

ORIGINAL ARTICLE

The Correlation of Social Support and Fear of Breast Cancer among Women in Northeast of Iran: A Cross-Sectional Study

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ABSTRACT

Background: Breast cancer (BC) is the most commonly diagnosed cancer worldwide. Screening programs are the most common prevention methods. Perceived social support and fear are two important factors affecting women's participation in breast cancer screening. This study aimed to determine the relationship between fear of BC and perceived social support among women in Torbat Heydariyeh, northeast of Iran.

Methods: This study is an online cross-sectional survey that was conducted on 352 women in Torbat Heydariyeh city of Northeast Iran, from October 26th, 2021 to December 26th, 2022. Along with collecting sociodemographic characteristics, the Breast Cancer Fear Scale (BCFS), and the Multidimensional Scale of Perceived Social Support were electronically administered to participants. Data were analyzed through SPSS software version 25, using independent samples t-tests, one-way analysis, Pearson's correlation coefficient, and multiple linear regression models. The statistical significance level was set at $P < 0.05$.

Results: The mean score for the BCFS was 20.67 ± 1.03 which was in the moderate range for the total score of 40. Assessment of perceived social support indicated a moderate level of perceived support for all dimensions. Also, a significant correlation was found between the women's BCFS scores and perceived social support ($r = -0.29$, $P < 0.001$).

Conclusion: We found that there was a negative statistically significant correlation between the BCF and social support. Therefore, this study suggests that healthcare providers pay attention to these factors. Moreover, further research is needed to explore the long-term effects of BCF due to low social support.

Keywords: Breast cancer, Fear, Social support

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INTRODUCTION

Breast cancer (BC) is the most commonly diagnosed cancer worldwide¹ and according to the International Agency for Research on Cancer (IARC, 2022), there were approximately 2.3 million women (11.7%) diagnosed with BC and 6.9% death cases¹. Similarly, BC is the most common type of cancer in Iranian women in 2018 (12.5%, n=13,776), and it is estimated that the total cases of BC will reach 22,828 in 2040; also, in 2016, Disability-Adjusted Life Years (DALY) for BC in females of this country was 106702 (18.9%).^{2,3}

According to National and sub-national burden of diseases, the trend of BC showed that the incidence rate of BC in women of the Razavi Khorasan Province was about 5.24 per 100,000 people (n=115; CI:64-178) in 1990, which reached 35.61 per 100,000 (n=1164; CI:977-1351) people in 2016.⁴ Therefore, the rising trend of BC increases the importance of preventive interventions. BC screening plays an important role among health promotion activities and can be effective by creating awareness in early detection of BC.⁵

The studies indicated that Iranian women's awareness and attitude towards BC and screening methods are at a low level.^{6, 7} The screening program should be available to women and they should be aware of all health and treatment facilities. Studies show that Iranian women are not aware of health care and screening conditions in the health system.^{8, 9} Screening programs are the most common preventive methods worldwide, and they are recommended to prevent BC, especially in young women.¹⁰ The BC screening program focuses on awareness and breast self-examination (BSE), clinical breast exam (CBE), and mammography in Iran. Although there is wide progress in treatment of BC, the prognosis remains poor in developing countries including Iran.¹¹ The previous studies emphasize that the counseling rate of women for early detection of BC is low, and there are barriers to participation in early detection.^{12, 13} The influencing factors on

women's attitude in early diagnosis include lack of health insurance and information about early detection programs and appropriate facilities; family, friend and spouse support; health beliefs; age; education; lack of transport vehicles; lack of training; negligence; shame, lack of education; financial issues; and women's fears (loss of breast, death, change in body image, etc.).¹³⁻¹⁶ The results of various studies show that the rate of participation in screening behaviors among Iranian women is very low, and different factors affect the use or non-use of screening services, especially BC screening. The most important factors are lack of knowledge, fear of the possibility of detecting a malignant mass, the perception of pain, and lack of social support.^{17, 18} Previous quantitative and qualitative studies showed that women's fear of participating in cancer screening is one of the supporting and inhibiting factors.¹⁹⁻²¹ Some studies have shown social support as an important factor affecting women's participation in BC screening.^{22, 23} However, some studies reported that there was no effect of social support.^{24, 25} Social support is an integral part of human life. Communication with other people can provide useful assistance to a person, and social support is defined as access to helping behaviors. In other words, social support is a functional outcome of social network interaction and the activity of enabling supportive behaviors. In health behaviors, social support increases access to physical and emotional health factors. Various studies have pointed out the use of the social support structure and BC screening behaviors.^{26, 27} Then, determining the effect of the factors related to socio-cultural aspects of participation in BC screening can be effective in BC screening. Therefore, the present study aimed to determine the relationship between fear of BC and perceived social support among women in Torbat Heydarieh, northeast of Iran.

