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The Effects of Cognitive Behavioral Therapy on the Lifestyle of Breast Cancer Patients

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Quantitative Study

Abstract

Background: Patients with breast neoplasms are exposed to various physical and psychological injuries. Improving these patients' lifestyles can improve their condition. The present research investigated the effects of cognitive behavioral therapy (CBT) on the lifestyle of breast cancer patients.

Methods: The current semi-experimental study was conducted with a pretest-posttest design and a control group. The statistical population comprised 308 breast cancer patients referred to the Teaching Hospital of Maternity and Childhood in Al-Ramadi, Iraq, in 2022. Using simple random sampling, 80 women were selected and divided into experimental and control groups (40 patients per group). The Health Promoting Lifestyle Profile (HPLP; Walker et al., 1987) was used for data collection. The collected data were analyzed using analysis of covariance (ANCOVA) in SPSS software. The statistical significance level was 0.05.

Results: The findings indicate that CBT was effective on lifestyle variables ($F = 70.01$; $P < 0.001$) in breast cancer patients. Moreover, the results of a one-way ANCOVA demonstrated that the lifestyle subscales, including health responsibility ($F = 4.73$; $P < 0.001$), nutrition ($F = 9.14$; $P < 0.001$), physical activity ($F = 13.64$; $P < 0.001$), stress management ($F = 7.05$; $P < 0.001$), interpersonal relationships ($F = 12.42$; $P < 0.001$), and spiritual growth ($F = 5.63$; $P < 0.001$), increased significantly.

Conclusion: It can be concluded that CBT improved lifestyle and its subscales

in breast cancer patients. Therefore, special attention should be paid to these patients' lifestyles, and psychological interventions such as CBT can be effective in this regard.

Keywords: Breast neoplasms; Cognitive behavioral therapy; Lifestyle

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Introduction

Cancer is one of the most pressing medical issues of the present day, and breast cancer is the most common cancer (Addison et al., 2022). Although the prevalence of breast cancer has increased in recent years, screening, early diagnosis, and various treatments have reduced patient mortality. Breast cancer has become a chronic disease, with complications affecting and reducing a person's quality of life (QOL) (Thanoun, Al-Zubaidi, Obaid, Zwain, Al Salami, & Abdulhasan, 2023).

Because breast cancer attacks the female identity, it has a severe psychological effect on patients (Zhang et al., 2023). The diagnosis of this disease and the stages of its treatment have a wide range of consequences on the physical, psychological, family, social, and economic dimensions (Farzanegan, Derakhshan, Hashemi-Jazi, Hemmati, & Azizi, 2022). Breast cancer is one of the cancers that can be prevented or diagnosed early, and by providing specific solutions, it is possible to reduce the problem and provide effective treatment to increase survival, reduce the rate of death, and improve patients' QOL (Kwak, Jacobs, Haggett, Jimenez, & Peppercorn, 2020).

Patients with breast cancer face physical and emotional challenges caused by the disease, surgery, radiation therapy, chemotherapy, hormone therapy, and family, social, and professional issues (Tao et al., 2023). Long treatment periods, frequent hospitalizations, chemotherapy side effects, and cancer awareness can all affect the body and mind of cancer patients. Breast cancer alters a person's life and causes numerous physical, psychological, social, economic, and family issues (Maccora et al., 2022). It increases sufferers' feelings of dependency, decreases their self-confidence, and increases their vulnerability, confusion, pain, physical symptoms, and disturbed thoughts. It also disrupts daily functions, social activities, and mental peace by introducing new roles and causing patients to become dependent on others and unable to participate in their usual social activities. These issues, as well as prolonged hospitalizations, frequent doctor visits, various treatments, complications, and high treatment costs, point to the need for patients to change their lifestyles (Xu, Xue, Li, Qiao, Redding, & Ouyang, 2023).

