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Original Research Article

EFFECTIVENESS OF COGNITIVE-BASED INTERVENTIONS FOR IMPROVING BODY IMAGE OF PATIENTS HAVING BREAST CANCER

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Abstract: *Breast cancer is one of the most common tumors among women. CBT is an algorithmic, time-bound method of treatment that concentrates on altering negative cognitive processes and behavioral patterns.* ***Objectives:*** *The main objective of the study is to find the effectiveness of cognitive-based interventions for improving the body image of patients with breast cancer.* ***Methods:*** *This quasi-experimental study was conducted at Khyber Teaching Hospital Peshawar from January 2023 to January 2024. Data were collected from 105 breast cancer patients, all of whom had undergone various treatments such as mastectomy, lumpectomy, or chemotherapy, which resulted in noticeable physical changes. All patients diagnosed with breast cancer and having undergone surgical or medical treatments and experiencing concerns related to body image post-treatment with no prior history of psychiatric disorders were included in the study.* ***Results:*** *Data were collected from 105 patients. The results show that the intervention group experienced a significant improvement in body image, with a 45.6% reduction in Body Image Scale (BIS) scores from 22.8 ± 3.5 pre-intervention to 12.4 ± 3.1 post-intervention (p = 0.001). In contrast, the control group showed only a minimal 3.6% improvement, with scores decreasing slightly from 22.5 ± 3.7 to 21.7 ± 3.4 (p = 0.152).* ***Conclusion:*** *It is concluded that cognitive-based interventions, particularly Cognitive Behavioral Therapy (CBT), are highly effective in improving body image and reducing anxiety and depression in breast cancer patients.*

Keywords: Breast cancer, Body image, Cognitive Behavioral Therapy, Quasi-experimental, Psychosocial intervention

Introduction

Breast cancer is one of the most common tumors among women. The standard intervention approach includes surgery, adjuvant therapies, chemotherapy, hormonotherapy, and radiotherapy. Nevertheless, cancer prognosis is relatively favorable, and cancer diagnosis and treatments co-challenge patients' and survivors' QOL with both physical and psychological long-term side effects. ''Unwanted' Skin Changes affect the perception of BI and prompt intensive negative emotions. I always recommend body image concerns as a topic of utmost priority for breast cancer patients, including mastectomy, lumpectomy, or even chemotherapy (1). Such cures as chemotherapy, radiation, and surgery, while being effective, mean severe changes to the physical appearance like loss of hair, change in weight, scarring, and even removal of one or both breasts (2). Thus, these changes affect how people perceive themselves, and they develop uncomfortable, dissatisfied, and even shameful feelings about their bodies. Sometimes this leads to other disorders such as severe anxiety, depression, and, finally, a poor quality of life (3). These aspects should be treated not only for mental health issues of the patient but also as a positive and effective way of the recovery process. This is where cognitive-based interventions come into play, as these are the therapeutic strategies that help to change the negative perceptions towards the BIS. Some of the most targeted therapeutic approaches for enhancing body image among breast cancer patients have been cognitive-based ones, especially CBT (4). CBT is an algorithmic, time-bound method of treatment that concentrates on altering negative cognitive processes and behavioral patterns. CBT theory stands on the idea that negative emotions, including poor body image, are ascribed to distorted thoughts. For example, a breast cancer patient may be driven more by the bodily alterations they have undergone by magnifying imperfections and minimizing assets. Cognitive-based interventions are based on patients pointing out these thought processes and then changing them with healthier ones (5). Another therapy used is cognitive restructuring, in which patients are assisted in changing unfavorable thoughts toward themselves. This step involves coming up with negative automatic thoughts that one tends to have in particular circumstances, for instance, when looking in the mirror or even when putting on a certain type of clothing. For instance, a patient might reason that they are unattractive because of scarring resulting from surgery, and this conclusion may bring more self-loathing (6). This thought can be processed through a cognitive-based intervention wherein the patient is asked to think about other perceptions of the body, such as, " My scars are evidence of strength and survival". However, cognitive-based interventions always incorporate other techniques, such as cognitive restructuring of negative thoughts, to improve body image. Some of these intervention procedures may entail exposure activities; these entail that a patient confronts different circumstances that elicit body image fear, for instance, putting on tight garments or attending events (7). Altogether, these experiences assist the patients in gradually becoming habituated to the distressed aspects of their body image

