

# Meaning-Centered Psychotherapy Versus Cognitive Behavioral Therapy for Cancer Survivors: A Randomized Controlled Trial

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Meaning-centered psychotherapy (MCP) has been found to be effective in improving meaning in life and increasing fulfillment in participants with cancer. However, to date, no previous studies have compared MCP with evidence-based treatments such as cognitive behavioral therapy (CBT). The aim of this study was to analyze the differential efficacy of MCP, compared to CBT, in participants with cancer. The study is a randomized controlled trial with 76 participants,  $n = 41$  (MCP) and  $n = 35$  (CBT). At post-

treatment, the MCP intervention for cancer survivors was more effective than CBT in increasing the presence of meaning in life, purpose and meaning in life, and life goals. Moreover, our results showed that, at posttreatment and the 6-month follow-up, MCP and CBT were similarly effective in improving depression and developing posttraumatic growth. This study suggests that MCP could be more effective than CBT in improving meaning in life, purpose, and life goals, and equally effective as CBT in improving depression and posttraumatic growth, in cancer survivors.

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**Keywords:** meaning-centered psychotherapy; cognitive behavioral therapy; cancer; meaning in life; depression; posttraumatic growth

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CANCER SURVIVORS have twice as much psychopathological distress, depression, anxiety, lack of meaning in life, and poor quality of life as the cancer-free population (Hinz et al., 2010). Moreover, anxiety, fatigue, sadness, emotional and

physical pain, poor quality of life, hopelessness, desire for a hastened death, and low meaning in life are common negative emotional states in cancer survivors (Cleeland, 2007; Henson et al., 2020; Lethborg et al., 2019). Thus, there is an urgent need to develop and offer effective interventions for cancer survivors.

Cognitive behavioral therapy (CBT) is considered the gold-standard of psychotherapy for the treatment of depression and anxiety disorders (David et al., 2018). Specifically in people with cancer, CBT has been broadly studied in numerous clinical trials that have shown its efficacy, and it is recommended as an evidence-based and first-choice therapy (Emery et al., 2022). CBT interventions have been effective, showing a moderate treatment effect on quality of life (Getu et al., 2021), depression, and anxiety (Jelvehzadeh et al., 2022). However, a recent meta-analysis (Zhang et al., 2022) found that the effect size of CBT treatments for cancer patients was smaller in magnitude than the large treatment effect sizes found for individuals without cancer in the general CBT literature. Another meta-analysis found contradictory results, with no improvement in depression and quality of life (e.g., Sun et al., 2019). Thus, although CBT is considered one of the treatments of choice, it is still necessary to carry out randomized controlled trials (RCT) comparing CBT to active psychotherapies in order to advance the research on the efficacy of CBT in people with cancer.

Another psychotherapy that has been found to be effective in participants with cancer is Meaning-Centered Psychotherapy (MCP). MCP is a logotherapeutic-oriented psychotherapy based on Viktor Frankl's work (1959/1985), and it has been utilized in various samples and settings. Vos and Vitali (2018) conducted a meta-analysis that tested the effectiveness of MCP. They found large improvements in quality of life at posttreatment and follow-up, reductions in psychological stress, and improvements in meaning in life, hope and optimism, and self-efficacy. Dietrich et al. (2021) carried out a meta-analysis of MCP interventions for participants with advanced cancer, and they found that, after the intervention, MCP produced large improvements in spiritual well-being, quality of life, and depressive symptoms. It also had a moderate effect on improving anxiety symptoms and a low effect on reducing the desire for a quick death.

Specifically, the MCP application for cancer patients was initially developed by Breitbart et al. (2010) as an eight-session group therapy for patients with advanced cancer (Stage III–IV),

and it was more effective than supportive psychotherapy in an RCT on spiritual well-being, meaning in life, and anxiety. Breitbart et al. (2012) carried out another RCT with patients with Stage III or IV cancer. In this case, MCP was reduced to seven sessions to be applied individually and compared with a control group (massage therapist). The results showed that MCP produced a greater improvement in meaning in life, spiritual well-being, faith, physical symptoms of distress, burnout, and quality of life, but there was no significant change in depression or anxiety. MCP was also administered to cancer survivors (van der Spek et al., 2017) in an RCT with a 6-month follow-up comparing MCP to two other conditions: (a) with a Supportive Group and (b) Treatment as Usual (TAU) with their general practitioner. The results at the 6-month follow-up showed that the MCP treatment improved personal meaning, positive relations, purpose in life, a fighting spirit, hopelessness, goal-orientedness, and psychological well-being and adjustment and reduced psychological distress and depressive symptoms more than the TAU condition. MCP was more effective in improving goal-orientedness, a fighting spirit, personal growth, and environmental mastery at the 6-month follow-up, compared to the supportive group.

To date, MCP has shown efficacy compared to the waiting list, TAU with the general practitioner, massage therapy, and supportive therapy. However, no previous studies have compared MCP to active treatments or evidence-based treatments such as CBT for cancer survivors. To confirm that MCP could be an evidence-based treatment for cancer survivors, it is necessary to compare the efficacy of MCP and CBT. Finally, as mentioned above, studies on the efficacy of MCP have focused on samples of participants with advanced cancer (Stage III and IV), leaving out participants in Stages I and II. Thus, it is necessary to analyze whether Stage I and II cancer survivors could also benefit from this intervention, a question that has not been studied to date.

The aim of the study was carry out an RCT to analyze the differential efficacy of the MCP intervention, compared to CBT, in Spanish participants with cancer.

## Methods

### PARTICIPANTS

The inclusion criteria were: (a) adults with Stage I, II, or III cancer who had finished their medical treatment (surgery, radiotherapy, or chemotherapy). Three months after finishing the medical

cancer treatment, the participants were assessed by an oncologist, and if they were free of cancer, they could participate in the study; (b) participants who expressed a need for psychological care; and (c) participants who had low meaning in life (score below 90 on the Purpose in Life Test) (Crumbaugh & Maholick, 1969). The sample was recruited from an Oncology Hospital in Valencia (Spain). The exclusion criteria were: (a) participants who were receiving another psychological or psychiatric treatment at the time; (b) participants who had been diagnosed with a serious mental disorder (schizophrenia, substance dependence, dementia, or cognitive impairment).

This study was approved by the Ethics and Research Committee of the Valencian Institute of Oncology Foundation (CEIM: 2019-17). The study was registered at Clinicaltrials.gov as NCT05197348. All participants were volunteers and gave their informed consent to participate in the study. For ethical reasons, participants in the CBT condition were given the opportunity to receive the MCP program if they wished to, even if the study had already ended.

#### PROCEDURE

The researchers explained the aims of the study to cancer survivors who had been treated at the Oncology Hospital and offered them the opportunity to participate in the study. After the participants had signed the informed consent, a clinical psychologist who is an expert in cancer carried out two evaluation sessions to verify that the participants met all the inclusion criteria, and mental disorders were diagnosed in clinical interviews to verify that they met the DSM-5 criteria.

