

Research Paper



Investigating the Effectiveness of Positive-thinking-based Poetry Therapy on Infertility Stress and Psychological Well-being in Infertile Women

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ABSTRACT

Background: Infertility is a global problem that leads to psychological complications. Studies show that the psychological damage caused by infertility is far greater in women compared to men. Infertility reduces psychological well-being and causes infertility stress in infertile women. This study aims to determine the effectiveness of positive-thinking-based poetry therapy on infertility stress and psychological well-being in infertile women.

Methods: This quasi-experimental research was conducted with a pre-test, post-test design and a control group. The statistical population included all infertile women. The sample size consisted of 46 women who were selected via the convenience sampling method. They were randomly assigned to experimental (n=23) and control groups (n=23). The experimental group received the package of positive-thinking-based poetry therapy which was compiled by the researchers, for eight 90-min sessions. The data was collected using the infertility stress questionnaire and the psychological well-being scale. The data were analyzed using multivariate and univariate analysis of covariance via the SPSS software, version 22.

Results: The multivariate and univariate analysis of covariance results showed that positive-thinking-based poetry therapy has a positive and significant effect on improving infertility stress psychological and well-being in infertile women ($P < 0.05$).

Conclusion: According to the results, the change in mental attitude and emergence of positive emotions caused by the intervention of positive-thinking-based poetry therapy improved the infertility stress and psychological well-being of infertile women.

Keywords: Positive thinking, Poetry therapy, Infertility stress, Psychological well-being, Infertility

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1. Introduction

Infertility is a global problem that leads to physical, psychological, and social complications and is defined as the inability to conceive after one year of sex without contraception [1-3].

The prevalence of infertility is 12% to 15%, worldwide, and its prevalence is reported 20.2% in Iran [4]. Studies show that the psychological damage caused by infertility is far greater in women compared to men [5]. Infertility is one of the worst life experiences and a stressful factor for women and brings about many physical and mental effects, including depression, isolation, envy, anger, fear, a lack of confidence, self-criticism, sleep disorder, and a lack of appetite [6]. According to studies, one of the most important psychological consequences in an infertile woman is infertility stress, which is a set of symptoms in women that occur following infertility and is similar to many of the symptoms of posttraumatic stress disorder [7]. There is a correlation between stress and physical illnesses because stress causes disorders in the endocrine system, hypothalamic axis-adrenal pituitary, platelet function, and heart rate [8]. Studies show that infertility stress can lead to disruption of treatment and causes hopelessness and low confidence in infertile women, making infertility treatments ineffective [9]. Another psychological consequence of infertility in women is a decrease in psychological well-being [10]. Psychological well-being is defined as a positive evaluation of the self and an individual's life, believing in a purposeful and meaningful life, having a high-quality relationship with others, meaning one's personal life, overcoming the world's problems, and accepting the self. People who are rated high in psychological well-being usually have positive emotions and are optimistic about events, while people with low psychological well-being have negative reactions, such as anxiety and depression [11].

The results of a study showed that the promotion of psychological well-being is associated with an increase in general health [12]. The complex interaction between psychological problems and infertility in women, as well as the importance of mental health, has led to the use of several psychological therapies, all of which have provided beneficial effects [13-16]. One of the interventions that can affect the mental health of infertile women is teaching positive thinking, which is thinking differently about positive and negative events and valuing them with a new perspective [17]. Positive psychology emphasizes various concepts, such as happiness, resilience, life satisfaction, and life expectancy [18]. In a meta-analysis, Boiler showed that positive thinking has a positive

and significant effect on psychological well-being [19]. Numerous studies have confirmed the effect of positive thinking on psychological well-being, hope, confidence, and happiness [20-22].

Using a variety of art therapies to many psychological problems is a method that psychology has always considered. Poetry therapy, which is a type of art therapy in which poetry is used to achieve the goals of personal growth and mental health, was first officially introduced in 1969 and in recent years has found a special position in the field of psychology [23]. In the process of poetry therapy, people find a different opportunity to define themselves by reading and writing poetry that expresses deeper emotions compared to ordinary conversations. In other words, expressing emotions and desires symbolically, relieving stress, and finding new meanings through new ideas and insights in poetry therapy effectively affect people's spirit and ultimately lead to changing attitudes, creating a positive attitude, increasing confidence, and adapting to present conditions [24]. The effectiveness of poetry therapy in reducing psychological disorders has been reported in numerous studies with different approaches. The poems of famous Persian poets, such as Hafiz and Molavi are rich sources of gaining inner peace and cultivating the great meanings of life, such as freedom, inhibition, avoiding envy, hope, and satisfaction. Since the language of poetry is much more pleasant compared to colloquial language because of its rhythm and given that words in poetry often carry a special meaning, they can have a great impact on the direction of a person's life and psyche and double the effect of positive thinking on the psyche of the audience [25-29]. Considering that, so far, no research has been conducted that uses poetry therapy as a therapeutic approach to reduce the psychological damage of infertile women, in the present study, poetry has been employed to teach positive thinking concepts. Given the high prevalence of infertility, the background on the effectiveness of positive thinking and poetry therapy in reducing psychological problems, helping to reduce the psychological damage of infertile women, and the lack of research on this issue, this research aims to determine the effectiveness of positive thinking, concentrating on poetry therapy, on the psychological well-being and infertility stress of infertile women.

