How to Cite:
Javidi, N. (2022). The effectiveness of psychodrama on changing metacognitive beliefs and emotional schemas in women with breast cancer. *International Journal of Health Sciences*, *6*(S2), 7622–7634. https://doi.org/10.53730/ijhs.v6nS2.6867

The effectiveness of psychodrama on changing metacognitive beliefs and emotional schemas in women with breast cancer

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***Abstract*---**The present study aimed to evaluate the effectiveness of psychodrama on changing metacognitive beliefs and emotional schemas in women with breast cancer. The research design was a quasi-experimental study with a control group pretest-posttest design. The statistical population included patients with breast cancer who were under therapy in Mazandaran province, among whom 50 patients with inclusion criteria were selected by available sampling and randomly assigned to control and intervention groups: 25 people in the control group and 25 ones in the experimental group. In this method, covariance was used to control the disturbing variables and determine the effectiveness of the therapy. In addition, 50 people were selected voluntarily to choose samples from the study population who were randomly assigned to experimental and control groups. The research instruments consisted of Leahy Emotional Schema Scale (LESS) and the Metacognitive Cognition Questionnaire (MCQ-30). The drama therapy protocol was performed in 16 sessions. The collected data were analyzed by covariance test. Examining the analysis results indicated that the difference between the experimental and control groups in the metacognitive beliefs variables and emotional schemas is significant. As found, psychodrama changes metacognitive beliefs in individuals through reinterpreting new phenomena and attitudes. In addition, psychodrama was effective in changing adaptive emotional schemas in women with breast cancer (P = 0.01, F = 119.48). They became somewhat adaptable due to the catharsis resulting from psychodrama therapy, leading to secure attachment in individuals. The results indicated that psychodrama can cause catharsis and emotional regulation through the catharsis occurring in action and role-playing, which reduces anxiety in the individual. Consequently, one's belief related to oneself and that of the world changes, resulted in changing metacognitive beliefs, so psychodrama was effective in changing emotional schemas and metacognitive beliefs.

International Journal of Health Sciences ISSN 2550-6978 E-ISSN 2550-696X © 2022.
Manuscript submitted: 27 Feb 2022, Manuscript revised: 09 March 2022, Accepted for publication: 18 April 2022

Keywords---psychodrama, metacognitive beliefs, emotional schemas, cancer.

Introduction

As the National Cancer Institute (NCI) reported (2020), cancer is a group of diseases that relates to abnormal cell growth and are characterized by the possibility of invading or spreading to other parts of the body. In other words, cancer refers to a set of diseases that arise from uninhibited cell proliferation (Makhlouf et al., 2020). By 2020, 10 million new cancers have been diagnosed worldwide. According to Eaton, cancer is a major global problem, both in developed and underdeveloped countries, and political will and international cooperation are now essential to effectively control cancer. Cancer causes dysfunction and produces tension, stress, anxiety and worry. People with cancer experience mood swings (Farokhzadian et al., 2018). People with cancer often experience negative emotions due to negative evaluations, leading to some form of depression. According to Wale's model (2001), when a worrying event occurs, the person's positive beliefs about worry are activated and cause anxiety (Wells, 2008). Emotional schemas also play a role, so that according to Leahy, one's maladaptive schemas about the emotion are activated when negative emotion emerges in the person (which worry is negative emotion), which leads to a negative evaluation of that emotion (Leahy et al., 2011). Conversely, as mentioned by Kamali (2013), such emotional schemas are expressed in the form of people's metacognitive beliefs about that emotion. Finally, as Leahy stated in 2011 and confirmed by Kamali (2013), this pathology leads to anxiety or worry in the person, resulted in dysfunction in one's daily performances (Farokhzadian et al., 2018).