The evaluation was performed by independent evaluators who were blind to the experimental conditions. Once the researchers had ensured that the participants met the inclusion criteria, they were randomly assigned to one of the two experimental conditions (MCP or CBT) using a simple randomization procedure generated by an external researcher. During the study, participants did not receive any other psychological treatment. When the psychotherapy had ended (MCP or CBT), the evaluation was performed again, and a follow-up evaluation was carried out after 6 months. The assessment was performed online before and after finishing the treatment and at the follow-up. The interventions took place through online videoconferences led by general health psychologists with master-level degrees. The psychotherapist's adherence to the treatment protocol (MCP or CBT) was controlled during the study. In both treatment

conditions (MCT and CBT), there was a manual for the psychotherapist and another one for the patient. Each session offered theoretical content and practical exercises that had to be completed. To control adherence to the original treatment manual, we held weekly clinical sessions with the team of psychotherapists to confirm that they had taught all the content and performed all the exercises in the manual without adding any other psychotherapeutic components to the MCP or CBT. When we detected that some content or exercise had not been carried out, the psychotherapists were asked to teach this content and exercise in the next session. We used a subjective scale created ad hoc to evaluate each intervention group's adherence to the program. The therapist scored the level of adherence to the psychotherapist's treatment manual from 0 (*bad*) to 10 (*very good*). The adherence scores for the MCP groups were 10, 9, 9, and 9, and for the CBT groups, 9, 9, 9, and 9. Adherence was controlled by the project directors. All the sessions were reviewed, and not just a subsample.

#### STUDY DESIGN

The study design consists of a two-arm RCT with two conditions, MCP and CBT, with participants randomized to one of the two treatment conditions. Figure 1 shows the flow chart. For this protocol, we follow the CONSORT statement (Moher, 2001, 2010) and the SPIRIT guidelines (Standard Protocol Items: Recommendations for Interventional Trials) (Chan et al., 2013).

#### SAMPLE SIZE

The sample size for this study was calculated based on effect sizes found in other studies on MCP in participants with cancer, mainly meta-analyses. Dietrich et al. (2021) found medium effect sizes for meaning in life ( $d = 0.81$ ) and medium effect sizes for anxiety ( $d = -0.47$ ) and depressive symptoms ( $d = 0.50$ ). Thus, we expected an effect size of 0.60 for the primary and secondary outcomes. To calculate the sample size, we used the G\*Power 3.1 software (Faul et al., 2009) by assuming that the main question of our investigation would be addressed with an F-test for the interaction between the two groups and three measurement occasions in the context of a mixed-effects ANOVA model. Taking into account an alpha of 0.05, a statistical power of 0.80, and 10% variance accounted for, a total sample of 90 participants (45 per group) was required.

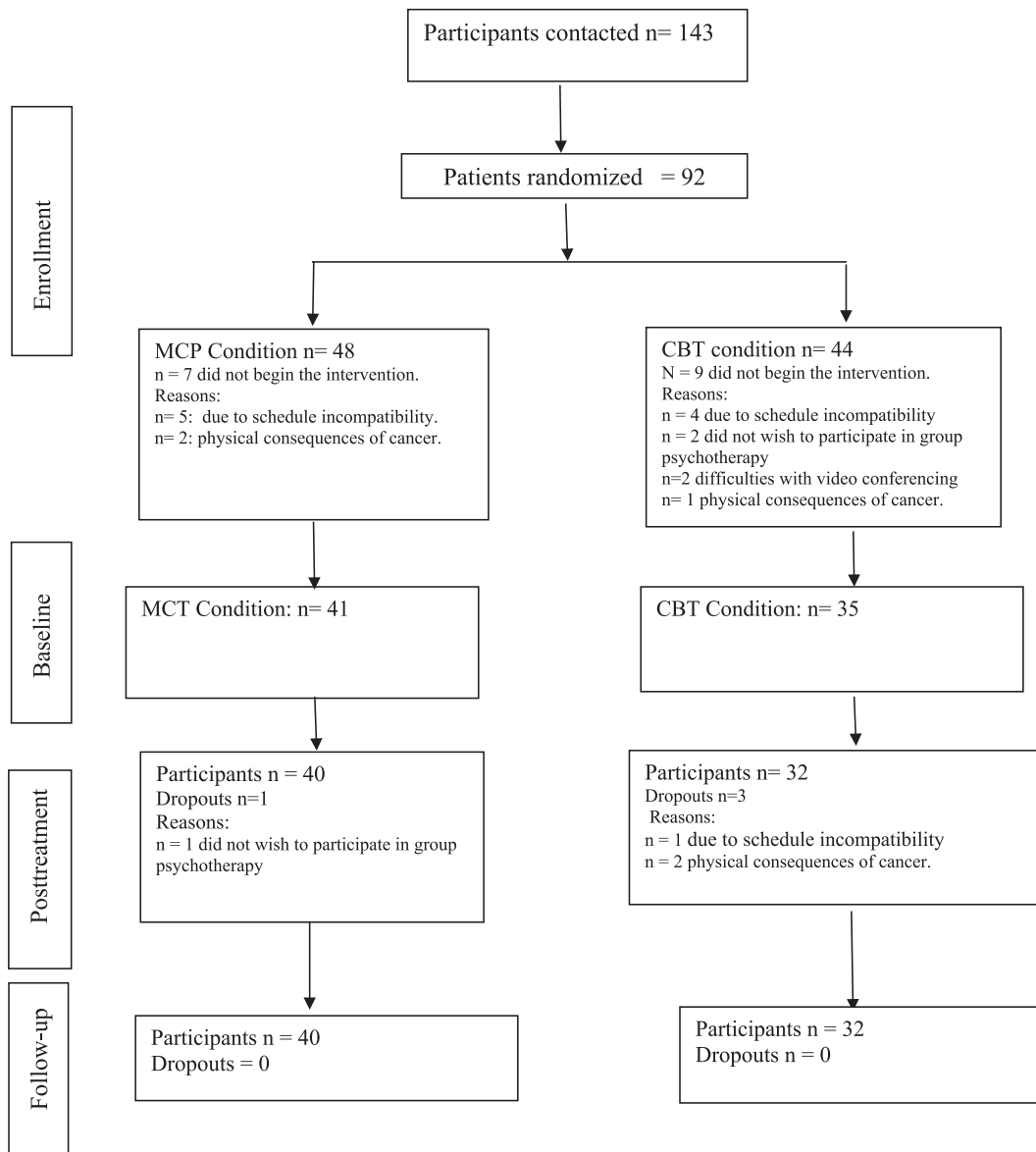


FIGURE 1 Evolution of the sample throughout treatment.

#### INTERVENTION DESCRIPTIONS

##### *Meaning Centered Group Psychotherapy (MCP)*

This intervention lasts 2 months and includes eight sessions that follow a 2-hour group format on a weekly basis. We used the manualized MCP for patients with cancer (Breitbart, & Poppito, 2014).

