The Effectiveness of Writing Therapy on Anxiety and Depression in Patients with Leukemia

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Quantitative Study

Abstract

Background: The diagnosis of cancer, followed by lengthy treatment, poses a significant threat to patients' mental health. The current study aimed to examine the effectiveness of writing therapy on depression and anxiety of patients with leukemia.

Methods: This study involved two groups in a randomized clinical trial. The statistical population of the current study comprised 384 patients of Baghdad Medical City, Iraq, who met the inclusion criteria, in 2019. A simple random sampling method was used to select a statistical sample of 110 individuals, who were then divided into experimental and control groups (55 members in each group). Data collection tools included Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI). Multivariate analysis of covariance (MANCOVA) was used in SPSS software for data analysis.

Results: The writing therapy intervention approach reduced the anxiety (F = 67.864, P < 0.001) and depression (F = 54.218, P < 0.001) of patients with leukemia. In addition, none of the demographic variables of the study's participants had a significant relationship with the findings.

Conclusion: Implementing the writing therapy intervention can improve the psychological symptoms of patients with leukemia.

Keywords: Leukemia; Anxiety; Depression

Introduction

Cancer, a pervasive disease not restricted to a particular time or place, is of special significance. Blood cancer is one of the most common types of cancer. Depending on the type of disease and treatment, patients with leukemia undergoing treatment may face several physical and psychological obstacles and be temporarily removed from normal life (Nissen et al., 2020). Depression and anxiety are the most prevalent psychological disorders in patients with blood cancer. In the advanced stages of cancer, patients frequently experience depression and anxiety regarding the treatment process, disease progression, uncontrolled pain, death, and the obscurity of what occurs after death (Lu, Lu, Shao, Wang, Xu, & Zhang, 2022). In addition, depression and anxiety can harm treatment processes and even diminish patients' survival rates (Sherman et al., 2018). Dealing with depression and anxiety is the most common obstacle of patients with cancer. According to studies, patients with cancer perceive leading situations as more stressful and threatening than others and are exposed to more clinical anxiety-inducing factors (Matsuo, Duval, Youssefzadeh, Mandelbaum, Ouzounian, & Wright, 2022). For patients with cancer, perceived anxiety is not indicative of objective anxiety (Sarman & Gunay, 2022). Patients with cancer frequently receive negative and inconsistent assessments of their condition and ability to control the disease (Shen, Yang, Zhang, & Zhang, 2018).

Conversely, people with high self-esteem rely on problem-focused coping strategies and experience less anxiety and depression. Most patients with cancer and their families adjust to the disease following diagnosis and treatment (Smyth, Johnson, Auer, Lehman, Talamo, & Sciamanna, 2018). Nonetheless, their experiences and recollections of this disease persist, which may hinder their treatment (Li, Peng, Li, Zhang, & Jiang, 2022). In addition to drug treatments such as chemotherapy and radiation therapy, the psychological treatment of patients with cancer should receive special consideration (Bonifacci, Candria, & Contento, 2007). Psychological treatments have been considered one of the most effective methods for addressing the psychological issues of patients with cancer for many years (Wallert et al., 2018).

The process of diagnosis, treatment, and complications caused by the disease, as well as long-term hospitalization, which is unpleasant, irritating, and frightening, causes anxiety in people with leukemia (Taylor et al., 2022). Additionally, frequent hospitalizations isolate patients from their social environment and contribute to depression (Fischer, Knop, Danhof, Einsele, Keller, & Loffler, 2022). According to studies, a sizeable proportion of patients with cancer are at high risk for depression and anxiety (Petrykey et al., 2019). The emergence of anxiety symptoms affects patients' recovery process and adaptive skills. In contrast, cancer-related depression is a traumatic emotional response that develops after the diagnosis of the disease or during treatment (Ramanda, Rita, & Diah, 2022). Studies indicate that the risk of death for patients with cancer with depressive symptoms is 25 percent higher (Talebiazar, Choobianzali, Hassanpour, Goli, Shakorzadeh, & Ghalandari, 2022). For those diagnosed with mild or major depression, it is 39 percent higher than for other patients with cancer (Ding, Wang, Fu, Xu, & Lin, 2019).

