ORIGINAL RESEARCH

Exploring the effectiveness of crisis counseling and psychoeducation in relation to improving mental well-being, quality of life and treatment compliance of breast cancer patients in Qatar

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Background: An insufficient number of studies have been carried out in the Middle East to evaluate the role of structured psychotherapeutic interventions in enhancing breast cancer patients' psychological well-being, quality of life and treatment compliance. This study has been designed to address this limitation by exploring the benefit of two structured psychotherapeutic interventions, crisis counseling and psychoeducation, in enhancing breast cancer patients' psychological well-being, quality of life and treatment compliance in Qatar.

Methods: A total of 201 women with early-stage breast cancer from the state of Qatar were recruited and randomized into either the control group or one of the treatment groups (crisis counseling or psychoeducation). Each of the two treatment interventions consisted of a total of six 60- to 90-minute sessions, which were provided over a period of 12 weeks. The short- and long-term benefits of the crisis counseling and psychoeducation interventions were evaluated in terms of improving patients' psychological well-being, quality of life and treatment compliance by asking all the patients to complete the Depression, Anxiety and Stress Scale, 21 item version (DASS-21) and European Organization for Research and Treatment of Cancer Quality of Life scale (QLQ-C30) instruments at different points in time and by monitoring their compliance to chemotherapy and radiotherapy treatment.

Results: This study revealed that both of the study interventions, crisis counseling and psychoeducation, were effective in improving women's psychological well-being and quality of life over time in comparison to the control group, but had no significant impact on patients' compliance with treatment. In addition, the study showed that psychoeducation conferred a greater advantage than did the crisis counseling model, especially in improving women's psychological well-being over time.

Conclusion: This study is considered the first of its kind in Qatar to provide evidence on the benefit of crisis counseling and psychoeducation interventions in improving the psychological well-being and quality of life of women with early-stage breast cancer in Qatar. In addition, this study has provided innovative research that can be used as evidence to propose changes to the psychotherapy services for breast cancer patients in Qatar. This research study aims to provide a first step toward further research in the future, which will hopefully lead to a better health care system for cancer patients in Qatar.

Keywords: breast cancer, DASS-21, QLQ-C30, crisis counseling, psychoeducation, NCCCR, Qatar, psycho-oncology, psychotherapy, cancer, psychological wellbeing

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Introduction

According to the World Health Organization (WHO), cancer is one of the most common causes of morbidity and mortality worldwide, accounting for 14 million new cases

in 2012.[1] The WHO estimated that this number will rise by approximately 70% in the next two decades.[1] In the State of Qatar, cancer deaths account for approximately 20% of total deaths, and specifically, breast cancer is considered the third most common cause of death after cardiovascular diseases and traffic accidents.[2,3] Previous studies have showed that the incidence of breast cancer in Qatar increased from 45 per 100,000 persons between 2003 and 2007 to 56 per 100,000 persons between 2008 and 2011. The Qatari patients accounted for 32% of all patients diagnosed with breast cancer in the age range of 40–50 years and 36% of all affected women.[4,5]

Breast cancer is one of the most devastating life events that a woman can experience, and the diagnosis is often associated with anxiety and depression.[6] The perception and mythology surrounding breast cancer, the prolonged treatment and the related body image and sexuality issues are the most common effects experienced by women with breast cancer that contribute to their psychological distress.[6] Breast cancer patients often exhibit high levels of anxiety, sleep disorders, difficulty thinking and concentrating, depression and fear of death, especially during the early phases of their diagnosis, during treatment and in cases of relapse.[6] Additionally, most patients suffer from sexual and marital dysfunction and social and occupational problems.[6] In the State of Qatar, breast cancer diagnoses are often accompanied by social stigma. Cultural values, beliefs and attitudes can influence women's perceptions and attitudes toward breast cancer and their interest in breast screenings, and thus affect physicians' practice.[7]

Several studies have investigated the need for psychological support interventions for breast cancer patients and their role in alleviating the impact of the disease on their well-being and quality of life.[8–10] Group support, individual counseling, stress management and psychoeducation are examples of psychological interventions that have been shown to have significant effects in improving the psychological well-being and quality of life of women with breast cancer.[8–11] In the Middle East, it is believed that there is insufficient research on the importance and the role of psychological support interventions for cancer patients and specifically for breast cancer patients. However, few studies have been conducted in Iran,[12,13] Israel[14,15] and Turkey[16,17] to investigate the different types of psychological support interventions for early-stage cancers, including breast cancer. In Qatar, the clinical psychology department at the National Center of Cancer Care and Research, NCCCR (the main cancer hospital in Qatar), offers multiple services to support the mental well-being of cancer patients through talking and spiritual support; however, there is a lack of well-defined structured programs for these

patients, and no studies were conducted previously to explore the benefits of any type of psychotherapeutic interventions in improving cancer patients' psychological well-being or quality of life. Therefore, the aim of this study is to explore the benefit of two structured one-to-one psychotherapeutic interventions, crisis counseling and psychoeducation, in enhancing breast cancer patients' psychological well-being, quality of life and treatment compliance in the State of Qatar. In this study, psychological well-being is defined as the state of feeling emotionally satisfied and functioning effectively and is measured by evaluating patient's depression, anxiety and stress over time. Quality of life is assessed by evaluating patient's role, physical, cognitive, emotional and social functioning, and treatment compliance is measured through assessing patient's adherence to treatment.

In this study, it is hypothesized that crisis counseling and/or psychoeducation confer more advantage to breast cancer patients than the standard of care alone in terms of improving their psychological well-being, quality of life and treatment compliance.

Subjects and methods

In this longitudinal randomized clinical trial, a total of 201 patients with early-stage breast cancer were recruited between December of 2012 and January of 2015 at the NCCCR in Qatar where data collection and analysis was also done. While this may be considered quite a small sample, the maximum sample size was limited by the overall number of patients in the country.

The study subjects included women with a diagnosis of early-stage breast cancer (stage I, II or III) and local advanced disease ranging from 20 to 65 years of age. Women with metastatic breast cancer (ie, cancer that had spread to other bodily organs) and those with known physical or psychiatric disabilities were excluded from the study. This was confirmed by the medical oncologists who were responsible to check with the patient and through medical records if they were on any medications for psychiatric disorders and were under follow-up with the psychiatrist or the psychologist. Patients who developed clinical depression or other psychological conditions during the study period and who thus required formal psychotherapeutic follow-up care, based on the clinical psychologist's or medical oncologist's assessment, were excluded from this study.

All patients had early-stage breast cancer and underwent very similar treatment protocols, including chemotherapy, surgery and radiotherapy with or without hormonal or targeted therapies. Patients who met the inclusion criteria

and who agreed to participate in the study were randomly assigned to one of the three study groups: the control group or one of the two treatment groups (crisis counseling or psychoeducation). A total of 67 patients were included in each of the study groups. This study used simple randomization to achieve the random assignment of patients to these groups; to this end, researchers used a computer-generated list of random numbers, and recruitment was performed by the research assistant prior to patient's chemotherapy. Following the random assignment, and according to the medical ethics regulations of the Hamad Medical Corporation in Qatar, the patients were asked to sign a written consent form prior to their inclusion in the study, and consents were obtained from all participating patients. This study was approved by the Research Ethics Committee of Hamad General Hospital, Hamad Medical Corporation (HMC RP # 12215/12).

