

The effect of positive psychotherapy-based training on psychological well-being and hope level in women receiving infertility: experimental study

Derya Yanık & Funda Kavak Budak

To cite this article: Derya Yanık & Funda Kavak Budak (2023): The effect of positive psychotherapy-based training on psychological well-being and hope level in women receiving infertility: experimental study, *Journal of Reproductive and Infant Psychology*, DOI: [10.1080/02646838.2023.2206853](https://doi.org/10.1080/02646838.2023.2206853)

To link to this article: <https://doi.org/10.1080/02646838.2023.2206853>



Published online: 02 May 2023.



Submit your article to this journal [↗](#)



Article views: 14



View related articles [↗](#)



View Crossmark data [↗](#)



The effect of positive psychotherapy-based training on psychological well-being and hope level in women receiving infertility: experimental study

Derya Yanık^a and Funda Kavak Budak^b

^aDepartment of Nursing, Batman University School of Health, Batman, Turkey; ^bDivision of Nursing, Department of Psychiatric Nursing, Dr Inonu University, Malatya, Turkey

ABSTRACT

Background: Infertility is a multidimensional problem, which negatively affects the mental health of couples, especially women. Therefore this study was conducted to determine the effect of positive psychotherapy (PPT)-based training on psychological well-being and hope level of women receiving infertility treatment.

Method: The research was carried out in two Research Hospitals OGPB between November 2019 and December 2020 as an experimental model with pre-test-post-test control groups. Sample size for the study was determined by using the G.Power 3.1.9.2 program. The study was completed with 104 women (62 in the control group, 42 in the experimental group) receiving infertility treatment. The infertile women who were included in the study were determined by using the computer-assisted simple random sampling method. 8-session PPT-based training was provided for the women in the experimental group while no intervention was applied to the women in the control group. The trainings were carried out as individual and face-to-face training with the women in the experimental group.

Results: After the PPT-based training, it was determined that the psychological well-being and hope levels of the women in the experimental group increased compared to the women in the control group.

Conclusion: In the study, it was found out that PPT-based training has a positive effect on increased psychological well-being and hope levels of infertile women.

ARTICLE HISTORY

Received 14 November 2022
Accepted 19 April 2023

KEYWORDS

Infertility; positive psychotherapy; psychological well-being; hope; nursing

1. Introduction

Infertility is estimated to affect 8–12% of couples worldwide including 10% men and 12.5% women in reproductive age (Gupta et al., 2019; Yassa et al., 2019). The World Health Organization (WHO) reports the prevalence of infertility as 15%. However, this rate can increase up to 30% in some parts of the world (South Asia, Sub-Saharan Africa, the Middle East and North Africa, Central and Eastern Europe, and Central Asia) (WHO & World Health

CONTACT Funda Kavak Budak  funda-kavak@hotmail.com  Division of Nursing, Department of Psychiatric Nursing, Dr Inonu University, Malatya, Turkey

This study was accepted as a doctoral dissertation on 12.01.2021.

© 2023 Society for Reproductive & Infant Psychology

Organization, 2010). According to a study conducted in our country, incidence of infertility was determined as 8.1% (Öztekin et al., 2019).

Infertility is not only a medical problem but also a multidimensional problem with physical, emotional, social, cultural, religious and economic dimensions (Koçak & Büyükkayacı-Duman, 2016). It is also stated that infertility negatively affects mental health (Kırca & Pasinoğlu, 2013). In infertility, even when the cause of infertility is a male factor, almost all medical interventions are performed on women and thus they are psychosocially affected from this more than men are. This causes women to experience more psychological stress (Koçak & Büyükkayacı-Duman, 2016; Mete et al., 2020). The most frequently encountered psychiatric problems in infertility are depression, loneliness, hopelessness, anxiety, eating disorders, and sexual dysfunctions (Kazmi et al., 2016; Schweiger et al., 2018).

Since infertility is a multidimensional problem, it negatively affects the mental health of couples. In their study, D'Souza et al., expressed that the psychological well-being of women receiving infertility treatment was low (D'Souza et al., 2015). In the study conducted by Klemetti, it was stated that psychological well-being of infertile men and women was very low, which was associated with anxiety and depression (Klemetti et al., 2010). It was reported that the most common emotion experienced by couples due to emotional stress during the diagnosis and treatment of infertility is hopelessness (Çetişli et al., 2019; Çitil-Canbay et al., 2022). For this reason, it is inevitable that hopelessness has negative effects on women's lives in terms of infertility (Çitil-Canbay et al., 2022).

It is stated that various psychosocial interventions, including Positive Psychotherapy (PPT) that decreases stress level, and increases hope, functionality and quality of life, are effective in improving sexual function and provide psychological well-being in women receiving infertility treatment (Ashrafian et al., 2019; Ebrahimi et al., 2019; Hasanzadeh et al., 2019; Seyedi-Asl et al., 2016). In order to decrease psychosocial results of infertility and increase the effectiveness of treatment, it is recommended to integrate psychosocial care and counselling practices into medical care during routine practice (Gaimero et al., 2015).

