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How supportive care needs influence resilience and hope in mothers of children with cancer?

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Abstract

Background Cancer is a leading cause of death among children and adolescents. This illness severely impacts families, particularly mothers, who often bear the primary responsibility for the child's care. Identifying the supportive care needs of mothers and the factors associated with these needs is of significant importance. Therefore, This study aimed to investigate the relationship between these needs and the resilience and hope of mothers.

Methods This cross-sectional correlational study was conducted in the hematology-oncology ward and clinic of a children's specialty hospital in Tabriz, Iran. The participants included 200 mothers of children under 18 years old with cancer, selected through convenient sampling. Data were collected using the Connor-Davidson Resilience Scale (CD-RISC-10), the Herth Hope Index (HHI), and the Supportive Care Needs Survey for Partners and Caregivers (SCNS-P&C). Data analysis was performed using statistical tests in SPSS version 26.

Results The mean total score for supportive care needs among mothers was 55.33 ± 12.68 (range 0-100), with the highest need in the psychological and emotional domain. The mean resilience score was 17.42 ± 8.04 (range 0–40) and the mean hope score was 31.29 ± 5.71 (range 12–48), indicating that the participating mothers had low resilience and moderate hope. There was an moderate negative correlation between supportive care needs and both resilience and hope in the mothers ($P < 0.001$).

Conclusions Meeting psychological and emotional needs is not only a clinical priority but also a psychological imperative. By implementing targeted interventions and enhancing support services, healthcare providers can improve resilience and hope.

Keywords Supportive care needs, Resilience, Hope, Mother, Child, Cancer

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Background

Cancer is one of the leading causes of death among children and adolescents worldwide. According to Global Cancer Observatory reports, there were approximately 276,000 new cases of cancer among children and adolescents under the age of 19 in 2022 [1]. The crude incidence rate of childhood cancer among Iranian children under 14 Years of age has been reported as 16.8 per 100,000 (95% CI: 9.04–24.56) for boys and 16.56 per 100,000 for girls [2].

Like other chronic illnesses, long-term cancer treatment is highly distressing for both children and their parents [3]. For many parents, caring for a child with a chronic illness comes with significant anxiety, stress, and financial burden [4]. Adjusting to the stresses and conditions arising from chronic illness requires considerable coping efforts and adaptive behaviors. Resilience is one of the factors that helps individuals cope with stressful life situations and protects them from psychological disturbances [5, 6].

"Resilience" generally refers to a category of phenomena characterized by patterns of positive adaptation in the face of significant difficulties or risks [7]. An Iranian study found that mothers of children undergoing chemotherapy exhibit moderate levels of resilience [8]. High resilience has been shown to enhance psychological well-being in mothers, alleviating stress, anxiety, and depression [9]. Furthermore, positive individual traits such as hope directly contribute to resilience, which, in turn, helps prevent psychological distress [10].

Hope defines as a positive motivational state characterized by the perceived capability to set desired goals, derive pathways to achieve them, and motivate oneself through agency thinking to pursue those pathways [11]. Hope considered an important coping mechanism that encourages parents to provide ongoing care and support for their child and affects how individuals cope with stressful or life-threatening situations [12–14]. An Iranian study revealed that mothers of children with cancer who received better psychological and spiritual support experienced higher levels of hope [15]. Therefore, parents' ability to cope with stressors during their child's diagnosis and treatment may largely depend on the supportive care available to them [16].

Supportive care describes the services and multidisciplinary care required to address the needs of the patient and their family in order to meet the physical, informational, psychosocial, emotional, practical, and spiritual needs during all phases of their cancer care [17]. Effective support enhances caregivers' physical and emotional health, enabling them to better address the physical and emotional needs of the patient [18]. Studies indicate that varying cultural and healthcare contexts can lead to different supportive care needs [19–21]. Given that mothers play a crucial role in providing care and continuing cancer treatment, healthcare providers and nurses need to pay more attention to their physical, psychological, social, and spiritual needs, identifying unmet needs to facilitate interventions and assess subsequent intervention outcomes [22, 23].

