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Relationship Between the Approach to Disease and Anxiety by Performing Mammography on Women Visiting the Selected Health Centers of Tehran University of Medical Sciences

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Abstract

Background: Breast cancer accounts for about a third of all the cancers in women, and is the second most common cause of death from cancer in women, only surpassed by lung cancer. Breast cancer has the highest incidence among all cancers. Less than one percent of breast cancers occurs in women under the age of 25 years. After 30 years of age, the incidence of breast cancer increases sharply. The present study aimed to investigate the psychological factors associated with performing mammography as early diagnosis of breast cancer. The factors studied in this study include the approach to disease, and state and trait anxiety**. Methods:** A prospective descriptive study was conducted on 420 healthy women aged 39 to 50 years old visiting health centers affiliated to Tehran University of Medical Sciences. The instrument of this study was demographic questionnaire and approach to disease questionnaires and Spielberger's state and trait anxiety scale. One month after completing the questionnaires by research subjects and emphasizing the necessity of performing mammography, undertaking mammography or failure to do so was investigated. Data were entered into SPSS 18 software and analyzed by Chi-square and Fisher's exact test. Logistic regression test was used to investigate the effect of significant variables on the chance of performing mammography. **Results:** Of the 420 participants in the study, 203 participated in mammography. Significant results were obtained regarding the approach to the disease, which confirms the role of hypochondrial beliefs in health behaviors. Participation in mammography was not associated with state and trait anxiety, but the increase in the level of both types of anxiety increased the participation of women. **Conclusion:** This study suggests that considering psychological issues and individual differences in education and encouraging them to perform mammography is very effective.

Keywords: Mammography, Psychological Factors, State and Trait Anxiety, Approach to Disease

Introduction

Breast cancer accounts for about a third of all cancers in women and is the most common cause of cancer death in women after lung cancer. Breast cancer has the highest incidence among all cancers. Less than one percent of breast cancers occurs in women under the age of 25 years. After 30 years of age, the incidence of breast cancer increases with a steep slope. With the exception of a short period between the ages of 45-50 (in which the level of breast cancer reaches its minimum), the incidence of this cancer increases steadily and uniformly with age (Novak Bu, 2012). About 3,500 people die each year as a result of breast cancer in Iran. The 5-year survival rate of breast cancer in Iran is lower than compared to developed countries. This rate is 70% in Iran, the figure which is 90% for developed countries. Therefore, plans are needed to diagnose the disease and provide standard care to increase patient survival and reduce mortality. If breast cancer is diagnosed at an early stage, the survival rate could be as high as 95% (Medicine, 2008). Breast cancer, as the most common cancer in both developed and developing countries, has contributed to 521,000 deaths only in 2012 (Miran Beigi and Naghavi, 2006). About 3,500 people die each year due to breast cancer in Iran (Mahza, 2015). About 5-10% of breast cancers are inherited-based (Novak Bu, 2012). Among women who have breast cancer, 20-30% of them have a familial history of the disease. Although any family history of breast cancer increases the overall risk of relative risk, if the disease is detected in a post-menopausal period in one of the first-degree relatives or fellow relatives, the risk does not increase significantly.

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Given the significance of early diagnosis of breast cancer, mammography is recognized as the only valid test available for screening breast cancer (Atri Fred and et al, 2006). Mammography is the X-ray imaging of the breast (Mahram, 1993). According to the World Health Organization, only 41% of countries screen breast cancer through mammography (Nafisi and et al, 2010). According to the US Centers for Disease Control, obstacles for performing mammography include: 1) Psychological barriers (including unawareness and uncertainty); 2) Barriers related to physician and health care; and 3) Access-related barriers (insurance, distance, socio-economic status, etc.) (8). Studies conducted in Iran suggest that, besides the lack of advice from physicians and health care providers, fear and embarrassment and lack of knowledge about the necessity of testing are among the main barriers to mammography (9). The factors behind cancer screening in women include self-care, phobia and active mental resistance (10).

The state anxiety is a fragment of a person's life, in which the occurrence of anxiety happens due to temporary, intensive situations (heated discussions, loss of social situations, threats to the security and human health). But trait anxiety implies individual differences in response to stressful situations with varying degrees of state anxiety (11). Approach to disease is a tool that measures the hypochondriac tendencies that lead to over-utilization of health services (recurring visits to professionals, testing, and hospitalization in succession). Therefore, the patient itself is thought to be a disturbance in the DSM-IV-TR classification of the American Psychiatric Association, which means fear of a fatal, chronic or severe illness (12). After identifying self-diagnosis based on defined criteria, individuals are divided into two categories: a group with a weak vision that assumes that their worries and mental work are not unrealistic, and the other group that they think is worrying they are too much about their physical condition. These are the same groups that the American Psychological Association has introduced them as well-known individuals (13).