Different dimensions of cancer and its treatment necessitate considering complementary and non-pharmacological treatments in addition to clinical issues. Writing therapy, used to improve patients' psychological health, is one of the non-pharmacological treatments mentioned (Wang et al., 2021). According to research, writing and projecting emotions is another non-pharmaceutical treatment

method that has been shown to have positive effects on negative emotions (Gu, Hao, Cong, & Sun, 2019). In recent years, the use of writing therapy alone or in conjunction with other therapeutic approaches has increased dramatically. Numerous studies have demonstrated that writing about emotional experiences or problems from the past is beneficial to mental and physical health (Jones, Evans, & Barfield, 2021).

Examining an emotionally charged event also transforms it into a narrative, and emotions and unspoken and incomprehensible points are converted into meaning and words, which are no longer unspoken and incomprehensible (Qian, Zhou, Sun, Wu, Sun, & Yu, 2020). Implicit and unconscious emotions become conscious speech expressions; everything that is unsaid and invisible has greater fear, and being aware of it lessens the event's severity and improves the outcome. In this regard, writing therapy resembles psychoanalytic techniques (Appelhans et al., 2012); Due to the ease of teaching and performing the correct way to write, self-help work without face-to-face visits, the therapist's reduced involvement in the treatment process, and its short-term simplicity of performance (Quinto, Iani, De, Russo, Porcelli, & Abeni, 2022). Therefore, it differs from other treatment methods that require lengthy in-person sessions and is constantly evolving. Leukemia's psychological complications induce anxiety and depression in patients (Christiansen, Martino, Elklit, & Freda, 2022). In addition, failure to reduce and treat these reactions results in a longer hospital stay, interruptions in medical treatments, and a decrease in survival chance and duration. Therefore, prevention and treatment of psychological issues in patients with blood cancer are of utmost importance (Lu et al., 2022).

Depression in patients with cancer results in a depletion of mental energy, increased stress due to the disease and its treatments, and reduced immune function. Consequently, investigating the variables of depression and anxiety in the context of patients with blood cancer is of utmost importance. Psychosocial care for these patients is required during the treatment process. The current study examines the effectiveness of writing therapy on depression and anxiety of patients with leukemia.

Methods

This study was a randomized clinical trial with two groups. Three hundred eighty-four clients of Baghdad Medical City, Iraq, in 2019 who met the inclusion criteria constituted the statistical population of the current study. A statistical sample of 110 people was selected using a simple random sampling method and then divided into experimental and control groups (55 members in each group). Inclusion criteria included the absence of mental disease, abstinence from psychoactive drugs, not using a similar psychological intervention in the preceding year, a minimum of a high school diploma, and obtaining a score higher than 18 in the Beck Depression Inventory (BDI). Exclusion criteria included dissatisfaction with and unwillingness to participate in the study, failure to complete questionnaires, and absence from more than two sessions. A pre-test and a post-test were employed to conduct the research. Thus, before beginning the intervention, the pre-test should be administered; following the intervention sessions' completion, a post-test was administered to both the tested and control groups. Data collection tools included BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and Beck Anxiety Inventory (BAI) (Beck, Epstein, Brown, & Steer, 1988). In order to follow ethical considerations, the participants were told what the study was for and why it was important. They were also told that they could leave the study at any time. The questionnaires were filled out without the participants' names, and the research participants were assured that

their identities would not be revealed. It is important to note that the Ethics Committee of the College of Medicine at the University of Baghdad, Iraq, has approved the current study.

BDI consists of 21 self-report questions emphasizing two cognitive-behavioral dimensions. Each index is scored with four responses (0, 1, 2, and 3), with 0 indicating no disorder and 3 indicating the most severe state of disorder, and the total test score ranged from 0 to 63. People's scores are added together for analysis, and people with scores of 9 or less have no depression, 10 to 18 have mild depression, 19 to 29 have moderate depression, and 30 to 63 have severe depression. Beck et al. (1988) reported reliability of 0.8 for this test (Beck, Steer, & Garbin, 1988). Arnau et al. (2001) determined the questionnaire's validity and reliability to be 0.88 and 0.83, respectively. In this study, the questionnaire's validity and reliability were 0.84 and 0.79, respectively.

The BAI comprises 21 questions. During this time, a person self-reports how bad his/her anxiety symptoms were the week before. Each index is given a score from 0 to 3 on a scale from "not at all" to "very severe". Beck et al. (1988) reported an internal consistency of 0.92 using the Cronbach's alpha method and retest reliability of 0.75 after one week. This tool can also tell the difference between people who have anxiety and those who do not. In the current study, the reliability and validity of this tool were 0.81 and 0.83, respectively.