Nurses, who are in contact with patients for the longest time and who are among the professional members of healthcare team, fulfill their main roles by providing training and counselling service for the couples receiving infertility treatment in order to help them cope with their psychological problems (Zeren & Gürsoy, 2019). Therefore, this study was conducted to determine the effect of PPT-based training on psychological well-being and hope level in women receiving infertility treatment.

Hypothesis 1. PPT-based training applied to women receiving infertility treatment increases the psychological well-being.

Hypothesis 2. PPT-based training applied to women receiving infertility treatment increases hope.

2. Materials and method

2.1. Design

The study was conducted as an experimental study with pre-test-post-test control group. In the study, the research was conducted with the participation of women who applied from two different hospitals in order to prevent the interaction of the experimental and control groups and the interference in training.

2.2. Sample

The population of the study was composed of women receiving infertility treatment in X OGPH and in Y Training and Research Hospital OGPH. Sample size for the study was determined by using G.Power 3.1.9.2 program. The acceleration rate reported in the experiment conducted by Erdemoğlu and Aksoy-Derya was taken as a reference, and independent-samples t-test was used (Erdemoğlu & Aksoy Derya, 2022). The required sample size comprised 42 infertile women for each group, with an effect size of 0.5, in a 95% confidence interval and data 5% margin of error according to the power analysis that was conducted, and this sample would have a 98% power to represent the population. The sample consisted of 84 infertile women (42 in the control group, 42 in the experimental group). However, considering that there might be dropouts from the study, 124 infertile women were included in the sample. In the experimental group, 12 women, who did not participate in the training at different times, and 8 women, who did not want to continue the training, were excluded from the study. The study was completed with a total of 104 women (control group $n = 61$, experimental group $n = 42$). The related data is presented in Figure 1.

The infertile women who were included in the study were determined by using the computer-assisted simple random sampling method. The simple random sampling method which was performed on the computer created a random list that assigned infertile women to two groups at a 1:1 ratio. The two sets created based on patient numbers were assigned to the experimental and control groups by lot.

2.2.1. Inclusion criteria

To be able to communicate, read and write in Turkish, having primary infertility, having received infertility treatment.

2.2.2. Exclusion criteria

Being diagnosed with a chronic or psychiatric disease that could affect mental health. Participating in a marriage counselling or psychotherapy program previously or currently.

3. Measures

3.1. Descriptive characteristics form

Descriptive Characteristics Form was composed of 12 questions prepared by the researcher based upon the literature review and containing information related to the socio-demographic characteristics of women and the infertility and course of its treatment (Yağmur & Oltuluoğlu, 2012; Yılmaz et al., 2020).