Due to the increasing incidence of childhood cancer in developing countries and the importance of improving the quality of life for patients and their caregivers, identifying the supportive care needs of caregivers, especially mothers, and examining the factors related to these needs is essential. Given that different health and cultural contexts affect the supportive care needs, resilience, and hope of cancer patients' caregivers, understanding these factors within each cultural context is crucial. Therefore, this study was conducted to determine the supportive care needs and their relationship with resilience and hope in mothers of children with cancer.

Methods

Design and setting

The present study is a cross-sectional correlational study conducted in the hematology-oncology ward and clinic of the Children's Specialty Hospital in Tabriz, Iran. This hospital is recognized as the largest pediatric educational and medical center in the northwest of Iran and is a major provider of childhood cancer treatment in the region.

Participants and data collection

Participants included mothers of children under 18 years old diagnosed with cancer. Mothers were included in the study using a convenience sampling method, provided they met the following criteria: at least 6 months had passed since the child's definitive diagnosis, and the mother was the primary caregiver of the child. Exclusion criteria included: the child having another chronic illness in addition to cancer, the mother being diagnosed with a mental illness based on medical records or self-reporting and receiving psychiatric treatment, or the mother having an addiction to drugs or alcohol. After obtaining the necessary permissions and coordinating with the center's officials, data collection began. The researcher, after explaining the study's objectives to the mothers, ensuring confidentiality, and obtaining written informed consent, completed the questionnaires through interviews. The researcher read the questionnaire questions to the mothers in a private setting (without the child or other companions present) and provided explanations if needed. Mothers were also given sufficient time to think and respond accurately to the questions.

Data collection tools

The data collection tool included a demographic characteristics form, the brief version of the Connor–Davidson Resilience Scale (CD-RISC-10), the Herth Hope Index (HHI), and the Supportive Care Needs Survey for Partners and Caregivers (SCNS-P&C). The demographic characteristics form consisted of two sections: one related to the mother's details (age, job, education, etc.) and another related to the child with cancer (age, gender, duration of diagnosis, type of treatment, etc.).

To measure the resilience of mothers, the Connor–Davidson Resilience Scale was used. The original version of the scale was designed by Connor and Davidson [24] and was later revised and shortened by Campbell-Sills and Stein [25]. This scale consists of 10 items (for example: " When a change occurs in my life, I can adapt to it "). and uses a 5-point Likert scale, ranging from 0 (never) to 4 (always). The scale range is from 0 to 40, with a cut-off score of 25.5; in other words, higher scores, closer to 40, indicate higher resilience [25–27]. The content and face validity of the resilience scale were reviewed by 10 experts, and their feedback was incorporated into the questionnaire. In the study by Sadeghi et.al (2020), Cronbach's alpha coefficient for the resilience scale, assessed for internal consistency, was reported as 0.86 [28]. In the present study, Cronbach's alpha coefficient for the resilience scale was found to be 0.90.

To measure the mothers' hope, the Herth Hope Index was used. This index consists of 12 items (for example: " I have a positive outlook toward life "), rated on a 4-point Likert scale: strongly disagree (score 1), disagree (score 2), agree (score 3), and strongly agree (score 4). Scoring for items 4 and 9 was reversed. The total score ranges from 12 to 48. Scores between 12 and 23 indicate low hope, between 24 and 35 indicate moderate hope, and between 36 and 48 indicate high hope [14, 29]. The study by Abdi and Asadi Lari (2011) demonstrated that this index has satisfactory reliability and validity for use in the Iranian population [30]. In the present study, Cronbach's alpha coefficient for the Herth Hope Index was found to be 0.88.