MATERIALS AND METHODS

This study is an online cross-sectional survey.

The participants were 352 women over 40 years old from Torbat Heydarieh, Razavi Khorasan Province of Northeast Iran who completed an online questionnaire distributed through Google Forms from October 26th, 2021 to December 26 th, 2022. Individuals were approached for participation through social-media applications and text messaging.

The sample size was estimated based on similar studies and using correlation coefficient as regards the margin of $r=0.23$, $\beta=90\%$, error alpha (α)= 0.05 , the confidence level of 95% ; we estimated 352 participants for the study. The convenience sampling was applied for selecting the participants, and the online questionnaire was sent to the women selected.²⁷

For initial recruitment, according to the 19 health centers in Torbat Heydarieh city, this city was divided into 19 sections, and 50 women over 40 years old were randomly selected from each health center ($N=950$). The researcher contacted the women via the phone numbers listed in the health record through individual phone calls and obtained their verbal informed consent. An informational document that provided the details of the survey (i.e., the title of the research, aim of the study, privacy information, and researcher phone numbers) was distributed among potential participants, and any question the participants had regarding the study were answered. A Uniform Resource Locator (URL) linking to the consent form was sent to each female who agreed to participate, and consent to participate was confirmed through electronic signature (the ticking of the box on the form). After consent form was received, an URL for the Google Forms questionnaire was sent to the women by social-media applications and text messaging; 352 (93%) responses returned. We allocated a specific cookie to each telephone number to identify the participants. Duplicate entries were avoided by preventing the users from accessing the survey twice. Also, duplicate database entries with the same user ID were eliminated before analysis.

The inclusion criteria for participation were: 1) literacy and ability to complete the questionnaire, 2) age over 40 years old, 3) dwelling place in Torbat Heydarieh, Razavi Khorasan Province, 4) Iranian nationality, 5) Absence of breast cancer and other cancers, and 6) not exposure to severe psychological stress during the last 6 months. The exclusion criterion was the participants' withdrawal from participating in the study after completing the questionnaire.

The survey was conducted online, and the Checklist for Reporting Results of Internet E-Survey (CHERRIES) was applied to report the findings.²⁸ The online questionnaire was developed using Google Form. The survey answers were automatically gathered in an EXCEL spreadsheet that was imported into SPSS software for data analysis. To assess the functionality of the questionnaire, we tested the constituent tools on a group of 30 women. These females were excluded from the main study.

The research instrument included Sociodemographic characteristics questionnaire, Breast Cancer Fear Scale (BCFS), and Multidimensional Scale of Perceived Social Support (MSPSS).^{29, 30}

Participants' sociodemographic characteristics, including age, marital status, education level, income, number of family members, and occupational status were collected.

The women were asked to report their level of fear regarding the BC. BCFS is an eight-item scale designed to measure fear of BC among females.²⁹ Psychometric properties of BCFS was considered in Iranian women.³¹ The responses are scored using a five-point scale (1="strongly disagree", 2="disagree", 3="neither agree nor disagree", 4="agree", and 5="strongly agree").³¹ The scores of all eight items are summed to obtain the total score; thus, the range for the total score is 8-40. Higher scores indicate greater fear of BC. We considered any mean score ranging from 8 to 15 as low fear; a score of 16 to 23 could be considered moderate fear; and

a score from 24 to 40 could be regarded as high fear.²⁹ The validity and consistency of BCFS were confirmed by Champion et al.; the Cronbach alpha for this scale was 0.91.²⁹

The face and content validity of the BCFS was provided through panel experts (N=10) consisting of four experts in health education, three social medicine specialists, an oncologist, a radiologist, and a psychologist. They evaluated the relevance of the item to local culture, and clarity, together constituting the items of Content Validity Ratio (CVR). The necessity of an item was assessed through CVR, and the items with score <0.62 were deleted according to Lawsh's.³²

Experts were also asked to determine the Content Validity Index (CVI). Therefore, for BCFS we calculated CVR=0.79 and CVI=0.80.³³ The reliability coefficient of BCFS was reported 0.95 among Iranian women.³¹ The reliability of BCFS was provided using Cronbach's alpha. The total coefficient was 0.79 for BCFS.

The Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure social support. It determines the aspects of social support that people perceive.³⁰ Psychometric properties of MSPSS was considered in Iranian population.³⁴ MSPSS is a 12-item self-administered scale and the responses are scored using seven-point Likert scale (1="very strongly disagree", 2="strongly disagree", 3="mildly disagree", 4="neutral", 5="mildly agree", 6="strongly agree", 7="very strongly agree"). This instrument includes three subscales about the source of support, each of which has four items (family, items 3, 4, 8, 11; friend, items 6, 7, 9, 12; significant others, items 1, 2, 5, 10). For each subscale, the mean score is determined by summing the scores for each related item and dividing the result by 4, and the total score is specified by adding up the scores of three subscales. We considered any mean scale score ranging from 1 to 2.9 as low support; a score of 3 to 5 as moderate support; and a score of 5.1 to 7 as high support.

The face and content validity of the

MSPSS was provided through panel experts (N=10) consisting of four experts in health education, three social medicine specialists, an oncologist, a radiologist, and a psychologist. They evaluated the item's relevance to local culture, and clarity, together constituting the items' CVR. The necessity of an item was assessed through CVR and the items with a score of <0.62 were deleted according to Lawsh's method.³² Experts were also asked to determine CVI. Therefore, for MSPSS we calculated CVR=0.79 and CVI=0.79.

The scale has acceptable concurrent validity. The reliability coefficient of MSPSS was reported 0.84 among Iranian population, and the Cronbach's alpha coefficient was reported 0.90, 0.93 and 0.85, for the friends, significant others, and family subscale, respectively.³¹

We determined the reliability of the MSPSS using Cronbach's alpha. The Cronbach's alpha coefficients for the subscales of MSPSS were 0.89, 0.88, and 0.81 for the family, friend, items, and significant others, respectively. The reliability and internal stability of the instruments were confirmed by calculating Cronbach's alpha coefficient, so that the reliability of MSPSS was calculated ($\alpha=0.81$).

Data were analyzed using SPSS software (IBM, SPSS Statistics, version 25). At first, the data were checked for missing data and outliers. There were no missing data because, on the e-survey, we had a star on each question that women could not move to the next question without answering the previous question. Box plot and histogram and Kolmogorov Smirnov test were used to confirm normality. The linearity was checked using Pearson correlation, and homogeneity was determined via the Levene's test. Descriptive statistics including frequencies (n), percentages (%), means, and standard deviations (SDs) were used. Variations between sub-categories of demographic variables were checked using chi-square test. Independent samples t-tests and one-way analysis of variance were used to identify different variations in demographic sub-groups. Further, the Pearson correlation

coefficient was applied to determine the correlation between variables. The multiple linear regression model was performed to estimate the relationship between independent variables and social support and BCFS perception. The statistical significance level was set at $P < 0.05$.

This study was conducted under the Declaration of Helsinki and approved by the Research Ethics Committee of Shiraz University of Medical Sciences (Approval ID: IR.SUMS.REC.1400.572). First, the objectives of the research were explained to the subjects, and the informed consent form was signed by all participants; they were also assured of the confidentiality of their information. Informed consent was obtained from all the participants.

RESULTS

The results showed that the participants' mean

age was 44.38 ± 8.14 years. More than half of them were married (75%), and approximately 43.8% of the participants were graduates. The results of the ANOVA test revealed that married participants showed statistically higher levels of BCF, compared with other participants ($P < 0.001$). Moreover, primary school participants showed higher levels of BCF ($P = 0.004$). The findings showed that the participants with secondary school education and income level of 10-15 million Rials had the highest level of perceived social support. The women's sociodemographic characteristics are presented in Table 1.

