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Comparison of the Effectiveness of Self-Compassion-Focused Therapy and Stress Inoculation Training on the Quality of Life of Parents of Children with Cancer

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ABSTRACT

Given the psychological burden associated with a child's cancer diagnosis, enhancing the quality of life of parents is of considerable clinical importance. The present study aimed to compare the effectiveness of Self-Compassion-Focused Therapy (SCFT) and Stress Inoculation Training (SIT) on the quality of life of parents of children with cancer. This study employed a quasi-experimental design with a pretest–posttest control group and a two-month follow-up period. The statistical population consisted of parents of children with cancer who attended medical and psychological treatment centers in Tehran in 2025. From this population, 45 participants were selected through convenience sampling and were randomly assigned to three groups of 15 participants each (two experimental groups and one control group). The research instrument was the Quality of Life Questionnaire developed by Weber (1992). The interventions included Self-Compassion-Focused Therapy based on Gilbert's protocol (2012) and Stress Inoculation Training based on Meichenbaum's program, each delivered in 10 weekly group sessions. Data were analyzed using mixed-design repeated-measures analysis of variance. The results indicated that both interventions significantly improved quality of life compared with the control group, and these effects remained stable at the follow-up assessment ($p < .05$). No significant difference was observed between the effectiveness of the two treatment approaches. These findings suggest that both Self-Compassion-Focused Therapy and Stress Inoculation Training can be used as effective supportive interventions to enhance the quality of life of parents of children with cancer.

Key words: Self-Compassion-Focused Therapy, Stress Inoculation Training, Quality of Life, Parents of Children with Cancer.

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Introduction

Cancer in childhood is not only a life-threatening medical condition for the child but also a profound psychological, emotional, social, and functional crisis for the family system. When a child is diagnosed with cancer, parents are suddenly confronted with a complex care trajectory that includes diagnostic uncertainty, intensive treatment regimens, hospitalization, financial strain, disruption of family routines, and persistent fear about disease progression or recurrence. In this context, parents frequently assume multiple roles as caregivers, decision-makers, emotional regulators, coordinators of treatment, and advocates for their child's needs. These responsibilities often place them under sustained psychological pressure and can substantially

compromise their quality of life. Evidence from psycho-oncology has increasingly emphasized that the burden of pediatric cancer extends beyond the patient and affects the well-being of parents and family caregivers in multiple domains, including emotional functioning, social participation, physical health, and perceived life satisfaction (1). Accordingly, quality of life among parents of children with cancer has become an important clinical and research concern because parental functioning can directly influence the child's adaptation, treatment adherence, family resilience, and the overall quality of care provided during the disease process.

Quality of life is a multidimensional construct that reflects individuals' subjective appraisal of their physical health, psychological state, social relationships, role functioning, vitality, pain, and general health status. In health-related research, quality of life is commonly conceptualized as a broad indicator of how illness, caregiving demands, and treatment conditions affect daily functioning and perceived well-being (2). From a health promotion perspective, quality of life is not limited to the absence of disease or psychological symptoms; rather, it involves the capacity to maintain meaningful functioning, emotional balance, self-care, interpersonal connectedness, and adaptive coping despite stressful circumstances (3). Parents of children with cancer are particularly vulnerable to reductions in quality of life because the child's illness typically imposes long-term emotional vigilance, sleep disturbance, uncertainty, role overload, and limitations in occupational and social activities. Studies on parents and caregivers of children with severe or rare diseases have shown that caregiving responsibilities are associated with diminished parental quality of life, especially when the illness is chronic, unpredictable, and emotionally demanding (4). Similarly, long-term follow-up studies of childhood cancer survivors and their parents indicate that the consequences of pediatric cancer may persist beyond active treatment and continue to affect health-related quality of life over time (5).

The psychological burden experienced by parents of children with cancer is shaped by several interacting stressors. Parents may experience anxiety related to medical decisions, fear of treatment side effects, uncertainty about prognosis, guilt, helplessness, and concern about the child's suffering. During the first year of treatment, parents often face particularly difficult decision-making conditions, because they must process complex medical information while managing acute emotional distress (6). Empirical evidence also suggests that caregivers of cancer patients are at elevated risk for depression, psychological exhaustion, and emotional dysregulation, highlighting the need for structured psychosocial support (7). In addition, the caregiving process may generate financial strain, which can intensify emotional burden and negatively affect family adjustment during pediatric cancer treatment (8). Parents may also experience reduced social participation and isolation because treatment schedules, infection-control concerns, and caregiving demands often restrict contact with peers, relatives, and community resources. Research has shown that caregivers of pediatric cancer patients frequently report psychological distress and social isolation, both of which are associated with poorer well-being (9). Since loneliness and social isolation are also linked to adverse chronic disease outcomes and reduced psychological adjustment, these factors represent important pathways through which caregiving stress may impair parental quality of life (10).

The increasing attention to psycho-oncology reflects recognition that cancer care must address psychological, relational, and existential dimensions of illness in addition to biomedical treatment. Psycho-oncology emphasizes the assessment and management of emotional distress, coping difficulties, family burden, and quality-of-life impairment in patients and caregivers (11). Global analyses of psycho-oncology

research investments also show growing interest in psychosocial interventions, supportive care, and quality-of-life outcomes, indicating that psychological support is now considered an integral component of comprehensive cancer care (12). Supportive oncology interventions, including home-based and caregiver-sensitive care models, have been developed to reduce distress and improve adjustment in serious cancer contexts (13, 14). In pediatric oncology, parents' needs often include accurate information, emotional support, communication with professionals, financial guidance, social support, and strategies for managing fear and uncertainty (15). Moreover, social support has been identified as a key protective factor in childhood cancer contexts, particularly because family members and survivors often rely on interpersonal resources to maintain psychological stability and resilience (16). Therefore, interventions that strengthen parents' internal and interpersonal coping resources may be especially useful for improving quality of life.

