, aunt, and grandmother
Jul-64	143	7-Feb	16	4-May	10	Age over forty
Aug-54	121	15-Apr	34	6-Mar	14	Infertile women
Sep-67	150	7-Feb	16	1-Apr	3	A history of breast cancer in one of the breasts.
Mar-64	142	3-Feb	7	0/9	20	Taking contraceptive pills
May-71	158	1-Aug	4	3-Feb	7	First pregnancy after 30 years
0/67	148	6-Mar	14	3-Feb	7	Early menstruation (under 12 years)
Jul-59	132	10-Sep	24	5-Sep	13	Late menopause (over 55 years old)
Jun-65	145	6-Aug	15	¼	9	A history of ovarian cancer
May-66	147	6-Mar	14	3-Jun	8	A history of uterine cancer
Apr-53	118	7-Jul	17	15-Apr	34	A history of breast injury
Aug-73	163	2-Jul	6	-	-	If a breast examination (breast self-examination) is performed regularly at specific time, how many percentages of the breast lesions can be detected?
Sep-72	161	-	-	3-Jun	8	Which groups of women are necessary for regular breast examination?
Sep-72	161	-	-	3-Jun	8	At what age should women start with regular breast examinations?
Mar-68	151	-	-	8-Jan	18	How long does it take for a woman to undergo a breast examination?
Sep-67	150	2-Mar	5	6-Mar	14	What is the best time to check for the breasts?
Mar-59	131	8-Jun	19	8-Jun	19	The existence of pain in the breasts
May-61	136	0/9	20	5-Sep	13	Breast milk secretion
Mar-59	131	8-Jun	19	8-Jun	19	The existence of breast mass
Feb-55	122	8-Jun	19	12-Jul	28	The presence of moles in the breasts
0/67	148	6-Mar	14	3-Feb	7	blood secretion of the breasts
Jun-65	145	10-Apr	23	May-00	1	The existence of mass in the armpit
Jul-64	143	10-Apr	23	1-Apr	3	Red skin of the breasts
Sep-72	161	-	-	3-Jun	8	Breasts Ulcer
Jul-64	143	0/9	20	2-Jul	6	prominent veins on the breasts
Jul-64	143	8-Jun	19	3-Feb	7	Creating nipple elongation recently
May-66	147	7-Jul	17	2-Mar	5	Wrinkled skin of the breasts
25-Aug	57	19-May	43	Feb-31	69	What time do you need to see a doctor for breast examination?

incidence and mortality of cancer (15). ACS recommends monthly and continuous breast self-examination for women over the age of 20, especially those who are over the age of 35. Mammograms are also one of the most common non-invasive methods in breast examination, both in screening and detecting cases of diagnostic value. So that in previous studies, its sensitivity to diagnosis of cancer is from 55% to 90%, and its specificity is 70% to 97% (16). Breast self-examination is easy, effortless, confidential, safe, cost-free, non-specific tools, and a beneficial screening method. Unfortunately, only about 18-36 percent of women regularly perform monthly breast self-examination in the world. In Iran, based on the evidence, it is suggested that doing so even in urban communities is low, because there is no systematic program for women to learn the way in our country (18). Another method of screening for breast cancer is a breast examination by physicians. About 15% of breast cancer patients are diagnosed by the help of a clinical examination of breast. Many physicians recommend this method. The sensitivity of the breast examination for diagnosis of breast cancer is 45% (19). The results of the studies indicated that 37% of women participating in the breast self-examination test had studied, 39.5% performed breast self-examination at least once, and only 17% of women performed it on a monthly basis. Perceived sensitivity, perceived severity, benefits, autoimmunity, and motivation are positively associated with breast self-examination behavior (20).

Breast self-examination is a forgotten part in many Iranian women's health behaviors, so it is required to be thought its benefits to women (21). Studies conducted recently indicate that 57.2% of women had low knowledge, 38.3% had moderate knowledge, and only 4.5% had a high knowledge regarding breast cancer and screening methods that should be increased for early diagnosis of cancer (22). Accordingly, some kind of knowledge, attitude and practice of women estimated to be lower than expected can be a sign of a health problem that most women consider immune to breast cancer. So, it is hoped that the results of the present study will be beneficial for educational program designs, health management in order to encourage women to be sensitive to their health, early diagnosis of cancer Possibility and its favorable control.

Methods

In the study, two models of a library method and a field study were utilized using a survey technique. In this model, various books and references about breast cancer, the fields of risk and risk factors have been used. The method applied to measure the thoughts, knowledge, and attitudes of the community was the field method and the survey technique or the presence of the researcher in the field study. Data collection instrument was used in a library method through snapping and sniffing. A researcher-made questionnaire was also used in the survey technique. The research variables were measured on a nominal



Table 2. Frequency distribution and percentage of knowledge questions about breast cancer after the educational program.

