

REVIEW ARTICLE

**REDUCTION IN DEPRESSIVE SYMPTOMS IN PATIENTS
WITH BREAST CANCER FOLLOWING COGNITIVE BEHAVIORAL
PSYCHOTHERAPY INTERVENTION**

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ABSTRACT

Background: Breast cancer, a malignancy in breast tissue has the highest prevalence among women globally. Around 50% breast cancer patients have experienced depression caused by the illness and its treatments, which is alarming due to its effects on the treatment effectiveness and recovery. This study is performed to know the effects of cognitive behavioral therapy in decreasing depressive symptoms in breast cancer patients.

Methods: The researchers followed a structured and systematic approach sourced from seven databases: ScienceDirect, ResearchGate, PubMed, Google Scholar, Biomed Central, Taylor & Francis Online, and Pharmacophore. The keywords used in this study were “Breast cancer” and “Cognitive Behavioral Therapy” AND

“Depression”. The initial search yielded 1,190 journals. After applying the inclusion and exclusion criteria, 11 journals were found that met criteria. The search was limited to randomized controlled trials, assessed using the JBI critical appraisal for risk of bias.

Results: The result shows positive outcomes in breast cancer patients with depression comorbidity following the implementation of cognitive behavioral therapy intervention. These positive changes include enhanced problem-solving skills in relation to psychosocial and emotional aspects, improved adaptability to various situations, and decreasing depressive symptoms.

Conclusion: Cognitive behavioral therapy is effective in decreasing depressive symptoms in breast cancer patients.

Keywords: Cognitive Behavioral Therapy, Depression, Breast cancer.

INTRODUCTION

Breast cancer placed first or second as the leading cause of death caused by malignancy in women in 95% of countries in the world.^{1,2} As for Indonesia, it stands as the foremost cause of such fatalities.³ While breast cancer incidence in Asia is not as high as European countries, its incidence has gradually increased, with its incidence in high-income countries slightly higher than in developing countries. Approximately 58% of patients who experienced breast cancer also suffered from emotional distress resulting from the illness and its treatment.⁴ One of the causes is the stage of breast cancer patients are being diagnosed, where almost 80% are being diagnosed in the advanced stage.

Side effects of the treatment, such as chemotherapy caused alopecia and significant weight changes, and in surgical management, it may alter the shape of the chest and leave scars from the procedure, which affect patients confidences.⁵ Even patients that have completed regiment

and have a good prognosis still experienced emotional distress due to the risks of developing relapse.⁶ Around 8-32% of the emotional distress manifests as depression. Its symptoms are marked with the presence of depressive moods, lose interests, and tire easily. These symptoms are often accompanied by additional symptoms such as poor concentration, sleeping disorders, and eating disorders, as for most of them experienced depression, anxiety, and insomnia.⁷ Franziska Holtdirk et al. stated that 23% of patients recovered from breast cancer are still consuming antidepressants.⁸ Depression is often missed in clinical examination, despite evidence indicating a connection between diminished psychological state and symptoms exacerbation and poor quality of life.⁵ The results of various studies regarding antidepressant effects on depression show inconsistency, whereas some show improvement and some do not. New studies show interactions between antidepressant and hormonal therapy received in breast cancer treatment. A recent study showed that women with

improved depression symptoms had longer survival times. Therefore, it is important to take action to improve the mental health of patients suffering from breast cancer with depression comorbidity by developing safer and more effective approaches and treatments.⁹

Clinical evidence supports the efficacy of psychosocial intervention in managing depression symptoms by mitigating affective moods and enhancing coping mechanisms, thereby addressing depression comorbidity in breast cancer patients. One method that has been currently used is cognitive behavioral therapy (CBT). CBT has been proved effective in problem solving skills, managing emotions, reducing negative thoughts, and increasing self-awareness. These positive effects of CBT are not only improving depression comorbidity in breast cancer patients, but other types of malignancy. The CBT approach involves training patients in relaxation, and has been shown to reduce levels of anxiety and depression throughout the cancer treatment process, including hospital stays. Additionally, CBT can reduce fears related to the risk of recurrence, increase patient optimism, create feelings of personal growth, and improve emotional well-being in surviving women. The results of the study show that the benefits of this therapy can be maintained up to 12 months after the complete intervention, potentially improving the patient's quality of life and reducing exacerbation symptoms.⁶

Therefore, researchers are interested in knowing the influence of CBT on breast cancer patients.