One therapeutic approach that has received growing attention in clinical psychology and health psychology is self-compassion-focused therapy. Self-compassion refers to the capacity to respond to one's suffering with kindness, emotional openness, and nonjudgmental awareness rather than self-criticism, avoidance, or shame. It includes self-kindness, recognition of common humanity, and mindful awareness of painful experiences (17). Contemporary theory and research conceptualize self-compassion as a robust psychological resource associated with lower anxiety and depression, better emotion regulation, greater resilience, and improved well-being (18). In parenting contexts, self-compassion may be particularly important because parents of ill children often experience guilt, perceived inadequacy, and self-blame. Self-compassion can help parents acknowledge the difficulty of their situation without interpreting suffering as personal failure. Research has shown that self-compassion improves parental well-being in response to challenging parenting events, suggesting that it can reduce emotional reactivity and promote adaptive coping during stressful caregiving experiences (19). Studies also indicate that attachment, self-compassion, and social support are relevant psychological factors in understanding the experiences of parents caring for a child with cancer (20).

Compassion-focused therapy provides a structured clinical framework for cultivating self-compassion and reducing threat-based emotional responses. This approach emphasizes the development of a compassionate mind, regulation of shame and self-criticism, and activation of soothing and affiliative emotional systems (21). Within this model, psychological distress is often maintained by excessive threat activation, harsh self-evaluation, and insufficient access to soothing self-relational capacities. Compassion-focused interventions seek to strengthen warmth, emotional tolerance, and affiliative motivation, enabling individuals to approach distress with greater psychological flexibility. Reviews of compassion-focused therapy describe it as an intervention designed to help individuals relate differently to suffering and develop adaptive emotional regulation through compassionate imagery, compassionate reasoning, mindfulness, and behavioral practices (22). In cancer populations, compassion-based therapies have demonstrated promising effects on psychological symptoms and quality of life. For example, compassion-based therapy has been found effective in reducing depression, anxiety, and stress and improving quality of life among patients with cancer (23). Similar findings have been reported among women with gynecological cancers, where group compassion-based therapy improved depression, anxiety, and quality of life (24).

Evidence also supports the relevance of self-compassion training for parents of children with cancer. Self-compassion-focused therapy has been shown to reduce anxiety and improve quality of life among parents of

children with cancer, indicating that this approach may directly target psychological mechanisms that undermine parental well-being (25). Self-compassion training has also been found effective in reducing hopelessness and increasing resilience in parents of children with cancer, suggesting that it may strengthen parents' capacity to cope with chronic stress and uncertainty (26). More recently, internet-based mindful self-compassion interventions have been piloted for parents of children with cancer, reflecting the growing need for accessible and scalable psychosocial interventions in pediatric oncology settings (27). Beyond oncology, studies have linked self-compassion with quality of life through psychological resources such as self-efficacy and emotion regulation. For instance, self-compassion has been associated with quality of life through the mediating role of self-efficacy in individuals with type 2 diabetes (28). Research on subjective well-being has also emphasized the interconnected roles of attachment styles, self-compassion, emotion regulation, and quality of life (29). In addition, self-compassion, mindfulness, and emotion regulation have been shown to predict multiple dimensions of quality of life in trauma-exposed populations, further supporting the transdiagnostic relevance of self-compassion processes (30). Self-compassion-based approaches have also been compared with self-care training in medical populations, indicating their potential for enhancing hope and adaptive psychological functioning in individuals facing serious health conditions (31).

Another intervention relevant to the present study is stress inoculation training. Stress inoculation training is a cognitive-behavioral intervention designed to enhance coping by preparing individuals to manage stressors through education, skill acquisition, cognitive restructuring, relaxation, problem solving, self-instruction, and relapse prevention. The central assumption of this approach is that individuals can develop psychological resistance to stress when they are gradually exposed to manageable forms of stress-related cognition and trained to use adaptive coping responses. Reviews of psychological inoculation show that such interventions can strengthen stress management and improve mental health outcomes by enhancing perceived control, cognitive preparedness, and coping self-efficacy (32). Systematic reviews have also indicated that psychological inoculation is effective in improving coping with stress, particularly when individuals are taught to anticipate stressors and apply structured cognitive and behavioral strategies (33). From a broader theoretical perspective, inoculation and preemption are mechanisms through which individuals build resistance to future threats by being prepared before they encounter more intense stressors (34). Meta-analytic evidence has further supported the role of psychological inoculation in improving coping strategies and mental health, suggesting that it can be applied across different stressful contexts (35).

The theoretical logic of stress inoculation training is particularly relevant for parents of children with cancer because these parents must repeatedly confront acute and chronic stressors that are often unpredictable, emotionally charged, and medically complex. Through stress inoculation training, parents may learn to identify stress triggers, challenge catastrophic thoughts, regulate physiological arousal, clarify values, and select more adaptive responses in moments of uncertainty. This process corresponds with broader models of self-regulation, which emphasize that timely regulation of stress-related processes can prevent downstream health problems and protect psychological functioning (36). For parents facing pediatric cancer, the ability to regulate stress responses may help preserve quality of life by reducing emotional exhaustion, improving coping confidence, and supporting more effective caregiving behavior. However, although stress inoculation training has a strong theoretical and empirical basis in stress

management, fewer studies have directly compared it with compassion-based interventions among parents of children with cancer. Therefore, comparing these two approaches can help clarify whether interventions primarily focused on compassionate self-relating and emotional soothing produce outcomes comparable to interventions focused on cognitive-behavioral stress preparedness and coping skills.

Despite the expanding literature on psycho-oncology and caregiver support, several gaps remain. First, many studies have examined psychological distress in parents or caregivers of cancer patients, but fewer have specifically evaluated structured interventions aimed at improving quality of life among parents of children with cancer. Second, although compassion-focused interventions and stress inoculation training both appear theoretically relevant, they operate through partly distinct mechanisms: self-compassion-focused therapy emphasizes self-kindness, common humanity, mindfulness, and reduction of self-criticism, whereas stress inoculation training emphasizes cognitive preparation, coping rehearsal, stress management skills, and resistance to future stressors. Third, direct comparative studies are needed to determine whether one approach offers superior benefits or whether both can be considered equally effective supportive interventions for this population. Given the multidimensional burden of pediatric cancer on parents and the clinical importance of preserving parental quality of life, evaluating and comparing these interventions can contribute to evidence-based psychosocial care in pediatric oncology.