Members of every study group received the standard of care for breast cancer treatment including the usual outpatient clinic visits to surgeons, oncologists, radiotherapists, radiologists and other specialists. The standard of care also includes several short stays in the day care unit for chemotherapy and radiotherapy. Additionally, standards call for the provision of educational sessions that are conducted by cancer care educators, clinical pharmacists and dieticians and referrals to the psychologist if needed.

In addition to the standard of care, patients in the crisis counseling group received in-person crisis counseling following the protocol of Roberts and Ottens.[18] The Roberts seven-stage crisis model is a structured and conceptual model of crisis intervention that is used to facilitate the planning of brief treatment plans. This crisis model focuses on resolving the present problem or alleviating the symptoms of crisis, helps to restore or maintain the patient's ability to function at a previous or higher level and enhances the patient's sense of control. In stage 1, the therapist performs a quick assessment of risk and danger and includes a brief description of the presenting problem or crisis. In stage 2, establishing rapport and a collaborative relationship is aimed by showing the patient respect and acceptance and by conveying a neutral and nonjudgmental attitude about her crisis. The aim of stage 3 is to identify the issues that are pertinent to the patient and to the nature of the presenting problem. Open-ended questions are used to help the patient describe her problem and explain it as a story in her own words. In addition, at this stage, the patient's strengths and effective past coping skills are identified by helping the patient recall times when the current problem was not present and to identify the differences between those times and the present crisis situation.

Stage 4 includes an exploration of the patient's feelings and emotions through the use of active listening skills, reflection, paraphrasing and emotion labeling. During stage 5, the therapist and patient collaborates in an attempt to generate and explore alternatives by identifying the patient's strengths and identify situations where she effectively dealt with a crisis and employed successful coping mechanisms. By stages 6 and 7, the patient should feel empowered, equipped with coping mechanisms and know which persons and referral resources to contact when in need such as social workers or online resources. In addition, during this stage, the therapist and the patient work together to plan and to address any necessary information regarding the crisis.

The rationale for choosing the Roberts seven-stage crisis intervention model centers on its flexibility, briefness as well as its being a structured model that has applicability for a wide range of crisis workers including psychologists, counselors, clinical social workers and clergy.[18]

For the purpose of this study, the Roberts and Ottens model[18] was chosen as it does not contain any educational components and thus researchers could avoid any overlap with the psychoeducation model used in this study.

On the other hand, patients in the psychoeducation group received in-person psychoeducation following the protocol of Fawzy and Fawzy in addition to the standard of care.[19] This intervention comes in the form of a structured, 6-week-long, group psychoeducation course that consists of four main components: health education, stress management and behavioral training, coping and problem-solving guidance and psychological support.[19]

In stage 1, patients are provided with medical information including information about their diagnosis, treatment plan and the treatment's side effects. In addition, the patients are given general nutritional information. In stage 2, patients are encouraged to discuss personal sources of stress and then they work together with the therapist to select psychological and behavioral responses to stress. In addition, patients are taught ways to deal with stress through relaxation techniques (guided imagery techniques and breathing techniques) and are encouraged to use these techniques daily. In stage 3, patients are introduced to the concept of coping strategies. Problem-solving and stress management techniques are integrated with information on coping, and patients are taught how to apply these lessons to certain situations. Fawzy and Fawzy developed a series of pictures that illustrate ten common problems encountered by breast cancer patients.[19] Each situation/problem is presented in two pictures: one that shows an ineffective coping strategy and one that demonstrates a more effective

approach. The ten situations cover the various problems that patients might encounter at different stages of their disease. In the last stage of the Fawzy and Fawzy model,[19] three main topics are covered including the normal assumptive world, the forward-moving life trajectory of most people and the way in which that forward trajectory is interrupted by a life-threatening illness. This philosophy proposes that each individual develops his/her own normal assumptive life that covers all aspects of life, including family, friends and home.[19]

The rationale for choosing this psychoeducation model centers on its specificity to cancer patients, and its short duration and its long-term effects which were proven in previous studies conducted on melanoma and breast cancer patients.[11,19]

In this study, the crisis counseling and psychoeducation interventions consisted of a total of six 60- to 90-minute sessions that were provided over a period of 12 weeks, one session every 2 weeks that matched the patient's hospital visits. Both interventions were delivered in its original language "English" to English-speaking patients and were translated into "Arabic" for Arabic-speaking patients. In order to assess their psychological well-being and quality of life over time, all patients were asked to complete the study instruments (Depression, Anxiety and Stress Scale, 21 item version [DASS-21] and European Organization for Research and Treatment of Cancer Quality of Life scale [QLQ-C30]) at three different points (at the start of the study, after the treatment groups had completed the 6 sessions of the study interventions and at 18 months later) to measure the short- and long-term effect of the interventions. Treatment compliance was monitored over the study period by a specialized nurse.

Due to the known social stigma surrounding breast cancer in Qatar, and the nature of the Qatari culture in being conservative, the Fawzy and Fawzy model was modified to include one-on-one counseling rather than group counseling sessions to maximize the privacy and comfort of all recruited patients.

Assessment tools

In this study, patient's psychological well-being was evaluated through assessing depression, anxiety and stress using the DASS-21 tool. The quality of life was assessed through the QLQ-C30 which assesses patient's role, physical, cognitive, emotional and social functioning. The treatment compliance was evaluated through monitoring patient's adherence to chemotherapy and radiotherapy through the NCCCR's treatment flow sheets.

DASS-21

The DASS-21 is a self-report instrument and condensed version of the DASS-42 item version that was developed by

Lovibond and Lovibond.[20] The instrument consists of three scales with seven items that are used to measure depression, anxiety and stress.[20] "The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia and inertia."[20] "The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety and subjective experience of anxious affect."[20] "The stress scale is sensitive to levels of chronic nonspecific arousal; it assesses difficulty relaxing, nervous arousal and being easily upset/agitated, irritable/over-reactive and impatient."[20] Each question in the instrument includes a 4-point severity scale ranging from 0 to 3 that measures the intensity of each element during the past week. Through this study, we were able to validate the Arabic version of DASS-21 for breast cancer patients in the State of Qatar which demonstrated good validity and reliability as measured by Cronbach's alpha coefficient and was excellent at over 90% for the total scale.[21]

EORTC QLQ-C30

The QLQ-C30 instrument is a refined version of the European Organisation for Research and Treatment of Cancer (EORTC) QLQ-C36 which was developed by the EORTC group to measure cancer patient's quality of life.[22] The instrument is composed of nine multi-item scales that are grouped into five functional subscales (role, physical, cognitive, emotional and social functioning). The EORTC QLQ-C30 also includes one global quality-of-life domain, three multi-item symptom scales (fatigue, pain and nausea and vomiting), five single-item symptom scales and one item that assesses the perceived financial impact of the disease. The responses for the first 28 items range from 1 to 4, while the responses for the remaining two questions concerning a patient's overall health and quality of life over the past week range from 1 to 7. The Arabic version of QLQ-C30 was validated in breast cancer patients in the State of Qatar and demonstrated strong reliability and validity.[23] In this research study, we were also able to validate the QLQ-C30 instrument which showed good validity and reliability as measured by Cronbach's alpha coefficient and was found to be greater than 80% for the total scale.