Raja et al. (1999) investigated the psychological predictors of women's participation in the first screening screening mammography. The results of this study indicated that the symptoms of depression and anxiety were higher in the group who refused to perform mammography, and the most recent mammography were the most promising predictors of non-participation in mammography, while ensuring the ability in controlling and preventing cancer as well as fear of pain, there are factors that can frighten people from mammography (14). In a retrospective study in Spain, Loosteau et al. (2010) examined components of the health belief model and the approach to disease as factors associated with participation in screening mammography. The results showed that the fear of disease and the effect of symptoms were related to the level of participation (15).

The present study aimed to investigate the psychological factors associated with performing mammography as early diagnosis of breast cancer. The factors studied in this study include the approach to disease, state and trait anxiety.

Research Method

This is a prospective descriptive-analytic study. The research population consisted of 420 women aged 39 to 50 years old recruited to the health centers of Tehran University of Medical Sciences. The midwifery health plan was implemented there. The criteria for entering the study include having elementary and higher education, getting acquainted with the Farsi language, age 50-39 years, not having any of the psychological diseases, not taking any antibiotic drugs, not having breast cancer in yourself and the first-degree family, and not having a history of mammography. Exit criteria included a person's unwillingness to continue the research, incomplete completion of the questionnaires and failure to submit the questionnaires.

Sampling was done by simple random classification method during the period of September to the end of November 2013. So each health center is one floor. In each category, the required number of women was selected for mid-year health records. The number of samples in each category was determined based on the time of referral to each health center. 35% of the research samples were from Akbar Abad Health Center, 25% were from Shaheed Nawab Health Center, 20% from the southern center of Tehran and 20% from the Health Center in eastern Tehran. The data gathering tool was a demographic questionnaire, IAS, and Spilberger's Secret and Detecting Anxiety Questionnaire. The psychological approach to questionnaire in Iran was revised by Mahdieh Atrifar et al. In 2006 (16) and the Spielberger Anxiety Questionnaire was standardized by Mehram in 1372 (17).

Like the original version of IAS, the Persian version of the Disease Approach Questionnaire also includes nine subscales, each of which consists of three items. Each of these nine sub-scales is graded according to the five-level Likert scale from 0 to 4. (0 = never, 1 = rarely, 2 = sometimes, 3 = often, 4 = always. The overall IAS is in the range from 0 to 108, and scores for each sub-scale range from 0 to 12. For example, under the worst case rate, higher scores indicate concern about having a serious illness. Two items 22 and 26 provides additional information but is not included in the scoring. This questionnaire shows the general imagination of the patient and not his recent beliefs. The STAI's state and trait anxiety questionnaire includes separate self-assessment scales for Clear and trait anxiety measurement. The state anxiety scale (STAI form Y-1) consists of twenty sentences that assess the individual's emotions at this moment and at the time of the response. The trait anxiety scale of the form y-2 STAI also includes twenty sentences that measure the general and ordinary feelings of people. In 1993, a study was conducted to standardize the Spielberger test, and he examined the reliability of the test in two groups of norm and criterion separately. In addition, the study has a narrative, a kind of concurrent criterion. Also, the reliability of this questionnaire has been calculated in 87% of the research. Kazemi Malek Mahmoudi (2003) and Rohi (2005) also calculated the reliability of the Spielberger

test in the preliminary study 89 and 90 percent respectively (17). The data were collected in two steps and entered into SPSS software (version 20).

Research Findings

As shown in Table 1, the majority of participants in the study were people aged 39 to 45 years old. The marital status of the research samples showed that most participants were married. 12.4% have not had delivery, 16% had a history of delivery, 12.9% had a two-time record, 46.2% had a three-time record, 12.6% had a history of 4 times or more. According to Table 1, most research samples have had secondary education. Most participants reported a relatively favorable income level. Most of the participants in the research were unemployed.

