Journal of
Social Behavior and Community Health

The Effectiveness of Group Positive Psychotherapy on Psychological Well-Being and Hope of Cancer Patients Undergoing Chemotherapy

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ARTICLE INFO

ORIGINAL ARTICLE

Article History:
Received: 20 Oct 2022
Revised: 15 Jan 2023
Accepted: 05 Feb 2023

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Citation:
Heydari M, Nouri M, Maziar Niaei A. The Effectiveness of Group Positive Psychotherapy on Psychological Well-Being and Hope of Cancer Patients Undergoing Chemotherapy. Journal of Social Behavior and Community Health (JSBCH). 2023; 7(1): 1042-1050.

ABSTRACT

Background: Cancer leads to fear and anxiety and reduces mental health in patients soon after its diagnosis. Hence, it is imperative to examine therapeutic steps toward promoting the psychological conditions of these patients. The aim of this study is to determine the effectiveness of positive psychotherapy (PPT) on the psychological well-being and hope of cancer patients undergoing chemotherapy.

Methods: The study was a single-blind clinical trial with a pretest-posttest design with experimental and control groups. The statistical population included all patients referring to Taleghani Hospital of Tehran in 2020. Thirty patients were selected by purposeful sampling and randomly assigned into two experimental and control groups. The experimental group learned PPT in six sessions held once a week and the control group received no intervention. Demographic forms, Ryff's psychological well-being scale (RPWBS-18), and Snyder's hope scale (SHS-12) were used to collect data, which were analyzed by the Chi-square and ANCOVA tests run in the SPSS-20 software.

Results: The results showed that PPT enhanced psychological well-being ($F = 9.29$) and hope ($F = 8.28$) among patients with cancer ($P<0.01$). Moreover, the effect size of the PPT was 29% for psychological well-being and 27% for hope.

Conclusion: The PPT is effective in promoting the psychological health of cancer patients. Thus, this cost-effective therapy can be used in healthcare centers to promote the psychological health of these patients.

Keywords: Psychological well-being, Hope, Psychotherapy, Neoplasms

[DOR: 20.1001.1.27832104.2023.7.1.10.8]
[DOI: 10.18502/jsbch.v7i1.12798]

[DOR: 20.1001.1.27832104.2023.7.1.10.8]

[DOI: 10.18502/jsbch.v7i1.12798]

Introduction

Today, cancer is one of the chronic and refractory diseases. Despite medical advancements, therapeutic developments, and an increased number of cancer survivors, this disease is still traumatic due to the distress and fear it brings to individuals (Basharpoor, Amani, & Narimani, 2019; Emami, Askarizade, & Faziltpour, 2018). Cancer is counted as the second cause of mortality in advanced countries, and worldwide, around 7 million patients die every year because of this disease (Forat Yazdi, Giahi Yazdi, & Sorbi, 2017). It is predicted that about 90 million deaths from cancer will occur in the next ten years (Movahedi, Movahedi, & Farhadi, 2015). The growing rate and detrimental effects have attracted the attention of people and specialists to this illness more than ever; and they introduced cancer as the main health problem of the century (Dowlatabadi, Ahmadi, & Sorbi, 2015; Li & Xu, 2020).

Besides giving rise to acute somatic problems, cancer evidently brings about many mental and social intricacies for patients. During their struggle with the disease, individuals cannot do their daily physical activities. This condition makes them feel anxious and depressed and face mental stress and crisis. Accordingly, their mental health and hope for the future decline (Qureshi, Reaume, Bedard, & Ferro, 2022). Reduced hope causes patients to ignore their treatment and not take medical orders seriously. In addition, patients do not make extensive efforts for their recovery, worsening their health conditions (Kullmer et al., 1999). A bulk of research displays cancer's maximum effect on hope compared to other chronic illnesses, being recognized as a factor threatening life expectancy (Emami et al., 2018). Yet, hopeful thoughts and cancer can interact in two ways: First, a hopeful individual intensively focuses on solving the problem, plays a more active role to this end, and more likely pursues cancer-screening behaviors. The second group thinks hopefully in the face of cancer diagnosis and treatment and manifests less distress and more adaptation to the disease. Hence, this group of individuals enjoys a high level of hope and tolerates long and painful treatments (Jabalameli, Doost, & Moulavi, 2010).