Treatment compliance tool

The research assistants (nurses trained in medical oncology) were responsible for monitoring the treatment compliance of breast cancer patients in this study. Treatment compliance was measured by recording the patients' adherence to chemotherapy and radiotherapy sessions using the NCCCR's chemotherapy/radiotherapy flow sheets.

Statistical analysis

The pre- and posttest scores within each of the groups were compared using paired t-tests for dependent samples. Where samples were not normally distributed, the Wilcoxon Signed Rank Test was used. Statistical Package for the Social Sciences, version 23 (IBM Corporation, Armonk, NY, USA) was used to determine the reliability of the questionnaires, and a reliability coefficient of 0.70 or higher was considered acceptable. The Kruskal–Wallis test, a pairwise comparison, was preformed for post hoc analysis, using the Bonferroni correction to determine which group's means were different. The cutoff value for significance was chosen as 0.05.

Results

Table 1 shows the sociodemographic characteristics of the subjects studied. In this study, 114 out of 201 participants

Table 1 Sociodemographic characteristics of patients studied (N=201)

Variable	n (%)
Age group (years)	
30–39	22 (11.0%)
40–49	114 (57.0%)
50+	65 (32.5%)
Nationality	
Qatari	20 (10%)
Non-Qatari	181 (90.5%)
Marital status	
Single	8 (4.0%)
Married	172 (86.0%)
Divorced	16 (8.0%)
Widowed	5 (2.5%)
Length of marriage (years)	
<5	64 (32.0%)
5–14	67 (33.5%)
15–24	51 (25.5%)
25+	19 (9.5%)
Number of children	
1	33 (16.5%)
2	98 (49.0%)
Other	70 (35%)
Education	
Illiterate	2 (1.0%)
Primary	19 (9.5%)
Intermediate	64 (32.0%)
Secondary	98 (49.0%)
University	18 (9.0%)
Occupation	
Not working	124 (62.0%)
Working	77 (38.0%)
Family income (Qatari Riyals)	
<5,000	18 (9.0%)
5,000–9,999	31 (15.5%)
10,000–14,999	63 (31.5%)
>15,000	89 (44.0%)

were between 40 and 49 years old (57%). Most women in this study were non-Qatari (90%), 87% were of Arab Middle Eastern ethnicity and only 13% of patients were of other ethnicities; 86% were married, and 44% reported an average family income.

The participants' baseline depression, anxiety and stress levels were evaluated at the beginning of the study, prior to the start of the study interventions. On average, based on their DASS-21 scores, most participants in all study groups exhibited mild-to-moderate psychological distress.

To evaluate the association between sociodemographic characteristics (age, nationality, marital status, length of marriage, number of children, education, occupation and family income) and patients' depression, anxiety and stress, a correlation analysis was conducted between the sociodemographic information of patients and their baseline scores for depression, anxiety and stress on the DASS-21 scale. Patients were categorized into those who had depression, anxiety or stress alone, and those who had more than one stressor (eg, depression with stress or depression with stress and anxiety). It was found that approximately 154 (77%) patients had mild-to-moderate psychological distress, as characterized by having depression, anxiety or stress or having more than one psychological difficulty (Table 2). A total of four patients had depression alone (2.5%), 13 patients had anxiety alone (8.4%), four patients had stress alone (2.5%) and 133 patients had more than one stressor (86%). Table 2 shows that there is a significant association between psychological distress and the patient's age and marital status. Most patients in this study who exhibited depression alone or stress alone, or who experienced more than one psychological difficulty, were married and were between 40 and 49 years of age.

Figure 1 shows the pre- and posttest scores on the DASS-21 and QLQ-C30 instruments of the control group. The scores show that the control group who received neither study interventions exhibited significant increases, with an increase in the overall DASS-21 score ($p < 0.001$) and a significant increase in the individual depression, anxiety and stress scores ($p = 0.005$, $p = 0.001$ and $p < 0.001$, respectively), over the period of the study. In addition, the control group showed significant decreases in their global health status, and the functional as well as the symptoms subscales of the quality-of-life instrument (QLQ-C30), with a p-value of <0.001 (Figure 1).

Figures 2 and 3 on the other hand show that participants in both intervention groups exhibited a significant decrease in their overall DASS-21 score and in their individual depression, anxiety and stress scores ($p < 0.001$), following the completion of six sessions of either crisis counseling intervention or psychoeducation intervention. Both groups

Table 2 Association between participants' sociodemographic characteristics and presence of depression, anxiety and stress

Variable	Depression	Anxiety	Stress	>1 psychological difficulty	p-value
	n (%) (N=4)	n (%) (N=13)	n (%) (N=4)	n (%) (N=133)	
Age group (years)					*p<0.001
30–39	1 (25.0%)	6 (46.0%)	1 (25.0%)	5 (4.0%)	
40–49	2 (50.0%)	4 (30.0%)	3 (75.0%)	80 (60.0%)	
50+	1 (25.0%)	3 (23.0%)	0 (0.0%)	48 (36.0%)	
Nationality					p=0.139
Qatari	1 (25%)	3 (23.0%)	1 (25.0%)	10 (7.0%)	
Non-Qatari	3 (75%)	10 (77.0%)	3 (75.0%)	123 (93.0%)	
Marital status					*p<0.001
Single	1 (25.0%)	1 (8.0%)	1 (25.0%)	3 (2.0%)	
Married	2 (50.0%)	7 (54%)	2 (50.0%)	125 (94.0%)	
Divorced	1 (25.0%)	4 (31%)	1 (25.0%)	3 (2.5%)	
Widowed	0 (0.0%)	1 (7.0%)	0 (0.0%)	2 (1.5%)	
Length of marriage (years)					p=0.468
<5	2 (50.0%)	6 (46.0%)	1 (25.0%)	37 (28%)	
5–14	2 (50.0%)	6 (46.0%)	1 (25.0%)	48 (36%)	
15–24	0 (0.0%)	1 (8.0%)	1 (25.0%)	38 (28.5%)	
25+	0 (0.0%)	0 (0.0%)	1 (25.0%)	10 (7.5%)	
Number of children					p=0.629
1	0 (0.0%)	2 (15.0%)	0 (0.0%)	20 (15%)	
2	2 (50.0%)	5 (39.0%)	2 (50.0%)	76 (57%)	
Other	2 (50.0%)	6 (46.0%)	2 (50.0%)	37 (28%)	
Education					p=0.0625
Illiterate	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1%)	
Primary	0 (0.0%)	2 (15.0%)	0 (0.0%)	4 (3%)	
Intermediate	0 (0.0%)	2 (15.0%)	1 (25.0%)	39 (29%)	
Secondary	2 (50.0%)	4 (31.0%)	2 (50.0%)	76 (57%)	
University	2 (50.0%)	5 (39.0%)	1 (25.0%)	13 (10%)	
Occupation					p=0.708
Not working	2 (50.0%)	7 (54.0%)	3 (75.0%)	79 (59.0%)	
Working	2 (50.0%)	6 (46.0%)	1 (25.0%)	54 (41.0%)	
Family income (Qatari Riyals)					p=0.836
<5,000	1 (25.0%)	0 (0.0%)	1 (25.0%)	11 (8.0%)	
5,000–9,999	1 (25.0%)	0 (0.0%)	0 (0.0%)	23 (17.0%)	
10,000–14,999	1 (25.0%)	2 (50.0%)	2 (50.0%)	41 (31.0%)	
>15,000	1 (25.0%)	2 (50.0%)	1 (25.0%)	58 (44.0%)	