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Aug-73	163	2-Jul	6	-	-	If a breast examination (breast self-examination) is performed regularly at specific time, how many percentages of the breast lesions can be detected?
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Mar-59	131	8-Jun	19	8-Jun	19	The existence of breast mass
Feb-55	122	8-Jun	19	12-Jul	28	The presence of moles in the breasts
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Jun-65	145	10-Apr	23	May-00	1	The existence of mass in the armpit
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May-66	147	7-Jul	17	2-Mar	5	Wrinkled skin of the breasts
25-Aug	57	19-May	43	Feb-31	69	What time do you need to see a doctor for breast examination?

and ordinal scale. A Likert scale questionnaire was developed and measured. The Likert scale confronted a great acceptance for its ease of construction, scoring, and interpretation of scores. In particular, the correlation of the results of the attitude by the Likert scale with other scales has been reported to be extremely high. However, making Likert scale is economically and temporally cost-effective than other scales (23). A pre-test was initially performed when they have not yet exposed to the training program, then the same group was included in the training program and then a post-test test was performed. After that, the results were analyzed. The target community of the present research consists of all army families of the Islamic Republic of Iran. The sample is also within the target community and consists of military families residing in institutional houses in the towns of Dagban and Amir-Abad engineering in Tehran. The sampling method is also systematic. In this way, families in institutional settlements are divided into two distinct categories based on the military degree of householders or the duration of the marriage and the number of children. Then, based on the population density of each category, a quota is allocated, and finally, the families were selected systematically. In the present study, according to the Morgan table and considering the population of 400 families living in the targeted settlements, the sample size equals 196 families, in which 27 families fell out due to different reasons. Finally, 169 families

collaborated by the end of the study. Data gathering instrument in the present research was a questionnaire which was applied in the pre-test (before intervention) and the post-test (after intervention). The questionnaire consists of 50 questions arranged in four main sections: in the first part which contains 4 questions, demographic information including age, marital status, job and field of study were represented. The second part consists of two questions which are concerned with the sources of information. The third part of the questionnaire consists of 33 questions that were designed to determine the knowledge of the units in terms of breast cancer. The fourth part consists of 11 questions which were designed to study the attitudes of the units about breast cancer. To analyze the collected data and to determine the statistical analysis of knowledge and attitude scores, a change analysis test was utilized which was significant ($P < 0.05$). The items in the attitude questionnaire were scored on a five-point Likert scale including completely agree, agree, disagree, and completely disagree. For each item, number 5 represents that your answer is positive in the statement and number 1 is representative of a negative answer in that statement. The total score of each person was considered between 1 to 5 points for each question and the total score of the questions were calculated as the total score of the attitude. In the case of "knowledge" questions, Number 1 was determined to the correct answer, -3/1 belonged to the wrong answer, and zero belonged to the answers "are not known", then, the



Table 3. Frequency distribution and percentage of attitude questions about breast cancer before the educational program.

Completely disagree		Disagree		Objective		Agree		Completely agree		Attitude Questions
Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	
-	-	5-Apr	12	¼	9	10-Apr	23	Jun-56	125	In my opinion, breast cancer is a common disease in women
10-Sep	24	10-Sep	24	16-Jul	37	11-Aug	26	26-Feb	58	I think, early diagnosis of breast cancer can save a person's life with breast cancer.
-	-	-	-	-	-	14-Sep	33	May-61	136	In my opinion, breast self-examination is a good method for early diagnosis of breast cancer.
-	-	May-00	1	1-Aug	4	13-Jan	29	Jan-61	135	I think all women should do breast self-examination at a certain age.
10-Apr	23	10-Sep	24	16-Jul	37	11-Aug	26	26-Jul	59	It seems to me that observing the regular intervals for breast self-examination is important.
-	-	-	-	1-Aug	4	11-Mar	25	Mar-63	140	In my opinion, breast cancer is a malignant disease.
5-Sep	13	0/9	20	¼	9	0/9	20	Apr-48	107	I would like to get information about breast cancer.
-	-	-	-	-	-	13-Jan	29	Mar-63	140	I would like to learn how to perform breast self-examination
-	-	May-00	1	1-Aug	4	13-Jan	29	Jan-61	135	I would like to perform a breast self-examination regularly
-	-	-	-	-	-	8-Jun	19	Sep-67	150	If I find out I have a breast cancer, I'm sure to see a doctor.
May-00	-	-	-	2-Mar	5	15-Aug	35	Sep-57	128	In my opinion, in addition to regular breast self-examination, it is necessary to visit a doctor at regular intervals

Table 4. Frequency distribution and percentage of attitude questions about breast cancer after the educational program.

