

## Research article

# Effectiveness of a hybrid arts-based Cognitive Behavioral Therapy intervention for patients with non-malignant chronic pain

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### ABSTRACT

Chronic Pain (CP) is defined as pain that persists or recurs for more than 3 to 6 months and may be conceived as a health condition in its own right. CP is a frequent condition, affecting an estimated 20% of people worldwide and requires special treatment and care. CP can contribute to depression, anxiety, sleep disturbances, poor quality of life and increased health care costs. Psychosocial approaches based on a cognitive conceptualization of pain can provide a solid foundation for research and clinical work. The development of a 10 week-session group treatment was based on key principles from the literature on Cognitive Behavioral Therapy for Chronic Pain (CBT-CP) and Creative Arts Therapy, integrated with advances in research on CP management framework. The aim of this study was to evaluate a CBT-CP arts-based group intervention for patients with non-malignant CP addressing the biopsychosocial factors that influence pain perception. A total of 100 University Pain Management Unit outpatients participated, 50 in the intervention group and 50 in the control group (treatment as usual). In analyses of the pretest-posttest research design intervention including all participants, treatment gains were observed in almost all domains examined: severity of pain measured by the Brief Pain Inventory, conceptualization of mental pain measured by the Orbach and Mikulincer Mental Pain Scale, tolerance for psychological pain measured by the Tolerance for Mental Pain Scale, anxiety and depression levels measured by the Hospital Anxiety and Depression Scale and quality of life measured by the WHO Quality of Life-BREF Questionnaire. The participants' mean age was 52.3 years and most were female (84%). Findings revealed that post-program there was significant reduction in pain intensity ( $p < 0.001$ ), depressive symptoms ( $p < 0.001$ ), confusion about pain ( $p = 0.037$ ) and improvement of emotional distress tolerance ( $p = 0.012$ ) and global health-related quality of life ( $p < 0.001$ ) in the intervention group. Beneficial effects can be expected from the implementation of an integrated CP intervention (including creative and CBT techniques) reappraising some of the coping responses defined as adaptive within current psychosocial non-malignant CP regimens.

**KEYWORDS:** Chronic pain, Cognitive Behavioral Therapy for Chronic Pain (CBT-CP), Creative Arts Therapy, mental pain, quality of life.

## Introduction

Chronic pain (CP) is defined as pain that persists past normal healing time and hence lacks the acute warning function of physiological nociception.<sup>1</sup> Pain is regarded as chronic when it lasts or recurs for more than 3 to 6 months.<sup>2</sup> Chronic and recurrent pain should be viewed as diseases in their own right and pose a specific health-care burden.<sup>3</sup> CP is a frequent condition, affecting an estimated 20% of people worldwide and accounting for 15–20% of physician visits.<sup>4</sup> Many non-physiologic factors (psychological, familial and societal attitudes, life stressors, cultural and spiritual) contribute to the experience of and response to pain.<sup>5</sup> CP can contribute to disability, depression and anxiety, sleep disturbances, poor quality of life and increased healthcare costs.<sup>6</sup> Adequate treatment and alleviation of pain is a human right and it is the duty of any healthcare system to provide it.<sup>7</sup> The World Health Organization identified a need for improved, standardized management of CP (both malignant and non-malignant) developed on the basis of good health professional-patient communication and jointly agreed goals that take account of the patient's pain characteristics, as well as their physical and psychosocial needs.<sup>8</sup>

Because of its clear research support Cognitive Behavioral Therapy (CBT), as the gold-standard evolving psychological treatment dominates the international guidelines for psychosocial treatments, making it a first-line treatment for many disorders.<sup>9</sup> Although CBT is effective, there is still room for improvement, as in many situations there are patients who do not respond to CBT and/or relapse. CBT for managing CP (CBT-CP) is based on the principle that the experience of pain results in a complex interaction among biological, cognitive, affective and behavioral factors and that changing these factors should positively affect the painful experience.<sup>10</sup>

Creative Arts Therapies (CATS) are a valuable psychosocial treatment option, which allow people to experience and express themselves through the arts. They foster exploration of creativity in a supportive environment anchored by a therapeutic relationship. Clinicians use evidence-based methods in the application of the art form and a variety of techniques and arts media.<sup>11</sup> There is a large body of research showing how arts engagement can enhance multidimensional subjective individual and social well-being, through effects on modifying cognitions and emotions and building socialization and resilience.<sup>12,13</sup> There is also a growing literature on the preventive benefits of arts engagement in relation to mental health.<sup>14,15</sup> Creativity is noted as a significant protective factor when facing life difficulties and trauma.<sup>16</sup>

However, CATS and CP remain an under-researched area indicating a growing need for quality exploratory studies to enrich our understanding of the mechanisms of therapy and to enable further assessment of effectiveness.<sup>17,18</sup> Most of the relevant literature addresses psychosomatic forms of pain and most studies describe how therapeutic arts experience was used in long-term treatment.<sup>19,20</sup> More quantitative studies need to be carried out to test the efficacy of brief forms of creative therapies in order to gain a better understanding of how many patients find CATS beneficial to their CP treatment, making the findings more generalizable.<sup>21</sup> Finally, there is relatively little information regarding how creative therapies operate in conjunction with other CP treatments.<sup>22</sup>

Therefore, we developed a hybrid intervention integrating CATS and CBT-CP components as a complementary CP treatment approach, that could be used in traditional pain management regimens. While a CATS perspective inspired arts-based methods and techniques (i.e., visualization, externalizing of inner processes), CBT-CP guided the rationale (i.e., psychoeducation, cognitive restructuring, problem solving, positive affirmation, relaxation training, relapse prevention) for using these methods and techniques to address CP and helped to explain why they were effective.<sup>23–25</sup>

The aim of this study was to evaluate a brief multicomponent arts-based CBT-CP group intervention for adults suffering from non-malignant CP of any aetiology. Our hypothesis was that the arts-based intervention would improve pain intensity, emotional distress, pain disability and health-related quality of life.