The MCP component for each session consisted of the following:

- Session 1:* Psychoeducation about meaning in life, sources of meaning, concepts from Frankl's theory
- Session 2:* Cancer illness and meaning
- Session 3:* Historical sources of meaning (the past)
- Session 4:* Historical sources of meaning (present and future)
- Session 5:* Attitudinal sources of meaning

##### *Session 6:* Creative sources of meaning

##### *Session 7:* Experimental sources of meaning

##### *Session 8:* End of psychotherapy, farewell, and facing the future with hope

(All the sessions include practice exercises.)

##### *Cognitive Behavioral Stress Management (CBSM)*

The intervention lasts 2 months and includes eight sessions that follow a 2-hour group format on a weekly basis. The sessions are the following:

- Session 1:* Presentation of the psychotherapy, establishing the goals of psychotherapy. Presentation of the participants. Psychoeducation about the psychological consequences of cancer.

*Session 2.* Increasing enjoyable activities. Behavioral activation. Progressive muscle relaxation training. Slow breathing training.

*Session 3.* Cognitive model for coping with cancer. ABC model. Psychoeducation on negative thoughts. Training in detecting negative thoughts. Presentation of cognitive distortions.

*Session 4.* Training in cognitive restructuring techniques.

*Session 5.* Training in problem-solving skills.

*Session 6.* Be aware of our own needs. Self-care. Assertiveness skills training.

*Session 7.* Setting goals for the future.

*Session 8.* Summarizing, relapse prevention, and end of psychotherapy.

(All the sessions include practice exercises.)

#### MEASURES

Data on demographic variables: age, gender, educational level, marital status, cancer diagnoses, cancer treatment, mental health diagnoses.

##### *Measures of Primary Outcomes*

*Meaning in Life Questionnaire* (MLQ, Steger et al., 2006). The MLQ assesses the two main dimensions of meaning in life and contains two subscales: (a) presence of meaning in life and (b) search for meaning in life.

*Purpose in Life Test (PIL; Crumbaugh & Maholick, 1969)*. This test assesses meaning and purpose in life and contains two subscales: (a) satisfaction and meaning in life and (b) life goals and purpose.

##### *Measures of Secondary Outcomes*

*The Posttraumatic Growth Inventory* (PTGI, Calhoun & Tedeschi, 1996). The PTGI assesses the perception of personal benefits in survivors of a traumatic event such as cancer, and it is composed of five subscales: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and New Appreciation of Life.

*Overall Anxiety Severity and Impairment Scale* (OASIS, Norman et al., 2006). The OASIS assesses the frequency and intensity of anxiety symptoms in the past week.

*Overall Depression Severity and Impairment Scale* (ODSIS, Ito et al., 2015). The ODSIS assesses the frequency and intensity of depression symptoms in the past week.

#### DATA ANALYSES

The intention-to-treat principle was used in the analytic strategy at pretreatment, posttreatment, and 6-month follow-up, using mixed-effects models with full information and maximum likelihood

estimation. This method has been recommended for its flexibility in handling missing data (Gueorguieva & Krystal, 2004). Mixed-model analyses are appropriate for RCTs with multiple time points and pre-post and follow-up designs (Salim, 2008). For all the outcomes, time was treated as a within-group factor and treatment condition as a between-group factor. The fixed-effects factor was the treatment condition (MCP vs CBT), and the random-effects factor was the group. Significant effects were followed up with pairwise comparisons (adjusted by Bonferroni correction). Effect sizes (Cohen's *d*) were calculated (Cohen, 1988; Cumming & Calin-Jageman, 2016). All statistical analyses were conducted using IBM SPSS Statistics, version 28.0 for Windows (IBM Company, Madrid, Spain).

##### *Demographic and Clinical Characteristics of the Participants*

The ages of the participants ranged between 34 and 72 years, with a mean age of 51.97 years ( $SD = 7.58$ ). In terms of gender, 90.8% ( $n = 69$ ) were women, and  $n = 7$  (9.2%) were men. Regarding their marital status, 68.4% ( $n = 52$ ) were married or had a partner, 19.7% ( $n = 15$ ) were single, and 11.9% ( $n = 9$ ) were separated or divorced. In terms of their educational level, 44.7% ( $n = 34$ ) had higher studies, 36.8% ( $n = 28$ ) (44.5%) had secondary studies, 15.8% ( $n = 12$ ) had primary studies, and 2.6% ( $n = 2$ ) had no studies.

Regarding the clinical characteristics of the sample, 60.5% ( $n = 46$ ) had breast cancer, and the rest, 39.5% ( $n = 30$ ), had another cancer diagnosis: Gynecological, 21.1% ( $n = 16$ ); Prostate, 7.9% ( $n = 6$ ); Lung, 3.9% ( $n = 3$ ); Melanoma, 3.9% ( $n = 3$ ); Sarcoma, 1.3% ( $n = 1$ ); and Lymphoma, 1.3% ( $n = 1$ ). With regard to the cancer stage before beginning the study, 55.3% ( $n = 42$ ) were in Stage I, 38.2% ( $n = 29$ ) were in Stage II, and 6.6% ( $n = 5$ ) were in Stage III. During the study, 17.1% ( $n = 13$ ) of the participants had a relapse in their cancer, and 82.9% ( $n = 63$ ) did not.

Regarding mental disorders, 57.9% ( $n = 44$ ) met the criteria for the diagnosis of mental disorders according to the DSM-5 (APA, 2013): 23.7% ( $n = 18$ ) adjustment disorder, 19.7% ( $n = 15$ ) major depressive disorder, and 14.5% ( $n = 11$ ) anxiety disorder, whereas 42.1% ( $n = 32$ ) did not meet the diagnostic criteria for a mental disorder. Only 1.3% ( $n = 1$ ) of the participants met the criteria for a personality disorder. With regard to psychotropic medication, 55.3% ( $n = 42$ ) were receiving this medication, and 44.7% ( $n = 34$ ) were not.

Table 1  
Evolution of Participants in the Treatment Groups During the Study

	Randomization		Baseline		Post-treatment		Follow-up	
	MCP	CBT	MCP	CBT	MCP	CBT	MCP <i>n</i>	CBT
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>		<i>n</i>
Group 1	12	11	11	8	11	8	11	8
Group 2	12	11	9	9	9	8	9	8
Group 3	11	11	8	9	8	8	8	8
Group 4	13	11	13	9	12	8	12	8
<i>N</i>	48	44	41	35	40	32	40	32

Note: MCP = Meaning Centered Psychotherapy; CBT = Cognitive Behavioral Therapy.

