



Resilience of caregivers for pediatric cancer patients: Integrating psychosocial and environmental stressors in the context of occupational and environmental health

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ABSTRACT

Background: This study discusses the resilience of parents who care for children with cancer. Without realizing it, parents as caregivers have a crucial role to accompany their children during the treatment process. Furthermore, against the background of psychological and social challenges, parents also endure a decrease in quality of life and disruption of family functioning. **Methods:** In contrast to previous studies, this study used a literature review method to integrate concepts regarding resilience factors, resilience processes, and resilience functions. In contrast to previous studies, this study used a literature review method to integrate concepts regarding resilience factors, resilience processes, and resilience functions. Based on the inclusion and exclusion criteria, this study reviewed seven previous studies using the case study review method. **Findings:** There are different types of pediatric cancers and their treatment which leads to differences in resilience factors and processes among parents. These differences in resilience factors and processes resulted in different resilience functions achieved by the parents. **Conclusion:** Resilience factors are components that contribute to parents' resilience, while resilience functions are outcomes or benefits obtained after parents apply a series of resilience processes. **Novelty/Originality of this article:** In contrast to previous studies that emphasize individual psychological factors, this study offers a comprehensive perspective by integrating resilience factors, resilience processes, and resilience functions in the context of parents facing childhood cancer.

KEYWORDS: cancer children; parents; caregivers; resilience.

1. Introduction

Cancer is of the non-communicable diseases with the highest mortality rate in the world, around the world, including in Indonesia. The World Health Organization (WHO), through its Global Burden of Cancer Study (Globocan), reported that in 2020 there were 396,914 people in Indonesia of all ages suffering from cancer and 59% of them died from cancer. Cancer is age agnostic and can affect individuals of all ages, and children are no exception. Annually, it is estimated that as many as 400,000 children and adolescents from 0 to 19 years of age in Indonesia suffer from cancer (Ministry of Health of the Republic of Indonesia, 2023). Of these 400,000 cases, there are an estimated 7,575 new cases of childhood cancer with the most cases being leukemia, which reached 2,251 cases or as much as 30% of the total (Globocan, 2020).

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In low- and middle-income countries such as Indonesia, cases of childhood cancers that can be cured do not reach 30% (Ministry of Health of the Republic of Indonesia, 2023). This is evidenced by data from the Ministry of Health of the Republic of Indonesia (2018) that stated as many as 90,000 children die from cancer, making cancer the second leading cause of death in children aged 5-14 years. The massive number of cancer deaths in children can be caused by several factors, such as delays in treatment, parents' and families' trust in traditional medicine, geographical barriers, socio-economic issues, as well as access to treatment (Ministry of Health of the Republic of Indonesia, 2024). Alongside this, the Ministry of Health of the Republic of Indonesia (2018) states that the symptoms of cancer in children are difficult to detect, so more than 50% of children presenting to health facilities are diagnosed with cancer at a late stage.

As in adults, cancer treatment in children goes through a series of treatments that are preceded by surgery and followed by chemotherapy. The number of treatment courses that a child undergoes may result in various side effects. These side effects depend on the type of drug used, the dose of the drug, and the overall health of the patient, so every patient can experience the effects of side effects that vary. In general, these side effects include headaches, skin inflammation, infections, fatigue, constipation, and loss of appetite (Hockenberry et al., 2017). Given that the child does not yet have a fully developed immune system, they are more susceptible to the effects of the COVID-19 pandemic. These side effects cause pain and discomfort that can be magnified many times over compared to adults. Various side effects felt by children potentially result in a decrease in quality of life, both physically, emotionally, socially, psychologically, and cognitively. On the other hand, the patient's emotions and motivation to heal greatly affect the treatment process (Zastrow, 2010). If the patient's quality of life decreases or worsens, the treatment process will be hampered, increasing the risk of death.

Departing from the above conditions, parents as caregivers for children with cancer have a very crucial role in accompanying the child during the treatment process to increase the chance of full recovery. The child's motivation arising from the presence and parental support is validated by psychodynamic models in social welfare science, which states that elements of motivation, personality, and internal conflicts within an individual will have an impact on other family members (Adi, 2019). However, caring for and accompanying a child with cancer is not a full-time job. Parents have a series of duties and responsibilities that are not easy to fulfill. Parents must understand various medical terms, manage complex drug regimens, learn and understand health protocols, and support children in dealing with the side effects of drugs in a short time (Rokhaidah & Herlina, 2018).