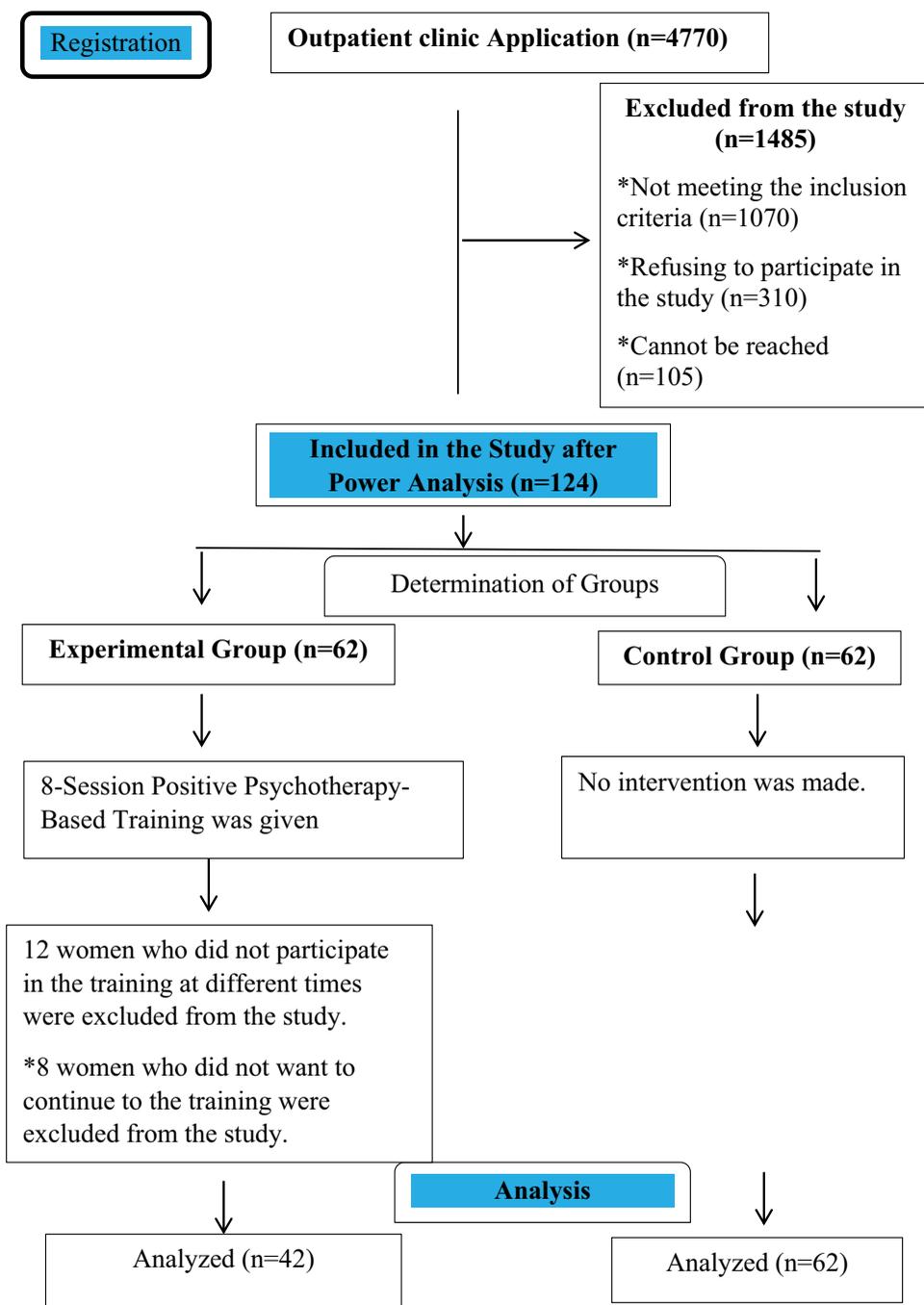


Figure 1. Consort flow chart of the study.

3.2. Psychological Well-Being Scale (PWBS)

This scale was developed by Diener et al., in 2009 to measure socio-psychological well-being, complementary to existing well-being measures. In 2013, Telef adapted the scale to Turkish. The factor loading values of the scale items were calculated between .54 and .76. Cronbach's alpha internal consistency coefficient obtained in the reliability study of the scale was calculated as .80. In this study, Cronbach's alpha internal consistency coefficient was found as .83. While the lowest score of the psychological well-being scale is 8, its highest score is 56. A high score indicates that the person has many psychological resources and powers. All items in the scale are expressed positively (Telef, 2013).

3.3. Dispositional Hope Scale (DHS)

Snyder et al. developed the 'Hope Scale' in 1991. The scale with two subscales and its Turkish adaptation validity and reliability study were conducted by Tarhan and Bacanlı in Tarhan and Bacanlı (2015). Of the scale named as 'Dispositional Hope Scale', Cronbach's alpha internal consistency coefficient was calculated as 0.84 and the test-retest reliability coefficient was calculated as 0.86. In this study, Cronbach's alpha internal consistency coefficient was found as 0.85. The scale consists of 12 items, and has two sub-dimensions, each consisting of four items. The other four items in the scale consist of filling items that are not related to hope. The scale includes items such as 'There are expressions such as I know that I can find a way to solve the problem even when others are in despair', 'My past experiences have prepared me well for the future'. Individuals were asked to mark the degree to which the expressions in the items reflect their situation on an eight-point Likert type scale between absolutely wrong (1) and absolutely right (8). When calculating the score of the scale, the scores of the items not related to hope (3, 5, 7 and 11) are not included in the total score calculation. The lowest score of the scale is 8 and its highest score is 64 (Tarhan & Bacanlı, 2015).

3.4. Ethical considerations of the study

In order to conduct the study, approval from University Scientific Research and Publication Ethics Committee (APPROV NO:) and legal permissions from the institutions, where the study was conducted, were obtained. The purpose of the study was explained to the women who were included in the study and their questions were answered. The women were informed that the information they provided would be kept confidential, and would not be used anywhere else; and they had the right to withdraw from the study at any time. Before starting the study, the women were informed about the purpose of the study and their verbal and written consents were obtained.

3.5. Data collection

The data of the experimental group were collected two days a week, on Mondays and Thursdays between November 2019 and May 2020 in X OGPB Training Unit; and the data of the control group were collected every Friday between January 2020 and March 2020 in infertility outpatient clinic of Y Training and Research Hospital OGPB through face-to-face interview method by researcher. Data collection tools were filled according to the responses obtained from the women after the researcher read them to the women. It took approximately 15–20 minutes to complete the data collection tools.

3.6. Intervention

The “PPT-based training” was provided in the nursing intervention. The training of experimental group was carried out in the form of interactive training supported by the PPT-based training booklet. The researcher, who applied PPT-based training, received a participation certificate in positive psychotherapy and the right to use the stories in therapy before starting the study.

The researcher informed the women in the experimental group about PPT-based training program in the first session, and thus the training days were determined. The trainings were given to the women who could come to the hospital on Mondays and Thursdays at X OGPB Training Unit and the women who could not come to the hospital on the days and hours were provided with trainings through home visits twice a week for 4 weeks when they were available. The trainings were carried out as individual and face-to-face training with the women in the experimental group. The training consisted of 8 sessions in total. Each session lasted for approximately 40 minutes. The content of PPT-based training program (Table 4) was prepared by the researcher in accordance with the literature (Alireza-Afshani et al., 2019; Güleç, 2019).