Notes: >1 psychological difficulty: experiencing more than one emotional difficulty such as depression and stress or depression, anxiety and stress, and so on. Chi-squared test for trend. *Statistically significant at p<0.05.

showed a significant increase in the emotional subscale of the QLQ-C30 (p<0.001) after completing the intervention. In addition, both groups showed a significant decrease in the symptoms scale and specifically in the insomnia, appetite loss and constipation subscales (p<0.05).

Figure 4 compares the performance of the three study groups in terms of psychological well-being and quality of life. It can be seen that the intervention groups were significantly different from the control group in all items of the DASS-21 (p<0.001) and they showed notably lower scores of depression, anxiety and stress and improved scores of quality-of-life factors when compared to the control group.

It can also be seen that there was a significant difference between the crisis counseling and psychoeducation groups in terms of the depression scores on the DASS-21 scale and the emotional functioning and financial difficulties subscale of the QLQ-C30 instrument. The psychoeducation group showed better depression and emotional functioning scores than the crisis counseling group. It was also noticed that fewer patients complained from financial difficulties in the crisis counseling group than in the control and the psychoeducation groups, and this might be due to demographics: the crisis counseling group contained more patients with a significantly higher income (p<0.05) than the control and
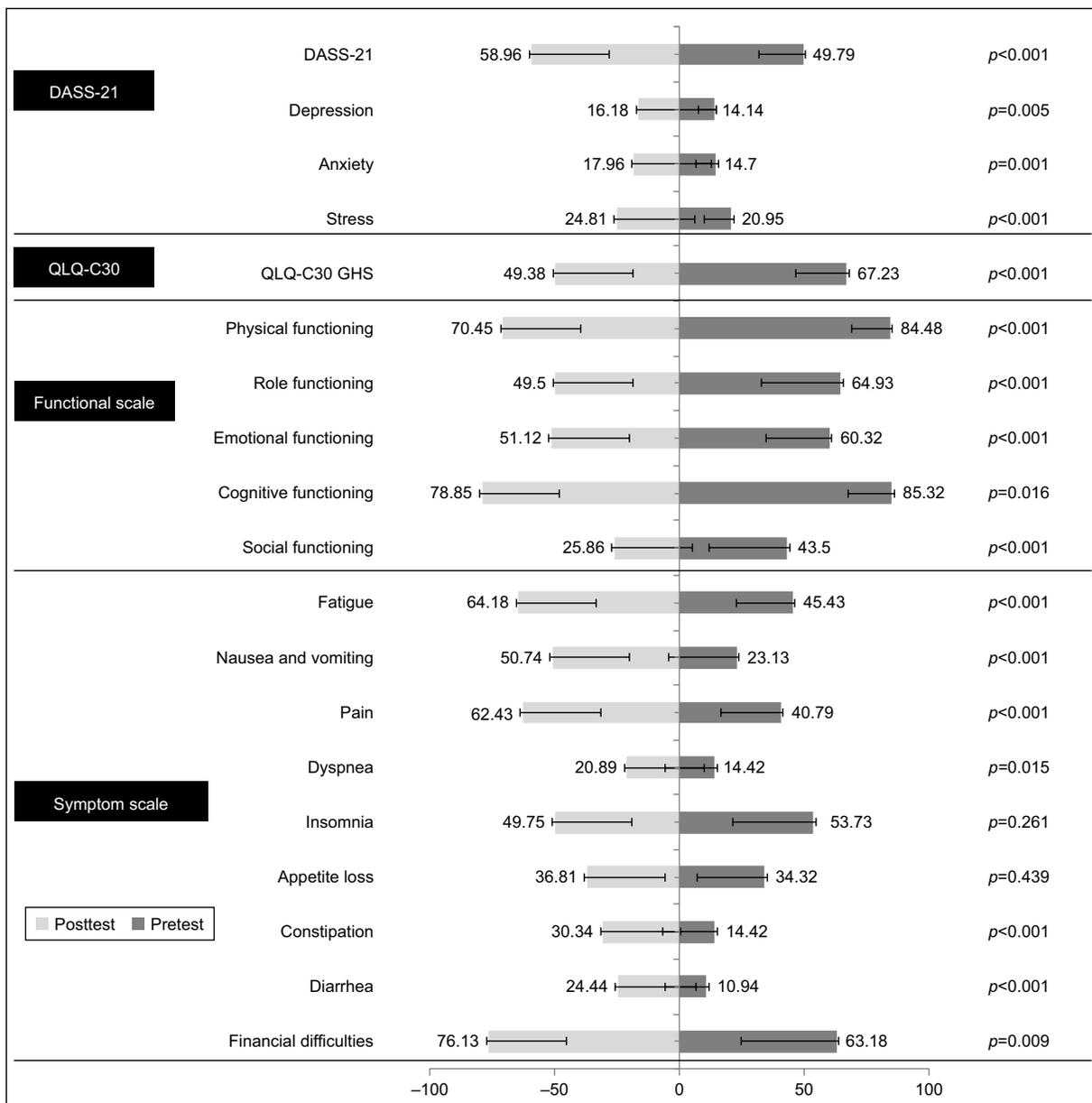
Figure 1 Control group mean score differences between pre- and posttest.
Abbreviations: DASS-21, Depression, Anxiety and Stress Scale, 21 item version; GHS, global health status; QLQ-C30, European Organization for Research and Treatment of Cancer Quality of Life scale.

psychoeducation groups. At the 18-month follow-up, there was still a significant difference between the control group and the intervention groups, especially in the DASS-21 overall score ($p<0.001$) and in their individual scores of depression, anxiety and stress ($p<0.05$) in addition to the emotional functioning subscale of the QLQ-C30 ($p<0.001$). The crisis counseling and psychoeducation groups were not significantly different from each other in terms of the DASS-21 scores – except for the stress score, in which the psychoeducation group showed significantly lower stress

scores at 18 months than did the patients in the crisis counseling group. There was no significant difference between the control and the intervention groups in quality of life (physical, role, cognitive and social functioning), nor in most items of the symptoms scale including financial difficulties (Figure 5).

