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Original Research

The Relationship between Knowledge, Attitude, and Performance in Breast Cancer with Nutritional Behaviors and Drug Use

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Breast cancer is the most common cancer in women, and tobacco and alcohol usage as well as inappropriate diet are some risk factors for developing this cancer. On the other hand, breast self-examination is a simple, effective, and cheap method for screening and early detection of breast cancer that is accessible for most of women. The aim of this study was to assess the correlation between knowledge, attitude, and performance in the case of breast cancer, with nutritional behaviors and tobacco use. In this descriptive-analytical study, studied population was all women over 15 years old, who were referred to health and treatment center of Buin-Zahra in 2018. The sample size was 250 cases according to a pilot study. Sampling method was random simple sampling, and data were collected using interview method. Data collection tool included two questionnaires (questionnaire of knowledge, attitude, and performance in the case of breast cancer, and questionnaire of life style in the case of tobacco use and diet). Collected data entered SPSS 25 software and Pearson's correlation test, T-test, and ANOVA were used for data analysis. Most of the studied cases were in 26-30 years old age group (32.8%). 54.8% had diploma, 88% were married, and 90.8% were house-wives. It was indicated that 7% of cases had monthly self-examination and 82.8% had no mammography experience. There was a positive correlation between knowledge and performance about breast cancer, and nutritional status. There were also a significant correlation between age and performance (p-value: 0.044), education level and knowledge (p-value: 0.003), and attitude (p-value: 0.029), marriage status and performance (p-value: 0.002), and occupational type and performance (p-value: 0.001). It is shown that there is a significant correlation between education level, knowledge and attitude. So, it is recommended that educational effective programs should be used in the health and treatment centers to increase the level of knowledge and attitude of women about breast cancer, and to alter life style pattern in the case of tobacco use (as an environmental factor), and to alter nutritional pattern.

Introduction

Breast cancer is a type of cancer, which involves breast tissue and nowadays, there are 18 different types of breast cancer [1,2]. Breast cancer is the most common cancer in women worldwide, so that it consists 25% of all cancer cases [3,5]. Based on the census announced by American Cancer Association, 232340 new cases were detected among USA women during 2013 [6]. In USA, approximately 1 out of 8 women will experience breast cancer during thier life [7]. Prevalence rate of breast cancer in Iranian women is in the first place of cancers [8]. As it can be seen in the below figure, prevalence of breast, stomach, and prostatic cancers in Iran, respectively are placed in the first to third positions, so that in most of developed countries, breast, prostatic, and lung cancers

are placed in the first to third places based on prevalence [9].

Fig. *1 Estimated age-standardized rates (world)(incidence and mortality), bothsexes, (top 10 cancer sites) in 2012.*

