

Effectiveness of Group Cognitive-Behavioral Therapy for Managing Anxiety and Depression in Women Following Hysterectomy for Uterine Cancer

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Abstract

Objective: Hysterectomy as well as uterine cancer could be associated with a long-term risk of mental disorders. The purpose of this study is to investigate the effectiveness of group cognitive-behavioral therapy (GCBT) in reducing anxiety and depression in women who have undergone hysterectomy for uterine cancer. **Method:** This experimental, pretest-post-test study was conducted in an academic hospital. 26 women with uterine cancer who underwent hysterectomy were recruited and randomly divided into two equal groups as the experimental and control groups. The experimental group was treated by GCBT for eight 1-hour sessions (by a senior psychology expert) every week until 8 weeks. Otherwise, no intervention was performed for the control group. The anxiety and depression scores of all participants were assessed and compared before and after the therapy sessions by Beck Anxiety (BAI) and Beck Depression-second version (BDI-II) questionnaires. **Results:** The mean±SD age of the participants was 33.6±4.1. Our result found significant different after GCBT in both anxiety ($p=0.000$) and depression ($p=0.000$) scores in the experimental group. However, no differences between pre and post-test scores in the control group were observed. Compared to the control group the rate of depression ($p=0.000$) and anxiety ($p=0.000$) in the case group was significantly decreased after therapy. **Conclusion:** GCBT is effective in reducing anxiety and depression in women after hysterectomy. The use of GCBT in oncology centers along with medical treatments to reduce mental distress, improve mental health, and accelerate the recovery process of patients with uterine cancer and other cancers seems necessary.

Keywords: Anxiety- depression- group cognitive-behavioral therapy- hysterectomy- uterine cancer

Asian Pac J Cancer Prev, 24 (12), 4237-4242

Introduction

Hysterectomy is one of the most common surgical procedures that can be performed using abdominal, laparoscopic, or robotic methods, and it may be performed due to benign or malignant disease. The most common indications for abdominal hysterectomy are abnormal uterine bleeding, malignancy, premalignant disease, uterine leiomyoma, endometriosis, pelvic organ prolapse, chronic pelvic pain, and pelvic infection (Carugno and Fatehi, 2022). Patients undergoing hysterectomy have a high economic burden and resource utilization is significantly higher for patients with a cancer diagnosis (Yoo et al., 2016).

Women commonly experience changes in their body image after a hysterectomy. On the other hand, the extraction of the organ that is the symbol of sexuality, femininity, fertility, and motherhood causes many

problems. Factors such as a weak sexual identity, a history of mental disease, being under the age of 35, the desire to have children, the fear of losing sexual attraction, and the attitude of a partner negatively affect women after a hysterectomy. The negative effect of a hysterectomy on body image generally arises from scar tissue from abdominal surgery and hormonal changes (Erdoğan et al., 2020).

A hysterectomy operation is considered the most stressful situation by many women. It carries the stress of surgery and the possibility of postoperative complications and has been associated with anxiety, depression, changes in self-esteem, and sexual functioning. Earlier studies have reported that the majority of post-hysterectomy women can be permanently depressed and can also exhibit symptoms of mixed anxiety and depressive disorder (Essa et al., 2017). Long-term fertility dysfunctions happen in most patients under cancer treatment (Ghaemi et al.,

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2021). Moreover, infertility can cause psychological, emotional stress, and financial difficulties for both partners. Typical reactions to infertility include shock, sadness, depression, anger and frustration, loss of self-esteem and self-confidence, and a general loss of sense of control (Simionescu et al., 2021).

Many studies have confirmed the effectiveness of psychological interventions including cognitive-behavioral therapy in reducing anxiety and or depression in hysterectomized women or cancer patients to better cope with their condition (Srivastava et al.; Osborn et al., 2006; Pedram et al., 2011; Greer et al., 2012; Guo et al., 2013; Safarzade et al., 2013; Kangas et al., 2014; Gudenkauf et al., 2015; Newby et al., 2015; Tao et al., 2015; Erdoğan et al., 2020). The purpose of this study is to investigate the effectiveness of GCBT in reducing anxiety and depression in women who underwent hysterectomy due to uterine cancer.