The many duties and responsibilities that parents must carry out for their children with cancer cause a decrease in health conditions, both physically and mentally, in parents. This is evidenced in previous research, where parents caring for a child with cancer often do not have enough time to rest and eat regularly because they are too focused on caring for their children (Suparit et al., 2023). Suparit et al. (2023) explained that parents are also faced with changing responsibilities and duties during their child's treatment. These changes can lead to role conflicts that result in prolonged stress for parents. On the other hand, not all parents have adequate social support, which increases anxiety symptoms and difficulties in emotion regulation. Research by Luo et al. (2021) stated that parents of children with cancer have a low quality of life during their child's treatment. Luo et al. (2022) noted that there are parents who are unable to control the negative impacts arising from their child's diagnosis. Furthermore, Rokhaidah & Herlina (2018) stated that parents are also vulnerable to feelings of uncertainty that can lead to symptoms of anxiety, depression, impaired cognition, and sleep disorders in the elderly. Meanwhile, research by Umar et al. (2022) found that parents of children with cancer experience prolonged stress due to their child's illness, which has had a significant negative impact on their health and quality of life.

The exposure to the above research resulted in mixed findings. Even so, one thing is certain from the phenomenon: parents are facing challenges and difficulties in caring for and accompanying a diagnosed child with cancer. On the other hand, pediatric cancer cases are increasing every year, which results in an increasing number of parents caring for a child

with cancer. As explained in the previous paragraph, a family with a child with cancer experiences changes in functions and roles, leading to role conflicts (Suparit et al., 2023). Changes in one family member can influence other family members (Adi, 2019). The increasing number of parents caring for children with cancer will lead to problems that can interfere with the function and role of the family, which can hinder the child's recovery process.

In dealing with a crisis situation such as a child being diagnosed with cancer, parents need to have resilience in order to survive in distressing conditions and apply positive adaptation patterns so that they can optimally care for and accompany their child throughout the treatment period. With resilience, parents are also able to protect themselves from situations that could disrupt or interrupt their child's treatment. The resilience possessed by parents is influenced by certain factors. Based on previous studies, it was found that there are differences in the factors that affect resilience between one study and another. For example, research conducted by Mohammadsalehi et al. (2020) states that resilience is influenced by self-efficacy, social support, and physical health conditions. Other research states that emotional support, instrumental support, and informational support can increase parental resilience (Umar et al., 2022). Dewi (2023) in her research said that resilience is influenced by social support, parenting stress, and parental self-concept. On the other hand, Luo et al. (2021) states that resilience has a strong relevance to the quality of life of parents of children with cancer.

Although there are differences between studies, several similarities were found in the research of Mohammadsalehi et al. (2020) and Dewi (2023), both of which state that social support affects parental resilience. Additionally, Dewi's research (2023) and Hasanah, Haryanti, and Lusmilasari's research (2021) also discuss the relationship between stress, parenting, and resilience.

2. Methods

This research focuses on the literature review related to parental resilience which is caring for a child with cancer. Knopf (2006) defines literature review as summary of evaluation papers on a particular topic derived from research studies previous studies. In conducting a literature review, researchers need to read research. previous research in order to conduct learning, comparison, imitation or criticism between one study and another so as to produce a evaluation (Neuman, 2014).

Knopf (2006) outlines that literature review has two main principles, namely: summarizing the findings that emerged from previous studies on a particular topic; and provide conclusions about how accurate and complete knowledge that has been obtained from previous studies in order to determine and assess knowledge practically and effectively in dealing with problems certain. Then, Neuman (2014) reveals that there are four main objectives in conducting a literature review, namely: to make the writer understand the topic research and establish credibility; to find out the content of previous studies and how the research topic that you want to raise relates to research previous; to integrate a topic of researches; to learn from others' research and stimulate new ideas researchers conducted a literature review in the form of a case study study review. Rubin and Babbie (2016) define a case review as an investigation of against an individual, family, group, community, organization, society or phenomenon. In conducting a case study, the researcher focuses on one particular case or phenomeno even some cases and include a variety of evidence or sources available, in these include documents, observations, and interviews (Rubin & Babbie, 2016). The purpose of a case review is to investigate a case in more detail in-depth by relying on questions based on "why" and "how"(Rubin & Babbie, 2016).

