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Association of social support, spirituality with psychological factors in Iranian breast cancer survivors: An evidence from a cross-sectional study

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Abstract

Aims: The aim of this study was to explore the protective role of social support and spirituality in the prevention of depression, anxiety and fatigue severity.

Design: In a cross-sectional study, 305 women of breast cancer survivors were recruited in the study.

Methods: The participants answered a self-reported the hospital anxiety and depression scale, fatigue severity scale (FSS), social support and spiritual health questionnaires. The data were analysed using a multiple linear regression model to estimate the adjusted regression coefficients.

Results: A greater proportion of patients had moderate depression (62.9%) and moderate anxiety (67.3%). The higher level of social support was significantly associated with a lesser degree of depression (β=−0.05, p = .001) and anxiety (β=−0.04, p = .001), but there had been no association with the severity of fatigue score, while the association of spiritual health with depression and anxiety was not independently significant. This study highlights the importance of perceived social support in the prevention of depression and anxiety.

KEYWORDS
anxiety, depression, fatigue severity, social support, spirituality

1 | INTRODUCTION

Breast cancer is the most common malignancy among women worldwide and is also known as the 2nd cause of mortality due to cancer in the United States (WHO, 2017). It was estimated annually 252,710 new cases of breast cancer and about 40,610 deaths in United States in 2017 (Siegel et al., 2017). In the two recent decades, the incidence of breast cancer has increased dramatically in

Iranian women with a high risk of mortality (Mousavi et al., 2007). This increased risk may be linked with changing the pattern of obesity and reproductive characteristics of Iranian women (Delavar & Hajian-Tilaki, 2008; Hajian-Tilaki et al., 2011). Additional to demographic characteristics, reproductive behaviours and obesity, the psychological distress has been recognized as risk factor of breast cancer (Metcalfe et al., 2007). However, the breast cancer itself, in addition to physical problems, may have an influence on mental

health as well (Wei et al., 2016). It invocates additional psychological outcomes, and its long-term effects may remain in breast cancer survivors (Wei et al., 2016). The results of different studies indicated a high prevalence of depression, anxiety and fatigue in breast cancer survivors (Andrykowski et al., 2008; Aukst-Margetic et al., 2005; Falagas et al., 2007; Kornblith et al., 2001; Wei et al., 2016; Yeh et al., 2016). Overall, in Asian population, women are more susceptible to mental health issues than men (Hajian-Tilaki et al., 2017). The cancer morbidity on quality of life and its serious effects are potentially provocative for complicated mental health problems in women (Andrykowski et al., 2008; Yeh et al., 2016). Subsequently, the burden of these issues influences the quality of life in breast cancer survivors (Firouzbakht et al., 2020). However, demographic and personal characteristics, socio economic status in particular social support environments and spirituality may operate as appeaser and thus be recognized as preventive measures (Aukst-Margetic et al., 2005; Falagas et al., 2007; Kornblith et al., 2001). Although there is evidence of social support effects and spirituality in prevention of depression and anxiety in advanced stage of patients with cancer, the effective role of spiritualty in prevention of psychological distress is controversial in breast cancer survivors (Ahmadi et al., 2015). The published data almost investigated the well-being of mental health of Iranian breast patients with breast cancer in the process of early treatment (Jafari et al., 2018). The presence of psychological comorbidities, especially depression and anxiety and the role of social support and spirituality in preventing these comorbidities, has been less considered among Iranian breast cancer survivors, and the data in this regard are sparse. It is important to mention that although the role of social support and spiritual health have been documented in different dimensions, but it could vary among different religion and cutures, and so it was in our interest to investigate this aspect in our region among breast cancer survivors. Thus, the objective of this study was to determine the prevalence of depression, anxiety, fatigue and the influence of social supports and spiritual health as preventive measures in breast cancer survivors.