In addition to hope, another component tied to cancer is psychological well-being, which is a mentally and conceptually directed judgment and satisfaction individuals carry concerning their lives. It is a multidimensional concept encompassing physical, mental, and social health (Sorbi, Rahmanian, & Azizi, 2019). Reiff (1989) defined this variable according to several components, such as self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. It seems that psychological well-being should be one of the most important goals and desires of human beings and accentuate mental health more than any other factor (Tadayoni, Salehi, Soltani, & Moradi Jannati, 2022), since an investigation of past research shows that chronic diseases like cancer influence individuals' health, quality of life, and psychological well-being (Hazrati, Zahmatkeshan, Dezh Bakhsh, Nikseresht, & Zeyghami, 2005).

During the past decades, cost-effective psychological therapies have been used to enhance the well-being and psychological conditions of patients with chronic diseases like cancer (Dowlatabadi et al., 2016). For example, positive psychotherapy (PPT) is a new movement which not only addresses weaknesses, but also seeks to enhance happiness and mental health and examines the role of personal competencies and positive social constructs in promoting individuals' psychophysical health (Seligman et al., 2006). Indeed, positive psychology foregrounds building and extending positive emotions to create a shield against mental disorders and improve well-being (Wood & Johnson, 2016). Today, research documents demonstrate that positive therapies increase mental health and life expectancy (Sorbi et al., 2018), positive relations and emotions, and decrease anxiety and premenstrual symptoms (Snyder & Lopez, 2009). Peterson and Park (2004) found that individuals reported high rate of

[DOR: 20.1001.1.27832104.2023.7.1.10.8]

[DOI: 10.18502/jsbch.v7i1.12798]

happiness when they wrote about three good events occurring every day in their lives. They also identified their competencies on weekdays and experienced lower depression till six months after the intervention. Senf and Liau (2013) examined the effect of writing about positive emotional experiences on adults' depression and happiness. They discovered that writing about positive emotions, beside an emotional regulation intervention, significantly increased happiness and decreased depression. These results persisted in a one-month follow-up period. In a similar study, Seyedi-Asl et al. (2014) showed that PPT reduced depression and increased happiness among infertile Iranian women. Kordmirza Nikozadeh (2011) compared the effectiveness of the PPT-based intervention and Adlerian Group Therapy in promoting drug-addicted individuals' resilience. They found that both interventions were effective in enhancing the subjects' resilience.

Overall, PPT can consider humans' health dimensions and focus on raising patients' strengths and life quality rather than their weaknesses. Few studies have employed this therapeutic approach to improve the mental health and motivation of somatic (cancer) patients. Therefore, this study aims to determine the effectiveness of PPT group on the psychological well-being and hope of cancer patients.

Methods

This was a single-blind clinical trial with a pretest-posttest design and experimental and control groups. The statistical population included all cancer patients undergoing chemotherapy in Taleghani Hospital of Tehran in 2020. The subjects were selected by purposeful sampling, i.e., the researchers referred to the hematology and oncology division of the Taleghani Hospital and prepared a list of cancer patients undergoing chemotherapy. Then, they could establish relationships with these patients and explain to them the research method and its manner of implementation. Those individuals declaring their consent to participate in the research were inserted into the study and interviewed based on the inclusion and exclusion criteria. The inclusion criteria were being in the age range of 25-60, literate, with mastery over the Persian language. Moreover, they should not suffer from severe mental disorders which need hospitalization. The exclusion criteria involved not giving an informed consent to participate in therapeutic sessions, abusing substances in the past year, being absent for more than two sessions, and suffering from acute physical conditions preventing attendance in therapeutic sessions. Concerning the inclusion and exclusion criteria, 30 patients who could participate in the research were selected and randomly assigned to two intervention and control groups, each with 15 members. At the end of the therapy, the information of two patients in the intervention group (due to their death) and two in the control group (due to their unresponsiveness to questions) was excluded from the study. The following instruments were used to collect data:

1. **The demographic information form:** This form was a researcher-made questionnaire measuring descriptive characteristics of cancer patients, such as age, gender, education, and economic status.