Based on the explanation above, a literature review in the form of a case study or study review is a method that aims to summarize the findings that obtained from a case on a particular topic, and provide conclusions related to the case how complete and accurate the

discussion of case is. University of Southern California (2024) explained that literature reviews in the form of case reviews facilitate researchers to: contextualizing previous research that is relevant to the case at hand will be discussed in order to understand the relationship between the case study and the problem research; explains the relevance of these studies in order to justify relation to the case study; identify new interpretations or perspectives from previous research; provides solutions to problems that exist in previous studies based on the gaps identified in the literature; highlighting the need for future research based on gaps identified in the literature; and places research in the context of existing literature. Before conducting the case study review, the researcher selected the research to determine the main references.

This selection was done through six stages, namely: researchers accessed the Publish or Perish e-discovery application by using the keywords "parental resilience" and "children with cancer" or "tumor". Then, researchers chose the Google Scholar database and limited the number of searches to 50 as well as publication years between 2014 and 2024; researchers found that there were five previous studies that could not be accessed, so there were 45 studies left proceeded to the next selection process; researchers selected 45 studies based on the specified inclusion criteria, namely discussing the topic of resilience of parents caring for a child with cancer, reading materials are accessible, a series of intact research results, and written with the rules of scientific writing; based on the inclusion criteria, the researcher determined 23 previous studies that continued to the next selection process; the researcher selected 23 studies based on the inclusion criteria, namely in the discussion section there was elaboration that could answer the research question; and based on the inclusion criteria, the researcher determined seven studies that were used as the main reference (Fig. 1).