## Material and Method

### Participants

The sample consisted of one hundred adult patients. Inclusion criteria were: (a) aged between 18 and 60, (b) suffering from non-malignant CP of any aetiology, and (c) willing not to engage in any other group counseling treatment during the course of the study. Exclusion criteria applied to those (a) who were not able to give informed consent, (b) whose Greek was not fluent enough to communicate meaningfully, (c) who suffered from any mental health condition (based on self-disclosure and psychiatric interview).

### Measures

According to the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (IMMPACT),<sup>26</sup> the following scales were used:

### *Brief Pain Inventory (BPI)*

The BPI evaluates a patient's pain experience through a number of different scales. The benefits of the BPI are that it has shown to be reliable in a number of different pain states and is an excellent tool to use for monitoring the effect of pain or treatment of pain or both, in terms of a patient's functional ability or disability over time.<sup>27</sup> It has been translated and validated in Greek.<sup>28</sup>

### *Orbach and Mikulincer Mental Pain Scale (MPS)*

The MPS consists of 45 self-rated items and draws on a conceptualization of mental pain as a perception of negative feelings. The items of the MPS are divided into nine factors: irreversibility, loss of control, narcissistic wounds, emotional flooding, freezing, self-estrangement, confusion, social distancing and emptiness. Subjects rate each item on a 5-point Likert scale, with higher values reflecting greater mental pain.<sup>29</sup> It has been translated and validated in Greek.<sup>30</sup>

### *Tolerance for Mental Pain Scale (TMPS)*

The 20-item TMPS was developed, and is, as far as we know, the only questionnaire available to assess tolerance for psychological pain. The TMPS measures three facets of tolerance for psychological pain that reflect existing theoretical perspectives in the literature: surfeit of the pain, belief in the ability to cope with the pain and containing the pain.<sup>31</sup> It has been translated and validated in Greek.<sup>30</sup>

### *Hospital Anxiety and Depression Scale (HADS)*

The HADS is a self-report rating scale of 14 items on a 4-point Likert scale (range 0–3) and provides clinicians with an acceptable, reliable, valid and easy to use practical tool for identifying and quantifying depression and anxiety in general hospital patients.<sup>32</sup> It has been translated and validated in Greek.<sup>33</sup>

### *WHO Quality of Life-BREF (WHOQoL-BREF) Questionnaire*

The WHOQoL-BREF evaluates perceptions of health and assess interventions aimed at improving health-related QoL in patients with chronic medical conditions. This questionnaire consists of 4 broad domains, physical health, psychological, social relationships and environment. In addition to the four domains, the WHOQoL-BREF includes two stand-alone questions to assess rated QoL and satisfaction with health.<sup>34</sup> Finally, this instrument has been standardized for use within the Greek population.<sup>35</sup>

### Procedure

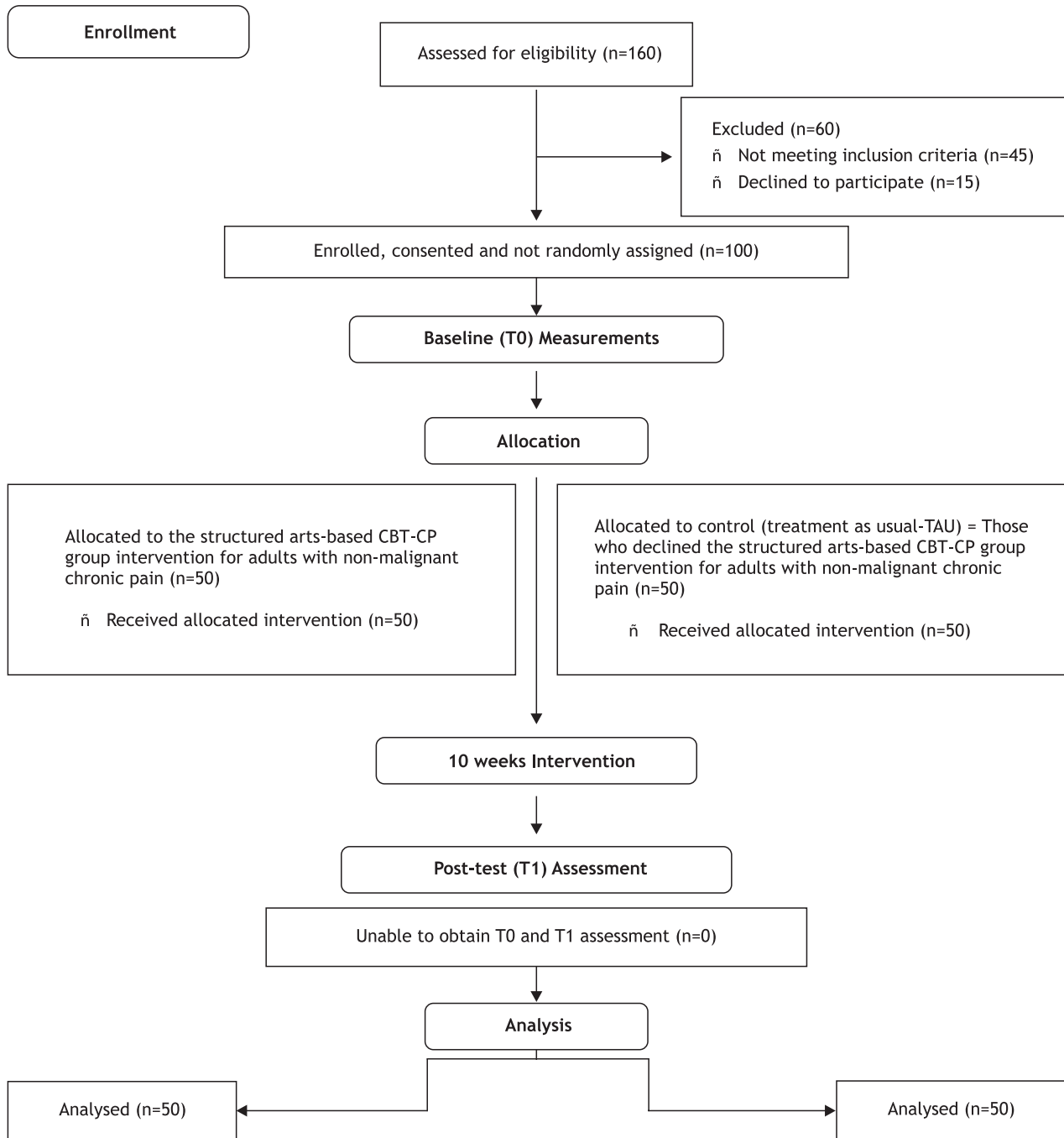
The study protocol was approved in December 2016 (RN#EBD2106/6-2-2017) by the Research Ethics Board at "Attikon" University Hospital, Athens, Greece.<sup>36</sup> The participants' response to therapy was evaluated using a battery of questionnaires as well as interviews and observation. Pain Management Unit's outpatients with CP complaints were referred by their physician to the group program (max. 10 patients per group). The study was conducted from February 2017 to November 2019. The intervention was proposed to 160 outpatients. From 115 patients who accepted, 15 quit before the intervention. A total of 100 patients participated from which 50 accepted and formed the intervention group and 50 declined and formed the treatment as usual (TAU) control group. TAU included pharmacological pain management, case-by-case supportive psychotherapy and acupuncture. Every experimental group consisted of 4–10 participants, who attended 10 weekly structured 2-hour sessions. Pre- and post-measurement took place at the start of the course (baseline, T0) and directly after the 10-week course (T1). All participants signed an informed consent form (see figure 1).