During the study, the women in the experimental and control groups continued their routine treatment and control follow-up. After the first session, a training booklet was given to each woman in the experimental group so that they could read and repeat at home. In addition, homework was given to the women according to the content of the training between the 3rd and 7th sessions.

No intervention was applied to the women in the control group. After the post-test, data of the control group were collected, the women in the control group were informed about the training on the other hand the women who wanted to participate in the training were given PPT based training.

Intervention Material: As the intervention material, ‘PPT-Based Training Booklet’ was used. After the booklet was created, it was presented to 6 experts. It was created and arranged in line with their suggestions. The content of PPT-Based Training Booklet includes the following topics: Definition and types of infertility, incidence of infertility, reason of infertility for men and women, tests performed on men and women to determine infertility, assisted reproductive techniques used in infertility (vaccination and IVF treatment steps) and socio-cultural, psychological, economic and sexual problems experienced by infertile couples, definition and symptoms of stress, effects of

stress on infertility treatment, coping with stress (emotion-focused and problem solving-focused), relaxation exercises that can be used to cope with stress, definition and importance of communication, communication barriers and effective communication techniques, definition of hope and hope resources, what can be done to increase hope.

3.7. Data analysis

SPSS 24.0 statistical program was used for the data evaluation, and the significance level was accepted as $p < 0.05$. In our study, the results of Shapiro-Wilk and Kolmogorov-Smirnov tests, Skewness and Kurtosis values, P-P graph, Q-Q Plots were used in order to determine the normal distribution of the data while performing statistical analyzes. In the assessment of data, which were determined to be normally distributed as a result of the analysis, percentage distribution, arithmetic mean, standard deviation, and chi-square test were used to evaluate descriptive characteristics. While independent samples t-test was used in the comparisons of the scale mean scores in the experimental and control groups, paired samples t-test was used in the comparisons of the pre-test and post-test scale total mean scores in the experimental and control groups.

4. Results

4.1. Preliminary analyses

In the study, it was determined that there was no statistically significant difference between the groups in terms of control variables and the groups were homogeneous (Table 1, $p > 0.05$).

4.2. Hypotheses testing

Hypothesis 1. It was determined that there was a statistically significant difference between the psychological well-being scale pre-test and post-test mean scores of the women in the experimental and control groups ($p < 0.05$, Table 2).

Hypothesis 2. The difference between the women in the experimental and control groups in terms of dispositional hope scale pre-test and post-test total mean scores was statistically significant ($p < 0.05$, Table 3).

5. Discussion

The results of the study conducted to determine the effect of PPT-based training on psychological well-being and hope level in women receiving infertility treatment were discussed in line with the literature. In the reviews, no study determining the effectiveness of positive psychotherapy based training interventions on women receiving infertility

Table 1. Distribution of the descriptive characteristics of the women in the experimental and control groups.

Descriptive Characteristics	Experimental Group (n = 42)		Control Group (n = 62)		Test and Significance
	S	%	S	%	
Educational background of the Women					
Literate	5	11.9	6	9.7	$\chi^2 = 0.358$
Primary school	18	42.9	25	40.3	p = 0.949
Secondary school	9	21.4	16	25.8	
Higher education	10	23.8	15	24.2	
Educational background of the Women's Spouse					
Literate	4	9.5	4	6.5	$\chi^2 = 2.343$
Primary school	12	28.6	23	37.1	p = 0.673
Secondary school	12	28.6	21	33.9	
Higher education	14	33.3	14	22.5	
Marriage Type					
Unwillingly with Arranged Marriage	3	7.1	0	-	$\chi^2 = 5.305$
Willingly with Arranged Marriage	18	42.9	26	41.9	p = 0.151
Willingly/Lovingly	21	50.0	35	56.1	
Other	0	-	1	1.6	
Working Status of the Women					
Yes	13	31.0	28	45.1	$\chi^2 = 5.062$
No	29	69.0	34	54.8	p = 0.063
Working Status of the Women's Spouse					
Yes	37	88.1	48	77.4	$\chi^2 = 1.911$
No	5	11.9	14	22.6	p = 0.167
Income Level					
Income is less than expenses	18	42.9	35	56.4	$\chi^2 = 8.482$
Income is equal to expenses	20	47.6	22	35.4	p = 0.054
Income is more than expenses	4	9.5	5	8.1	
Infertility Type					
Primary Infertility	22	52.4	33	53.2	$\chi^2 = 0.007$
Secondary Infertility	20	47.6	29	46.8	p = 0.933
Duration of Infertility Diagnosis					
Less than 1 Year	17	40.5	30	48.4	$\chi^2 = 8.074$
1-4 Years	13	31.0	26	41.9	p = 0.089
5-9 Years	8	19.0	5	8.1	
10 Years and more	4	9.5	1	1.6	
Previous Infertility Treatment Status					
Yes	18	42.9	20	32.3	$\chi^2 = 1.213$
No	24	57.1	42	67.7	p = 0.304
Age					
			X\pmSD		
Age of the Woman	30.71 \pm 6.60		28.69 \pm 5.56		t=-1.683
					p = 0.095
Age of the Woman's Spouse	33.73 \pm 6.82		32.59 \pm 5.44		t=-0.946
					p = 0.347
Duration of Marriage	7.66 \pm 6.05		5.64 \pm 3.90		t=-1.910
					p = 0.061