### Participant Flow and Attrition

To recruit the sample, 143 patients from an oncology hospital were initially contacted, and only those who met the inclusion criteria,  $n = 92$ , were selected, evaluated, and then randomized. However, only  $n = 76$  began the treatment. Thus, 16 participants did not begin the intervention for several different reasons:  $n = 9$  due to schedule incompatibility,  $n = 2$  because they did not wish to participate in group psychotherapy,  $n = 3$  due to a physical condition (pain, medical complications) caused by the cancer, and  $n = 2$  due to the difficulties of videoconferencing. Thus, at baseline, 41 participants received the intervention in the MCP condition, and  $n = 35$  received the intervention in the CBT condition. At posttreatment,  $n = 72$  (94.73%) participants who began the intervention remained in the study,  $n = 40$  (97.56%) in the MCP condition and  $n = 32$  (91.42%) in the CBT condition. At the 6-month follow-up,  $n = 72$  (94.73%) participants remained in the study,  $n = 40$  (97.56%) in the MCP condition and  $n = 32$  (91.42%) in the CBT condition. The evolution of the sample in the study can be seen in the flowchart (Figure 1), and Table 1 shows the evolution of participants in the treatment groups during the study.

## Results

### COMPARISON OF TREATMENT CONDITIONS AT BASELINE

As Table 2 shows, there were no statistically significant differences in the demographic or clinical characteristics of the participants in the two treatment conditions at baseline. Table 3 shows the participants' scores on the primary and secondary measures at the three time points: pretreatment (T1), posttreatment (T2), and 6-month follow-up (T3). As the table reveals, at pretreatment there were no statistically significant differences

between the two treatment conditions on any of the measures utilized.

### COMPARISON OF TREATMENT CONDITIONS AT POSTTREATMENT (T<sub>IV</sub>ST<sub>2</sub>)

#### Primary Outcomes

As Table 4 shows, the participants in the MCP condition obtained a greater improvement in Presence of meaning in life (MLQ) than the participants in the CBT condition, producing an interaction effect between the time point and the experimental condition ( $F = 7.25$ ,  $p < .001$ ). As Table 4 reveals, in the post hoc analyses of each of the treatment conditions, the participants in the MCP condition obtained statistically significant improvements in Presence of meaning in life (MD = 4.27, SE = 0.97,  $p = .001$ ), whereas the participants in the CBT condition did not (MD = 1.21, SE = 1.07;  $p = .91$ ).

In addition, although there was no interaction effect (Time  $\times$  Experimental Condition) on the rest of the primary measures, Table 4 shows that, in the post hoc analysis of each treatment condition, the participants in the MCP condition obtained statistically significant improvements in Purpose and meaning in life (overall score PIL) (MD = 4.01, SE = 1.39,  $p = .01$ ) and Life Goals (PIL) (MD = 2.08, SE = .74,  $p = .01$ ), whereas the participants in the CBT condition did not obtain statistically significant improvements on these measures at posttreatment. Moreover, although the participants in the MCP condition did not obtain statistically significant improvements on the rest of the primary measures, Table 4 shows a tendency toward statistical significance in the improvement in Life Satisfaction and meaning (PIL) (MD = 2.06, SE = 0.89,  $p = .07$ ).

In the case of Search for meaning (MLQ), there was no interaction effect (Time  $\times$  Experimental Condition) ( $F = 0.61$ ,  $p = .55$ ). Although participants in both the MCP and CBT conditions

Table 2  
Demographic and Clinical Characteristics of the Participants in the Two Conditions at Baseline

	Meaning Centered Psychotherapy ( <i>n</i> = 41)	Cognitive Behavioural Therapy ( <i>n</i> = 35)
Age means (SD)	53.27(5.95)	50.51(9.03)
Gender <i>n</i> (%)		
Female	35 (85.4%)	34 (97.1 %)
Male	6 (14.6%)	1 (2.9 %)
Marital status <i>n</i> (%)		
Married	26 (63.4%)	18 (51.4%)
Unmarried couple	3 (7.3%)	5 (14.3%)
Single	7 (17.1%)	8 (22.9%)
Separated	2 (4.9 %)	3 (8.6 %)
Divorced	3 (7.3 %)	1 (2.9%)
Level of education <i>n</i> (%)		
No studies	2 (4.9 %)	0 (0%)
Elementary education	6 (14.6 %)	6 (17.1%)
Secondary education	13 (31.7%)	15 (42.9 %)
Higher education	20 (48.8)	14 (40%)
Cancer Diagnosis		
Breast	24 (58.5 %)	22 (62.9 %)
Others:	17 (41.5%)	13 (37.1 %)
Cancer Stage		
Stage I	23 (56.31%)	19 (54.3%)
Stage II	17 (41.5)	12 (34.3%)
Stage III	1 (2.4%)	4 (11.4%)
Relapse of cancer during the study		
No	31 (75.6%)	32 (91.4%)
Yes	10 (24.4%)	3 (8.6%)
Mental disorder diagnosis		
No mental disorders	20 (48.8%)	12 (34.3 %)
Adjustment Disorder	9 (22%)	9 (25.7%)
Anxiety Disorder	4 (9.8%)	7 (20%)
Depressive Disorder	8 (19.5 %).	7 (20%)
Personality disorder diagnosis		
No	41 (100%)	34 (97.1%)
Yes	0 (0%)	1 (2.9%)
Pharmacotherapy		
No	19 (46.3%)	15 (42.9%)
Yes	22 (53.7)	20 (57.1%)

Note. SD = Standard Deviation

increased their search scores, this change was not statistically significant.

#### Secondary Outcome

In the case of the depression scores (ODSIS), there was no interaction effect (Time × Experimental Condition) ( $F = 0.04, p = .96$ ). However, the post hoc analysis of each treatment condition, presented in Table 4, shows that both the participants in the MCP condition ( $MD = 2.62, SE = 0.77, p = .002$ ) and the participants in the CBT condition ( $MD = 2.31, SE = 0.83; p = .02$ ) obtained statistically significant improvements in depression (ODSIS).

Moreover, although the MCP participants did not obtain statistically significant improvements on the rest of the secondary measures, Table 4 shows a tendency toward statistical significance

for Posttraumatic Growth (PTGI) (overall score) ( $MD = 5.40; SE = 2.30, p = .06$ ), Personal Strengths (PTGI) ( $MD = 1.87, SE = 0.82, p = .07$ ), and anxiety (OASIS) ( $MD = 2.11; SE = 0.92, p = .07$ ).

#### COMPARISON OF TREATMENT CONDITIONS AT PRETREATMENT AND 6-MONTH FOLLOW-UP

##### Primary Measures

Although the MCP participants did not obtain statistically significant improvements on the primary measures, Table 4 shows a tendency toward significance in the improvement in the Presence of meaning in Life (MLQ) ( $MD = 2.34, SE = 0.98, p = .05$ ) and Life Satisfaction (PIL) ( $MD = 2.12; SE = 0.88, p = .05$ ).