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concerns so that they may be comfortable handling life activities with supreme confidence. Also, self-acceptance and mindfulness are nurtured in patients so that they do not give way to negative self-image regarding their appearance, hence adopting a better and much more positive attitude towards the body (8). The study has established that cognitive-based interventions can produce a large positive shift in the body image of breast cancer patients. The effectiveness of CBT has also been evidenced in that patients who have undergone the process express higher satisfaction with their body image, lower anxiety and depression about it, and better mental health. For example, one article in the Journal of Psychosocial Oncology revealed that breast cancer patients who went through a CBT-based intervention showed a significant gain in body image and self-esteem than those patients who were not treated with such an intervention (9). Likewise, the study conducted by Sheffer and concern published in the Journal of Clinical Psychology in Medical Settings also found that apart from body image satisfaction, approaches based on cognitive therapies help with the enhancement of patients' ability to handle stress and make them more emotionally stable due to uncertain nature of the illness (10). The advantage of using cognitive-based interventions is the fact that these types of interventions are specifically focused on both cognitive and emotional responses to body image concerns. Both of these therapies assist in changing the unrealistic and pessimistic thinking patterns of the patients while replacing them with constructive attitudes and acceptance, thus enabling a person to concentrate on aspects that make him valuable rather than imperfections (11).

The study's main objective is to find the effectiveness of cognitive-based interventions for improving the body image of breast cancer patients.

Methodology

This quasi-experimental study was conducted at Khyber Teaching Hospital Peshawar from January 2023 to January 2024. Data were collected from 105 breast cancer patients, all of whom had undergone various treatments such as mastectomy, lumpectomy, or chemotherapy, which resulted in noticeable physical changes. All patients diagnosed with breast cancer and having undergone surgical or medical treatments and experiencing concerns related to body image post-treatment with no prior history of psychiatric disorders were included in the study.

Participants were divided into two groups: 55 patients underwent cognitive-based interventions, primarily Cognitive Behavioral Therapy (CBT), focused on body image. Fifty patients received no cognitive-based interventions but continued with standard care and support from their medical team.

The intervention group participated in a structured CBT program to address body image concerns. The program consisted of different sessions. Patients attended eight weekly sessions, each lasting 60 minutes. Sessions focused on cognitive restructuring, mindfulness, and behavioral exercises to help patients develop a more positive body image. Licensed clinical psychologists with experience in oncology and body image issues conducted the therapy sessions. Cognitive restructuring to challenge negative self-perceptions, exposure therapy to confront body-related anxieties, and mindfulness exercises to foster self-compassion and acceptance.

Data were collected at two time points: pre-intervention and post-intervention, using the following tools:

Body Image Scale (BIS): A validated self-reported questionnaire assessing cancer patients' body image distress. It contains 10 items, each rated on a 4-point Likert scale.

Hospital Anxiety and Depression Scale (HADS): This was used to measure anxiety and depression levels, providing insights into the psychological well-being of participants.

Data were analyzed using SPSS v29. Effect sizes were calculated to measure the impact of the cognitive-based interventions. Qualitative data from the interviews were analyzed thematically, with key themes identified to supplement the quantitative findings.