The present study aimed to compare the effectiveness of Self-Compassion-Focused Therapy and Stress Inoculation Training on the quality of life of parents of children with cancer.

Methods and Materials

Study Design and Participants

This study employed a quasi-experimental design using a pretest–posttest control group structure with a two-month follow-up assessment. The target population consisted of parents of children diagnosed with cancer who were receiving services from medical and psychological treatment centers in Tehran, Iran, during 2025. Participants were recruited through convenience sampling based on predefined inclusion criteria, including being a parent of a child with a confirmed cancer diagnosis, willingness to participate in the study, and the ability to attend all intervention sessions. Exclusion criteria included concurrent participation in other psychological interventions, severe psychiatric disorders requiring immediate treatment, and absence from more than two intervention sessions. A total of 45 eligible parents were selected and randomly assigned to three groups, each comprising 15 participants: a Self-Compassion-Focused Therapy group, a Stress Inoculation Training group, and a control group. Assessments were conducted at three time points, including baseline (pretest), immediately after completion of the intervention (posttest), and two months following the intervention (follow-up). The control group did not receive any psychological intervention during the study period. Ethical principles were strictly observed throughout the research process, and informed consent was obtained from all participants prior to data collection.

Data Collection

Quality of life was assessed using the Quality of Life Questionnaire developed by Weber (1992). This instrument was designed to evaluate health-related quality of life and overall physical and psychological well-being. The questionnaire consists of 36 items organized into eight subscales, including physical

functioning, role limitations due to physical health problems, role limitations due to emotional problems, vitality/fatigue, emotional well-being, social functioning, bodily pain, and general health. In addition, two broader dimensions representing physical health and mental health can be derived from the integration of the subscale scores. Items are scored using a five-point Likert scale ranging from completely true to completely false. Total and subscale scores are transformed to a scale ranging from 0 to 100, with higher scores indicating better quality of life and more favorable health status. Previous studies have demonstrated satisfactory psychometric properties for this measure. Tseng, Lu, and Jandack (2003) reported a reliability coefficient of 0.89, while Montazeri, Goshtasebi, and Vahdaninia reported standardized reliability coefficients ranging from 0.77 to 0.90. In the present study, the Cronbach's alpha coefficient for the total scale was 0.76, indicating acceptable internal consistency.

Intervention

Participants assigned to the first experimental group received Self-Compassion-Focused Therapy based on Gilbert's (2012) therapeutic protocol. The intervention was delivered in a group format across ten weekly sessions. The initial sessions focused on introducing the concepts of stress, quality of life, and the psychological challenges experienced by parents of children with cancer. Subsequent sessions provided education regarding self-compassion and its role in emotional regulation and stress reduction. Participants were trained in developing a compassionate mindset, recognizing common humanity, and understanding suffering as a universal human experience. Mindfulness practices, breathing exercises, and emotional regulation techniques were incorporated to strengthen adaptive coping skills. Additional sessions addressed self-acceptance, reduction of self-criticism, self-care behaviors, and distress tolerance. Participants also practiced compassionate reasoning and compassionate attention toward difficult emotions and experiences. The final sessions emphasized the integration of self-compassion skills into daily life, strengthening interpersonal empathy within the group, developing practical strategies for managing stress and loneliness, and consolidating compassionate attitudes and behaviors to promote long-term psychological well-being and quality of life.

Participants assigned to the second experimental group received Stress Inoculation Training based on Meichenbaum's intervention program. This intervention was also implemented in a group format through ten weekly sessions. The initial phase focused on establishing rapport, identifying participants' primary concerns, and assessing sources of stress and psychological distress. Participants were introduced to the theoretical framework of stress inoculation and the principles of cognitive-behavioral change. Subsequent sessions emphasized awareness of stress responses, mindfulness practices, clarification of personal values, and the distinction between values and goals. Cognitive techniques were employed to help participants recognize maladaptive thought patterns and reduce cognitive fusion with distressing thoughts. Participants were trained in adaptive coping strategies, problem-solving skills, and committed action aimed at translating personal values into meaningful behaviors. Later sessions addressed emotional awareness, differentiation between primary and secondary suffering, self-management skills, relapse prevention strategies, and the development of individualized plans for coping with future stressors. The intervention concluded with a comprehensive review of acquired skills and strategies designed to maintain therapeutic gains and enhance long-term psychological adjustment.

Data Analysis

Data were analyzed using IBM SPSS Statistics version 25. Descriptive statistics, including means and standard deviations, were calculated to summarize participant characteristics and study variables across assessment points. To evaluate the effectiveness of the interventions over time, mixed-design repeated-measures analysis of variance (ANOVA) was conducted, with time serving as the within-subjects factor and group serving as the between-subjects factor. Main effects of time, group, and the interaction between time and group were examined to determine changes in quality of life across the three measurement occasions. When significant effects were identified, Bonferroni-adjusted pairwise comparisons were performed to examine differences between assessment stages. Statistical significance was established at a significance level of 0.05.

