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The Effect of Ontology-based Existential Therapy on Hope and Coping Styles in Mothers of Children With Cancer: A Single Case Baseline Study

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ABSTRACT

Background and Objectives: The diagnosis of cancer in a child has numerous adverse psychological consequences for the family, particularly for mothers. Accordingly, this study aimed to examine the effect of ontology-based existential therapy on hope and coping styles among mothers of children with cancer.

Methods: Based on a single-case design, two mothers of children with blood cancer who presented to the Mahak Institute for Supporting Children with Cancer were selected through convenience sampling and received eight sessions of ontology-based existential therapy. Snyder's hope scale and Lazarus's coping styles questionnaire were administered during the baseline, intervention, and follow-up phases. Data were analyzed using graphical analysis, the Reliable Change Index, and percentage improvement.

Results: Changes in scores during the intervention phase compared with baseline indicated that ontology-based existential therapy significantly increased hope (with overall improvement percentages of 172% post-intervention and 170% at follow-up), promoted the use of problem-focused coping styles (overall improvement of 168% post-intervention and 212% at follow-up), and reduced the use of emotion-focused coping styles (38% reduction post-intervention and 35% at follow-up). The Reliable Change Index for hope and problem-focused coping exceeded 2.58 ($P<0.01$), and for emotion-focused coping exceeded 1.96 ($P<0.05$), confirming statistically significant changes that were maintained at one-month follow-up.

Conclusion: Overall, the findings suggest that ontology-based existential therapy can enhance hope and promote adaptive coping styles in mothers of children with cancer, supporting the need for essential psychological interventions for patients and their caregivers.

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Introduction

Cancer is a leading cause of mortality worldwide and a significant source of family distress when diagnosed in a child. Current global estimates indicate that approximately 400,000 new cases of childhood cancer are diagnosed annually [1], with an estimated 16.8 per 100,000 new cases each year in Iran [2]. While medical advances have improved survival rates, the diagnosis and treatment process imposes severe psychological strain on parents, with mothers often experiencing heightened vulnerability, anxiety, and hopelessness [3, 4].

Effective coping strategies are crucial for parental adaptation. Problem-focused coping is generally associated with better psychological adjustment, whereas predominant use of emotion-focused coping may be linked to greater distress [5]. Concurrently, hope—conceptualized as the interplay between goal-directed energy and pathways to achieve goals—is a vital psychological resource for both patients and caregivers, buffering against depression and fostering resilience [6, 7]. Therefore, interventions aimed at enhancing hope and promoting adaptive coping are essential for supporting mothers of children with cancer.

Ontology-based existential therapy is one approach that may address these needs. Grounded in existential philosophy, it assists individuals in confronting life's challenges, finding meaning in suffering, and making authentic choices aligned with their values and worldview [8]. By integrating personal, spiritual, and social dimensions, it offers a framework to transform perspectives, which may in turn foster hope and shift coping styles from emotion-focused to problem-focused strategies.

However, despite the theoretical relevance of existential approaches, there is a notable gap in empirical research investigating the specific effects of ontology-based existential therapy on hope and coping styles among mothers of children with cancer. Existing studies have often focused on general supportive therapies or other psychological frameworks, leaving the potential of this integrated existential-spiritual (ontological) intervention unexplored for this vulnerable group. Therefore, this study aimed to examine the effect of a brief ontology-based existential therapy intervention on hope and coping styles in mothers of children with cancer, using a single-case experimental design to explore its preliminary feasibility and impact.