Table 3  
Participants' Scores at Pretreatment, Posttreatment, and Follow-up by Treatment Condition

Measures	Meaning Centered Psychotherapy			Cognitive Behavioral Therapy			Differences at T1 MCP vs CBT		
	T1	T2	T3	T1	T2	T3	<i>F</i>	<i>p</i>	<i>d</i>
Presence (MLQ)	17.61 (5.32)	21.95 (43.69)	18.55 (6.13)	18.93 (7.12)	17.5 (5.98)	18.90 (7.31)	.57	.45	0.12
Search (MLQ)	24.90 (3.80)	24.05 (5.47)	22.07 (6.04)	17.96 (8.26)	20.96 (5.99)	21.25 (7.87)	1.25	.26	0.18
Purpose in life (PIL)	47.65 (10)	51.75 (8.47)	49.25 (9.77)	45.65 (12.6)	46.09 (12.23)	47.09 (13.26)	1.04	.31	0.09
Llife Goal (PIL)	20.31 (0.74)	22.09 (3.21)	19.88 (4.97)	19.40 (5.21)	19.78 (4.54)	19.21 (5.76)	.70	.41	0.13
Satisfaction meaning (PIL)	27.57 (6.13)	29.37 (5.84)	30.31 (5.08)	25.82 (8.27)	26.60 (8.12)	27.14 (8.14)	1.09	.30	0.17
PGS (total)	36.34 (3.74)	41.80 (13.24)	45.91 (13.95)	32.67 (18.70)	33.50 (16.45)	40.28 (13.31)	.88	.35	0.27
New Life Perspective (PGS)	19.35 (8.28)	21.50 (7.58)	22.80 (6.05)	17.09 (9.38)	16.96 (8.03)	19.43 (8.97)	1.76	.18	0.22
Personal Strengths (PGS)	10.30 (4.87)	12.05 (4.46)	13.35 (5.28)	9.37 (5.36)	9.62 (5.22)	12.31 (4.99)	.26	.61	0.08
Spiritual Change (PGS)	3.02 (3.27)	3.07 (2.43)	4.75 (3.04)	3.25 (3.32)	2.43 (2.50)	3.74 (3.20)	.00	.93	0.01
Other Relations (PGS)	4.9 (2.39)	5.75 (2.56)	6.57 (2.27)	4.58 (2.97)	4.61 (2.47)	5.68 (2.85)	.34	.56	0.09
ODSIS	8.37 (5.01)	5.75 (4.73)	5.12 (4.90)	9.62 (6.49)	7.40 (6.07)	6.59 (6.23)	1.194	.28	0.17
OASIS	7.57 (4.51)	5.45 (3.96)	6.42 (6.70)	8.62 (5.13)	7.18 (4.33)	6.9 (6.22)	0.69	.41	0.13

*Note.* T1 = baseline assessment, T2 = posttreatment assessment; T3 = 6-month follow-up assessment; *d* = Cohen's *d*; MLQ = Meaning in Life Questionnaire; PIL = Purpose in Life ; PTGI = Posttraumatic Growth Inventory ; ODSIS = Overall Depression Severity and Impairment Scale ; OASIS = Overall Anxiety Severity and Impairment Scale ; MCP = Meaning Centered Psychotherapy; CBT = Cognitive Behavioral Therapy

Table 4  
ANOVA Repeated-Measures Linear Mixed Models

Measures	Time x condition		Post hoc test Bonferroni									
	F (2,143)	d	Meaning Centered Psychotherapy				Cognitive Behavioral Therapy					
			F (2,141)	MD (SE) T1-T2	d	MD (SE) T1-T3	d	F (2,140)	MD (SE) T1-T2	d	MD (SE) T1-T3	d
Presence of meaning (MLQ subscale)	7.25 p = .001	1.8	15.71 p = .001	4.27(.97) p = .001	3.6	2.34 (0.98) p = .05	0.20	.56 p = .42	1.21 (1.07) p = .78	0.09	0.19 (1.07) p = .91	0.01
Search for meaning (MLQ subscale)	0.61 p = .55	0.52	.301 p = .74	0.66 (2.62) p = .99	0.02	2.62 (3.5) p = .99	0.06	.67 p = .68	2.74 (3.84) p = .99	0.05	3.02 (3.84) p = .99	0.06
Purpose in life (Overall score PIL)	1.81 p = .16	0.97	4.35 p = .01	4.01(1.39) p = .01	0.24	1.59 (1.39) p = .76	0.07	.58 p = .56	.66(1.55) p = 1	0.03	1.66 (1.55) p = .91	0.08
Life Goal (PIL subscale)	2.22 p = .11	1.07	6.84 p = .001	2.08 (0.74) p = .01	0.22	0.52 (0.74) p = .97	0.08	0.12 p = .88	0.25 (.82) p = 1	0.02	0.15 (0.83) p = 1	0.01
Life Satisfaction (PIL subscale)	0.78 p = .45	0.66	3.69 p = .03	2.02 (0.88) p = .07	0.20	2.12 (0.88) p = .05	0.20	1.98 p = .14	.48(0.98) p = 1	0.03	1.89 (0.98) p = .17	0.12
PTGI (Overall score)	1.48 p = .23	0.84	9.67 p = .001	5.40 (2.30) p = .06	0.20	10.05 (2.31) p < .001	0.35	5.28 p = .006	0.52 (2.56) p = 1	0.01	7.04 (2.56) p = .02	0.23
New life perspective (PTGI subscale)	0.61 p = .51	0.58	3.89 p = .02	2.15 (1.25) p = .26	0.15	3.45 (1.48) p = .02	0.22	2.19 p = .11	0.10 (1.38) p = 1	0.01	2.57 (1.87) p = .19	0.16
Personal Strengths (PTGI subscale)	1.03 p = .36	0.74	7.83 p = .001	1.87(0.82) p = .07	0.20	3.20 (0.81) p < .001	0.31	6.44 p = .002	0.23 (0.89) p = 1	0.01	2.91 (0.89) p = .01	0.26
Spiritual Change (PTGI subscale)	1.41 p = .24	0.73	8.32 p = .001	0.05 (0.48) p = 1	0.01	1.75 (0.48) p < .001	0.30	2.69 p = .07	0.72 (0.53) p = .52	0.11	0.53 (0.54) p = .97	0.08
Relating to others (PTDI subscale)	0.73 p = .48	0.60	6.56 p = .001	0.85 (0.46) p = .19	0.16	1.67 (0.46) p = .04	0.30	2.96 p = .05	0.03 (0.51) p = 1	0.01	1.11 (0.51) p = .09	0.18
ODSIS	0.04 p = .96	0.12	10.72 p < .001	2.62 (0.77) p = .002	0.28	3.25 (0.74) p < .001	0.34	7.72 p = .001	2.31(0.83) p = .01	0.22	3.13(0.82) p < .001	0.31
OASIS	0.41 p = .63	0.50	2.63 p = .07	2.11 (0.92) p = .07	0.22	1.14 (0.93) p = .65	0.07	1.62 p = .20	1.43 (1.02) p = .49	0.11	1.73 (1.01) p = .28	0.13

Notes. T1 = baseline assessment, T2 = posttreatment assessment; T3 = 6 month follow-up assessment; d = Cohen's d; MLQ = Meaning in Life Questionnaire; PIL = Purpose in Life; PTGI = Posttraumatic Growth Inventory; ODSIS = Overall Depression Severity and Impairment Scale ; OASIS = Overall Anxiety Severity and Impairment Scale ; MCP = Meaning Centered Psychotherapy; CBT = Cognitive Behavioral Therapy. F = F statistic; MD = Mean Difference; SE = Standard Error. Cohen's d = adjusted standardized mean difference calculated by Cohen's

$$d = \frac{\sqrt{F(df1 + df2)}}{\sqrt{df1 * df2}} \text{ and Cohen's } d = \left( \frac{\sqrt{D}}{se \sqrt{gt}} \right)$$

