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A comparative study on the effectiveness of group schema therapy and mindfulness-based stress reduction program on the meaning of life of mothers of children with cancer

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***Abstract*---**Background and Aim: Having a child with cancer can result in emotional instability, insecurity and stress among family members, especially parents. Thus, the present study was conducted with the aim of comparing the effectiveness of group schema therapy versus mindfulness-based stress reduction program on the meaning of life of mothers of children with cancer. Methods: The present study was applied in terms of aim, quantitative in terms of data type, semi-experimental in terms of data collection method, and pretest-posttest in terms of methodology. The statistical population of the study included 60 mothers of children with cancer in Taleghani Children's Educational and Medical Center in Gorgan in the first half of 2018. Based on purposeful sampling, 30 people in two experimental groups and one control group were selected as the sample (10 people in each group). The Steger et al. (2006) meaning of life questionnaire was used to collect data. To analyze the data, SPSS-20 software was used in two descriptive and inferential sections. Results: The results revealed that schema therapy and mindfulness-based stress reduction program

increased the meaning of life in the experimental group in the posttest stage ($p < 0.001$). The results of Scheffe test showed that both treatments had equal effectiveness. Thus, schema therapy and mindfulness-based stress reduction program can be used as useful interventions on the meaning of life for mothers of children with cancer. Conclusion: The results revealed the importance of group schema therapy and mindfulness-based stress reduction program on the meaning of life. Thus, group schema therapy and mindfulness-based stress reduction programs can be implemented to increase the meaning of life.

***Keywords*---**meaning of life, schema therapy, mindfulness based, stress reduction, cancer.

Introduction

Cancer is considered as one of the most destructive human diseases in all periods of life and can affect the entire family system since it is associated with serious defects and many consequences in all areas of life (Lavee and Meydan, 2003; Almehmadi, M., et. al., 2020; Quang, M. T., et. al., 2020). As parents affect a child's development, the child's growth and characteristics also affect family functioning (Altiere & Kluge, 2009). Development of cancer in a child causes shocks in the parents followed by severe frustrations. They should accept the fact that their child conditions may soon lead to death or malfunction. These facts on the one hand and financial costs and job-social consequences on the other hand can impose high stress and pressure on the family and relatives of the child (Panganiban, 2011).

Recent studies on parents of children with cancer suggests that parents of these children experience worse conditions than parents of normal children and other children with special needs or chronic diseases (Alonso et al., 2008). In fact, the parents and especially the mothers of these children are exposed to mental disorders such as anxiety, depression and reduced mental and physical health by observing pain, frequent hospitalizations, and side effects of cancer treatment such as hair loss (Masadeh and Jarrah, 2017). With the advent of positive psychology and health psychology, the psychology of the current age emphasizes on factors such as happiness, optimism, creativity, meaning in life, self-control, social support, hope and using the methods based on these factors for prevention and treatment of physical diseases instead of just paying attention to injuries or mental disorders (Qomi and Khodadadi, 2016).

The meaning of life refers to a sense of existential integrity that seeks to respond to the philosophy of life, to realize the purpose of life and to achieve valuable goals, and thus to achieve a sense of completeness and usefulness (Ho et al., 2010). Frankel argues that when human being feels that his or her existence is connected to an eternal source and views himself or herself relied on broad and reliable frameworks and supports such as religion and philosophy of life, he or she understands the meaning and feels it (Gholamali Lavasani et al., 2013). Feldman and Snyder (2005) argue that meaning is a general way of evaluating life

resulting in lower levels of negative emotions and reduced risk of mental illness. The meaning of life refers to the content that people fill their lives with it and direct their lives based on it, and it is related to the goals and values of life (Kiang et al., 2009). Considering the special conditions that these families and especially the mothers of these children are facing, support and treatment programs are needed to improve the mental condition of these people. Schema therapy is one of these supportive therapies. Schemas are deep and pervasive patterns or themes formed from memories, emotions, cognitions, and bodily feelings during childhood and adolescence and continue throughout life.