Methods

The present study employed a single-case experimental design, and the target population consisted of mothers of children with blood cancer at the Mahak Institute in Yazd Province, Iran, in 2018. Two participants were selected via convenience sampling based on inclusion criteria, including having a high school diploma, at least six months since the child's diagnosis, no concurrent psychological treatment, and a baseline Snyder Hope Scale score of 50 or lower. After confirming eligibility and obtaining informed consent, both participants entered a baseline phase. They then completed eight 70-minute sessions of ontology-based existential therapy conducted twice weekly (Table 1). The intervention protocol was derived from previous qualitative research on highhope mothers in similar circumstances [9]. Measures of hope (Snyder's hope scale) and coping (Folkman and Lazarus ways of coping questionnaire) were administered three times during baseline, four times during intervention (after sessions 2, 4, 6, and 8), and twice during follow-up (one week and one month post-intervention).

Measures

Snyder's adult hope scale (AHS-12)

AHS-12 measures hope in adults through two subscales: Agency (goal-directed energy; items 2, 9, 10, 12) and pathways (planning to achieve goals; items 1, 4, 6, 8). Four items are unscored distractors. Responses are rated on an 8-point Likert scale (1 = completely false to 8 = completely true), yielding a total score from 8 to 64. The scale has established validity, including convergent validity with suicidal thoughts (r=-0.53) [10] and a confirmed two-factor structure [6, 11]. Previous reliability estimates include internal consistency (α=0.86) and test-retest reliability (r=0.81) [10]. In the current study, two-week test-retest reliability with 10 mothers yielded r=0.96.

Ways of coping questionnaire (WOCQ)

WOCQ assesses coping strategies with 66 items (50 scored, 16 distractors) on a 4-point Likert scale. It measures eight coping methods grouped into two categories: Problem-focused coping (seeking social support, responsibility-taking, planful problem-solving, positive reappraisal) and emotion-focused coping (confrontation, distancing, self-control, and escape–avoidance). The original study reported internal consistencies ranging from α=0.66-0.79 for the subscales [12]. In this study, two-week test-retest reliability with 10 mothers was

r=0.97 for problem-focused and r=0.93 for emotion-focused coping.

Data analysis

Data were analyzed using graphical analysis, in which the fluctuations of the dependent variable served as the basis for judgment regarding the extent of change. In addition to graphical analysis, the percentage of improvement was calculated to examine the clinical significance of changes [13]. The Equation 1 for calculating the improvement percentage was:

$$Improvement\ Percentage = \frac{Last\ Intervention\ Score - Baseline\ Mean\ Score}{Baseline\ Mean\ Score} * 100 \quad (1)$$

Furthermore, the reliable change index (RCI) with a modified formula was used to assess the clinical significance of the changes. The RCI was calculated by subtracting the pre-test score from the post-test or follow-up score and dividing by the standard error of the difference (Sdiff). If the value exceeds 1.96, the change can be considered significant at the 95% confidence level, and if it exceeds 2.58, it can be considered significant at the 99% confidence level (Equation 2).

$$RCI = \frac{Last\ Intervention\ Score - Baseline\ Mean\ Score}{Standard\ Error\ of\ Difference} \quad (2)$$

where the standard error of the difference is defined as (Equations 3 and 4):

3. Standard error of difference= $\sqrt{2}\times(\text{standard error})^2$

4. Standard error= Standard deviation of the scale$\times\sqrt{(1 - \text{test–retest reliability})}$

Results

The participants were two mothers (aged 40 and 42) of children diagnosed with blood cancer. Both participants had a high school diploma and were homemakers. Their children were undergoing a one-year treatment protocol.

Table 2 and Figure 1 show hope score trajectories for both participants across all assessment phases. Participant 1's scores increased from a baseline mean of 41 to 58 at the final intervention session (session 8), with follow-up scores of 56 and 57. Participant 2's scores increased from a baseline mean of 13.66 to 55 at session 8, with follow-up scores of 54 and 56.

The RCI comparing the session 8 score to the mean baseline score was 4.11 for participant 1 and 10.02 for participant 2. The percentage improvement from baseline to session 8 was 41.46% for participant 1 and 302.63% for participant 2, resulting in an overall improvement of 172.04%. At the one-month follow-up, the RCIs comparing the mean follow-up score with the baseline mean were 3.75 for participant 1 and 10.00 for participant 2, with a combined total improvement percentage of 170.21%.