Findings and Results

The participants in the three groups were homogeneous in terms of demographic characteristics. The mean age was 38.23 ± 6.27 years in the Self-Compassion-Focused Therapy group, 38.00 ± 6.03 years in the Stress Inoculation Training group, and 40.01 ± 5.84 years in the control group. One-way analysis of variance showed no significant difference among the groups in age ($F = 0.455$, $p > .05$). In addition, the chi-square test indicated no significant difference among the groups in terms of educational level ($\chi^2 = 7.128$, $p > .05$) and gender ($\chi^2 = 0.153$, $p > .05$). The examination of statistical assumptions showed that the distribution of quality of life and its dimensions was normal in all three groups based on the Shapiro–Wilk test ($p > .05$). The homogeneity of variances was also confirmed across the three measurement stages based on Levene's test ($p > .05$). Box's M test further indicated the homogeneity of the variance–covariance matrix. However, Mauchly's test showed that the assumption of sphericity was not met for most variables; therefore, the Greenhouse–Geisser correction was used in the analyses. The descriptive indices of quality of life and its dimensions in the two experimental groups and the control group at the pretest, posttest, and follow-up stages are presented in Table 1.

Table 1. Descriptive Indices of Quality of Life in the Experimental and Control Groups

Variable	Stage	Self-Compassion-Focused Therapy Mean	SD	Stress Inoculation Training Mean	SD	Control Mean	SD
Physical functioning	Pretest	46.23	5.231	46.64	4.618	46.43	4.767
Physical functioning	Posttest	53.77	4.764	49.79	6.041	45.86	3.060
Physical functioning	Follow-up	54.00	4.546	50.86	5.362	44.36	3.954
Role limitations due to physical health	Pretest	51.69	6.088	50.79	5.250	51.00	6.861
Role limitations due to physical health	Posttest	57.54	8.472	53.43	7.035	48.36	7.281
Role limitations due to physical health	Follow-up	57.77	8.318	53.29	8.071	48.14	8.056
Role limitations due to emotional health	Pretest	46.23	3.961	47.36	4.272	47.14	3.718
Role limitations due to emotional health	Posttest	53.77	5.718	50.57	4.847	46.57	3.251
Role limitations due to emotional health	Follow-up	54.00	5.538	51.64	3.734	46.50	3.252
Energy/fatigue	Pretest	46.77	2.651	45.43	2.980	45.57	2.409
Energy/fatigue	Posttest	49.77	2.833	47.64	2.307	44.93	2.759
Energy/fatigue	Follow-up	50.46	2.696	47.93	2.814	45.14	2.214
Emotional well-being	Pretest	50.31	5.186	50.43	4.751	50.00	3.679
Emotional well-being	Posttest	58.46	5.607	55.36	5.372	49.36	4.517

Emotional well-being	Follow-up	58.77	5.805	56.36	6.789	49.71	4.648
Social functioning	Pretest	42.31	2.898	42.43	2.623	42.79	2.694
Social functioning	Posttest	48.38	6.475	47.07	4.779	42.36	5.458
Social functioning	Follow-up	48.15	6.440	48.50	6.478	41.14	5.517
Pain	Pretest	49.85	4.845	49.21	3.534	49.57	5.734
Pain	Posttest	54.62	7.489	52.07	6.133	48.36	7.281
Pain	Follow-up	54.46	6.851	52.00	7.348	48.14	8.056
General health	Pretest	46.08	3.752	46.43	3.204	45.93	5.061
General health	Posttest	52.85	6.216	51.64	4.534	46.21	3.167
General health	Follow-up	51.54	5.562	51.36	4.500	45.29	3.625
Quality of life (total)	Pretest	47.43	2.999	47.34	2.026	47.30	2.343
Quality of life (total)	Posttest	53.64	3.134	50.95	2.628	46.50	2.352
Quality of life (total)	Follow-up	53.64	2.824	51.49	2.734	46.05	2.389

Table 1 shows that, across different dimensions of quality of life as well as the total quality of life score, the mean scores of participants in the Self-Compassion-Focused Therapy and Stress Inoculation Training groups increased from pretest to posttest and follow-up.

The results of the multivariate factorial repeated-measures analysis of variance are presented in Table 2.

Table 2. Multivariate Test Results for Examining Between-Group Differences in Quality of Life

Variable	Source of Variation	Wilks' Lambda	F	Significance Level	Partial Eta Squared
Physical functioning	Time	0.755	6.000	0.006	0.245
Physical functioning	Time × Group membership	0.636	4.697	0.002	0.202
Role limitations due to physical health	Time	0.915	1.711	0.195	0.085
Role limitations due to physical health	Time × Group membership	0.761	2.708	0.037	0.128
Role limitations due to emotional health	Time	0.642	10.305	0.001	0.358
Role limitations due to emotional health	Time × Group membership	0.668	4.141	0.004	0.183
Energy/fatigue	Time	0.540	15.760	0.001	0.460
Energy/fatigue	Time × Group membership	0.555	6.332	0.001	0.255
Emotional well-being	Time	0.498	18.683	0.001	0.502
Emotional well-being	Time × Group membership	0.604	5.308	0.001	0.223
Social functioning	Time	0.715	7.371	0.002	0.285
Social functioning	Time × Group membership	0.684	3.866	0.007	0.173
Pain	Time	0.845	3.384	0.045	0.155
Pain	Time × Group membership	0.801	2.171	0.081	0.105
General health	Time	0.657	9.665	0.001	0.343
General health	Time × Group membership	0.761	2.704	0.001	0.128
Quality of life (total)	Time	0.401	27.634	0.001	0.599
Quality of life (total)	Time × Group membership	0.342	13.140	0.001	0.415

The above table shows that Wilks' Lambda multivariate test was significant for the dimensions of quality of life with respect to time, except for role limitations due to physical health, and for the interaction between time and group membership, except for pain ($p < .05$). The results of repeated-measures analysis of variance for the total score and dimensions of quality of life are presented in Table 3.