Finally, we investigated the impact of crisis counseling and psychoeducation on treatment compliance. A total of 191 patients in this study (95%) were considered compliant to their treatment. Only 10 (5%) patients were noncompliant.
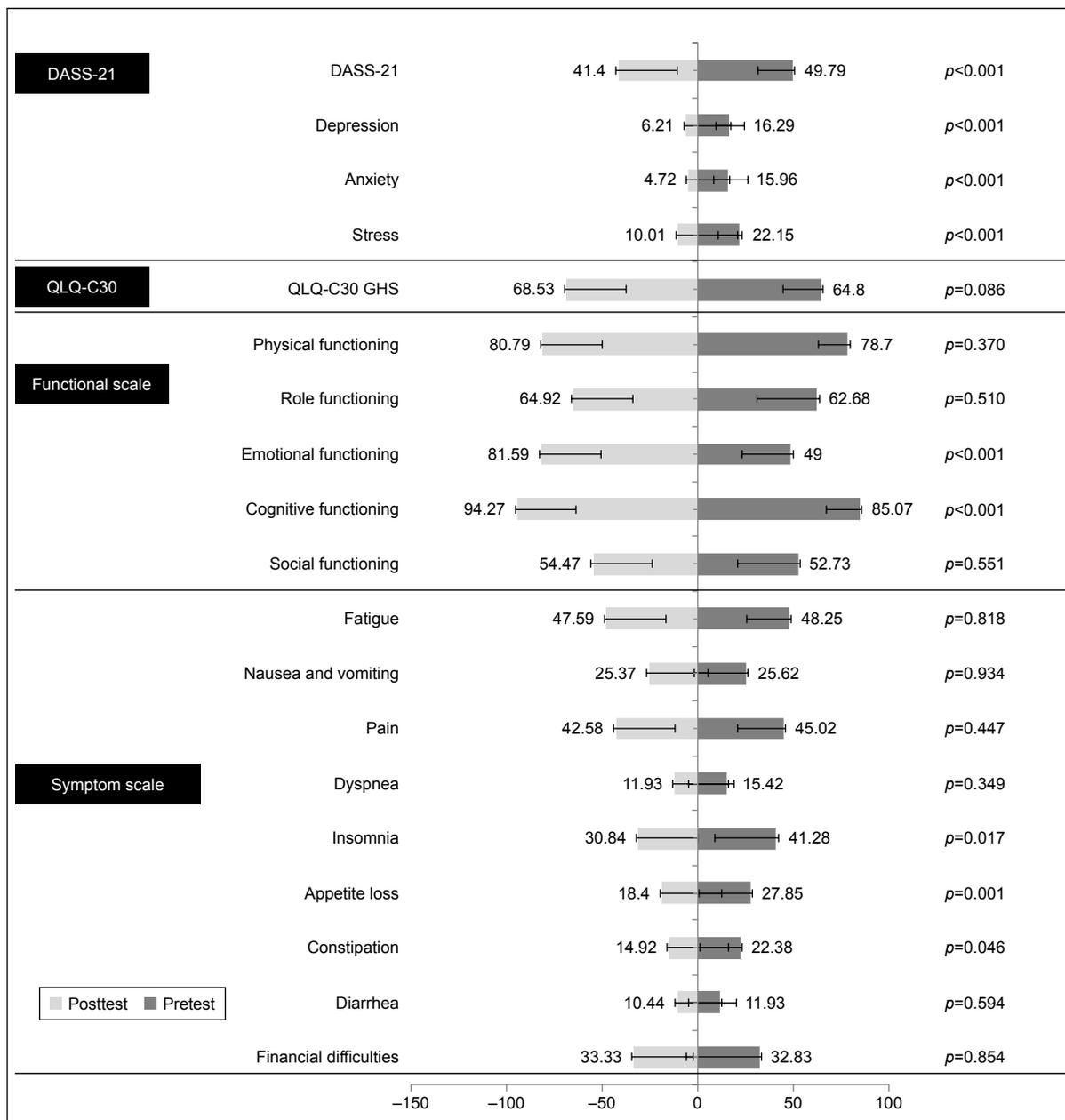
Figure 2 Crisis counseling group mean score differences between pre- and posttest.
Abbreviations: DASS-21, Depression, Anxiety and Stress Scale, 21 item version; GHS, global health status; QLQ-C30, European Organization for Research and Treatment of Cancer Quality of Life scale.

The 10 patients who were considered noncompliant were distributed across the three study groups. Therefore, there was no significant difference in treatment compliance among the three study groups (Figure 6).

Discussion

In this study, we aimed to evaluate the short- and long-term benefits of two structured psychotherapeutic interventions "crisis counseling" and "psychoeducation" for patients with early-stage breast cancer in the State of Qatar.

These interventions were never previously investigated in the State of Qatar, and this study acts as a source of evidence of their benefits for improving patient's psychological well-being, quality of life and treatment compliance.