The findings showed that the mean score of BCFS was 20.67 ± 1.03 , which was in the moderate range for the total score of 40. Most of the participants (36.4%) had a fear level between 24-40, which is classified in the highest level of fear, 29.5% of them had a fear level between 16-23 (moderate level of fear), and 34.1% of them had a fear level between 8-15 (low level of fear).

Table 1: Socio-demographic characteristics and the mean of social support and breast cancer fear based on socio-demographic characteristics

Variables	N (%)	Social support Mean±SD	P value	Breast cancer fear Mean±SD	P value
Marital status			0.35*		<0.001*
Single	66 (18.75)	4.02±0.95		19.46±7.93	
Married	264 (75.01)	4.16±0.61		21.75±10.76	
Divorced	11 (3.12)	4.35±0.70		14.54±4.69	
Widow	11 (3.12)	4.06±0.93		8.18±0.40	
Educational level			<0.001*		0.004 *
Primary school	45 (12.80)	4.16±0.57		23.90±11.55	
Secondary school	48 (13.63)	4.28±0.42		23.70±10.88	
High school	52 (14.77)	4.19±0.81		23.50±11.92	
Graduate	154 (43.75)	4.03±0.60		18.44±9.09	
Post-graduate	53 (15.05)	4.16±0.57		21.70±8.99	
Income			<0.001*		<0.001*
≤1 million	38 (10.80)	4.02±0.83		19.57±9.25	
1-3 million	71 (20.17)	3.89±0.89		27.19±9.40	
3-5 million	57 (16.20)	3.90±0.63		22.01±9.05	
5-7 million	94 (26.70)	4.38±0.55		19.84±10.83	
7-10 million	66 (18.75)	4.23±0.67		16.60±9.23	
10-15 million	26 (7.38)	4.39±0.58		14.88±8.28	
Number of family members			0.26*		0.004*
1-2 persons	68 (19.31)	4.16±0.73		22.38±9.57	
3-5 persons	251 (71.30)	4.11±0.72		20.92±10.42	
6-8 persons	33 (9.39)	4.32±0.38		15.27±9.45	
Occupational status			0.05**		0.04**
Household	202 (57.38)	4.20±0.67		19.32±11.34	
Employee	150 (42.62)	4.05±0.74		21.15±8.75	

*One way ANOVA, **Independent t-test

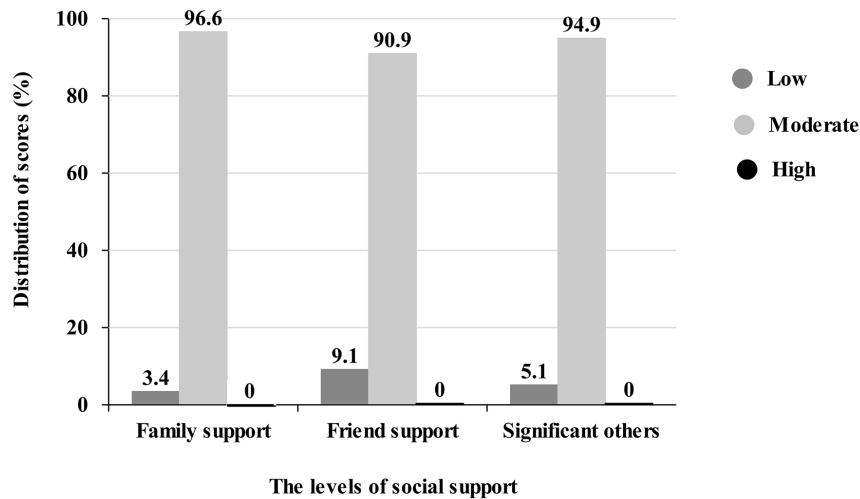


Figure 1: Frequency of perceived social support dimensions

Table 2: The correlation between the women's perceived social support and breast cancer fear

Scales	Breast Cancer Fear	
Perceived social support	r	P value*
Family support	-0.27	<0.001
Friend support	-0.14	0.007
Support from significant others	-0.04	0.391
Total	-0.16	0.002