2. **Ryff's psychological well-being scale (RPWBS-18) short form:** This questionnaire was developed by Ryff in 1989 and revised in 2002. It is a self-assessment test including 18 items scored based on a 6-point Likert scale from strongly agrees to strongly disagree. Likewise, it possesses six subscales, including self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth and independence. The scores of this questionnaire range from 18 to 108, and high scores indicate higher well-being and psychological health (Khanjani et al., 2014; Sefidi & Farzad, 2012). This questionnaire enjoys good validity and reliability; for instance, the negative correlation of this scale with the short form of the depression,

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anxiety, and stress scales (DASS) indicates its construct validity (Kafka & Kozma, 2002). On the other hand, its test-retest reliability coefficient ranged from 0.81 to 0.86 regarding a sample of 117 participants after a six-week interval (Ryff & Singer, 1996). The internal consistency of this scale was obtained by Cronbach alpha and equaled 0.71 for the whole test and 0.51-0.76 for the subscales (Khanjani et al., 2014). The Cronbach alpha coefficient of this scale was estimated at 0.79 in the present study.

3. **Snyder hope scale (SHS-12):** This scale, developed by Snyder et al. (1991), has 22 items scored based on a five-point Likert scale ranging from definitely false (1) to definitely true (5) and measures two factors of pathways and agency. Higher scores on this scale reflect individuals' higher degrees of hope for their lives. Snyder (1994) reported that the 3-week test-retest reliability of this scale equaled 0.85 for the whole scale and 0.74 and 0.89 for the pathways and agency subscales. Furthermore, Snyder et al. (2000) estimated the internal consistency of the scale at 0.74-0.84 using Cronbach alpha and reported its test-retest reliability at 0.80. In Iran, Kermani et al. (2011) examined the internal consistency of this scale on 371 students from Tehran and reported the Cronbach alpha and test-retest coefficients at 0.89 and 0.81. The Cronbach alpha coefficient of this questionnaire was obtained at 0.83 in this study.

An overview of therapeutic sessions

PPT group is a structured, active, and task-oriented therapeutic method. Each session, which lasts 90 minutes and is held once a week, involves reviewing the tasks assigned in the previous week, examining exercises, and discussing the tasks for the next week. In the first week, individuals are welcomed and familiarized with the therapy process. Table 1 presents a summary of the therapeutic sessions.

Table 1. Protocol of PPT sessions

Session	Objectives and content of every session
1	Using your capabilities: Take the values in action (VIA) questionnaire to assess your five top strengths and find approaches to employ those strengths in your daily life more frequently.
2	Three good things: Write about three good events and their causes every day.
3	A summary of life: Imagine you die after a satisfactory and fruitful life. What do you want to say in your obituary? Write in one or two pages about those things you want to be remembered by.
4	Appreciation visits: Find the person you appreciate the most, but you have never thanked appropriately. Write him/her a letter that describes your appreciation.
5	Active or constructive responses: An active or constructive response is a reaction you positively and eagerly show to the good news of others. Give active and constructive responses to a known person at least once a day.
6	Savor: Allocate a certain time every day to enjoy those things you usually do hastily, e.g., eating meat, taking a shower, and walking. While doing them, write down what you did, how you did it differently, and how you felt compared to times you did them negligently and spontaneously.

Ethical consideration

This study was approved by the ethics committee of Shahid Beheshti University of Medical Sciences with the 95/1/31M27 Number, and approved by the Iranian Registry of Clinical Trials with the ethics code of IR.SBMU.REC.1395.378.

Results

The demographic information indicated that the subjects' age mean and standard deviation (SD). equaled 33.34 ± 12.16. The results of the Chi-square test examining the internal consistency of the qualitative data revealed that the experimental and control groups were not significantly

different in their demographics, e.g. gender, marital status, education, and cancer type (P < 0.05). Thus, it can be concluded that the demographic characteristics are similar in both experimental and control groups, Table 2.