Patients with leukemia who had previously received conventional treatment and who had been referred to Baghdad Medical City were selected as the research subjects. Among these individuals, those who met the entry requirements and desired participation were randomly assigned to the experimental and control groups. Patients in both groups completed the research instruments twice, once before and once after the intervention. Individuals were randomly assigned for four weeks (one 90-minute session per week) to one of two experimental and control groups (writing therapy or control). Table 1 describes the sessions related to writing therapy (Pennebaker, 1980). Weekly phone calls were made to the patients during the intervention to ensure that it was carried out properly.

The descriptive and analytical statistics were investigated first in this study. The mean and standard deviation (SD) were used to describe quantitative variables, while the frequency report was used to describe qualitative variables. Fisher's exact test was used to compare qualitative factors between two groups.

Table 1. Description of writing therapy sessions

Session	Session description
1	In this session, the participants were required to write interminably about their traumatic experiences and painful secrets. The most important principle was to record their most intimate thoughts and feelings regarding these painful secrets and the traumatic and distressing experiences they endured.
2	In this session, the participants were instructed to use proper grammar when writing about traumatic events and painful secrets. They were also instructed to use many negative emotional words, such as guilt, sadness, and hatred, and a small number of positive emotional words.
3	In this session, people were asked to write about things that made them happy or anything else that interested them. It was recommended that they should write in the first person and make a list of the pleasant experiences in which they have played a part. They were also reminded not to follow grammatical rules when writing.
4	In this session, the participants were instructed to write all their sentences in the third person and avoid using the first person. Because, in reality, the third party may be the person or the person from whom the subjects have suffered harm.

Multivariate analysis of covariance (MANCOVA) was used in SPSS software (version 21, IBM Corporation, Armonk, NY, USA) to check the results of the investigated variables for the experimental and control groups in the pre-test and post-test phases.

Results

The mean ± SD of age of patients in the experimental group was 46.17 ± 4.51, while in the control group, it was 44.63 ± 4.29. Table 2 presents the demographic characteristics of the research participants. According to table 2, it is evident that none of the demographic variables have a significant relationship with the results.

Table 3 shows the scores for the anxiety and depression factors for the two groups throughout the pre-test and post-test stages. According to the table, there was a substantial difference between the pre-test and post-test results in the experimental group.

Box's M and Levene's tests were run to meet their requirements before employing the parametric MANCOVA. Box's M test indicated that none of the factors were statistically significant. The homogeneity requirement has been met. The equality of covariance across groups has been determined based on Wilks' lambda test and its lack of significance for all variables. Therefore, the application of covariance analysis tests is permissible. Table 4 displays the findings of MANCOVA. Table 4 shows that the calculated F-values for the group variable, anxiety, and depression were significant (P < 0.001).

Discussion

The current study aimed to examine the effectiveness of writing therapy on depression and anxiety of patients with leukemia. Writing therapy reduces anxiety and depression in patients with leukemia. Numerous studies have demonstrated that group psychotherapy interventions reduce anxiety and depression of patients with cancer (Appelhans et al., 2012; Arnau, Meagher, Norris, & Bramson, 2001; Cvetkovic & Nenadovic, 2016). The therapeutic writing technique is the most effective intervention for alleviating depression and anxiety in patients with leukemia (Hamid, Talebian, Mehrabizadeh Honarmand, & Yavari, 2011; Thune-Boyle, Stygall, Keshtgar, & Newman, 2006). Other researchers have conducted numerous studies on similar topics. Some of the cited studies are consistent with this study's findings, while others are not. The post-test results indicated that writing therapy positively affected anxiety and depression in patients with leukemia. According to research consistent with this study, Mosher et al. (2012) discovered that writing down emotions increased use of mental health services in patients with cancer.

Table 2. Demographic characteristics of the research participants

Demographic variables		Experimental group [n (%)]	Control group [n (%)]	P-value
Gender	Men	32 (58)	36 (65)	0.83
	Women	23 (42)	19 (35)	
Marital status	Single	9 (16)	5 (9)	0.22
	Married	46 (84)	50 (91)	
Age category (year)	< 40	16 (29)	19 (35)	0.43
	41 to 50	26 (47)	24 (43)	
	> 50	13 (24)	12 (22)	
Education level	Diploma	37 (67)	41 (75)	0.52
	Undergraduate	18 (33)	14 (25)	

Table 3. Mean and standard deviation (SD) values for two groups during the pre-test and post-test stages