METHODS

Search Methods

The method used in this literature review begins with determining the topic, then determining keywords for journal searches carried out in November - December 2023. Several electronic databases are used including Science Direct, ResearchGate, PubMed, Google Scholar, Biomed Central, Taylor & Francis Online, and Pharmacophore. In the search, the PICO criteria is used in combination with the Boolean operators AND, OR, and NOT. The keywords used are “Breast cancer” AND “Cognitive Behavioral Therapy” AND “Depression”. The journal search is restricted to journals published in the 2018 – 2023 time frame with initial findings from all databases yielding 1.190 journals. These journals are in English language studies, with randomized controlled trials (RCT) research methods, and include the full text that meet the critical appraisal criteria. This journal review was carried out by three reviewers (BSA), (S), and (MIS).

Table 1. Inclusion and exclusion criteria using the PICO format

PICO	Inclusion	Exclusion
Population	Breast cancer patients	Other than breast cancer patients
Intervention	Cognitive Behavioral Therapy	Other psychosocial interventions
Comparator	None	None
Result	Decreased depressive symptoms	Not related to decreased depressive symptoms
Time of Study	2018-2023	Before 2018
Study Design	RCT	Not RCT
Language	English	Other than English

Study Selection

1.191 publications were obtained from the database search. Publications after duplication (n=1,181), studies with appropriate abstracts (n=24), studies with full text and

meeting critical appraisal (n=11). Following discussion, mutual agreement was reached regarding the selection of studies eligible for full-text review. A total of 11 studies met the inclusion criteria and were eligible for quality assessment.