The goal of the treatment was described to patients as such: "to regain control over daily functioning by learning to accept limitations and start focusing on abilities; finding new pain coping ways and reflect on quality of life options for the future".

### *Intervention: key constructs*

The development of the present intervention is based on key principles from the literature on CATS, and CBT-CP, integrated with advances in research on CP management and comorbid psychosocial symptoms. With this conceptual background, ten arts-based treatment group sessions were created and applied within the multicomponent CP management framework including psychoeducation and arts engagement (including drawing and expressive writing) addressing the psychological, cognitive, behavioral, social and physiological factors that influence pain perception through visual and creative expression. The decision to limit the intervention to ten sessions was based on: (a) the frequency of patient attrition due to CP-related issues and (b) the typical structure of brief CBT which reduces the average 12–20 therapy sessions into 4–8 sessions.<sup>37</sup> The ten sessions were organized into three stages: the Initial treatment phase (Sessions 1 and 2), the CBT skills building phase (Sessions 3–8) and the Discharge phase (Sessions 9 and 10) (presented in the Supplementary material). The emerging treatment manual of the actual intervention

Sex, Age and Chronic condition used as covariates in ANCOVAs



**Figure 1.** Participant flow through treatment as usual and arts-based CBT-Chronic Pain group intervention.

was the extensive modification of the treatment manual of Thorn on CP.<sup>38</sup>

*The standard session structure*

To enhance replication, we provide instructions and steps to use in each session. All group sessions (~2 h) offered general structure and flexibility at the same time. Structure is considered important in the context of CP, providing a safe space that does not affect the crea-

tive and therapeutic process and patients are invited to change the structure and make choices at all times. No drop-in participants are permitted and participants are given a program manual of notes and information about the different aspects of the program that highlights the main theoretical underpinnings of the planned intervention, discusses the aims of the therapy in the specific context of non-malignant CP, pictures the general structure of each session and suggests exemplary activ-

ities. The point is to keep the patient working on pain self-management in spite of the pain experience (see Supplementary material).

We focus on positive group affective tone as an energizing mechanism for team proactivity because positive affect increases cognitive and behavioral resources for participants to set future-focused and change-oriented goals and to persistently engage in coping activities to achieve anticipated outcomes.<sup>39,40</sup>

### Therapist

The therapist was an occupational therapist, also trained on CBT. Supervision by an experienced CBT therapist was provided throughout the intervention procedure.

### Statistical analysis

Quantitative variables were presented as mean values (SD) and minimum, maximum values across the total population and between groups. Qualitative variables were expressed as absolute and relative frequencies (N, %). Patient characteristics on baseline were compared using the non-parametric Mann–Whitney-U test and

Chi-square or Fisher's exact test. Pearson and Spearman correlation coefficients were also used. A mixed model ANOVA was used to investigate the effect of time (time; within-subject variable), intervention (2 groups; between-subject variable) and their interaction term, after adjusting participants' age, sex and chronic condition on mental pain, mental pain tolerance and quality of life. Overall, all statistical analyses were performed with SPSS Version 25.0.<sup>41</sup> All the aforementioned statistical tests were two-sided and were performed at a 0.05 significance level.

## Results

### Patient characteristics

One hundred participants with non-malignant CP were recruited in the study. Patients' demographic characteristics such as age, gender, marital status, education level, CP classification<sup>42</sup> and coping strategies are presented in table 1. No significant baseline differences were found between the two groups, except for the participants' age. As shown in table 1, the vast majority were females (84%) in both groups, with younger participants being included in the intervention group (48.9±9.29 years vs

