DIALECTICAL BEHAVIOR THERAPY SKILLS TRAINING FOR ONCOLOGY PATIENTS: AN EXPLORATORY PILOT STUDY WITHIN A HOLISTIC GROUP PROGRAM

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Abstract

Background. Oncology patients frequently experience emotional, functional, and interpersonal difficulties that affect their quality of life. In recent years, interventions based on mindfulness, emotion regulation, and the development of coping skills have become an important component of psycho-oncological care. However, the application of Dialectical Behavior Therapy Skills Training (DBT-ST)-inspired interventions in oncology remains insufficiently explored, highlighting the need for preliminary investigations into their potential contribution to comprehensive cancer care.

Objective. To explore changes in quality of life and emotional distress among oncology patients participating in a holistic group program incorporating DBT-ST-inspired skills training.

Methods. This exploratory pilot study employed a single-group pre–post design and included 17 oncology patients (mean age = 59.0 years; SD = 9.62) participating in the "BucuriaVindecării" ("Joy of Healing") program, developed within the Romanian Patriarchate.The sample was clinically heterogeneous, comprising patients at different stages of their cancer care trajectory, including individuals undergoing active oncological treatment, patients in post-treatment follow-up, and patients experiencing disease recurrence. This diversity reflects the varied psychological and adjustment needs encountered in supportive oncology care.

The psychological intervention consisted of 12 group sessions structured around four main areas: mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness. Participants completed the EORTC QLQ-C30 and Emotion Thermometers before and after the intervention.

Results. A statistically significant improvement in role functioning was observed (70.59 vs. 82.35; $p = 0.035$). Global quality of life increased from 60.29 to 73.04 points, with a moderate effect size ($d = 0.53$), although this change did not reach statistical significance ($p = 0.111$). Significant reductions were also observed in limitations affecting daily and occupational activities ($p = 0.004$) and in worry ($p = 0.020$). Mean scores for stress, anxiety, depression, and anger decreased, but none of these changes reached statistical significance. Perceived need for help showed a slight, non-significant increase.

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Rev. Psih., Vol. 72, Nr. 4, p. 439–453, București, octombrie–decembrie 2026, DOI: 10.59277/RPSIH.2026.4.07

Conclusions. The preliminary findings suggest that participation in a holistic group program incorporating DBT-ST-inspired skills training may be associated with improvements in daily functioning and selected aspects of psychological adjustment among oncology patients. As an exploratory pilot study addressing an insufficiently investigated area of psycho-oncology, this research provides an initial empirical basis for further investigation. Larger controlled studies are needed to determine the specific contribution and potential effectiveness of DBT-ST-inspired interventions in oncology.

Keywords: cancer, psycho-oncology, quality of life, DBT skills training, emotion regulation, pilot study.

BACKGROUND

A cancer diagnosis is frequently associated with anxiety, depression, emotional distress, uncertainty, and impaired quality of life. Over the past two decades, psychological interventions have become an important component of oncology care, with numerous studies demonstrating beneficial effects on psychological adjustment and quality of life (Bognár *et al*., 2024; Lui *et al*., 2023). The psychological consequences of cancer extend beyond the initial response to diagnosis, reflecting a complex interaction between disease-related stressors, individual vulnerabilities, treatment demands, and changes in social functioning. Psychiatric morbidity represents a substantial concern in oncology, with approximately 30–40% of patients experiencing clinically relevant mental health conditions, particularly depressive disorders, anxiety disorders, and adjustment difficulties (Smith *et al*., 2015; Licu *et al*., 2023). These conditions may compromise emotional regulation, interpersonal relationships, treatment adherence, and everyday functioning, thereby increasing the overall burden of illness (Mitchell *et al*., 2011).

The intensity and clinical manifestations of psychological distress may fluctuate throughout the disease trajectory, particularly during diagnostic disclosure, treatment initiation, disease progression, recurrence, and transitions to palliative care. Such periods involve heightened uncertainty, perceived threats to personal autonomy, and concerns regarding survival, family responsibilities, and future functioning (Howell *et al*., 2015; Holland *et al*., 2013). Emotional reactions that initially constitute understandable responses to a life-threatening condition may evolve into persistent psychological difficulties requiring specialized assessment and intervention. Furthermore, cancer-related distress encompasses emotional, cognitive, behavioral, interpersonal, and existential dimensions, which may interact and influence the patient's capacity to adapt to illness.