2 | METHODS

2.1 | Study Design and Participants

A cross-sectional study was performed in a sample of 305 patients of breast cancer survivors who were referred to the cancer therapeutic centre of Shahid Rajaii hospital in Babolsar, the south of Caspian Sea, in the north of Iran in 2017. Patients with breast cancer who passed at least one year since their diagnosis with history of surgical therapy and/ or chemo-radiotherapy were recruited in the study. The participants almost referred for periodical examination to the specialist clinic were included in the study. The sampling scheme and recruitment criteria were described in details elsewhere (Firouzbakht et al., 2020). In brief, the individuals with end-stage of renal failure under haemodialysis, severe cardiac problems

and with history of CVA and those who had been divorced or have experienced a death of first relatives in the last 6 months, as the patients with severe migraine headache and cognitive impairment were excluded in the study. This study protocol has been approved by the Institutional Ethical Board of Mazandaran University of Medical Sciences. All participants had given a written consent prior participation in the study.

2.2 | Data Collection and Study Instruments

The data were collected in-person interview using the questionnaires at the centre of outpatient clinic. First, the demographic characteristics (age, educational level, marital status, occupation and duration since diagnosis) and reproductive behaviours (age at first birth, menarche age, no of live birth, no of abortion and menopausal status), family history of breast cancer, physical activity and the self- report comorbidity including diabetes, hypertension and coronary heart disease were collected using a designed questionnaire. The physical activity was assessed by 5-item questions using health promoting lifestyle behaviour questionnaire. This questionnaire measured the type of activities (usual activity, recreational activity and sport activity) and the intensity of each activity at a 4-point Likert scale (not at all, occasionally, often and always). The perceived psychological state was measured using a short form of hospital anxiety, depression scale and fatigue severity scale (FSS). We used a validated short form of hospital anxiety scale (Radloff 1977) that measures the perceived anxiety at a 4-point Likert scale (not at all=0, low=1, occasionally =3 and always=4). This scale included 7 items, and the range of score was from 0 to 21; the score of 16 or higher was an indicator of severe anxiety. The third instrument was a short form of depression scale that are used for screening symptoms of depression in patients with cancer (Radloff, 1997). This scale measures the symptom of depression at 4-point scale, and the scores are ranged between 0 and 21. The score of 0–7 is an indicator of no or low depression, score of 8–15 is known as moderate depression (or border line), and score of 16 or higher shows a severe depression. The forth instrument was the fatigue severity scale that measured the psychological fatigue in 9 items at a 7-point Likert scale, and the score was ranged from 7 to 63. The psychometric properties of Persian version of this scale has been confirmed in previous reports (Fereshtehnejad et al., 2013). The fifth questionnaire was a short form of Zimet social support scale that measures the perceived social support in 3 subscales of family, friends and society at 4- point scale. The validity and reliability of this scale has been approved in several reports (Zimet et al., 1988). The six scale measures the spiritual health in two dimension of existence—meaning of the life (10 items) and religious practice (10 items) at a 4-point Likert scale. In the subscale of religion, the practice of socio-religious was measured in patients' support. The psychometric properties of this scale have been also validated in previous report (Ripamonti et al.2010).

2.3 | Data Analysis

In statistical analysis, we used SPSS software of version 18.0. The descriptive statistics were presented as mean (*SD*) for quantitative data and the frequency and percentage for categorical data. In bivariate analysis, the score of anxiety, depression and FSS were categorized at 3 level low, moderate and severe. The one-way analysis of variance (ANOVA) was performed to compare the mean score of social support and spirituality in different levels of the above psychological factors. Moreover, we applied the multiple linear regression model to estimate the regression coefficients of social support and spiritual health in association with anxiety, depression and FSS. In this analysis, we considered the total score of depression, anxiety and FSS as dependent variables and total score of social support and spirituality as independent variables. The additional multiple regression models for adjustment of regression coefficients were carried out. The effect of potential confounding such as age, educational level, duration from diagnosis, physical activity level and comorbidity score was adjusted, and the 95% confidence interval (CI) of coefficients was estimated. The p-value less than 0.05 was considered as a significant level.