Table 2 and Figure 2 show changes in emotion-focused coping scores. Participant 1's scores decreased from a baseline mean of 29 to 23 at session 8, with follow-up scores of 20 and 26. Participant 2's scores increased during early intervention sessions but decreased from a baseline mean of 16.66 to 33 at session 8, with follow-up scores of 35 and 29.

The RCI comparing the session 8 score to the mean baseline score was -2.02 for participant 1 and 5.52 for participant 2. The percentage change from baseline to session 8 was -20.68% for participant 1 and 98.07% for participant 2, resulting in a combined total change of 38.69%. At follow-up, the RCIs were -2.02 for participant 1 and 5.17 for participant 2, with a combined total change of 35.69%.

Table 2 and Figure 3 show problem-focused coping score trajectories. Participant 1's scores increased from a baseline mean of 19-36 at session 8, with follow-up scores of 32 and 34. Participant 2's scores increased from a baseline mean of 12.66-44 at session 8, with follow-up scores of 37 and 33.

The RCI comparing the session 8 score to the mean baseline score was 6.80 for participant 1 and 12.52 for participant 2. The percentage improvement from baseline to session 8 was 89.47% for participant 1 and 247.55% for participant 2, resulting in an overall improvement of 168.51%. At follow-up, the RCIs were 5.60 for participant 1 and 8.93 for participant 2, with a combined total improvement of 212%.

Discussion

This study employed a single-case experimental design to examine the effects of an eight-session ontology-based existential intervention on hope and coping styles in two mothers of children with cancer. The findings indicated increases in hope and problem-focused coping scores, along with decreases in emotion-focused coping scores, for both participants, and these changes were largely maintained at a one-month follow-up. The fol-

Table 1. Content of ontology-based existential therapy sessions

Session Description	Objectives	Techniques	Assignments
Session 1: Introduction, outlining rules and regulations of the sessions, defining hope and its nature, consequences of hopefulness in life, appropriate ways of fostering hope, examining positive and negative thoughts and feelings during hope and hopelessness	Providing an appropriate definition of hope, examining life goals to foster hope	Evidence-review technique, goal-assessment table	Setting small and feasible goals with a timeline, writing down thoughts, feelings, and behaviors during hopelessness
Session 2: Beginning with a review of the previous assignment, explanation about the meaning of life and its relation to love, sacrifice, and acceptance of suffering	Relationship between life goals and meaning of life, preventing existential vacuum, concept of acceptance of suffering, love, and sacrifice	Examining the characteristics of a meaningful life, "What does life mean?"	Finding meanings of life from within life's sufferings, speaking with individuals who found meaning in hardship and recording them according to meaningful life characteristics
Session 3: Beginning with a review of the previous assignment, explanation about the concept of ontology, being with oneself, others, and the world, and its relation to hopefulness	Concept of authentic life and its relation to hope, freedom of choice, responsibility, and commitment	Reviewing life from childhood to present and experiencing authentic living, "Who am I?"	Experiencing authentic life and responsibility toward goals and meanings in life
Session 4: Beginning with a review of the previous assignment, experiencing life in the moment and distancing from negative thoughts, examining the concept of death	Relation between living in the moment and hopefulness, relation between death and a more meaningful and hopeful life	Mindfulness and relaxation techniques	Writing a will, practicing mindfulness exercises
Session 5: Beginning with a review of the previous assignment, examining human relationship with God and its impact on hopefulness, reflecting on divine wisdom, sovereignty, and order with reference to the Holy Qur'an, and suffering as the basis of human creation, examining the principle of causality and divine justice	Role of God in life, understanding divine trials, acceptance of God's sovereignty	Determining the role of God in life	Interpretation of Qur'anic verses on divine trials and suffering
Session 6: Reviewing previous assignments, discussing participants' personal thoughts and feelings about prior sessions, explanation about God's general and specific mercy, explanation of the meaning of reliance (tawakkul) and its relation to faith	Existence of divine mercy and its relation to hope, importance of tawakkul in hopefulness	Examining the proper role of tawakkul in difficult life situations	Determining the role of tawakkul in the lives of individuals who faced suffering
Session 7: Reviewing the previous assignment, discussing immortality after death and the impact of worldly deeds upon it, role of gratitude in human life and its causes	Expanding hope through belief in life after death, importance of gratitude	Gratitude prayer exercise and sharing related thoughts and feelings	Daily recitation of a gratitude prayer
Session 8: Reviewing the previous assignment, introducing types of social support, summarizing previous materials and sessions	Relation of hope with social support	Supporter list	Identifying new supporters in life