Anxiety constitutes a particularly complex manifestation because its origins may be psychological, physiological, or treatment-related. Beyond concerns about prognosis, pain, and dependency, anxiety symptoms may arise from medical complications, neuropsychiatric effects of malignancy, or adverse reactions to oncological treatments. Consequently, distinguishing adaptive apprehension from clinically significant anxiety requires consideration of symptom severity,

persistence, functional impairment, and underlying medical factors (Traeger *et al*., 2012; Miller *et al*., 2019). Similarly, depression presents diagnostic challenges because fatigue, appetite disturbances, sleep disruption, and reduced physical activity may reflect either depressive symptomatology or the direct consequences of cancer and its treatment (Li *et al*., 2012).

The psychological burden of cancer also encompasses dimensions that are insufficiently captured by conventional diagnostic categories. Persistent fatigue, insomnia, altered body image, sexual dysfunction, and diminished independence may interact with emotional symptoms, reinforcing distress and reducing perceived quality of life. Fatigue can persist long after active treatment has ended, while sleep disturbances may become chronic and contribute to difficulties in psychological recovery (Bower *et al*., 2000; Palesh *et al*., 2010). In advanced disease, anticipatory grief and existential concerns may further intensify psychological suffering, particularly when patients confront losses of identity, autonomy, meaningful relationships, and anticipated life opportunities (Carreno & Eisenbeck, 2022). These overlapping manifestations suggest that psychological interventions should address not only psychiatric symptoms but also the broader challenges of emotional adjustment, functional independence, and adaptive coping.

The complexity of these manifestations emphasizes the importance of systematic psychological assessment throughout the course of cancer care. Standardized instruments, including the Distress Thermometer, Patient Health Questionnaire, and Generalized Anxiety Disorder scale, facilitate the identification of emotional difficulties and the monitoring of psychological functioning. Nevertheless, screening alone is insufficient unless embedded within coordinated pathways for diagnostic clarification, referral, and appropriate therapeutic intervention (Carlson *et al*., 2012; Andersen *et al*., 2014). From an integrated care perspective, psychological assessment should therefore be understood as a continuous process rather than an isolated procedure performed at diagnosis. Collaboration among oncologists, psychiatrists, psychologists, nurses, and other professionals is essential for tailoring interventions to patients' clinical conditions, psychological resources, and evolving needs.

Recent meta-analyses have shown that psychosocial interventions are associated with improvements in quality of life, emotional functioning, and social functioning among oncology patients (Lui *et al*., 2023; Paslaru *et al*., 2025). In particular, interventions incorporating mindfulness, acceptance, emotion regulation, and behavioral skills development have attracted increasing research interest as approaches to supporting psychological adjustment and well-being (Cao *et al*., 2025). Their relevance is further supported by the interaction between emotional distress and physical symptom burden, as persistent pain, treatment-related limitations, and reduced functional independence may contribute to psychological vulnerability. Within this framework, interventions targeting emotional awareness, distress management, and adaptive behavioral responses may

provide complementary resources for patients facing the cumulative psychological and physical demands of cancer.

Additional evidence concerning non-pharmacological psychological interventions has emerged from research on creative and expressive therapeutic approaches. In a systematic literature review of 16 quantitative studies involving 739 participants receiving art-therapeutic interventions, Constantin *et al*. (2025) identified reductions in depressive symptoms and improvements in psychological functioning across different clinical populations, including patients with cancer. Particularly relevant findings were reported in studies involving women with breast cancer, where creative activities facilitated emotional processing and cognitive-emotional coping. The review also included group-based art therapy for children with leukemia, suggesting potential benefits for reducing depressive symptoms in pediatric oncology. These findings support the consideration of experiential and expressive interventions as complementary approaches to psychological care, particularly through their potential to facilitate emotional awareness, interpersonal communication, and adaptive responses to illness-related distress.

However, the evidence reviewed by Constantin *et al*. (2025) also revealed methodological limitations, including relatively small samples, heterogeneous intervention protocols, and a predominance of assessments conducted immediately after treatment. The absence of systematic long-term follow-up restricted conclusions regarding the durability of therapeutic improvements. These limitations highlight the importance of developing structured psychological programs with clearly defined therapeutic components and evaluating their outcomes through standardized instruments and repeated measurements. Such an approach may contribute to a more precise understanding of the psychological processes involved in therapeutic change and the clinical applicability of different intervention models.