This study first revealed that most patients exhibited mild-to-moderate psychological distress at the beginning of their diagnosis and before receiving the study interventions and most participants had more than one psychological difficulty. This was not surprising; participants were expected to have some sort of psychological distress at that time, due to
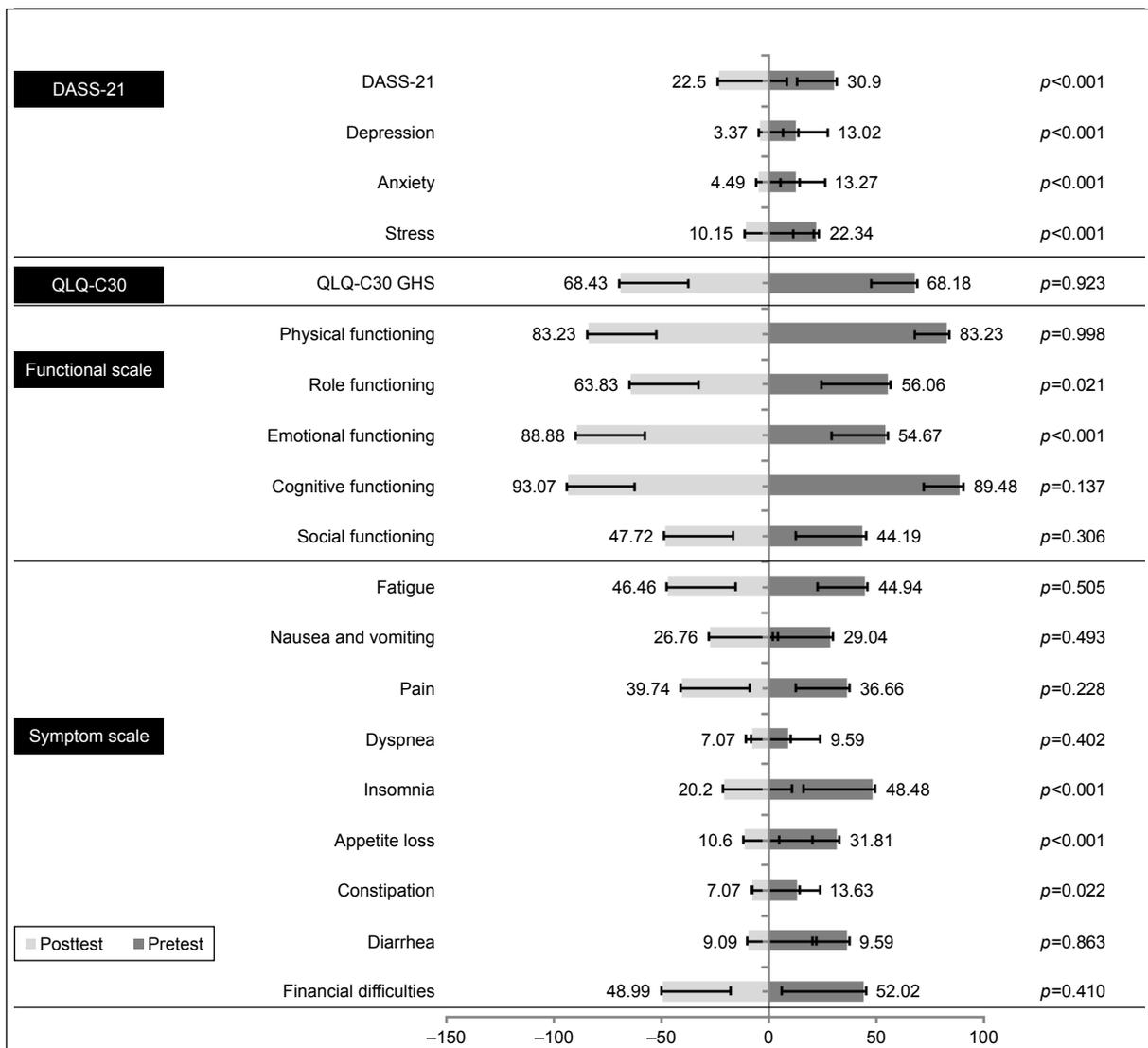
Figure 3 Psychoeducation group mean score differences between pre- and posttest.
Abbreviations: DASS-21, Depression, Anxiety and Stress Scale, 21 item version; GHS, global health status; QLQ-C30, European Organization for Research and Treatment of Cancer Quality of Life scale.

their recent diagnosis of breast cancer, due to starting an intensive treatment of chemotherapy/radiotherapy and due to the new life changes that occurred following their diagnosis. This is also in line with the previous literature which shows that breast cancer is considered one of the most devastating life events that a woman can experience, and that patients often experience psychological distress during their diagnosis.[6]

This study also revealed a significant association between patients' age and marital status, and their levels and type of psychological distress. Younger women, in this study, tended to experience more psychological distress than did those who were over 50 years old. This could be because most patients in this study were in the younger age group (40–49), and there were not enough women in the older age group to provide reliable statistics. However, the results could also be

due to different reasons, including the higher expectations of younger women about their body image and physical beauty, as well as the distress caused by body image changes (eg, losing one or both breasts) which may occur before patients start their chemotherapy and radiotherapy regimens. In addition, younger women tend to be more sexually active and their sexual functioning may be interrupted, whether due to lower self-esteem or due to the biological changes that occur during their treatment – such as hormonal changes, fatigue and pain. Worries about having their fertility interrupted by chemotherapy may be another factor contributing to women's psychological distress in this age group. This result is supported by previous literature which found that younger women with breast cancer tend to experience more psychological distress than older women.[24] The study also found a
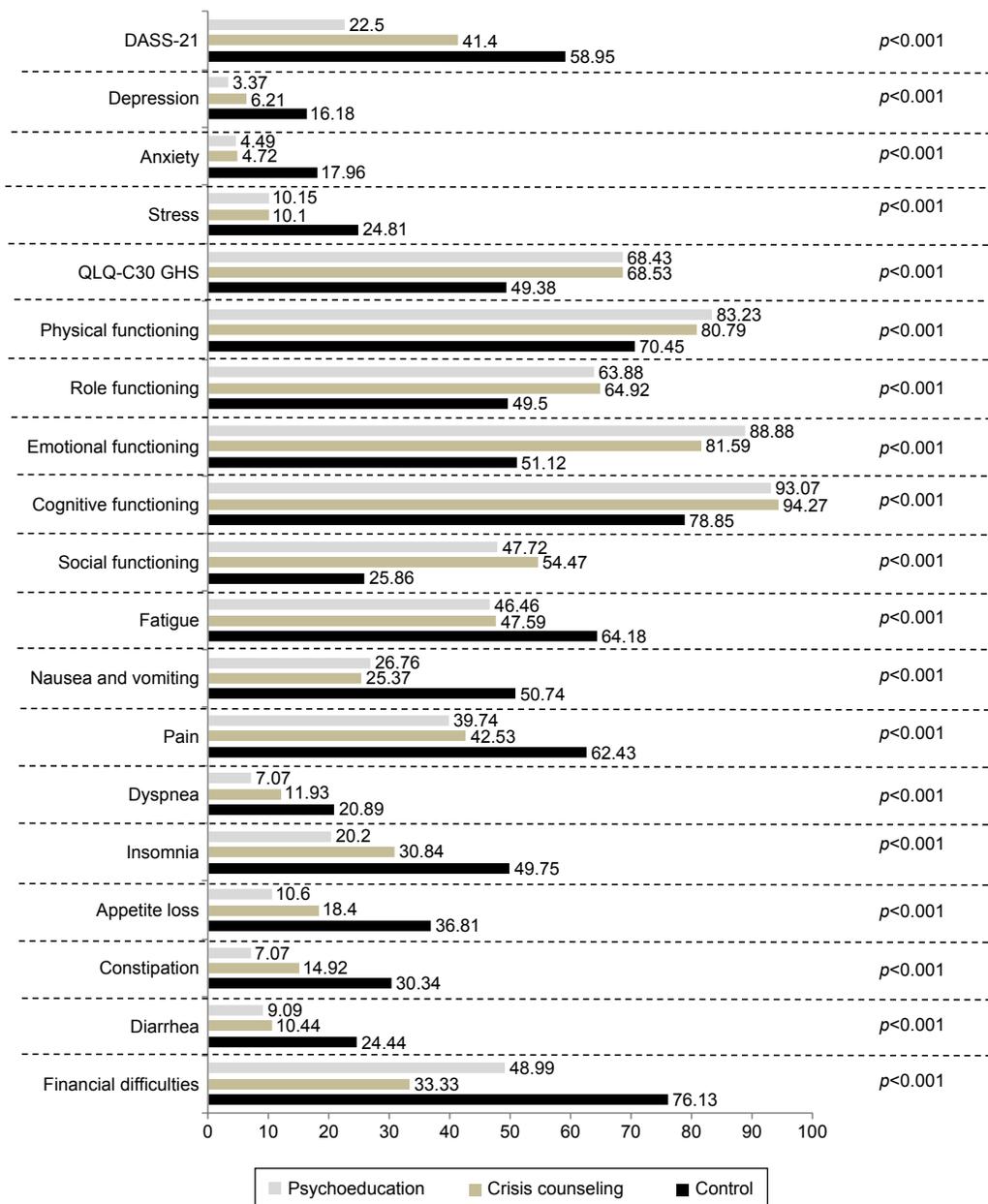
Figure 4 Post hoc analysis of the posttest scores of the three study groups.
Abbreviations: DASS-21, Depression, Anxiety and Stress Scale, 21 item version; GHS, global health status; QLQ-C30, European Organization for Research and Treatment of Cancer Quality of Life scale.