Materials and Methods

Study setting

The experimental, pretest-posttest study with a control group was conducted between May 2021 and August 2021, at an academic center affiliated to Tehran University of Medical Sciences.

Sample size calculation

By using the voluntary available sampling method, and considering the qualifications of the study, 30 patients were selected, and they were randomly divided into two groups of 13 patients including the experimental group and the control group. Considering alpha 0.05, and standard deviation 14, the sample size was estimated as follows in each group (Sarace, 1993).

$$N = \frac{(Z_{\alpha})^2 \cdot S^2}{D^2} = \frac{(1.96)^2 (14)^2}{7^2} = 13.36 \cong 13$$

Eligibility criteria

The inclusion criteria were women between 20-50 years with uterine cancer being married, having at least a middle school degree, having no history of neurological and psychological diseases, no history of chronic physical diseases who underwent hysterectomy and received adjuvant therapy such as chemotherapy and/or radiotherapy. Participants with a previous or current history of any psychological conditions or concomitant cancers such as ovarian or cervical cancer were excluded from the study.

Ethical consideration

This study was approved by the Ethics Committee of the Tehran University of Medical Sciences

(Reference number: IR.TUMS.IKHC.REC.1397.193).

All participants read and signed the informed consent before the study initiation. This study was performed due to the Helsinki Declaration.

Data gathering

Before starting the treatment, all the participants were

asked to complete and sign the background information collection form and the informed consent form to participate in the research. Also, the participants were assured that they could freely leave the study at any stage of the treatment. Participants were evaluated by the Beck Anxiety Inventory (BAI) and Beck Depression Inventory-Second Edition (BDI-II) before starting treatment sessions.

The Background information collection form

This tool was designed by the research team to collect background information of the participants, which included age, education level, employment status, and number of children, which was completed during the interview with the patient.

The BAI

This questionnaire consists of 21 self-reported items and each item has 4 types of answers (0-3) which are a state of increasing intensity. The range of scores is from 0 to 63. This questionnaire emphasizes more on the physiological aspects of anxiety. Its three items are related to anxious mood, and the other three items are related to specific fears. Other questions measure automatic symptoms of hyperactivity and motor tension of anxiety. Beck and Clark (1988) reported the internal consistency of this scale as 0.93 and its retest reliability as 0.75. In Iran, the reliability of this test has been reported as Cronbach's alpha 0.78 (Pedram et al., 2011).

The BDI-II

This questionnaire was developed to measure the severity of depression by Beck in 1963 and was revised in 1996 by Beck, Steer, and Brown. This scale includes 21 items, each item of this questionnaire measures one of the symptoms of depression. Each group of questions contains 4 options. The total score was obtained by summing all the scores of the questions. The range of scores is from 0 to 63. The psychometric characteristics of this questionnaire in Iran are as follows: the alpha coefficient was 0.91, the correlation coefficient between the two halves was 0.89, and the retest coefficient after one week was 0.94 (Mutaby et al., 2006).

Intervention

Purpose

The primary goal of group CBT after a hysterectomy due to endometrial cancer was to provide support, education, and coping strategies for women who may be experiencing emotional distress, anxiety, depression, body image issues, or sexual concerns related to the surgery. The group format allowed participants to share their experiences, learn from one another, and develop a sense of community.

Structure and Format

GCBT typically consisted of a trained therapist facilitating sessions with participants. The therapy sessions were held on a regular basis in 1-hour sessions (by a senior psychology expert) at the obstetrics and gynecology department of Vali-E-Asr Hospital. Each session typically lasts around 60-90 minutes. The sessions were held once

a week until 8 sessions and the control group did not receive any psychological intervention during and after the research.

Topics

The program of each session is summarized in Table 1. Therapeutic Techniques

a. Psychoeducation: Providing information about endometrial cancer, hysterectomy, and associated psychological challenges.

b. Cognitive Restructuring: Identifying and challenging negative thoughts and replacing them with more positive and realistic ones.

c. Behavioral Activation: Encouraging participants to engage in activities that promote well-being and positive emotions.

d. Relaxation Techniques: Teaching relaxation exercises such as deep breathing, progressive muscle relaxation, or mindfulness meditation to manage stress and anxiety.

e. Role-playing: Practicing assertiveness, communication skills, or problem-solving techniques within the group setting.

f. Homework Assignments: Encouraging participants to practice new skills and strategies outside of therapy sessions to reinforce learning.

