

Original research

Comparison of the effectiveness processing emotion regulation strategies training and logo therapy on psychosomatic symptoms in women with infertilityHajar Aghaei,¹ Marziyeh ALivandi Vafa*,² Laya farzadi³, Alinaghi Aghdasi⁴**Abstract**

Introduction: Psychosomatic symptoms in the infertility community are one of the most challenging areas in the world of psychology and medicine. The aim of the present study was to compare the training of emotion process self-regulation strategies and semantic therapy on psychosomatic symptoms of women with infertility.

Research method: In terms of methodology, it was a quasi-experimental design with a pre-test and post-test design with a control group. The statistical population of this study was all women with infertility who referred to Dena and Zeinbiyeh hospitals in Shiraz in the summer of 1403. For sampling, a purposive non-random sampling method was used. The sample size was 45 people who, after selection, were randomly placed in two experimental groups and a control group (15 people in each group). The experimental group received two interventions separately during 8 90-minute sessions; but the control group did not receive any training. The research tools were the psychosomatic symptoms questionnaire, the intervention of emotion process self-regulation strategies training, semantic therapy. Data analysis was performed using multivariate analysis of covariance using SPSS version 24.

Findings: The findings showed that there was a significant difference between training in emotion process self-regulation strategies and meaning therapy on psychosomatic symptoms of women with infertility compared to the control group.

Conclusion: Based on the results obtained, both interventions were equally effective on psychosomatic symptoms of infertile women. Overall, it can be concluded that both interventions have the power to be effective on psychosomatic symptoms in infertile women. ($p < 0.01$).

Keywords: infertility, logo therapy, Processing Emotion Regulation Strategies Training, psychosomatic symptoms, infertility

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Introduction:

Having a child is one of the concerns of families who has become an important, they consider it as a result of their living while some families consider having children as a factor of continuation of their lives, and they attend its lack to be a basis of serious concerns (1). For example, Bagad et al, found out that there is a relationship between infertility and psychological distress in women with infertility even after infertility is resolved, which indicates the long-term consequences of infertility on mental health (2) experiencing infertility is one of the most difficult problems that many couples encounter and it will be as their traumatic phenomenon and stress, and its intensity varies based on the type of ethnic culture and individual beliefs (3). This occurs when there is usually no result after twelve months of regular sexual intercourse and the use of contraceptives. This definition has been expressed by the World Health Organization (4) about 20% of couples are involved Infertility. Also, according to the reports of World Health Organization, one in four couples in developing countries has infertility problems, and some reports show that between 12-20% of couples are infertile, 40% of them are women, 40% are men, and 20% to both sexes (5).

The relationship between the body and mind has been a subject of discussion for a long time, and today, experts consider humans as a psychological, social, and physical beings, and have considered these three dimensions in the field of human cognition, and have acknowledged that these three dimensions are interrelated (6) they believed psychosomatic disorders are between the mind and body, and accordingly, the brain sends messages through unknown channels that affect the level of human consciousness and cause a serious disease that disrupts the structure of the body (7) understanding the quality of life is the main criterion for complementary therapies, therapeutic methods strengthen their role in improving the living conditions of the individual in two dimensions: physical symptoms (fatigue, pain, loss of appetite) and emotional symptoms (depression and anxiety) (8). There are also unknown psychological mechanisms occur in the biochemical and immune systems and lead to disease (9). Furthermore, DSM experts insist on this point that if stressors and psychological factors are identified that cause or exacerbate the symptoms of the disease, there are initial conditions of diagnosing a psychosomatic disorder. This group of disorders offers the existence of a meaningful, organic, and reciprocal relationship between the mental and physical aspects of human existence. According to cross-sectional studies, the incidence of mental disorder in the Middle East is much higher than in the world as a whole, and it is more common among women due to cultural barriers and other restrictions, which is one of the most common psychosomatic disorders (10).

Various researches have shown that gender differences in emotion regulation, attachment styles, and defense mechanisms influence the occurrence of psychosomatic symptoms, and when the level of distress is low, women are more neurotic and exhibit more psychosomatic symptoms than men with low levels of distress (11). Today, comparing to the past, psychosomatic symptoms have become a major concern, accounting for a large proportion of problems, and even seriously affect on mental health and life quality (12; 13). These disorders involve the human body and mind and cause changes in the body and pathology of the individual that are due to mental and emotional causes (14). In these diseases, a simple equation is: psychological stress of environmental factors + previous biological and genetic predisposition (weakness or damage to organs) = psychosomatic disorders. In this

disease, there is an important mediator factor which is psychological stress and is between the individual's organism and stressors, and it arises based on the individual's abilities and difficult circumstances, various physical problems. These difficult and stressful factors include work and academic pressures, life events, role conflicts, social deprivation and inequalities, prompting racial, ethnic and gender discrimination, economic hardship, and low living standards (15). Recent studies indicate women with infertility have many psychosomatic symptoms such as body pain, dizziness, and difficulty in digesting food due to stress (16) while infertility makes people susceptible to depression and psychological symptoms, the appearance of impulsive behaviors and negative beliefs about their own bodies, physical complaints, and problems of marital relationships have also been considered as physical symptoms of these women (17). Sexual disorders can be considered as chronic complications of infertility. The high prevalence of these disorders affects sexual function, which causes couples' dissatisfaction (18). Also, sexual dissatisfaction makes instability in the couple's relationship, infidelity, and increases the likelihood of divorce (19).