Mental disorders in breast cancer affect treatment decision-making and adherence, cause dysfunction, and reduce QOL. These disorders can cause symptom control issues and difficulty in making treatment decisions (Ren et al., 2019). It generates a great deal of them. Women with breast cancer face a variety of stressors, including the stress of informing family members of the illness and the stress of knowing that life will change dramatically (Rosendahl et al., 2023). Women with breast cancer must adapt to various stressors, including diagnosis of a life-threatening disease, difficult and distressing treatments, and physical disfigurement as surgical aftereffects, ongoing physical limitations, and the threat of disease recurrence. Anxiety and depressive symptoms have always been associated with the numerous challenging aspects of the cancer experience that cause concern for patients (Ardizzone, Bavetta, Garo, Santangelo, Bongiorno, & Bono, 2022).

Psychological treatments can be used to reduce or tolerate disease conditions (Starling et al., 2022). Various psychological interventions have been proposed for the management, control, or alteration of the behavioral and psychological complications caused by breast cancer (Tran, Hickey, Saunders, Ramage, & Cohen, 2021). Moreover, cognitive behavioral therapy (CBT) has been reported to have a significant effect on these patients. CBT focuses on replacing defective cognitions with efficient cognitions. The primary goal of CBT is to assist the patient in making positive changes in his/her life (Lai, Chen, Lu, & Huang, 2021).

CBT is founded on the fundamental link between thinking, feeling, and behavior. Reliable researchers can help people rebuild their thoughts to deal with mental stress using this method (Zeichner, Zeichner, Gogineni, Shatil, & Ioachimescu, 2017). The patient is persuaded in CBT to notice the dependence between his/her adverse thoughts and his/her emotions of depression as hypotheses and to use the behaviors that result from his/her negative reviews as a test to evaluate the validity or correctness of the hypotheses. CBT is effective for patients with mental problems (Van Driel, Stuursma, Schroevers, Mourits, & de Bock, 2019). CBT emphasizes the provision of the opportunity for new adaptive learning and alteration of the environment outside of the clinical space (Entwistle, 2019).

Lifestyle includes all behaviors under a person's control or effects on a person's health risks (Akkol-Solakoglu, Hevey, & Richards, 2021). Today, most health-related issues (such as cancer types) are linked to lifestyle changes. Given the numerous studies that show a link between people's lifestyles and cancer, the need to emphasize lifestyle modification as an essential factor in determining the prognosis and complications of this disease is evident and justifiable (Charalampopoulou, Bacopoulou, Syrigos, Filopoulos, Chrousos, & Darviri, 2020). Although a healthy lifestyle should be instilled in children, there is always time to change your ways and develop healthy habits. The provision of information about lifestyle changes to patients necessitates the use of appropriate patient education methods. The effectiveness of health education programs relies heavily on applying a suitable educational theory. One of the most comprehensive and relevant theories for studying behavior is CBT (Lukas et al., 2022).

Psychological interventions have a moderating effect on patient's psychological problems, and their use has grown in popularity in recent years. Given the adverse effects of cancer on various appearances of a cancer patient's life and the global increase in breast cancer, it appears necessary to investigate effective psychological interventions in this field. The present research investigated the effects of CBT on the lifestyle of breast cancer patients.

Methods

The current semi-experimental research was conducted with a pretest-posttest design and a control group. The statistical population consisted of all women with breast cancer referred to the Teaching Hospital of Maternity and Childhood in Al-Ramadi, Iraq, in 2022 (n = 308). In the current research, 80 women were chosen through simple random sampling and divided into experimental and control groups. The inclusion criteria were women aged 20 to 60 years, at least 3 months since cancer diagnosis and progression, no concurrent psychological treatment, no use of psychiatric drugs, and limited reading and writing literacy. The exclusion criteria included refusal to participate in the study, missing more than 2 sessions, and refusing to complete the questionnaires. To comply with ethical requirements, the confidentiality principle was adhered to.

Patients in the control group received routine care. In contrast, women in the experimental group received 8 weekly, 90-minute sessions of CBT intervention (MENOS 1 protocol). A description of the sessions is provided in table 1. Women in the control group received no intervention, but CBT was offered to them after the study concluded. The Health Promoting Lifestyle Profile (HPLP) was used for data collection in pretest and posttest stages. The HPLP (Walker, Sechrist, & Pender, 1987) contains 54 items scored on a 4-point scale.

