



## FATHER'S ROLE AND SUPPORT IN FULFILLING NUTRITION OF CHILDREN WITH CANCER: A REVIEW

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### ABSTRACT

Cancer is a serious illness that experienced by children. In Indonesia, less than 30% of children cancers can be treated, due mostly to the parents' lack of awareness about care for child cancer patients, that includes therapy, medication, and nutritional therapy specifically for treatment of cancer. Father has responsibility in caring family's health, including caring children with nutritional problem due to of illness. Objective: In this study, we reviewed literatures related to the father's role and or father's support in fulfilling children's nutrition need during cancer treatment. Method: In this study, out of 1540 studies from the PubMed, Wiley, Science Direct, and Google Scholars, 7 articles included in the study analysis. The articles explored about fathers' role and involvement in nutrition management with the children cancer patients (<18 yrs old) were included. Review, study reports, and articles related to the nutrition management in adult cancer patients have been excluded. Results: Majority articles showed a helpful connection between support and fathers' roles in children's nutrition to promote recovery and therapy development for pediatric cancer patients. Two themes emerged from the study; (1) Father's Role in Recognizing the Nutrition Problems related to the Cancer (2) Father's Support in Fulfilling Nutrition. Conclusion: Fathers' support for their children's cancer might improve their quality of life. The rigid relationship between children and fathers may also enhance children's appetite, increasing the chances of curing cancer in children.

Keywords: cancer; child nutrition; father; role; support

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### INTRODUCTION

Nutrition gives the energy needed and nutrients to maintain cellular metabolic activities and protect against harm. Nutrition is essential for growth in children, puberty, balanced body composition, and long-term wellness. Inadequate nutritional and energy intake causes imbalance body composition and finally illnesses (Tripodi et al., 2023). Anti-cancer therapies can have negative effects on a child's nutrition, including appetite suppression, vomiting, nausea, mucositis, changes in taste and smell, and pain. The therapies can affect to children's nutrition status. Undernutrition is prevalent among children and adolescents having cancer therapy, with rates from 0% to 70% (Pedretti et al., 2023, Tripodi et al., 2023). A study found that 96% of children had > 1 micronutrient deficiency and 39% had > 3 deficiencies. Despite getting RDIs above 100%, 50% of patients were zinc deficient and 86% were vitamin C deficient. Vitamin D deficiency was identified in 87% of patients, with an average RDI of 11%. Vitamin A deficiency occurred in 13% of patients, with an average RDI of 46% (Morrell et al., 2019).

It is feasible to implement a nutritional intervention for patients and their parents starting soon after diagnosis. Early cancer treatment can lead to changes in eating habits, sedentary behavior, and weight gain in children and adolescents, which may last beyond therapy (Bélanger et al., 2022, Foster et al., 2019). Children with cancer require proper nutrition during their treatment. Parents and families have limited control over their child's treatment decisions, but feeding them throughout therapy is one area where they feel they may have an impact (Clarke et al., 2023). Previous study showed that involvement of fathers in caregiving was helpful to decrease both of parents' burden. Participating in an empowerment program will greatly improve a caregiver's capacity to care for children undergoing chemotherapy who have cancer to minimize the side effect also to manage them, which one of the side effect was related to the child's nutrition (Shoghi et al., 2019).

Father has a pivotal role in supporting nutrition for children, either during health and sick. Previous studies found that the father's involvement had limited by the time and their job. Both of parents' support in providing healthy nutrition will improve the children's condition, especially in cancer children patients. Previous studies mostly reviewed about the parent's role or involvement to the children' quality of life. Limited studies explored about the form of father's role and support for their children during therapy or treatment of cancer. This study reviewed articles related to the father's contribution in supporting nutrition management for children with cancer. The purpose of this study is to describe dads' support in achieving the nutritional needs of children cancer patients.

## **METHOD**

This study was a literature review study which has explored literature was searched through Science Direct, Wiley Online Library, PubMed and Google Scholar as addition to gather articles related to the father's role in nutrition management for children with cancer. The key terms used were; Father: Father or Dad; Role: Role or Involvement or Support; Children: children or child or infant or kid or kids or toddler or pediatric or paediatric; Childhood cancer: leukemia or hematological malignancy or haematological malignancy or cancer or childhood cancer or lymphoma or neoplasm or tumor or sarcoma or chemotherapy or radiotherapy or pediatric oncology or paediatric oncology or pediatric cancer or paediatric cancer; Nutrition: Nutrition or diet or dietary or food. Identification process well recorded following PRISMA flow chart (Figure 1) (Page et al., 2021). The articles included were quantitative or qualitative or mix-method study, conducted from January 2015-June 2024, including father as the respondents, with the topic of nutritional support for children with cancer (aged <18 yrs old). Review article, case study, and report have been excluded. The articles which did not include father as the parents, or article about instrument development related to the nutrition also have been excluded.