Results of breast cancer are different based on cancer type, disease rate, and age of patients [10]. Approximately in 5 to 10% of cases, the cancer had a hereditary etiology (related to genes inherited to the child from parents) [11]. Tobacco use, alcohol and inappropriate diet are some main risk factors for cancer development [12,13]. Type of consumed nutrients depends on the different geographic area [14]. Approximately in 200 studies that assessed the correlation between fruit and vegetables consumption and cancer, it was shown that fruit and vegetables consumption has a significant protective effect against cancer, so that peoples who has few fruit and vegetables consumption (almost ¼ of normal consumption) has two times higher risk for cancer development [15]. Salt consumption is also an important factor, which effects on mortality due to stomach cancer and brain stroke [16]. It is also proved that smoking or exposure to cigarette smoke (second-hand smoke) increase the risk of cancer; so, lack or decrease in cigarette usage may decrease cancer risk [17,18]. As the age of cigarette use is lower, its harms will be more, so that, in people who smoke for long term, cancer prevalence rate increase to 35-50% [19]. Lack of physical exercises is related to cancer development in almost 10% of cases [20]. In the last years, 17 countries in European Union have introduced some rules to ban cigarette smoke from public places [21]. Long-term sitting has direct correlation with breast cancer that will not be removed by regular exercise; however, it will be decreased [22,23]. Breast cancer prevalence in developing countries is low [24] that could be due to its early detection using screening and prevention programs [25]. In the other word, it can show beneficial applications of breast cancer prevention programs such as Breast Self-Examination (BSE), Clinical Breast Examination (CBE), and mammography, based on a determined screening program, which is designed to control breast cancer [26,27]. American cancer association recommends monthly and regular BSE for women over 20 years old (especially those who are over 35 years old) [28]. Assessments performed in 2009 showed many benefits in self-examination between 40 to 70 years old ages [29], and it is recommended that clinical evaluations to be performed in women 50 to 74 years old once per 2 years [30]. In the other side, proportion of pros to cons in breast cancer screening is challenging, so that, Cochrane (2013) suggested that it is not clear yet that if mammography screening is beneficial or harmful [31]. BSE is a simple, effective, and cheap method for screening and early detection of breast cancer that is accessible for all women [32]. As most of women find the breast mass during bath or wearing cloths, monthly self-examination may result to increase in the knowledge of them about natural status of body, early detection of breast cancer, and –as a result- decrease in the mortality rate [33,35]. Breast cancer signs may include a mass in breast or its skin, breast deformation, and secretion of liquid from nipple [10,36]. Improvement in the level of knowledge and attitude of society in the case of cancer, and later educations for BSE, could play a positive role in screening of people, especially for cancers [37]. Though, breast cancer screening and prevention programs are effective tools in early detection of this cancer, it has not been seriously welcomed by most of physicians and women referred to therapeutic centers [38]. Poverty, lack of health insurance, and increased age are factors that were mentioned to be effective on the lack of clinical breast examination in women of different areas. However, reports show that in developing countries, despite wide insurance coverage, patients do not use mammography and clinical breast examination methods [39,40]. This could happen due to lack of designed regular screening and prevention programs to control cancer in most of developing countries [10]. It seems that lack of knowledge about risk factors, signs, and symptoms, advantages of screening programs, and type of performance of health and therapeutic clinics of cancer in Iranian women, is a result of lack of prevention programs. So, the aim of this study was to assess the correlation between knowledge, attitude, and performance in the case of breast cancer, with nutritional behaviors and tobacco use, in women over 15 years old referred to health and therapeutic centers of Buin-Zahra.

Methods

In this descriptive-analytical study, studied population was women over 15 years old, referred to Buin-Zahra's health and treatment center, in 2018. For sample size determination, as no previous statistical data exists about attitude, and knowledge of and performance of women, sample size was estimated to be 250 cases using a pilot study and correlation 1 (given that P=20%, d=5%, and confidence interval 95% (a=5%)).

Correlation 1

N=z2p1-pd2

N= required sample size

s= standard deviation of the study

z= Confidence index to sample results

d= Acceptable error index

Sampling method is random and simple, and inclusion criteria were patient's consent to answer questions, ages more than 15 years old, and lack of any breast benign or malignant diseases. Data collection method was interview, and data collection tools were two questionnaires of knowledge, attitude, and performance about breast cancer, and life style in the case of tobacco usage and nutritional diet. Questionnaires of attitude, knowledge of and performance (KAP) included following four sections:

a) The first section included 4 questions about collection of demographic data such as age, education level, marriage status, and occupation of participants.

b) The second section included 6 questions about knowledge of participants in the case of breast cancer, which their answering method was in the three points Likert scales format (True, False, I don't know).

c) The third section included 5 questions about participant's attitude in the case of breast cancer that their answering method was in the five points Likert scales format (Completely agree, Agree, No idea, Disagree, Completely disagree).

d) The fourth section included 4 questions about performance of participants in the case of breast cancer detection.

Mentioned questionnaire was validated in the matter of validity and reliability by Rastad and colleagues [41]. The second section of this questionnaire (that included life style in the case of tobacco usage and nutritional diet) was designed by research team and had two parts: tobacco (5 questions), and diet (7 questions) that their answering method was in the four points Likert scales format (Never, Sometimes, Often, Always). This section was validated using visual and conceptual narrative methods. Interviewer gave required explanations regarding aims of research and mentioned that completion of questionnaire is optional, and after obtaining consent, data were collected. Eventually, collected data entered SPSS 20 software and Pearson's test, T-test, and ANOVA were used to analyze data, and descriptive statistics was used to determine frequency of demographic properties.