Regarding infertility, there are different psychological interventions that have been interned the infertility medicine field for many years; although the intervention consistency in this regard is still questionable, but the main goal of many psychological interventions for women with infertility is to increase their ability to cope with anxiety and distress, to tolerate pain, and therapeutic methods in order to help the patient control those conditions (20). For example, a mindfulness-based stress reduction program on women with infertility shows that this item improves sexual anxiety and depression, as well as their sexual satisfaction (21). Some experts believe that one of the reasons of infertility is the lack of control over negative emotions and the lack of mastery over undesirable psychological emotions and emotional regulation, which can play an important role in difficult and stressful events such as infertility. This is related to thoughts and cognitions in human life and helps them overcome their emotions during and after difficult and stressful experiences (22). Emotion regulation is a way in which human control their emotional experience and perspective on it in critical and distressing situations, using strategies such as acceptance, suppression, or cognitive reappraisal in order to change the experience and intensity of emotional expression (23). According to Gross, this model has five stages: initiation, location, attention, evaluation, and response. This model has several components, they involve: a) internal dimensions of understanding and identifying one's emotions and appropriate adjustment and communication with them; b) social components of understanding and identifying the emotional state of individuals; and c) behavioral components of responding appropriately in interpersonal situations (24). In essence, the logic of this view is that one of the concerns and problems of humans of life is inability to control emotions and to respond them appropriately and to regulate emotions in the form of coping methods and coping with stressful situations and difficult life events (25). On the other hand, positive and negative emotion regulation has an impact on adaptation to infertility and distress in infertile women (26). Women tend to experience more severe emotional distress, while men are under greater pressure to suppress their emotions, which can lead to relationship stress (27). In fact, emotion regulation can play an important role in initiating, increasing, decreasing, or maintaining positive and negative emotions (28), as it can influence physiological, experiential, and behavioral outcomes (29). Successful emotion regulation

has positive outcomes such as improving social competence and it is a key factor in well-being (30); an issue that has been supported by numerous studies in other medical fields (31; 32; 11; 33).

In addition, researches have revealed infertility, due to its reproductive and creative dimensions, is related to the meaning dimension of women; so that experts have emphasized the use of meaning-based interventions in recent years. Meaning is an important and prior matter, and it must attend to the source of life in order to examine the life meaning (logo). Also, the psychological view of the issue of life meaning (logo) is a kind of reduction of meaning (logo) of the general to the specific, and the philosophical view to it provides the basis for preventing general nihilism in life (34) logo therapy, as a therapeutic method, is a kind of stimulus for human life and in this way, people have convincing reasons for living. Since this therapeutic method improves the mental state, it makes people to show more positive and accurate reactions in sensitive and unpleasant life situations (35). Based on the studies, logo therapy reduces mental disorders such as physical problems, depression, anxiety, and problems in interpersonal relationships (36). logo therapy is used to overcome human problems in attempting to understand the meaning, values, freedom, commitment, decisions and goals of life beyond suffering and discomfort (37) and in any situation, life always has meaning (logo) and looks at the individual holistically, such as human freedom in the field of desires in life biologically, psychologically and socially (38) logo therapy can also increase people's tolerance and metacognitive beliefs and reduce their concerns about their body image, so using this type of treatment can decrease the level of depression of these women (39). logo therapy is one of the most practical and popular approaches that has its roots in existentialist theories and its view of humans is that they have a unique ability to go beyond their surroundings, have a sense of freedom and the ability to choose; although its widespread use requires extensive studies (40) logo therapy is one of the treatment methods that can help clients when having an illness show their feelings. This expression of emotions allows the person to think clearly and achieve calm. A setting in which emotions are controlled and promote clear thinking enables individuals to make decisions in dealing with problems and accept their current circumstances. The ability to reflect on past experiences to make sense of life in the present and the ability to share experiences with others who have suffered the same suffering are important aspects of successful logo therapy (41).

In general, based on the fact that the infertility community is one of the important communities in the field of psychology and medicine, and the experts emphasize the study of multiple factors in the experience of psychosomatic symptoms in this group; the present study attempts to directly compare the effectiveness of training in emotion process self-regulation strategies and logo therapy on the psychosomatic symptoms of women with infertility. It is hoped that the results of the present study, fill the research gap and consider as a practical step towards improving the psychological level of patients with infertility.

Research method:

The current study is a semi-experimental intervention study (pre-test-post-test design with control group). The statistical population of the study included all women with infertility who referred to Dena and Zeinbiyeh hospitals in Shiraz in summer 2024. The statistical sample of the research consists of 45 people who were selected by available sampling method; the

sample size was 45 participants who were randomly assigned to two experimental and one control groups (15 people in each group). (n=45) (42). The criteria that were selected to enter the study include: 1) having a medical record of infertility by the attending physician, 2) having diploma degree, 3) aging between 20 and 40 years, 4) consent to participate in the sessions, 5) psychiatric health (lacking a psychiatric medications). Exclusion criteria were: 1) failure to obey the rules of attending sessions, 2) lacking a complete or incomplete questionnaires, 3) more than two sessions absence, 4) diagnosis of other diseases during sessions, and 5) simultaneous participation in other psychological interventions.

It should be noted that after receiving the necessary permits and doing the sampling process, psychosomatic symptom questionnaire was administered and then assigned to two experimental groups and a control group (15 people in each group). The experimental group received Processing Emotion Regulation Strategies Training (based on the Gross model validated by Ghaedi Jahromi et al.) (43) And Frankl's logo therapy (during 8 sessions of 90 minutes) (44); however, those in the control group did not receive any intervention during the study. Then, a post-test was administered. In order to follow research ethics and obtain informed consent from women with infertility to participate in the study, participants were explained that the trial is a research process and participation in it is purely voluntary. If they do not want to participate in the study, this will not affect the care of the sample, rights, or health of the subject, and all of their data in the questionnaires and their participation in the therapeutic intervention process will be kept confidential. In order to collect data, a questionnaire was used.