**Table 1.** Demographic characteristics across sample.

	Intervention group (N=50)	Control group (N=50)	Total sample (N=100)	p
Sex (female)	42 (84%)	42 (84%)	84 (84%)	1.000
Age	48.9±9.29 (22–60)	55.8±3.67 (40–60)	52.35±7.83 (22–60)	<0.001 <sup>b</sup>
Education(years)	12.1±4.35 (6–18)	11.8±3.53 (6–18)	11.9±3.94 (6–18)	0.889 <sup>b</sup>
Marital status				0.068 <sup>a</sup>
Married	29 (64.4%)	39 (81.3%)	68 (73.1%)	
Living alone	16 (35.6%)	9 (18.7%)	25 (26.9%)	
Non-malignant chronic pain classification (ICD-11)				0.320 <sup>a</sup>
Headache/ Orofacial pain	5 (10%)	2 (4%)	7 (7%)	
Musculoskeletal pain	16 (32%)	19 (38%)	35 (35%)	
Neuropathic pain	9 (18%)	11 (22%)	20 (20%)	
Chronic posttraumatic/postsurgical pain	0 (0%)	3 (6%)	3 (3%)	
Visceral pain	1 (2%)	0 (0%)	1 (1%)	
Mixed pain	19 (38%)	15 (30%)	34 (34%)	
Selected coping mechanisms				0.109 <sup>a</sup>
Newspaper / TV	20 (40%)	24 (48%)	44 (44%)	
PC activities	19 (38%)	23 (46%)	42 (42%)	
Exercise	2 (4%)	2 (4%)	4 (4%)	
Household / Children	7 (14%)	1 (2%)	8 (8%)	
Books / Music	2 (4%)	0 (0%)	2 (2%)	

M±SD (range) or N (%) are displayed, as appropriate; a:  $\chi^2$  or Fisher's exact test; b: Mann–Whitney.



55.8±3.67 years,  $p < 0.001$ ). The mean years of education was 11.9 years in the total sample, similar results were found in both groups. There were no differences on pain classification or selected coping mechanisms.

### Treatment effects: mixed model analysis

The complexity of objectives of this research study required flexible approaches to the research design, data collection and analysis methods. In analyses of the pre-test-posttest research design intervention including all participants, treatment gains were observed in almost all domains examined: severity of pain measured by the Brief Pain Inventory, conceptualization of mental pain

measured by the Orbach and Mikulincer Mental Pain Scale, tolerance for psychological pain measured by the Tolerance for Mental Pain Scale, anxiety and depression levels measured by the Hospital Anxiety and Depression Scale, and quality of life measured by the WHO Quality of Life-BREF Questionnaire. The participants' mean age was 52.3 years and most were female (84%). The two groups showed statistically significant differences between T0 and T1 for most of the variables used to assess pain (severity; pain-related interference with functioning), mental pain, mental pain tolerance, anxiety and depression levels, and health-related quality of life (see table 2). Findings revealed that post-program, there

**Table 2.** Paired sample t-tests comparing changes in outcomes pre- and post-program.

	Intervention group (N=50)			Control group (N=50)		
	T0	T1	p	T0	T1	p
	Mean (SD)	Mean (SD)		Mean (SD)	Mean (SD)	
Average pain (BPI)	6.3±1.89	4.7±2.27	<0.001 <sup>b*</sup>	3.9±1.49	3.7±1.47	0.002 <sup>b*</sup>
Relief pain medication provided (BPI)	54.4±19.29	68.8±17.92	<0.001 <sup>b*</sup>	71.6±11.67	76±9.69	<0.001 <sup>b*</sup>
Total pain-related interference with functioning (BPI)	6.5±2.45	4.7±2.47	<0.001 <sup>b*</sup>	5.2±1.5	5.6±1.32	<0.001 <sup>b*</sup>
a) General activity (BPI)	6.6±2.52	4.8±2.46	<0.001 <sup>b*</sup>	5.1±1.98	5±1.68	0.397 <sup>b</sup>
b) Mood (BPI)	6.8±2.69	4.8±2.71	<0.001 <sup>b*</sup>	5.7±1.36	6.8±1.18	<0.001 <sup>b*</sup>
c) Walking ability (BPI)	5.6±3.28	4.8±2.71	0.014 <sup>b*</sup>	4.2±2.17	4.1±2	0.132 <sup>b</sup>
d) Normal work (BPI)	6.5±2.54	4.7±2.54	<0.001 <sup>b*</sup>	4.7±1.82	4.7±1.7	0.705 <sup>b</sup>
e) Relations with other people (BPI)	6±2.77	4.4±2.5	<0.001 <sup>b*</sup>	5.7±1.69	6.6±1.64	<0.001 <sup>b*</sup>
f) Sleep (BPI)	6.7±3.55	5.1±3.19	<0.001 <sup>b*</sup>	4.1±2.27	4.1±2.17	0.808 <sup>b</sup>
g) Enjoyment of life (BPI)	7±2.58	4.4±2.8	<0.001 <sup>b*</sup>	6.8±1.23	7.5±1.13	<0.001 <sup>b*</sup>
Anxiety (HADS)	10.3±4.19	7.6±4.21	<0.001 <sup>b*</sup>	7.4±3.8	8.6±3.96	<0.001 <sup>b*</sup>
Depression (HADS)	9.1±4.45	6.7±3.93	<0.001 <sup>b*</sup>	6.8±3.64	8.6±3.09	<0.001 <sup>b*</sup>
Irreversibility (MPS)	32±8.54	24.4±7.53	<0.001 <sup>b*</sup>	34±7.26	38.7±4.21	<0.001 <sup>b*</sup>
Loss of control (MPS)	28.7±6.92	22.9±6.7	<0.001 <sup>b*</sup>	31.4±6.61	37.9±4.41	<0.001 <sup>b*</sup>
Narcissistic wounds (MPS)	10.3±3.91	8.9±3.63	<0.001 <sup>b*</sup>	12.1±4.35	17.1±2.56	<0.001 <sup>b*</sup>
Emotional flooding (MPS)	14.6±4.53	11.4±4.17	<0.001 <sup>b*</sup>	10.7±3.86	11.8±3.97	0.018 <sup>b*</sup>
Freezing (MPS)	8.3±3.19	5.9±2.88	<0.001 <sup>b*</sup>	6.9±2.8	7.3±2.75	0.118 <sup>b</sup>
Self-estrangement (MPS)	8.1±3.21	6.8±3.3	<0.001 <sup>b*</sup>	7.3±3.25	8.8±3.09	<0.001 <sup>b*</sup>
Confusion (MPS)	9.9±3.65	6.2±2.58	<0.001 <sup>b*</sup>	7.7±2.08	11.8±2.17	<0.001 <sup>b*</sup>
Emptiness (MPS)	11.9±4.27	8.5±3.48	<0.001 <sup>b*</sup>	8.9±4.26	9.7±3.95	0.001 <sup>b*</sup>
Social distancing (MPS)	13.8±3.22	10.8±3.02	<0.001 <sup>b*</sup>	10.8±3.41	13.1±2	<0.001 <sup>b*</sup>
Surfeit of the pain (TMPS)	26.7±8.07	30.7±8.5	<0.001 <sup>a*</sup>	30.6±9.3	20.7±5.74	<0.001 <sup>b*</sup>
Belief in the ability to cope with the pain (TMPS)	19.1±4.06	21.1±3.76	0.010 <sup>b*</sup>	20.5±8.14	13.7±5.31	<0.001 <sup>b*</sup>
Physical health (WHOQoL-Bref)	11.2±2.19	12.8±2.88	<0.001 <sup>b*</sup>	12.3±2.38	12.5±2.29	0.066 <sup>b</sup>
Environment (WHOQoL-Bref)	11.9±1.73	12.9±1.71	<0.001 <sup>b*</sup>	12.7±1.68	12.7±1.52	0.593 <sup>b</sup>