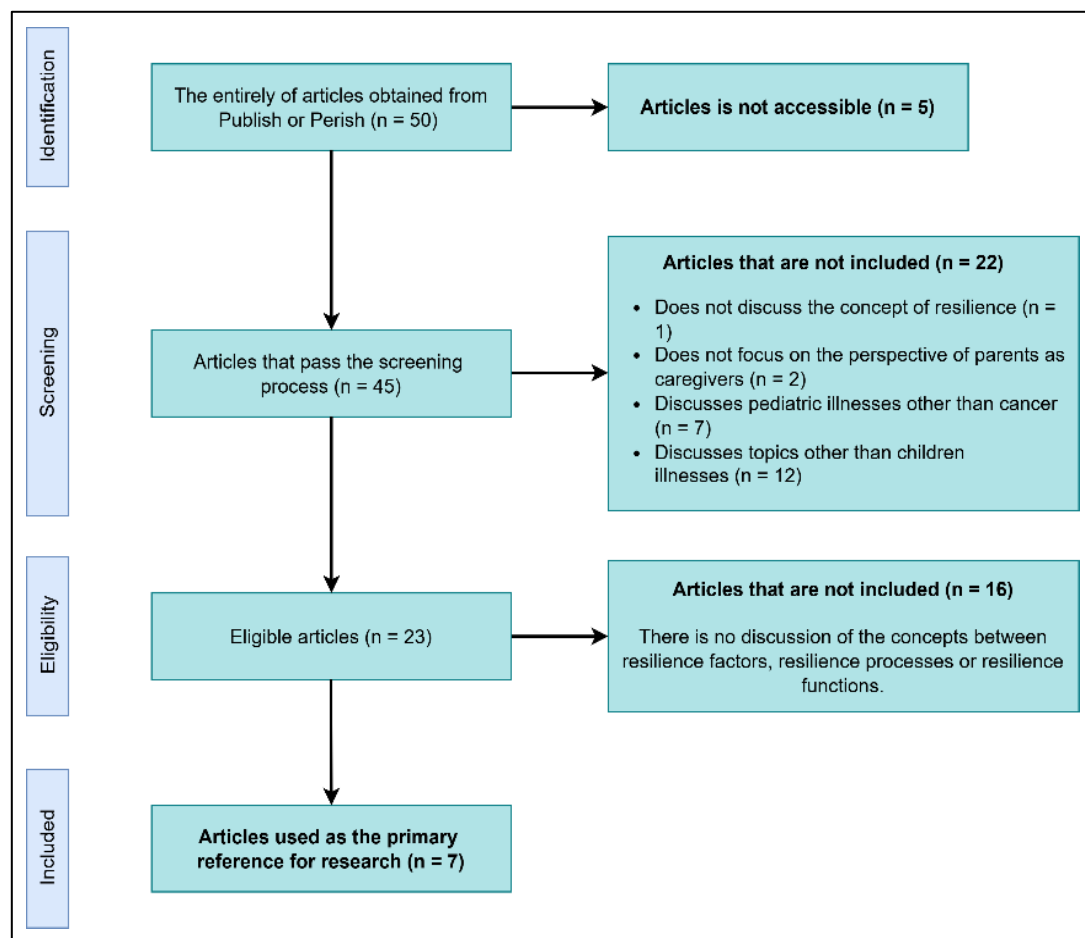


Fig. 1 Flowchart of article selection process

3. Results and Discussion

Based on the inclusion criteria described in the methods section, there are seven reading materials used as the main references in this research. Each reading material has varied concepts and methods so as to be able to enrich the data and complement the findings in the research (Table 1).

Table 1. Main references of the research

No	Title	Authors
1.	Family resilience processes among guardians caring for children and youths with leukemia	Suparit et al. (2023)
2.	Family resilience factors affecting family adaptation of children with cancer: A cross-sectional study	Park et al. (2022)
3.	The lived experience of resilience in parents of children with cancer: A phenomenological study	Luo et al. (2022)
4.	Predictors of resilience among the parents of children with cancer	Simanjuntak et al. (2023)
5.	Who is supporting the parents during their child's cancer treatment? A qualitative study through the lens of compassion	Nielsen et al. (2024)
6.	The association of resilience with ways of coping, psychological well-being and quality of life in parents of children with cancer	Chung et al. (2023)
7.	Resilience and psychosocial functioning among mainland Chinese parents of children with cancer	Ye et al. (2015)

3.1 Case 1: Parents caring for a child with leukemia

Case 1 in this literature review is a study by Suparit et al. (2023) entitled "Family resilience processes among guardians caring for children and youths with leukemia" published in 2023. In this case, the type of cancer suffered by children is ALL leukemia with alternative treatment in the form of chemotherapy. The findings in this study are divided into three parts, namely the phase before resilience, the phase during resilience, and the phase after resilience.

First, the phase before resilience explains the parents' condition when their child was first diagnosed with cancer. Parents in this phase showed negative responses emotionally and physically. Parents also do not know and understand how to provide care to their children, which triggers feelings of anxiety in parents. In the end, parents engage in negative behaviors such as not getting enough rest and not eating regularly.

Second, the resilience phase explains the efforts made by parents to achieve a state of resilience. Parents in this phase try to adjust to the child's condition, identify family resources, and seek support from people around them. In addition, parents divide roles and responsibilities and implement effective communication with their family members. Third, the post-resilience phase explains the condition of parents after successfully achieving a state of resilience. Parents in this phase have implemented positive behaviors and relationships with family members on an ongoing. Then, parents are more tolerant of factors that trigger negative emotions or thoughts.

3.2 Case 2: Parents caring for children with leukemia/lymphoma, brain tumors, and solid tumors

Case 2 refers to the research of Park et al. entitled "Family resilience factors affecting family adaptation of children with cancer: A cross-sectional study" published in 2022. The study looked at 111 parents caring for a child with cancer. The total included 59 children with leukemia/lymphoma, 26 children with brain tumors, and 26 children with solid tumors, with chemotherapy as the main treatment.

The findings in this case show that 32.4% of parents had mild depression, 16.2% had moderate depression, and 11.7% had major depression. The higher the level of depression, the harder it is for parents to adapt to their child's condition, making depression a major risk factor that negatively impacts their resilience. On the other hand, 75.7% of parents applied effective communication skills, enabling them to plan and make decisions related to pediatric medication more easily. This shows that effective communication acts as a protective factor that increases parental resilience. By implementing good communication, parents facilitate clarity and open sharing of emotions, ultimately allowing them to collaboratively navigate problem-solving processes.

