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# The effect of positive psychotherapy on happiness and character strength in cancer patients

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## Abstract:

**BACKGROUND :** Cancer is one of the major health problems across the world that poses a great threat to human health and active life in all age groups, causing numerous personal, familial, and social damages in physical, mental and spiritual dimensions. The aim of the present study was to investigate the effect of positive psychotherapy on happiness, character strengths, pleasure, commitment, and semantic measures in the lives of people with cancer.

**MATERIALS AND METHODS:** Within the framework of a quasi-experimental design, 58 patients suffering from cancer meeting the inclusion criteria (disease history and married) were selected via purposeful sampling method. However, only 30 of the patients met the required criteria to participate in all psychotherapy sessions. The participants were then randomly assigned to two intervention and control groups (15 participants per group). The intervention group received eight 120-min sessions of positive psychotherapy on a weekly basis while the control group was put on the waiting list. Data collection tools included the Oxford Happiness-Depression Questionnaire and Values in Action-Inventory of Strengths. The participants completed the questionnaires before and after the intervention. Data analysis was conducted by analysis of covariance.

**RESULTS:** The results of covariance analysis suggested that the use of positive psychotherapy has been effective on increasing happiness ( $F = 0.129, P = 0.005$ ), increasing character strength ( $F = 27.55, P = 0.001$ ), increasing the semantic measures ( $F = 15.23, P = 0.002$ ), increasing pleasure ( $F = 8.51, P = 0.005$ ), and commitment ( $F = 64.19, P = 0.001$ ) among patients with cancer.

**CONCLUSIONS:** The results of the present study indicated that positive psychotherapy has been effective on happiness, strengths, pleasure, commitment, and semantic measures of the life among people with cancer. Positive psychotherapy can be used to minimize the effects of cancer on patients.

## Keywords:

Cancer, character strength, happiness, positive psychotherapy

## Introduction

Along with the social and industrial changes, the pattern of diseases has changed nowadays. Thus, chronic diseases are considered as the most important health problems of communities which are regarded as the main sources of stress among societies and impose extensive costs on communities.<sup>[1]</sup> Cancer is one of the major health problems across the world that poses a great threat to human health and active

life in all age groups, causing numerous personal, familial, and social damages in physical, mental, and spiritual dimensions.<sup>[2]</sup> Over the past decades, therapies for chronic diseases have shifted from economically and pharmacologically cost-effectiveness to multimodal physical-psychological therapies. In addition, recent developments in psychotherapy models and addressing the positive aspects of human psychology have received increasing attention.<sup>[3]</sup> Cancer is a disease that leads to bio-psycho-social disorders by causing chronic stress; hence, one aspect of care in patients is

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paying attention to the improvement of psychological states.<sup>[4]</sup> Reviewing past studies indicates that psychological interventions positively affect these patients' lives.<sup>[5]</sup> Having a perceivable social support, using group counseling programs, and particularly psychotherapy training improves physical, emotional, and social functioning and reduces fatigue and negative effects of the disease.<sup>[6]</sup> These factors play a decisive role in coping and compatibility of patients with cancer.<sup>[7]</sup> Nowadays, addressing depressive sources and coping strategies in various groups such as cancer patients have been greatly considered, and it has been shown that the use of effective coping strategies plays an important role in reducing, developing, and maintaining the symptoms of depression.<sup>[8]</sup> The main goal of many psychological interventions for cancer patients is to increase their ability to cope with anxiety, pain, and bearing medical diagnostic and treatment methods. In recent years, the positive psychology approach with the motto of paying attention to human talents and capabilities has been considered by researchers in various fields of psychology. Positive psychology emphasizes the establishment and expansion of positive emotions to create protection against mental disorders and increase the well-being and happiness of individuals.<sup>[9]</sup> This approach enhances meaning in the lives of clients to alleviate psychopathology and increase happiness.<sup>[10]</sup> According to Fredrickson The theoretical infrastructure of positive psychotherapy is rooted in the works of Seligman who believes that happiness is made up of a happy, committed, and meaningful life.<sup>[11]</sup> In people with cancer, positive changes are needed to encounter with the disease, and these changes are possible through the strategies available in positive psychotherapy.<sup>[12]</sup>