Results

Demographic properties of participants are shown in Table 1. Based on findings of this study, mean age of studied population was 38±7 years old. Most of studied persons were 26-30 years old

(32.8%) and no participant was over 60 years old. Most of participants had diploma (54.8%), and were married (88%). Also most of them were house-wives (90.8%).

Age group (years)	Properties	Frequency	Percent
	16-20	7	2.8
	21-25	36	14.4
	26-30	82	32.8
	31-35	67	26.8
	36-40	36	14.4
	41-45	13	5.2
	46-50	6	2.4
	51-55	2	0.8
	56-60	1	0.4
	More than 60	0	0
	Mean (SD)	250	38±7
Education	Illiterate	4	1.6
	Elementary	57	22.8
	Diploma	137	54.8
	Associate degree	12	4.8
	Bachelor degree	32	12.8
		8	3.2
Marriage status	Single	12	4.8
	Married	220	88
	divorced	18	7.2
Occupation	House-wife	227	90.8
	Employee	16	6.4
	Student	7	2.8

Table 1. *Demographic properties of participants*

In Table 2, frequency and percent of participants that answered to each choice related to breast cancer knowledge and prevention programs are shown. Most of participants (based on their own announcement) had complete knowledge in the case of prevalence (76.8%), risk factors (54.4%), danger rate (71.6%), self-examination (84%), and early detection (82.8%) of breast cancer. However, knowledge of participants about signs of breast cancer was low (24.4%).

Subjects	True	False	I don’t know
	No. (%)	No. (%)	No. (%)
Breast cancer is the most common cancer in Iranian women.	*192(76.8)	11 (4.4)	47 (18.8)
The most important sign for breast cancer is pain in the breast.	96(38.4)	*61 (24.4)	93 (37.2)
Family history for breast cancer increases its probability to occur.	*136 (54.4)	35 (14)	79 (31.6)
In the case of early detection, the chance for certain treatment is high.	*207(82.8)	4(1.6)	38(15.2)
All breast cancer patients will die due to the disease.	14 (5.6)	*179 (71.6)	57(22.8)

If women examine their breasts, they can detect unnatural points in it.	*210 (84)	8 (3.2)	2(12.8)

Table 2. *Knowledge rate of participants* *True answer*

Results obtained of the Attitude parameter, are shown in Table 3 based on frequency and percent. Among participants, 143 persons (57.2%) disagreed that if there is no pain or problem in the breast, its regular examination is not beneficial. 203 persons (81.2%) disagreed that referral to physician for mammography is time-consuming and has no advantage. 201 persons (80.4%) disagreed that there is no hope for continuing life when breast cancer occurs. 83 persons (33.2%) thought that fear is the barrier for performing breast examination and mammography, and 176 persons (70.4%) disagreed to the idea that the affected women is better not to know that she has breast cancer.

Subjects	Completely agree	Agree	No idea	Disagree	Completely disagree
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
If there is no pain or problem in the breast, its regular examination is not beneficial.	28 (11.2)	32 (12.8)	47 (18.8)	93 (37.2)	50 (20)
Referral to physician for mammography is time-consuming and has no advantage.	10 (4)	10 (4)	27 (10.8)	128(51.2)	75 (30)
There is no hope for continuing life when breast cancer occurs.	8 (3.2)	9 (3.6)	32 (12.8)	103(41.2)	98 (39.2)
Fear is the barrier for performing breast examination and mammography.	30 (12)	53 (21.2)	56 (22.4)	72 (28.8)	39 (15.6)
The affected woman is better not to know that she has breast cancer.	15 (6)	29 (11.6)	30 (12)	104 (41.6)	72 (28.8)