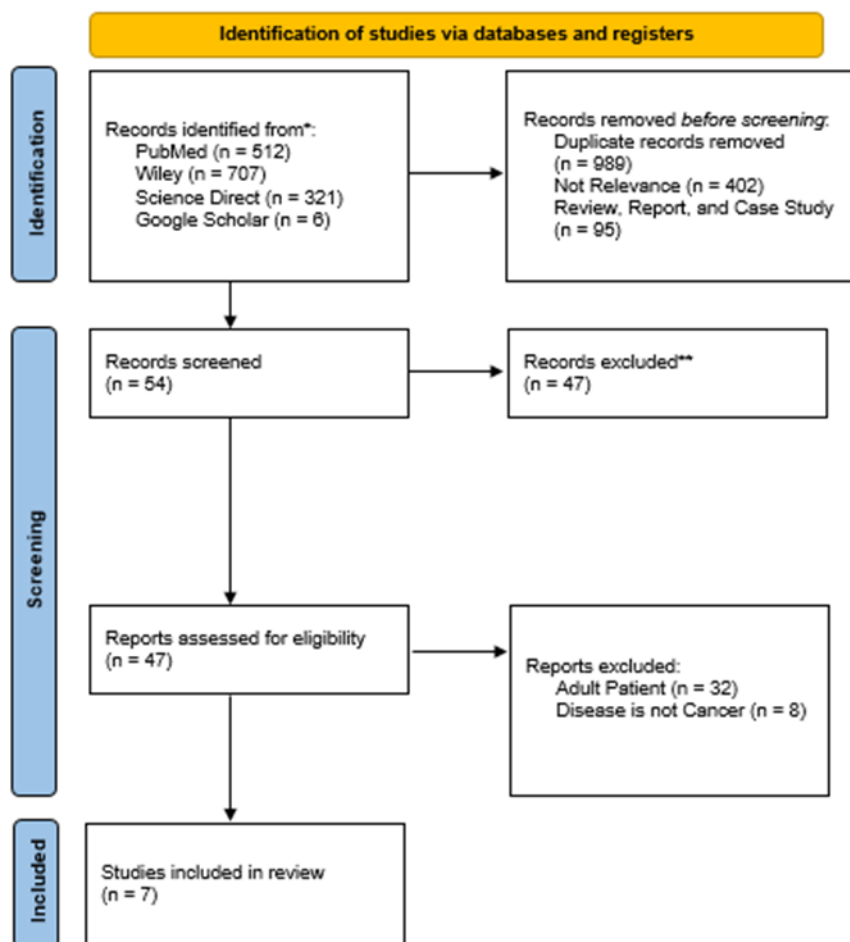


Figure 1. PRISMA Flow Diagram for new systematic reviews which included searches of databases and registers only

## RESULTS

In search of databases and registers, the final articles including 7 articles from Wiley online Library, Science Direct, Pubmed, and Google Scholar. Three studies have conducted in Indonesia, while other studies include population from New Zealand, Canada, Australia, and Turkey. In the table 1, the detail of each study has been described.

Table 1.  
Study Characteristics (n=7)

Author, Country	Method	Outcome	Instrument	Number of participants	Findings
Clarke, et al (2022), New Zealand	Mix-method	Experience of families caring for a child with cancer in New Zealand (NZ) who received nutrition and dietetic support during cancer treatment and their preferences for the delivery, format, and timing of	Health and Nutrition Questionnaire, Semi Structured Interview	21 cancer patients parents	Eighty-six percent of participants indicated they had concerns about their child’s nutrition during treatment. The most common concerns were anorexia, vomiting, and weight loss. Four key themes emerged from the interviews: (1) patients experience significant and distressing nutrition challenges; (2) patients and families have mixed perceptions of EN; (3) there are gaps in the current nutrition support system for inpatients; and (4) a desire for more accessible nutrition