Cancer is a disease in which body cells divide abnormally into a malignant tumor which destroys healthy tissues.<sup>[13]</sup> According to Csikszentmihalyi In the positive psychology's point of view, the strengths of character are emphasized, which include 24 capabilities which are classified by Seligman in the form of 6 strengths including wisdom and knowledge, courage, humanity, justice, excellence, and spirituality.<sup>[14]</sup> Positive psychotherapy is an empirically valid approach to psychotherapy which pays special attention to building the client's abilities and positive emotions.<sup>[15]</sup> Character strengths and positive experiences such as life satisfaction are the central parts of positive psychology.<sup>[16]</sup>

Researchers have found that when people wrote down three good things that happen every day and used the capabilities they identified on weekdays, they reported higher happiness and less depression up to 6 months after the intervention.<sup>[17]</sup> Positive psychotherapy is the use of interventions to deal with depression by increasing positive emotions, raising the level of positive

engagement in life and increasing meaning in life instead of directly targeting depressive symptoms.<sup>[18]</sup> In a study, there was a correlation between lack of commitment and lack of meaning among depressed individuals.<sup>[19]</sup> Another study found that positive individual psychotherapy reduced depressive symptoms and, in many cases, led to complete recovery compared to traditional treatments. In addition to reducing the symptoms of depression, positive psychotherapy increased happiness.<sup>[20]</sup> A study by Kordmirza showed that positive psychotherapy and Adlerian group therapy are effective in enhancing resiliency among drug dependents.<sup>[21]</sup> The findings of a study indicated that individuals trained in 14 positive psychology techniques were happier and less depressive compared to the control group.<sup>[22]</sup> Schmeichel and Baumeister analyzed data from Harvard University students. The findings indicated that positive people are less likely to develop diseases than negative people and get healed sooner.<sup>[23]</sup> Seligman *et al.* found that used the gratitude letter technique and reported the effectiveness of positive psychology on increasing happiness and reducing depressive symptoms.<sup>[24]</sup> Positive therapy training is an effective way to increase people's abilities and happiness. The prevalence of depression around the world has reduced life satisfaction. On the other hand, positive therapy training has increased happiness, positive feelings, and meaningful and committed life in people.<sup>[20]</sup> In a study by Seligman on positive group therapy, depressive symptoms and life satisfaction and happiness were assessed. The results showed that the experiment group obtained lower scores on the Beck test while the control group was still in the mild-to-moderate range of depressive symptoms.<sup>[25]</sup>

The present study was conducted by the aim of determining the effect of positive psychotherapy on happiness and character strength in cancer patients due to the increasing role of cancer and the key role of psychological factors in the treatment process of the disease. In this study, we also sought to answer the question of whether positive treatment interventions can increase the level of happiness as well as the abilities and virtues of patients with cancer. The research hypotheses are as follows:

Positive therapy increases the happiness of cancer patients.

Positive therapy increases the character strengths of patients with cancer.

Positive therapy has an effect on increasing the pleasure dimension of living of people with cancer.

Positive therapy has an effect on increasing the commitment dimension of life of people with cancer.

Positive therapy has an effect on increasing the semantic dimension of life of people with cancer.

## Materials and Methods

The present study was a quasi-experimental research which was conducted by a pretest–posttest with control group design. The statistical population of the present study included all the patients with cancer who referred to Shohada Hospital in Tajrish, Shemiranat, Iran. Among all the patients in the hospital who were voluntary to participate in the research, a purposeful sampling method was used, and 58 patients were selected and completed the research consent form. According to the inclusion and exclusion criteria, 30 eligible candidates were finally selected, 15 of whom were randomly assigned to the experimental group and the other 15 candidates to the control group. The inclusion criteria of the present study consisted of having a minimum education level of high school certificate, not having severe psychiatric disorders, being treated by the considered medical center, maximum of 3-month history of the disease, the age range of 30–50 years, married, and finally, agreeing to attend the training sessions. The required consent letters were received from all the participants. The patients were also assured of the confidentiality of identities and information (Research project number: 195929).