Table 2. Analyzing the demographic information using the Chi-square test

Variable	Category	Experimental group N (%)	Control group N (%)	Chi-square
Gender	Male	7 (53.85)	6 (46.15)	0.154
	Female	6 (46.15)	7 (53.85)	
Marital status	Married	10 (76.92)	11 (84.62)	0.248
	Single	3 (23.08)	2 (15.38)	
Education	Below diploma	2 (15.38)	3 (23.08)	0.227
	Diploma	7 (53.85)	6 (46.15)	
	Above B.A.	4 (30.77)	4 (30.77)	
Cancer type	Breast	4 (30.77)	3 (23.08)	0.227
	Prostate	3 (23.08)	4 (30.77)	
	Gastrointestinal (GI)	5 (38.46)	4 (30.77)	
	Lung	1 (7.69)	2 (15.38)	

Table 3 presents the mean and SD of the psychological well-being and hope scores of cancer patients in the two experimental and control groups according to the research design. It reports the results of the Kolmogorov-Smirnov (K-S) test, measuring the normality of the quantitative data.

The results of the K-S test showed that the distribution of the psychological well-being and hope scores of cancer patients was not significant in the experimental and control groups (P > 0.05). It can be argued that data were normally distributed. On the other hand, the values of Levene's test were not significant for psychological well-being (F = 0.009) and hope (F = 1.416), indicating that the variance of the patients' scores in the experimental and control groups was equal for the main variables. Thus, the assumption of using the ANCOVA test in the research data was confirmed.

Table 3. Mean, SD, K-S values of research variables separated by the group

Group	Psychological well-being		Hope	
	Pretest	Posttest	Pretest	Posttest
Experimental	13.40	13.97	4.30	5.30
	46.07	48.38	28.23	31.76
Control	13.54	12.75	4.95	5.54
	47.53	47.38	30.23	28.46
K-S statistic	0.394	0.399	0.539	0.904

Table 4 shows the ANCOVA results. After eliminating the effect of the pretest variable and considering the estimated F coefficient (P = 0.006, F = 9.29), it was observed that there was a significant difference between the experimental and control groups in their adjusted mean scores of psychological well-being, and the effect size of PPT equals 0.29%. With a probability of 99%, it can be claimed that PPT group increases the psychological well-being of cancer patients undergoing chemotherapy.

[DOR: 20.1001.1.27832104.2023.7.1.10.8]
[DOI: 10.18502/jsbch.v7i1.12798]

Table 1. ANCOVA results of psychological well-being scores regarding cancer patients

Variation	Sum of squares	df	Mean square	F	Sig.	Effect size
Pretest	4201.09	1	4201.09	1017.11	0.001	0.98
Groups (independent)	38.42	1	38.42	9.29	0.006	0.29
Error variance	95.05	23	4.13			

Table 5 shows other results of the ANCOVA test. After eliminating the effect of the posttest variable and considering the estimated F coefficient (F = 8.27, P = 0.009), it was observed that there was a significant difference between the experimental and control groups in their adjusted means of hope scores, and the size of the effect of PPT equaled 0.27. Hence, with a probability level of 99%, the authors can claim that PPT enhances hope in cancer patients undergoing chemotherapy.

Table 2. ANCOVA results of hope scores in cancer patients

Variation	Sum of squares	Df	Mean square	F	Sig.	Effect size
Pretest	304.01	1	304.01	17.33	0.001	0.43
Groups (independent)	145.08	1	145.08	8.27	0.009	0.27
Error variance	403.52	23	17.54			