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lowing discussion interprets these findings in relation to the existing literature.

The intervention was associated with a substantial increase in participants' hope scores, as reflected in high RCI values and large improvement percentages (Table 2). This finding is consistent with the results of Arifian and Asgari Mobarakeh (2024), who also reported increased hope in mothers of children with cancer following an existential-oriented intervention [14]. The mechanism may relate to Snyder's two-component model of hope [15]. The therapy's focus on identifying meaningful goals (pathways) and cultivating personal agency through concepts, such as choice and responsibility, likely targeted these core components directly. This provides a more detailed explanation than the general association between hope and reduced caregiver distress noted in the broader literature [16], pointing to a potential active ingredient of existential therapy.

The observed shift in coping styles—toward more problem-focused and less emotion-focused strategies—offers a clear point of comparison with existing studies. Our data are consistent with the pattern identified by Teixeira et al. (2018), where problem-focused coping in cancer caregivers was linked to lower psychological

Table 2. Trends in participants' scores on study variables across assessment phases

Phases	Hope		Emotion-focused Coping		Problem-focused Coping	
	Participant 1	Participant 2	Participant 1	Participant 2	Participant 1	Participant 2
Baseline 1	36	16	27	21	23	14
Baseline 2	44	13	28	16	16	12
Baseline 3	43	12	32	13	18	12
Baseline mean	41	13.66	29	16.66	19	12.66
Session 2	47	45	29	22	24	23
Session 4	50	46	23	36	30	35
Session 6	52	52	20	38	28	40
Session 8	58	55	23	33	36	44
RCI	4.11	10.02	-2.02	5.52	6.8	12.52
Improvement %	41.46	302.63	-20.68	98.07	89.47	247.55
Total %	172.04		38.69		168.51	
Follow-up1	56	54	20	35	32	37
Follow-up2	57	56	26	29	34	33
Follow-up mean	56.5	55	23	32	33	35
RCI	3.75	10.00	-2.02	5.17	5.6	8.93
Improvement %	37.80	302.63	-20/68	92.07	73.68	176.46
Total %	170.21		35.69		212	

RCI: Reliable change index.

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burden [17]. The decrease in emotion-focused coping scores, however, presents a more nuanced picture. While our data show a reduction, some studies, such as Somerfield and McCrae (2000), posit that emotion-focused coping can be an effective mediator in certain uncontrollable stress contexts [18]. This apparent divergence may be explained by the nature of our intervention: Rather than eliminating emotion-focused coping, the therapy may have helped participants rely on it less as a default or long-term strategy, using it more appropriately while developing stronger problem-focused skills—a distinction highlighted as crucial by previous studies [19].

When considered together, the parallel improvements in hope and adaptive coping suggest a synergistic relationship, consistent with the theoretical framework of existential therapy [8]. Enhancing hope (agency and pathways) may provide the necessary motivation and cognitive framework to engage in active, problem-solving efforts. Conversely, successful use of problem-focused strategies can reinforce a sense of self-efficacy and hope. This integrated change underscores the value of the therapy's multi-dimensional approach, which simultaneously addressed personal agency, spiritual meaning, and social context to facilitate a shift in both perspective and behavior.