Drama therapy, a branch of art therapy, is one of the psychotherapy methods that arise from combining art disciplines and schools of psychological therapy. The main goals of art therapy are prevention and treatment and promotion of mental health (McDonald & Holttum, 2020; Chiang et al., 2019). It refers to a method of psychotherapy in which the psychotherapist attempts to put the clients on the path of knowing their existential dimensions due to mental disorders, suffering from defects in one's perceptual, intellectual, speech and decision-making powers by recognizing the psychological aspects of the client, one's clinical symptoms and knowledge of specific dramatic techniques to correct their speech and behaviors (Noohi et al., 2020). According to Yalom, drama therapy put the clients in a similar environment to better understand their feelings and motivations, i.e., achieve self-knowledge and control their level of anxiety (Yalom & Greaves, 1997).

The present study aimed to explain the effectiveness of drama therapy in reducing generalized anxiety and changing metacognitive beliefs and emotional schemas of patients with cancer because drama therapy can provide a basis for recognizing and expressing emotions through a catharsis in the process of improvisation. However, people can evaluate their emotional-behavioural functions because of being in a group environment. Additionally, the dramatic activity provides opportunities to understand the interrelationships, challenges and solutions due

to its group nature. One achieves discharge of affect using the psychodrama method, performing a play and a scenario based on personal problems, which expressing effect leads to more understanding of emotion and regulates it, as well as developing adaptive emotion schemas. Suppressing and not expressing emotions can impair the ability to clarify emotions and ultimately one's ability to their recognition (Orkibi & Feniger-Schaal, 2019; Dogan, 2018; Giacomucci & Marquit, 2020; Terzioğlu & Özkan, 2018). Accordingly, the present study aimed to evaluate the effectiveness of psychodrama on changing the metacognitive beliefs and emotional schemas of women with breast cancer. In addition, it was found that the results in people with breast cancer should be examined to observe what effect it has had on the metacognitive beliefs and emotional schemas of such people through rehearsal practice, play analysis, and role-playing.

Materials and Methods

This is a quasi-experimental study with a pretest and posttest design and a control group. The research design is a pretest-posttest with a control group, which is considered quasi-experimental in terms of practical purpose and data collection. In the first stage, after selecting the sample, metacognitive belief variables and emotional schemas in both groups were evaluated by a questionnaire and the Metacognitive Beliefs Questionnaire (MCQ-30) and the Leahy Emotional Schemas Scale (LESS) were distributed and completed by the sample as a pretest. Then, the data were entered into SPSS version 26. In the second stage, at least 50 clients (25 ones in the experimental group and 25 ones in the control group) were selected by the available method and were randomly divided into two 25 experimental (research model-based treatment) and control groups based on the entry and exit criteria. Then, the experimental group underwent 16 sessions of drama therapy and the control group received the usual care program. After the intervention, the variables of metacognitive beliefs and emotional schemas were measured again (posttest).

Research tools

Short Form of Metacognitive Beliefs (MCQ-30): This tool is designed to test the metacognitive theory of mental disorders, especially the hypothetical role of metacognitive beliefs in the pathology of emotional disorders. This questionnaire has 30 items that the person rates his / her agreement on a scale from 1 to 4. This questionnaire has 5 subscales as follows: 1) Positive beliefs about anxiety, 2) Negative beliefs about uncontrollability and risk, 3) Negative beliefs about the need to control thoughts, 4) Positive beliefs about cognitive self-awareness and 5) Negative beliefs about cognitive confidence. Regarding the questionnaire validity, the Cronbach's alpha coefficient for subscales was reported to be 0.72 to 0.93 and its reliability by retest method for the total score and subscales were 0.75 and 0.59 to 0.87, respectively (Taajobi, 2016). In Iran, Shirinzadeh Dastgiri obtained its internal consistency coefficient using Cronbach's alpha coefficient for the whole scale was 0.91 and for its subscales in the range of 0.71 to 0.87 and the reliability of retesting this test at four weeks intervals for the whole scale was 0.73. The answers are calculated based on a four-point Likert scale (1- I agree, 2- I slightly agree, 3- I relatively agree, 4- I completely agree) (Koroughi, 2015).