Within this broader framework, an emerging area of research concerns the adaptation of dialectical behavior therapy (DBT) skills training for populations with chronic medical conditions. Originally developed within a comprehensive behavioral treatment model, DBT Skills Training focuses on four interconnected domains: mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness (Linehan, 2022). These skills may be particularly relevant in oncology, where patients frequently confront intense emotional experiences, uncertainty, changes in interpersonal relationships, and difficulties managing illness-related stress. By emphasizing the acquisition and application of practical psychological skills, this approach offers a structured framework for strengthening adaptive responses to challenging emotional and interpersonal situations.

The LiveWell pilot study, conducted among patients with metastatic non-small cell lung cancer, investigated the feasibility and acceptability of an adapted DBT Skills Training intervention and reported promising preliminary findings concerning emotion regulation and quality of life (Hyland *et al*., 2025). Although these results require confirmation through larger controlled studies, they

provide an initial empirical basis for exploring the applicability of DBT-informed interventions in oncology. The combination of structured skills development, emotional awareness, and distress management may represent a useful direction for psychological programs intended to support patients throughout cancer treatment.

To date, no published studies have been identified in Romania that evaluate a DBT Skills Training-inspired program for oncology patients using standardized measures of quality of life and emotional distress. The aim of the present study is to evaluate the preliminary results of such an intervention implemented as part of the "BucuriaVindecării" ("Joy of Healing") program.

METHODS

Design and Participants

The study used a single-group pre–post design.

Seventeen adult oncology patients enrolled in the "BucuriaVindecarii" ("Joy of Healing") program participated in the study. The participants' mean age was 59.0 years (SD = 9.62), with ages ranging from 42 to 77 years.

Pre–post differences were examined using two-tailed paired-samples t-tests. The normality of paired differences was assessed using the Shapiro–Wilk test. As the normality assumption was not met for some outcomes, Wilcoxon signed-rank tests were additionally performed as sensitivity analyses. Effect sizes for paired-samples t-tests were calculated using Cohen's d_z, defined as the mean of the individual post–pre differences divided by the standard deviation of those differences. Statistical significance was evaluated at $p < .05$. All p values were unadjusted for multiple comparisons; therefore, the findings were interpreted as exploratory.

Participants were at different stages of their cancer journey, including individuals receiving active treatment, individuals undergoing follow-up monitoring, and individuals with a history of recurrence.

The study was approved by Ethics Committee No. 19493/29.09.2026.

Intervention

The "BucuriaVindecarii("Joy of Healing") program employs a multidisciplinary, holistic approach that integrates medical, psychological, physical-therapy, spiritual, and creative-expressive components.

The psychological component consisted of a skills-training intervention delivered over 12 weekly group sessions and inspired by the DBT Skills Training model. The intervention was structured into four modules:

- Mindfulness
- Distress tolerance
- Emotion regulation
- Interpersonaleffectiveness

The 12-session intervention was designed to help oncology patients develop practical skills for managing emotional and interpersonal challenges associated with illness and treatment. Three sessions were dedicated to each of the four DBT skills modules. Mindfulness training focused on present-moment awareness, observing thoughts and emotions without judgment, and developing the ability to respond more consciously to difficult experiences. Distress tolerance sessions addressed strategies for coping with uncertainty, overwhelming emotions, and situations that could not be immediately changed. Emotion regulation sessions emphasized identifying and understanding emotions, recognizing emotional triggers, and developing more adaptive emotional responses. Interpersonal effectiveness sessions focused on expressing personal needs, communicating assertively, setting boundaries, and maintaining supportive relationships. Throughout the program, participants were encouraged to apply the skills to everyday situations through guided exercises, group discussions, and practical activities.

MEASURES

Quality of life was assessed using the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire Core 30 (EORTC QLQ-C30) (Aaronson *et al*., 1993). Scoring was performed in accordance with the official manual (Fayers et al., 2001).

Emotional distress was assessed using the Emotion Thermometers (Mitchell *et al*., 2010; Teixeira *et al*., 2020).