The Supportive Care Needs Survey for caregivers (SCNS-P&C) was used to determine the supportive care needs of mothers. The questionnaire was first designed by Girgis et al. (2011) [31] and adapted by Aziza et al. (2019) to evaluate the needs of parents of children with cancer [21]. This 42-item questionnaire assesses the supportive care needs of parents of cancer patients across four domains: informational needs (for example: " Accessing information about support services for you as a parent of a child with cancer "), healthcare needs (" Accessing local health care services when needed "), work and social needs (" The impact of childcare on your working life or usual activities "), and psychological and emotional needs (" Getting emotional support for yourself "). Scoring for the items was based on a 5-point Likert scale, ranging from 1 (not applicable) to 5 (high need). Scores for each domain and the total score were converted to a range of 0-100, with higher scores indicating higher supportive care needs [21, 31, 32]. The Cronbach's alpha coefficient for the supportive care needs questionnaire has shown excellent internal consistency ($\alpha = 0.95$) [21]. Since this questionnaire was used for the first time in Iran, permission for translation and modification was obtained from the original designer. The questionnaire was first translated from English into Persian by two individuals proficient in English. Subsequently, a back-translation was carried out by two other English-proficient individuals to confirm the accuracy of the translation. The face and content validity of the questionnaire were reviewed by 10 experts, and their feedback was incorporated. The final questionnaire consisted of 40 items (CVI = 0.98, CVR = 0.93). To assess the reliability of the questionnaire, a test-retest method was used with 10 mothers. The questionnaire was completed twice with a 10-day interval, resulting in a correlation coefficient of 0.91 ($P < 0.001$) between the two measurements.

Sample size

Based on a similar study, the sample size was calculated to be 170, considering a 5% Type I error rate, a margin of error of 0.05, a mean of 49.93, and a standard deviation of 16.62 [21]. To account for a potential attrition rate of 20%, the sample size was adjusted to 204.

$$n = \frac{z^2 \, s^2}{d^2}$$

Data analysis

IBM SPSS software was used for data analysis (Version 26.0, IBM Corp., Armonk, NY, USA). To assess the normality of the data, skewness, kurtosis, and visual plots were utilized. The description of the study variables was performed using frequency, percentage, mean, and standard deviation. The relationships between supportive care needs, resilience, hope, and demographic characteristics were examined using the Pearson correlation coefficient, independent t-test, and one-way ANOVA. Additionally, the Pearson correlation coefficient was used to examine the relationships between supportive care needs and both resilience and hope. Considering that the statistical conditions were met (Durbin-Watson, VIF, Tolerance, and the normality of the residuals), a multiple linear regression model was used to control for confounding variables.

Table 1 Demographic characteristics of children with cancer and their mothers

Characteristics of mothers		*N* (%)
Education level	Illiterate	24 (12.0)
	Less than a high school diploma	87 (43.5)
	High school diploma	48 (24.0)
	Higher education	41 (20.5)
Job	Housewife	184 (92.0)
	Working at home	6 (3.0)
	Working outside the home	10 (5.0)
Family economic status	Income less than expenses	165 (82.5)
	Income equal to expenses	35 (17.5)
	Income more than expenses	0 (0.0)
Number of children	One	42 (21.0)
	Two	108 (54.0)
	Three or more	50 (25.0)
Place of residence	Urban	135(67.5)
	Rural	65 (32.5)
Chronic physical illness	Yes	24 (12.0)
	No	176 (88.0)
Other sick children	Yes	5 (2.5)
	No	195 (97.5)
Adverse Events in the last 6 months	Yes	11 (5.5)
	No	189 (94.5)
Support from spouse	Yes	191 (95.5)
	No	9 (4.5)
Characteristics of children		
Gender	Male	129 (64.5)
	Female	71 (35.5)
Birth order	First	95 (47.5)
	Second	79 (39.5)
	Third or more	26 (13.0)
Diagnosis type	ALL (Acute Lymphoblastic Leukemia)	101 (50.5)
	AML (Acute Myeloid Leukemia)	16 (8.0)
	Lymphoma	9 (4.5)
	Sarcoma	33 (16.5)
	Blastoma	22 (11.0)
	Wilms tumor	9 (4.5)
	Brain tumor	7 (3.5)
	Other	3 (1.5)
Diagnosis duration	Less than One year	83 (41.5)
	1 to 3 years	92 (46.0)
	More than Three years	25 (12.5)
Treatment	Inpatient	108 (54.0)
	Outpatient	92 (46.0)
Reason for the hospital visit	Chemotherapy	156 (78.0)
	Other	38 (19.0)
Recurrence	Yes	17 (8.5)
	No	183 (91.5)