### Secondary Measures

As Table 4 shows, the post hoc analysis of each treatment condition reveals that both the participants in the MCP condition (MD = 3.25, SE = 0.74,  $p = .001$ ) and the participants in the CBT condition (MD = 3.13, SE = 0.82,  $p < .001$ ) obtained statistically significant improvements in depression (ODSIS) at the 6-month follow-up. Moreover, the participants in the MCP condition obtained statistically significant improvements in Posttraumatic growth (overall score PTGI) (MD = 10.05, SE = 2.31,  $p = .001$ ), New Life perspective (PTGI) (MD = 3.45 SE = 1.48;  $p = .02$ ), Personal strength (PTGI) (MD = 3.20; SE = 0.81;  $p < .001$ ), Spiritual Change (PTGI) (MD = 1.75, SE = 0.48,  $p < .001$ ), and Relating to others (PTGI) (MD = 1.67, SE = 0.46,  $p = .04$ ). The participants in the CBT condition obtained statistically significant improvements in Posttraumatic Growth (overall score PTGI) (MD = 7.04, SE = 2.56,  $p = .02$ ) and Personal Strength (PTGI) (MD = 2.91, SE = 0.89,  $p = .01$ ).

In the case of anxiety (OASIS), the participants in the two treatment conditions reduced their anxiety scores at the follow-up, but there were no statistically significant differences between the two treatment conditions: MCP condition (MD = 1.14; SE = 0.93,  $P = .65$ ) and CBT condition (MD = 1.73, SE = 1.01;  $p = .28$ ).

### Discussion

The first aim of the study was to analyze the efficacy of the MCP intervention for cancer survivors in an RCT, comparing it to CBT. Our results showed that, at posttreatment, the MCP intervention for cancer survivors was more effective than CBT in increasing the Presence of meaning in life, Purpose and meaning in Life, and Life Goals. Our results support previous studies that found that MCP was effective in improving purpose, presence, and meaning in life (Breitbart et al., 2010; Dietrich et al., 2021; Vos & Vitali, 2018). MCP was more effective than CBT mainly because the CBT participants did not increase their meaning in life, purpose, or life goals. It is possible that CBT does not improve meaning in life because, unlike in previous studies (e.g. Marco et al., 2021; Quero et al., 2022), an inclusion criterion was that the participants had to have an absence of meaning in life or experience an existential vacuum.

Our results also confirm that both MCP and CBT were effective in improving depression at posttreatment and follow-up. The result showing that MCP is effective in the treatment of depression is consistent with previous studies carried

out in participants with cancer (Dietrich et al., 2021) and in people without cancer in which therapies based on meaning in life were effective in improving depression (Cheng et al., 2015; Fereydouni & Forstmeier, 2022; Marco et al., 2023). Thus, this study adds further evidence to previous studies suggesting that MCP might be a suitable treatment for depression in people with low meaning in life. Moreover, the efficacy of CBT in improving depression found in the present study confirms previous results that consider it an evidence-based treatment for depression in people with cancer (Jelvehzadeh et al., 2022).

At the 6-month follow-up, our results showed that both MCP and CBT were similarly effective in developing posttraumatic growth. The participants who received MCP increased their posttraumatic growth and a new life perspective, developing personal strengths and spiritual change and learning to value relationships with others. This result confirmed previous studies showing that MCP increased positive relations, a fighting spirit, and adjustment (Van der Spek et al., 2017). In the same way, the participants who received CBT obtained statistically significant improvements in posttraumatic growth and developed personal strengths, as previous studies found (Li et al., 2020). Our results suggest that the two therapies have similar efficacy in improving posttraumatic growth and depression, although they might act through different mechanisms of change. On the one hand, MCP could act through discovering, realizing, and making meaning in life, developing an attitude of coping from freedom to responsibility towards the cancer, readjusting vital values, developing a new life perspective and new personal strengths through spiritual change, and valuing relationships with others as sources of meaning. On the other hand, CBT could act through learning to recognize emotions and dysfunctional thoughts and learning to be more flexible and adaptive in this new situation, which allows participants to develop new personal strengths. However, in this study we did not analyze the change process of these two psychotherapies. Thus, future research is needed to analyze the change processes of MCP and CBT in posttraumatic growth and depression in cancer survivors. We can highlight this result because, although there has been increasing interest in studying the efficacy of interventions for posttraumatic growth in cancer survivors (Tomita et al., 2017), the quality of efficacy studies has been limited (Li et al., 2020), and our study is the first one to show that MCP is effective in increasing posttraumatic growth in cancer survivors.

In sum, MCP was more efficacious than CBT in increasing meaning in life, purpose in life, and life goals at posttreatment, and MCP and CBT showed equal efficacy in the treatment of depression at posttreatment and at the 6-month follow-up, as well as equal efficacy in increasing posttraumatic growth at the 6-month follow-up. These results suggest that survivors of Stage I, II, and III cancer may benefit from MCP. Taking into account that previous studies on the effectiveness of MCP have been conducted with participants with Stages III and IV cancer (e.g., [Breitbart et al., 2010](#)), our study suggests that a greater number of cancer survivors could benefit from MCP. The superiority of MCP over CBT on the primary measures found in this study could be due to several factors: For example, CBT focuses on changing thoughts, emotions, and behavioral activation, and, in some patients (i.e., those recently diagnosed with cancer), it may be less effective than in patients without cancer. In addition, some of the irrational negative thoughts in people without cancer may turn out to be totally rational in people with cancer (Kemp et al., 2022). Moreover, this result may suggest that if we want to increase meaning in life in participants with low meaning in life, it might be necessary to carry out an intervention focused on meaning in life. Thus, cancer survivors would benefit from these two psychotherapies. CBT or MCP could be applied depending on the specific needs of cancer survivors: MCP for participants who need to accept and readjust their values and life goals, and CBT for participants who could benefit from making irrational thoughts more flexible and, thus, reduce their emotional overload.

We can emphasize that MCP did not produce a significant increase in the search for meaning. This result suggests that, rather than learning to search for new sources of meaning, participants were making meaning from the sources of meaning they already had, rediscovering and materializing responsibility and behaviors in their new life circumstances through their choices.