treatment was found. In this respect, the study results have the characteristics of being the first in the literature. The results were tried to be discussed with the closest literature.

The difference between the post-test psychological well-being total mean scores of the women in the experimental and control groups was found to be statistically significant after the PPT- based training ($p < 0.05$). The post-test psychological well-being total mean score of the women in the experimental group increased compared to the total mean score of the women in the control group. It was demonstrated that positive psychology interventions are effective in increasing subjective well-being and psychological well-

Table 2. Comparison of the pre-test and post-test psychological well-being scale mean scores of the women in the experimental and control groups (n = 104).

Psychological Well-being Scale			
Groups	Pretest (X±S.D.)	Posttest (X±S.D.)	*Test and Significance
Experimental Group (n=42)	40.23±5.88	49.35±4.76	t=-7.480 p=0.000
Control Group (n=62)	42.56±5.62	40.38±6.06	t=8.983 p=0.000
**Test and Significance	t=0.231 p=0.145	t=-6.309 p=0.001	

*Paired samples t test, **Independent samples t test, p<0.05 was significant.

Table 3. Comparison of the pre-test and post-test dispositional hope scale mean scores of the women in the experimental and control groups (n = 104).

Dispositional Hope Scale			
Groups	Pretest (X±S.D.)	Posttest (X±S.D.)	*Test and Significance
Experimental Group (n = 42)	48.35 ± 6.54	55.28 ± 5.05	t=-7.777 p = 0.001
Control Group (n = 62)	51.11 ± 7.50	46.16 ± 7.48	t = 9.917 p = 0.001
**Test and Significance	t = 1.932 p = 0.056	t=-6.902 p = 0.001	

*Paired samples t test, **Independent samples t test, p < 0.05 was significant.

being and in decreasing the depressive symptoms (Bolier et al., 2013; Schueller & Parks, 2012 Martínez-Martí et al., & World Health Organization, 2010). In their study conducted with Iranian infertile women, Keshavarz-Mohammadi, et al., stated that ten-session positive psychotherapy application was effective on mental endurance, self-compassion and resistance in infertile women (Keshavarz-Mohammadi et al., 2018). Fard et al. and Afshani et al., stated that self-compassion training was effective on the psychological well-being of infertile women (Ashrafiyan et al., 2019; Fard et al., 2018). The results of the present study are in parallel with the literature.

In PPT-based training applied to women, it was tried to increase the women’s awareness about body and mind capacity to cope with stress through stories and homework, and to provide support for developing positive thinking styles and using effective communication techniques. It is believed that women who try to integrate what they have learned in PPT-based training into their lives may feel the courage and confidence to take more responsibility for maintaining balance in their lives by realising their strengths and achievements. All these reasons may have been effective in increasing the psychological well-being of women in the experimental group. As the reason for the decrease in the mean scores of psychological well-being of the women in the control group in the post-test compared to the pre-test, it is thought that factors such as the stress experienced by women during the treatment and the inability to cope with this stress, the helplessness they may experience due to the cultural structure of the region, the stigmatisation, loneliness and the risk of deterioration of marital integrity might have an effect.

The increase in the psychological well-being total mean score of the women in the experimental group after the training confirms the hypothesis that ‘PPT-based training

Table 4. Content of PPT-based training program sessions.

Sessions	Content	Homework	Training Material
1 st Session	-Meeting women -Introducing the content of training program -Training days and hours were determined		
2 nd Session	-What is infertility?(its causes, diagnosis and treatment) - What are the mental, social, economic and public aspects of infertility?		-Power point presentation -PPT-based training Booklet
3 rd Session	-What are the concepts of emotion, thought and behavior? - Example story about awareness was told. -Mindful breathing practice is taught.	-Mindful breathing practice	-Power point presentation - PPT-based training Booklet -Video display
4 th Session	- How to achieve a healthy life and success? -It is ensured that women can see their strengths through their own life stories.	- Write three positive things in their daily life	-Power point presentation - PPT-based training Booklet
5 th Session	-What is stress? -What are the symptoms of stress? -What are the methods of coping with stress? - Example stories about coping with stress were told to women.	- Use the methods of coping with stress. - Relaxation exercises	-Power point presentation - PPT-based training Booklet
6 th Session	-What is communication? -What are effective communication techniques? -What is the problem? What are problem-solving skills?	- Use the effective communication techniques they learned in daily life.	-Power point presentation - PPT-based training Booklet -Video display
7 th Session	-What is hope and hopelessness? - What can be done to increase hope - Example stories about hope were told to women.		-Power point presentation - PPT-based training Booklet
8 th Session	- What to do for a healthy and balanced life -Women were asked to prepare and write a their future plans -Program evaluation. -Receiving feedback		

applied to the women receiving infertility treatment increases the psychological well-being' among the research hypotheses. In line with the study results, it can be asserted that PPT-based training was an effective psychosocial intervention in increasing psychological well-being in infertile women. In this context, it can be concluded that it is important to place PPT-based training applications among the routine practices of infertility treatment.