Results

Participant characteristics

A total of 200 mothers participated in the study (Four mothers were excluded from the study due to their unwillingness to continue participating). The mean age of mothers was 35.88 ± 7.29 years, and most of them were married (98.5%). The majority of mothers had education Less than a high school diploma (43.5%). 92% of mothers were housewives, and most reported having an income lower than their expenses (82.5%). The mean age of children was 8.45 ± 4.52 years, and most of them were boys (64.5%). About half of the children (47.5%) were the first-born in their families. The highest number of cases was Acute Lymphoblastic Leukemia (ALL) (50.5%). Information regarding the mothers and children is shown in Table 1.

Table 2 Mean, range, and frequency of supportive care needs, resilience, and hope in mothers of children with cancer

Variable		Mean ± SD	Range	*N* (%)
Supportive Care Needs	Information	55.85 ± 20.21	0–100	–
	Health-care service	54.81 ± 16.59	0–100	–
	Work and Social	52.60 ± 17.91	0–100	–
	Psychological and emotional	57.34 ± 15.47	0–100	–
	Other needs	52.65 ± 16.99	0–100	–
	Total	55.33 ± 12.68	0–100	–
Resilience	Low	–	0–25.5	166 (83.0)
	High	–	25.5–40	34 (17.0)
	Total	17.42 ± 8.04	0–40	–
Hope	Low	–	12–23	18 (9.0)
	Moderate	–	23–36	142 (71.0)
	High	–	36–48	40 (20.0)
	Total	31.29 ± 5.71	12–48	–

Supportive care needs of mothers

The total mean score of supportive care needs of mothers was 55.33 ± 12.68, with the highest need reported in the psychological and emotional domain (57.34 ± 15.47) (Table 2). Mothers reported high needs in managing concerns about disease recurrence, obtaining information on financial support and government benefits, accessing life insurance for their child, accessing local health care services, and acquiring information about supportive services. Among the items, the statement "Managing concerns about the cancer coming back" was the most frequently reported need by mothers (Table 3). There was a statistically significant relationship between mothers' supportive care needs and family economic status ($P < 0.001$), number of children ($P = 0.046$), type of child's treatment ($P < 0.001$), having another sick child ($P = 0.018$), and experiencing a recent adverse event within the last 6 months ($P < 0.001$) (Table 4).

Resilience of mothers

The mean resilience score of mothers was 17.42 ± 8.04, which was considered low resilience Given the cutoff point of 25.5. The resilience was also examined using

Table 3 Most needs of mothers of children with cancer

Item	Not applicable	Satisfied	Low need	Moderate need	High need
	N (%)	*N* (%)	*N* (%)	*N* (%)	*N* (%)
Managing concerns about the cancer coming back	9 (4.5)	16 (8.0)	12 (6.0)	16 (8.0)	147 (73.5)
Finding out about financial support and government benefits for you and/or your child	1 (0.5)	34 (17.0)	14 (7.0)	20 (10.0)	131 (65.5)
Obtaining life and/or travel insurance for your child	10 (5.0)	43 (21.5)	9 (4.5)	9 (4.5)	129 (64.5)
Accessing local health care services when needed	2 (1.0)	59 (29.5)	4 (2.0)	8 (4.0)	127 (63.5)
Accessing information about support services for you as a parent of a child with cancer	1 (0.5)	27 (13.5)	24 (12.0)	23 (11.5)	125 (62.5)
Getting emotional support for your loved ones	0 (0.0)	28 (14.0)	25 (12.5)	22 (11.0)	125 (62.5)
Addressing fears about the child's physical or mental deterioration	12 (6.0)	29 (14.5)	23 (11.5)	12 (6.0)	124 (62.0)
Coping with the child's recovery not turning out the way you expected	8 (4.0)	29 (14.5)	12 (6.0)	29 (14.5)	122 (61.0)
Making decisions about your life in the context of uncertainty	4 (2.0)	26 (13.0)	17 (8.5)	33 (16.5)	120 (60.0)
Getting emotional support for yourself	0 (0.0)	54 (27.0)	17 (8.5)	19 (9.5)	110 (55.0)
The impact of childcare on your working life or usual activities	1 (0.5)	42 (21.0)	33 (16.5)	45 (22.5)	79 (39.5)
Having opportunities to discuss your concerns with the doctors	0 (0.0)	69 (34.5)	32 (16.0)	21 (10.5)	78 (39.0)
Getting more support from your family	1 (0.5)	72 (36.0)	24 (12.0)	28 (14.0)	75 (37.5)