Author, Country	Method	Outcome	Instrument	Number of participants	Findings
		nutrition information.			support.
Gagnon (2019), Canada	Mix-method	Participation in Workshop	Field note and activity reports, Questionnaires	11 Mothers, 4 Fathers, 2 Patients	The importance of process evaluation when developing innovative programs for vulnerable population to ensure they are appropriate for real-life conditions
Cohen et al., (2021), Australia	Exploratory Study	Dietary intake and dietary quality	24-h dietary recall (McPherson et al., 2000)	58 children cancer parents (48 mothers, 10 fathers)	The dietary data collected in this study suggests that children receiving cancer treatment are consuming diets of reasonable quantity, but poor quality. Most children were consuming excessive energy, sugar and salt intake, and inadequate fruit and vegetable intake.
Arpaci, (2018), Turkey	Descriptive Study	The nutritional problems of children with cancer and the information needs of their parents	Self-developed Questionnaire	69 parents	The parents stated that the most prominent nutritional problems that their children experienced were loss of appetite (85.5%), nausea (84.1%), vomiting (81.2%), fatigue (79.7%), and mucositis (66.7%)
Rompies et al., (2020), Indonesia	Descriptive Cross-sectional	Parents' understanding about nutrition of children with cancer.	Modified Questionnaire (Sidhar et al, 2017)	38 children cancer parents	All parents changed the diet style of their children after diagnosed as cancer. Most parents (78.9%) answered that food could cause cancer, and (94.7%) avoided certain foods; (78.9%) chose junk food as avoided food; and during treatment, (89.4%) gave special foods which were high protein, fruits, vegetables, and milk. Most parents (94.7%) answered that children with cancer had to avoid street foods, and (94.7%) chose mineral water as a safe drink.
Utami and Puspita (2020), Indonesia	Descriptive Cross-sectional	Quality of Life	Family Support Questionnaire and PedsQL	30 children cancer parents (28 Mothers, 2 Fathers)	Based on BMI, the majority of respondents have good nutritional status. This is because the patient does not experience it nausea and vomiting after chemotherapy
Pusmaika et al., (2020), Indonesia	Qualitative	Experience in caring children with cancer	Rapid Assesment Procedures	3 parents	Treatment for cancer patients carried out by participants while at home includes: maintaining children's physical fitness, preventing infections, maintaining children's nutritional intake, and reducing stress in children.

Two themes and four sub-themes emerged to describe about study, consisted of: 1) Father's Role in Recognizing the Nutrition Problems related to the Cancer (Sub-themes; a) Common nutrition problem in children with cancer b) Factors influence nutrition problem) 2) Father's Support in Fulfilling Nutrition (Sub-themes; a) planning dietary for children's nutrition b) Monitoring the dietary habits).

## **Father's role in Recognizing the Nutrition Problems related to the Cancer**

In this first theme, the study described about how Fathers recognize any nutritional problems at their children and factors related or causes of the problems.

### **Common nutrition problem in children with cancer**

Study from Arpaci et al., (2018) mentioned that the biggest nutritional problems that experienced by their children were decrease of appetite, nausea, vomiting, fatigue, and mucositis (Arpaci et al., 2018). Condition such as cravings and unhealthy nutritional habits could be prolonged after treatment (Beaulieu-Gagnon et al., 2019b). Viani et al. (2020), the majority of children cancer patients have normal nutritional status, however some suffer from malnutrition and obesity. A study by Triarico (2019), the odds of survival for pediatric cancer patients ranges between 10 and 30% due to malnutrition, which can be caused by excess or lack of nutrition. The kind of cancer that occurs in children may have an impact on their nutritional status. Pediatric cancer patients may suffer from both acute and chronic malnutrition. Some of the impacts that can arise due to malnutrition in pediatric cancer patients are hampered growth in height, loss of fat mass and muscle and decreased response to chemotherapy (Ardi, 2019). Malnutrition in cancer patients is caused by a combination of reduced food intake, more resting metabolic rate, catabolic parameters, and systemic inflammation. Cancer therapy can result in significant weight loss, particularly in children with ALL/lymphoblastic lymphoma and AML (Guida et al, 2022).