2. Methods

This was a quasi-experimental research with a pre-test, post-test design and a control group. The statistical population of this research consisted of infertile women who were referred to infertility clinics in Khorramabad

City, Iran, in 2020. The statistical sample consisted of 46 infertile women who were selected via the convenience sampling method. After ensuring the similarity of the demographic characteristics and mental state of the subjects by the interview method, they were randomly assigned to experimental and control groups. Given the following measures in the present research, the sample size was sufficient: $P < 0.05$, $Eta^2 > 0.020$, and power > 0.080 [30]. The criteria for entering the research were providing consent to participate in the study, diagnosis of infertility by a gynecologist, being in the age range of 20 to 40 years, and having a degree of at least 9 classes. The exclusion criteria were unwillingness to continue participating in therapeutic sessions and pregnancy.

Study instruments

Psychological well-being questionnaire

The psychological well-being questionnaire was compiled by Ryff in 1989. It aims to evaluate the level of psychological well-being and includes 18 questions. The subscales of this instrument include autonomy, personal growth, mastery of the environment, positive relationships with others, purpose in life, and self-acceptance. These subscales make up the total score on psychological well-being. The scoring of this questionnaire is done based on a 6-point Likert scale from "Completely Agree" to "Completely Disagree". The positive correlation of this questionnaire with the life satisfaction scale, the Oxford happiness scale, and the Rosenberg self-esteem questionnaire indicates the convergent validity of the Ryff psychological well-being questionnaire. In his studies, Ryff obtained the reliability of psychological well-being subscales ranging from 0.72 to 0.89 via the Cronbach α method [31]. Bayani et al. standardized the psychological well-being questionnaire in Iran and reported its reliability coefficient using the Cronbach α method [32]. In the present research, the face and content validity of this questionnaire was confirmed and its internal consistency was calculated via the Cronbach α method at 0.84.

Newton infertility stress questionnaire

The Newton infertility stress questionnaire is a multidimensional questionnaire developed by Newton et al. and measures 5 components of social concern, sexual concern, relationship concern, risk of a childfree lifestyle, and the need for parenthood. This scale is scored based on a 6-point Likert scale from "Completely Agree" to "Completely Disagree". The scores range from 46 to 276, with higher scores indicating more stress. Newton

evaluated the content, face, and criterion validity of this questionnaire as appropriate and also reported the Cronbach α of social concern at 0.87, sexual concern at 0.77, relationship concern at 0.82, risk of childfree lifestyle at 0.80, and the need for parenthood at 0.84 [33]. In the present research, the face and content validity of this questionnaire was confirmed and its internal consistency was calculated using the Cronbach α method at 0.81.

The purpose and nature of the research for subjects were first explained and they were assured that the content of the treatment sessions would be confidential. The subjects from both experimental and control groups underwent the pre-test process and were asked to complete the relevant questionnaires. The experimental group received positive thinking intervention based on poetry therapy conducted by a person with a Master's degree in psychology (the therapist specialized in spiritual therapy and positive therapy and has published articles in this field); however, during this period the control group did not receive any intervention. A total of eight 90-min psychotherapy sessions were held for each participant individually and after the treatment sessions, the Post-test was performed in both groups. The data analysis of this research was done via the SPSS software, version 22. We used Mean and Standard Deviation (SD) for descriptive statistics and multivariate and univariate covariance analysis for inferential statistics.

The summary of the positive thinking protocol based on poetry therapy, which was compiled by the researchers and then confirmed by 5 psychology experts, a psychiatrist, and Persian language and literature experts who were prominent university professors, is provided in Table 1.