The difference between the post-test dispositional hope scale, subscale and total mean scores of the women in the experimental and control groups after PPT-based training was determined to be statistically significant ($p < 0.05$). The post-test dispositional hope scale, subscale and total mean scores of the women in the experimental group increased compared to the subscale and total mean scores of the women in the control group. In the reviews, no study comparing PPT-based training with hope level in infertile women was found. However, it is stated that various psychosocial interventions are effective in

providing hope and psychosocial well-being (Ashrafiyan et al., 2019; Ebrahimi et al., 2019; Hasanzadeh et al., 2019; Seyedi-Asl et al., 2016). In a study where hope therapy, one of the positive psychotherapy interventions, was used, it was concluded that the hope therapy is effective in enhancing the quality of life of infertile women and helping them adapt to their problems (Mosalanjad et al., 2013). In a study conducted by Chan et al., to evaluate the effectiveness of a 14-day self-help training containing positive thinking, relaxation exercises and problem solving methods, they found that the hope levels and mental health of infertile women were protected with the training (Chan et al., 2019). In their study, Yorulmaz-Göcek & Sütçü-Tekinsav stated that cognitive behavioural group therapies helped to reduce psychological problems such as stress, depression and anxiety experienced in infertility, to develop positive coping methods, and to increase optimism and strength (Yorulmaz-Göcek & Sütçü-Tekinsav, 2015). The results of the present study are compatible with the literature.

In PPT-based training applied to women, mindful breathing exercise was taught to the women and it was ensured to improve their awareness by having them to do body-mind exercises through homework. In addition, in PPT-based training, the hope level was tried to be increased by telling stories about hope, and effective communication methods and problem solving steps were taught to the women. Through the homework assigned to women to express themselves better, it was tried to reduce the communication accidents especially with their spouses and relatives, and to solve the problems with their family members using problem-solving techniques, and to develop positive perspective in the flow of life. This may have helped women to focus on their own abilities, and to adopt a positive way of thinking, and to increase their mental resilience and to improve their problem-solving and coping capacities. It is thought that the hope level may have increased for these reasons.

The increase in the dispositional hope total mean score of the women in the experimental group after training confirms the hypothesis that 'PPT-based training applied to women receiving infertility treatment increases the hope, which is stated among the study hypotheses. In line with the study results, it can be said that PPT-based training application is an effective psychosocial intervention in increasing hope in infertile women and PPT-based training applications should be among the routine practices in infertility treatment.

6. Conclusion and recommendations

As a result, in the present study, when compared to the control group, it was determined that the psychological well-being and hope levels of women in the experimental group increased after PPT-based training. In addition, it was concluded that the psychological well-being and hope levels of the women in the control group decreased in the post-test compared to the pre-test. It can be said that PPT-based training is an effective attempt to increase the level of psychological well-being and hope in infertile women.

Protecting and strengthening the mental health of infertile women may contribute to the success of infertility treatment. In line with these results, it can be recommended to apply positive psychotherapy based training programs during treatment to increase psychological well-being and hope in women receiving infertility treatment, and to provide positive psychotherapy training for the nurses working in

infertility field, and to use these training actively in nursing care. Conducting similar studies in larger sample groups and different geographical regions by using PPT-based training program in order to protect and improve mental health of infertile women can be recommended.

6.1. Limitations of the study

The training intervention of the research was performed by the researcher. Therefore, it was not possible to blind the researcher in the educational intervention. However, in order to reduce the risk of bias, the women included in the experimental and control groups were selected from two different hospitals. In this study, the researcher received positive psychotherapy training and has only the qualifications of the training she received. Expert's opinion was taken for PPT-based training booklet used in the research and no other validation process done. In addition, failure to conduct follow-up test due to the pandemic is the limitation of the study. The results obtained from this study represent merely the two hospitals where the research was conducted. Therefore, the results of the present study cannot be generalised to all hospitals in the country.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Informed consent

Written informed consent was obtained from all participants before the study. There is no ethical or conflict of interest in this research. All the participants filled out consent forms.

Ethical considerations of the study

In order to conduct the study, approval from University Scientific Research and Publication Ethics Committee (APPROV NO:) and legal permissions from the institutions where the study was conducted were obtained.