3.3 Case 3: Parents caring for a child with leukemia/lymphoma and solid tumors

Case 3 refers to the research of Luo et al. entitled "The lived experience of resilience in parents of children with cancer: A phenomenological study" published in 2022. The study involved 16 children with leukemia/lymphoma and seven children with solid tumors. The type of treatment used is not known. Of the 22 parents involved in this study, 11 parents fell into the group with low resilience, while the other 12 were in the high resilience group.

Parents with low resilience are characterized by a tendency to be pessimistic, applying emotion-focused coping, having ineffective communication, and lacking social support. In contrast, parents with high resilience have characteristics such as being optimistic, applying problem-focused coping, feeling competent, and having adequate social support. This finding shows two sides of resilience factors, namely risk factors and protective factors. Risk factors, such as emotion-based coping strategies and ineffective communication, were seen in the group of parents with low resilience, making it difficult for them to internalize the resilience process. In contrast, protective factors, such as problem-based coping strategies and an optimistic attitude, were found in the high-resilience group, enabling them to go through resilience processes such as understanding difficulties, maintaining a positive outlook, flexibility in role division, maintaining connections with others, and mobilizing economic and social resources. Parents who successfully navigate this process adopt the resilience function of self-efficacy, where they feel more competent in caring for their child. Being competent means ensuring the child's needs are met and maintaining their physical and mental health.

3.4 Case 4: Parents caring for children with leukemia, lymphoma, wilms tumor, and osteosarcoma

Case 4 refers to Simanjuntak, Gannika, and Usman's research titled "Predictors of resilience among the parents of children with cancer," published in 2023. The study included 30 children with ALL leukemia, five children with CML leukemia, two children with non-Hodgkin's lymphoma, three children with Wilms tumor, and one child with osteosarcoma. Children in this study were undergoing chemotherapy treatment. Of the 63 parents who participated in this study, 31 had high resilience, while 32 had low resilience.

Parents with high resilience generally had strong social support and had been dealing with their child's illness for a longer period. Social support and the duration of the child's illness acted as protective factors, enabling them to implement various resilience processes, such as understanding the difficulties of the disease, being flexible in changing roles and responsibilities within the family, maintaining connections with people around them, and mobilizing economic and social resources. These resilience processes helped them achieve resilience functions in the form of realistic optimism, where they accepted their child's illness and came to terms with their family's circumstances. Conversely, parents with low resilience tended to lack social support and had only recently faced their child's diagnosis, making this a risk factor that hindered their ability to build resilience.

3.5 Case 5: Parents caring for children with lymphoma, neuroblastoma, leukemia, Wilms tumor, and osteosarcoma

Case 5 refers to Nielsen et al.'s research titled "Who is supporting the parents during their child's cancer treatment? A qualitative study through the lens of compassion," published in 2024. This study involved one child with non-Hodgkin's lymphoma, two children with neuroblastoma, five children with ALL leukemia, one child with AML leukemia, one child with a brain tumor, and one child with osteosarcoma. The children in this study had completed the treatment protocol, though the type of treatment used was unknown.

The results showed that the majority of parents experienced difficulties in managing their daily lives, as well as in prioritizing due to the unpredictable nature of their child's condition. They also struggled to balance roles between home and work, which was exacerbated by a lack of support from extended family who did not understand their needs. These risk factors resulted in most parents having low resilience. However, a few parents had high resilience, supported by protective factors such as adequate social support. As a result, they were able to overcome challenges by applying resilience processes such as positive thinking, flexibility in sharing roles and responsibilities, maintaining connectedness with family members, mobilizing economic and social resources, and communicating clearly and effectively. Through this process, they were able to adopt resilience functions such as causal analysis in viewing difficulties, realistic optimism, and emotional regulation.

3.6 Case 6: parents caring for children with leukemia and solid tumors

Case 6 refers to the research of Chung et al. (2023) entitled "The association of resilience with ways of coping, psychological well-being, and quality of life in parents of children with cancer," published in 2023. The study involved 119 parents of 74 children with leukemia and 45 children with solid tumors. The type of treatment used was unknown.