3. Results

In the present study, the Mean \pm SD of the age of the experimental group was 28.76 \pm 7.23 years and the control group was 30 \pm 6.32 years. Also, the Mean \pm SD of the education of the experimental group was 14 \pm 3.22 years while the control group was 15 \pm 4.2 years. Descriptive statistics (Mean and SD) of psychological well-being and infertility stress scales of the experimental and control groups with the pre-test, post-test separation are provided in Table 2.

The multivariate analysis of the covariance method was used to determine the effectiveness of positive thinking training based on poetry therapy. Necessary assumptions for using this analysis, such as the normality of the data distribution and the homogeneity of the variance were

Table 1. Content of positive thinking sessions concentrating on poetry therapy

Session	Summary of the Therapeutic Sessions
1	Introduction; taking a pre-test; specifying the rules and objectives of psychotherapy sessions; explaining how to work; and getting to know the concept of positive thinking. Poem: Arise and do not grieve for the mortal world / sit down and spend a moment of joy
2	Getting to know how thinking is formed; the effect of positive thinking on health and longevity; and the role of the lack of positive emotions on the continuation of sadness. Poem: All this nectar and joy speaks to me / the reward is patience is what I have done before
3	Teaching positive thinking by challenging negative thoughts, changing mental images, and revising beliefs. Poem: Do not be sad by the autumn wind in the world / think sensibly, where is the thorn less flower (Hafiz)
4	Examining and presenting strategies for cultivating special abilities in the path leading to happiness, joy, commitment, and meaning. Poem: The carousel if we do not mean two days / not always the same, now do not be sad
5	Teaching the importance of love and attachment in life, loving oneself and others, and establishing a good relationship with others and its impact on mental health. Poem: O friend, let us not grieve for tomorrow / let us rejoice in this short time
6	Review previous sessions, teach optimism, and hope, use positive words, and enjoy life with an emphasis on the present. Poem: There is a lot of hope in despair / the end of a black night is white
7	Teaching forgiveness, contentment, gratitude, and their role in improving the interpersonal relationship. Poem: I praise the one who is / free from all belongings in this world
8	Reviewing previous sessions; bringing happiness to life; and building confidence and good habits, such as exercise and healthy eating. Poem: Whenever it is good, count it / no one knows what will happen next

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Table 2. Mean and standard deviation of the subscales of psychological well-being and infertility stress in experimental and control groups

Dependent Variables	Mean±SD			
	Experimental		Control	
	Pre-test	Post-test	Pre-test	Post-test
Autonomy	6.60±1.26	9.13±3.15	6.56±1.94	6.39±2.06
Mastery of the Environment	6.08±1.56	9.78±3.05	6.65±1.66	6.69±2.03
Personal growth	7.47±2.20	9.39±2.82	6.65±1.79	6.39±1.92
Positive relationships with others	6.34±1.61	9.69±3.32	6.91±1.78	6.82±1.87
Purposefulness in life	6.52±1.59	9.69±3.32	6.52±1.92	6.69±1.86
Self-acceptance	6.21±1.34	10.34±2.82	6.78±1.47	6.53±1.53
Total well being	39.43±8.18	59.30±17.02	40.21±6.75	39.78±6.74
Social concern	33.34±6.22	23.34±6.33	32.13±3.23	31.82±3.72
Sexual concern	27.13±5.80	19.34±4.88	24.26±3.84	24.17±3.83
Relationship concern	34.13±7.38	23.30±5.51	30.82±5.20	30.78±5.30
Risk of childfree lifestyle	26.73±4.75	18.91±4.98	25.17±3.70	25.43±3.40
Need for parenthood	35.34±6.87	24.82±7.25	30.91±5.39	32.21±8.49
Total infertility stress	156.69±25.77	109.73±26.07	143.30±17.92	144.43±19.24

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analyzed. The distribution of the scores on the scales of psychological well-being and infertility stress was normal and according to the Levene test, the homogeneity of the variance was established in the scores of these variables ($P>0.05$).

The findings of Table 3 demonstrate a significant difference in our indicator after removing the pre-test effect. Subsequently, to evaluate the role of positive-thinking-based poetry therapy in improving infertility stress and psychological well-being subscales, the univariate analysis of covariance was used and the results are provided in Table 4.