Table 3. Examination of Within-Group and Between-Group Differences in Quality of Life

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	Significance Level	Partial Eta Squared
Physical functioning	Time	304.089	1.342	226.635	10.477	0.001	0.216
Physical functioning	Group membership	692.984	2	346.492	8.829	0.001	0.317
Physical functioning	Time × Group membership	388.855	2.684	144.905	6.699	0.001	0.261
Role limitations due to physical health	Time	101.479	1.121	90.526	3.220	0.076	0.078
Role limitations due to physical health	Group membership	855.537	2	427.768	3.296	0.048	0.148
Role limitations due to physical health	Time × Group membership	349.609	2.242	155.937	5.547	0.006	0.226
Role limitations due to emotional health	Time	357.038	1.132	315.311	14.008	0.001	0.269
Role limitations due to emotional health	Group membership	449.746	2	224.873	7.375	0.002	0.280
Role limitations due to emotional health	Time × Group membership	312.455	2.265	137.969	6.130	0.003	0.244
Energy/fatigue	Time	84.236	2	42.118	18.076	0.001	0.322
Energy/fatigue	Group membership	289.855	2	144.928	8.934	0.001	0.320
Energy/fatigue	Time × Group membership	75.046	4	18.761	8.052	0.001	0.298
Emotional well-being	Time	540.613	1.683	321.230	25.167	0.001	0.398
Emotional well-being	Group membership	819.961	2	409.980	6.839	0.003	0.265
Emotional well-being	Time × Group membership	364.974	3.366	108.433	8.495	0.001	0.309
Social functioning	Time	320.743	1.530	209.676	11.759	0.001	0.236
Social functioning	Group membership	453.166	2	226.583	4.594	0.016	0.195
Social functioning	Time × Group membership	301.177	3.059	98.442	5.521	0.002	0.225
Pain	Time	116.752	1.219	95.788	5.683	0.016	0.130
Pain	Group membership	374.349	2	187.175	1.756	0.186	0.085
Pain	Time × Group membership	172.154	2.438	70.622	4.190	0.015	0.181
General health	Time	382.053	1.285	297.216	16.051	0.001	0.297
General health	Group membership	482.377	2	241.189	6.559	0.004	0.257
General health	Time × Group membership	211.923	2.571	82.432	4.452	0.011	0.190
Quality of life (total)	Time	249.241	1.206	206.690	49.879	0.001	0.568
Quality of life (total)	Group membership	519.890	2	259.945	16.761	0.001	0.469
Quality of life (total)	Time × Group membership	251.308	2.412	104.202	25.146	0.001	0.570

The results presented in Table 3 show that there were significant differences among the Self-Compassion-Focused Therapy, Stress Inoculation Training, and control groups in the total score and dimensions of quality of life according to time, except for role limitations due to physical health, group membership, and the interaction effect of time and group membership ($p < .05$). Regarding role limitations due to physical health, the main effect of time alone was not significant ($F = 3.220$, $p = .076$), whereas the between-subjects main effect of group was significant ($F = 3.296$, $p = .048$). This pattern indicates that changes in the examined variable over time differed depending on the type of therapeutic group. In other words, the groups differed in the extent and pattern of change. The different groups may have had similar conditions at pretest, whereas at posttest and follow-up, some groups may have improved, some may have improved less, and some may have remained stable. Therefore, examining the simple effect of time alone may be misleading because the trends differed across groups. The results of the Bonferroni post hoc test for comparing means according to group membership and measurement stages are presented in Table 4.

Table 4. Bonferroni Post Hoc Test for Comparing Mean Quality of Life Scores According to Intervention Approach and Measurement Stage

Variable	Comparison Type	Comparison	Mean Difference	Standard Error	Significance Level
Physical functioning	Treatment approaches	Self-Compassion-Focused Therapy vs. Stress Inoculation Training	2.238	1.393	0.349
Physical functioning	Treatment approaches	Self-Compassion-Focused Therapy vs. Control	5.786*	1.393	0.001
Physical functioning	Treatment approaches	Stress Inoculation Training vs. Control	3.548*	1.367	0.040
Physical functioning	Stages	Pretest vs. Posttest	-3.370*	0.985	0.004
Physical functioning	Stages	Pretest vs. Follow-up	-3.304*	0.972	0.005
Physical functioning	Stages	Posttest vs. Follow-up	0.066	0.461	1.000
Role limitations due to physical health	Treatment approaches	Self-Compassion-Focused Therapy vs. Stress Inoculation Training	3.167	2.533	0.657
Role limitations due to physical health	Treatment approaches	Self-Compassion-Focused Therapy vs. Control	6.500*	2.533	0.043
Role limitations due to physical health	Treatment approaches	Stress Inoculation Training vs. Control	3.333	2.486	0.564
Role limitations due to physical health	Stages	Pretest vs. Posttest	-1.949	1.040	0.206
Role limitations due to physical health	Stages	Pretest vs. Follow-up	-1.907	1.067	0.246
Role limitations due to physical health	Stages	Posttest vs. Follow-up	0.042	0.298	1.000
Role limitations due to emotional health	Treatment approaches	Self-Compassion-Focused Therapy vs. Stress Inoculation Training	1.476	1.228	0.710
Role limitations due to emotional health	Treatment approaches	Self-Compassion-Focused Therapy vs. Control	4.595*	1.228	0.002
Role limitations due to emotional health	Treatment approaches	Stress Inoculation Training vs. Control	3.119*	1.205	0.041
Role limitations due to emotional health	Stages	Pretest vs. Posttest	-3.394*	0.981	0.004
Role limitations due to emotional health	Stages	Pretest vs. Follow-up	-3.804*	0.906	0.001
Role limitations due to emotional health	Stages	Posttest vs. Follow-up	-0.410	0.289	0.493
Energy/fatigue	Treatment approaches	Self-Compassion-Focused Therapy vs. Stress Inoculation Training	2.000	0.896	0.095
Energy/fatigue	Treatment approaches	Self-Compassion-Focused Therapy vs. Control	3.786*	0.896	0.001
Energy/fatigue	Treatment approaches	Stress Inoculation Training vs. Control	1.786	0.879	0.148
Energy/fatigue	Stages	Pretest vs. Posttest	-1.524*	0.310	0.001
Energy/fatigue	Stages	Pretest vs. Follow-up	-1.921*	0.374	0.001
Energy/fatigue	Stages	Posttest vs. Follow-up	-0.397	0.325	0.685
Emotional well-being	Treatment approaches	Self-Compassion-Focused Therapy vs. Stress Inoculation Training	1.799	1.722	0.908
Emotional well-being	Treatment approaches	Self-Compassion-Focused Therapy vs. Control	6.156*	1.722	0.003
Emotional well-being	Treatment approaches	Stress Inoculation Training vs. Control	4.357*	1.690	0.042
Emotional well-being	Stages	Pretest vs. Posttest	-4.147*	0.830	0.001
Emotional well-being	Stages	Pretest vs. Follow-up	-4.701*	0.761	0.001
Emotional well-being	Stages	Posttest vs. Follow-up	-0.555	0.553	0.966
Social functioning	Treatment approaches	Self-Compassion-Focused Therapy vs. Stress Inoculation Training	0.282	1.562	1.000