Neither MCP nor CBT produced a statistically significant reduction in anxiety (only the MCP participants showed a tendency toward statistical significance). However, after the interventions, the MCP and CBT participants had scores on the OASIS that were below the cutoff point for clinical levels of anxiety, and this reduction was maintained at follow-up. Although some studies have confirmed the efficacy of MCP ([Breitbart et al., 2010](#)) and CBT ([Groarke et al., 2013](#)) for reducing anxiety, other studies have found contradictory results for MCP ([Breitbart et al. 2012](#)) and CBT ([Tang et al., 2020](#)). In our study, this result can

be explained by several factors: (a) our patients presented clinical levels of anxiety according to the OASIS scales—with such a short intervention, these levels can be reduced, but not in a statistically significant way; (b) in all, 24.4% of the patients in the MCP condition and 8.6% in the CBT condition experienced a relapse of their cancer, which would justify an increase in anxiety levels; (c) neither MCP nor CBT has an intervention component that addresses coping with death or the fear of death; and (d) during the study, the participants underwent numerous medical tests to assess their physical condition, which could produce high levels of anxiety the week before the medical assessment.

Another unexpected result was that the increased meaning in life in the MCP participants was not maintained at the 6-month follow-up. It is important to highlight that, although the two treatment conditions were statistically equivalent at pretreatment, in the MCP condition, 24.4% of the participants experienced a relapse of the cancer during the study, and 51.2% of the participants met the criteria for a mental disorder according to the DSM-5. In addition, before beginning the study, the participants in both treatment conditions showed clinical levels of depression and anxiety, and so an eight-session intervention might be insufficient to produce statistically significant changes. This suggests that, although MCP was effective in increasing meaning in life after the treatment, it would be necessary to increase the number of sessions and add new psychotherapeutic components to ensure that the results are maintained in the follow-ups when administering MCP to patients with mental disorders. The new adaptations of logotherapy are being protocolized with more extensive proposals and more therapeutic components based on Frankl's Theory.

Our research study has several strengths. It is the first RCT to compare MCP to an evidence-based treatment (CBT) for cancer survivors. In addition, the sample was obtained in a natural setting, and so it is clinically representative. The sample size was adequate and previously calculated based on the theoretical power of the interventions, and adherence to both treatments was high. Moreover, in the sample we included participants from Stages I, II, and III. The study was carried out by videoconference, and a follow-up took place 6 months after finishing the treatment.

This study has several limitations. Most of the participants were women, and so the results are generalizable primarily to women cancer survivors. Although 92 participants were initially randomized, the analyses and results were obtained

with 76 participants, and so it is possible that results that are not statistically significant in our study would be statistically significant with a larger sample. Therefore, future research should replicate this study with a larger sample. Finally, the possible change processes responsible for the improvements in meaning in life, depression, and posttraumatic growth in both treatment conditions were not analyzed. Thus, future research should analyze the change processes that are responsible for the efficacy of MCP and CBT in a large sample of cancer survivors with the same proportion of women and men.

## CONCLUSIONS

Despite these limitations, this study advances the research on the efficacy of interventions for cancer patients, and it suggests that MCP could be more effective than CBT in improving meaning in life, purpose, and life goals in cancer survivors, and equally effective as CBT in improving their depression and posttraumatic growth.

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Breitbart, W. S., & Poppito, S. R. (2014). *Meaning-centered group psychotherapy for patients with advanced cancer: A treatment manual*. Oxford University Press.
- Breitbart, W., Poppito, S., Rosenfeld, B., Vickers, A. J., Li, Y., Abbey, J., Olden, M., Pessin, H., Lichtenthal, W., Sjoberg, D., & Cassileth, B. R. (2012). Pilot randomized controlled trial of individual meaning-centered psychotherapy for patients with advanced cancer. *Journal of Clinical Oncology*, *30*(12), 1304–1309. <https://doi.org/10.1200/JCO.2011.36.2517>.
- Breitbart, W., Rosenfeld, B., Gibson, C., Pessin, H., Poppito, S., Nelson, C., Tomarken, A., Timm, A. K., Berg, A., Jacobson, C., Sorger, B., Abbey, J., & Olden, M. (2010). Meaning-centered group psychotherapy for patients with advanced cancer: A pilot randomized controlled trial. *Psycho-Oncology*, *19*, 21–28. <https://doi.org/10.1002/pon.1556>.
- Calhoun, L. G., & Tedeschi, R. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, *9*(3), 455–471. <https://doi.org/10.1007/BF02103658>.
- Chan, A. W., Tetzlaff, J. M., Altman, D. G., Laupacis, A., Gøtzsche, P. C., & Krleza-Jeric, K. (2013). SPIRIT 2013 statement: Defining standard protocol items for clinical trials. *Annals of Internal Medicine*, *158*(3), 200. <https://doi.org/10.1136/bmj.e7586>.
- Cheng, M., Hasche, L., Huang, H., & Su, X. S. (2015). The Effectiveness of a Meaning-Centered Psychoeducational Group Intervention for Chinese College Students. *Social Behavior and Personality: An International Journal*, *43*(5), 741–756. <https://doi.org/10.2224/sbp.2015.43.5.741>.
- Cleeland, C. S. (2007). Symptom burden: multiple symptoms and their impact as patient-reported outcomes. *Journal of the National Cancer Institute*, *37*, 16–21. <https://doi.org/10.1093/jncimonographs/lgm005>.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Lawrence Erlbaum Associates Publishers.
- Crumbaugh, J. C., & Maholick, L. T. (1969). *Manual of instructions for the Purpose in Life Test*. Saratoga: Viktor Frankl Institute of logotherapy.
- Cumming, G., & Calin-Jageman, R. (2016). *Introduction to the new statistics: Estimation, open science, and beyond*. Routledge.
- David, D., Cristea, I., & Hofmann, S. G. (2018). Why cognitive behavioral therapy is the current gold standard of psychotherapy. *Frontiers in Psychiatry*, *9*, 4. <https://doi.org/10.3389/fpsy.2018.00004>.
- Dietrich, N., Estradé, A., & Cruzado, J. A. (2021). Efficacy of meaning-centered psychotherapy in adult patients with advanced cancer: A systematic review and meta-analysis. *Psicooncología*, *18*(2), 227–244. <https://doi.org/10.5209/psic.77752>.
- Emery, J., Butow, P., Lai-Kwon, J., Nekhlyudov, L., Rynderman, M., & Jefford, M. (2022). Management of common clinical problems experienced by survivors of cancer. *The Lancet*, *399*(10334), 1537–1550. [https://doi.org/10.1016/S0140-6736\(22\)00242-2](https://doi.org/10.1016/S0140-6736(22)00242-2).
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>.
- Frankl, V. E. (1959/1985). *Man's search for meaning*. Simon & Shuster.
- Fereydouni, S., & Forstmeier, S. (2022). An Islamic Form of Logotherapy in the Treatment of Depression, Anxiety and Stress Symptoms in University Students in Iran. *Journal of Religion and Health*, *61*(1), 139–157. <https://doi.org/10.1007/s10943-021-01495-0>.
- Getu, M. A., Chen, C., Panpan, W., Mboineki, J. F., Dhakal, K., & Du, R. (2021). The effect of cognitive behavioral therapy on the quality of life of breast cancer patients: A systematic review and meta-analysis of randomized controlled trials. *Quality Life Research*, *30*, 367–384. <https://doi.org/10.1007/s11136-020-02665-5/FIGURES/9>.
- Groarke, A., Curtis, R., & Kerin, M. (2013). Cognitive-behavioural stress management enhances adjustment in women with breast cancer. *British Journal of Health Psychology*, *18*(3), 623–641. <https://doi.org/10.1111/bjhp.12009>.
- Gueorguieva, R., & Krystal, J. H. (2004). Move over ANOVA: progress in analyzing repeated-measures data and its reflection in papers published in the Archives of General Psychiatry. *Archives of General Psychiatry*, *61*(3), 310–317. <https://doi.org/10.1001/archpsyc.61.3.310>.
- Henson, L. A., Maddocks, M., Evans, C., Davidson, M., Hicks, S., & Higginson, I. J. (2020). Palliative care and the management of common distressing symptoms in advanced cancer: Pain, breathlessness, nausea and vomiting, and fatigue. *Journal of Clinical Oncology*, *38*(9), 905–914. <https://doi.org/10.1200/JCO.19.00470>.
- Hinz, A., Krauss, O., Hauss, J. P., Höckel, M., Kortmann, R. D., Stolzenburg, J. U., & Schwarz, R. (2010). Anxiety and depression in cancer patients compared with the