significant association between psychological distress and marital status: women who were married tended to experience more psychological distress than those of other marital status. This result could be explained by several factors, such as women's fear and worry that the diagnosis might influence their family dynamics – especially if they hold responsibilities like raising children and fulfilling their roles as wives and mothers, which are considered important commitments for females in Middle Eastern society.[25] In addition, women who are married may worry about the possibility of their spousal and sexual relationships being influenced by the diagnosis,

which can in turn put them in psychological distress. This differs from previous research in which married women felt more supported by their husbands and were therefore less psychologically distressed than single women.[24,26]

To evaluate the short- and long-term effects of crisis counseling and psychoeducation interventions, patients from all groups were asked to complete the study instruments (DASS-21 and QLQ-C30) before the start of the intervention, immediately after the interventions and 18 months after completing the interventions. Although the control group received neither crisis counseling nor psychoeducation,
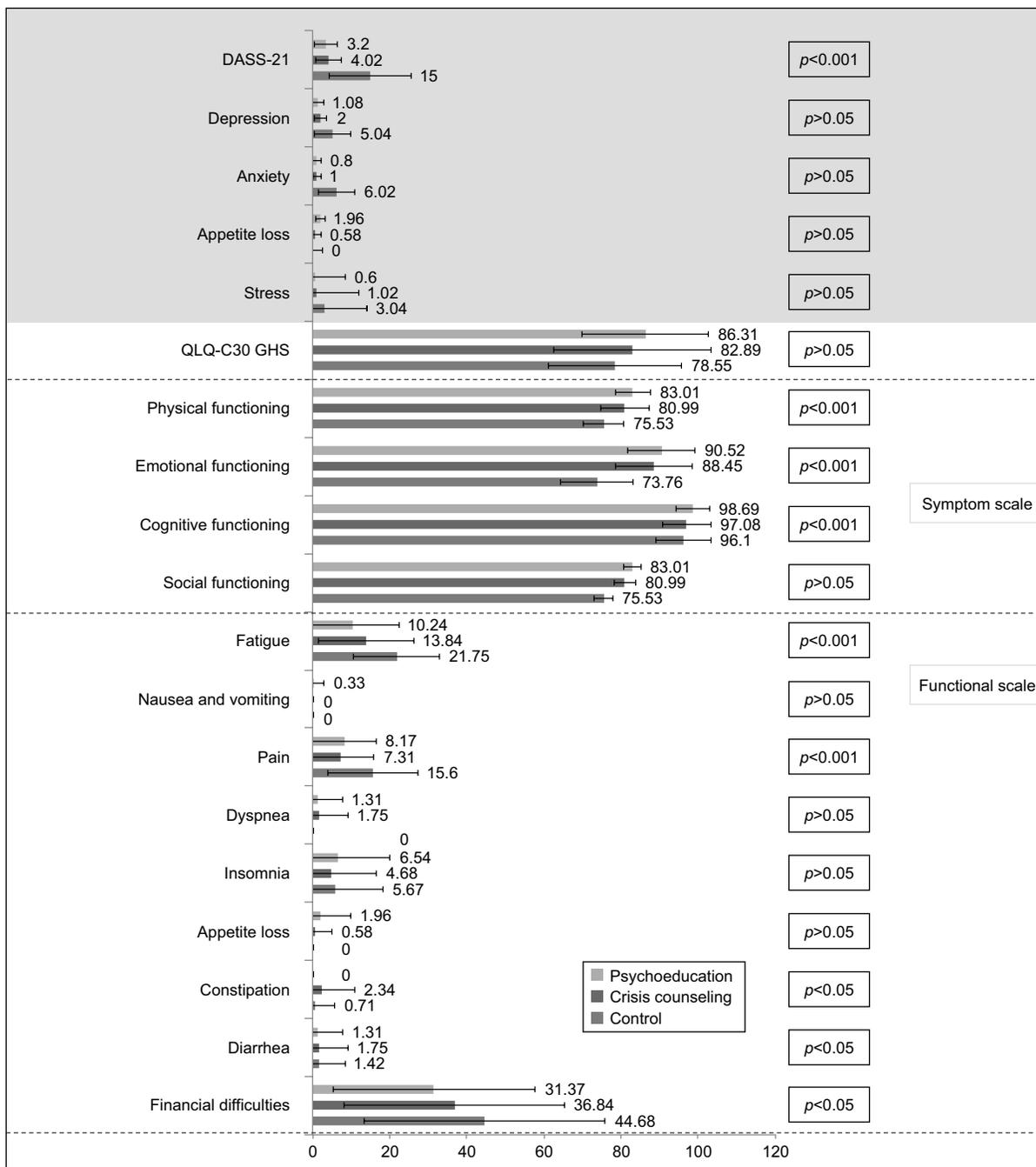
Figure 5 Follow-up results of DASS-21 and QLQ-C30 of the three study groups at 18 months.
Abbreviations: DASS-21, Depression, Anxiety and Stress Scale, 21 item version; GHS, global health status; QLQ-C30, European Organization for Research and Treatment of Cancer Quality of Life scale.

it was essential that the control group complete the study instruments (DASS-21 and QLQ-C30) as well, at the same three points in time as the intervention groups. This was vital to studying the true short- and long-term effects of the crisis counseling and psychoeducation interventions, compared to the control.