\* indicates  $p < 0.05$ . a: Paired samples t-test, b: Wilcoxon signed-rank test

Brief Pain Inventory (BPI) - Hospital Anxiety and Depression Scale (HADS) - Orbach and Mikulincer Mental Pain Scale (MPS) - Tolerance for Mental Pain Scale (TMPS) - WHO Quality of Life-BREF Questionnaire (WHOQoL-BREF)

was significant reduction in pain intensity ( $p < 0.001$ ), depressive symptoms ( $p < 0.001$ ), confusion about pain ( $p = 0.037$ ), and improvement of emotional distress tolerance ( $p = 0.012$ ) and global health-related quality of life ( $p < 0.001$ ) in the intervention group. A mixed model ANOVA was performed to evaluate the main effects of time and group (controlling for age), as well as group by time interaction on the impact of all variables examined (see table 3). A representation of the outcome data is graphically illustrated in figures 2 and 3.

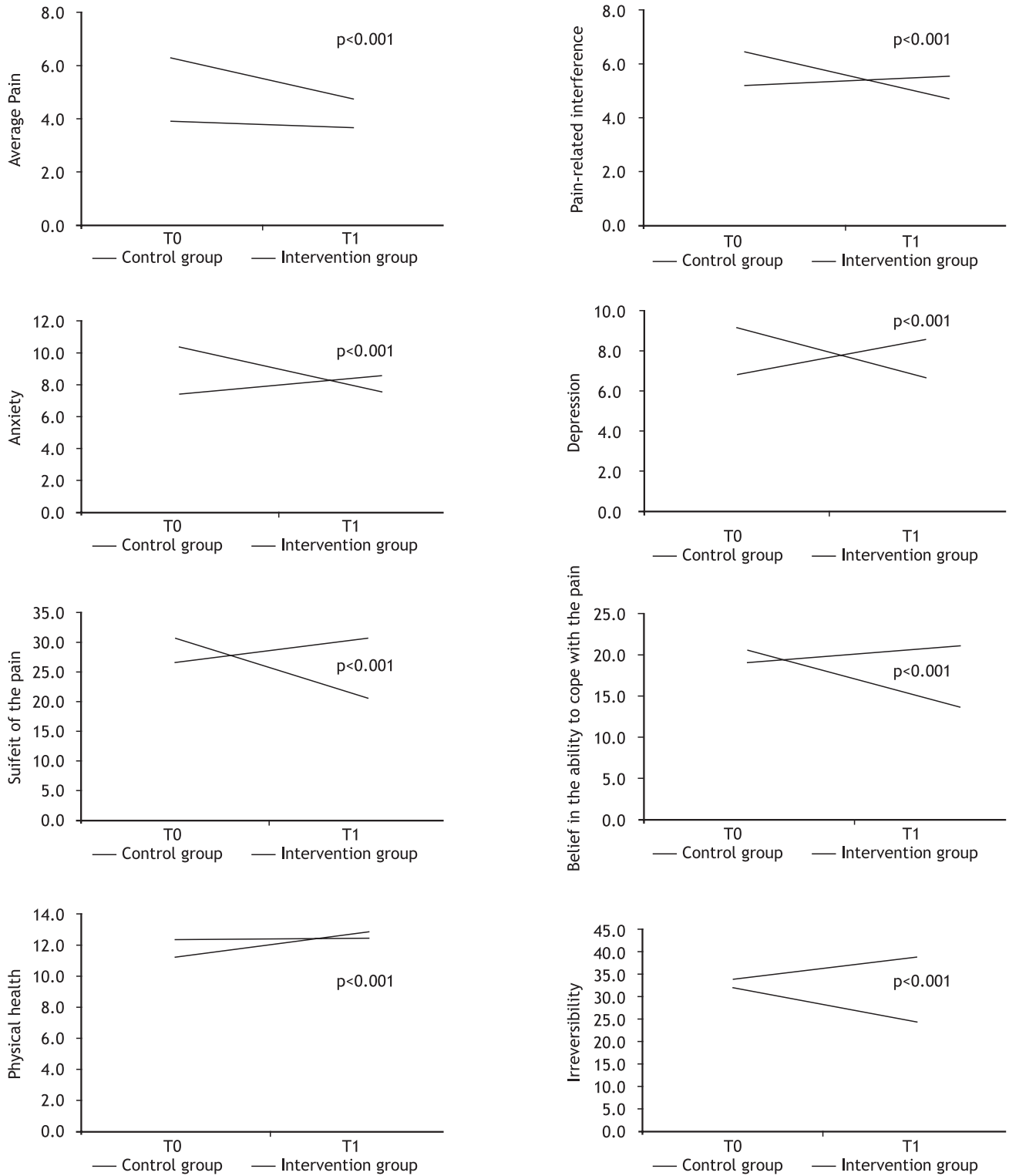
## Discussion

We examined the efficacy of a structured arts-based CBT-CP group intervention for adults with non-malignant CP. Compared to TAU, intensity of mental pain in the intervention group, which was assessed through nine factors, showed a significant reduction. Tolerance for mental pain was significantly higher for participants in the intervention group. Furthermore, severity of pain was reduced in the intervention group, as well as levels

