Predictors of Resilience among the Parents of Children with Cancer

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ABSTRACT

The experience of caring for children with cancer is challenging and may lead to a traumatic experience for parents. Research has shown that resilience supports parents in dealing with psychological problems during the cancer treatment process. This study aims to identify the factors that influence the resilience of parents of children with cancer. The research involved 63 parents/caregivers of children with cancer. The research instruments used were a demographic questionnaire, the Connor Davidson Resilience Scale (CD-RISC 25), and the Multidimensional Scale of Perceived Social Support (MSPSS). Linear regression analysis was used to determine the most dominant factors affecting resilience in parents/caregivers of children with cancer. The results showed that the mean score of resilience for parents/caregivers of children with cancer was 67.55 ± 10.89. It was found that factors associated with resilience were social support ($\rho=0.00$) and time since children were diagnosed with cancer ($\rho=0.02$). The most dominant factor influencing resilience is social support (β value = 0.10). Therefore, health workers are expected to be able to facilitate social support for parents of children with cancer to increase resilience.

Keyword: Cancer, Children, Parents, Resilience, Social support
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1. Introduction

Every year globally, approximately 400,000 children receive a cancer diagnosis (World Health Organization (WHO), 2021). Childhood cancer is a potentially fatal condition, ranking as the second leading cause of death among children. The diagnosis and treatment of pediatric cancer involve diverse interventions and an extended duration. This process not only induces stress, anxiety, and fear in affected children but also gives rise to psychological challenges for their parents (Çınar et al., 2021; Liu et al., 2023).

When a child is diagnosed with cancer, parents often experience a range of psychological responses, including disbelief, fear, guilt, sadness, anxiety, and anger. Parents of children with cancer tend to exhibit heightened levels of depression due to the sudden onset of most cancer diagnoses without a preceding history of illness (Park et al., 2022). The depression experienced by parents not only hampers their own quality of life but also adversely affects the quality of life for the children with cancer (Bakula et al., 2020; Luo et al., 2022). Research findings from studies conducted on parents of children with cancer in Bandung reveal that a majority of them report a poor quality of life (Nurhidayah et al., 2020).

The diminished quality of life for parents stems from uncertainties surrounding their child's condition, the prospect of their child's survival, concerns about their child's future, and the fear of potential loss (Liu et al., 2023; Ye et al., 2017). Additionally, parents of children with cancer grapple with economic challenges linked to the expenses incurred during the treatment process (Liu et al., 2023).

Consequently, parents facing the ordeal of having a child with cancer require resilience. Resilience is the capacity for effective adaptation in the face of trauma, threats, or significant stressors, along with the ability to

rebound from challenging experiences (American Psychological Association, 2022). High resilience is characterized by adept stress management and a positive outlook on problems. Such resilience proves instrumental in mitigating mental health issues arising from the care of a child with cancer (Luo et al., 2022). Parents exhibiting low resilience, as reported by Rosenberg et al. (2014) and Ye et al. (2015), tend to experience heightened anxiety and depression. In contrast, parents with high resilience, as found by Luo et al. (2022), demonstrate lower depression scores. High resilience enables parents to recover swiftly, cope with stress during the treatment process, and make informed decisions in challenging situations (Ye et al., 2015). Thus, enhancing resilience in parents of children with cancer can significantly improve their overall quality of life (Rosenberg et al., 2014).

A study conducted at RSUP. Prof. Dr.dr. R.D. Kandou Manado showed that over 90% of parents of children with cancer encountered depression, and 83.4% experienced anxiety during their children's medical treatment. These findings underscore persistent challenges related to resilience in parents of children with cancer. The aim of this study was to identify factors associated with resilience in parents of children with cancer at Poliklinik Estella, RSUP. Prof. Dr.dr. R.D. Kandou Manado.

2. Methods

This research constitutes a correlational analytic study with the primary objective of identifying factors linked to the resilience of parents/caregivers of children with cancer. Utilizing a quantitative approach, the study used a cross-sectional research design spanning from July to September 2023. The investigation took place at Poliklinik Estella, RSUP. Prof. DR. Dr. R.D. Kandou Manado, with the participants comprising parents/caregivers of children diagnosed with cancer. The sampling method employed was purposive sampling, guided by specific inclusion criteria: 1) parents of children with cancer who willingly participated, 2) parents serving as the primary caregivers for their children with cancer, and 3) individuals proficient in spoken Indonesian who could complete the questionnaire. Based on the calculated sample size, the study included 63 parents of children with cancer, selected through purposive sampling aligned with the research objectives.