qualitative methods, revealing that 166 mothers (83.0%) reported resilience below the cutoff point, while 34 mothers (17.0%) reported resilience above the cutoff point (Table 2). Additionally, the findings showed a significant relationship between mothers' resilience and family economic status ($P = 0.001$) mother's job ($P = 0.037$), and education ($P < 0.001$) (Table 4).

Hope of mothers

The mean total hope score of mothers was 31.29 ± 5.71. Among the mothers, 9% had low hope, 71% had moderate hope, and 20% had high hope (Table 2).

There was a statistically significant relationship between mothers' levels of hope and family economic status ($P = 0.001$), mother's job ($P = 0.028$) and education ($P < 0.001$), number of children ($P = 0.037$), experience of an adverse event in the past 6 months ($P = 0.012$), and reason for hospital visit ($P = 0.010$) (Table 4).

Correlation of support needs with resilience and hope

The results of the Pearson correlation coefficient and multiple linear regression models indicated a moderate negative correlation between supportive needs and both resilience and hope among mothers ($P < 0.001$). A moderate negative correlation was observed between hope and the work and social domain, while a weak negative correlation was identified between resilience and the work and social domain ($P < 0.001$). There was also a weak negative correlation between hope and resilience with healthcare services domain ($P_H = 0.006$, $P_R = 0.017$). However, the correlation between resilience and hope with the psychological and emotional domain was strong ($P < 0.001$) (Table 5).

Discussion

The present study aimed to examine the supportive care needs and their relationship with resilience and hope in mothers of children with cancer. The findings revealed that the highest supportive care needs for mothers were in the "psychological and emotional" domain. This underscores the necessity of implementing targeted psychological support programs for these mothers, including counseling, stress management workshops, and mindfulness-based interventions. Comparatively, the study by Aziza et al. (2019) identified the "informational" and "health-care" domains as the highest needs among parents, while Altınışık et al. (2022) highlighted "work-social" and "informational" needs as the most unmet for caregivers [19, 21]. These differences could stem from variations in cultural and healthcare contexts, emphasizing the need for context-specific interventions.

The study also found that mothers with poorer economic conditions, those with two or more children, another sick child, or a recent adverse event reported higher supportive care needs. Additionally, mothers of hospitalized children exhibited significantly higher needs compared to those of outpatient children. This finding highlights the critical role of hospital-based support

Table 4 Correlation of mothers and children demographic characteristics with mother's supportive care needs, resilience and hope