*Pearson correlation coefficient

Table 3: Multiple linear Regression model of social support and breast cancer fear with socio-demographic characteristics

Variables	Social support			Breast Cancer Fear		
	B**	Std. Error	P value*	B	Std. Error	P value*
Age	-0.003	0.004	0.49	-0.14	0.05	0.01
Marital status	0.01	0.07	0.83	-0.54	1.05	0.60
Educational level	0.04	0.02	0.11	-1.28	0.39	<0.001
Income	0.18	0.04	<0.001	-1.70	0.41	<0.001
Occupational status	0.14	0.02	<0.001	2.50	0.68	<0.001

*Multiple linear Regression; **Un standardized beta

The results indicated the mean subscale scores for significant others subscale, family subscale, and friends subscale were 4.07 ± 0.79 , 4.17 ± 0.72 , and 4.18 ± 0.78 respectively. The total mean score for MSPSS was 4.14 ± 0.70 that showed the level of perceived social support was moderate.

Figure 1 shows the distribution of scores for the three subscales of MSPSS over three levels of support (low, moderate, and high support). The Figure shows that all the three dimensions are consistently distributed across the two levels of low and moderate. This pattern was consistent in only two dimensions (Figure 1).

The Pearson correlation coefficient indicated that there was an association between the women's BCFS scores and perceived social support ($r = -0.16$, $P = 0.002$). Also, the Pearson correlation showed that there was a negative and weak association between the women's BCFS scores and family support ($r = -0.27$, $P < 0.001$) and friend support ($r = -0.14$, $P = 0.007$), but there was a statistically insignificant correlation between the women's BCFS scores and support from significant others ($r = -0.04$, $P = 0.39$) (Table 2).

The multiple linear regression models showed age ($P = 0.01$), educational level ($P < 0.001$), income ($P < 0.001$) and occupational

status ($P < 0.001$) were significant associations of BCF perception, so that the best predictor of BCF was occupational status. The multiple linear regression models showed income ($P < 0.001$) and occupational status ($P < 0.001$) were significant associations of perceived social support, so that the best predictor of perceived social support was income (Table 3).

DISCUSSION

The results of the present study provided some insights into the association between the perception of BCF and perceived social support. Also, the findings indicated that some socioeconomic characteristics were predictive factors for BCF and perceived social support among women living in Torbat Heydarieh city.

Looking at the present study, the majority of participants had high and moderate levels of BCF. Obviously, fear can influence women's decisions about whether to see a doctor in time.

Obviously, the fear of BC diagnosis and treatment leads to patient denial.³⁵ Likewise, another study revealed that more than half of the women who participated in the study strongly agreed that when they thought about breast cancer, they experienced negative feelings like fear, anxiety, worry, and sadness.⁷ The review article suggested that one of the barriers to BC screening in Iranian females was fear. A significant number of women remain under-screened due to the fears of cost and availability of screening, lack of health insurance, screening-related pain, positive findings, and fear of a poor outcome during screening.³⁶

The results showed that the level of perceived social support was moderate. According to the present study, the majority of the participants had a moderate level of perceived social support related to socioeconomic status, so the higher the income of the individuals, the greater the social support. Consistently, previous literature reported a direct association between the level of social support and income.²⁴ It also confirmed that women who did not adhere

to screening guidelines reported less social support.²⁴

The lack of different types of perceived social support plays an important role in delayed BC screening. In this regard, evidence showed a lack of cooperation and support from the partner, or dysfunctional marriage were important obstacles to doing on-time screening.^{36, 37} While one study showed that perceived social support did not have an effect on BC screenings, another study suggested that women preferred not to share their health issues with their family or spouse due to a lack of family support.^{12, 36} These findings highlight the importance of developing strategies to enhance perceived social support among targeted women and include their social networks in education and counseling.³⁸

In contrast to our results, a study conducted in Malaysia illustrated that social support was not found to be effective in performing mammography and BSE, rather it was found to be encouraging to CBE.³⁹ It seems that one of the reasons for this difference is the use of tools different from that of the current research; in this research, social support was yes and no, while in our study, the MSPSS covered all types of social support which caused the participants to have a better understanding of social support.