3 | RESULTS

3.1 | Demographic characteristics of participants

The perspective mean age (*SD*) of participants was 49.59 (10.07) years. Table 1 shows that about 40 (13.2%) of patients were under 40 years and 39(12.2%) over 60 years. The 1st live birth of the majority of women 178(58.4%) was at age 20–34 years, and the 1st menarche age of 53(18.7%) was under 12 years. Roughly, 254(80.6%) were married and the remainder were either not married at all or divorced /widowed. Approximately, 43 (14.1%) of patients had no live birth and 30.5% had at least one abortion in their previous pregnancies. The educational level of about two third of patients was at the level of primary to high school and only 14.1% were illiterate. About 18.7% of participants had a family history of breast cancer in the first degree relatives and also 89.5% were at low level of physical activity. Based on the self-report, the prevalence of diabetes, hypertension and CHD were 18.4%, 29.5% and 15.8% respectively in the study samples.

3.2 | Psychological characteristics and perceived social support and spirituality

Table 2 shows that the prevalence of severe depression, anxiety and severity of fatigue were 4.0%, 11.6% and 44.3% respectively. Overall, the mean scores in perceived social support and spirituality were greater than the expected average scales used in their assessments. In addition, in Table 2, the mean scores of social supports significantly decreased with severe depression (p = .001) and also with moderate and severe fatigue (p = .03). However, in relation to

TABLE 1 Characteristics of patients of breast cancer survivors

Characteristics	n (%)
Age (year)	
<40	40 (13.2)
40–49	109 (35.7)
50–59	116 (38.2)
≥60	39 (12.2)
Age at 1st birth	
<20 year	102 (33.4)
20–34	178 (58.4)
≥35	3 (1.0)
Not applicable	22 (7.2)
Menarche age (year)	
< 12	53 (18.7)
≥12	236 (81.7)
Marital status	
Not married	19 (6.3)
Married	245 (80.6)
Divorced	14 (4.6)
Widowed	26 (8.8)
No of alive birth	
None	43 (14.1)
1–2	110 (36.1)
≥3	152 (49.8)
Abortion	
None	212 (69.5)
1–2	84 (27.5)
≥3	9 (3.0)
Educational level	
Illiterate	71 (23.3)
Primary	80 (26.2)
Elementary/high school	119 (39.0)
University level	35 (11.5)
Menopausal status	
Pre-menopause	103 (33.8)
Postmenopause	202 (66.2)
Family history of breast cancer	
None	206 (67.5)
1st degree relatives	57 (18.7)
2nd degree relatives	42 (13.8)
Comorbidities	
Diabetes	56 (18.4)
HTN	96 (29.8)
CHD	48 (15.8)
Physical activity level	
Low	275 (89.5)
High	32 (10.5)

Note: Values may not sum to *n* = 305 because a few demographic information was missing from patients' records.

Abbreviations: HTN: hypertension; CHD: coronary heart disease.

TABLE 2 Mean (SD) scores of social support and spirituality according to the level of depression, anxiety and fatigue severity scale

	n (%)	Social Support Mean± SD	p-value	Spirituality Mean± SD	p-value
Depression					
Mild	100 (33.1)	60.81 ± 10.89	0.001	38.31 ± 7.27	0.68
Moderate	190 (62.9)	54.74 ± 14.15		38.35 ± 7.06	
Severe	12 (4.0)	40.83 ± 19.27		36.66 ± 9.33	
Anxiety					
Mild	64 (21.1)	59.72 ± 10.51	0.06	38.31 ± 7.27	0.25
Moderate	204 (67.3)	55.23 ± 13.79		38.91 ± 6.47	
Severe	35 (11.6)	54.42 ± 19.34		38.45 ± 7.19	
Fatigue severity					
Mild	52 (17.0)	59.42 ± 12.85	0.03	38.94 ± 7.69	0.14
Moderate	118 (38.7)	53.71 ± 13.15		37.38 ± 7.33	
Severe	135 (44.3)	56.84 ± 14.91		39.08 ± 6.84	

Note: Values may not sum to $n = 305$ because of few missing data from patients' records.