Table 3. *Attitude rate of participants*

In the performance parameter, 164 persons (65.6%) had the experience of self-examination in the last year that regarding Fig. 2 it was shown that only 17 persons (7%) had monthly self-examination. 130 persons (52%) were visited a physician or health and treatment centers for examination, during last year. Also 207 persons (82.8%) had not the experience of mammography. Regarding nutritional status, 129 persons (51.6%) always avoided excessive salt consumption. However, in the other cases such as fruit and vegetable consumption only 90 persons (36%), balanced diet only 76 parsons (30.4%), consumption of fiber containing foods only 54 parsons (21.6%), balanced weight only 63 persons (25.2%), excessive saturated fats consumption only 83 persons (33.2%), and excessive consumption of foods such as liver, egg, and red meat (that increase blood cholesterol) only 71 persons (28.4%), had an appropriate diet.

Fig. 2 *Rate and regularity of self-examination in studied participants.*

Regarding tobacco usage, only 11 persons (4.4%), regardless of the usage regularity, they were smokers. 12 persons (5.2%) had the experience of drug use, 30 persons (12%) had the experience of medicine and drug use, 34 persons (13.6%) had the experience having an addicted or alcoholic person in their life, and 22 persons (8.8%) had the experience of alcoholic materials consumption.

Subjects	Never	Sometimes	Often	Always
	No. (%)	No. (%)	No. (%)	No. (%)
I avoid excessive salt and sugar usage.	3 (1.2)	39 (15.6)	79 (31.6)	129 (51.6)
I use fruits and vegetables more than 5 times in a day.	6 (2.4)	59 (23.6)	95 (38)	90 (36)
I have a balanced nutritional diet.	17 (6.8)	43 (17.2)	114 (45.6)	76 (30.4)
I use fiber containing foods several times in a day.	6 (2.4)	73 (29.2)	117 (46.8)	54 (21.6)
I keep my weight in an appropriate range.	24 (9.6)	54 (21.6)	109 (43.6)	63 (25.2)
I avoid the use of saturated fats and foods full of fat.	7 (2.8)	71 (28.4)	89 (35.6)	83 (33.2)
I avoid excessive usage of foods such as liver, egg, and red meat that increase blood cholesterol.	17 (6.8)	68 (27.2)	94 (37.6)	71 (28.4)
Tobacco usage				
I am not a smoker.	1 (0.4)	5 (2)	5 (2)	239 (95.6)
I avoid use of drugs.	1 (0.4)	6 (2.4)	6 (2.4)	237 (94.8)
I avoid use of harmful drugs and medicines.	14 (5.6)	4 (1.6)	12 (4.8)	220 (88)
I avoid meeting addicted and alcoholic persons.	12 (4.8)	5 (2)	17 (6.8)	216 (86.4)
I avoid drinking alcoholic materials.	5 (2)	4 (1.6)	13 (5.2)	228 (91.2)

Table 4. *The status of nutrition and tobacco usage in studied participants*

As it could be concluded from Table 5, if the correlation test probability is smaller than 0.05, the assume for any correlation between two parameter is accepted. So, knowledge with drug usage (r=-.762, p-value=.027), and attitude with drug consumption (r=-.762, p-value=.027) had significant correlation and Pearson's correlation was negative. Knowledge with nutritional diet (r=.880, p-value=.036), and performance with nutritional diet (r=.593, p-value=.044) had significant correlation and Pearson's correlation was positive. Negative correlation index shows that both alterations happen in contradicted direction from each other and has indirect correlation. In the other word, it could be said that if the first variable increases, the second one will be decreased, and if the first variable decreases, the second one will be increased. So, if knowledge and attitude about breast cancer increases, drug usage will be decreased (negative correlation). Also if knowledge and performance about breast cancer increases, nutritional status will get improved (positive correlation). Also in this study, it was indicated that age has a significant effect on performance (p-value: 0.044) and attitude (p-value 0.029), marriage status has a significant effect on performance (p-value: 0.002), and occupation has a significant effect on performance (p-value: 0.001). Actually, if age increases, performance about breast cancer increases, and as educational level increases, knowledge and attitude about breast cancer increase, too.