Also, another study suggested that social network such as friends and family, provision of high or low levels of emotional support in women's decision to participate in screening were not associated with SBE and CBE.²³ The research indicated that fear about BC risk was related to screening and that the level of fear was likely to be important.⁴⁰⁻⁴³ Sometimes, patients feel that others shun them with a cancer diagnosis and the fear of stigmatization can be a barrier to disclosing the cancer diagnosis.⁴⁴ The experience of another study revealed the effectiveness of the educational interventions on reducing fear of BC screening.⁴⁵ Moreover, as pieces of evidence showed, strengthening health care system at the primary level and elevating the ability of the healthcare providers

about counseling and how to tell the bad news is a very important strategy to reduce the fear of BC screening and encourage them to do so.^{20, 46}

The results of research about the relationship between perceived social support and fear of cancer showed a significant relationship between fear and social support, and in most studies this relationship is negative and has different intensities.^{26, 27} Therefore, it is consistent with the results of the current study. It should be acknowledged that the level of intensity of social support in different studies is various.^{26, 27} One of the possible reasons for this diversity would be the use of different tools of social support and its application in different cultures. Therefore, it is suggested that cultural issues and different social tools should be further investigated.

Based on our results, another important determinant for BCF was some socio-economic characteristics of the target population. The participants who had a primary school education level and were married showed a statistically higher level of fear of BC. In the same line with our study, in one study marital status was associated with breast cancer fear.⁴⁷

In our study, females who had a higher income level had lower fear. In various Iranian studies, socioeconomic factors were associated with fear of BC.^{7, 48} A systematic review and meta-analysis which focused on the factors associated with longer delays in low- and middle-income countries reported lower socioeconomic status, education, income, lower health literacy, as well as lack of health insurance, and residence in rural areas or less densely-populated parts were consistently related to longer BC patient intervals.⁴⁹

Evidently, lack of health insurance coverage is one of the reasons women with lower economic status do not tend to do cancer screening.^{45, 50} In other studies implemented in Iran, the role of health insurance companies is considered in removing financial barriers for full coverage of BC screening among targeted women.^{21, 46} Hence, health policymakers should

focus on this barrier to provide full coverage of health insurance for BC screening.

The findings also indicated that the income and occupational status had a significant association with perceived social support; that is, household women perceived higher social support in comparison with working women. While a study conducted in China has shown a significant association between BC screening and occupational status, another study implemented in Iran rejected this association.^{51, 52}

As to occupation, both studies similarly showed a direct association between income and BC screening. Noticeably, the above-mentioned studies assessed the factors associated with BC screening, while our study focused on fear of BC screening. Also, the difference between our study and other Iranian studies can be attributed to different socio-cultural contexts of the participants. Furthermore, a plausible interpretation of the difference between working and household women' perception of social support would be the fact that household women have better communication with their family and friends; this provides higher social support for them. However, employed women who play multiple roles and have job-related stress with a low communication with their social circle have lower social support perception.

Strengths and Limitations

The strength of this study is that it measured BCF and perceived social support among women in Torbat Heydarieh city of Northeast Iran for the first time. This is a strength because the relationship between BCF and perceived social support among women has been somewhat understudied. This research was conducted online and Internet E-Survey (CHERRIES) was applied to report the findings to validate it. Cross-sectional evaluation of BCF and perceived social support was a limitation of the study; consequently, we were unable to obtain information on the existing causal relationships.

CONCLUSION

There was an indirect significant association between the BCF and perceived social support. Also, socio-economic status was another determinant for BCF among women aged 40 and above who were living in Torbat Heydarieh. To deal with this health problem and reduce fear of BC screening, several strategies could be applied. First of all, we can elevate the women's health literacy and their social networks about the importance of BC screening and early detection of breast cancer. The second would be improving the healthcare providers' ability and skills in consulting and the way to tell bad news to targeted women. Also, strengthening the primary care level and covering the cost of screening by health insurance companies are the other strategies to overcome this problem. Noticeably, further research is needed to explore other aspects of BCF and effective intervention to reduce it.

It is also recommended that experimental and longitudinal studies should be carried out to investigate the effects of perceived social support on reducing women's BCF in the long term.

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Conflict of Interest: None declared.

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