TABLE 3 Adjusted and unadjusted regression coefficients of social support and spirituality in relation to depression, anxiety and fatigue severity scores

Dependent Variables	Independent variables	Standardized coefficients (beta)	Unstandardized Unadjusted coefficients (95% CI)	Unstandardized Adjusted£ coefficients (95% CI)
Depression	Social support Spirituality	−0.27 −0.04	−0.08 (−0.11, −0.05)** −0.02 (−0.09, 0.04)	−0.06 (−0.09, −0.03)**
Anxiety	Social support Spirituality	−0.14 0.04	−0.04 (−0.04, −0.01)* 0.02 (−0.05, 0.09)	−0.04 (−0.07, - 0.01)* 0.04 (−0.03, 0.10)
Fatigue severity	Social support Spirituality	−0.06 0.09	−0.06 (−0.17, 0.06) 0.18 (−0.04, 0.41)	−0.05 (−0.17, 0.07) 0.16(−0.07, 0.39)

the level of depression, anxiety and severity of fatigue, no significant difference was observed in the mean of spirituality scores.

3.3 | Adjusted association and regression results

Table 3 summarized the results of multiple linear regression analysis in association of social supports and spirituality. The adjusted effect of regression coefficients of social supports on depression score was significant, and an inverse significant association has been observed (B= −0.06 for each additional score of social support (95%CI: −0.09, −0.03), $p = .001$). While the spiritual health has negatively associated with depression, its effect did not remain significant. Additionally, the social support had a significant reverse association with anxiety and its adjusted effect decreased the level of anxiety (β=−0.04 for each additional score, 95%CI: −0.07, −0.01; $p < .05$). Our results in Table 3 also showed that spiritual score had no significant association with the level of anxiety and depression. Besides, the findings did not show a significant association between social support and spiritual scores with fatigue severity scale.

£Adjusted by age, educational level, duration from diagnosis, physical activity level, comorbidity score. The unstandardized unadjusted and adjusted regression coefficients were estimated for each

additional score of social support and spirituality sore on depression, anxiety and fatigue severity. *$p < .05$; **$p < .001$; CI: confidence interval.

4 | DISCUSSION

Our findings explored a high prevalence of severe fatigue (44.3%), moderate anxiety (67.3%) and moderate depression (62.9%) in breast cancer survivors. Although the prevalence of severe anxiety was rather common, the prevalence of severe depression was lower than anxiety (4.0% versus. 11.6%). There had been a significant negative association of social support score with the level of depression and anxiety in the bivariate and multivariate regression analysis. However, in the current study, the association of spiritual scores with anxiety and depression was not revealed independently significant. Additionally, the effect of both social supports and spiritual scores was not achieved to be significant on the fatigue severity scale.

In literature, the published data revealed the high prevalence of psychological outcomes in patients with breast cancer (Andrykowski et al., 2008; Aukst-Margetic et al., 2005; Falagas et al., 2007; Wei et al., 2016; Yeh et al., 2016). Although in long term their intensity

may be alleviated in breast cancer survivors, nevertheless, the fear of recurrence and the side effect of chemo-radiotherapy are associated with an increase in the level of anxiety, depression and other mental disorders (Wei et al., 2016). In the current study, the prevalence of moderate anxiety and depression was rather common. Among Grecian patients with breast cancer, a large proportion found to be as depressed (38.2%) and anxious (32.2%) (Hassan et al., 2015) and also 22.0% and 31.7%, respectively, among Malaysian breast cancer (Tsaras et al., 2018). Similar to our findings, in a systematic review of eight cross-sectional studies of women with breast cancer in Iran, mild levels of depression were more present; however, in one study, 69.4% had serious levels of depression (Jafari et al., 2018). The prevalence of depression has been widely estimated to range from 0% to 58%, and the prevalence of anxiety has been varied from 6% to 23% in patients with cancer in different studies worldwide (Naseri et al., 2018). These discrepancies of variations may be partially attributed by psychiatric diagnostic criteria and also the different cut-off score used in questionnaires.