Table 1. Description of cognitive behavioral therapy intervention sessions

Session	Description
1	Getting to know the members of the group, introducing the treatment plan and goals, and carrying out the pretest
2	Defining and explaining lifestyle, its subscales, and how it affects breast cancer
3	Explaining the physical and psychological consequences of lifestyle and the benefits of lifestyle improvement in breast cancer patients
4	Explaining of their previous lifestyle and the lifestyle they experienced while undergoing treatment for breast cancer by patients, and sharing experiences
5	Describing patients' negative spontaneous thoughts about lifestyle and lifestyle promotion during breast cancer treatment
6	Asking patients in the group to represent their adverse automatic thoughts pending their breast cancer experience and assigning homework to determine the content and amount of negative spontaneous thoughts
7	Instructing patients on how to recognize negative spontaneous thoughts and how to improve other lifestyle subscales
8	Teaching patients methods for dealing with a bad lifestyle, feasible responses to thoughts and actions, and how to change a destructive lifestyle, and conducting the posttest

The HPLP assesses health-promoting behaviors across the 6 dimensions of health responsibility (13 questions), nutrition (having a food pattern and choosing food; 8 questions), physical activity (having a regular exercise pattern; 8 questions), stress management (identifying sources of stress and stress management measures; 6 questions), interpersonal relationships (maintaining relationships with a sense of closeness; 8 questions), and spiritual growth (having a sense of self-actualization; 11 questions). The content validity of the HPLP was 0.76 in the current study, and its reliability, according to Cronbach's alpha method, was 0.81.

The collected data were analyzed using the independent t-test and analysis of covariance (ANCOVA) in SPSS software (version 21; IBM Corp., Armonk, NY, USA). The statistical significance level was equal to 0.05.

Results

Table 2 presents the demographic variables of the women in the two groups. As can be seen in table 2, 60 women (75%) were over 40 years of age, and the mean age of women in the experimental and control groups was 51.86 ± 6.59 years, and 53.17 ± 6.78 years, respectively. Moreover, 70 (87.5%) women were married, 51 (63.8%) had a secondary education, 57 (71.3%) were unemployed, and 59 (73.8%) lived in an urban area. The findings showed no significant difference in the demographic variables between the two groups ($P > 0.05$).

To obtain data, women of both groups completed the questionnaire in two stages: pretest and posttest. The mean score of lifestyle and its subscales are presented in table 3.

Table 2. Demographic variables of the study groups

Variable		Experimental group [n (%)]	Control group [n (%)]	P-value
Age (year)	< 40	11 (27.5)	9 (22.5)	0.14
	> 40	29 (72.5)	31 (77.5)	
Marital status	Married	33 (82.5)	37 (92.5)	0.23
	Single	7 (17.5)	3 (7.5)	
Education	Secondary	23 (57.5)	28 (70)	0.47
	College	17 (42.5)	12 (30)	
Occupation	Employed	13 (32.5)	10 (25)	0.52
	Unemployed	27 (67.5)	30 (75)	
Area of residence	Urban	33 (82.5)	26 (65)	0.19
	Rural	7 (17.5)	14 (35)	

Table 3. Mean and standard deviation (SD) of lifestyle and its subscales in two stages

Variable	Stage	Experimental group (mean ± SD)	Control group (mean ± SD)	P-value
Health responsibility	Pre-test	35.23 ± 6.39	35.74 ± 6.25	0.271
	Post-test	42.16 ± 7.24	36.27 ± 6.63	<0.001
Nutrition	Pre-test	18.53 ± 3.27	18.24 ± 3.12	0.394
	Post-test	21.89 ± 3.61	18.06 ± 3.24	<0.001
Physical activity	Pre-test	19.27 ± 2.81	19.84 ± 3.46	0.126
	Post-test	23.08 ± 3.96	20.34 ± 3.78	<0.001
Stress management	Pre-test	13.42 ± 3.15	13.36 ± 2.94	0.527
	Post-test	18.72 ± 2.63	13.04 ± 3.11	<0.001
Interpersonal relationships	Pre-test	22.58 ± 2.38	22.24 ± 2.19	0.604
	Post-test	27.51 ± 2.73	22.52 ± 2.48	<0.001
Spiritual growth	Pre-test	28.73 ± 3.46	28.52 ± 3.39	0.218
	Post-test	35.28 ± 3.86	29.07 ± 3.65	<0.001
Lifestyle	Pre-test	137.76 ± 14.76	137.94 ± 14.92	0.329
	Post-test	168.64 ± 16.53	139.30 ± 15.38	<0.001