References

- Alireza-Afshani, S., Abooei, A., & Mohamad Abdoli, A. (2019). Self-compassion training and psychological well-being of infertile female. *International Journal of Reproductive Biomedicine*, 17(10), 757–762. <https://doi.org/10.18502/ijrm.v17i10.5300>
- Ashrafian, F., Sadeghi, M., & Rezaei, F. (2019). The effect of integrative of positive cognitive behavioral therapy on infertility stress and hope in infertile women. *Journal of Clinical Nursing and Midwifery*, 8(3), 436–445. <http://jcnm.skums.ac.ir/article-1-1101-en.html>

- Bolier, L., Haverman, M., Westerhof, G. J., Riper, H., Smit, F., & Bohlmeijer, E. (2013). Positive psychology interventions: A meta-analysis of randomized controlled studies. *BioMed Central Public Health, 13*, 119. <https://doi.org/10.1186/1471-2458-13-119>
- Çetişli, N. E., Topaloğlu-Ören, E. D., & Kaba, F. (2019). The marital adjustment and hopelessness in infertile couples. *Acibadem University Journal of Health Sciences, 10*(3), 422–426. ISSN: 1309-470X/1309-5994
- Chan, C. H. Y., Lau, B. H. P., Wong, Q. S., Tam, M. Y. J., So, G. Y. K., Leung, H. T., Fung, Y. L., Chan, C. L. W., Li, R., & Ng, E. H. Y. (2019). Comparing the effectiveness of I-BMS-informed self-help interventions in alleviating psychosocial distress for women awaiting the outcome of IVF treatment. *Asia Pacific Journal of Social Work and Development, 29*(3), 179–193. <https://doi.org/10.1080/02185385.2019.1578684>
- Çitil-Canbay, F., Çitil, E. T., Çitil-Şap, T. Ş., & Şap, O. (2022). Identifying experiences and hopelessness levels of women receiving infertility treatment: A mixed method study. *The American Journal of Family Therapy, 50*(2), 205–226. <https://doi.org/10.1080/01926187.2021.1905570>
- Diener, E., Wirtz, D., Biswas Diener, R., Tov, W., Kim-Prieto, C., Choi, D., & Oishi, S. (2009). New measures of well being. *Social Indicators Research, 39*, 247–266.
- D'Souza, V., Noronha, J. A., & Kamath, S. (2015). Psychosocial wellbeing and coping strategies of infertile women seeking infertility treatment. *Journal of Infertility and Reproductive Biology, 3*(2), 176–180.
- Ebrahimi, S., Fakhri, M., & Hasanzadeh, R. (2019). Effect of mindfulness-based cognitive therapy on hope, dysfunctional attitudes and meta-worry in infertile women. *Iranian Journal of Psychiatric Nursing, 7*(4), 32–40. <http://ijpn.ir/article-1-1412-en.html>
- Erdemoğlu, Ç., & Aksoy Derya, Y. (2022). The effect of hypnofertility on fertility preparedness stress and coping with stress in women having in vitro fertilization a randomized controlled trial. *Journal of Reproductive and Infant Psychology, 13*, 1–12. <https://doi.org/10.1080/02646838.2022.2156488>
- Fard, T. R., Kalantarkousheh, M., & Faramarzi, M. (2018). Effect of mindfulness-based cognitive infertility stress therapy on psychological well-being of women with infertility. *Middle East Fertility Society Journal, 23*(4), 476–481. <https://doi.org/10.1016/j.mefs.2018.06.001>
- Gaimero, S., Boivin, J., Dancet, E., Klerk, C., Emery, M., Jones, C. L., Thorn, P., Broeck, U. V., Venetis, C., Verhaak, C. M., Wischmann, T., & Vermeulen, N. (2015). ESHRE guideline: Routine psychosocial care in infertility and medically assisted reproduction—a guide for fertility staff. *Human Reproduction, 30*(11), 2476–2485. <https://doi.org/10.1093/humrep/dev177>
- Güleç, S. (2019). Positive Psychotherapy. In A. Okanlı (Ed.), *Positive Empowerment and Feeling Good* (pp. 43–48). Journal and Books. <https://www.turkiyeklinikleri.com/article/en-pozitif-psikoterapiler-85324.html>
- Gupta, R., Kaur, S., Bhagat, B. R., & Gupta, S. (2019). Epidemiology of infertility patients with abnormal semen parameters. *Indian Journal of Applied Research, 9*(7): 8–10–555X8–10–555X.
- Hasanzadeh, M., Akbari, B., & Abolghasemi, A. (2019). Efficiency of acceptance and commitment therapy on psychological well-being and sexual function in women with infertility history. *Avicenna Journal of Nursing and Midwifery Car, 27*(4), 250–259. <https://doi.org/10.30699/ajnmc.27.4.250>
- Kazmi, S. F., Jadoon, A., & Rehman, A. (2016). Impact of infertility duration on mental health of infertile women. *Journal of the Society of Obstetricians and Gynaecologists of Pakistan, 6*(2), 83–88.
- Keshavarz-Mohammadi, R., Agha-Bozorgi, S., Shariat, S., & Hamidi, M. (2018). The effectiveness of positive psychotherapy on mental endurance, self-compassion and resilience of infertile women. *SBRH, 2*(2), 235–244. <https://doi.org/10.18502/sbrh.v2i2.285>
- Kırca, N., & Pasinoğlu, T. (2013). Psychosocial problems during infertility treatment. *Current Approaches in Psychiatry, 5*(2), 162–178. <https://doi.org/10.5455/cap.20130511>
- Klemetti, R., Raitanen, J., Sihvo, S., Saarni, S., & Koponen, P. (2010). Infertility, mental disorders and well-being – a nationwide survey. *Acta Obstetrica Et Gynecologica Scandinavica, 89*(5), 677–682. <https://doi.org/10.3109/00016341003623746>
- Koçak, D. Y., & Büyükkayacı-Duman, N. (2016). Psychological effects of infertility and nursing approach. *Turkiye Klinikleri Journal Obstetric Womens Health Dis Nursing-Special Topics, 2*(3),