The results showed that 73 parents applied emotion-focused coping strategies, contributing to low resilience, accompanied by higher levels of depression and anxiety, less social support, and a lower quality of life. Most of them were single parents, had children with a solid tumor diagnosis, or had children who underwent multiple rounds of treatment. These findings indicate that emotion-based coping strategies, the type of pediatric cancer, and the time since diagnosis were risk factors that negatively impacted parental resilience. Meanwhile, 46 parents applied problem-focused coping strategies, leading to higher resilience, lower levels of depression and anxiety, stronger social support, and a better quality of life. This demonstrated that problem-based coping strategies were a protective factor that positively impacted parental resilience. However, this study did not explicitly explain the resilience processes and functions that parents implemented.

3.7 Case 7: parents caring for children with leukemia, lymphoma, and brain tumors

Case 7 refers to the research of Ye et al. (2015) entitled "Resilience and psychosocial function among mainland Chinese parents of children with cancer" published in 2015. The study involved 111 parents of 12 children with leukemia, 34 children with lymphoma, and 14 children with brain tumors. However, the type of treatment used is unknown.

Based on the findings, all parents involved in this study have lower than average resilience and are followed by anxiety symptoms that are higher than average. Higher, parents have higher social support than parents. Average. Then, the researcher in this case divided the parents into two groups, namely the high resilience group and the low resilience group. Parents in the high resilience has characteristics such as having high social support, depression and a low sense of uncertainty about the child's illness, and has coping strategies positive. Addition, it was found that parents with a high level of education have a positive

higher resilience. Similarly, parents who have children with diagnosis of leukemia and lymphoma. Parents in the resilience group low has the characteristics of having low social support, depression and a sense of high uncertainty about their child's illness, and have negative coping strategies.

In conclusion, the factors that influence parental resilience in this case are social support, depression, uncertainty about the child's illness, coping strategies of the parents, parents' academic level, and type of childhood cancer diagnosis. From the explanation above, we can see two sides of resilience factors: risk factors and resilience factors. Protective factors. Risk factors such as emotion-focused coping strategies, low parental education level, depression, pediatric cancer diagnosis, and treatment course resulting in most parents having low resilience. Meanwhile, the factor protective factors such as problem-focused coping strategies, parents' education level high, and the type of pediatric cancer diagnosis, leading to few parents having the necessary high resilience.

3.8 Discussion

3.8.1 Resilience factors

Case analysis based on resilience factors is divided into two, namely factors protective and risk factors. Referring to the findings, the protective factors between one case with that others are very diverse. However, there is one factor that is likely to be shows a greater contribution to parents' success in achieving resilience, which is a problem-focused coping strategy.

This factor is shown in case 3, case 6, and case 7. Broadly speaking, coping strategies in the three cases encouraging parents to solve problems and find solutions when facing difficulties when caring for children in the . In addition to problem-based coping strategies, factors Other factors that play a role are optimistic attitude, social support, high spirituality, and time. time of diagnosis, type of diagnosis, as well as parents' education level, the factors this factor does not significantly affect the success of parents in achieving resilience when compared to the factor of coping strategies based on Problems. , the risk factors found between one case and another were also diverse.

However, there is one factor that may have contributed more a major contributor to parents' failure in resilience, namely uncertainty about child's illness. This factor can be seen in case 1, case 5, and case 7, which are broadly speaking explained that the erratic condition of the child causes parents to feel a sense of various negative feelings such as sadness, disappointment, or prolonged anxiety so that parents struggle to plan and make decisions regarding treatment children, as well as being unable to manage daily life. In addition to the uncertainty of Another factor that comes into play is the side effects of the child's medication, depression in parents, emotion-based coping strategies, ineffective communication, type of diagnosis, as well as the course of treatment. , these factors are not very significantly affect parents' failure to achieve resilience if compared to the emotion-based coping strategy factor.

3.8.2 Resilience process

Case analysis based on the resilience process is divided into nine points, namely: understanding adversity; having a positive outlook; spirituality and transcendence; flexibility; connectedness; mobilize economic resources; clarity; sharing emotions openly; and solving problems collaboratively. First, understanding the difficulty is the process shown in case 1, case 3, and case 4. These three cases explain the actions of parents who tried to explore, understand, and study the disease in children by asking and consulting with other health workers or parents caring for children with cancer, as well as through guidebooks provided by the hospital.