Out of the 30 selected participants, 2 people from the experimental group and 1 person from the control group left the treatment before the end of the training period, and at the end, 27 people remained. Therefore, due to the dissimilarity of the two groups in terms of numbers, 1 person was randomly removed from the control group. Finally, the sample size included 26 people who were in two groups of 13 people (Figure 1).

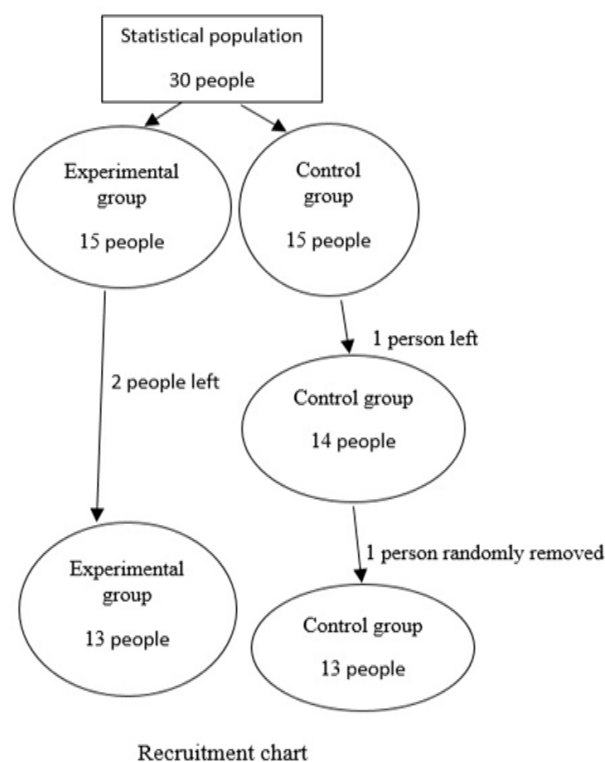


Figure 1. Recruitment Chart of the Participants

Analysis

Data analysis was performed using SPSS (version 23.0). Qualitative variables are described as frequencies and percentages. Normal distribution quantitative data are presented by mean ± standard deviation (SD). The significance level was set to P<0.05.

Results

The demographic data of the participants are summarized in Table 2. As seen the differences were not significant between groups.

Pretest and post-test anxiety and depression scores based on the BAI and the BDI-II questionnaire of the studied groups are presented in Table 3. The difference between anxiety (p=0.311) and depression (p=0.423) pretest scores were not significantly different between experimental and control groups. Although, significantly different scores were observed between pre and post-test in both anxiety (p=0.000) and depression (p=0.000) in the experimental group. However, we did not observe such differences between pre and post-test controls in anxiety (p=0.056) and depression (p=0.856) scores. Also, the rate of depression (p=0.000) and anxiety (p=0.000) in the case group was significantly reduced after therapy compared to the control group.

Discussion

The study showed that the anxiety and depression symptoms of women in the experimental group who underwent cognitive behavioral therapy decreased significantly from pre-test to post-test compared to women in the control group who did not receive any type of psychological intervention. These findings are in line with the results of previous studies in terms of the effectiveness of cognitive-behavioral therapy in reducing the anxiety symptoms of cancer patients.

Guo et al., (2013) revealed psychological interventions

Table 1. Intervention Method for Each Session

Sessions	Description of treatment sessions
1	discussing the course of treatment, Taking the pre-test, Introducing the cognitive-behavioral pattern, Diaphragmatic breathing training
2	Introducing relaxation as a method to reduce physical arousal along with practical relaxation training
3	Explanation of negative beliefs and thoughts, and strategies for identifying and taking notes on dysfunctional thoughts
4	Introducing methods of evaluating and correcting ineffective thoughts, Practicing practical challenges with irrational thoughts and beliefs
5	Introducing strategies of distraction from illness and mental imagery
6	Teaching time management steps as a strategy to deal with environmental pressure; Introducing the activity-rest cycle and doing pleasant activities
7	Providing an anger control program, Teaching self-expression, and Teaching sleeping skills
8	Reviewing assignments, Receiving feedback, Appreciating patients, and Taking post-tests