Leahy Emotional Schemas Scale (LESS)

This scale has been introduced by Leahy to clarify the beliefs and strategies of individuals in the face of their emotions and emotional schemas. On this scale, people express their views on 50 terms and a scale of 6 options between 1 (completely incorrect) to 6 (completely correct). Emotional validation, emotional perception, guilt, emotional simplification, the pursuit of higher values, control, emotional anesthesia, need for absolutism, emotional persistence, the universality of emotions, acceptance of emotions, rumination, emotional expression and blame of others were the emotional schemas evaluated on this scale. Each dimension includes between 2 and 7 phrases. Since it measures some dimensions of non-adaptive schemas and some adaptive schemas, no overall score exists and the scores for each dimension are calculated separately. In a study conducted on the main form of this scale, high internal consistency of 0.80 was reported. Furthermore, Cronbach's alpha of this scale has been obtained in the research conducted by Daneshmandi, Izadikhah, and Kazemi as 0.85 (Mohammadkhani, 2014).

Research method

The process of conducting the first part of the study was as follows: In the first stage, the contact information of clients who have cancer according to the medical records and the psychiatric records of such patients who were suffering from generalized anxiety disorder have been obtained after coordinating with the Department of Health, and then they were asked to participate in the present study and fill in the relevant questionnaires, which was performed by the centers and 50 people cooperated and completed the research-related questionnaires (pretest). In the second stage, the protocol was implemented virtually for treatment due to the current situation in the country and the coronavirus crisis, and then the questionnaires were given to the patients again to complete (posttest).

Table 1
Drama therapy protocol

Drama therapy protocol		
Number of sessions	work explanation	Objectives
Session 1	Familiarity of group members with each other and with the drama therapist; Expressing the group objectives, the responsibility of the leader and each member; explaining the rules and structure of meetings; general familiarity with drama therapy; investigating the concepts of emotion management, interpersonal relationships and social	Familiarity, trust and intimacy building, establishing relationships

	adjustment	
Session 2	Examining the main components of play in the theater, including body, expression and feeling; Familiarity with the basics of theater, including stage, text, actor, director, spectator; how to walk and stand on stage; correct positioning on the stage relative to the actors;	Familiarity with the elements of drama and the basics of theater Awareness of body parts and movements
Session 3	Working on the body and exercises specific to it; How to express it correctly; How to express different feelings and emotions through the face (facial mimicry), body and expression; concentration exercises; rhythmic exercises; Auditory, visual and tactile exercises	Increasing physical abilities; strengthening motor skills; strengthening motor and expressive organs; Knowledge of body language (gestures); physical coordination; strengthening the five senses; collective coordination and conformity; coordination of thought and physical action; physical and emotional harmony
Session 4	Speech and behavioral exercises; word formation and sentence construction; verbal and visual play; examining a role and considering it (from a physiological, sociological and psychological point of view);	Strengthening speech skills; Coordination of members with each other; catharsis; recognizing the dimensions of personality; analysis of stories, characters and their relationships with each other; strengthening interpersonal relationships; shaping and strengthening creative forces
Session 5	Practicing telognosis and play analysis	Familiarity with the text, the subject of the play and the characters
Session 6	Displaying simple and everyday actions; Role training; Jobs game	Recognizing behavioral details; strengthening attention and concentration; understanding the dramatic space; rational approach to affairs; identifying one's rights and how to communicate with others; reviewing social roles; eliminating shortcomings in playing social roles; learning and jobs role-playing
Session 7	hot chair; empty chair	self-expression, facilitating the discharge of suppressed feelings