Social functioning	Treatment approaches	Self-Compassion-Focused Therapy vs. Control	4.187*	1.562	0.032
Social functioning	Treatment approaches	Stress Inoculation Training vs. Control	3.905*	1.533	0.045
Social functioning	Stages	Pretest vs. Posttest	-3.430*	0.917	0.002
Social functioning	Stages	Pretest vs. Follow-up	-3.425*	0.928	0.002
Social functioning	Stages	Posttest vs. Follow-up	0.005	0.545	1.000
Pain	Treatment approaches	Self-Compassion-Focused Therapy vs. Stress Inoculation Training	1.879	2.296	1.000
Pain	Treatment approaches	Self-Compassion-Focused Therapy vs. Control	4.284	2.296	0.209
Pain	Treatment approaches	Stress Inoculation Training vs. Control	2.405	2.253	0.878
Pain	Stages	Pretest vs. Posttest	-2.137*	0.816	0.038
Pain	Stages	Pretest vs. Follow-up	-1.991	0.858	0.078
Pain	Stages	Posttest vs. Follow-up	0.147	0.320	1.000
General health	Treatment approaches	Self-Compassion-Focused Therapy vs. Stress Inoculation Training	0.344	1.348	1.000
General health	Treatment approaches	Self-Compassion-Focused Therapy vs. Control	4.344*	1.348	0.008
General health	Treatment approaches	Stress Inoculation Training vs. Control	4.000*	1.323	0.013
General health	Stages	Pretest vs. Posttest	-4.090*	0.924	0.001
General health	Stages	Pretest vs. Follow-up	-3.249*	0.858	0.002
General health	Stages	Posttest vs. Follow-up	0.841	0.392	0.115
Quality of life (total)	Treatment approaches	Self-Compassion-Focused Therapy vs. Stress Inoculation Training	1.648	0.876	0.203
Quality of life (total)	Treatment approaches	Self-Compassion-Focused Therapy vs. Control	4.955*	0.876	0.001
Quality of life (total)	Treatment approaches	Stress Inoculation Training vs. Control	3.307*	0.859	0.001
Quality of life (total)	Stages	Pretest vs. Posttest	-3.005*	0.424	0.001
Quality of life (total)	Stages	Pretest vs. Follow-up	-3.038*	0.403	0.001
Quality of life (total)	Stages	Posttest vs. Follow-up	-0.033	0.153	1.000

Note. The asterisk indicates a statistically significant difference.

The results of the two-way repeated-measures analysis of variance on one factor, presented in Table 3, showed that the mean differences in quality of life and its subscales were significant across the study groups ($p < .01$). Partial eta squared indicated that 46.9% of the variance in quality of life was explained by the grouping variable, namely the intervention. Furthermore, the results of the Bonferroni post hoc test for comparing means according to group membership, presented in Table 4, showed that the differences between the mean scores of quality of life and its dimensions, except for role limitations due to physical health and pain, were significant between the Self-Compassion-Focused Therapy group and the control group ($p < .01$). Regarding role limitations due to physical health, given the significant time × group interaction, the results showed that the self-compassion group experienced greater improvement than the control group. Although the self-compassion group had a better status than the control group, no group showed a statistically significant temporal improvement from pretest to posttest or follow-up. In other words, the therapeutic effect may be observed at the level of between-group comparisons, but the within-group treatment effect over time did not reach statistical significance. In the pain subscale, the analysis of the time × group design showed that the main effect of time ($F = 5.683$, $p = .016$) and the interaction between time and group ($F = 4.190$, $p = .015$) were significant, whereas the between-group effect was not significant

($F = 1.756$, $p = .186$). The Bonferroni test showed that, in each group, the mean pain score decreased significantly from pretest to posttest, but the reduction from pretest to follow-up was not significant. Moreover, between-group comparisons showed no significant difference at any stage. These results indicate that the intervention or the passage of time produced improvement in each group, but this improvement did not differ significantly between groups and was not fully maintained during the follow-up period. For the remaining quality of life subscales and the total score, the results of the Bonferroni post hoc test comparing the effects of time showed that the changes observed in mean quality of life scores after completion of the treatment period were maintained. Therefore, it can be concluded that Self-Compassion-Focused Therapy is effective in improving the quality of life of parents of children with cancer.

The results of the Bonferroni post hoc test for comparing means according to group membership, presented in Table 4, showed that the scores of the Stress Inoculation Training group differed significantly from those of the control group in the dimensions of quality of life, except for role limitations due to physical health, pain, and energy/fatigue. Thus, Stress Inoculation Training was effective in increasing the scores of these variables. The difference between the mean score of role limitations due to physical health in the Stress Inoculation Training group and the control group was not significant. In addition, pairwise comparisons among the time stages, including pretest to posttest, pretest to follow-up, and posttest to follow-up, showed that no stage differed significantly from the preceding stage ($p > .05$). For the energy/fatigue subscale, the Bonferroni test showed that, in pairwise comparisons of the means, the difference between the Self-Compassion-Focused Therapy group and the control group was significant ($p = .001$), whereas the difference between the Stress Inoculation Training group and the control group was not significant ($p = .148$). This finding indicates that the self-compassion intervention showed a statistically significant distinction from the control group, whereas Stress Inoculation Training did not create a statistically reliable difference compared with the control group in terms of increasing energy/fatigue scores. However, the results of the Bonferroni post hoc test comparing the effects of time for quality of life and its other dimensions showed that the changes observed in mean quality of life scores after completion of the treatment period were maintained. Therefore, it can be concluded that Stress Inoculation Training is effective in improving the quality of life of parents of children with cancer.