In this study, various instruments were used, including demographic data questionnaires for both parents and children with cancer, the Connor-Davidson Resilience Scale (CD-RISC) 25, and the Multidimensional Scale of Perceived Social Support (MSPSS). The CD-RISC 25 questionnaire, developed by Jonathan Davidson and Kathryn M. Connor, consists of 25 items designed to measure resilience, with scores ranging from 0 to 100. Hasanah et al. (2021) conducted validity and reliability tests, revealing valid results with a validity value showing $r_{results} > r_{table}$, and a reliable Cronbach's alpha value of 0.887.

The MSPSS questionnaire, created by Zimet (1988) to assess social support, features scores ranging from 12 to 84. Mawaddah (2019) conducted validity and reliability tests, confirming its validity with $r_{results} > r_{table}$, and a reliable Cronbach's alpha value of 0.895.

Ethical approval for this research was obtained from the RSUP Health Research Ethics Committee, Prof. DR. Dr. R.D. Kandou Manado, with the reference number 078/EC/KEPK-KANDOU/VI/2023. Descriptive statistical analysis was applied to examine the characteristics of respondents for each variable in the study. Bivariate analyses included Spearman's test to determine the relationship between social support, the child's age, the child's age at diagnosis, and the time since the child was diagnosed with cancer in relation to resilience. The independent t-test was used to identify differences in resilience based on the type of diagnosis. Additionally, linear regression was employed to ascertain the primary factors influencing resilience in children with cancer.

3. Results

The findings showed that the average age of parents/caregivers of children with cancer was 35.49 years, and the majority (58.70%) of primary caregivers for children with cancer were mothers. The mean age of children with cancer was 7.04 years, and the majority (65.20%) of the diagnosed cases were Acute Lymphoblastic Leukemia. A detailed overview of the characteristics of parents/caregivers is presented in Table 1.

Table 1 Demographic characteristics of parents/caregivers and children with cancer

Variable	f (%)	Mean ± SD
Characteristics of Parents/Caregivers		
Parents/caregiver age		35.49 ± 6.70
Kinship relationship		
Father	22(34.90)	

Table 1 Continued

Variable	f (%)	Mean ± SD
Mother	37(58.70)	
Caregivers	4(7.20)	
Educational background		
Elementary school	6(9.50)	
Junior high school	9(14.30)	
Senior high school	26(41.30)	
College/university	22(34.90)	
Religion		
Christian	34(54)	
Islam	25(39.70)	
Catholic	3(4.80)	
Hinduism	1(1.60)	
Characteristics of children with cancer		
Child's age		
< 3 years	6 (9.50)	
3-6 years	26 (41.30)	7.04 years±3.71
7-15 years	30 (47.60)	
>15 years	1 (1.58)	
Diagnosis age		
< 3 years	9 (14.30)	
3-6 years	29 (46)	6.41±3.51
7-15 years	24 (38.09)	
>15 years	1 (1.58)	
Time since diagnosis		
0-12 months	38(60.30)	
>12 months	25 (39.70)	12.92 months±11.58
Gender		
Male	26(57.77)	
Female	19(42.22)	
Diagnosis		
Acute Lymphoblastic Leukemia	30(65.20)	
Chronic Myelogenous Leukemia	5(10.90)	
Lymphoma non-Hodgkin	2(8.70)	
Teratoma	4(8.70)	
Wilms Mass	3(6.50)	
Osteosarcoma	1 (2.20)	

Table 2 indicates a negligible difference in the resilience of parents/caregivers for children with cancer (1% difference), while their social support is notably higher (61.90%). Additionally, the highest mean resilience was observed among fathers (68.50 ± 10.87).

Table 2 Description of resilience and parental support for children with cancer

Resilience	f (%)	Mean±SD
Highest	31(49.20%)	67.55±10.89
Lowest	32(50.80%)	
Social support		65.46±12.16
Highest	39 (61.90%)	
Lowest	24 (38.10%)	
Respondent		
Father's Resilience		68.50±10.87
Mother's Resilience		67.05±9.85
Caregiver's Resilience		67±21.21

As outlined in Table 3, the data shows that social support and time since diagnosis significantly influence resilience in parents of children with cancer ($p < .05$). However, no significant relationships were found with the child's age (p=0.37), the child's age at diagnosis (p=0.60), or the diagnosis itself (p=0,05).