Statistical analyses were conducted using JASP software (version 0.16.4; JASP Team, 2022). Descriptive statistics were calculated for all study variables, with results expressed as means and standard deviations (M ± SD). Pre-intervention and post-intervention scores were compared to examine changes in quality of life, functional outcomes, and emotional distress following participation in the holistic group program.

Pre-post differences were analyzed using two-tailed paired-samples t-tests. The normality of the paired differences was assessed using the Shapiro–Wilk test. Where deviations from normality were identified, Wilcoxon signed-rank tests were additionally used as sensitivity analyses. Statistical significance was evaluated at $p < .05$. Effect sizes were calculated using Cohen's d for paired samples (d_z). Reported p values were not adjusted for multiple comparisons, given the exploratory nature of the study.

Effect sizes were reported using Cohen's d for paired samples (d_z), calculated by dividing the mean of the individual post–pre differences by the standard deviation of these differences, to complement statistical significance testing and describe the magnitude of observed changes.

No adjustments for multiple comparisons were applied, and all reported p values were unadjusted. Findings were interpreted cautiously, particularly in relation to multiple outcome aGiven the exploratory nature of the pilot study and the small sample size (N = 17), the analyses were intended to identify preliminary patterns of change rather than establish intervention effectiveness. No adjustments for multiple comparisons were applied. Findings were interpreted cautiously, particularly in relation to multiple outcome assessments and the absence of a control group.

RESULTS

Table 1

Main results EORTC QLQ-C30

Domain	Pre M ± SD	Post M ± SD	p	Cohen's d
Global quality of life	60,29 ± 29,83	73,04 ± 16,80	0,111	0,53
Role functioning	70,59 ± 34,12	82,35 ± 22,42	0,035	0,41
Emotional functioning	67,65 ± 22,99	72,55 ± 23,34	0,154	0,21
Social Functioning	72,55 ± 34,83	80,39 ± 28,40	0,260	0,25
Fatigue	41,18 ± 29,34	34,64 ± 24,18	0,206	0,24

The analysis of EORTC QLQ-C30 scores revealed favorable changes across all five evaluated domains following the intervention. The most notable result was a statistically significant improvement in role functioning, with mean scores increasing from 70.59 ± 34.12 to 82.35 ± 22.42 ($p = 0.035$; Cohen's $d = 0.41$), corresponding to an increase of 11.76 points.

Global quality of life increased from 60.29 ± 29.83 to 73.04 ± 16.80, representing a mean difference of 12.75 points and a moderate effect size ($d = 0.53$). However, this change did not reach statistical significance ($p = 0.111$). A reduction in the standard deviation was also observed, indicating lower variability in global quality-of-life scores at post-intervention assessment.

Emotional functioning increased from 67.65 ± 22.99 to 72.55 ± 23.34 ($p = 0.154$; $d = 0.21$), while social functioning increased from 72.55 ± 34.83 to 80.39 ± 28.40 ($p = 0.260$; $d = 0.25$). Both domains showed positive mean changes, although neither reached statistical significance.

Fatigue scores decreased from 41.18 ± 29.34 to 34.64 ± 24.18, corresponding to a reduction of 6.54 points ($p = 0.206$; $d = 0.24$). As higher scores on the EORTC QLQ-C30 fatigue scale indicate greater symptom severity, this decrease reflects a favorable descriptive change.

At the individual-item level, statistically significant reductions were identified in limitations affecting daily and occupational activities ($p = 0.004$) and in worry ($p = 0.020$). Overall, role functioning was the only domain-level outcome

that reached statistical significance, while the remaining domains showed favorable but non-significant changes.

Table 2

Emotion Thermometers

Variable	Pre M ± SD	Post M ± SD	p
Stress	4,35 ± 3,79	4,00 ± 3,34	0,639
Anxiety	2,71 ± 3,04	2,41 ± 2,09	0,697
Depression	2,00 ± 2,98	1,41 ± 1,80	0,408
Anger	2,47 ± 2,96	2,12 ± 2,39	0,502
Need for help	3,71 ± 3,50	3,82 ± 3,41	0,871

The analysis of Emotion Thermometers scores revealed decreases in four of the five evaluated indicators following the intervention. Mean stress scores decreased from 4.35 ± 3.79 to 4.00 ± 3.34 (p = 0.639), while anxiety scores decreased from 2.71 ± 3.04 to 2.41 ± 2.09 (p = 0.697).