		and emotions, moving towards honesty and truthfulness; resolving allergy; reducing avoidance responses resulted from fear; self-expression in public; multidimensional interaction; exchanging ideas;
Session 8	Psychological role-playing; showing remembrance,	improvisation; strengthening the imagination; reviewing memories; increasing attention and concentration;
Session 9	Psychological role-playing;	Identifying one's rights and how to communicate with others; how to ask questions and listen; identifying weaknesses; increasing empathy capacity; anger management; identification
Session 10	* Determining the best game Examining negative emotions A: Awareness of the impact of emotional thinking and behavior B: momentarily awareness of emotion with an emphasis on breathing C: stress-relieving and achieving a positive feeling D: Reassessment E: Expressing emotion	Being here and now - recognizing emotion through mental imagery - Metaphorical animating to emotion - Increasing positive emotion by creating a pleasurable experience - Talking about emotion - Coping response - Increasing physical activity - Focusing on an object in the present time- Describing the quality of emotion by focusing on thought, sensitivity and emotion, Shifting attention consciously
Session 11	Focusing on the momentarily flow of body awareness: A: Awareness of the impact of thought on emotion and behavior B: Momentarily awareness of emotion with an emphasis on breathing C: Stress relieving and achieving a positive feeling D: Reassessment E: Expressing emotion	Being here and now - focusing on the present time using color - Awareness of physical feelings and talking about them - expressing an emotion using colors - Awareness of the effect of thought on emotion and behavior; emotion on thought and behavior; Behavior on Thought and Emotion – stress relieving - Conscious attention to emotion with a focus on breathing - Performing activities related to emotion - Focusing on the momentarily flow of self-awareness
Session 12	Adventure *	Being here and now - Mental imagery - Reconstruction of the

	Using verbal and body language related to emotions A: Recognizing and distinguishing positive and negative emotions B: Awareness of the impact of behavior on emotion and thought A: Awareness of the effect of emotion on thought and behavior	emotional situation -Generating emotion using different sounds - Expressing feelings out loud – recognizing the behavior following emotion- achieving a wise mind- Performing conscious breathing - considering the feeling following thoughts, creating body movements to describe words with emotional charge
Session 13	Role play * Using verbal and body language related to emotions A: Conscious communication B: Reassessment C: Expressing emotion D: Stress relieving with conscious breathing	Informed communication with others - reducing cognitive inconsistencies -emotion - relaxation – Considering emotion with an emphasis on breathing - creating body movements to describe emotion -Putting emotions into action - Recognizing desires after emotion - Recognizing emotion
Session 14	Kingdom of Hats - Positive Emotion A: Recognizing positive emotions B: Awareness of the effect of positive emotions on behavior and thought C: Awareness of feelings following behavior D: Awareness of thoughts following positive emotions E: Expressing positive emotions	Being here and now - Recognizing emotion and naming emotion - Transferring a mental plan to emotion on paper -Transforming emotion into a specific motor state - Expressing emotion in the form of facial expressions - Describing emotion with a specific physical state- lack of judgment about emotion - Increasing the level of physical activity - Talking about emotion - Attention to the discharge of thought and affect - Acceptance - expressing thoughts related to emotion - generating activity consistent with the emotion
Session 15	Land of Colors - Positive Emotion A: Increasing positive emotion by creating a pleasurable experience B: Awareness of the effect of positive emotions on behavior and thought A: Expressing emotion	Being in here and now - Recognizing the feeling of belonging to any emotion - Increasing positive emotion by creating a pleasurable experience - Showing emotion in the form of physical movements - association of color and emotion related to emotion - describing emotion in the form of an appropriate physical mode - recognizing

		behavior following emotion - recognizing emotion-related behaviors - Awareness of the effect of emotion on behavior and thinking - describing emotion in the form of words - Conscious attention to activities related to emotion - Conscious attention to thoughts related to emotion - conscious communication with others
Session 16	Expressing the feelings and opinions of each member towards this workshop; Post-test performance - feedback and final analysis	Summary and Conclusion

Results

Participants in the present study included 50 women with breast cancer, of whom 25 were in the experimental group and 25 ones in the control group. The mean age of the respondents is 43.54 years. 22% (11 subjects), 12% (6 subjects), 50% (25 subjects), 14% (7 subjects), and 2% (1 subject) have diploma and under-diploma, upper-diploma, undergraduate, graduate and doctorate educations, respectively.