SD: Standard deviation

Table 3 shows no statistically significant difference between the experimental and control groups in terms of the values of the lifestyle variable and its subscales in the pretest stage ($P > 0.05$). The difference between the groups regarding lifestyle and its subscales was significant in the posttest stage ($P < 0.001$). Table 3 indicates that the minimum of the control group's pretest and posttest results have changed ($P > 0.050$). The experimental group's scores increased in the posttest stage, resulting in a significant difference for both stages ($P < 0.001$). As a result, CBT has improved the lifestyle of breast cancer patients.

The assumption of normal distribution was tested using the Kolmogorov-Smirnov test, and this assumption Was validated ($P > 0.05$). After completing the investigations, it was discovered that the scores' distribution was normal ($P > 0.05$). Furthermore, Levene's test indicated the homogeneity of lifestyle variances ($F = 1.63$; $P = 0.29$). The Box's M test results indicated the homogeneity of the variance–covariance matrix ($F = 1.87$; $P = 0.14$). Table 4 displays the ANCOVA results in the examination of the effect of CBT on the lifestyle variable.

As can be seen in table 4, CBT has improved the lifestyle variable. Table 5 shows the results of a one-way ANCOVA used to investigate the values of the lifestyle subscales between the experimental and control groups.

The results presented in table 5 illustrate that the provision of the independent variable (intervention based on CBT) yielded a significant difference in the lifestyle subscales ($P < 0.001$). In breast cancer patients, CBT significantly improved the mean scores of the lifestyle subscales when the intervening variable (pretest) was controlled.

Discussion

The present research investigated the effects of CBT on the lifestyle of breast cancer patients.

Table 4. Analysis of covariance findings for the effect of cognitive behavioral therapy on the lifestyle variable

Source of variation	SS	df	MS	F	P-value
Pretest	146.38	1	146.38	14.97	< 0.001
Group	684.74	1	684.74	70.01	< 0.001
Error	567.19	58	9.78		

df: Degree of freedom; SS: Sum of squares ; MS: Mean square

Table 5. One-way analysis of covariance findings for the effect of cognitive behavioral therapy on lifestyle subscales

Source of variation	Variable	SS	df	MS	F	P-value
Dependent variable	Health responsibility	14.53	1	14.53	4.73	< 0.001
	Nutrition	28.05	1	28.05	9.14	< 0.001
	Physical activity	41.87	1	41.87	13.64	< 0.001
	Stress management	21.64	1	21.64	7.05	< 0.001
	Interpersonal relationships	38.12	1	38.12	12.42	< 0.001
	Spiritual growth	17.29	1	17.29	5.63	< 0.001

df: Degree of freedom; SS: Sum of squares ; MS: Mean square

The findings displayed that CBT effects lifestyle and its subscales in breast cancer patients, causing them to increase. The results of the present study are consistent with that of the previous research by Duijts et al. (2012), Kwak et al. (2020) and Lukas et al. (2022), but not with that of the study by Qiu et al. (2013).

The natural processes of language affect people's experiences and result in the negative evaluation of various aspects of knowledge. When people reflect on their lives, they significantly increase their anxiety capacity by citing existing flaws as evidence of worthlessness or worry (Mann et al., 2012). An ability that causes patients to avoid experience can lead to increased anxiety and the adoption of harmful health behaviors. People cannot differentiate between the world that is verbally conceptualized and the world that is directly experienced. In such a state, and by the content of one's self-concept, a person feels a great deal of anxiety (Mefferd, Nichols, Pakiz, & Rock, 2007).