- general population. *European Journal of Cancer Care*, 19 (4), 522–529. <https://doi.org/10.1111/j.1365-2354.2009.01088.x>.
- Ito, M., Bentley, K. H., Oe, Y., Nakajima, S., Fujisato, H., Miyamae, M., Kanie, A., Horikoshi, M., & Barlow, D. H. (2015). Assessing depression related severity and functional impairment: The Overall Depression Severity and Impairment Scale (ODSIS). *PLoS One*, 10, 1–14. <https://doi.org/10.1371/journal.pone.0122969>.
- Jelvehzadeh, F., Dogaheh, E. R., Bernstein, C., Shakiba, S., & Ranjbar, H. (2022). The effect of a group cognitive behavioral therapy on the quality of life and emotional disturbance of women with breast cancer. *Support Care Cancer*, 30, 305–312. <https://doi.org/10.1007/s00520-021-06421-4>.
- Lethborg, C., Kissane, D. W., & Schofield, P. (2019). Meaning and Purpose (MaP) therapy I: Therapeutic processes and themes in advanced cancer. *Palliative and Supportive Care*, 17(1), 13–20. <https://doi.org/10.1017/S1478951518000871>.
- Li, J., Peng, X., Su, Y., He, Y., Zhang, S., & Hu, X. (2020). Effectiveness of psychosocial interventions for posttraumatic growth in patients with cancer: A meta-analysis of randomized controlled trials. *European Journal of Oncology Nursing*, 48, 101798. <https://doi.org/10.1016/j.ejon.2020.101798>.
- Marco, J. H., Alonso, S., & Baños, R. (2021). Meaning-making as a mediator of anxiety and depression reduction during cognitive behavioral therapy intervention in participants with adjustment disorders. *Clinical Psychology & Psychotherapy*, 28(2), 325–333. <https://doi.org/10.1002/cpp.2506>.
- Marco, J. H., Martínez-Mico, A., García-Alandete, J., Guillén, V., Grimaldos, J., Pérez, S., & Quero, S. (2023). A systematic review of the effectiveness of meaning-centred psychotherapies in depressed participants. *Clinical Psychology & Psychotherapy*, 1–12. <https://doi.org/10.1002/cpp.2936>.
- Moher, D., Hopewell, S., Schulz, K. F., Montori, V., Gotzsche, P. C., Devereaux, P. J., et al. (2010). CONSORT 2010 explanation and elaboration: Updated guidelines for reporting parallel group randomised trials. *Journal of Clinical Epidemiology*, 63(8), e1–e37.
- Moher, D., Schulz, K. F., & Altman, D. G. (2001). The CONSORT statement: Revised recommendations for improving the quality of reports of parallel group randomized trials. *Journal of the American Pediatric Medical Association*, 91(8), 437–442.
- Norman, S. B., Hami, S., Means-Christensen, A. J., & Stein, M. B. (2006). Development and validation of an overall anxiety severity and impairment scale (OASIS). *Depression and Anxiety*, 23(4), 245–249. <https://doi.org/10.1002/da.20182>.
- Quero, S., Palau-Batet, M., Tur, C., Mor, S., Campos, D., Rachyla, I., Grimaldos, J., & Marco, J. H. (2022). Effect of an internet-based intervention for adjustment disorder on meaning in life and enjoyment. *Current Psychology*. <https://doi.org/10.1007/s12144-022-03177-w>.
- Salim, A., Mackinnon, A., Christensen, H., & Griffiths, K. (2008). Comparison of data analysis strategies for intent-to-treat analysis in pre-test–post-test designs with substantial dropout rates. *Psychiatry Research*, 160(3), 335–345. <https://doi.org/10.1016/j.psychres.2007.08.005>.
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53(1), 80–89. <https://doi.org/10.1037/0022-0167.53.1.80>.
- Sun, H., Huang, H., Ji, S., Chen, X., Xu, Y., Zhu, F., & Wu, J. (2019). The efficacy of cognitive behavioral therapy to treat depression and anxiety and improve quality of life among early-stage breast cancer patients. *Integrative Cancer Therapies*, 18(1), 1–9. <https://doi.org/10.1177/1534735419829573>.
- Tang, M., Liu, X., Wu, Q., & Shi, Y. (2020). The effects of cognitive behavioral stress management for breast cancer patients: A systematic review and meta-analysis of randomized controlled trials. *Cancer Nursing*, 43, 222–237. <https://doi.org/10.1097/NCC.0000000000000804>.
- Tomita, M., Takahashi, M., Tagaya, N., Kakuta, M., Kai, I., & Muto, T. (2017). Structural equation modeling of the relationship between posttraumatic growth and psychosocial factors in women with breast cancer. *Psycho-Oncology*, 26(8), 1198–1204. <https://doi.org/10.1002/pon.4298>.
- Van der Spek, N., Vos, J., van Uden-Kraan, C. F., Breitbart, W., Cuijpers, P., Holtmaat, K., ... Verdonck-de Leeuw, I. M. (2017). Efficacy of meaning-centered group psychotherapy for cancer survivors: A randomized controlled trial. *Psychological Medicine*, 47(11), 1990–2001. <https://doi.org/10.1017/S0033291717000447>.
- Vos, J., & Vitali, D. (2018). The effects of psychological meaning-centered therapies on quality of life and psychological stress: A metaanalysis. *Palliative & Supportive Care*, 16(5), 608–632. <https://doi.org/10.1017/S1478951517000931>.
- Zhang, A., Wang, K., Blumenstein, K., Brose, A., Kemp, C., Meister, D., & Solomon, P. (2022). For whom and what outcomes does cognitive-behavioral-therapy work among cancer survivors: a systematic review and meta-analysis. *Support Care Cancer*, 30, 8625–8636. <https://doi.org/10.1007/s00520-022-07337-3>.

RECEIVED: November 14, 2023

ACCEPTED: March 14, 2024

AVAILABLE ONLINE: 10 APRIL 2024