**Table 3.** Analyses of Covariance (ANCOVAs).

	Fixed effect				Interaction term	
	Time		Group		Time*Group	
	F	p	F	p	F	p
Brief Pain Inventory (BPI) subscales						
Average pain	9.66	0.003	19.66	<0.001	17.51	<0.001
Relief pain medication provided	0.00	0.953	23.7	<0.001	18.86	<0.001
Total pain-related interference with functioning	4.85	0.030	0.17	0.685	101.10	<0.001
a) General activity	5.95	0.017	0.92	0.340	43.6	<0.001
b) Mood	1.59	0.211	0.72	0.398	107.13	<0.001
c) Walking ability	1.01	0.318	3.52	0.064	2.66	0.107
d) Normal work	1.56	0.214	2.46	0.121	57.57	<0.001
e) Relations with other people	5.13	0.026	5.67	0.019	47.98	<0.001
f) Sleep	0.13	0.724	11.57	0.001	27.08	<0.001
g) Enjoyment of life	7.73	0.007	12.42	0.001	96.04	<0.001
Hospital Anxiety and Depression Scale (HADS) subscales						
Anxiety	2.11	0.150	0.74	0.393	57.24	<0.001
Depression	0.97	0.326	1.37	0.246	49.68	<0.001
Orbach and Mikulincer Mental Pain Scale (MPS) subscales						
Irreversibility	3.64	0.060	30.86	<0.001	79.18	<0.001
Loss of control	0.22	0.638	48.46	<0.001	83.25	<0.001
Narcissistic wounds	3.37	0.070	37.12	<0.001	96.69	<0.001
Emotional flooding	4.02	0.048	5.77	0.018	25.25	<0.001
Freezing	0.44	0.510	0.68	0.412	30.85	<0.001
Self-estrangement	0.16	0.694	0.00	0.973	31.13	<0.001
Confusion	4.49	0.037	12.82	0.001	215.33	<0.001
Emptiness	6.27	0.014	1.03	0.312	74.91	<0.001
Social distancing	2.03	0.158	0.57	0.452	82.76	<0.001
Tolerance for Mental Pain Scale (TMPS) subscales						
Surfeit of the pain	4.02	0.048	1.02	0.314	73.10	<0.001
Belief in the ability to cope with the pain	0.02	0.883	13.12	<0.001	45.28	<0.001
WHO Quality of Life-BREF Questionnaire (WHOQoL-BREF) subscales						
Physical health	11.39	0.001	1.21	0.274	30.36	<0.001
Environment	3.03	0.085	5.95	0.017	19.98	<0.001