Mohr Psychosomatic Symptoms Questionnaire in Nonclinical Environments (45): Mohr's Psychosomatic Symptoms Questionnaire is a self-report nonclinical questionnaire that measures the severity of psychosomatic symptoms experienced by an individual (45). This questionnaire was first translated by Babamiri et al. and has 20 items which were based on a 5-point Likert scale from "never" to "almost every day." He has stated the internal reliability of this questionnaire in different studies and with different samples ranges from 0.7 to 0.93. Also, he expressed that the reliability of the questionnaire was 92% using the Cronbach alpha coefficient method and Spearman-Brown split-half method was 87%, which is quite satisfactory (46). In the study of Demiri et al., the reliability of the questionnaire was obtained as 94% and 89% using Cronbach's alpha and split-half methods, respectively. In the present study, the reliability of this questionnaire was obtained using Cronbach's alpha and classification methods, respectively, 92% and 85%. Regarding validity, Moher has confirmed the convergent validity and divergent validity of this questionnaire (47). In the Babamiri et al. study, a general question was used to determine the validity of this questionnaire, and the coefficient was 41% (46). In addition, the validity of psychosomatic symptoms in a non-clinical environment was also examined and confirmed using the confirmatory factor analysis method. In the Damiri et al. study, a confirmatory factor analysis was used to examine the validity of this questionnaire, and the indices obtained of the confirmatory factor analysis model in this scale were close to the fit indices, indicating that the confirmatory factor analysis model has an acceptable fit (47).

To provide interventions in this study, two intervention packages were used: processing emotion regulation strategies training and logo therapy intervention. The logo therapy intervention training package, which was originally designed by Frankl and it administered during 8 sessions of 90 minutes, (44).

Table 1: Logo therapy training

Logo therapy protocol		
sessions	Brief description of the sessions	Session assignments
1	Introduction of the counselor and members, to create solidarity. Determining the goals and rules of the group. Explaining the history of logo therapy and a brief explanation of Dr. Frankl's biography.	Thinking about the topics covered in the meeting
2	Definition and expression of logo therapy and the necessity of meaning or logo in life. Explanation of the main concepts of logo therapy: existential emptiness, will freedom, will focused on meaning (logo), and the meaning of life.	Finding meaning or logo for your life
3	Awareness of responsibility and its role in achieving success training how to give meaning to life and accept responsibility in critical and frustrating situations.	Accepting responsibility is one of your life's failures
4	Defining the meaning of belief and self-acceptance, recognizing one's own characteristics. Paying attention to spiritual freedom. Expressing the fact that man is not dominated by his circumstances and has the right to choose.	Making a list of your inner qualities and abilities
5	Recognizing the sources of meaning: creative, experiential, and dispositional values in life training how to repair and reconstruct thoughts to get rid of empty and worthless feelings.	Attitude change techniques to get rid of feelings of worthlessness
6	The need to connect with others and find the meaning of love. Talking about the different aspects of love. Paying attention to the human dimension of love and preserving its human aspects.	Providing new ideas to increase love in life
7	Exploring the meaning of suffering. Noting to the main motivation and purpose of life is not the escape from pain and pleasure.	Finding meaning (logo) in the pain and suffering from diabetes

	Rather, it is the searching meaning (logo) gives life real meaning (logo).	
8	Summary and conclusion of pre-test sessions and post-test implementation	Recording meetings memories

Processing emotion regulation strategies training: The training package for process-based self-regulation strategies was developed using the Gross model. The content of the training sessions on processing emotion regulation strategies training, which is based on the Gross model, was validated by Ghaedi Jahromi et al. (43).

sessions	stages	Session contents
1	introduction	Introducing and familiarity with the group members; stating the goals and rules; stating the logic and stages of training; the necessity of emotion regulation; why should we learn this skill? Introducing working memory and cognitive control as two mental abilities and explaining the results of various research on the effects of positive and negative emotions on them. What are the correct views on emotions? A review of primary and secondary emotions.
2	Selecting a condition	Providing emotional education: 1) Normal and problematic emotion. 2) Emotional self-awareness: (emotion education and introduction; identification, naming and labeling of emotions; differentiation between different emotions; identification of emotion in physical and psychological states; factors for success in emotion regulation.) Along with providing examples of emotional states are related to learning and education and describing and analyzing emotional situations introduced by students.
3	Selecting a condition	Assessing the level of vulnerability and emotional skills of members: 1) Self-assessment with the aim of recognizing one's own emotional experiences, 2) Self-assessment with the aim of identifying the level of emotional vulnerability in the individual or focusing on the level of vulnerability of working memory and cognitive control based on the components presented in the forms we provided to the students, 3) Self-assessment with the aim of identifying the individual's regulatory strategies.
4	Selecting a condition	Reviewing and continuing of the previous session's topics: 4) Cognitive consequences of emotional reactions, 5) Physiological consequences of emotional reactions, 6) Behavioral consequences of emotional reactions and the relationship between these three items, 7) Introducing the