Table 2
Descriptive indicators of data obtained from pre-test and post-test separately by each group

	Group	Type	Mean	SD	Skewness	Elongation
Metacognitive beliefs	Examination group	Pretest	75.84	4.74	0.28	0.86
		Posttest	64.24	5.19	0.91	0.25
	Control group	Pretest	75.24	4.66	-0.56	-0.43
		Posttest	74.48	5.65	-0.63	0.81
Adaptive schemas	Examination group	Pretest	56.48	6.21	0.45	-0.08
		Posttest	69.92	6.63	0.83	0.02
	Control group	Pretest	61.69	5.07	-0.75	0.01
		Posttest	60.97	5.53	0.41	1.08
Maladaptive schemas	Examination group	Pretest	33.00	4.00	0.15	-0.26
		Posttest	46.68	5.68	0.39	0.18
	Control group	Pretest	43.32	4.67	0.15	-0.22
		Posttest	44.88	4.93	-0.38	-0.01

Studying the normality of the distribution of scores in the experimental and control groups was assessed using Kolmogorov-Smirnov Test. Accordingly, the research variables had a normal distribution (Table 3).

Table 3
The results of examining the normality of the distribution of research variables

Variable	Test value	Significance level
Anxiety	0.171	0.057
Metacognitive beliefs	0.125	0.200
Adaptive schemas	0.134	0.200
Maladaptive schemas	0.149	0.155

In addition, studying the equality of variance error was performed using Levene's Test, the results of which showed that there is equality between the variance errors of the variables, so this assumption is also observed (Table 4).

Table 4
Levene's Test, assumption of variance error equality

Variable	F value	Degree of freedom 1	Degree of freedom 2	Significance level
Anxiety: posttest	0.001	1	48	0.984
Metacognitive beliefs: posttest	0.813	1	48	0.372
Adaptive schemas: posttest	0.169	1	48	0.683
Maladaptive schemas: posttest	0.001	1	48	0.991

The first hypothesis in the present study was that psychodrama affects changing metacognitive beliefs in women with breast cancer. The results of the analysis indicated that the differences between the experimental and control groups were significant. Therefore, psychodrama is effective in changing metacognitive beliefs in women with breast cancer (P = 0.01, F = 147.36).

Table 5
The results of the effectiveness of psychodrama on changing metacognitive beliefs in women with breast cancer

	Total squares	Degrees of freedom	Mean squares	F	Significance level	Effect size	Observed power
Metacognitive beliefs -pretest	821.184	1	821.184	64.92	0.01	0.58	1.00
Group	1443.09	1	1443.09	114.00	0.01	0.71	1.00
Error	594.95	47	12.65				

The second hypothesis was that psychodrama affects changing emotional schemas in women with breast cancer. Examining the analysis results in adaptive schemas indicated that the difference between the experimental and control groups was significant. Thus, psychodrama is effective in changing adaptive emotional schemas in women with breast cancer (P = 0.01, F = 85.50).

Additionally, the results of the analysis in maladaptive schemas indicate that the difference between the experimental and control groups is significant. Therefore, psychodrama is effective in changing adaptive emotional schemas in women with breast cancer (P = 0.01, F = 119.48).