Completely disagree		Disagree		Objective		Agree		Completely agree		Attitude Questions
Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	
-	-	0.6	1	1.8	3	7.6	13	89.4	152	In my opinion, breast cancer is a common disease in women
4.32	55	33.5	57	6.5	11	7.6	13	19.4	33	I think, early diagnosis of breast cancer can save a person's life with breast cancer.
-	-	-	-	-	-	11.2	19	88.2	150	In my opinion, breast self-examination is a good method for early diagnosis of breast cancer.
-	-	0.6	1	1.2	2	11.8	20	85.9	146	I think all women should do breast self-examination at a certain age.
-	-	-	-	-	-	11.2	19	88.2	150	It seems to me that observing the regular intervals for breast self-examination is important.
-	-	-	-	-	-	11.2	19	88.2	150	In my opinion, breast cancer is a malignant disease.
-	-	-	-	2.4	4	17.6	30	79.4	135	I would like to get information about breast cancer.
-	-	-	-	-	-	11.2	19	88.2	150	I would like to learn how to perform breast self-examination
-	-	0.6	1	1.2	2	11.8	20	85.2	146	I would like to perform a breast self-examination regularly
-	-	-	-	-	-	8.2	14	91.2	155	If I find out I have a breast cancer, I'm sure to see a doctor.
-	-	-	-	1.8	3	14.1	24	83.5	142	In my opinion, in addition to regular breast self-examination, it is necessary to visit a doctor at regular intervals

obtained total score of 33 knowledge questions were calculated. With the change analysis, knowledge and attitude scores before training with the scores after the training were compared. Also, the total score of knowledge and attitude after each person's training were deducted from the previous grade and were considered as changes in the level of knowledge or attitude. Age, educational degree, and marital status were investigated using ANOVA and Tuckey tests and the results indicated that it was statistically significant ($P < 0.05$). The purpose of the research is described for all research units. The preliminary and secondary tests were carried out with prior planning and in such a way that it was not even possible to interfere with the life of the units under the study. All the obtained information has been completely confidential and is avoided by the name and surname of the units studied on the questionnaires in both the primary and secondary tests.

Results

The frequency distribution and percentage of research units with regard to age indicate that 30.2% of the participants in the test were at the age of 20-30 years old. 23.6% of the subjects were 31-40 years old, 24.7% were 41-50 years old, 17.7% were 51-59 years old and 8.9% were 60 years and older. The average age of the subjects (40.1 +/- 1/12) was 40.36 years. The range of the ages was between 22 and 69 years old.

The frequency distribution and percentage of the studied units based on marital status indicate that 79.3% of the women participating in the exam were married. 17.2% were single and 3.5% were divorced. The frequency distribution and percentage of the studied units according to the educational degrees were 9.5% at the secondary level, 12.4% diploma, 37.9% were at associate level, 20.7% were undergraduate and 19.5% were graduate. Frequency distribution and percentage of research units according to the previous training on breast cancer show that 53.3% of the units had previous training in breast cancer and 46.7% had no previous training. All the units after the initial test were trained in breast cancer and then post-test was performed. Frequency distribution and percentage based on the obtained information sources on breast cancer suggests that 25.4% of women participating in the test by broadcasting organization were 12.4% of the newspaper, 1.7% through educational videos, 10% of the trainer, 2.9% via pamphlet, 3.1% through colleagues, 7.8% by family, 24.8% by health staff, and 6.5% by the doctor got information about breast cancer.

The total score of knowledge before and after education about breast cancer in the studied units was analyzed with data and analysis of changes with $p < 0.05$ which indicates a statistical difference. The knowledge score of the subjects before training (2.61) was 28.88 and after training (1.41) it was 62.50, with regard to the fact that $p = 0.001$,



there was a significant increase in the knowledge. The overall score of attitude before and after education about breast cancer with data and analysis of changes were analyzed and it was indicated that there was a statistical difference ($p < 0.05$). The attitude score of the subjects before education (5.08) was 46.25 and after education (2.01) was 52.62 with regard to the fact that $p = 0.001$ which imply that there is a significant increase in the attitude. The changes in knowledge and attitude of the participants were studied. Data were analyzed according to the level of education using ANOVA and Tukey tests and expressed as Mean \pm SEM. Regarding the fact that at the level of MS, BS, and Associate's degree in comparison with Secondary educational level, the knowledge changes were $p = 0.004$ and $p < 0.05$, respectively, and show a significant difference. The highest degree of increasing knowledge changes was observed at the middle school and then at the diploma, and the lowest level of knowledge changes were observed in the MS groups. Attitude changes with respect to the fact that $p = 0.951$ and $p > 0.05$ did not show a significant difference between the two groups. Knowledge and attitude changes of women in the study which were based on the previous education in breast cancer were analyzed. Data were analyzed by T-test and were expressed as Mean \pm SEM. There was a significant difference between the participants in the study that have not received previous education in breast cancer compared with those who had been trained, considering that knowledge changes were $p = 0.0001$ and $p < 0.05$. Knowledge changes in subjects who had not received previous breast cancer education showed a higher increase. Attitude changes ($p = 0.219$ and $p > 0.05$), did not show a significant differences between the two groups. Knowledge and attitude changes of women were investigated based on marital status. The married group were significantly different from that of the single group ($p = 0.049$ and $p < 0.05$). The attitude changes of the married group were less than that of the single and divorced group. Knowledge changes did not show significant difference ($p = 0/374$ and $p > 0.05$). Knowledge changes and attitudes of the women based on their age were studied. The age group of the 60s years were more than the age group of the 20s, 30s, and 40s, with a change in knowledge of $p = 0.002$ and there was a significant difference ($p < 0.05$). Knowledge changes in the age group of the 50s compared to the age group of the 30s, considering that $p = 0.002$ and $p < 0.05$ showed a significant difference. Knowledge changes in the age group of 60s and then 50s were at the highest increase, and the lowest increase in knowledge changes was observed at the age of 30.