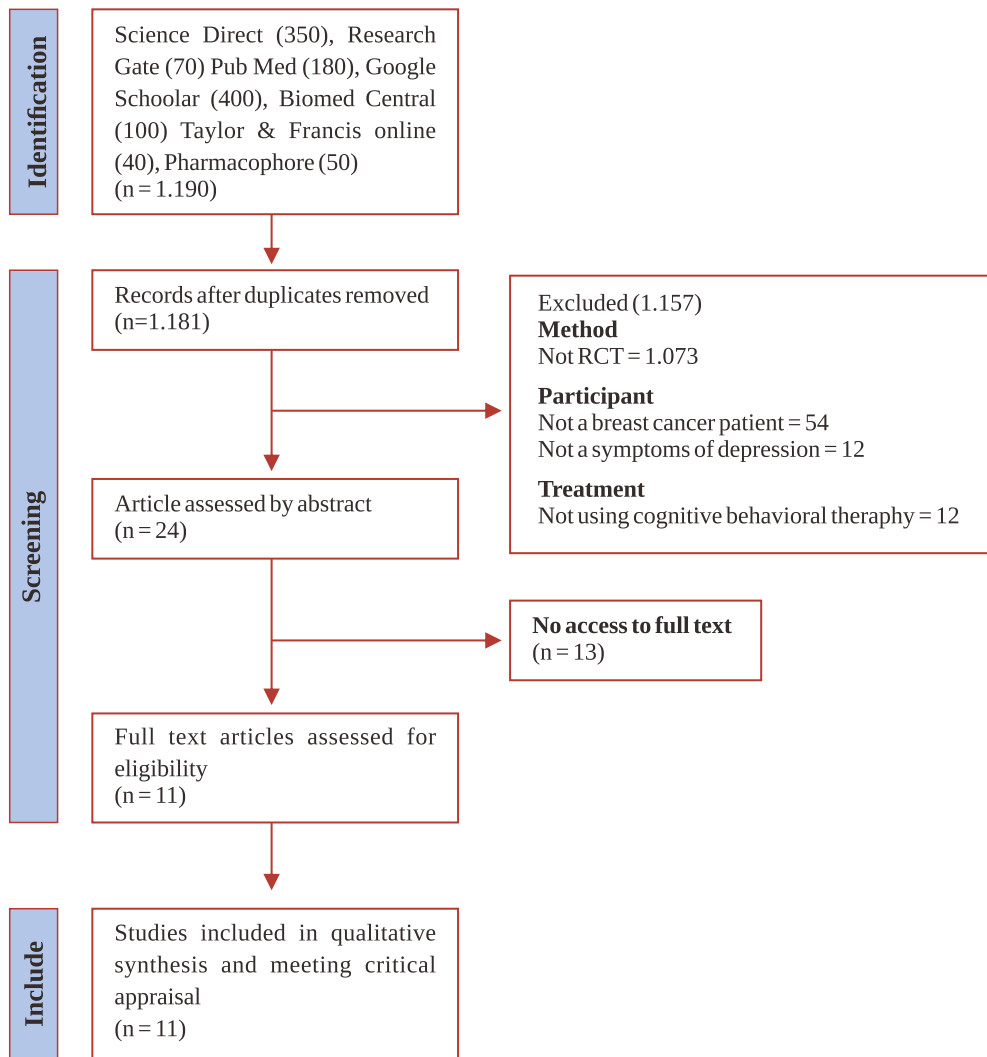


Figure 1. PRISMA Diagram

Risk of Bias Assessment

Articles that are reviewed are assessed for risk of bias using JBI critical appraisal according to the studies used, namely randomized controlled trials (RCT). Comprising 13 checklists with the criteria 'Yes', 'No', 'Unclear', and 'Not Applicable'. Each 'Yes' response earns one point and once all the items have been scored, the total will be summed. The threshold used is a minimum of 50% to meet the criteria for synthesis which has been agreed upon by three reviewers (BSA), (S), (MIS), and (ARP). Low-quality studies will be excluded to avoid bias. A total of 11 studies are eligible for synthesis, each of which discussed the effectiveness of cognitive behavioral therapy, demonstrating positive outcomes in reducing depression.