Conclusion

Based on the presented findings, it can be concluded that although cancer imposes significant psychological and physical burdens to both the child and the caregivers, the psychological resources of each caregiver—particularly the mother, who has a close emotional bond with her child—can contribute to their mental well-being. The therapeutic experience for participants in this study

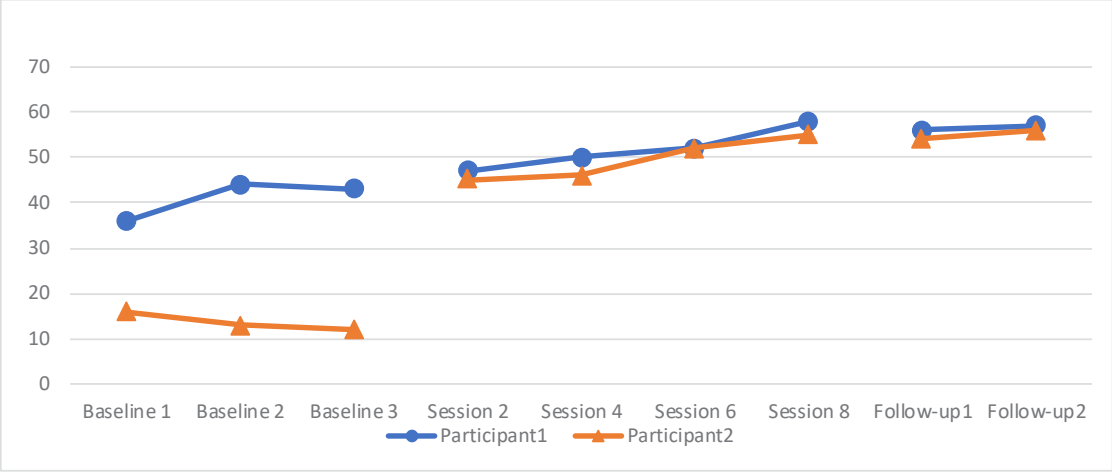

Figure 1. Trends in hope scores

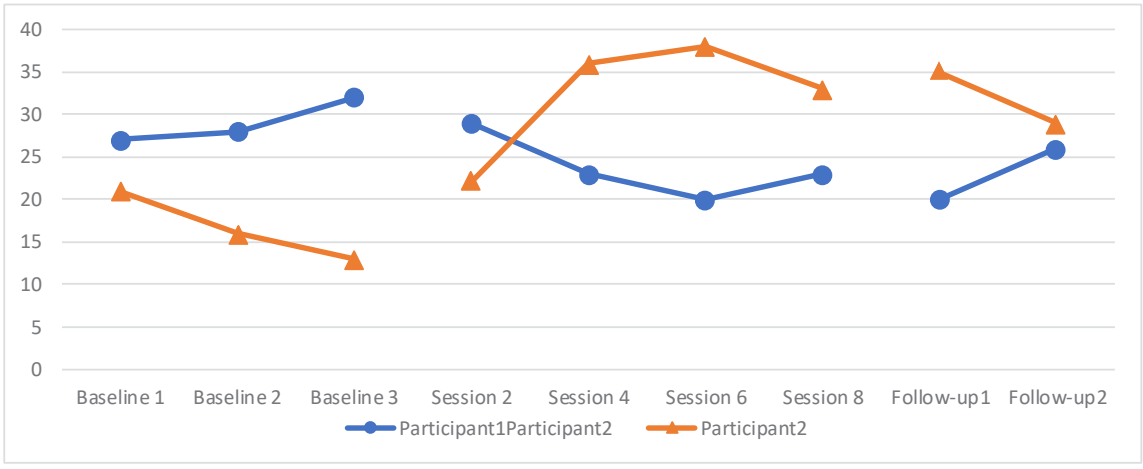

Figure 2. Trends in emotion-focused coping scores

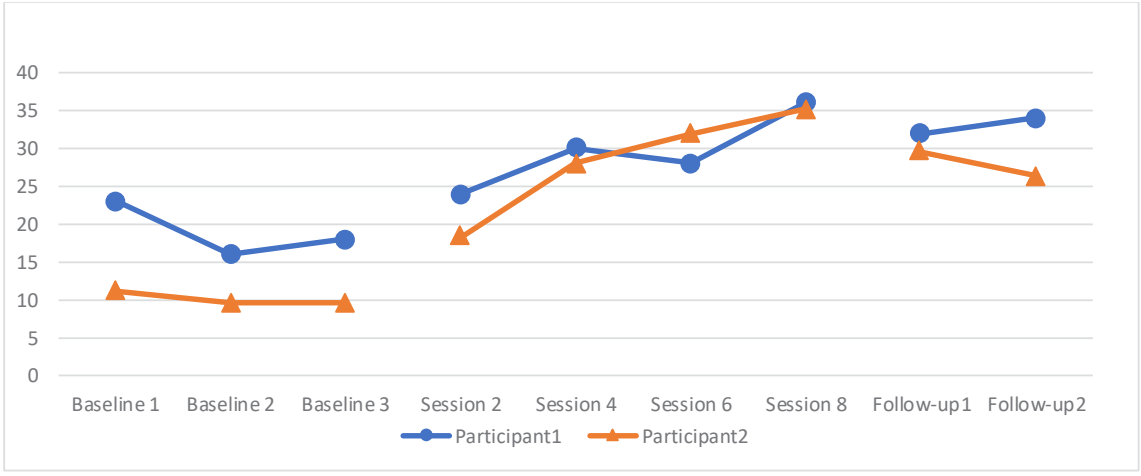

Figure 3. Trends in problem-focused coping scores

demonstrated that developing an existential perspective, engaging with fundamental existential questions, and embracing suffering, facing it, and finding valuable meaning in the darkest periods of their lives, enhanced their resilience, increased hope, and motivated them to seek appropriate solutions in difficult circumstances. Given the crucial role of mothers in their child's treatment process, the training and application of existential interventions alongside other psychological treatments empower mothers and improve their functioning during crises. Therefore, designing supportive and group-based programs grounded in existential and ontological concepts can provide a practical strategy for enhancing hope under difficult conditions.

Limitations and future research

The most important limitation of this study is its single-case experimental design and extremely small sample size (n=2), which significantly restricts the statistical power, generalizability, and robustness of the findings. Conclusions drawn from this preliminary investigation cannot be confidently extended to the broader population of mothers of children with cancer. Additional practical