Characteristics	Supportive care needs		Resilience		Hope	
	Mean ± SD	*P*	Mean ± SD	*P*	Mean ± SD	*P*
Mother's education level						
Illiterate	55.57 (14.29)	*P* = 0.460	17.33 (6.16)	*P* < 0.001	29.79 (5.34)	*P* < 0.001
Less than a high school diploma	56.37 (12.41)		15.33 (7.38)	*F = 10.17	29.99 (5.37)	F = 10.23
High school diploma	55.70 (12.52)		16.42 (8.46)		30.94 (5.60)	
Higher education	52.56 (12.51)		23.07 (7.45)		35.34 (5.00)	
Mother's job						
Homeworker	55.85 (12.67)	*P* = 0.143	17.00 (7.92)	*P* = 0.037	30.97 (5.44)	*P* = 0.028
Working at home	49.16 (9.28)		23.67 (5.31)	F = 3.35	35.00 (4.56)	F = 3.63
Working outside the home	49.43 (13.00)		21.40 (9.54)		34.90 (9.09)	
Family economic status						
Income less than expenses	57.37 (11.86)	*P* < 0.001	16.57 (7.61)	*P* = 0.001	30.68 (5.44)	*P* = 0.001
Income equal to expenses	45.75 (12.13)	**t = 5.24	21.43 (8.90)	t = − 3.32	34.14 (6.18)	t = − 3.33
Number of children						
One	51.04 (12.88)	*P* = 0.046	19.79 (8.26)	*P* = 0.087	33.26 (4.81)	*P* = 0.037
Two	56.62 (12.69)	F = 3.13	16.56 (8.33)		30.62 (5.99)	F = 3.35
Three or more	56.17 (11.92)		17.28 (6.90)		31.08 (5.51)	
Other sick children						
No	55.00 (12.57)	*P* = 0.018	17.51 (8.01)	*P* = 0.337	31.37 (5.71)	*P* = 0.222
Yes	68.50 (10.63)	t = − 2.37	14.00 (9.59)		28.20 (5.54)	
Adverse Events in the last 6 months						
No	54.58 (12.41)	*P* < 0.001	17.58 (7.87)	*P* = 0.255	31.53 (5.59)	*P* = 0.012
Yes	68.23 (10.52)	t = − 3.57	14.73 (10.71)		27.09 (6.36)	t = 2.54
Child's treatment						
Inpatient	58.51 (13.54)	*P* < 0.001	17.31 (8.71)	*P* = 0.826	30.90 (6.12)	*P* = 0.295
Outpatient	51.60 (10.48)	t = 4.06	17.55 (7.22)		31.75 (5.19)	
Reason for hospital visit						
Chemotherapy	54.91 (12.19)	*P* = 0.159	17.82 (7.66)	*P* = 0.055	31.74 (5.46)	*P* = 0.010
Other	58.17 (14.74)		15.05 (8.99)		29.08 (6.40)	t = 2.59

P value < 0.05

* One-way ANOVA

** Independent Sample T Test

Table 5 Regression analysis and correlation of supportive care needs and its domains with resilience and hope in mothers of children with cancer

Supportive Care Needs	Resilience				Hope			
	Correlation		Multiple linear regression		Correlation		Multiple linear regression	
	*r	*P*	β (SE)	*P*	*r*	*P*	β (SE)	*P*
Information	−0.11	0.114			−0.19	0.006		
Healthcare service	−0.16	0.017	−0.11 (0.03)	0.001	−0.19	0.006	−0.08 (0.02)	< 0.001
Work and Social	−0.29	< 0.001	−0.08 (0.03)	0.007	−0.38	< 0.001	−0.08 (0.02)	< 0.001
Psychological and Emotional	−0.52	< 0.001	−0.25 (0.03)	< 0.001	−0.51	< 0.001	−0.18 (0.02)	< 0.001
Total	−0.39	< 0.001	−0.22 (0.04)	< 0.001	−0.45	< 0.001	−0.18 (0.02)	< 0.001

* Pearson correlation coefficient

services, such as peer-support groups and on-site counseling, in addressing these disparities.

Regarding resilience, most mothers of children with cancer displayed below-average levels. Low resilience suggests that these mothers face significant challenges in maintaining their mental and emotional well-being amidst the stress and psychological pressure of their child's illness. These findings are consistent with previous studies [33–35]. Notably, mothers who worked from home, had higher education levels, and were in better economic conditions exhibited higher resilience. This indicates that resilience is influenced by a combination of socioeconomic and personal factors, affecting their capacity to cope with daily challenges both directly and

indirectly. Interventions aimed at building resilience—such as training in adaptive coping mechanisms, access to peer networks, and resilience-focused workshops—are crucial.

The study also observed a moderate level of hope among mothers, reflecting a delicate balance between optimism and concern. Despite facing significant psychological pressures, these mothers retained a meaningful level of hope and belief in recovery, which likely helped them navigate their challenges. Similar findings were reported by Fathollahzadeh et al. (2021) and Zeng et al. (2021) [13, 15]. Hope was found to be higher among mothers who worked from home, had higher education levels, only one child, or better economic conditions. This suggests that economic stability and reduced caregiving burdens play a significant role in fostering hope.