Based on Young, since schema therapy emphasizes the deepest level of cognition, it seeks to correct the core of the problem, and this practice is highly successful in treating mental disorders and preventing their recurrence (Young et al., 2003; translated by Hamidpour and Andooz, 2017). Schema therapy is based on classical cognitive-behavioral therapy and it combines cognitive, behavioral, interpersonal, attachment and experimental techniques to assess and modify schemas and uses motivational techniques and the concept of coping styles.

Mindfulness is another treatment used in this study. In this study, a special type of mindfulness known as a mindfulness-based stress reduction training program was selected, which is the most common form of mindfulness training. Mindfulness-based stress reduction program is a group-based intervention that emphasizes the experimental practice of mindfulness meditation and non-judgmental and time-focused awareness of experiences (Kyle, 2016). This approach focuses on empowerment and non-judgmental interpretation of events and acceptance of the present situation and it uses meditation exercises. In general, mindfulness-based stress reduction programs include mindfulness care training, discussion, training, and practice of injecting mindfulness into everyday life as strategies to enhance coping skills and reduce responsiveness to emotional and physical difficulties (Bazzano, 2013).

In a study entitled “The effectiveness of mindfulness-based stress reduction program on improving the meaning of life of cancer patients”, Ramezani and Goodarzi (2016) found that this training is effective in promoting the meaning of life in cancer patients .Examining the women status and challenges in various dimensions, especially at the level of mental health, plays a key role in the management and general policy-making of society. Thus, in the current conditions, where the need for more active and effective presence of women in various social areas is being felt, identifying the causes and factors affecting the dysfunction of women and mothers with sick children with physical and mental disabilities and taking therapeutic and training measures to improve their condition should be in the priority of relevant organizations. Thus, the present study was conducted to compare the effectiveness of group schema therapy versus mindfulness-based stress reduction program on the meaning of life of mothers of children with cancer.

Methods

The present study was applied in terms of aim, quantitative in terms of data type, semi-experimental in terms of data collection method and pretest-posttest in

terms of methodology. The statistical population of the study included 60 mothers of children with cancer in Taleghani Children's Educational and Medical Center in Gorgan in the first half of 2018. Using purposeful random sampling, 30 people were assigned to three groups, including two experimental groups and one control group (10 people in each group). The selected people were aged 20 to 50 years, had an average economic status, their child were living with both parents, did not have any diagnosed mental disorder, did not use any drugs to disrupt the treatment process and were not addicted to drug. After providing the necessary explanations, the participants answered the research questionnaires, and they were ensured that the information was kept confidential and they were psychologically prepared to participate in the research. The following instruments were used to collect data.

Meaning of Life Questionnaire (MLQ): The Meaning of Life Questionnaire was developed by Steger et al in 2006. This 10-item scale is scored on a 7-point Likert scale from 1 (completely incorrect) to 7 (completely correct). This scale has two components of existence of meaning and search for meaning. Questions or items 1, 4, 5, 6 and 9 examine the existence of meaning and questions or items 2, 3, 7, 8 and 10 examine search for meaning. All items except for item 9 are scored directly. Using Cronbach's alpha method, Steger et al reported the reliability of this scale from 0.81 to 0.84 for the whole scale and its components. In this study, the translated version of Gholam Mohammadi et al. (2013) scale was used. To validate the test, the meaning of life questionnaire was implemented on a sample of 50 people with an alpha coefficient of 0.71. To obtain reliability, the test-retest method with one-week interval was used, so that the meaning of life questionnaire was implemented again on the sample of 50 people and its reliability was reported at 0.75. Also, its correlation with Snyder's Hope Questionnaire was obtained at 0.57. To obtain its face and content validities, the questionnaire was submitted to 8 professors (five professors of psychology, counseling and three professors in the relevant area) and according to their opinions, the face validity of the questionnaire was reported at desired level and its content validity was calculated at 0.80 using Lawshe's method. Barati Sadeh (2009) also reported the reliability of this scale using Cronbach's alpha method in the range of 0.80 to 0.82 and the content and construct validities of this questionnaire were reported at desired level. In this study, 12 sessions of group schema therapy (one 90-minute session per week) were hold based on the Hemmati Sabeti protocol (2016). The content of its sessions is presented in Table (1).