After confirming the effectiveness of the two therapeutic approaches in increasing quality of life, the two treatments were compared. Based on the results presented in Table 4, the difference in the mean total quality of life score and its dimensions between the Self-Compassion-Focused Therapy group and the Stress Inoculation Training group was not significant ($p > .05$). The results of the Bonferroni post hoc test in Table 4 show that the two groups did not differ significantly in increasing quality of life scores and its dimensions. Therefore, this hypothesis is rejected, and it can be stated that there is no significant difference between the effectiveness of Self-Compassion-Focused Therapy and Stress Inoculation Training on the quality of life of parents of children with cancer.

The results presented in Table 4 show that, in both experimental groups, the mean scores increased from pretest to posttest and from pretest to follow-up, and the differences were significant ($p < .05$). The differences from posttest to follow-up were not significant ($p > .05$). This means that the therapeutic effects remained stable over time. Therefore, it can be concluded that the effectiveness of Self-Compassion-Focused

Therapy and Stress Inoculation Training on the quality of life of parents of children with cancer was stable over time.

Discussion and Conclusion

The present study aimed to compare the effectiveness of Self-Compassion-Focused Therapy (SCFT) and Stress Inoculation Training (SIT) on the quality of life of parents of children with cancer. The findings demonstrated that both interventions significantly improved overall quality of life compared with the control group and that these improvements were maintained at the two-month follow-up assessment. Significant improvements were observed in most dimensions of quality of life, including physical functioning, emotional role functioning, emotional well-being, social functioning, general health, and the overall quality of life score. Furthermore, the results indicated that there was no statistically significant difference between the effectiveness of Self-Compassion-Focused Therapy and Stress Inoculation Training in enhancing the quality of life of parents of children with cancer. These findings suggest that both interventions represent valuable psychosocial approaches for supporting parents facing the substantial emotional and practical burdens associated with caring for a child with cancer.

The first major finding of the study was that Self-Compassion-Focused Therapy significantly improved quality of life among parents of children with cancer. This result is consistent with previous research demonstrating the beneficial effects of self-compassion-based interventions on psychological adjustment, emotional well-being, and quality of life among individuals facing chronic illness and caregiving challenges (25-27). The findings are also aligned with studies conducted among cancer populations showing that compassion-based interventions reduce psychological distress and improve quality of life indicators (23, 24). The improvement observed in the present study may be explained through the theoretical principles of self-compassion. According to Neff, self-compassion enables individuals to respond to suffering with kindness, balanced awareness, and acceptance rather than self-criticism, avoidance, or emotional overidentification (17, 18). Parents of children with cancer often experience persistent worries regarding treatment outcomes, feelings of helplessness, guilt, and concerns about their ability to adequately care for their child. These experiences frequently activate self-critical thoughts and emotional exhaustion. Through self-compassion training, parents learn to recognize that suffering is a common human experience rather than a personal failure, thereby reducing shame and psychological burden. This shift in self-relating may contribute to improved emotional functioning and, consequently, higher quality of life.

The observed improvement in emotional well-being among participants receiving Self-Compassion-Focused Therapy can also be interpreted in light of Gilbert's compassion-focused model. Gilbert proposed that compassion-focused interventions activate soothing and affiliative emotional systems that counterbalance threat-based processing and chronic stress responses (21). Parents caring for children with cancer often remain in a prolonged state of threat vigilance due to fears regarding disease progression, treatment complications, and uncertainty about the future. By cultivating self-kindness, emotional acceptance, and compassionate imagery, self-compassion interventions may reduce physiological and psychological activation associated with chronic caregiving stress. This explanation is supported by evidence indicating that self-compassion is strongly associated with adaptive emotion regulation, psychological resilience, and subjective well-being (29, 30). Furthermore, self-compassion has been linked to self-efficacy,

which may enhance parents' confidence in managing caregiving responsibilities and navigating complex medical situations (28). As parents develop greater emotional balance and self-acceptance, they may become better able to maintain social relationships, engage in self-care activities, and preserve functioning across multiple life domains.

Another important aspect of the findings is the improvement observed in social functioning among parents who received Self-Compassion-Focused Therapy. Previous studies have highlighted the role of social connectedness, attachment security, and self-compassion in promoting psychological adjustment among parents of children with cancer (20). Compassion-based interventions may enhance interpersonal functioning by reducing defensive reactions, increasing empathy, and fostering openness toward receiving support from others. Because social isolation and loneliness are common experiences among caregivers of pediatric cancer patients, interventions that strengthen feelings of connection and shared humanity may indirectly improve quality of life (9, 10). The concept of common humanity emphasized in self-compassion training allows parents to perceive themselves as part of a broader community of individuals facing challenges rather than feeling isolated in their suffering. This perception may reduce loneliness and encourage greater engagement with available social resources.

The second major finding of the study was that Stress Inoculation Training significantly improved quality of life among parents of children with cancer. This result is consistent with theoretical and empirical literature emphasizing the effectiveness of psychological inoculation approaches in enhancing coping skills, reducing stress-related reactions, and improving mental health outcomes (32, 33, 35). Parents of children with cancer are repeatedly exposed to stressors such as medical uncertainty, treatment demands, financial concerns, and emotional distress. Stress Inoculation Training equips individuals with practical coping skills designed to reduce the perceived impact of these stressors. Through cognitive restructuring, stress awareness, problem-solving strategies, relaxation techniques, and behavioral coping skills, participants develop greater confidence in their ability to manage challenging situations. As a result, they may experience reductions in perceived stress and improvements in overall functioning and well-being.