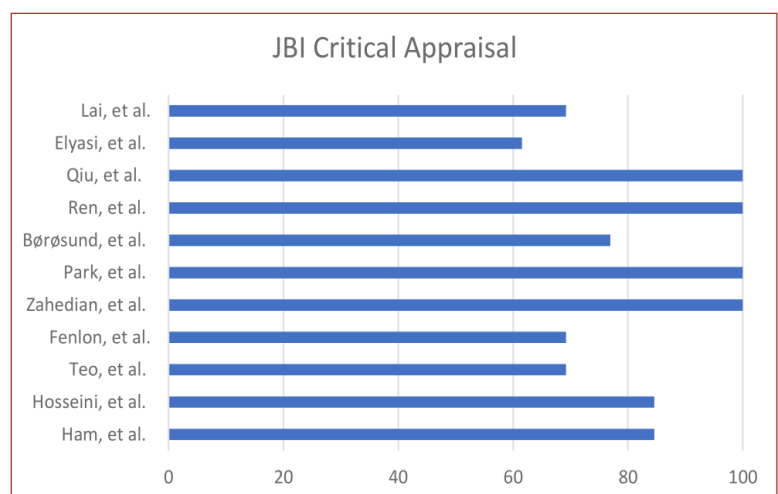


Figure 2. Analysis result of Studies using JBI Critical Appraisal

RESULTS

Table 2. Study Results Cognitive Behavioral Therapy in Reducing Depression

No	Author, Years	Method	Result
1	Lai, et al. 2021	Randomized Controlled Trial	Cognitive Behavioral Therapy plus Coping Management is safe and effective in helping breast cancer women manage stress and negative symptoms after Breast Cancer treatment.
2	Elyasi, et al. 2021	Randomized Controlled Trial	CBT in combination with hypnosis are exclusively effective in reducing certain problems in breast cancer patients, such as sleep disorders and emotional dysfunction.
3	Qiu, et al. 2018	Randomized Controlled Trial	CBT quite effective in improving depression and insomnia problems in Chinese breast cancer patients.
4	Ren, et al. 2018	Randomized Controlled Trial	Women in the CBT group showed significantly fewer symptoms of depression and anxiety compared to women in the Non-CBT group. This research supports the efficacy of CBT in reducing depressive symptoms and anxiety in patients with breast cancer in China.
5	Børøsund, et al. 2020	Randomized Controlled Trial	Cancer sufferers receiving StressProffen, an app-based cognitive-behavioral stress-management intervention program, reportedly significantly reduced perceived stress compared to cancer survival.
6	Park, et al. 2020	Randomized Controlled Trial	The MBCT group experienced significant improvements at eight weeks in breast cancer psychological distress (both anxiety and depression), compared with the control group.
7	Zahedian, et al. 2021	Randomized Controlled Trial	Metacognitive Cognitive Therapy (MCT) is effective in patients with breast cancer who experience depression and reduces the level of depression and metacognitive beliefs in patients.
8	Fenlon, et al. 2020	Randomized Controlled Trial	The results showed that there was a 46% reduction (from 6.9 to 3.7) in the HFNS problem assessment score (menopausal symptoms) in breast cancer patients with an average time of randomization up to 26 weeks in the group receiving Group CBT, while the control group experienced a decrease of 15%.
9	Teo, et al. 2019	Randomized Controlled Trial	The research findings indicate that, from the period before the intervention to after the intervention, participants experienced stable or slightly improved levels of anxiety, depression, and fatigue scores. In contrast, control participants reported a slight deterioration in scores for anxiety, depression, and fatigue.
10	Hosseini, et al. 2018	Randomized Controlled Trial	CBT have the same effect in reducing depression in women with breast cancer and the superiority of RCBT is not demonstrated.
11	Ham, et al. 2019	Randomized Controlled Trial	A mobile application-based cognitive behavioral therapy program is an effective intervention for reducing depression and anxiety, but not the quality of life of cancer patients.

DISCUSSION

Breast Cancer

Malignancy that occurs in breast tissue originating from the ducts or lobules and manifests as various types of breast cancer. Breast cancer is a type of cancer with the highest incidence in women around the world.³ Diagnosing

criteria of breast cancer are based on anamnesis, with the main symptom is a mass or lump in the breast tissue, considering the speed of growth, with or without pain, the presence of nipple discharge, other abnormality of the breast tissue (dimpling, *peau d'orange*, ulceration, venectation), enlarged lymph nodes in axillary region, and arm edema. The result of anamnesis is also accompanied by physical

examination and supporting laboratory examination and thus the tumor size, nodules and metastasis are determined that conclude the stage at diagnosis.³

Depression

One of the types of psychological disorders with the highest prevalence and highest comorbidity and the main cause of the high burden of disease throughout the world.¹⁰ Depression can be diagnosed using Hospital Anxiety and Depression Scale (HADS). The HADS questionnaire consisted of seven questions regarding depressive moods followed by other questions. However, the questions must be evaluated separately and require approximately 2-5 minutes to complete.¹¹ Patients with HADS score ≥ 8 can be referred to a psychiatrist for clinical interview. As per PPDGJ-III guidelines, depressive episode is classified based on its severity by the presence of the non-main symptoms (other symptoms) which are categorized into groups; mild depressive episode, moderate episode, severe depressive episode without psychotic symptoms, and with psychotic symptoms. The main symptoms of depressive episode are the presence of depressive moods, loss of interest, and fatigue and the occurrence persist for minimum of 2 weeks.¹² According to *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*¹³, depressive disorder is classified by its symptoms presentation, age of onset, duration, and frequency. Similarly, according to International Classification of Diseases 11th (ICD-11) revision, depressive disorders are classified based on its recurrency.¹⁴ In this study, the researchers use the term “depression” to encompass the broader category of depressive disorders outlined in DSM-5 and ICD-10.