According to Table 4, assuming the control of the pre-test effect, positive thinking training based on poetry therapy improves the subscales of autonomy ($F=11.32$, $P=0.002$), mastery of environment ($F=22.41$, $P=0.001$),

personal growth ($F=22.49$, $P=0.001$), positive relationship with others ($F=12.49$, $P=0.001$), purpose in life ($F=12.68$, $P=0.001$), self-acceptance ($F=33.83$, $P=0.001$), and total psychological well-being ($F=30.80$, $P=0.001$). It also improves all infertility stress subscales, such as social concern ($F=21.27$, $P=0.001$), sexual concern ($F=13.14$, $P=0.001$), relationship concern ($F=24.60$, $P=0.001$), risk of childfree lifestyle ($F=21.62$, $P=0.001$), the need for parenthood ($F=10.18$, $P=0.003$), and the total infertility stress ($F=22.38$, $P=0.001$) in the experimental group. The results showed that the experimental group had a significant change in the mentioned variables compared to the control group.

Table 3. Multivariate analysis of covariance for infertility stress and psychological well-being

Variable	Test	Value	F	Error df	Significance Level
Infertility stress	Pillai Trace	0.42	5.16	35	0.001
	Wilk Lambda	0.57	5.16	35	0.001
Psychological well-being	Pillai Trace	0.61	7.20	31	0.001
	Wilk Lambda	0.38	7.20	31	0.001



Table 4. Univariate analysis of covariance test to compare the mean of psychological well-being and the infertility stress

Variable	Subscale	Sum of Squares	Mean of Squares	F	Significance	Eta ²
Psychological well-being	Autonomy	73.18	73.18	11.32	0.002	0.231
	Mastery of environment	129.93	129.93	22.41	0.001	0.377
	Personal growth	109.86	109.86	22.49	0.001	0.378
	Positive relationships with others	90.21	90.21	12.49	0.001	0.255
	Purpose in life	94.92	94.92	12.68	0.001	0.255
	Self-acceptance	173.45	173.45	33.83	0.001	0.478
	Total psychological well-Being	4692.44	4692.44	30.80	0.001	0.454
Infertility stress	Social concern	615.81	615.81	21.27	0.001	0.353
	Sexual concern	265.71	265.71	13.14	0.001	0.252
	Relationship concern	643.24	643.24	24.60	0.001	0.387
	Risk of childfree lifestyle	397.26	397.26	21.62	0.001	0.357
	Need for parenthood	646.27	646.27	10.18	0.003	0.207
	Total infertility stress	12506.36	12506.36	22.38	0.001	0.365



4. Discussion

This study aimed to determine the effectiveness of positive thinking teaching based on poetry therapy on infertility stress and the psychological well-being of infertile women. The results of the present research showed that positive thinking, concentrating on poetry therapy, has been effective in improving psychological well-being and infertility stress in infertile women. This finding is consistent with previous research. Gozashtis et al. examined the effectiveness of poetry therapy in reducing the psychological problems of women with breast cancer. To explain these findings, poetry therapy as a kind of adjunctive therapy can improve the quality of life in breast cancer patients while increasing their life expectancy [26]. In a study, Mirzaee et al. examined the effectiveness of poetry therapy for posttraumatic stress disorder in patients with heart disease and the results were in line with the findings of this research. The results showed that depression and social behaviors after poetry therapy intervention had a positive and significant difference [27]. In a meta-analysis, Boiler et al. found that positive thinking interventions were effective in increasing psychological and physical well-being and could help reduce depressive symptoms [19].

In explaining the effects of positive thinking based on poetry therapy on infertility stress, the main function of this intervention is to modify the individual's attitude and interpretation of life. And since Persian poems emphasize the transience of life and moral virtues, it strengthens the will to live and reduces psychological damage. Presenting positive thinking skills, such as optimism, hope, and patience in the form of poetry facilitates dealing with negative thoughts and leads a person to peace and excellence while minimizing the destructive effects of infertility stress.

In addition, in explaining the effect of positive thinking based on poetry therapy on psychological well-being, by taking advantage of the rich concepts of Persian poems, people achieve the power of transcendence and ignore worldly appearances; hence, they understand the meaning of life. In addition, a positive attitude toward life crises and trying to solve them and emphasis on the present improves metacognitive beliefs and changes the lifestyle, which brings vitality and psychological well-being. Future studies should be encouraged to allow the generalization of the results by implementing poetry therapy on other chronic patients, given that the measurement tools are self-reported and not reliable as the interview.

5. Conclusion

The findings of this research showed that positive thinking intervention, concentrating on poetry therapy, has been effective in improving infertility stress and psychological well-being. Therefore, it is suggested that psychologists and counselors use a positive thinking approach based on poetry therapy to improve the stress of infertile women in counseling centers along with other common psychotherapies.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the Lorestan University of Medical Science (Code:IR.LUMS.REC.1399.338).

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

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