The results of this study showed that the control group, who received only the standard of care, had a significant increase in their psychological distress, as evident by their increased scores of DASS-21, depression, anxiety and stress. The control group also showed a significant decrease in their quality of life, as evidenced by the decrease in their global health status and functional scale and the increase in the symptom scale of the QLQ-C30 instrument. This significant change can be explained by the fact that patients were exposed to treatment (chemotherapy and radiotherapy) during the 12-week period of the study. Thus, they had to deal with the intensive treatment and its associated side
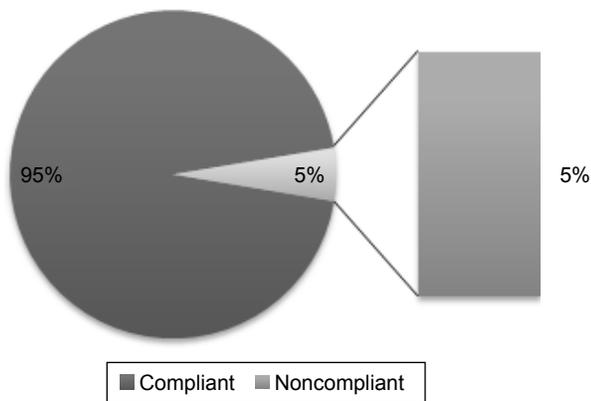
Figure 6 Treatment compliance of all patients over the study period.

effects, along with the emotional burden caused by the diagnosis and frequent appointments/admissions to the hospital, without receiving sufficient psychological support during that time. Although all patients in this study received emotional and health-related support from their nurses, doctors and other health care providers, it seems that the support provided as part of the standard of care alone was not significant enough to reduce patients' psychological distress and improve their quality of life. On the other hand, the patients in the intervention groups – who received the standard of care in addition to the crisis counseling or psychoeducation support intervention – showed significant improvement in their psychological well-being and in some aspects of their quality of life. This especially impacted their emotional functioning, before and after receiving the study interventions, as evidenced by their improved DASS-21 and QLQ-C30 instrument scores. The significant improvements observed in psychological well-being and in some aspects of quality of life (especially emotional functioning) of the patients from intervention groups may be explained in part by that fact that patients in both intervention groups were given the opportunity to talk about their concerns, express their emotions and learn different methods to cope with their diagnoses, over a total of six sessions for 12 weeks.

Although the models of Fawzy and Fawzy and Roberts were never previously explored in Qatar and most countries of the Middle East, the results of this study are in line with prior literature from the Middle East in proving the vital role of psychological support for breast cancer patients.[13,15–17] Said literature has shown that different forms of psychological models – in the form of group counseling and progressive muscle relaxation with guided imagery therapy and peer-led education – were accepted by patients in the Middle East and were helpful in improving women patients' psychological

well-being and quality of life. The results of this study on the Fawzy and Fawzy model are also in line with the previous literature regarding its benefits for patients with melanoma and breast cancer, in which it was shown to be effective in improving their psychological well-being and enhancing their coping skills.[11,19] No previous studies had tested the effectiveness of the Roberts model on cancer patients. Thus, the study at hand is considered the first to prove its effectiveness in enhancing breast cancer patients' psychological well-being and quality of life.

In terms of the long-term effects of the study interventions, the crisis counseling and psychoeducation groups showed significant improvements in their psychological well-being – as well as significantly improved depression, anxiety and stress scores on the DASS-21 – than did the control group, at the 18-month follow-up. However, there was no significant difference between the control and intervention groups in terms of quality of life, except for in the emotional functioning and the fatigue and pain items of the symptoms scale of the QLQ-C30. These results suggest that both the crisis counseling and psychoeducation interventions were significantly helpful in improving patients' psychological well-being and quality of life – not just in the short term but also in the long term.

Interestingly, this study showed few significant differences between the two intervention groups. In the short term, the psychoeducation group showed lower depression scores on the DASS-21 and more improved emotional functioning on the QLQ-C30 instrument than did the crisis counseling group. In the longer term, the psychoeducation group also showed lower stress scores when compared to the crisis counseling group. Several reasons were suggested to explain the few significant differences that were observed between the two study intervention groups. First, it was suggested that the Fawzy and Fawzy model might be a better intervention than the crisis counseling model in improving patient's mental well-being. The Fawzy and Fawzy model was originally designed to target cancer patients and contains multiple educational components that are cancer specific – as compared to the seven-stage crisis model by Roberts, which is not cancer specific. It was also suggested that patients in this study may have liked and comprehended the Fawzy and Fawzy model's educational components, such as its relaxation techniques (guided imagery techniques and breathing techniques), in addition to its problem-solving and stress management techniques, which were integrated with information on coping and were presented with case scenarios and visual aids. These types of educational components may

have been easier for patients to recall, even at 18 months post-intervention, than the Roberts crisis counseling model (which has no educational components).

In terms of the impact of crisis counseling and psychoeducation on treatment compliance, the analysis of all participants' adherence to treatment revealed that 95% of patients in this study were compliant to treatment and there was no significant difference among the three groups in terms of treatment compliance. These results may have been influenced by the type and stage of disease of the patients included in this study. All patients were diagnosed with early-stage breast cancer that had a good long-term prognosis. This may have motivated the patients to comply with their treatment.

Limitations

Although this study has provided rich and extensive knowledge on the benefits of two psychotherapeutic interventions (crisis counseling and psychoeducation) and will significantly help improve the psychological support services offered to breast cancer patients in the State of Qatar, there are several limitations to this study that need to be addressed. First, the control group did not receive a placebo intervention. As such, it could be argued that there was a lack of equivalency across the three groups. However, it is believed that if the control group were provided with any type of social support, there might have been a corresponding effect on their mental well-being. This effect would then make it extremely difficult to isolate the effects of the formal interventions being studied. Another potential limitation of this study is that the assessment of the long-term effects of the crisis counseling and psychoeducation interventions was not achieved at 6 months as planned, but was delayed until 18 months after the interventions. This was because most patients were unavailable at the 6-month mark, whether due to extended travel commitments or because they simply did not respond to requests from the research assistants. This may have affected the results, regarding the true long-term effects of crisis counseling and psychoeducation. Finally, the crisis counseling and psychoeducation interventions were delivered by different health care providers (clinical psychologists and trained medical oncologists). This was due to the limited number of clinical psychologists at the NCCCR. This may have caused patient's response bias due to therapist's different medical authorities.

Conclusion

This is the first study of its kind to provide evidence on the benefit of crisis counseling and psychoeducation interventions

for a heterogeneous group of breast cancer patients residing in the State of Qatar. Due to the positive outcomes of this study and the provided evidence, it is worth considering changes to the psychotherapeutic services offered to breast cancer patients in the State of Qatar. It is recommended that the proposal for practice change includes making changes to the standard of care for breast cancer patients through the implementation of in-person psychoeducation (eg, the Fawzy and Fawzy model)[19] for those with early-stage breast cancer justifiable by the evidence provided in this study of its significant impact on reducing patients' psychological distress and improving their quality of life in the short and long term. Other proposals can also include exploring the effectiveness of the Fawzy and Fawzy and Roberts models in patients with other common cancers such as early-stage colon cancer or those with advanced cancers such as metastatic breast or colon cancer.

Author contributions

RJA, AB, LD, SBA, SG and AL designed and supervised the study and were involved in data collection, statistical analysis, and interpretation of data. AL, HB, RA and AK were involved in delivering the study interventions. All authors contributed toward data analysis, drafting and critically revising the paper, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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