Sex, Age and Chronic condition used as covariates in ANCOVAs

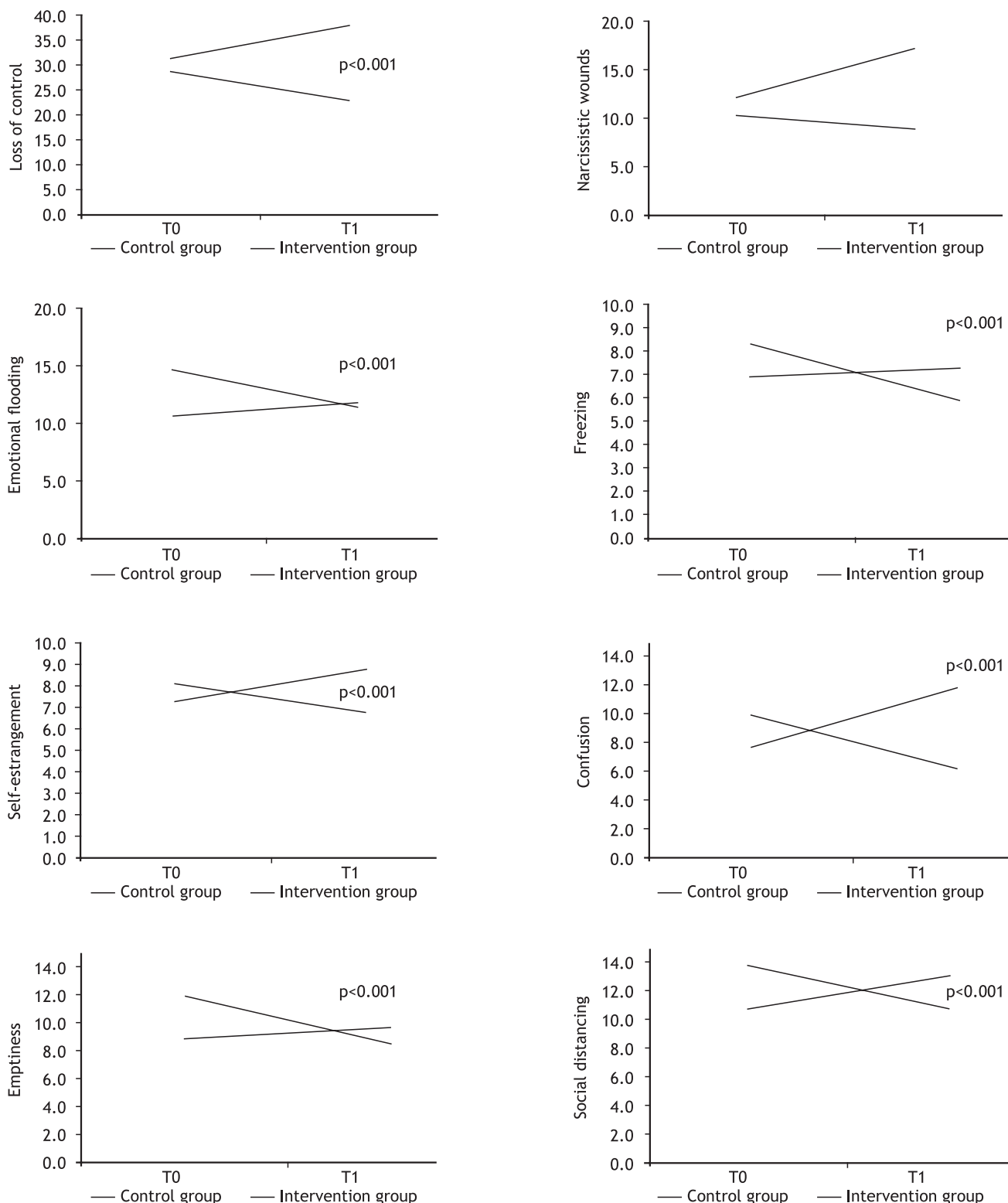


**Figure 2.** Estimated marginal means on the Brief Pain Inventory (BPI) - the Hospital Anxiety and Depression Scale (HADS) - the Orbach and Mikulincer Mental Pain Scale (MPS) - the Tolerance for Mental Pain Scale (TMPS) - the WHO Quality of Life-BREF Questionnaire (WHOQoL-BREF) in each time period and for each group over the course of the study.

of anxiety and depression. Finally, health-related quality of life of patients in the intervention group was also improved after the intervention. In contrast, the control group generally showed very little improvement in

dealing with pain. The treatment benefited neuropathic and mixed pain patients more in mental pain variables, while in terms of mental pain tolerance variables musculoskeletal pain patients seem to benefit more.





**Figure 3.** Estimated marginal means on the Orbach and Mikulincer Mental Pain Scale (MPS) in each time period and for each group over the course of the study.

The findings of this study offer new and supporting information regarding several therapeutic aspects of arts engagement. These include (a) evidence for the effectiveness of an arts-based psychoeducational program

and (b) potential positive impact on pain intensity, pain disability and quality of life improvement and specifically examining factors associated with pain-related distress, since the positive impact of arts therapies on gen-

eral well-being has been widely recognized but, to the authors' knowledge, has not yet been documented in the treatment of non-malignant CP. An observation that continues to be true to this day, is that the dearth of outcome research regarding the effectiveness of CATS on the CP experience has resulted in an underrepresentation of creative therapies in the pain management literature.<sup>23</sup> Self-management refers to the patients' ability to recognize the factors that cause their pain to flare up and the techniques that can be used to avoid those flare-ups. The ability to recognize these factors happens during the creative process by allowing patients to draw metaphors for their art and applying them to their past and present experiences. Teaching self-management is currently regarded as one of the most important components of CP treatment.<sup>43,44</sup>

In respect to physical symptoms, distraction from pain during the art-making process is observed from reports of the patients.<sup>45</sup> Although there is no discussion in any articles regarding the potential reasons underlying this phenomenon, patients observed typically perceived more pain at times when they had little to do or were unoccupied. This might indicate that therapeutic art-making may redirect patients' attention away from pain into other activities.<sup>46</sup>

Saunders emphasized the connection between physical pain and mental suffering.<sup>47</sup> Suffering can be defined as a state of severe distress associated with events that threaten the intactness of the person, that occurs when an impending destruction of the person is perceived. Suffering alienates the sufferer from self and society and may engender a 'crisis of meaning' and a disintegration of hope.<sup>48</sup> The term 'suffering' contains nonphysical dimensions--social, psychological, cultural, spiritual and may mean different things to different people.<sup>49</sup> CP in most patients with little resources in terms of resilience should receive targeted psychosocial support to minimize mental distress and the risk of depression or anxiety disorders through a comprehensive workup and thoughtful treatment plan, which balances comfort with function and rehabilitation.<sup>50</sup> Recently, CBT has included a more trans-diagnostic/process-based and personalized approach, with the ultimate goal of linking the therapeutic technique to the process and the individual patient.<sup>51</sup>

Importantly, findings suggest that the negative emotion-pain cycle may be counteracted by this intervention as the people affected by non-malignant CP could focus on increasing their quality of life through establishing positive well-being instead of emphasizing the CP symptoms.<sup>52</sup> Function, in particular, performance of 'Valued life activities' (VLAS) which are the wide range

of activities that individuals find meaningful or pleasurable, above and beyond activities that are necessary for survival or self-sufficiency, is associated with psychological well-being.<sup>53,54</sup> Change in psychological well-being is used as a marker for successful therapy.<sup>22</sup> Factors such as generally improved affect, decreased anxiety or depression, improved emotional coping, expression of grief and ability to project oneself into the future, all appear to be associated with the patients' improved ability to cope with pain.<sup>23,25,55,56</sup>

The strengths of the study were the application of a novel brief integrative pain program using multiple treatment modalities implementing CBT-CP and mind-body treatments such as CATS and the comparatively big sample size. It also employed systematic research methods carried out with rigour to ensure validity and trustworthiness, multiple measures of treatment physical, social and emotional effectiveness and a comprehensive analysis of all case variables.

The current study also comes with various limitations. First, the sample of this study was primarily female and Caucasian, which might lead to issues with generalizability and highlight potential issues of program accessibility and barriers to participation. Second, the study was not fully randomized, as the control group constituted of those who declined the intervention. There was not a follow-up design or formal feedback designed to determine any changes to multimodal analgesia provided and our findings are based on self-reported information of individuals' beliefs about their way of thinking, feeling and behaving which have formed through different experiences over time.