		angry and its effects on the components of working memory and cognitive control, and ways to overcome anger.
5	Condition principle	Changing in the situation that provokes emotion: 1) Preventing social isolation and avoidance, 2) training problem-solving strategies, 3) training interpersonal skills (dialogue, assertiveness, and conflict resolution).
6	Extending attention	Changing Attention: 1) Stopping rumination and worrying by focusing on reducing attentional biases, 2) Attention Training
7	Cognitive assessment	Changing cognitive appraisals: 1) Identifying false appraisals and their effects on emotional states with a focus on reducing memory and interpretation biases, 2) training reappraisal strategies
8	Response modulation	Changing the behavioral and physiological consequences of emotion: 1) Identifying the extent and method of using the containment strategy and examining its emotional consequences, 2) Exposure, 3) Training in expressing emotion.
9	Response modulation	Reviewing and continuing the topics of the previous session: 1) Behavior modification through changing environmental reinforces 2) Emotional release, relaxation, and reversal training.
10	Assessment and Application	Re-evaluation and removing barriers to application: 1) Assessing the extent to which goals have been achieved, 2) Applying learned skills in natural environments outside of the session, 3) Examining and removing barriers to completing the task.

Findings:

Table 3 provide information on the group membership of the sample. As shown, 15 participants were in the control group, 15 in the processing emotion regulation strategies training group, and 15 in the logo therapy group.

Table3: frequency of aging

control			processing regulation training		emotion strategies Logo therapy	
age	frequency	percent	frequency	percent	frequency	percent
20-25	2	13/3	2	13/3	1	6/7
26-30	4	26/7	4	26/7	7	46/7
31-35	6	40	4	26/7	3	20

36-40	3	20	5	33/3	4	26/7
total	15	100	15	100	15	100

The table above shows the age of the sample separately for the control group and experimental group. Table 4 has revealed the data of psychosomatic symptoms, processing emotion regulation strategies training and logo therapy during the intervention stages.

Table4: statistical description of psychosomatic symptoms scores at three measuring stages based on group

variable	group	stage	mean	SD
Psychosomatic symptoms	control	pretest	66.33	4.337
		posttest	65.60	3.641
	processing emotion regulation strategies training	pretest	65.33	6.726
		posttest	52.80	6.167
	Logo therapy	pretest	65.27	6.285
		posttest	56.60	4.997

Accordingly, the mean scores in the control group in the pre-test did not show more changes than the post-test stages; but, in the experimental groups, lowering scores in the post-test than the pre-test is visible.

In order to compare the effectiveness of the intervention based on processing emotion regulation strategies training and logo therapy on psychosomatic symptoms of women with infertility, a multivariate analysis of covariance test was used. The results of implementing this test and examining its assumptions are presented below.

Table5: Levine's test of homogeneity of variances

variable	F	Freedom degree1	Freedom degree2	Freedom degree3
Pretest of psychosomatic symptoms	1.158	3	56	0.334
Posttest of psychosomatic symptoms	1.943	3	56	0.133

The findings of table 5 shows that the results of the Levine's test are not significant. Hence, the null hypothesis of variance homogeneity of the variables is accepted.

Table6: the result of Kolmogorov-Smirnov test of the normality of the distribution of scores

variable	pretest		posttest	
	Kolmogorov-Smirnov z	Significance Level	Kolmogorov-Smirnov z	Significance Level
psychosomatic symptoms	0/114	0/391	0/078	0/833

Based on table 6, the results of the Kolmogorov-Smirnov test are presented to examine the normality of the distribution of pre-test and post-test scores. According to the results of the table, the statistical significance level calculated for all variables is higher than 0.05, therefore, the normality assumption of the distribution of scores is accepted.

Table 7: the results of Split Plot ANOVA to compare psychosomatic symptoms in control and experimental groups

source			Sum of square	Freedom degree	Mean of square	F	Significance level	Effect size
repetition	psychosomatic symptoms	Greenhouse – Geisser	2799.753	1.252	2235.855	126.095	0.001	0.692
		Huynh – Feldt	2799.753	1.336	2095.928	126.095	0.001	0.692
		inf	2799.753	1	2799.753	126.095	0.001	0.692
Group repetition	psychosomatic symptoms	Greenhouse – Geisser	931.014	3.757	247.833	13.977	0.001	0.428
		Huynh – Feldt	931.014	4.007	232.323	13.977	0.001	0.428
		inf	931.014	3	310.338	13.977	0.001	0.428
		Greenhouse – Geisser	1243.400	70.124	17.732			
		Huynh – Feldt	1243.400	74.805	16.622			
		inf	1243.400	56	22.204			

Table 7 shows the results of the univariate intra-subject effects test to compare the variables of psychosomatic symptoms (control group), processing emotion regulation strategies training, and logo therapy. According to the results of the table, the F values are related to the interaction effects

between groups and repetition (i.e., differences between groups during the measurement stages) are significant for all three variables at the alpha level of 0.01 ($p < 0.01$). The significance of the interaction effects indicates the difference between the process of the score changes of psychosomatic symptoms in the control group, processing emotion regulation strategies training, and logo therapy during the measurement stages. Also, in order to compare the pairwise mean scores during the measurement stages, the Bonferroni post hoc test was used, the results of which are presented below.

Table8: Bonferroni post hoc test of intragroup difference

group	Dependent variable	stage	stage	Mean difference	Standard error	Significance level
control	psychosomatic symptoms	pretest	posttest	0.733	1.322	1
processing emotion regulation strategies training	psychosomatic symptoms	Pretest	Posttest	12.533	1.322	0.001
Logo therapy	psychosomatic symptoms	pretest	posttest	8.667	1.322	0.001

In this table, paired comparisons are presented to examine the difference between the psychosomatic symptoms scores during the treatment stages, the control group, processing emotion regulation strategies training and logo therapy. Based on the results obtained in the intervention groups of training in processing emotion regulation strategies training and logo therapy, the difference between the mean scores of the pre-test and post-test is significant ($p < 0.05$).