Depression scores showed a reduction from 2.00 ± 2.98 to 1.41 ± 1.80 (p = 0.408), representing the largest absolute decrease among the emotional distress indicators. Anger scores also decreased, from 2.47 ± 2.96 to 2.12 ± 2.39 (p = 0.502).

In contrast, the perceived need for help showed a slight increase, from 3.71 ± 3.50 to 3.82 ± 3.41 (p = 0.871). None of the changes observed in the Emotion Thermometers reached statistical significance.

Overall, the results indicate modest descriptive reductions in stress, anxiety, depression, and anger, alongside a minimal increase in perceived need for help. These findings should be regarded as non-significant changes in self-reported emotional distress.

DISCUSSION

The preliminary findings of the present study suggest that participation in a DBT Skills Training-inspired program may be associated with improvements in certain dimensions of quality of life and everyday functioning among oncology patients. Although statistically significant changes were not observed across all the evaluated domains, the results indicate a potentially meaningful pattern of functional improvement, accompanied by favorable changes in several psychological indicators. These findings should be interpreted within the exploratory nature of the study and the methodological limitations associated with preliminary intervention research.

The most notable finding was the statistically significant improvement in role functioning, which increased from 70.59 ± 34.12 to 82.35 ± 22.42 (p = 0.035), corresponding to an effect size of d = 0.41. This domain of the EORTC QLQ-C30

reflects the extent to which patients are able to perform everyday activities, including occupational responsibilities and leisure pursuits. The approximately 12-point increase suggests a reduction in perceived functional limitations following participation in the intervention. This interpretation is further supported by the item-level analysis, which identified a statistically significant decrease in limitations affecting daily and occupational activities ($p = 0.004$). Together, these findings indicate that the most evident changes following the program were related to patients' perceived ability to engage in meaningful activities and fulfill everyday responsibilities.

The improvement in role functioning is particularly relevant in the context of cancer, where psychological distress frequently coexists with physical symptoms, treatment-related limitations, and disruptions in personal and social roles. Maintaining everyday activities may represent an important component of psychological adaptation, as patients are required to reorganize their routines and responsibilities while coping with the uncertainty and demands of illness. From this perspective, psychological interventions may contribute to patients' functioning not only through the reduction of emotional symptoms but also by supporting their capacity to manage difficulties and remain engaged in personally meaningful activities. The present findings are consistent with the broader literature indicating that psychosocial interventions may support functional adaptation and quality of life in oncology populations (Bognár *et al*., 2024; Paslaru *et al*., 2025).

Global quality of life increased from 60.29 ± 29.83 to 73.04 ± 16.80, representing an improvement of approximately 13 points and a moderate effect size ($d = 0.53$). Although this difference did not reach statistical significance ($p = 0.111$), its magnitude deserves consideration in the interpretation of the preliminary findings. The reduction in score variability following the intervention may also suggest a more homogeneous distribution of perceived quality of life among participants, although this observation cannot establish whether individual improvements occurred consistently across the sample. Given the multidimensional nature of quality of life in oncology, the observed change may reflect the combined influence of psychological adaptation, perceived functional capacity, and other aspects of patients' experiences during treatment. However, the absence of statistical significance prevents firm conclusions regarding the effectiveness of the intervention on this outcome.

Emotional functioning and social functioning also showed favorable changes, increasing from 67.65 to 72.55 and from 72.55 to 80.39, respectively. The corresponding effect sizes were small ($d = 0.21$ and $d = 0.25$), and neither change was statistically significant. Nevertheless, these results provide additional descriptive information about the direction of changes observed after the intervention. Emotional functioning is particularly relevant to the theoretical framework of DBT Skills Training, which emphasizes emotional awareness, the identification and regulation of emotional responses, and the development of strategies for tolerating distress. Similarly, social functioning may be related to interpersonal effectiveness, one of the core domains of DBT. The observed

changes are compatible with these therapeutic objectives, although the present study does not establish that improvements resulted from the acquisition or application of specific DBT skills.