Of note, the improvement can be attributed to the effects of "due care" of the intervention, which provides an opportunity to discuss concerns, hopes and fears. As an experimental study, we need to be aware of the Hawthorne effect, which is an inevitable bias that poses a threat to validity and should try to take into account when analysing the results, as individuals are always subject to behaviour modification once they know they are part of an experiment.<sup>57</sup>

## Conclusion

This study demonstrated that a 10-week multicomponent arts-based CBT-CP program is associated with improvements in patient-related outcomes. The evidence synthesized in this study provides suggestions for integrating creative interventions for CP management as a new approach to providing more holistic treatment. A brief arts-based group therapy treatment may be safe, acceptable and valuable establishing the unique role that arts engagement might play in a global challenge

to tackle CP as an adjunctive treatment to CP management regimens.

Recognizing the added health value of engagement with the arts, further research should attempt (a) to determine the contribution that mental pain can provide towards an understanding of non-malignant CP dynamics and thereby contribute to the development of effective treatment programs, tailored for psychological aspects of CP and (b) to provide a larger sample size in order to be able to investigate which patients benefit most from the intervention.

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## Ερευνητική εργασία

# Αποτελεσματικότητα μιας συνδυασμένης Γνωσιακής-Εικαστικής Παρέμβασης σε ασθενείς με χρόνια πόνο καλοήθους αιτιολογίας

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**ΙΣΤΟΡΙΚΟ ΑΡΘΡΟΥ:** Παραλήφθηκε 10 Ιουνίου 2021/Αναθεωρήθηκε 20 Ιουλίου 2021/Δημοσιεύθηκε Διαδικτυακά 21 Φεβρουαρίου 2022

### ΠΕΡΙΛΗΨΗ

Ος Χρόνιος Πόνος (ΧΠ) ορίζεται αυτός, που έχει διάρκεια μεγαλύτερη των 3–6 μηνών ή ο πόνος που επανεμφανίζεται ανά τακτά χρονικά διαστήματα και αποτελεί από μόνος του μία ξεχωριστή νόσο. Σύμφωνα με μελέτες εμφανίζεται στο 20% του γενικού πληθυσμού παγκοσμίως και μπορεί να οδηγήσει σε κατάθλιψη, άγχος, προβλήματα ύπνου, κακή ποιότητα ζωής και δαπανηρές θεραπείες. Σήμερα, η Γνωσιακή Συμπεριφορική Θεραπεία (ΓΣΘ), ως η πιο καλά τεκμηριωμένη ψυχοθεραπευτική παρέμβαση αποτελεί βάση για ερευνητικό και κλινικό έργο, ωθώντας το άτομο σε πιο λειτουργικά μοντέλα σκέψεων και συμπεριφορών. Σχεδιάστηκε μία δομημένη ομαδική παρέμβαση 10 εβδομαδιαίων συνεδριών, με ενισχυμένη ΓΣΘ για ΧΠ και την Εικαστική θεραπεία ως συμπληρωματικές, με προσανατολισμό στις ψυχοκοινωνικές διαστάσεις του ΧΠ, υιοθετώντας σύγχρονα δεδομένα διαχείρισης του πόνου. Ο σκοπός της μελέτης είναι να διερευνηθεί η επίδραση αυτής της παρέμβασης στη θετική διαχείριση του ΧΠ καλοήθους αιτιολογίας. Συμμετείχαν 100 εξωτερικοί ασθενείς, οι οποίοι παρακολουθούνται στη Μονάδα Πόνου της Β΄ Πανεπιστημιακής Κλινικής Αναισθησιολογίας στο ΠΓΝ «ΑΤΤΙΚΟΝ», οι οποίοι χωρίστηκαν σε 50 άτομα στην ομάδα παρέμβασης και 50 άτομα στην ομάδα ελέγχου (συνήθους θεραπεία). Η ανάλυση της κλινικής μελέτης παρέμβασης με πρό-έλεγχο - μετέλεγχο ανέδειξε οφέλη σε πολλές διαστάσεις που αξιολογήθηκαν με κλίμακες, όπως η επίπτωση του πόνου στη λειτουργικότητα (Ελληνικό Συνοπτικό Ερωτηματολόγιο Πόνου-BPI), η υποκειμενική αντίληψη του ψυχικού πόνου (Κλίμακα ψυχικού πόνου Orbach και Mikulinser), η ανοχή του ψυχικού πόνου (Ερωτηματολόγιο ανοχής του ψυχικού πόνου Orbach και Mikulinser), τα επίπεδα του άγχους και της κατάθλιψης (Νοσοκομειακή Κλίμακα Άγχους και Κατάθλιψης-HADS) και η συνολική εκτίμηση της ποιότητας ζωής (Ερωτηματολόγιο Ποιότητας Ζωής του Παγκόσμιου Οργανισμού Υγείας-WHOQOL-BREF). Η μέση ηλικία των συμμετεχόντων ήταν τα 52,3 έτη και οι γυναίκες ήταν περισσότερες (84%). Τα ευρήματα της μελέτης δείχνουν στατιστικά σημαντική μείωση στην ένταση του σωματικού πόνου ( $p < 0,001$ ), στα καταθλιπτικά συμπτώματα ( $p < 0,001$ ), στη σύγχυση σχετικά με τον πόνο ( $p = 0,037$ ), καθώς και βελτίωση στην ανοχή του ψυχικού πόνου ( $p = 0,012$ ) και την αντιλαμβανόμενη ποιότητα ζωής ( $p < 0,001$ ) στην ομάδα παρέμβασης. Η παρούσα μελέτη ενισχύει την κλινική χρησιμότητα μίας ψυχοκοινωνικής θεραπευτικής παρέμβασης που περιλαμβάνει δημιουργικές και γνωσιακές τεχνικές, με στόχο την ολιστική διαχείριση του ΧΠ καλοήθους αιτιολογίας με καινοτόμες προσαρμοστικές και λειτουργικές στρατηγικές.

**ΛΕΞΕΙΣ ΚΥΡΕΤΗΡΙΟΥ:** Χρόνιος πόνος, Γνωσιακή Συμπεριφορική Θεραπεία για Χρόνιο Πόνο, εικαστική θεραπεία, ψυχικός πόνος, ποιότητα ζωής.