Discussion

In 1997, the World Health Assembly unanimously approved that the major social goals of the governments and the World Health Organization over the next few decades should be ensured that all people in the world achieve a satisfactory level of health in order to enable them to bring social and economic life for fertility. To achieve this goal, the sixth reports of World Health state that: health must be obtained and cannot be imposed, so the first requirement for health is the commitment of the people and the government towards it, and in general sufficient training is required for such a commitment (24). Breast cancer is one of the most common cancers in the world, and also the most common disease in women. 22.9 percent of all new patients with cancer in the world in 2015 are related to such a disease, while the incidence of this disease is rising in most Asian countries, especially in women at an early age. Despite many advances in the field of diagnosis and treatment, the main cause of death from cancer belongs to women (25). Undoubtedly, health education is the most important factor in the development and improvement of well-being and early diagnosis of breast cancer. But the first step in health education is to estimate

the target community in terms of knowledge and information about the disease. The present research is also looking for the mentioned issue. How much information army community and their families have about breast cancer? How much do they know about ways to deal with it? What are their attitudes toward breast cancer? Where do their sources of information about the disease come from? Have women been able to raise knowledge of how they can increase their own and family about health levels of breast cancer? The results of the present study indicated that due to the increase in the knowledge level of the subjects before training 27(2.75), and 31(1) after training, which was statistically significant increase, can lead to a significant increase in knowledge about breast cancer which is consistent with the findings of the Wood study (26). Also, the results of the study about attitude of the subjects before training was 50(4) and after training, it was 51(2) which show a statistically significant increase in attitude that education had a positive effect on people's attitude toward breast cancer which is line with the results of the study of Choudhr et al. (2002) in order to assess knowledge, women's attitudes toward breast cancer and early diagnosis of breast cancer (27). According to the level of education, comparing the knowledge and attitude changes of the subjects showed that knowledge changes at the level of associate degree, BS, and higher education had a significant difference in comparison with those with high level of education and the secondary group had the highest knowledge before and after training. It can be concluded that the higher the level of the education, the greater their knowledge about breast cancer, The findings align with the results of the study of Sensiba et al. In order to assess the knowledge and attitude of teachers at different levels of education in Yazd schools, Iran (28). knowledge and attitude changes of women participating in the study based on previous education on breast cancer indicated that there were significant differences between knowledge changes in women who had not previously had breast cancer education than those who had received education, and there were greater increase in their knowledge changes which is consistent with the goals of the present study, i.e. education causes people to increase their knowledge about breast cancer. Changes in knowledge and attitudes of women participating in the study based on marital status showed that the attitude of married women in comparison with single women had fewer changes and implied a significant difference. This is also consistent with the research goals. And, since married women receive more education from various sources about breast and its diseases, especially breast cancer, they will have a greater knowledge and attitude than single ones. Also, the effect of health education methods on the promotion of breast self-examination showed that the level of knowledge, attitude, and practice in the final exam show a significant difference between single and married women. So that, single women had more knowledge changes (29). The changes in knowledge and attitudes of women participating in the study based on age indicated that knowledge of 60 and 50-year-old individuals were more than the younger groups and there were significant differences between their knowledge changes. This issue represents the goals of the research, so that, the higher relation of younger women with information sources such as television, internet, and educational films, their information and knowledge about breast cancer will be higher and more education had been received in this case which is compatible with the results of Wardle et al. Study on the attitudes and knowledge of young European women in relation to breast self-examination (30).

Conclusion

The findings of the study indicated that most people had a good knowledge and attitude toward breast cancer screening tests. Based



on the research, since the knowledge of women after education was satisfactory, a need for more healthcare planners to educate and promote screening methods deserves notice.

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