Table9: the results of Split Plot ANOVA to compare the mean of group's psychosomatic symptom scores

Source of changes	variables	Sum square	of Freedom degree	Mean of square	F	Significance level
group	psychosomatic symptoms	2648.115	3	882.705	9.941	0.001
error	psychosomatic symptoms	4972.300	56	88.791		

Table 9 indicated the results of the inter-subjects' effects test to examine the mean scores of psychosomatic symptoms in the control group, processing emotion regulation strategies training, and logo therapy. Based on the results, the F values for all variables are significant ($P < 0.01$).

Table 10: Bonferroni post hoc test

Dependent variable	Group1	Group2	Mean difference	Standard error	Significance level
psychosomatic symptoms	control		10.011	1.987	0.001
		Processing emotion regulation strategies training	8.622	1.987	0.001
		Logo therapy	6.067	1.987	0.021
	processing emotion regulation strategies training	Logo therapy	-2.556	1.987	1

Table 10 indicated pairwise comparisons to examine the mean scores of psychosomatic symptoms in the control group, processing emotion regulation strategies training, and logo therapy. Based on the results, the mean scores of psychosomatic symptoms are significantly lower than those in the control group ($p < 0.05$), which indicates the effectiveness of each treatment method to improve psychosomatic symptoms in women with infertility. There is also no significant difference among the mean scores of psychosomatic symptoms in the processing emotion regulation strategies training and logo therapy groups ($p < 0.05$), which shows the lack of difference between the effectiveness of these treatment methods to improve psychosomatic symptoms in women with infertility.

Discussion and Conclusion:

In the present study, the aim was to compare the effectiveness of processing emotion regulation strategies training and logo therapy on psychosomatic symptoms of women with infertility. The results showed that these two treatments effect on psychosomatic symptoms of women with infertility. The finding of the effectiveness of processing emotion regulation strategies training is consistent with the findings of (32), (11), (31), (48), (49), and (50). In theoretical explanation, Gross believes that recognizing the internal dimensions of understanding and identifying emotions and managing them along with social and behavioral components when responding appropriately in interpersonal situations, it can increase emotional health and improve response. In principle, based on this theory, the inability to control emotions and the lack of an appropriate response to them in difficult life can interrupt the individual's reactive psychological system and affect his psychological health (25). In the present study, processing emotion regulation strategies training was used in women with infertility because it empowered them in the dimensions of emotion, and because of this training, they recognized the accuracy of the dimensions of problems of their lives and in society. In this treatment, participants learned to improve their cognitions, feelings, and reactions to emotional states and to relationships with others. Also, recognizing emotions and helping to regulate them can manage the psychological symptoms of this disease. Labeling people for infertility carries a great psychological burden, and since some of them see themselves as infertile individuals who cannot have children like other people, they attempt in order to carry out the treatment process futile and ineffective. Processing emotion regulation strategies training helped these participants overcome obstacles and problems and target negative and undesirable emotions.

Another finding of the study showed that logo therapy had significant effect on psychosomatic symptoms of women with infertility, such that the mean scores of psychosomatic symptoms in the post-test of the experimental group were lower than those of the control group. The findings of this study are consistent with the results of (51), (52), (53), (54), and (55). In explaining the findings, it can be said that logo therapy focuses on specific issues such as will freedom, responsibility, the logo of life and suffers, and coping with problems, and is a simple type of therapy that focuses on finding the right logo of life. In fact, Frankl "considers logo therapy as an open system and a common approach which can be linked to other areas of psychotherapy." Attention and focus on the main issues and life problems can support patients in carrying out the treatment plan. When a person is encountered a situation and realizes that his life is meaningless, he must seek a specific meaning of logo, so that he can have motivation and enthusiasm to continue living, recognize his abilities, and walk within it. In the context of psychosomatic problems, the body and mind are affected in such a way that these people experience severe psychological stress compared to normal people, and any mechanism that is active in lowering the burden of pain and creates changes can reduce the pain and disability. From Freud's psychoanalytic perspective, psychosomatics is a defense mechanism and the body reacts to psychological threats.

Limitation:Based on the structure and orientation, the present study has some limitations. Its important limitations include the small sample size, non-random sampling method, single gender (women), geographical location of the research (Shiraz), and defined age range, which can be managed in future studies to improve the strength of the results. According to the findings, it is suggested that the results can be used in medical and infertility environment to improve the general conditions of infertile women or as an auxiliary intervention; because emotion management can increase the possibility of pregnancy with improving the quality of medical care and it can develop participants' calm with the affect the of emotion-cognition-behavior process. Also, these two therapeutic approaches are recommended during infertility treatments in order to maintain the effect of treatment in the long term establishing educational classes in both interventions recommended for infertility treatment centers. From a research perspective, it is also suggested that the present study apply in male groups and other communities and with a large number of participants.

References:

- 1) Sargolzari MR, Moharii F, Arshadi HR, Javidi K, Karimi Sh, Fayazi Bordbar MR. Psychosexual disorders and depression in infertile women referring to Mashhad Infertility Treatment Center. Quarterly Journal of Fertility and Infertility, 2001: 46-51. <https://www.jri.ir/article/66>
- 2) Bagade T, Thapaliya K, Breuer E, Kamath R, Li Z, Sullivan E.. Investigating the association between infertility and psychological distress using Australian Longitudinal Study on Women's Health (ALSWH). Sci Rep, 2022; 12(1):10808 doi: 10.1038/s41598-022-15064-2. PMID: 35752691; PMCID: PMC9233676.