Table 1- Distribution of absolute and relative frequency of age, marital status, number of deliveries, educational level, family income level and employment status in women referring to selected health centers of Tehran University of Medical Sciences in 2013

Variable		Frequency	Percentage
Age	39-45	239	56.9
	45-50	181	43.1
	Total	420	100
Marital Status	Single	28	6.7
	Married	391	93.3
	Total	419	100
Number of deliveries	Zero	52	12.4
	One	67	16
	Two	54	12.9
	Three	194	46.2
	Four or more	53	12.6
	Total	420	100
Education Level	Middle School	177	42.2
	High School	187	44.5
	Academic	56	13.3
	Total	420	100
Income Level	High	74	17.8
	Moderate	239	57.5
	Low	103	24.8
	Total	416	100
Employment Status	Housewife	354	85.9
	Employee	58	14.1
	Total	412	100

The level of trait anxiety for the research samples in Table 2 shows that most participants (42.6) had a moderate to high level of trait anxiety, while most of them (44.7) had also moderate to high level of state anxiety.

Table 2- Distribution of absolute and relative frequency of state and trait anxiety in women referred to selected health centers of Tehran University of Science Sciences in 2013

Variable		Frequency	Percentage
State Anxiety	Mild Anxiety	22	5.2
	Low to Moderate Anxiety	109	26.0
	Moderate to High Anxiety	179	42.6
	High Anxiety	100	23.8
	Severe Anxiety	8	1.9
	Very Severe Anxiety	2	.5
	Total	420	100.0
Trait Anxiety	Mild Anxiety	18	4.4
	Low to Moderate Anxiety	110	26.7
	Moderate to High Anxiety	184	44.7
	High Anxiety	89	21.6

	Severe Anxiety	8	1.9
	Very Severe Anxiety	3	.7
	Total	22	5.2

As shown in Table 3, there is no significant relationship between participation in mammography and age of participants in the research (P = 0.59). There was no significant correlation between marital status of the research samples and performing mammography (P = 0.432). According to Table 3, 95% confidence can be claimed that there is no relationship between participation in mammography and educational level of research samples (P = 0.16). Fisher's exact test was used in this study. There is no significant relationship between household income level and participation in mammography (P = 0.1). There is also a significant relationship between the status of occupations and participation in mammography (P = 0.045).

Table 3:

Variable		**Participation in Mammography**				**P-Value**
		Yes		No		
		Frequency	Percentage	Frequency	Percentage	
Age	39-45	118	58.1%	120	55.5%	0.59
	46-50	85	41.9%	96	44.5%	
	Total	203	100%	216	100%	
Marital Status	Single	11	5%	16	7%	0.59
	Married	192	95%	198	93%	
	Total	203	100%	214	100%	
Education Level	Middle School	80	39.4.%	97	44.9%	0.16
	High School	100	49.2%	86	39.8%	
	Academic	23	11.4%	33	15.3%	
	Total	203	100%	216	100%	
Income Level	High	28	13.9%	45	21%	0.10
	Moderate	125	62.1%	114	53.3%	
	Low	48	23.8%	55	25.7%	
	Total	201	100%	216	100%	
Employment Status	Housewife	178	87.6%	175	81.3%	0.04
	Employee	25	12.4%	40	18.7%	
	Total	203	100%	215	100%	

Considering the data provided in Table 4, there is a correlation between the level of concern about the disease and the participation in mammography, so that those who report their concern about the disease as high had the highest level of participation in mammography (40%). Also, in people with low and moderate levels of concern about pain, people tend to be less oriented towards mammography. As many as 31% with low pain concern participated in mammography. There is a significant correlation between hypochondriacal beliefs and participation in mammography (P = 0.04). Among the participants in mammography, the group with moderate level of hypochondriacal beliefs had the highest share of participants (43.8%). people higher level of fear of death participated more actively in mammography. There is also a statistically significant relationship between mammography and state anxiety levels. Individuals reporting moderate to high level of anxiety had the highest participation in mammography (39.4%). There is also a significant relationship between mammography and the level of trait anxiety (P <0.05).