Table 1
Summary of schema therapy sessions

Sessions	content and structure of the sessions
1-2	Establishing a two-way relationship and having a collaborative effort, teaching the schema therapy approach
1-2	Assessing patient problems, evaluating coping styles, standardizing clients' problems based on a schema-based approach, and completing a conceptualization form
3-6	Using cognitive techniques to doubt and invalidate the predominant schemas of clients

6-9	Using experimental techniques to familiarize clients with the evolutionary roots of schemas and understand maladaptive strategies to satisfy emotional needs
9-12	Encouraging clients to abandon maladaptive coping styles and practice adaptive coping behaviors to satisfy basic emotional needs, and persuading the patient to prepare a list of skills learned in treatment and prevention of recurrence

Also, 8 sessions of mindfulness-based stress reduction therapy (one 90-minute session per week) were implemented in this study based on the Bowen et al. (2011; quoted by Akbari et al., 2013) protocol. A summary of the content of its sessions is presented in Table 2.

Table 2
A summary of sessions of mindfulness-based stress reduction therapy

Session	Content and structure of sessions
1	Introducing the participants and a brief description of the 8 sessions, raisin eating technique and then meditation of body scan for 30 minutes and talking about the feelings that resulting from doing these meditations, homework of being present at the moment and extending the raisin eating technique to other activities
2	Body scan and discussing on this experience, discussing on homework, and barriers. Mindfulness program exercises and solutions for it, discussing on the difference between thoughts and feelings, performing meditation while sitting. homework: Mindfulness of a pleasant event, sitting and body scan mediation and mindfulness of a daily activity
3	Exercise of seeing and hearing, sitting meditation and breathing according to the body senses, discussing on homework. Three-minute exercise of breathing space, this meditation has three stages: paying attention to the exercise at the moment of doing it, paying attention to breathing and paying attention to the body; performing one of the exercises of conscious mind movements. homework: Sitting meditation, body scan, 3-minute breathing space exercise, mindfulness of a new daily activity, and mindfulness of unpleasant events
4	Sitting meditation with regard to breathing, body sounds and thoughts (called four-dimensional sitting meditation), discussing on stress responses and a person's reaction to difficult situations and alternative attitudes and behaviors, exercise of mindful walking. homework: Sitting meditation, body scan or one of the mindful body movements and exercising 3-minutes breathing space in an unpleasant event
5	Performing sitting meditation, presenting and implementing mindful body movements, Homework: Sitting meditation, three-minute breathing space in an unpleasant event, and mindfulness of a new daily activity
6	Three-minute breathing space exercise, discussing on the homework in dual groups; Presenting an exercise entitled "Creation, Thought, Separate Perspectives" with this theme: The content of thoughts is often not real; Accepting emotions as feelings, Homework: selecting a combination of meditations preferred for the personal, performing a

	three-minute breathing space in an unpleasant event and mindfulness of a new daily activity.
7	Four-dimensional meditation and awareness of everything that comes to consciousness at the moment; The theme of this session is: What is the best way to take care of myself; Providing an exercise in which participants determine which of their life events are pleasant and which are unpleasant, and how a program can be designed to have enough pleasant events; training accepting without judgment. Homework: Doing a combination of meditation preferred for the person, three-minutes breathing space exercise in an unpleasant event, mindfulness of a new daily activity.
8	Scan; the theme of this session is: use what you have learned so far; 3-minute breathing space exercise; discussing on ways to overcome the barriers to meditation; Asking questions about all the sessions, such as have participants achieved their expectations? Do they feel their personality has grown? Do they feel that their coping skills have improved, and do they like to continue their meditation exercises?

The present study was approved under the code of ethics of IR.IAU.AK.REC.1399.014 in Islamic Azad University - Aliabad Katoul Branch on 2020/07/22. The research data were analyzed using descriptive and inferential methods in SPSS-20 software.