- 3) Salma U, Sultana N, Rahman F, Farhin KK, Ishrat S. Sexual Dysfunction in Infertile Patients with Polycystic Ovarian Syndrome. *Fertility & Reproduction*. 2023; Jun 7:1-9. DOI:[10.1142/S2661318223500135](https://doi.org/10.1142/S2661318223500135)
- 4) El Osta R, Almont T, Diligent C, Hubert N, Eschwège P, Hubert J. Anabolic Steroids Abuse and Male Infertility. *Basic Clinical Andrology*, 2016; 26(1): 1-8 doi: 10.1186/s12610-016-0029-4. PMID: 26855782; PMCID: PMC4744441
- 5) Hsu I, Hsu L, Dorjee S, Hsu CC. Bacterial colonization at caesarean section defects in women of secondary infertility: an observational study. *BMC Pregnancy and Childbirth*, 2022; 22(1):1-1, <https://doi.org/10.1186/s12884-022-04471-y>
- 6) Shan-Ze Wang; Chao Yang; Hong-Fang Tian; Shi-Hao Du; Wen-Bin Fu; Ji-Ping Zhao. From the body-mind holism to psychosomatic medicine: theory and practice of acupuncture and moxibustion. *National library of medicine*, 2023; 43(4): Doi: 10.13703/j.0255-2930.20221130-k0005.
- 7) Margreet S H Wortman; Tim C Olde Hartman; Johannes C van der Wouden; Sarah Dankers; Bart Visser; Willem J J Assendelft. Perceived working mechanisms of psychosomatic therapy in patients with persistent somatic symptoms in primary care: a qualitative study, *national library of medicine*, 2022; 12(1): 435. <http://orcid.org/0000-0003-4060-4354>Henriëtte E van der Horst
- 8) Costa D, Mercieca-Bebber R, Rutherford C, Tait MA, King MT. How is quality of life defend and assessed in published research? *Qual Life Res*; 2021;30(8):2109–21. <https://doi.org/10.1007/s11136-021-02826-0>. PubMed PMID: 33792834
- 9) Mahmoudi N, Malekshahifar M. Study of the prevalence and relationship between psychosomatic disorders with emotional intelligence and attachment style in boys' secondary schools in Zanjan province, Isfahan Azad University, Fourth International Psychosomatic Congress, 2012, DOI:[10.1016/j.sbspro.2011.10.187](https://doi.org/10.1016/j.sbspro.2011.10.187)
- 10) Noorbala Ahmad A, Nomani F, Yahyavi Dizaj J, Anvari S, Mahmoudpour Azari M. Burden of Mental Disorders: A Study of Countries in the Middle East. *Scientific and Research Journal of the Medical System Organization*, 2019; 38(1): 19-26.
- 11) Badai A, Vaziri Sh, Lotfi Kashani F. The contribution of emotion regulation, defense mechanisms and attachment in predicting psychosomatic symptoms with the moderation of gender and distress level. *Scientific-Research Journal of the Medical System Organization*, 2019; 39(1): 30-38. DOI:[10.34172/hmj.2021.11](https://doi.org/10.34172/hmj.2021.11)
- 12) Giannotta F., Nilsson K.W., Åslund C., Larm P. Among the swedish generation of adolescents who experience an increased trend of psychosomatic symptoms. Do they develop depression and/or anxiety disorders as they grow older?. *BMC psychiatry*, 2022; 22(1): 779. <https://doi.org/10.1186/s12888-022-04432-x>
- 13) Shida B, Shayest A. The role of bioactive components in psychosomatic disorders. Editors: Takura, M; Balwal, T. Springer, Singapore; 2002