Table 4. Frequency distribution of mammography by variable level of concern about the pain, concern about the disease, hypochondriacal beliefs, fear of death, state anxiety and trait anxiety

Variable		**Participation in Mammography**				**P-Value**
		Yes		No		
		Frequency	Percentage	Frequency	Percentage	
Concern About the Disease	Low	60	29.5%	90	41.4%	0.03
	Moderate	60	29.5%	67	30.8%	
	High	83	40%	60	27.6%	
	Total	203	100%	217	100%	
Concern About the Pain	Low	63	31%	87	41.2%	0.01
	Moderate	65	32.1%	71	33.6%	
	High	75	36.9%	53	25.2%	
	Total	203	100%	211	100%	

Hypochondriacal Beliefs	Low	80	39.4.%	97	44.9%	0.04
	Moderate	100	49.2%	86	39.8%	
	High	23	11.4%	33	15.3%	
	Total	203	100%	216	100%	
Fear of Death	Low	50	25%	81	38.5%	0.006
	Moderate	75	37.5%	80	38%	
	High	75	37.5%	49	23.5%	
	Total	200	100%	210	100%	
State Anxiety	Mild Anxiety	8	3.9%	14	6.5%	0.007
	Low to Moderate Anxiety	50	24.6%	59	27.3%	
	Moderate to High Anxiety	80	39.4%	99	45.8%	
	High Anxiety	63	31.0%	36	16.7%	
	Severe Anxiety	2	1%	6	2.8%	
Trait Anxiety	Mild Anxiety	10	5.0%	8	3.8%	0.038
	Low to Moderate Anxiety	49	24.6%	61	28.8%	
	Moderate to High Anxiety	81	40.7%	102	48.1%	
	High Anxiety	55	27.6%	34	16.0%	
	Severe Anxiety	4	2.0%	4	1.9%	

Regarding the data values in Table 5, in individuals with a high level of concern about the disease, the chances of performing mammography 2.2 compared to the weak group are. This chance is statistically significant. In people with a high level of concern about pain, the chance to do mammography is 2.00 compared to the weak group. This relationship is statistically significant. In people with a high level of fear of death, the chances of performing mammography are 2.5 compared to the weak group. This relationship is statistically significant. In people with a high level of self-centered beliefs, the chances of performing mammography are 1.74 compared to the poor. This relationship is not statistically significant. In general, it can be claimed that there is no statistically significant relationship between the level of Hypochondriacal beliefs and performing mammography. In subjects with a moderate level of anxiety, the chance of performing mammography is 1.02, which is not statistically significant. In the case of people with a strong level of anxiety, the chance to perform mammography is higher than that of the group with a low level of trait anxiety, so this relationship is not statistically significant. According to the table of people with a moderate level of anxiety, the chance of performing mammography is 0.95. This chance is less than that of the weak level of trait anxiety and, given that P = 0.86, this relationship is not statistically significant. In the group with a high level of trait anxiety, the chance of performing mammography is 1.65, which is more than that of the low level, but not statistically significant (P = 0.19).

Table 5. Logistic regression analysis results for the chance of performing mammography for variable of Concern about the Disease, Concern about the Pain, Fear of Death, Hypochondriacal beliefs, State Anxiety and Trait Anxiety

Variable		B	S.E.	P-value	OR	95% CI for OR	
						Min.	Max.
Concern About the Disease	Moderate	-0.4	0.12	<0.001	0.66	0.55	0.85
	High	0.82	0.26	<0.001	2.2	1.44	5.68
	Low	-	-	-	1	-	
Concern About the Pain	Moderate	-0.32	-/12	0.007	0.72	0.56	0.91
	High	0.69	0.25	0.008	2.00	1.44	3.67
	Low	-	-	-	1	-	
Fear of Death	Moderate	-0.43	0.12	0.001	0.64	0.50	0.83
	High	0.92	0.27	0.001	2.5	1.44	3.67
	Low	-	-	-	1	-	
Hypochondriacal Beliefs	Moderate	-0.25	0.13	0.05	0.77	0.59	1.00
	High	0.55	0.28	0.05	1.74	0.5	0.9
	Low	-	-	-	1	-	
State Anxiety	Moderate	0.02	0.28	0.93	1.02	0.58	1.79
	High	0.37	0.38	0.32	1.45	0.68	3.10

	Low	-	-	-	1	-	
Trait Anxiety	Moderate	-0.51	0.295	0.863	0.950	0.533	1.695
	High	0.0502	0.387	0.194	1.652	0.775	3.525
	Low	-	-	-	1	-	

Discussion and Conclusion

Various studies have been carried in this field, many of which offer rather contradicting results. in a study on 1030 Japanese women aged 40 and older, Adachi et al. (2014) concluded that mammography is more popular among married and working women (18). The findings of this study are contradictory with the current regards in relation to the relationship between employment status and performing mammography. A feasible reason for the less willingness of women working in our country to do mammography is perhaps preoccupation with other responsibilities of life. In the study of Lagerlund et al., Single mothers and those who had a birth or three or more births showed less reluctance to perform mammography (19). The results of studies in Iran also show that there is a direct relationship between employment status, socioeconomic level and education level and screening, while the insurance status has no effect on screening.