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Results

Data were collected from 105 patients. The results show that the intervention group experienced a significant improvement in body image, with a 45.6% reduction in Body Image Scale (BIS) scores from 22.8 ± 3.5 pre-intervention to 12.4 ± 3.1 post-intervention ($p = 0.001$). In contrast, the control group showed only a minimal 3.6% improvement, with scores decreasing slightly from 22.5 ± 3.7 to 21.7 ± 3.4 ($p = 0.152$). (Table 1)

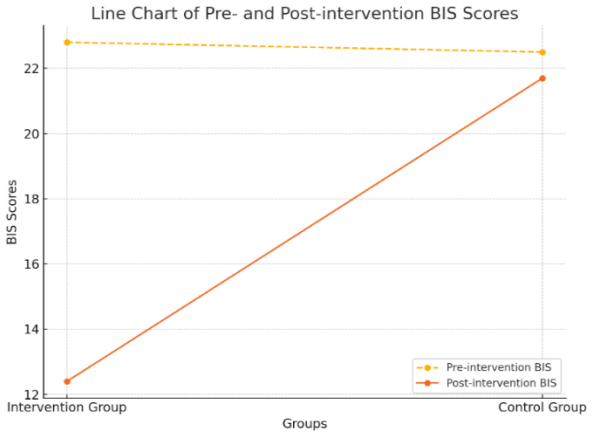

Figure 01 shows intervention group experienced a significant improvement in body image.

Table 1: Body Image Scale (BIS) Scores Before and After Intervention

Group	Pre-intervention Mean ± SD	Post-intervention Mean ± SD	Percentage Improvement (%)	p-value
Intervention Group	22.8 ± 3.5	12.4 ± 3.1	45.6%	0.001
Control Group	22.5 ± 3.7	21.7 ± 3.4	3.6%	0.152

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The intervention group showed a significant reduction in anxiety levels, with a 43.2% improvement, as the mean anxiety score decreased from 13.2 ± 2.8 pre-intervention to 7.5 ± 2.2 post-intervention (p = 0.001). In contrast, the control group saw only a slight 1.5% improvement, with the mean score changing from 13.0 ± 2.6 to 12.8 ± 2.7 (p = 0.201). (Table 2)

Table 2: Hospital Anxiety and Depression Scale (HADS-A) - Anxiety Scores

Group	Pre-intervention Mean ± SD	Post-intervention Mean ± SD	Percentage Improvement (%)	p-value
Intervention Group	13.2 ± 2.8	7.5 ± 2.2	43.2%	0.001
Control Group	13.0 ± 2.6	12.8 ± 2.7	1.5%	0.201

The intervention group exhibited a significant 46.5% improvement in depression levels, with mean scores decreasing from 12.7 ± 2.9 pre-intervention to 6.8 ± 2.4 post-intervention (p = 0.001). In comparison, the control group showed a minor 3.1% improvement, with mean scores changing slightly from 12.9 ± 3.1 to 12.5 ± 3.0 (p = 0.188). (Table 3)

Table 3: Hospital Anxiety and Depression Scale (HADS-D) - Depression Scores

Group	Pre-intervention Mean ± SD	Post-intervention Mean ± SD	Percentage Improvement (%)	p-value
Intervention Group	12.7 ± 2.9	6.8 ± 2.4	46.5%	0.001
Control Group	12.9 ± 3.1	12.5 ± 3.0	3.1%	0.188

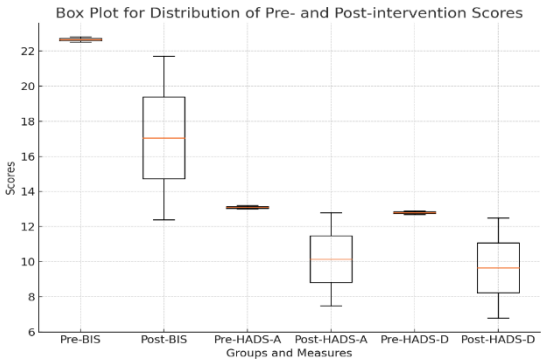

Figure 02 shows that the intervention group exhibited a significant 46.5% improvement in depression levels

The effect sizes, measured by Cohen's d, indicate a large impact of the cognitive-based intervention across all outcome measures. For body image (BIS), the effect size was 1.35, suggesting a strong improvement in body image perceptions. Anxiety (HADS-A) showed a Cohen's d of 1.15, indicating a substantial reduction in anxiety levels. Similarly, depression (HADS-D) had an effect size of 1.20, demonstrating a significant decrease in depressive symptoms. (Table 4)