A particularly relevant finding emerged from the item-level analysis, which identified a statistically significant reduction in worry ($p = 0.020$). In oncology, worry may involve concerns about disease progression, treatment outcomes, physical deterioration, family responsibilities, and uncertainty regarding the future. Its reduction may therefore represent an important aspect of psychological adjustment. Within the DBT framework, mindfulness and distress tolerance skills are intended to help individuals respond more adaptively to difficult internal experiences, while emotion regulation skills address the identification, understanding, and management of emotional responses (Linehan, 2022). The reduction in worry observed in the present study is compatible with these therapeutic targets and provides a relevant direction for future investigations examining the psychological processes potentially associated with DBT-informed interventions.

The results obtained using the Emotion Thermometers provide a more differentiated perspective on psychological change. Mean scores decreased for stress (4.35 to 4.00), anxiety (2.71 to 2.41), depression (2.00 to 1.41), and anger (2.47 to 2.12). However, none of these differences reached statistical significance, with p-values ranging from 0.408 to 0.697. These findings indicate modest descriptive reductions in emotional distress rather than demonstrated therapeutic effects on the measured symptoms. The relatively low baseline scores for anxiety, depression, and anger may also have limited the magnitude of observable reductions, although this possibility requires further examination. In addition, the variability of emotional responses among oncology patients may contribute to differences in individual trajectories that are not adequately represented by group mean scores.

An important distinction emerges when comparing the results of the EORTC QLQ-C30 with those of the Emotion Thermometers. Whereas role functioning improved significantly, the global emotional distress indicators showed only small, statistically non-significant changes. This difference raises the possibility that functional adaptation and subjective emotional distress may follow partially distinct trajectories during psychological intervention. Patients may experience improvements in their perceived capacity to perform everyday activities even when anxiety, sadness, or stress remain present. Such a pattern is theoretically compatible with skills-based approaches that emphasize adaptive behavioral responses and the management of difficult experiences rather than the complete elimination of negative emotions. Nevertheless, this interpretation remains hypothetical and requires confirmation through studies directly assessing changes in coping strategies, psychological flexibility, and the use of specific therapeutic skills.

The need-for-help score showed a slight increase from 3.71 to 3.82 ($p = 0.871$), in contrast to the downward trends observed for the other Emotion Thermometers indicators. This result does not indicate a statistically significant change and should

not be interpreted as evidence of increased psychological deterioration. The perceived need for help may reflect several dimensions of the illness experience, including the recognition of ongoing difficulties, awareness of available support, and willingness to seek assistance. Participation in a psychological intervention could potentially influence how patients identify and communicate their support needs. However, the present data do not allow these explanations to be distinguished, and the observed difference may simply reflect measurement variability.

The findings may also be considered in relation to emerging research on the adaptation of DBT Skills Training to oncology settings. Hyland *et al*. (2025), in the LiveWell pilot study involving patients with metastatic non-small cell lung cancer, reported encouraging preliminary findings regarding the feasibility and acceptability of a DBT-based skills intervention, alongside promising changes in emotion regulation and quality of life. The present study contributes to this developing area of research by examining a DBT Skills Training-inspired intervention in a Romanian oncology setting. Although differences in intervention structure, patient characteristics, and outcome assessment limit direct comparisons, both studies support the relevance of further investigating structured psychological skills programs in cancer care.

The results are also consistent with the broader literature on non-pharmacological interventions in oncology. Systematic reviews and meta-analyses have reported favorable effects of psychosocial interventions on emotional adjustment and quality of life, while emphasizing the heterogeneity of intervention models and patient populations (Lui *et al*., 2023; Bognár *et al*., 2024; Paslaru *et al*., 2025). Research on creative and expressive therapies has similarly highlighted the potential importance of emotional processing, interpersonal communication, and adaptive coping in patients experiencing depression associated with somatic illness, including cancer (Constantin *et al*., 2025). Although these approaches differ conceptually and methodologically from DBT Skills Training, they contribute to a broader understanding of psychological intervention as a means of supporting patients' adaptation to illness beyond symptom reduction alone.

Several methodological considerations should guide the interpretation of the present findings. The preliminary nature of the study, the limited number of statistically significant outcomes, and the absence of significant changes in most psychological indicators restrict conclusions regarding intervention effectiveness. Moreover, pre-post changes cannot be attributed exclusively to the psychological program without adequately accounting for other influences, including changes in medical treatment, disease-related symptoms, and individual circumstances. The analysis of multiple domains and individual questionnaire items also increases the possibility of chance findings, making replication particularly important. Future studies should therefore include larger samples, appropriate comparison groups, and longitudinal follow-up assessments to determine whether the observed changes are reproducible and sustained over time.