Cognitive Behavioral Therapy

Psychotherapy that is often used in patients with mood, sleep, chronic pain and anxiety disorders is a combination of cognitive and behavioral therapy. The basic principle of CBT is to realize that emotions are difficult to change directly, therefore CBT targets emotions by changing the thoughts and behavior that contribute to these emotions.

This form of psychotherapy is targeted and time-limited, aiming for accelerated improvement in patient concerns, by building a strong therapeutic relationship consisting of:

1. Empathy
Therapy providers provide empathy by validating the patient's experiences.
2. Genuineness
Therapy providers do not judge or criticize patients and maintain professionalism.
3. Positive Regard
This is done by demonstrating respect so that the patient feels appreciated and is more open to the

therapy provider.

4. Active Listening

The foundation of all therapeutic methods lies in attentive listening to the patient. The act of listening consists of three stages, namely receiving a message, interpreting it, and responding which includes verbal and nonverbal cues.

Indications for CBT are patients with adjustment disorder, anxiety disorder, depressive disorder, and other specific symptoms such as depressive thinking or lifestyle changes (problem solving, relaxation).¹⁵

Cognitive Behavioral Therapy Effects to Depression in Breast Cancer Patients

Breast cancer patients with depression comorbidity experience disturbances affecting their quality of life, especially in psychosocial needs. Women diagnosed with breast cancer will face challenges and intensive treatment which often results in emotional distress such as depression.¹⁶ Health-related quality of life covers everything from physical aspects to psychosocial aspects of emotional and social functioning. Depression not only impacts one's quality of life but can also hinder treatment adherence, manifesting as irritability, negative attitudes, and pessimism. As a result, it diminishes overall life satisfaction. Depression is associated with poor treatment adherence and worsened survival in cancer patients and thus requires early identification as it is often undiagnosed and untreated.¹⁷

Previous research that has been conducted regarding the effectiveness of CBT interventions for breast cancer patients shows that CBT has psychological benefits for breast cancer patients with depression. CBT can improve a person's ability to overcome psychosocial and emotional problems, comorbidities and illnesses, and the ability to adapt to their situation as a breast cancer patient. The results showed that the reduction rate was greater in breast cancer patients with depressive symptoms and receiving CBT intervention than in breast cancer patients with depressive symptoms who received usual care. Therefore, CBT exerts a notable impact on the gradual reduction of depressive symptoms.¹⁶ This review has several limitations. First, it is difficult to determine the true quality of each study because not all necessary information is reported. Second, low ranking or strength evidence must be interpreted. The author did not specify the type of depression in this study. Additionally, inappropriate sample size may have influenced the results. Therefore, further research should be carried out regarding effect estimates from meta-analysis with confirmatory validity analysis, including from randomized clinical trials.

CONCLUSION

Breast cancer with depression comorbidity has reduced the sufferer's quality of life and disrupted the cancer healing process. Therapy using antidepressants shows inconsistent results in various studies, some even stated an existence of interaction between antidepressants and hormonal therapy. By that, non-pharmacological therapy that is effective in reducing symptoms of depression in breast cancer patients is needed. Based on studies reviewed by reviewers, CBT is a form of psychosocial intervention that has good effects on depression in BC patients, where CBT can reduce depressive symptoms and provide better results in the five-year survival rate.

CONFLICT OF INTEREST

All authors in this article declare there is no conflict of interest.

ACKNOWLEDGMENTS

None declared.

FUNDING SOURCES

There are no funding sources for this study.

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