Table 2. Demographic Data of the Participants

Characteristics	Experimental (n=13) n (%)	Control (n=13) n (%)	p
Age (Year) (mean±SD)	33.07±4.1	34.13±4.8	0.072
Education			0.433
Secondary school	3 (23.0)	0	
Diploma	4 (30.7)	6 (46.1)	
Bachelor	5 (38.4)	5 (38.4)	
Master	1(7.6)	2 (15.3)	
Employment			0.609
Employed	2 (15.3)	3 (23.0)	
Unemployed	11 (84.7)	10 (77.0)	
Children			0.832
Yes	6 (46.1)	5 (38.4)	
No	7 (63.9)	8 (61.6)	

for cancer patients who underwent radiotherapy provide significant improvement in reducing the anxiety symptoms of patients. Also, another study investigated the potential effect of short-term cognitive-behavioral therapy in reducing anxiety in cancer patients and declared that cognitive-behavioral interventions cause significant changes in reducing patients' anxiety (Greer et al., 2012).

Cognitive-behavioral treatments not only reduce patients' anxiety symptoms but also significantly improve patients' quality of life in the long run (Kangas et al., 2014; Shiralı et al., 2020a; Shiralı et al., 2020b; Yarandi et al., 2021). In a meta-analytical study, Tao et al., (2015) also investigated the effectiveness of psychological interventions in reducing mental distress in cancer patients and showed that psycho-oncology interventions have a very high effectiveness on the level of anxiety of patients. Also, these findings are in line with the results of other research that shows the effectiveness of GCBT in reducing anxiety, during the treatment period and post-treatment follow-ups (Srivastava et al.; Osborn et al., 2006; Pedram et al., 2011; Safarzade et al., 2013; Newby et al., 2015; Erdoğan et al., 2020).

In general, the nature of cancer requires that the patient and the physician always take seriously the possibility of metastasis or recurrence of the disease in such a way that most of the time this issue provides the basis for some kind of over-attention to the physical symptoms, the person is misinterpreted and she interprets it as a recurrence or worsening of the condition of the disease and experiences anxiety states. Anxiety itself also exacerbates physical symptoms and creates a vicious cycle (Safarzade et al., 2013). The best way to eliminate this vicious cycle is to use cognitive-behavioral techniques including attitude change and relaxation. The cognitive approach reduces the level of anxiety of cancer patients by emphasizing the way of attitude, identifying and reconstructing cognitive distortions, correct thinking techniques, reviewing judgments and tasks to identify negative and anxious thoughts, and promoting personal control of emotions and attitudes, has significant effectiveness in the mental health of women with cancer (Leahy, 2017).

Table 3. Pretest and Post-Test Anxiety and Ddepression Scores based on the BAI and BDI-II Questionnaire of the Studied Groups

Variable		Experimental (n=13)		Control (n=13)	
		Mean±SD	p	Mean±SD	p
Anxiety	pretest	24.23±6.3	0	22.15±3.3	0.056
	posttest	16.46±4.0		19.54±2.1	
Depression	pretest	32.77±7.0	0	34.54±4.3	0.856
	posttest	24.00±7.2		33.46±4.8	

Another main reason for getting these results is the use of behavioral approaches such as relaxation, which helps a person control his muscle tension through relaxing muscles and reducing muscle contractions and leads to a reduction in anxiety and mental pressure. Their effectiveness on emotional disorders such as anxiety has been proven in previous studies and they have been used in this research as well. Teaching communication skills also helps to develop any kind of skills that patients may lack and this reduces the likelihood of anxiety and increases the likelihood of positive feedback from others. As a result, paying attention to these ineffective thoughts during treatment and trying to correct these beliefs and cognitive distortions along with providing appropriate behavioral methods, leads to the reduction of patients' anxiety states.