Tabel 3 Bivariate analysis of probable factors

Variable	Score of Resilience (Mean±SD)	p-value	Coefficient of correlation (r)	95%CI
Social support [a]		0.00*	0.45	
Child's age [a]		0.37	0.11	
Child's age at diagnosed [a]		0.60	0.06	
Time since children diagnosed with cancer[a]		0,02*	0,28	
Diagnosis [b]				
Hematologic cancer	66.41±10.13	0.05		-14.53– (0,16)
Solid mass	73.60±13.27			

[a]Analyzed by *Spearman Rho*
[b]Analyzed by *independent t-test*
*Significant (p<0,05)
Source: Primary Data 2023

Subsequently, all variables exhibiting significant relationships with resilience underwent multiple linear regression analysis. Social support and time since diagnosis showed a p-value < 0.05. These two variables were then subjected to a linear regression test using the backward method to identify the most dominant factors associated with resilience in parents of children with cancer, as detailed in Table 4.

Tabel 4 Factors associated with resilience in parents of children with cancer

Model	Unstandardized Coefficients	Standardized Coefficients		Adjusted R Square
	B	β	p	
(Constant)	37.06		0.00	0.23
Time since children diagnosed with cancer	0.10	0.11	0,30	
Social support	0.44	0.49	0.00*	
(Constant)	38.45	6.62	0.00	0.23
Social support	0.44	0.10	0.00*	

*Significant with p<0,05; *Adjusted* R *Square* 23%

The results of the multivariate analysis highlight social support as the most dominant factor influencing resilience in parents of children with cancer. This determination is based on social support being the sole variable in the final modelling with the largest standardized coefficient (β) value, specifically 0.10. The coefficient of determination (Adjusted R Square) is 0.23, signifying that the social support variable correlates with resilience in parents of children with cancer by 23%, with the remaining factors lying outside the scope of this research influencing the rest.

4. Discussion

Resilience is defined as the process of effectively adapting to trauma, threats, or significant stressors and the ability to recover from challenging experiences (American Psychological Association, 2022). In this study, the average resilience score for parents was 67.55 ± 10.89. This mean resilience score is slightly higher compared to research conducted in Bandung, where parents exhibited a mean resilience score of 62.20 (Hasanah et al., 2021). Another study using the same questionnaire reported a higher mean resilience score of 73.15, with most parents (56.67%) displaying high resilience (Fetriyah et al., 2024). These findings indicate that fathers, on average, have slightly higher resilience scores than mothers. Similarly, studies on parents of children with cancer have reported that fathers tend to be significantly more resilient than mothers (Habibpour et al., 2019).

High resilience is characterized by a strong ability to cope with stress and maintain a positive perception of problems. Conversely, a study conducted in Ethiopia revealed a lower average resilience value of 51.41 (Mezgebu et al., 2020). Parents/caregivers of children with cancer who exhibit high resilience demonstrate their capacity to endure and recover during the challenges of parenting a child with cancer. In such cases, resilience plays a crucial role in overcoming mental health issues that may arise in the process of caring for a child with cancer (Luo et al., 2022).

Participants in this study comprised parents/caregivers of children diagnosed with various types of cancer undergoing treatment at the Estella Polyclinic, RSUP. Prof. DR. Dr. R.D. Kandou Manado. Caring for a child with cancer is a distressing experience for parents, potentially leading to psychological challenges (Mezgebu et al., 2020). Regarding the characteristics of the parents/caregivers, all respondents in this study identified with a religious affiliation, with the majority being Christian (54%). Within the domain of resilience, the impact of spirituality and trust is significant. The study indicates that most parents/caregivers of children with cancer express agreement that their belief in God serves as a helpful means of problem-solving and coping during the child's condition and medical treatment process. The spiritual aspect emerges as a resilience characteristic that plays a pivotal role in psychological well-being (Huang et al., 2022). Spirituality stands out as a factor aiding cancer patients in overcoming pressure or negative emotions during the treatment journey (Mihic-Gongora et al., 2022). Another study emphasized that higher spiritual aspects in mothers with children with cancer correlate with an improved quality of life for the mothers (Nurhidayah et al., 2020).