Discussion

The present study investigated the effectiveness of PPT group on the psychological well-being and hope of cancer patients undergoing chemotherapy. The results indicated that PPT group significantly increased the psychological well-being and positive emotional experiences of cancer patients undergoing chemotherapy with a 99% probability. These results were in line with the findings of the studies by Sorbi et al. (2019), Dowlatabadi et al. (2015), Seyedi-Asl et al. (2014), and Parks-Sheiner (2009). For instance, Sorbi et al. (2019) displayed that PPT significantly enhanced psychological well-being and reduced the blood sugar of diabetic patients, such that this intervention could be used to improve their physical-mental health. Dowlatabadi et al. (2015) reported that PPT group intervention could be employed to promote the psychological state and life quality of patients with breast cancer. A meta-analysis of 51 PPT interventions comprising 4266 subjects aimed to answer this question; Do PPT interventions seeking to increase positive emotions and behaviors with positive recognitions promote well-being and remove depression symptoms? The results showed that PPT interventions noticeably enhanced psychological well-being and happiness and alleviated depression symptoms (Sin & Lyubomirsky, 2009). To explain this issue, it should be admitted that psychological well-being encompasses individuals' cognitive values of their lives depending on their expectations, values, and experiences. When therapy tackles patients' positive feelings and emotional experiences, they gain a sense of vitality and are extensively engaged in improving themselves and promoting their strengths. Likewise, they endeavor to realize their potential. This follow-up enhances the psychological well-being of cancer patients.

Moreover, PPT group significantly enhanced the hope for life and future in cancer patients undergoing chemotherapy with a 99% probability. These outcomes were in agreement with the findings of studies by Sorbi et al. (2018), Dowlatabadi et al. (2016), and Parks-Sheiner (2009). For instance, concerning the effects of PPT group on diabetic patients, Sorbi et al. (2018) demonstrated that this psychological intervention could enhance the life expectancy and mental health of these patients. Dowlatabadi et al. (2016) revealed that PPT could raise happiness and alleviate depression in patients with breast cancer. In explaining this issue, it was initially stated that positive psychology interventions have not

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been applied to the level of hopefulness in cancer patients undergoing chemotherapy, for us to compare our results with theirs. Nevertheless, based on previous findings, it can be argued that positive psychology interventions, by creating a deep and profound view of constructive and meaningful experiences and emotions, lead to increased hopefulness in patients. This is because hopefulness is a close concept to optimism and a characteristic of life that makes individuals search for a better future. Indeed, hope is the sole consolatory force during the culmination of anxiety. When individuals brightly look at their goals and futures, they create the will for accomplishment in themselves and find approaches to counter the likely problems. In this respect, Snyder (2000) believes that hope therapy gives rise to positive physiological changes in humans, such that positive beliefs and expectations in chronic physical disorders can impact the central system. For this reason, patients who are hopeful for their health recover more rapidly due to possessing positive beliefs and expectations from their treatment outcomes.

Conclusion

This study aimed to determine the effect of PPT on the psychological well-being and hope of cancer patients undergoing chemotherapy. The results showed that PPT could increase psychological well-being and hope among these patients. Although this therapy moderately impacted psychological well-being and hope, the results indicated the effect of PPT on promoting the psychological health of cancer patients. Hence, this cost-effective therapy can be used to enhance the mental health of these patients in care centers. Similar to many other studies, the present research was not devoid of limitations. For instance, small size of the sample, not using a triple-blinded clinical trial, not following patients in short- and long-runs, and only including cancer patients under routine chemotherapies. These limitations reduce the generalizability of the results to other groups of cancer patients. Therefore, it is suggested that, concerning the mentioned limitations, PPT be applied to other somatic patients, so that therapists can benefit from this therapeutic intervention to promote patients' psychological health. Furthermore, future studies are recommended to select their samples from various care centers to reduce probable biases and control intervening and distracting variables.

Acknowledgment

This research was extracted from the M.A. thesis of the corresponding author in clinical psychology. The authors of this paper express their appreciation to all cancer patients participating in the study and the respected authorities of the Taleghani Hospital of Tehran and Shahid Beheshti University of Medical Sciences for their assistance.

Conflict of interest

The authors declared no conflict of interest.

Authors' Contribution

Conceptualization was conducted by, M. H; methodology by, M. H and A. M. N; Data was collected by, M. H and M. N; writing original draft and data analysis was conducted by, M. H; and Supervision by, M. H and M. N. All authors read and approved of the final manuscript and were responsible for any question related to the article.

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[DOR: 20.1001.1.27832104.2023.7.1.10.8]

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