- 14) Gondivkar S.M., Gadbail A.R., Sarode S.C., Hedao A., Dasgupta S., Sharma B., Sharma A., Yuwanati M., Gondivkar R.S., Gaikwad R.N., Sarode G.S., Patil S. Oral psychosomatic disorders in family caregivers of oral squamous cell carcinoma patients. *Asian Pacific journal of cancer prevention: APJCP*, 2021; 22(2): 477–483. <https://doi.org/10.31557/APJCP.2021.22.2.477>
- 15) Riyahi MI. A comparative study of gender differences in the dietary habits of Iranian and Indian students. *Women's Studies Quarterly*, 2005; 8: 97-125. <https://www.magiran.com/p363453>
- 16) Razhan C. The Relationship among Stressors, Stress Level, and Mental Symptoms for Infertile women: a systemic review. *RBMO*, 2023; 412(2): 326, doi: 10.1371/journal.pone.0144566. PMID: 26484531; PMCID: PMC4617903.
- 17) Koert E, Takefman J, Boivin J. Fertility quality of life tool: update on research and practice considerations. *Human Fertility*, 2021; 24(4):236-48, doi: 10.1080/14647273.2019.1648887. Epub 2019 Aug 7. PMID: 31387469.
- 18) Sater AC, Nisihara R, Miyague DM, Schuffner A, Miyague AH. Evaluation of Sexual Dysfunction in Brazilian Women with Infertility Undergoing Assisted Reproduction Treatment. *Archives of Obstetrics and Gynaecology*, 2023; Mar 6; 4(1):12-7. <https://doi.org/10.33696/Gynaecology.4.037>
- 19) Leeners B, Tschudin S, Wischmann T, Kalaitzopoulos DR. Sexual dysfunction and disorders as a consequence of infertility: a systematic review and meta-analysis. *Human reproduction update*. 2024; Jan 29(1):95-125, doi: 10.1093/humupd/dmac030. PMID: 35900268
- 20) Ahmed MA, Mohammed AA, Ilesanmi AO, Aimakhu CO, Bakhiet AO, Hamad SB. Female Genital Tuberculosis Among Infertile Women and Its Contributions to Primary and Secondary Infertility: A systematic review and meta-analysis. *Sultan Qaboos University Medical Journal [SQUMJ]*, 2021, doi: 10.18295/squmj.1.2022.003. Epub 2022 Aug 25.
- 21) Hosseini F., Aghaei H., Nouhi S., Tabatabaei S. The effectiveness of a mindfulness-based stress reduction program on sexual function in women with primary infertility. *Journal of the Faculty of Medicine, Mashhad University of Medical Sciences*, 2014; 67 (2): 546-557.
- 22) McRae K., Gross J.J.. Emotion regulation. *Emotion*, 2020; 20(1): 1–9. doi: 10.1037/emo0000703.
- 23) Gross James J. Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, 2002; 39(3): 281-291. <https://doi.org/10.1017/S0048577201393198>
- 24) Thompson R.A. Emotionl regulation a theme in search for definitionIn. *The Developmental of Emotion Regulation Behavioral and Biological Considerations Monographs of the society for research in chield Development*, 1994; 59: 25-52. <https://doi.org/10.1111/j.1540-5834.1994.tb01276.x>

- 25) Keleynikov M., Benatov J., Cohen N. Emotion Regulation among Parents Raising a Child with Disability: A Systematic Review and Conceptual Model. *Journal of Child and Family Studies*, 2023; 1-18. <https://doi.org/10.1007/s10826-022-02530-8>
- 26) Qaderi M., Dokaneifard F., Jahangir P., Vosough Taghi-Dizaj A. A predictive model of psychological distress based on emotional regulation mediated by adjustment to infertility in infertile women. *Psychological Achievements*, 2023; 4(30): 223-244.
- 27) Idugboe MI, Nneka Josephine Umeh O, Adewara A, Jarjusey S, Edwards Okobi O, Adetifa O. The Psychological Impact of Infertility on Couples: Exploring the Role of Support Systems and Coping Mechanisms. *International Journal of Research and Reports in Gynecology*, 2024; 7(1):88-98. <https://journalijrrgy.com/index.php/IJRRGY/article/view/103>
- 28) Vatankhah M., Kafi S.M., Abolghasemi A., Shakerinia I.. The effectiveness of self-regulation training with the interaction of body mass index on weight control, executive function and emotional regulation in overweight and obese adolescents. *Journal of Psychological Advances*, 2019; 27(2): 89-110. D.O.I: 10.22098/JSP.2021.1229
- 29) Li D., Li D., Wu N., Wang Z. Intergenerational transmission of emotion regulation through parents' reactions to children's negative emotions: Tests of unique, actor, partner, and mediating effects. *Children and Youth Services Review*, 2019; 101: 113-122. <https://doi.org/10.1016/j.childyouth.2019.03.038>
- 30) Eisenberg N. Emotion regulation and moral development. *Annu Rev Psychol*, 2000; 51: 665-97. doi: 10.1146/annurev.psych.51.1.665. PMID: 10751984.
- 31) Glaser M., Green G., Barak S., Bord S, Levi S, Jakobovich R., Dunsky A, Zigdon A, Zwilling M, Tesler R. The effects of the Friendship Online Intervention Program on physical activity, substance abuse, psychosomatic symptoms, and well-being among at-risk youth. *National library of medicine*, 2023; 10. doi: 10.1002/jad.12272. Epub 2023
- 32) Mohammad N, Hatami M, Niknam M. Comparing the effectiveness of cognitive behavioral therapy and emotion regulation process on anxiety sensitivity in patients with multiple sclerosis. *Health Psychology*, 2021; 10(37): 109-126. <https://doi.org/10.30473/hpj.2021.54697.4917>
- 33) Kulthum M, Hanifa B. Depression, anxiety, psychosomatic symptoms and perceived social support in type D and non-type D individuals. *Iranian Journal of Psychiatry and Clinical Psychology (Thought and Behavior)*, 2021; 27(1): 92-103. <http://ijpcp.iums.ac.ir/article-1-3285-en.html>
- 34) Rahnema Sh, Amiri M, Karami Moghaddam P. The search for meaning in life; a psychological perspective or a philosophical inquiry. *Journal of Biological Ethics*, 2023; 13(38): 3-9.
- 35) Ghasemi N, Fathi-Aghdam Q, Qamari M, Pooyamanesh J. A comparison of the effectiveness of group semantic therapy and group metacognitive therapy on resilience of female students. *Sports Psychology Studies*, 2022; 9(34):197-214. D.O.I: [10.22089/spsyj.2020.9221.2002](https://doi.org/10.22089/spsyj.2020.9221.2002)

36) Bakhshi F, Yektaei T, Hajimiri K. The effectiveness of group semantic therapy on life expectancy of HIV patients in northern Iran. *Caspian Health Research Quarterly*, 2018; 4(1):16-20. <http://cjhr.gums.ac.ir/article-1-117-en.html>