Second, having a positive outlook is a process seen in the case of case 3, case 5, and case

7. These three cases explain that the parents were optimistic and had hope for the child's recovery. This is supported by medical technology as well as the support provided by the people around them, such as health personnel, other parents caring for a child with cancer, family, or relatives.

Third, spirituality and transcendence are conditions when each family member grows positively out of adversity and connects with values that are bigger. Growing positively means that family members are able to bounce back from adversity. Whereas, being connected to greater values means family members hold on to positive beliefs, convictions, or values. This process is only shown in case 1 where parents seek spiritual support or guidance so that they are able to change their beliefs and perspectives to positive ones and that illnesses are normal and can happen to any family.

Fourth, flexibility is a process seen in case 1, case 3, case 2, case 3, case 4, and case 5. The parents in these cases adapted to the conditions of the treatment of children through various measures, such as reorganizing roles and responsibilities within the family, reorganizing plans regarding treatment and the child's education, as well as identifying positive aspects of the child's recovery process in their everyday life. Fifth, connectedness is a process shown in case 1, case 3, case 4, case 5, and case 7. These cases explain that parents strengthen relationships with people around them, such as family members as well as other parents caring for a child with cancer while they are undergoing treatment.

Sixth, mobilizing economic and social resources is a process that is seen in case 1, case 3, case 4, and case 5. The parents in these cases seek support either socially, materially, or financially. In addition, support through the dissemination of information related to the child's illness is also provided by the people around them, such as family members, relatives, or other parents caring for a child with cancer. Seventh, clarity is a process seen in case 1, case 2, and case 5. Parents in these cases applied effective communication skills in the form of clarifying the child's treatment plan or sharing thoughts regarding the child's treatment so that they can think of the right course of action and decide on what is best for the child.

Eighth, openly sharing emotions is a process that is demonstrated in case 1 and case 2. Both of these cases explain that parents are openly emotional with family members, such as expressing concerns they feel towards their child's treatment to the sadness when they see the condition of their child. Ninth, collaborative problem-solving is a process that is seen in case 1, case 2, and case 3. Parents in these cases had discussions to solve problems or plan treatment through effective communication and emotional openness. Parents who successfully achieve this whole process show that they have internalized the entire resilience process and are able to experience the benefits of resilience on an ongoing basis.

3.8.3 Resilience function

The case analysis based on the resilience function is divided into five points, namely: Causal analysis; Realistic optimism; Affordability; Emotion regulation; and Self-efficacy. First, causal analysis is the function obtained by the parents of case 5 in which parents apply meaning-making skills that are obtained from interactions with health workers and other parents who also have a child with cancer. Through these interactions, parents are able to understand their child's illness in more depth so that they can find solutions and take action appropriately and swiftly.

Second, realistic optimism is a function acquired by parents in case 4, case 5, and case 7. These cases explain that parents apply skills in positive thinking after they have made various efforts to support the child's treatment. Efforts such as accepting the child's illness and having regular interactions with medical personnel encourage them to think positively. Third, affordability is a function obtained by parents from case 1 where parents strengthen relationships with family members after successfully going through the difficulties during their child's cancer treatment. In this case, family members share both materially, physically, and emotionally, and care for each other.

Fourth, emotion regulation is a function obtained by parents in case 1 and case 5. The

parents in these cases were able to regulate their emotions after adjusting to their child's condition and treatment. With emotion regulation, parents are more tolerant of risk factors that trigger negative emotions while caring for and accompanying the child. Additionally, emotion regulation shows that the parents have reconciled and accepted their child's illness. Fifth, self-efficacy is a function acquired by the parents of case 3 in which parents in this case felt more competent when caring for their child. Competency means that parents are able to go through various pressures and difficulties while caring for the child as well as ensuring the child's needs are met, thus impacting positively on the child's recovery process. Parents who have achieved this function need to deal with various difficulties and obstacles over a considerable period of time until they finally manage to adopt and internalize the act of resilience, not only when dealing with sick children but in their everyday life on an ongoing basis.

4. Conclusions

In dealing with a crisis situation such as a child being diagnosed with cancer, parents need to have resilience in order to be able to survive in conditions that make them distressed and apply positive adaptation patterns so that parents can care for their children and accompany the child during the treatment period optimally. Because children in this case have different diagnoses and types of cancer treatment, the condition of resilience experienced by parents also differs from case to case.