constraints included disruptions to the therapy schedule due to the child's medical treatment and a lack of diversity in the sample regarding the child's cancer type and maternal background. Future research must address these limitations by employing more rigorous methodologies. Specifically, randomized controlled trials or multiple-baseline designs with larger and more demographically varied samples are essential to establish efficacy and generalizability. Implementing this intervention in a group format within clinical pediatric oncology settings would also enhance ecological validity and accessibility. Further investigation into the application of this therapy for caregivers of patients with other chronic illnesses is recommended to explore its broader utility.

The convenience sampling method increases the likelihood of selection bias, and the lack of a control group prevents definitive conclusions regarding the specific effect of the intervention versus other factors, such as the passage of time or nonspecific support.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Yazd University of Medical Sciences (Code: IR.SSU.REC.1398.056). This study complied with the ethical standards of the Declaration of Helsinki. Participants were assured of the confidentiality of their information, and written informed consent was obtained from them for participation in the study.

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Authors' contributions

Study design: Yasser Rezapour-Mirsaleh; Data collection and analysis: Zahra Motevalli; Writing the original draft: Zahra Motevalli and Yasser Rezapour-Mirsaleh; Review and editing: Yasser Rezapour-Mirsaleh and Hamidreza Aryanpour.

Conflict of interest

The authors declared no conflict of interests.

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