Improper lifestyle is one of the risk factors for chronic diseases such as breast cancer. Today, the outstanding reason for death is correlated with incorrect lifestyle practices such as smoking, inactivity, and inappropriate eating habits. As a result, improper lifestyles reduce patients' QOL (Mewes et al., 2015). Today, people are concerned with improving their QOL and attempting to improve their well-being while reducing the effects of diseases through healthcare services and modern treatment methods. Although drug therapy is at the forefront of treatment and has a positive effect on the health of women with breast cancer, it cannot change the patients' negative feelings about their disease. CBT strategies include the implementation of psychological interventions with a focus on correcting attributional styles and challenging or irrational beliefs, relaxation, problem-solving skill training, guided mental imagery, and coping skills training. This not only mitigates the negative emotional consequences of chronic diseases, but also helps to increase adherence to treatment recommendations (Matthews, Schmiege, Cook, Berger, & Aloia, 2012).

To explain these findings, it can be stated that CBT exposes people cognitively to the successful experiences of their peers with breast cancer. It also provides them with successful experiences by exposing them to appropriate role models who have acted successfully. Additionally, they are allowed to be persuaded verbally by the group leader and peers that they can succeed (Ghahari et al., 2017). Furthermore, CBT regulates the physiological arousal level of women with breast cancer through stress management exercises and assignments, effective stress management strategies, and a relaxing and hopeful environment. CBT is thought to be effective in most mental disorders and medical disorders with severe psychological consequences because group members see how they interact with society, which increases their insight and insight. Simultaneously, they gain new skills for communicating with others, meet new people, feel empowered, and their self-confidence grows (Zeichner et al., 2017).

Another beneficial aspect of CBT for breast cancer patients is teaching them how to identify spontaneous thoughts and cognitive distortions and replace negative thoughts with positive ones (Maccora et al., 2022). Another goal of this type of intervention that helps improve these patients' lifestyles is identifying factors (Tran et al., 2021). CBT significantly reduces stress, indicating that it effectively reduces mental disorders. Addressing the cognitive-behavioral components of cancer, which necessitates patients' ability to adapt and reduce stress, is regarded as a basic need. Women with breast cancer mostly experience mental and cognitive stress (Duijts, Oldenburg, van, & Aaronson, 2009). CBT teaches people how to use techniques related to experiencing the present moment to temporarily free themselves from it. In addition, they develop the mindset of accepting all matters (pleasant and unpleasant) without judgment. Adopting such a plan is especially beneficial for a cancer patient experiencing painful emotions like hopelessness, helplessness, and sadness (Atema et al., 2016).

CBT has the potential to improve lifestyle and QOL. When patients learn cognitive behavioral skills and practice them in stressful situations, they realize that they can make decisions, control their life events, and take effective action to achieve their desired results. It also encourages them to challenge existing conditions and solve problems creatively and problem-oriented, resulting in inner satisfaction, increasing happiness, psychological well-being, and self-efficacy (Lai et al., 2021). Moreover, it leads to a sense of fulfillment, self-belief, warm social relationships, and an improvement in QOL.

Women with breast cancer have a different lifestyle than healthy people, and lifestyle is a significant factor in psychological stress. Considering these findings, healthcare providers should emphasize the role of lifestyle in disease occurrence and control in health education programs, and patients should be encouraged to change their unhealthy behaviors while receiving regular screenings (Ren et al., 2019). Although lifestyle modification intervention plans have been used successfully in many ways to reduce mental stress, non-pharmacological treatments are required to increase the effectiveness of conventional methods.

One of the present study's limitations is the need for more follow-up. As a result, it is suggested that future studies implement a follow-up stage to check the stability and continuity of the effect of CBT over time. Another limitation of the present research is that it only used one psychological intervention method and did not compare it to others. As a result, in future studies, other intervention methods should be used and the results be compared to the current research results.

Conclusion

The findings of the current study indicated that using CBT improved lifestyle and its subscales, including health responsibility, nutrition, physical activity, stress management, interpersonal relationships, and spiritual growth, in breast cancer patients. Considering the significant effects of CBT, this therapy can be used as a suitable alternative or complementary treatment.

Conflict of Interests

Authors have no conflict of interests.

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