Social intervention programmes such as social support and spiritual health play an important role in promoting the well-being of mental health by mediating the effect on depression and anxiety. In a study by Kornbilith et al in breast cancer women, the social support had a significant independent effect on emotional feeling and the high level of social support was corresponded with lower psychological outcomes (Kornblith et al., 2001). Strong evidence revealed that controlling anxiety, depression with psychological consultant, educational programmes and social support by family, friend and society along including play as a preventive measure for distress (Wei et al., 2016). Emotional distress in patients and care givers varied in different conditions, but in some state of disease such as time at diagnosis its severity is greater than other state like survivors (Wei et al., 2016). Thus, an effective strategy with an evidence based intervention can further decrease the emotional distress in clinical practice and perhaps at first step, prior of any pharmaceutical intervention. The necessity of social intervention at family level and establishing a close relationship with friends and social support and perceived existence operators contribute as effective measures in preventing anxiety and depression.

Andrykowski et al. (2008) suggested a conceptual model for prevention of psychological distress. One side of this model, the distress and its extension due to the experience of cancer was located and the other side was the availability of resources to cope with distress. The relative balance of these two factors determines the positive psychological outcomes or psychological health in patients with cancer or survivors. Encouraging individuals towards health promoting behaviours and their support are the key factors in the management of psychological distress in patients with cancer. The other intrapersonal characteristics included optimism, self-efficacy, emotional intelligence and spirituality that influence psychological well-being as well (Andrykowski et al., 2008). All these characteristics explain the tendency of thought or action in certain ways. The presence of these factors is linked to better psychological health in patients with cancer. Additionally, the

higher education level contributes to better response in coping with depression and anxiety and other related psychiatric outcomes (Mehnert et al., 2008).

Our findings showed that the social support in both depression and anxiety has been linked with better responses in cancer survivors. This results are in line with those reported by Naseri et al (2008) and Helgeson et al., (1996). Social support as an interpersonal resource has been recognized to be associated with a better psychological health in patients with cancer and survivors (Rabow et al., 2015). On the other hand, in coping process, the social constraint inhibits the cognitive and emotional processing and thus it should be considered as a risk factor for poor psychological health (Andrykowski et al., 2008). Allison et al also found a strong negative association between social support with depression and anxiety in patients with advance cancer (Applebaum et al., 2014). Social support has been widely investigated across psychiatric, nursing, medical and psycho-social well-being, and its beneficial effect had been reported in chronic disease patients including cancers (Andrykowski et al., 1998; Applebaum et al., 2014; Lin et al., 1999; Penninx et al., 1998; Stone et al., 1999). For example, social support has been linked with better psychological adjustment and fewer psychological symptoms and it has been recognized as a protective factor against depressed mood and health outcomes (Lin et al., 1999). It was shown that the perceived social support is more critical than actual social support received or available (Wethington et al., 1986).

Furthermore, McClain et al. (2003) reported that psychological health of women with breast cancer is affected by self-esteem, social support, emotional feeling, type of surgery, disease stage, the perception of disease and their coping steps and the relationship between patients and their healthcare givers. The related psychological problems depend on the therapeutic management and its recurrence. Thus, the effort for coping with psychological stressors such as fear of recurrence, anxiety, depression and social functioning disorders must be continued for a long time after treatment. Cordova et al. (2001) found that 64% of patients with breast cancer had a fear of recurrence. Patients experiencing fear of recurrence, physical symptoms and receiving aggressive therapeutic agent have a greater risk of death. In a study by Montazeri et al. (2000) in Iranian patients with breast cancer, 48% of patients had severe symptoms of anxiety and about 40% of patients had symptoms of depression at pre and postdiagnosis. This anxiety may result from the lack of confidence of received therapeutic agents during and after treatment. Regarding psychological distress and perceived barriers, the higher rate of psychological disorders is perhaps due to the early diagnosis and chemo-radiotherapy. However, in our results among breast cancer survivors, the corresponding prevalence is much lower perhaps due to patients' confidence and long term after primary therapeutic agents. Having a relative high level of spiritualty and social supports and also patients being <="" span="">survivors (not at early diagnosis stage) is also another cause. In contrast, (Stefanek et al., 1987) found that roughly one-third of patients with breast cancer have a high experience of depression. This negative outcome, in turn,

seriously affects the perceived quality of life. In some conditions, the high rate of depression may result in suicides. Thus, the pressure of this negative perception due to disease imposes an extensive psychological distress on patients and their families.