In the conclusive phase of the linear regression analysis model, it was shown that two factors exerted significant influence on the resilience of mothers with children diagnosed with cancer, namely social support, and the duration since diagnosis. This study indicated that a predominant portion of the social support extended to parents/caregivers of children with cancer fell within the high category. RSUP. Prof. DR. Dr. R.D. Kandou Manado offers accommodation for parents and children undergoing cancer treatment, particularly during the initial chemotherapy period. The provision of such housing facilitates the establishment of peer support networks for mutual discussion and reinforcement. Emotional support from fellow parents facing similar challenges with children diagnosed with cancer contributes to enhanced resilience among parents/caregivers (Jamali et al., 2019). Peer support and the surrounding environment play a substantial role in influencing the quality of life for individuals dealing with infectious and palliative diseases (Usman & Kadar, 2021). The findings of this study align with research conducted in China and India, indicating that increased social support is associated with higher resilience levels among parents of children with cancer (Hwang et al., 2018; Krishnan et al., 2021). Additionally, other research suggests that support from individuals lacking experience in caring for children with cancer does not significantly correlate with parents' capacity to adapt to the child's condition during the cancer treatment process (Melguizo-Garín et al., 2021).

In this study, a positive correlation was identified between social support and heightened resilience in parents/caregivers of children with cancer. These findings align with research conducted in Ethiopia, emphasizing that social support serves as a primary predictor for enhanced resilience in parents of children with cancer (Mezgebu et al., 2020). The contentment of parents with the support they receive significantly influences their adjustments in caring for children with cancer (Melguizo-Garín et al., 2021). The protracted process of cancer treatment and regular follow-up examinations create opportunities for parents/caregivers and children with cancer to establish connections. This encourages interaction among parents/caregivers, fostering the exchange of stories related to the child's condition and treatment process, thereby instilling hope for a better future throughout the treatment journey. Individuals encountering challenging situations invariably require support from those around them to regain empowerment (Jamali et al., 2019). Additionally, hope exhibits a positive correlation and serves as the primary predictor for increased resilience (Shin & Oh, 2021). The chronic nature of diseases experienced by children prompts parents to expand their sources of social support, aiming to mitigate negative emotions and stress while caring for children with cancer (Huang et al., 2022).

Also, the variable of time since diagnosis demonstrated a positive correlation with an increase in resilience. The longer the duration since the diagnosis and treatment process unfolds, the greater the resilience observed in parents. In the initial stages of diagnosis, parents grapple with numerous mental health challenges associated with their child's cancer diagnosis. Moreover, they embark on the unfamiliar process of adapting to the treatment procedures, which can be initially disconcerting. Given the extended timeframe of diagnosing and treating cancer, parents gradually develop the ability to accept and adapt to the prevailing circumstances. A positive outlook on navigating the grieving process among parents of children with cancer is linked to heightened resilience (Hwang et al., 2018). Additionally, as the treatment progresses and the child's condition improves, parents become more optimistic and resilient in facing the challenges of treatment.

Recognizing positive aspects of a child's daily development emerges as one of the coping strategies employed by parents of children with cancer to adjust to the situation. Most children in this study had

haematological malignancies. Following chemotherapy, children with haematological malignancies exhibit a higher quality of life compared to those diagnosed with solid tumors (Eroglu & Hazar, 2023). While a cancer diagnosis initially triggers psychological challenges for most parents, their resilience over time becomes instrumental in overcoming ensuing psychological problems and stress associated with caring for a child with cancer (Vercasson et al., 2020)

Research conducted in Bandung reported that parents who cared for children with cancer for less than 12 months showed a lower quality of life compared to parents who cared for children with cancer for more than 12 months (Nurhidayah et al., 2020). Meanwhile, research conducted in China revealed that the shorter the time since cancer was diagnosed, the higher the resilience (Shin & Oh, 2021). This difference could be influenced by variations in the demographic and social characteristics of the respondents. Future studies are expected to employ a mixed-method approach, specifically combining quantitative and qualitative data regarding resilience in parents/caregivers of children with cancer. This approach aims to obtain more comprehensive and detailed resilience data concerning the evolving resilience in parents/caregivers of children with cancer over time.

5. Conclusion

In this study, the average value of resilience was 67.55 ± 10.89. Factors related to resilience in parents of children with cancer include social support and time since diagnosis. Meanwhile, the most dominant factor influencing parental resilience in caring for children with cancer is social support.

Acknowledgment

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