### Tools

#### *Oxford Happiness-Depression Questionnaire*

This scale is designed to measure happiness-depression and is similar to Beck's depression questionnaire. This tool is used in the field of positive therapy research. This scale is able to detect a range of happiness level from very high to lack of happiness. The short form of this scale includes 21 self-reported items assessing three happiness routes (including a happy, committed, and meaningful life) prepared by Seligman.<sup>[25]</sup> The validity and reliability of the questionnaire have been investigated in several studies. Argyle examined the reliability of this questionnaire using the Cronbach's alpha method and obtained 0.91 for the alpha coefficient.<sup>[22]</sup> Najafi and Dehshiri investigated the psychometric properties of the Persian version of the Oxford Happiness-Depression Questionnaire in 428 university students and the Cronbach's alpha and the retest reliability coefficient in the whole sample equaled 0.79. Moreover, in this study, the convergent and divergent validity coefficients of the questionnaire were high and acceptable.<sup>[26]</sup>

#### *Values in Action-Inventory of Strengths-Short Form*

It has 240 items and can be used to measure 24 positive character strengths composing six categories of human virtues. Due to the large number of items in the long

form, a short form with 48 items was developed which was used in the present study to measure the strengths of the participants.<sup>[27]</sup> Based on the obtained scores, the top six aspects of strength of the participants were determined. Brdar and Kashdan in their study proposed that according to Park *et al.* assessed the German version among 1674 adults, and the results showed that this tool had a satisfactory reliability, validity, and construct validity. The mean alpha coefficient was 0.77, and the retest reliability equaled 0.73 in a 9-month interval.<sup>[28]</sup> According to Peterson and Seligman, the reliability of the test was greater than 0.7 in all the subscales and for all the considered strengths and capabilities using the Cronbach's formula. The Cronbach's alpha coefficient on the Iranian sample was 0.80.<sup>[29]</sup>

Operationally, the positive intervention is a positive psychotherapy model proposed by Seligman and Rashid<sup>[2006]</sup> consisting of four components of pleasure, commitment, semantic measures, and proper life.<sup>[30]</sup> This therapeutic intervention was performed by the researcher in the present study, and the relevant trainings were supervised and guided by the expert leaders in this field. Therapeutic sessions were scheduled for eight 2-h training sessions, and relevant exercises and worksheets were used in some sessions. The summary of the structure and content of the therapeutic sessions is demonstrated in Table 1.

Descriptive statistics, independent *t*-test, and Chi-square tests were used to evaluate the demographic variables between the two groups and to examine the differences between the groups at the beginning of the study. The covariance test was used to compare the effects of the intervention on the groups with possible error control. The significance level of all the tests was 0.05.

## Results

According to demographic data in the two experimental and control groups, 40% of the participants were male and 60% were female in the experimental group. The same rates in the control group were 46% for males and 54% for females in the control group. The mean age of the participants in the experimental group was 46.39 years which equaled 41.47 years in the control group. In terms of educational status, 46% of the participants in the experimental group and 54% of the participants in the control group had a high school certificate or associate's degree. Furthermore, 54% of the participants in the experimental group and 46% of the participants in the control group had a bachelor's degree or higher education.

Table 2 shows the mean and standard deviation of the experimental and control groups in the variables of

**Table 1: Summary of the structure and content of the therapeutic sessions**

Session	Aim	Therapeutic elements
1	To guide participants in a positive psychotherapy context	Evaluation of positive psychotherapy hypotheses Investigating the roles of positive psychotherapist and the responsibilities of the participant Participants' self-expression about themselves when they were in a better position
2	Use personal abilities in a new way	Recognize personal abilities Familiarity with the classification of moral abilities and virtues
3	Planting positive emotions	Investigating cognitive bias Examining the good things in life
4	Participants' awareness of their own impact on events	Demonstrating the impact of thoughts on emotion Examine negative emotions The role of forgiveness on positive feeling
5	Investigating the role of good and bad memories on life process	Identify the effective factor in life event Identify the role of the individual in life
6	Investigating the role of recognizing positive abilities, gratitude, forgiveness in the life	Examining the changes from the use of abilities in the past Investigating how to extend educational effectiveness to the living environment
7	Focus on topics of hope and optimism	Investigating the occurrence and consequences of failure in individual life The role of optimism, hope, and faith in God in Perseverance
8	Familiarity with positive social psychics and their improvement	Teaching response style to improve positive social relationships The role of positive relationships in a happy life Training and application of active and constructive response technique