The effectiveness of Stress Inoculation Training can also be understood within broader self-regulation frameworks. Self-regulation theories suggest that individuals who possess effective coping strategies are better able to anticipate, manage, and adapt to stressors before these challenges produce substantial psychological or physical consequences (36). In the context of pediatric cancer, many parental stressors are recurrent and foreseeable, including medical appointments, treatment cycles, and periods of uncertainty regarding outcomes. Stress Inoculation Training helps parents prepare cognitively and emotionally for these challenges, thereby reducing feelings of unpredictability and helplessness. By strengthening coping efficacy and perceived control, the intervention may promote adaptive adjustment and protect quality of life. These findings also correspond with psycho-oncology perspectives emphasizing the importance of supportive psychological care as an integral component of comprehensive cancer treatment (11, 12).

The positive effects of Stress Inoculation Training on quality of life may further be linked to improvements in parents' ability to utilize available support systems and resources. Previous research has shown that family caregivers experience substantial strains but also benefit from adaptive coping strategies and psychosocial resources that facilitate adjustment (1). By enhancing cognitive flexibility and encouraging proactive coping, Stress Inoculation Training may help parents seek support more effectively and manage caregiving demands

in a balanced manner. This interpretation is consistent with evidence indicating that psychosocial support and supportive oncology interventions contribute significantly to caregiver well-being and quality of life (13, 14). The intervention may therefore function not only by reducing distress but also by strengthening parents' ability to engage with supportive networks and healthcare resources.

An additional finding of the study was the maintenance of treatment gains during the follow-up period. The absence of significant differences between posttest and follow-up scores suggests that the benefits of both interventions remained relatively stable over time. This durability may reflect the fact that both approaches emphasize skill acquisition rather than temporary symptom relief. Self-Compassion-Focused Therapy teaches enduring psychological skills such as mindful awareness, emotional acceptance, compassionate self-talk, and self-soothing, which can continue to be applied beyond the intervention period (18, 21). Similarly, Stress Inoculation Training provides participants with practical cognitive and behavioral tools that can be repeatedly used when confronting future stressors (32, 33). Because parents of children with cancer often encounter ongoing caregiving challenges, the continued use of these acquired skills may explain the sustained improvements observed at follow-up.

Perhaps the most noteworthy finding of the study was the absence of a significant difference between Self-Compassion-Focused Therapy and Stress Inoculation Training in improving quality of life. Although the two interventions are grounded in different theoretical traditions, both appear capable of addressing core psychological processes that contribute to reduced quality of life among caregivers. Self-Compassion-Focused Therapy primarily targets self-criticism, emotional suffering, and maladaptive self-relational patterns, whereas Stress Inoculation Training focuses on coping skills, cognitive preparedness, and stress management. Despite these differences, both interventions ultimately enhance emotional regulation, psychological flexibility, resilience, and adaptive functioning. Previous research has demonstrated that both self-compassion and effective coping are associated with improved psychological adjustment and quality of life across a range of populations (19, 30, 35). Therefore, it is plausible that the two interventions achieve similar outcomes through different pathways.

The lack of superiority of one intervention over the other may also reflect the multifaceted nature of parental distress in pediatric oncology settings. Parents of children with cancer face emotional, social, practical, and existential challenges simultaneously. Consequently, interventions that either strengthen emotional self-regulation through compassion or enhance coping skills through stress inoculation may both address important components of caregiver burden. Research has consistently documented that parents of children with cancer experience complex and interconnected stressors, including anxiety, caregiving strain, financial concerns, social disruption, and emotional exhaustion (6-8, 15). Because both therapeutic approaches provide mechanisms for managing these challenges, comparable outcomes may reasonably be expected.

Overall, the findings of the present study contribute to the growing literature emphasizing the importance of psychosocial interventions for parents of children with cancer. Consistent with previous evidence regarding caregiver burden, social support, psychological adjustment, and quality of life (4, 5, 16), the results suggest that structured psychological interventions can play a critical role in supporting family caregivers. Improving parental quality of life is particularly important because parental functioning affects family adaptation, caregiving effectiveness, and potentially the psychosocial adjustment of the child. Consequently,

integrating evidence-based psychological interventions into pediatric oncology services may enhance the overall quality of care provided to families facing childhood cancer.

Several limitations should be considered when interpreting the findings of this study. First, the relatively small sample size may limit the generalizability of the results to broader populations of parents of children with cancer. Second, participants were selected through convenience sampling from treatment centers in a single city, which may restrict external validity. Third, all data were collected using self-report measures, creating the possibility of response bias and social desirability effects. Fourth, the follow-up period was limited to two months, preventing evaluation of long-term treatment sustainability. Finally, factors such as cancer type, disease severity, treatment stage, socioeconomic status, and family support were not controlled and may have influenced participants' quality of life.

Future studies should recruit larger and more diverse samples from multiple treatment centers and geographic regions to improve the generalizability of findings. Researchers may also examine the long-term effects of these interventions using follow-up periods of six months or one year. Comparative studies involving additional therapeutic approaches, such as acceptance and commitment therapy, mindfulness-based interventions, or family-centered therapies, would further clarify the most effective strategies for supporting parents of children with cancer. Future investigations could also explore mediating variables such as resilience, emotion regulation, self-efficacy, social support, and psychological flexibility to better understand the mechanisms through which these interventions influence quality of life.

Healthcare professionals working in pediatric oncology settings should consider incorporating structured psychological support programs for parents as part of routine care. Self-Compassion-Focused Therapy and Stress Inoculation Training may be delivered individually, in groups, or through online platforms to increase accessibility. Training programs for psychologists, counselors, nurses, and social workers can include these approaches to strengthen family-centered support services. Establishing psychosocial support units within pediatric oncology centers may help parents acquire effective coping skills, maintain emotional well-being, and preserve quality of life throughout the treatment process. In addition, screening parents for psychological distress and quality-of-life impairment may facilitate timely referral to appropriate supportive interventions.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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