		Knowledge	Attitude	Performance	Diet	Drug

Knowledge		1				
Attitude	Pearson's correlation	0.136*	1			
	Probability value	0.031				
Performance	Pearson's correlation	0.161*	0.019	1		
	Probability value	0.011	0.771			
Diet	Pearson's correlation	0.880*	0.593*	0.128*	1	
	Probability value	0.036	0.044	0.043		
Drug	Pearson's correlation	-0.762*	-0.130*	0.053*	0.123	1
	Probability value	0.027	0.041	0.406	0.052	

Table 5. *Correlation test between knowledge, attitude, performance, with nutritional and drug usage variables* *. Correlation is significant at the 0.05 level (2-tailed).*

Discussion

This study showed that a knowledge and attitude level in the studied participants is in the appropriate range, however, performance rate regarding that many of participants had no BSE or even mammography is in an inappropriate condition. Rosali and colleagues (2002) in an intervention study showed that breast cancer prevention education in African-American population could significantly increase the performance rate of breast cancer screening programs [34]. In the study of Hacihasanoglo and colleagues performed in Turkey (2008), it was shown that the level of knowledge and attitude of women participating in the research on breast self-examination after designed educational intervention increases significantly in comparison to previous status. In his study, the most important found barriers to breast self-examination were lack of information on how to perform breast self-examination, fear of being threatened by husband and friends, lack of time, and forgetting the regular and monthly timing of breast self-examination, and fear of finding a mass, and the researcher emphasized on the need for implementation of educational programs [42]. Cavdar also introduced these results to be forgetting, lack of information for BSE, low effectiveness of BSE, and fear of finding a mass [43]. It was shown in the present study that there is a significant correlation between education level and knowledge and attitude. So, regular and effective education can improve knowledge and attitude, and encourage women to do self-examination and clinical exams for screening breast cancer. It also can result to decrease in confronting to the drugs and alteration in nutritional pattern. Secginli (2006) proved this idea with a study. He introduced higher levels of education to be the predictive factor for a higher possibility to do screening behaviors such as BSE and mammography [44].Avci in his study for determination of factors which are effective on attitude and performance of BSE in employee women of an Islamic society showed that most of studied participants (73%) has no information about BSE, 77% has not the experience of doing BSE, and 95% expressed that perform BSE irregularly. Avci mentioned that women consider their breast to be a private organ, so they won't visit doctor for its examination. Moreover, body discovery via BSE makes defensive and protective thoughts in the mind of women, especially Muslim women that their society induces excessive prudency to them. So BSE is probable a painful, uncomfortable, and embarrassing procedure for them. This prudency may even occur in them during education of BSE by health personnel. The second factor is belief in destiny and God's willing that can be effective on perceived sensitivity and intensity of breast cancer in Muslim women [45], and could be a cause for irregular mammography and BSE that is seen in this study. So, it is recommended to Iranian researchers to study in this field in Iran. Carelli and colleagues (2008) reported that in developing countries, the possibility of mammography is not provided for all women, and BSE is a selective screening and free method; however, its effectiveness is dependent to the skill of examiner, instructions that patient has received, and the method that he uses.

Researchers emphasize that health education and improvement procedures can increase knowledge and skill of women to have correct and regular BSE, and decrease their fear and stress [46]. In the study of Avci (2008), marriage status had a significant correlation with BSE [45]. It was indicated in the present study that there is such a significant correlation with marriage status, so that, performance about breast cancer was more ideal in married and divorced persons.

Conclusion

Regarding findings of this study it is recommended that:

1. An effective educational program should be introduced to raise the knowledge and attitude of women about breast cancer.
2. A program should be introduced by health and treatment centers to learn the ways for alteration of life style pattern in the case of consumption or confronting to drugs (as an environmental oncogen), and also correct nutritional patterns.
3. As breast cancer is the most common cancer in Iranian women, more studies recommended to be performed in this case.

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