Considering the effectiveness of cognitive-behavioral therapy in reducing depression symptoms, Lévesque et al., (2004) investigated the effectiveness of cognitive therapy on depression in women with advanced cancer and the results showed that cognitive therapy significantly reduces the symptoms of depression and tension in patients. In a research, Brothers et al., (2011) investigated the effectiveness of cognitive-behavioral interventions on depressed patients who were facing stress caused by cancer and showed that after psychological interventions, the patient's depression symptoms improved significantly and Cognitive-behavioral components are very effective in reducing depression of cancer patients.

One of the main causes of depression in women with cancer is the experience of loss. In these women, loss of a body part, loss of fertility especially in young women, hair loss, loss of family, job, and social status, fear of early death, and fear of not being able to see the growth of their children are the most important causes of depression in women with cancer. In explaining the effectiveness of cognitive-behavioral therapy in reducing depression in hysterectomized women, it can be said that cognitive-behavioral therapy helps patients rebuild negative thinking patterns about the disease and replace their negative thoughts with positive ways of thinking. This has a great effect in reducing their depression symptoms. Cognitive-behavioral methods reduce problematic responses and increase constructive responses by changing these beliefs. Depression occurs as a result of cognitive distortions such as exaggeration, extreme generalization, personalization, absolutism, arbitrary conclusions, and so on. Cognitive patterns lead to the fact that a person perceive internal and external data under the influence of early experiences in a way that cognitive and

behavioral treatment seems logical (Engel et al., 2004).

Therefore, relying on cognitive theory, cognitive treatments such as reducing cognitive distortions, correcting internal self-talk, and improving coping styles were implemented in these women to correct their perception of cancer. In this way, their symptoms of depression can be improved. Also, the cognitive-behavioral approach through various techniques such as cognitive restructuring, mental imagery, distraction strategies, and relaxation, changes the person's evaluation of the stressful event and accelerates the treatment process.

The limitations of the current research included the samples from hospitals located in Tehran, Iran and the limited duration of the treatment period and treatment sessions due to respect for the condition of the patients and the impossibility of the follow-up phase due to time constraints. On the other hand, the study did not address potential cultural or ethnic factors that may influence the experience and effectiveness of GCBT for women after hysterectomy due to endometrial cancer. Cultural sensitivity and adaptation of therapy content may be necessary to meet the diverse needs of individuals. Therefore, we encourage researchers to expand our findings in other areas and countries with more samples.

In conclusion, the results of this research show that GCBT has been effective in reducing anxiety and depression in hysterectomized women. Based on the results of this research and previous studies on the effectiveness of cognitive-behavioral therapy, the use of psychological interventions in oncology centers along with medical treatments to reduce mental distress, improve mental health, and accelerate the recovery process of patients with uterine cancer and other cancers seems necessary.

Author Contribution Statement

All authors reviewed the manuscript; M.D.P. and B.A.D.: Design of the work; S.E.D: Drafting the manuscript; M.N. and A.A.: Interpretation of data; R.A. and M.G: Manuscript editing.

Acknowledgements

The authors would like to acknowledge all participants who helped us in carrying out this project.

Ethics approval and consent to participate

This study is designed and performed according to the Helsinki declaration. Ethical approval was obtained from the Ethics Committee of Tehran University of Medical Sciences. All participants signed the written consent (that is in Persian) forms and their privacy were respected. All The data and identity of the participants are secret and will not reveal to anyone.

Consent for publication

All participants consent to publish their data anonymously.

Availability of data and materials

The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no conflicts of interest.