However, there are similarities that can be identified between the seven cases. Based on the resilience factors in the seven cases of parents caring for children with cancer, protective factors make a positive contribution to parents because they are the 'capital' for them to implement a series of resilience processes. The protection in question is a problem-focused coping strategy. Via coping strategies, parents are able to find solutions and take action in a timely manner. This coping strategy also supports parents to organize their own plan and make decisions regarding the best treatment for their child. In other words, risk factors contribute negatively to parents because they can make parents more vulnerable and difficult to achieve a resilient state. Risk factors include the uncertainty of a child's illness, where the child's condition is not clear, resulting in parents feeling a range of negative emotions such as fear, anxiety, stress, worry, and disappointment on a prolonged basis so that parents have difficulty in organizing daily life, planning and making decisions related to the child's treatment, as well as taking swift and appropriate action when encountering problems.

Based on the resilience process in the seven cases of parents caring for children with cancer, there are nine points that are then used as conclusions. The process of understanding difficulties is shown in the actions of parents who try to understand and learn about the child's illness through various efforts, such as consultation with health workers as well as other parents who also have children with cancer, as well as studying the guidebook provided by the hospital. The process of having a positive outlook is when parents have an optimistic attitude towards their child's illness and have hope for the child's recovery. The process of spirituality and transcendence is shown when parents have beliefs and perspectives that are positive in dealing with the child's illness. The process of flexibility is demonstrated when parents try to adapt or adjust to the disease through the sharing of roles and responsibilities that are fairly distributed among family members. The process of connectedness is when parents try to maintain relationships with fellow family members and those around them. The process of mobilizing economic and social resources is shown in the actions of parents who seek social, material, and financial support, as well as the dissemination of information from people around the environment to support the child's treatment. The process of clarity is characterized by parents sharing information about the child's illness with family members and implementing effective communication. The process of sharing emotions openly is shown in the actions of parents who share both positive and negative emotions with their family members. The collaborative problem-

solving process is demonstrated when parents involve all members in discussions to solve problems, organize plans, and make decisions regarding their child's cancer treatment.

Based on the function of resilience in seven cases of parents caring for children with cancer, there are five points that serve as conclusions. The function of causal analysis is shown when parents are able to apply skills in meaning-making where these skills are acquired after they have interacted periodically with health workers and other parents who have children with cancer. Parents who apply this function view difficulties as something they are able to manage. The realistic optimism function is when parents were able to apply the skills in positive thinking acquired after they have regular interactions with health workers and other parents who have children with cancer. The affordability function is shown in parental actions that strengthen relationships with fellow family members as well as people around the neighborhood after dealing with a difficult situation. The emotion regulation function is when parents are able to control emotions or negative thoughts when faced with difficult or stressful situations so that they do not easily break down. The self-efficacy function is shown when parents have competence in caring for and accompanying children in the hospital where these competencies are acquired after parents make various efforts and actions to support their child's treatment, such as planning and making decisions, taking bold and swift action, ensuring children's needs are met, and maintaining children's good health physically and mentally.

Based on the explanation above, resilience factors play an important role in shaping parents' ability to face challenges and persevere in difficult situations when caring for a child with cancer. Protective factors help parents implement diverse resilience strategies, while risk factors may inhibit their ability to overcome adversity. The resilience process applied by parents determines how they adapt and survive in crisis conditions, while the function of resilience reflects the benefits or outcomes derived from the process. Thus, even though each case has different dynamics, resilience remains key for parents in dealing with the emotional, social, and practical challenges during the process of caring for and accompanying their child through cancer treatment.

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Author Contribution

This research was conducted collaboratively by S. A. and J. D. I. S. A. was responsible for conceptualization, methodology, investigation, as well as writing—preparation of the original draft. Meanwhile, J. D. I. contributed to the writing—reviewing and editing, as well as supervising.

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Data Availability Statement

Searching for journals by exploring PubMed and Google Scholar.

Case 1: <https://doi.org/10.1016/j.heliyon.2023.e17205>

Case 2: <https://doi.org/10.1016/j.ejon.2021.102078>

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Conflicts of Interest

The authors declare no conflict of interest.

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