Spiritual health has been recognized as a fundamental component of the health in advanced patients with cancer. In a study designed by Chirico et al, they had discussed the spiritual dimension of health for more spirituality at work place and somehow their findings were congruent with our results and showed spiritual programmes having positive effects on the psychological well-being and also productivity of workers (Chirico et al., 2019). Meanwhile, in another research, investigating the role of spirituality in coping with COVID-19 pandemic, and climate change and future global challenges, spirituality seemed to have a positive effect in developing better coping mechanism in the face of disease (Chirico, 2021). In another study, the patients with early-stage breast cancer with anxiety had lower spiritual growth and interpersonal relationship scores in comparison with patients without anxiety (Kelly et al., 2018). In meta-analysis of randomized trials, spiritual interaction reduced depression, anxiety and hopelessness in patients with cancer (Xing et al., 2018). Considering the fact that we did not find a significant association of spirituality with depression and anxiety in breast cancer survivors, a similar finding between spirituality with depression and anxiety had been reported in patients with cancer in the south of Iran (Hashemi et al., 2015). In our study, because of the homogeneity of the religious background, there was a lack of sufficient variability in the score of spiritual health. This homogeneity of independent variable may result in higher standard error of corresponded slope of estimated regression coefficients and thus the lower statistical power. Also another cause for the lack of association of spirituality with depression and anxiety may be due to lack of sufficient sample size. Nevertheless, the need for spirituality/religious and perceived existence in patients with breast cancer has shown that over half of the patients needed a source of help to overcome their fears and find meaning for the lives and also spiritual resources (McClain et al., 2003; Wei et al., 2016). In another report, the majority of patients with breast cancer needed hopefulness, perceived meaning for their lives (Breitbart, 2005). These patients suffer from lack of perceived existence, social role and negative emotional feeling.

Our finding explored a high rate of fatigue severity (44%) in breast cancer survivors that was much more common than anxiety and depression in our study sample, while another study reported that about 66% of patients with breast cancer had an experience of fatigue which resulted from treatment (Høybye et al., 2008). Fatigue is a common symptom reported by all patients with cancer not only patients with breast cancer. This symptom is almost accompanied by sleep disturbance and joint or muscle pains after treatment and often continues to remain in long-term survivorship (Wei et al., 2016). The practices of health promoting lifestyles substantially reduce fatigue, depression and anxiety (Kelly et al., 2018). Fatigue may enhance the psychological distress in patients with cancer. However, we did not find a significant association between social support and spirituality with fatigue severity scores. This may explain that fatigue is considered as a psycho-physical symptom like pain and sleep disturbance and it may be less affected by social intervention. However, more prospective studies need to explore the effect of social support and spirituality on fatigue.

4.1 | Limitations

This study may have limitations in interpretation of causality between social support and psychological outcomes of interest because of the cross-sectional nature of the design. In addition, the assessments were almost based on the self-reported. Thus, it is possible that the participants exaggerate or under report the psychological scores investigated in the study. However, such a misclassification is non-differential with respect to social support and spirituality. Thus, they may cancel out in comparative conditions and cannot be resulted in serious distortion.

5 | CONCLUSION

This study highlights the importance of perceived social support in preventing depression and anxiety. Thus, interventions on social support programme should be the focus of the future clinical practice in breast cancer survivors.

CONFLICT OF INTEREST
The authors declare that they have no conflict of interest.

AUTHORS CONTRIBUTIONS
All authors have substantially contributed to the conception of study design, analysis and drafting of the manuscript. All authors have read and approved the final manuscript.

ETHICS APPROVAL
All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. This study has been approved by Ethical committee of Mazandaran University of medical sciences, Sari, Iran.

INFORMED CONSENT
Informed consent was obtained from all individual participants included in the study.

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