**Table 2: Descriptive indicators of variables based on groups and stages**

Variable	n	Experimental group				Control group			
		Pretest		Posttest		Pretest		Posttest	
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Character strength	15	24.4	54.76	11.3	70.53	20.2	70.53	2.6	51.71
Pleasure	15	8.6	17.14	1.9	21.2	8.7	18.13	8.4	17.9
Commitment	15	7.6	19.14	1.7	23.2	8.4	19.2	3.8	9.9
Semantic measures	15	8.2	23.22	6.8	29.12	8.45	24.45	8.54	25.48
Happiness	15	11.5	39.45	11.3	47.16	11.4	41.34	4.11	40.98

depression, character strength, pleasure, commitment, and semantic measures.

The data were evaluated by analysis of covariance with pretest effect in order to investigate the effects of positive therapy on increasing happiness, character strength, pleasure levels, commitment, and semantic (meaning) measures in cancer patients. The results of covariance analysis indicated that, by controlling pretest scores, positive psychotherapy intervention improved 63.2% of character strength, changed 54.3% of pleasure, improved 28.2% of commitment, and increased meaning (semantic) by 40.3% in participants. In addition, the intervention significantly increased happiness by 35.2% ( $P < 0.05$ ). The statistical power of more than 0.85 also indicates the high statistical accuracy of the present analysis. Regarding the lack of all the necessary assumptions for calculating covariance analysis, the use of covariance analysis to analyze data seems logical and valid. Table 3 shows the results of the covariance analysis of the variables in various aspects of happiness, character strength, pleasure, commitment, and semantic measures.

Based on the results of covariance analysis [Table 3], there is a significant difference between the scores of the participants in the baseline and the end of the treatment in all the subscales. According to Table 3, the intervention has led to a significant difference ( $P = 0.001$ ) between both the groups in character strength. The effectiveness of the intervention was 63.2, i.e., 63.2% of the variance of the posttest scores was related to the effect of intervention. The statistical power of 0.99 and the probability level of 0.001 indicate the statistical accuracy of this test. Based on the results of covariance analysis in the dimension of pleasure, the therapy created a significant difference ( $P = 0.05$ ) between both the groups with the effect size of 54.3. According to the effect size, the positive intervention causes a rise of 54.3% in the pleasure dimension. The statistical power of 0.851 also indicates the statistical accuracy of this test. According to the results of covariance analysis, positive intervention has led to a significant difference ( $P = 0.001$ ) between the two groups in the commitment dimension. The effect size of the intervention was 28.2, i.e., 28.2% of the variance in the posttest scores was related to the effect of positive intervention. The statistical power of 0.99 and the probability level of 0.001



**Table 3: Results of covariance analysis of the variables in happiness, character strength, pleasure, commitment, and semantic dimensions**

Dependent variable	Variability sources	Sum of squares	Degrees of freedom	Mean of squares	F	Significance	Effect size	Strength
Character strength	Pretest	41.45	1	41.45	0.701	0.001	0.282	0.99
	Group membership	30.408	1	30.408	27.556	0.001	0.632	0.99
Pleasure	Pretest	88.396	1	88.396	2.475	0.142	0.151	0.445
	Group membership	30.405	1	3.408	8.51	0.005	0.543	0.851
Commitment	Pretest	23	1	23	38.822	0.002	0.182	0.665
	Group membership	58.631	1	58.631	64.194	0.001	0.282	0.99
Semantic	Pretest	15.210	1	15.210	47.977	0.001	0.243	0.99
	Group membership	39.150	1	39.150	15.23	0.002	0.403	0.665
Happiness	Pretest	1.36	1	1.36	18.639	0.001	0.504	0.050
	Group membership	437.29	1	437.29	0.129	0.005	0.352	0.851