Table 6
Evaluating the effectiveness of psychodrama on changing adaptive emotional schemas in women with breast cancer

Resource	Total squares	Degrees of freedom	Mean squares	F	Significance level	Effect size	Observed power
Adaptive schemas-pretest	924.04	1	924.04	50.11	0.01	0.52	1.00
Group	1751.71	1	1751.71	94.98	0.01	0.669	1.00
Error	866.75	47	18.44				
Maladaptive schemas-pretest	310.60	1	310.60	24.46	0.01	0.342	0.998
Group	1517.27	1	1517.27	119.48	0.01	0.72	1.00
Error	569.83	47	12.69				

Discussion

The results of the present study showed that the differences between the experimental and control groups were significant. Therefore, psychodrama is effective in changing metacognitive beliefs in women with breast cancer (P = 0.01, F = 147.36). This result is in line with those of Abedi Tehrani et al. (2020) and Wang et al. (2020). In fact, drama therapy is a general, reinforcing method of psychotherapy in which people reflect on and examine their present, past, and future lives (Seyedi, 2020). The reason for choosing this approach to treatment is that non-judgmental spontaneous expression allows one to speak freely about repressed thoughts and feelings, without threatening the reaction of others, and express inner secrets and harmonize inner life with the same objective life is the same as the discharge of affect burden. Group implementation of this approach and the role of individuals in the group are aimed at expressing deep emotions (Hamidi F,& Sobhani Tabar, 2021). Ounri (2018) conducted a study and showed that psychodrama clarifies feelings and thoughts and creates a safe atmosphere and motivation in patients (Ron & Yanai, 2021), results in the discharge of affect, recognizing and correcting habits and increasing self-confidence and personal satisfaction in a short while, encourage one to experiment and familiarize one to new aspects of oneself, provides people with new ways to solve problems, allows practicing new skills and enables learning among people (Landy, 2017). Testoni et al. (2018) found that drama therapy is effective in a variety of psychological intervention programs due to its breadth, depth, diversity and practical vision of various aspects of human life, including individual beliefs (Testoni et al., 2020). In addition, the results of the analysis in adaptive schemas indicated that the

difference between the experimental and control groups is significant. Therefore, psychodrama was effective in improving adaptive emotional schemas in women with breast cancer (P = 0.01, F = 85.50). Further, the results of the analysis in maladaptive schemas indicated that the difference between the experimental and control groups is significant. Therefore, psychodrama is effective in reducing maladaptive emotional schemas in women with breast cancer (P=0.01, F=119.48). Prosen & Jendričko (2019) found that the special atmosphere of psychodrama takes the individual out of self-centeredness and excessive emphasis on one's situations, leading to the discharge of affect, thus changes the emotional schemas of the person and increases one's understanding of others (Prosen & Jendričko, 2019). Besides, Crouz (2018) found that one achieves discharge of affect through the psychodrama method by performing scenarios based on personal problems and needs, leading to more understanding and regulating emotion and developing adaptive emotion schemas by naming one's feelings. Suppressing and not expressing emotions can impair the ability to clarify emotions and ultimately one's ability to recognize them (Cruz et al., 2018). One achieves the power to regulate emotions by expressing them, discharging dominant affect and its perception (Najafi et al., 2015). In the psychodrama method, when a person achieves the four skills of refining emotions, hope, calmness and deeper understanding, one's emotional burden is reduced, improves the power to purify emotions as well as the power of their deeper understanding of emotional schemas, resulted in developing adaptive skills in managing emotions and reducing non-adaptive emotional management in the individual (Soleimani et al., 2015; Javidi, 2013; Javidi et al., 2012; Ranjbaran et al., 2016).

Conclusion

According to the results, it was found that psychodrama can reinterpret a person's cognitive beliefs by playing a role and discharging one's thoughts. Psychodrama has changed metacognitive beliefs in a person. One's beliefs are formed in different situations of life, leading to the formation of negative patterns in thinking based on failures and psychological repressions. This has negatively affected one's beliefs about oneself and that of the world, which will change in psychodrama therapy. Additionally, psychodrama relieves stress and anxiety among patients with cancer by role-playing and discharge of affect, resulted in changing the emotional schemas in cancer patients. Accordingly, people with cancer have negative emotional schemas about themselves and that of the world, and psychodrama can help change emotional schemas through catharsis.

Ethical considerations

The ethical standards related to tests, collection process and protocol implementation were considered and the present study has the code of ethics: IR.IAU.TON.REC.1399.094.

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