Further research would also benefit from incorporating measures that directly assess the psychological mechanisms targeted by DBT Skills Training, particularly emotion regulation, distress tolerance, mindfulness, and interpersonal effectiveness. Such measures could help determine whether changes in these skills are associated with improvements in functioning and quality of life. In addition, examining individual patterns of response may clarify whether patients with higher baseline distress or greater functional limitations benefit differently from the intervention.

Overall, the present findings suggest that a DBT Skills Training-inspired psychological program may represent a promising complementary approach within psycho-oncological care. The statistically significant improvement in role functioning, together with the reduction in worry and the moderate effect size observed for global quality of life, provides a preliminary basis for further investigation. At the same time, the absence of statistically significant changes in most emotional indicators underscores the need for cautious interpretation. The results support continued evaluation of structured, skills-based interventions, with particular attention to functional adaptation, emotional regulation, and patient-reported quality of life.

LIMITATIONS

The study's main limitations are its small sample size, the absence of a control group, and the pilot nature of the intervention. Participants also received several components of the holistic program simultaneously, making it impossible to isolate the specific effect of the skills-training intervention. Furthermore, the heterogeneity of the sample, which included patients undergoing active oncological treatment, individuals receiving follow-up monitoring, and patients with a history of recurrence, may have influenced psychological and functional outcomes. Differences in disease progression, treatment-related symptoms, and individual clinical circumstances could not be adequately controlled.

The single-group pre–post design and the absence of long-term follow-up assessments limit conclusions regarding the sustainability of the observed improvements. Additionally, the use of self-report measures may have introduced response biases, while the relatively small sample reduced statistical power to detect changes across the evaluated domains. The examination of multiple outcomes and individual questionnaire items also increases the risk of chance findings, particularly in the absence of adjustments for multiple comparisons.

Another limitation concerns the assessment of the psychological mechanisms underlying the intervention. Although the program incorporated mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness, these skills were not directly measured. Consequently, the study cannot determine whether the observed changes in functioning and quality of life were associated with the acquisition or application of specific DBT skills. Future research should address these limitations through larger controlled studies, more homogeneous or clinically

stratified samples, longitudinal assessments, and measures specifically targeting the psychological competencies developed during the intervention.

CONCLUSIONS

The preliminary findings of the present study suggest that participation in a DBT Skills Training-inspired intervention, integrated into a holistic group program for oncology patients, may be associated with improvements in everyday functioning and selected dimensions of psychological adjustment. The statistically significant improvement in role functioning represents the most relevant finding, indicating a greater perceived capacity to engage in daily activities and maintain meaningful personal and social roles. The increase in global quality of life, accompanied by a moderate effect size, and the reduction in worry provide additional encouraging findings, although most changes in emotional distress did not reach statistical significance.

These results highlight the potential relevance of psychological interventions that extend beyond symptom reduction and focus on strengthening patients' adaptive resources in the context of cancer. The integration of mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness into a structured group intervention offers a promising framework for supporting psychological adaptation and functional well-being. However, the exploratory design of the study does not allow the observed improvements to be attributed specifically to DBT skills training.

Future research should prioritize controlled studies involving larger and more clinically diverse samples, with particular attention to differences in cancer diagnosis, disease stage, and treatment status. Longitudinal follow-up assessments would help establish whether improvements in functioning and quality of life are maintained over time. Further investigations should also examine the specific contribution of DBT-inspired skills training within multidisciplinary programs and incorporate direct measures of mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness to clarify potential mechanisms of psychological change.

An additional research direction concerns the identification of patient characteristics associated with more favorable responses to psychological intervention, including baseline emotional distress, functional limitations, and perceived social support. Evaluating intervention adherence, acceptability, and implementation feasibility would also provide valuable information for the development of structured psycho-oncological services.

Overall, the present study contributes preliminary evidence to an emerging field of research on DBT-informed interventions in oncology and supports further investigation of skills-based psychological programs as complementary components of comprehensive cancer care.

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