Results

The results of the present study revealed that in the experimental groups of schema therapy and mindfulness-based stress reduction groups, most children were aged 5 to 10 years, and in the control group, most children were aged below 5 years and 5 to 10 years old. Table 3 presents the mean and standard deviation of the meaning of life variable in pretest and posttest.

Table 3
Mean and standard deviation of research variable in pretest and posttest

Variable	Control group (N=10(				schema therapy group (N=10)				mindfulness-based stress reduction group (N=10)			
	pretest		posttest		pretest		posttest		pretest		posttest	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Meaning of life	43.40	3.74	43.60	2.95	45.20	4.34	53.10	5.87	47.40	5.96	53.80	3.58

The results showed that the mean and standard deviation of the meaning of life variable in the control group were 43.40 and 3.74, respectively, in the pretest, and they were 43.60 and 2.95, respectively, in the posttest. The mean and standard deviation of the meaning of life variable in the schema therapy group were 45.20 and 4.34, respectively, in the pretest and they were 53.10 and 5.87, respectively, in the posttest. The mean and standard deviation of meaning of life variable in the mindfulness-based stress reduction group were 47.40 and 5.96,

respectively, in the pretest, and they were 53.80 and 3.58, respectively, in the posttest.

Table 4
Comparison of means of research groups using Scheffe post hoc test

Component	Group-mean				Mean difference MD	Significance level pairwise comparison of groups
Meaning of life	Control	43.60	Control	schema therapy	-9.50	.000
	schema therapy	53.10	Control	mindfulness-based stress reduction	-10.20	.000
	mindfulness-based stress reduction	53.80	schema therapy	mindfulness-based stress reduction	-.70	.9

The results of Table 4 show differences between means of the meaning of life variable in the two groups of control and schema therapy (P <0.001, MD = -9.50) and two groups of control and mindfulness (P = 0.20, MD = -10.20) were significant, but there was no significant difference between the two groups of schema therapy and mindfulness in this regard. To examine the effect of group schema therapy on the meaning of life of mothers of children with cancer, the criteria for using covariance analysis was examined.

Table 5
Levene's F test for equality of variances

Variable	F	Df1	Df2	Sig
The meaning of life	23.43	1	18	.000
Existence of meaning	12.29	1	18	.003
Search for meaning	14.19	1	18	.001

Based on Table (5), Levene's value for equality of variances in variables of meaning of life, existence of meaning and search for meaning in the posttest in the experimental and control groups showed that the variance of meaning of life and the components of existence of meaning and search for meaning is not equal, so the criteria for using covariance analysis was not met. For this purpose, t-test was used to analyze the effect of group schema therapy on the meaning of life.

Table 6
T-test to compare the two experimental and control groups in the variable of meaning of life and its components

Variable	group	mean	Mean difference	t	Df	sig
meaning of life	Control	43.60	-9.50	-4.56	18	.000
	Schema therapy	53.10				
Existence of meaning	Control	22.00	-4.20	-4.25	18	.000
	Schema therapy	26.20				
Search for meaning	Control	21.60	-5.30	-4.17	18	.001
	Schema therapy	26.90				

The results of Table (6) show that the mean differences between the control and schema therapy group in the variable of meaning of life ($p \leq 0$ 0.000, t = -4.56), existence of meaning ($p \leq 0$ 0.000, t = -4.25).), and searching for meaning ($p \leq 0$ 0.000, t = -4.17) are significantly different. To examine the effect of mindfulness-based stress reduction program on the meaning of life of mothers of children with cancer, Levene's F test was used to examine the equality of variance.

Table 7
Levene's F test for equality of variances

Variable	F	Df1	Df2	Sig
meaning of life	1.24	1	18	.2
Existence of meaning	1.35	1	18	.2
Search for meaning	1.60	1	18	.2

Based on the Table (7), the Levene's F value for equality of variance in the posttest stage shows that the variance of the meaning of life variable and its components are equal in the groups in the experimental and control groups. Thus, the criteria for using covariance analysis have been met.