There is a correlation between the approach to disease and mammography as an early diagnosis of breast cancer. By examining the relationship between the effect of each of the subscales of the approach to the disease, subscales of concern about the disease, concern about pain, fear of death and hypochondriacal beliefs associated with performing mammography. After examining the results of logistic regression for the mentioned variables with the chance of performing mammography, the relationship between hypochondriacal beliefs and mammography was not statistically significant. In the case of other variables, in the group of "strong" groups, the chance of participation in mammography was statistically significant. But in the case of moderate levels, we did not achieve significant results. Sandin and colleagues found that the tool was powerful in predicting the lack of women's participation in screening for breast cancer screening in anticipation of the predictive value of this scale (approach to disease) in women's participation in screening for breast cancer. In such a way that self-conscious beliefs and excessive fear of illness were strongly associated with the refusal to perform mammography. This indicates that high levels of cognitive anxiety have an inverse relationship with health behaviors (20). Also, the results of this study is in line with the findings of Arja et al. In (1999) (14). As an interpretation for such contradictory findings, it can be stated that considering the fact that the most important factor in predicting behavior is awareness and cognition (21), therefore, in societies that are less knowledgeable about preventative behaviors and screening of fatal illnesses Knowledge is about fear and fear of illness and death. Previous studies that have been conducted on Iranian women about their knowledge of breast cancer (22) confirmed this, so measuring this parameter was not done in this study. Because excessive self-consciousness tends to lead to over-utilization of health services (such as frequent referral to experts, testing, and hospitalization), resulting in increased costs for the individual and the health system, and Also, it creates problems for the individual, family, and work environments, paying attention to this factor in the study of women's psychological issues is more than ever before.

The results of the current research showed that there is no direct correlation between state anxiety and mammography. Therefore, state and trait anxiety could not predict mammography, but when there was anxiety level rather than the raw and state anxiety scores, a more meaningful relationship was found. In the higher levels of both types of anxiety, women's participation in mammography was higher. According to the results of logistic regression analysis, the chance of people with a moderate level of trait anxiety is less than that of the low level of trait anxiety and this relationship is not statistically significant. The chance of group with high level of trait anxiety was higher than the level of poor level but not statistically significant (P = 0.19).

Morgue et al. (2015) declared anxiety as an important factor in predicting behavior (23). The findings of this study coincided with the findings of the study by Arja et al. (1999) (14). In subjects with a moderate level of trait anxiety, the chance of performing mammography is 1.02 (OR = 1.02) and with a confidence interval of 0.58-1.79, which, given that P = 0.93, this relationship is not statistically significant. In the group of people with a high level of trait anxiety, the chance of performing mammography is higher than that of the poor-level group of trait anxiety. Therefore, this relationship is not statistically significant.

The American Psychology Society has introduced the state anxiety (not trait anxiety) as a critical factor in predicting health behaviors, and it is influenced by factors such as supportive systems, health and personality characteristics of individuals (24). In various researches on behavioral psychology, a level of anxiety has been introduced as a factor in the motivator of constructive behavior. It should be noted that emotions and emotions are strongly influenced by race and ethnicity (25). Anxiety is a natural anxiety that is created in perilous situations, and by mobilizing the biological and cognitive abilities of a person, he helps him find appropriate solutions to situations, and indeed has a constructive role (11). However, in most studies, anxiety is known as a trigger for health behavior. It seems that the absence of cancer in relatives of a degree in a research sample and failure to perform a previous mammography is a reason for the inability of anxiety to predict the participation of these individuals in mammography.

Hence, the findings of this study showed with a 95% confidence level that people with higher levels of either state or trait anxiety are more willing to undertake mammography. On the other hand, the socioeconomic level, the insurance coverage, the age and the number of children had no correlation with mammography. With a 95% CI, the variable of participating or not participating in mammography with the approach of people to the disease can predict the participation of women in mammography. In addition, state anxiety alone cannot be predicted or mammography failure, but the level of state anxiety is directly related to mammography. By increasing the level of state anxiety, the rate of mammography is increased. But this relationship is not statistically significant. It can also be said that as with state anxiety, trait anxiety alone cannot be predicted or mammography is not performed, but the level of trait anxiety is directly related to performing mammography. This increases the level of mammography by increasing the level of trait anxiety. But this correlation was deemed not statistically significant.

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