Variable	Group	Pre-test (mean ± SD)	Post-test (mean ± SD)	P-value
Anxiety	Experimental	19.54 ± 3.28	12.63 ± 2.38	< 0.001
	Control	19.26 ± 3.11	19.46 ± 3.34	0.370
Depression	Experimental	23.49 ± 3.18	14.47 ± 2.17	< 0.001
	Control	22.47 ± 3.39	22.09 ± 3.16	0.520

According to Petrie et al. (2004), writing therapy can reduce anxiety and stress. The study by Osborn et al. (2006) revealed that expressing emotions through writing reduced anxiety. Jensen-Johansen et al. (2013) used non-aligned studies to demonstrate that the emotion writing intervention did not affect cancer-related anxiety. Emotional writing improved mental health services among patients with cancer but was ineffective as a psychotherapeutic intervention in general, according to Esterling et al. (1999). Consequently, the findings of these two studies contradict those of the present study.

In the explanation of this study, the process of expressing emotions in writing creates an analog-to-digital experience by converting emotions into language format or transforming them metaphorically. Therefore, when emotions are expressed verbally or when verbal labeling occurs, exposure through habituation and silence can result in proper emotional processing and the use of effective defenses (Kunin-Batson et al., 2016). Writing about a relatively severe and negative emotional event provides the opportunity to gain self-awareness and integrate one's experiences, which leads to developing emotional regulation skills and a sense of control over one's vibrant life. Words provide focused experience and a more comprehensive understanding of the world. Emotional expression in writing is a multidimensional process that equips individuals with self-regulation skills, including anxiety management (Gu et al., 2019).

In addition, written emotional disclosure alters the individual's cognitive interpretation of the emotional situation, thereby eliminating the feeling of being threatened and the destructiveness of emotions and allowing the individual to become aware of his emotional needs. Facing emotional memories and attempting to adjust attention and use cognitive processing create a more coherent meaning and alter the individual's evaluation of the event in question (Reinhold, Burkner, & Holling, 2018). Consequently, it provides the foundation for alleviating anxiety and depression. In another explanation, it can be stated that emotional release through writing reduces mental tension by releasing inhibitions and that expressing emotions and feelings in written form triggers a review of events and emotional experiences. Writing therapy reduces psychological issues such as depression and anxiety, because it alters the methods of organizing and re-absorbing them (Qian et al., 2020).

Writing therapy is a form of speech therapy that utilizes writing and written word processing to aid treatment. Writing therapy is one method for gradually resolving negative emotions and emotional traumas.

Table 4. Results of multivariate analysis of covariance (MANCOVA)

Variable	Source of changes	Sum of squares	df	Mean squares	F-value	P-value	Eta squared
Anxiety	Group	6291.638	1	6291.638	67.864	< 0.001	0.576
	Error	1250.728	14	89.338			
Depression	Group	5464.613	1	5464.613	54.218	< 0.001	0.419
	Error	1136.816	14	81.201			

Writing is a means of communicating meaning through signs and a process of self-discovery, self-expression, and emotional release. Writing increases the body's resistance and immunity to disease and affects the release of hormones in response to sadness and depression. Consequently, it decreases anxiety and depression (Ennis & Cartagena, 2020). Most patients with blood cancer experience a crisis of failure and are plagued by numerous psychological issues. By participating in group sessions of writing therapy under the therapist's guidance and the influence of the group's appropriate atmosphere, these patients can overcome existential isolation and improve their mental health. Compared to studies of a similar nature, this study's sample size was larger. Given the variable of depression and these patients' decreased desire for activity and social participation, one of the successes of this study is their participation in meetings and continuation of treatment (Bonifacci et al., 2007).

One of the limitations of this study is that it was conducted at a single center (Baghdad Medical City) and on a specific type of cancer (leukemia). In addition, the lack of a follow-up phase and a comparison of results to international standards are additional limitations of the present study. It is suggested that writing therapy should be implemented since the time of leukemia diagnosis and the beginning of conventional treatments. It is also advised that a similar intervention be performed to prevent complications in all types of cancer. More coordination and cooperation between the medical and psychological systems are recommended for patients with cancer to receive the best care.

Conclusion

The results of present study indicated that writing therapy reduced anxiety and depression in patients with leukemia. This shows that implementing the aforementioned therapeutic intervention can improve the psychological symptoms of patients with cancer and, consequently, their quality of life. Therefore, nurses in the treatment and care line should consider therapeutic writing as a non-invasive intervention with easy implementation, low cost, effectiveness, and efficiency for reducing anxiety and depression in patients with leukemia.

Conflict of Interests

Authors have no conflict of interests.

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