Table 8
Multivariate analysis of covariance of posttest scores of meaning of life by implementing mindfulness-based stress reduction program and pretest covariate scores

Source	Variable	df	SS	MS	F	sig	$^2\eta$
technique	meaning of life	1	318.75	318.75	30.70	.000	.67
	Existence of meaning	1	102.78	102.78	36.87	.000	.71
	Search for meaning	1	59.52	59.52	14.64	.002	.49

Pretest	meaning of life	1	3.23	3.23	.31	.5	.02
	Existence of meaning	1	.005	.005	.002	.9	.000
	Search for meaning	1	.928	.928	.228	.6	.01
Error	meaning of life	15	155.73	10.38			
	Existence of meaning	15	41.81	2.78			
	Search for meaning	15	60.96	4.06			
Total	meaning of life	30	48148.000				
	Existence of meaning	30	12508.000				
	Search for meaning	30	11547.000				

As seen in Table (8), the effect of mindfulness-based stress reduction technique on the meaning of life (F = 0.001, P <30.70), existence of meaning (F = 0.001, P <36.87) and search for meaning (P <0.001, F <14.64) is statistically significant. The ETA coefficient also shows that 67% of the variance of meaning of life, 71% of variance of existence of meaning and 49% of variance of searching for meaning are explained through training. The results of examining the difference between the effects of group schema therapy and mindfulness-based stress reduction programs on the meaning of life of mothers of children with cancer have been presented in Table (9).

Table 9
T-test to compare the two groups of schema therapy and mindfulness in terms of meaning of life variable

Variable	group	n	mean	Mean difference	t	Df	sig
meaning of life	Schema therapy	10	53.10	-.70	-.322	18	.7
	Mindfulness	10	53.80				
Existence of meaning	Schema therapy	10	26.20	-1.40	-1.34	18	.1
	Mindfulness	10	27.60				
Search for meaning	Schema therapy	10	26.90	.80	.589	18	.5
	Mindfulness	10	26.10				

The results of Table (9) show that the difference between the means of the two groups of schema therapy and mindfulness-based stress reduction in the variable of meaning of life and its components is not statistically significant.

Discussion

The research results revealed that the difference between the means of the control and schema therapy groups in the variables of meaning of life, existence of meaning and search for meaning is statistically significant. These results are in line with those of research conducted by Dickhaut and Arendt (2014), and Rener et al. (2012). In explaining this result, it can be stated that the schemas of individuals determine their perception of the world, self, and future. In fact, the way one interprets and perceives the events that creates meaning in one's life is influenced by his or her schemas. Schema is considered as a general organization that is essential for one's life experiences.

In schema therapy, the therapist seeks to help client feels good about self and be responsible, active and more efficient in the face of life problems by changing and replacing it with efficient schemas. In the treatment process, the therapist teaches the patient to change the schema model. Once patients have learned about the schema, they can conceptualize their problem well and look at the problem through a different lens, and finally consider the meaning to alleviate their suffering. The therapist helps clients review their coping styles in schema therapy sessions using the schema registration form. It makes the person distance from the processes of behavioral avoidance and the tendency to avoid events that exacerbate schemas in real life, and replaces these schemas with more efficient schemas and finally a better meaning of life.

A person's beliefs affects important cognitive assessments in the coping process and help him or her re-assess negative events and create a stronger sense of control over the event. The feeling of control strengthens the person to cope with living conditions and promotes mental health, change the style and meaning of life of mothers. Also, by providing the conditions for people to establish relationship with a similar problem, group therapy makes mothers in this group give insight to each other and it increases group's awareness by inducing hope and reminding of belief values and beliefs and value thoughts. Also, it can create more motivation and hope to achieve new goals and enrich their life by changing their thoughts and defining new goals.