- 7–13. <https://www.turkiyeklinikleri.com/article/en-infertilitenin-psikolojik-etkileri-ve-hemsirelik-yaklasimi-77116.html>
- Mete, S., Fata, S., & Tokat-Aluş, M. (2020). Feelings, opinions and experiences of Turkish women with infertility: A qualitative study. *Health Informatics Journal*, 26(1), 528–538. <https://doi.org/10.1177/1460458219839628>
- Mosalanejad, L., Abdolahifard, K., & Jahromi, M. G. (2013). Therapeutic vaccines: Hope therapy and its effects on psychiatric symptoms among infertile women. *Global Journal of Health Science*, 6(1), 192–200. <https://doi.org/10.5539/gjhs.v6n1p192>
- Öztekın, Ü., Canıkliođlu, M., Sarı, S., Selmi, V., Gürel, A., & Işıkay, L. (2019). Evaluation of male infertility prevalence with clinical outcomes in middle Anatolian region. *Cureus*, 11(7), 2–7. <https://doi.org/10.7759/cureus.5122>
- Schueller, S., & Parks, A. C. (2012). Disseminating self-help: Positive psychology exercises in an online trial. *Journal of Medical Internet Research*, 4(3), 63–70. <https://doi.org/10.2196/jmir.1850>
- Schweiger, U., Schweiger-Ursula, J., & Schweiger, J. I. (2018). Mental disorders and female infertility. *Archives of Psychology*, 2(6), 1–14. <https://doi.org/10.31296/aop.v2i6.73>
- Seyedi-Asl, S. T., Sadeghi, K., Bakhtiari, M., Ahmadi, S. M., Nazari-Anamagh, A., & Khayatan, T. (2016). Effect of group positive psychotherapy on improvement of life satisfaction and the quality of life in infertile woman. *International Journal of Fertility and Sterility*, 10(1), 105–112. <https://doi.org/10.22074/ijfs.2016.4775>
- Tarhan, S., & Bacanlı, H. (2015). Adaptation of dispositional hope scale into Turkish: Validity and reliability study. *The Journal of Happiness & Well-Being*, 3(1), 1–14. https://toad.halileksi.net/sites/default/files/pdf/surekli-umut-olcegi-toad_0.pdf
- Telef, B. B. (2013). The adaptation of psychological well-being into Turkish: A validity and reliability study [in Turkish]. *Hacettepe University Journal of Education*, 28(3), 374–384. <https://dergipark.org.tr/tr/download/article-file/87222>
- World Health Organization. (2010). Mother or nothing the agony of infertility. *Bulletin of the World Health Organization*, 88(12), 877–953. <https://doi.org/10.2471/BLT.10.011210>
- Yağmur, Y., & Oltuluođlu, H. (2012). Social support and hopelessness in women undergoing infertility treatment in Eastern Turkey. *Public Health Nursing*, 29(2), 99–104. <https://doi.org/10.1111/j.1525-1446.2011.00976.x>
- Yassa, M., Arslan, E., & Gülbahar, D. (2019). Effects of infertility treatment on anxiety and depression levels. *Cukurova Medical Journal*, 44(2), 410–441. <https://doi.org/10.17826/cumj.456723>
- Yılmaz, T., Yazıcı, S., & Benli, T. (2020). Factors associated with infertility distress of infertile women: A cross-sectional study. *Journal of Psychosomatic Obstetrics and Gynaecology*, 41(4), 275–281. <https://doi.org/10.1080/0167482X.2019.1708318>
- Yorulmaz-Göcek, E., & Sütçü-Tekinsav, S. (2015). Effectiveness of cognitive behavioral group therapy in infertility: A systematic review. *Current Approaches in Psychiatry*, 8(1), 144–156. <https://doi.org/10.18863/pgy.24953>
- Zeren, F., & Gürsoy, E. (2019). The importance of dyadic adjustment and quality of life in infertile couples. *HEAD*, 16(1), 68–72. <https://doi.org/10.5222/HEAD.2019.068>