A moderate negative correlation was identified between supportive care needs and resilience, indicating that as supportive care needs increase, resilience decreases. This relationship can be attributed to the psychological and social pressures resulting from unmet needs, which weaken mothers' ability to manage crises. Consistent with these findings, Er et al. (2023) also reported a similar negative correlation [36]. Additionally, Dubey et al. (2015) emphasized that unmet needs, particularly in the psychological and informational domains, contribute to diminished resilience [37]. These findings highlight the importance of addressing unmet supportive care needs to strengthen mothers' resilience.

Similarly, the results indicated that as supportive care needs increase, levels of hope decrease. Hope, as a positive and motivating emotion, enables mothers to cope with daily challenges and adversities. When these needs remain unmet, feelings of hopelessness and an inability to manage issues prevail. Research has shown that meeting supportive care needs can significantly enhance hope. For instance, Altınışık et al. (2022) linked caregivers' hope to needs in the "informational and healthcare" and "work-social" domains [19]. Jenabi Qhods et al. (2023) also reported an inverse statistical relationship between unmet needs and patient hope [38]. Additionally, Taso et al. (2022) found that regular assessment of caregiving needs and the provision of tailored support can increase caregivers' hope for the future [39].

This study highlights the interconnectedness of supportive care needs, resilience, and hope in mothers of children with cancer. Meeting psychological and emotional needs is not only a clinical priority but also a psychological imperative. By implementing targeted interventions and enhancing support services, healthcare providers can simultaneously improve resilience and hope while mitigating distress. Future research should focus on longitudinal studies and intervention-based approaches to further explore these relationships and their implications for caregiving and policy development.

Limitations

Since determining the severity of cancer in children visiting the hematology-oncology clinic was relatively challenging, the impact of the child's disease severity on maternal resilience and hope was not examined in this study. It is recommended that future similar studies take into account the impact of the child's disease severity on the study variables. One of the other limitations of the present study is its implementation in only one educational and medical center in the region, which limits the generalizability of the results. It is recommended that future research examine a larger group of mothers through multi-center studies.

Conclusions

The identification of the "psychological and emotional" domain as the most significant Supportive care needs highlights the necessity for targeted psychological support programs for mothers. This could include counseling sessions, stress management workshops, or mindfulness-based interventions. Mothers of hospitalized children reported higher care needs, underscoring the necessity for enhanced hospital-based support services, such as peer-support groups or on-site counseling. The below-average resilience levels observed in most mothers highlight the need for resilience-building initiatives. These could include training in adaptive coping mechanisms, access to peer networks, and resilience-focused workshops. The moderate level of hope observed in mothers suggests an opportunity for intervention. Practices like goal-setting, visualization techniques, and support groups emphasizing success stories can help maintain or elevate hope. Since unmet needs directly influence both resilience and hope, addressing these gaps is not merely a clinical objective but also a psychological imperative. By closing the psychological and emotional gaps in care, healthcare providers can simultaneously promote resilience, nurture hope, and alleviate distress in these mothers, fostering a more supportive and empowering caregiving environment.

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Authors' contributions
M.J. the corresponding author, Ph.D., and Associate Professor of Nursing, designed the study and revised the manuscript. Additionally, was involved in executing the plan and interpreting the results. M.A-Kh, the first author, was responsible for the conception and design of the study, data collection, data analysis and interpretation, and drafting of the manuscript. A.F-Kh. performed the statistical analysis of the data. M.A. provided advice on study design, execution, and preparation of the final report. All authors listed in the manuscript approved the submission of this version of the manuscript and took full responsibility for it.

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Data availability
The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
The present study has been approved by the Ethics Committee of the Tabriz University of Medical Sciences, Tabriz, Iran (IR.TBZMED.REC.1402.537). In this study, verbal consent was obtained from children and written informed consent was obtained from mothers before data collection.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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