The present study also showed that mindfulness-based stress reduction program has a significant effect on the meaning of life of mothers of children with cancer. These results are in line with those of research conducted by Ramezani and Goodarzi (2016). In explaining this result, it can be stated that in the mindfulness-based stress reduction program, people can use the technique of recording pleasant events to record positive events in their minds and use this technique whenever negative thoughts come to their minds, resulting a reduction in anxiety and increased stability in life. Also, mindfulness is an act of self-empowerment that creates positive effects such as enlightenment, affection, kindness and mental stubbornness in a person and affects positive emotions and problem-solving methods.

Mindfulness causes awareness from the present moment and, consequently, reduces patients' mental rumination by using techniques such as relaxation training and acceptance free from judgment of the current situation and self-awareness, which is one of the basic concepts of this approach. The movement of the mind towards the future and the prediction of events that are likely to occur and cause anxiety and distress is one of the main causes of mental rumination and anxiety. Changes caused by physical discomfort, marital problems or sexual disorders and changes in daily activities, fear or worry about body image and the relapse of disease and death are among the causes of rumination during or after treatment. Mindfulness seeks to help the person increases awareness of the body by focusing on the present rather than the future and by increasing self-monitoring, which might result in a significant reduction in psychological symptoms, including anxiety and improved self-care. By using this method, people consider new goals and values for themselves instead of paying too much attention to the negative factors resulting from the knowledge of imminent death (such as hopelessness, anxiety, depression, etc.) with the experience of the present life and self-monitoring and identifying their non-fulfilled potentials and abilities. Accordingly, by reducing excessive attention to the anxious factors resulting from the awareness of imminent death, they can create more motivation and hope to achieve new goals by changing their thinking and defining new goals.

The present study also revealed that there is no significant difference between the effects of group schema therapy and mindfulness-based stress reduction program on the meaning of life of mothers of children with cancer. After reviewing domestic and foreign studies conducted in this regard, no study was found to be in line with this hypothesis .In explaining this result, it can be stated that due to the depth of the impact of cancer and creating problems in the personal philosophy of the person and caregivers, the attitude and meaning of life declines. Also, it challenges the person by affecting the basic and destructive components such as negative thoughts and emotions, depression and anxiety. Since family and caregivers are the first source of care and support for a child with cancer, the type of attitude of the family, especially mothers, towards the meaning of life has a special impact on caring for child.

Mindfulness enable people to establish different relationship with their thoughts and to have an ability to see their thoughts in a broader perspective and framework and see them not as reality itself, but as often transient phenomena that increase this sense of control in people and reduce misconceptions and consequently change people's view of life. Moreover, mindfulness helps people to approach experiences (whether pleasant or unpleasant) with a sense of openness and a willingness to engage in the original way. Being effective in the mental state (acceptance) increases the approach to experience in people, which provides more opportunities for them to respond consciously rather than unconsciously to internal and external events.

Since schemas are used as a framework for information processing and determine people's emotional reactions to life situations and interpersonal relationships, they are related to life satisfaction, and life satisfaction indicates a stable and meaningful life. By improving some basic and destructive components such as negative emotions and thoughts, depression and anxiety, personality disorders,

etc. schema therapy can improve the components of quality of life and mental health in general and thus increase the meaning of life. Both group schema therapy and mindfulness-based stress reduction programs are effective in increasing the meaning of maternal life since they improve the basic and destructive components of mental health and quality of life.

Conclusion

The present study revealed significant difference between the means of the control and experimental groups in the schema therapy technique in the variables of meaning of life, existence of meaning, and search for meaning. Also, mindfulness-based stress reduction program had a significant effect on the meaning of life of mothers of children with cancer. Also, no significant difference was found between the effects group schema therapy and mindfulness-based stress reduction program on the meaning of life of mothers of children with cancer. In general, given the results of the present study and the effectiveness of group schema therapy and mindfulness-based stress reduction program on increasing the meaning of life of mothers of children with cancer and considering the importance of quality of life of children with cancer and mental health of the main caregivers, it is necessary to develop programs for the evaluation of mental health services by the relevant officials and to use integrated and effective approaches in clinics and treatment centers by therapists and specialists.

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