References

- Brothers BM, Yang HC, Strunk DR, et al (2011). Cancer patients with major depressive disorder: testing a biobehavioral/cognitive behavior intervention. *J Consult Clin Psychol*, **79**, 253.
- Carugno J, Fatehi M (2022). Abdominal hysterectomy. In 'StatPearls [Internet]', Eds StatPearls Publishing.
- Engel J, Kerr J, Schlesinger-Raab A, et al (2004). Quality of life following breast-conserving therapy or mastectomy: results of a 5-year prospective study. *Breast J*, **10**, 223-31.
- Erdoğan E, Demir S, Çalışkan BB, et al (2020). Effect of psychological care given to the women who underwent hysterectomy before and after the surgery on depressive symptoms, anxiety and the body image levels. *J Obstet Gynaecol*, **40**, 981-7.
- Essa RM, Ismail N, Hassan NIJoNE, et al (2017). Effect of progressive muscle relaxation technique on stress, anxiety, and depression after hysterectomy. *J Nurs Educ Pract*, **7**, 77-86.
- Ghaemi SZ, Javadipour A, Heydari ST, et al (2021). Fertility Issues among Young Cancer Survivors: A Systematic Review. *J Midwifery Reproductive Health*, **9**, 2518-29.
- Greer JA, Traeger L, Bemis H, et al (2012). A pilot randomized controlled trial of brief cognitive-behavioral therapy for anxiety in patients with terminal cancer. *Oncologist*, **17**, 1337-45.
- Gudenkauf LM, Antoni MH, Stagl JM, et al (2015). Brief cognitive-behavioral and relaxation training interventions for breast cancer: A randomized controlled trial. *J Consult Clin Psychol*, **83**, 677.
- Guo Z, Tang Hy, Li H, et al (2013). The benefits of psychosocial interventions for cancer patients undergoing radiotherapy. *Health Qual Life Outcomes*, **11**, 1-12.
- Kangas M, Milross C, Bryant RAJC, et al (2014). A brief, early cognitive-behavioral program for cancer-related PTSD, anxiety, and comorbid depression. *Cogn Behav Pract*, **21**, 416-31.
- Leahy RL (2017). Cognitive therapy techniques: A practitioner's guide, Guilford Publications.
- Lévesque M, Savard J, Simard S, et al (2004). Efficacy of cognitive therapy for depression among women with metastatic cancer: a single-case experimental study. *J Behav Ther Exp Psychiatry*, **35**, 287-305.
- Mutaby A, Jazayeri A, Mohammad Khani L, et al (2006). The Comparison of Psychological causes of relapse patients with/without relapse and normal people. **2**, pp 33-40.
- Newby TA, Graff JN, Ganzini LK, et al (2015). Interventions that may reduce depressive symptoms among prostate cancer patients: a systematic review and meta-analysis. *Psychooncology*, **24**, 1686-93.
- Osborn RL, Demoncada AC, Feuerstein MJTijoPiM (2006). Psychosocial interventions for depression, anxiety, and quality of life in cancer survivors: meta-analyses. *Int J Psychiatry Med*, **36**, 13-34.
- Pedram M, Mohammadi M, Naziri G, et al (2011). Effectiveness of cognitive-behavioral group therapy on the treatment of

- anxiety and depression disorders and on raising hope in women with breast cancer. *Quarterl J Woman Soc*, **4**, 36-41.
- Safarzade A, Roshan R, Shams J (2013). Effectiveness of stress management and relaxation training in reducing the negative affect and in improving the life quality of women with breast cancer.
- Saraee HJTS (1993). An introduction to sampling in research.
- Shirali E, Modarres Gilani M, Yarandi F, et al (2020a). Evaluation of the Safety of Ovarian Preservation at Early Stage of Endometrial Cancer in Premenopausal Women. *J Iran Med Council*, **3**, 200-4.
- Shirali E, Yarandi F, Ghaemi M, et al (2020b). Quality of Life in Patients with Gynecological Cancers: A Web-Based Study. *Asian Pac J Cancer Prev*, **21**, 1969-75.
- Simionescu G, Doroftei B, Maftai R, et al (2021). The complex relationship between infertility and psychological distress. *Exp Ther Med*, **21**, 1.
- Srivastava J, Shukla HS, Kaushik SS, et al () Cognitive Behavioural Therapy Techniques for Management of Depression, Anxiety and Quality of Life in Breast Cancer Patients: A Systematic Review.
- Tao WW, Jiang P, Liu Y, et al (2015). Psycho-oncologic interventions to reduce distress in cancer patients: A meta-analysis of controlled clinical studies published in People's Republic of China. *Psychooncology*, **24**, 269-78.
- Yarandi F, Montazeri A, Shirali E, et al (2021). Sexual Quality of Life in Gynecological Cancer Survivors in Iran. *Asian Pac J Cancer Prev*, **22**, 2171-5.
- Yoo A, Hsiao C, Cheng H, et al (2016). Economic Burden of Hysterectomies in the United States: Incremental Effects in Cancer Patients. *Value Health J*, **19**, A148.



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