37) Maqhfirah D., Ginting D.A.B. The Relationship between Social Support and the Meaning of Life in Patients Undergoing Hemodialysis at the Special Kidney Hospital Medan. *International Research Journal of Advanced Engineering and Science*, 2021; 6(1): 301–305, <https://irjaes.com/wp-content/uploads/2021/03/IRJAES-V6N1P240Y21.pdf>

38) Jundiah R.S., Dirgahayu I., Rahmadina F.N. Hubungan Lamanya Menjalani Hemodialisis Dengan Depresi Pada Klien Gagal Ginjal Kronik. *Jurnal Keperawatan 'Aisyiyah*, 2020; 6(2): 17. <https://doi.org/10.33867/jka.v6i2.132>

39) Kakavand F, Yousefvand M. The effectiveness of group-based semantic therapy on tolerance of ambiguity and concern about body image and metacognitive beliefs in women with depressive symptoms. *Journal of Medical Ethics*, 2012;16(47): 3-12. doi: 10.1186/s12905-021-01258-9. PMID: 33736617; PMCID: PMC7977266.

40) Barakova E.I., Bajracharya P., Willemsen M., Lourens T., Huskens B.. Long- term LEGO therapy with humanoid robot for children with ASD. *Expert Systems*, 2015; 32(6): 698-709. <https://doi.org/10.1111/exsy.12098>

41) Hosseinigolafshani S.Z., Taheri S., Mafi M., Mafi M.H., Kasirlou L. The Effect of Group Logo Therapy on The Burden of Hemodialysis Patients' Caregivers. *Journal of Renal Injury Prevention*, 2020; 9(4): 1-8. <https://doi.org/10.34172/JRIP.2020.33>

42) Gul F.A., Chen C.J.P Tsui, J.S.L. Discretionary accounting accruals, managers incentives, and audit fees', *Contemporary Accounting Research*, 2003; 20: 441-464.

43) Qaedinia Jahromi A., Hassani J., Nouri R., Farmani Shahreza Sh. The effectiveness of group training in emotion regulation strategies in cognitive coping of individuals with substance abuse. *Quarterly Journal of Addiction Research and Substance Abuse*, 2014; 8(31): 216.

44) Frankel V.E. *The Unheard Cry for Meaning: Psychotherapy and Humanism*. New York, NY: Touchstone; 1979

45) Mohr G. The changing significance of different stressors after the announcement of bankruptcy: A longitudinal investigation with special emphasis on job insecurity. *Journal of Organizational Behavior*, 2000; 21(3): 337- 359. [https://doi.org/10.1002/\(SICI\)1099-1379\(200005\)21:3<337::AID-JOB18>3.0.CO;2-G](https://doi.org/10.1002/(SICI)1099-1379(200005)21:3<337::AID-JOB18>3.0.CO;2-G)

46) Babamiri M., Nisi A., Arshadi N., Mehrabizadeh Honarmand M., Bashlideh K. Investigating occupational stress and personality traits as predictors of psychosomatic symptoms in employees of a company in Ahvaz. *Journal of Psychological Achievements*, 2015, <http://sjimu.medilam.ac.ir/article-1-1738-en.html>

- 47) Damiri H, Nisi A, Arshadi N, Naami A. The effectiveness of comprehensive stress management training on reducing job stress, burnout, depressive symptoms, and general symptoms of psychosomatic disorders in employees of the National Iranian Drilling Company. PhD thesis in Psychology, Shahid Chamran University of Ahvaz, 2015
- 48) Tajlifar M., Hayati M, Ghodrati M, Mirkouhi A. The effectiveness of group semantic therapy on self-esteem and feelings of worthlessness in elderly people with type 2 diabetes. *Psychology of Aging*, 2010; 6(4): 383-399. https://jap.razi.ac.ir/article_1642.html
- 49) Nelis D., Quoidbach J., Hansenne M, Mikolajczak M. Measuring individual differences in emotion regulation: The Emotion Regulation Profile-Revised (ERP R). *Psychologica Belgica*, 2011, <https://doi.org/10.5334/pb-51-1-49>
- 50) Slivnick J., Lampert B.C. Hypertension and Heart Failure. *Heart failure clinics*, 2019
- 51) Qaraei Ardakan, Sh., Azadfallah P., Tolai SA. The effectiveness of the acceptance and commitment therapy approach in reducing the intensity of pain experience in women with chronic headache disorder. *Clinical Psychology*, 2012; 4(2): 39-50. https://jcp.semnan.ac.ir/article_2087.html?lang=en
- 52) Rezaian M., Ebrahimi A., Zargham M.. Acceptance and commitment therapy on catastrophizing and pain disability in women with chronic pelvic pain, *Journal of Cognitive and Behavioral Sciences Research*, 2019; 4(2): 17-30.
- 53) Dezutter J, Casalin S, Wachholtz A, Luyckx K, Hekking J, Vandewiele W. Meaning in life: an important factor for the psychological well-being of chronically ill patients?, 2013 doi: 10.1037/a0034393. PMID: 24295525; PMCID: PMC4113206.
- 54) Normann N, Morina N. The efficacy of metacognitive therapy: A systematic review and metaanalysis. *Frontiers in Psychology*, 2018; 9: 2211. doi: 10.3389/fpsyg.2018.02211. PMID: 30487770; PMCID: PMC6246690.
- 55) Mostarac I, Brajkovic L. Life after Facing Cancer: Posttraumatic Growth, Meaning in Life and Life Satisfaction. *Journal of clinical psychology in medical settings*, 2022; 29(1):92-102. doi: 10.1007/s10880-021-09786-0. Epub 2021 May 18. PMID: 34008123.