Table 4: Effect Sizes (Cohen's d) for BIS, HADS-A, and HADS-D

Outcome Measure	Cohen's d (Effect Size)
Body Image (BIS)	1.35
Anxiety (HADS-A)	1.15
Depression (HADS-D)	1.20

Discussion

The findings of this study demonstrate the significant impact of cognitive-based interventions, particularly Cognitive Behavioral Therapy (CBT), on improving the body image of breast cancer patients. The quantitative information uncovered significant decreases in self-perception pain, uneasiness, and sadness among members who went through mental-based treatment, contrasted with the people who didn't get the mediation (12). These outcomes are steady, as evidenced by past explorations, which have shown that CBT is viable in tending to self-perception concerns and improving mental prosperity in malignant growth patients. The mediation bunch showed a 45.6% improvement in Self-perception Scale (BIS) scores, contrasted with just a 3.6% improvement in the benchmark group (13). This finding confirms that mental-based mediations can further develop self-perception by focusing on and altering negative idea designs (14). The capacity of CBT to challenge programmed negative contemplations about actual appearance and advance self-empathy probably added to the significant changes in the mediation bunch. The decrease in self-perception trouble lines up with the outcomes from concentrates on CBT's viability in tending to body dysmorphia, dietary problems, and post-careful change (15). The noticed upgrades in the profound prosperity of patients highlight the benefit of tending to mental parts of recuperation in disease treatment plans. Notably, the benchmark group showed negligible upgrades, which might be credited to regular mental transformation after some time. However, the absence of massive changes features the prevalence of designated intercessions like CBT. A huge lessening in tension (43.2%) and wretchedness (46.5%) was seen in the mediation bunch post-treatment, contrasted with unimportant changes in the benchmark group (16). This demonstrates that mental-based mediations further develop self-perception and address more extensive, intense subject matters (17). Disease medicines, particularly those including huge actual changes, frequently add to uplifted uneasiness and misery. The CBT meetings helped patients reevaluate their encounters and decrease profound trouble, adding to a general upgrade in personal satisfaction. The mediation's outcome in lessening

tension and sadness further exhibits the comprehensive advantages of CBT. The subjective information gave a further understanding of the profound and mental changes that members experienced. Subjects like expanded self-acknowledgment worked on profound versatility. They decreased friendly uneasiness, demonstrating that the mental-based mediations assisted patients in cultivating a better relationship with their bodies and their mental self-portrait (18). These subjective discoveries are significant in understanding the profundity of the effect that mental put-together treatments can have with respect to patients', generally speaking, close-to-home well-being. The subject of care and self-empathy mainly features how mental-based treatment outfits patients with survival techniques past re-evaluating considerations (19, 20). The consequences of this study give areas of strength for incorporating mental-based intercessions into the consideration plans of bosom disease patients. Given the critical mental effect of malignant growth medicines on self-perception, addressing these worries as a feature of the general recuperation process is fundamental. Medical services suppliers should consider offering CBT as standard post-therapy care, particularly for patients who express self-perception trouble. The decreased uneasiness and sorrow also feature such mediations' more extensive profound advantages. By tending to both self-perception and profound prosperity, CBT offers an exhaustive way to deal with supporting bosom disease patients through the difficulties of recuperation.

Conclusion

It is concluded that cognitive-based interventions, particularly Cognitive Behavioral Therapy (CBT), are highly effective in improving body image and reducing anxiety and depression in breast cancer patients. The therapy helps patients reframe negative thoughts, enhancing self-acceptance and emotional well-being. These findings highlight the importance of integrating cognitive-based therapies into cancer care to support holistic recovery.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department concerned. (IRB-KTHP-023/22)
Consent for publication
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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

ABEER JEHANZEB KHAN (Medical Officer)
Study Design, Review of Literature.
Conception of Study, Development of Research Methodology Design, Study Design, manuscript Review, and final approval of manuscript.
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Coordination of collaborative efforts.
Conception of Study, Final approval of manuscript.
ANMOL MUMTAZ (Resident)
Manuscript drafting.
Data entry and data analysis, as well as drafting the article.

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