**Table 4: The mean of justified scores of the two groups in five covariance analyses**

Variable	Justified scores of the posttest			
	Experimental group		Control group	
	Mean	Standard deviation	Mean	Standard deviation
Character strength	56.47	13.22	11.40	4.20
Pleasure	6.37	3.61	6.6	2.2
Commitment	10.27	4.2	6.4	1.2
Semantic	26.32	10.23	18.34	8.45
Happiness	20.81	7.33	17.16	7.34

indicate the statistical accuracy of this test. Moreover, the results of the covariance analysis in the semantic dimension show a significant difference ( $P = 0.002$ ) between both the groups. The impact for the semantic measure showed a score of 40.3. Based on the effect size, 40.3% of the variance in posttest scores was related to the effect of positive therapy. The statistical power of 0.665 and the probability level of 0.002 indicate the statistical accuracy of this test. The results of the covariance analysis in the happiness dimension showed a significant difference ( $P = 0.005$ ) between the two experimental and control groups. The effect size of the intervention is 35.2%, indicating the effect of positive intervention on the happiness dimension. The statistical power of 0.851 and the probability level of 0.005 indicate the statistical accuracy of this test. The justified means of the two groups are presented in Table 4.

Based on Table 4, the justified mean values of the experimental group were significantly higher than the control group in all the five variables.

### Discussion

The present study was conducted to evaluate the effect of positive psychotherapy on happiness, strengths, pleasure, commitment, and semantic measures of life in people with cancer. The first hypothesis of the study, i.e., "Positive therapy increases the happiness of cancer patients," was confirmed at the end of the study. The results of the

present study are in line with several studies. Findings of many similar studies indicate that positive therapy increases the happiness of cancer patients.<sup>[10,19,20,21,23-25,29,31]</sup> In other words, one of the most important ways to increase happiness in people with cancer is positive psychotherapy. The second hypothesis of the study, i.e., "Positive therapy increases the character strengths of patients with cancer," was confirmed by the study. The results of the present study are in line with similar studies. Many studies verified the effectiveness of positive psychotherapy on increasing the character strengths of patients with cancer.<sup>[10,23-25,29]</sup> In other words, there is a positive and significant relationship between increasing the individual abilities and positive psychotherapy. Based on the results, the third hypothesis of the study, i.e., "Positive therapy has a high effect on increasing the pleasure dimension of living of people with cancer," was confirmed. The results of the current study are consistent with past researches, that is, several studies mentioned that positive therapy is effective on increasing the pleasure dimension of living of people with cancer.<sup>[10,19,20,23,31]</sup> The fourth hypothesis of the study indicated, "Positive therapy has a high effect on increasing commitment dimension of life of people with cancer," which was confirmed based on participants' responses. The results of the present study are in line with those of similar studies which indicate that the commitment dimension of life is enhanced by psychological trainings such as positive psychotherapy.<sup>[10,19,31]</sup> The fifth hypothesis of the study, "Positive therapy has a high effect on increasing the semantic dimension level of life of people with cancer," was confirmed according to the results. The results of the present study are consistent with the previous studies.<sup>[21,23,29]</sup> In other words, the concept of living well has also been enhanced by positive psychotherapy. In general, it can be concluded that there is a positive and significant relationship between positive therapy for cancer patients and happiness, strengths, pleasure, commitment, and semantic measures of the life of people with cancer. The present study has some limitations, such as the small size of the study sample and the lack of generalizability of the results and also

reduction of the sample size due to failing to attend and participate in the treating sessions. Finally, the authors recommend that more studies would be conducted on other effective methods of positive psychotherapy, with larger statistical samples, and also more studies would be conducted on positive psychotherapy in larger hospitals. Moreover, the present study can be repeated on other populations and even at national levels. It is also suggested that future research focuses on a specific type of cancer and even a specific stage of this type of disease. The authors also recommend that the inherent and virtuous abilities of individuals would be identified in different ways and an appropriate design would be planned to use the capabilities of individuals in various actions and study on the topics of positive treatment and the application of this treatment method in counseling, treatment, and practical aspects of psychology in the country.

A small number of randomized trials have been conducted to investigate the effect of positive psychotherapy on cancer patients, and they have produced conflicting results.<sup>[32,33]</sup> Some of the main reasons for such differences are difference in methodology, target groups, methods used in the intervention, and differences in time of intervention and follow-up; however, results of the current research showed that positive psychotherapy has been effective on happiness, strengths, pleasure, commitment, and semantic measures of the lives of people with cancer. Positive psychotherapy can be used to minimize the effects of the disease on the patient and his/her community.

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### Conflicts of interest

There are no conflicts of interest.

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