### **Factors influence nutrition problem**

In order to explore more the nutritional problems faced by their children, majority of parents found that the cause of nutritional problem including; hospital environment (being in the hospital, changing meal routines, and cramped patient rooms with foul odors), physiological factors related to the unfavorable effects of diagnosis and treatment, hospital food (inadequately hygienic foods, foods with unpleasant flavors or smells, and inappropriate portion sizes and presentation of foods for children), and emotional factors (feelings of being under stress; separation from home environment; and missing their parents, siblings, and friends) (Arpaci et al., 2018). Restriction in some foods changed the children mood to eat as usual. Some of children felt unpleasant at the meal time. Combination of limited things that could be eaten also the side effect that related the nutrition made the condition worse (Beaulieu-Gagnon et al., 2019b). Side effects that can be found in pediatric cancer patients after chemotherapy include nausea, vomiting, mouth ulcers, diarrhea (Utami and Puspita, 2020).

### **Father's Support in Fulfilling Nutrition**

#### **Planning dietary for children's nutrition**

Concerns, worries, and frustrations with their child's eating habits have been voiced by parents of children affected by cancer. Particularly when they are in the hospital, children with cancer may refuse to eat as a way to assert their independence and take charge of their lives (Pusmaika et al., 2020). Parents claimed to have relaxed their eating regulations and adjusted their feeding strategy. for eating and house rules than for controls. Overprotection was linked to higher fruit and vegetable consumption among children in good health, whereas the opposite was true for children who had cancer. When their child is on steroids or feels queasy, parents usually give him specific meals (Clarke et al., 2023, Rompies et al., 2020). Some strategies could be used in planning the dietary; pique the child's interest in food, offer dietary supplements, limit some off-limits items, and make soup. Additional tactics mentioned by parents include consuming more organic food and modifying diet based on blood levels (Rompies et al., 2020).

Several studies mentioned that parents lack of knowledge related to the nutrition. A study mentioned that parents had high curiosity about interaction of food and the drug. Furthermore, interaction about the food and their children disease. The other important information needed was about what's need to avoid in some condition, such us neutropenia. The last about how many times of the diet should be fulfilled in a day to provide good nutrition for their children (Arapaci et al., 2018, Cohen et al., 2021). The types of nutrients that cancer patients need to support their therapy include omega 3, vitamin D, zinc, taurine, branched chain, amino acids, prebiotics(Ardi, 2019).

### **Monitoring the dietary habits**

Parents have mentioned that when a child is eating poorly, having family members there during mealtimes encourages them to eat. Her youngster needed the atmosphere more than the food to be fed (Utami and Puspita, 2020).A study explored about parent's contribution in monitoring dietary plan of their children. The study found that children with cancer have not practiced healthy dietary with good nutrition. Some of nutrition found more dominant in their foods. This condition might put children at risk of over or malnutrition. To prevent this condition, parents might control the children food by providing more nutrient and less of carbohydrate (Cohen et al., 2021).

## **DISCUSSION**

Children's daily routines are altered by the illness and its treatment, particularly in terms of appetite, eating habits, and nutrition. Parents require assistance since they find it tough to handle their children's shifting schedules and dietary issues. No matter the living arrangement, marital status, or biological relationship, a "father" is broadly defined as the guy or males identified as most involved in providing care and committed to the child's well-being. A father might be a stepfather, a grandfather, or a biological, foster, or adoptive father. He might be a resident or a nonresident, and he might or might not have legal custody (Coleman and Garfield, 2004).A study explored the function of father in Indonesia through the masculinity perspective. It mentioned that father has responsibility for; pick up and drop off, wake up the child, provide for children, caring for children, parenting, and taking care of children's needs. The children need not limited only for financial but more than that, and father could give as well as mother's care although in different form (Lismi and Efendi, 2023).

In modern area, fathers spent more time to assist the work at house and spending their leisure time with their children, especially in the weekend (McGill, 2014, Parker and Wang, 2013). Fathers had to stick to a strict schedule because they had limited time throughout the workweek. There may have been variations in weekdays from one day to the next because some parents worked shifts. Eating with kids was generally something that happened mostly during the evening meal. (Jansen et al., 2020). Over the past fifty years, the father's position in family tasks has changed. Beside of becoming a breadwinner for the family, father also has responsibility to take care the family's health. Fathers in particular are now expected to play a bigger role in providing food for the family, but they are still frequently seen as an adjunct to the role of the mother. Father participation has a significant impact on children's wellbeing, particularly when it comes to matters of play, exercise, nutrition, and parenting techniques (Burnod et al., 2022, Yogman et al., 2016).

Altered condition in children such as at the chronic illness put father to provide more contribution in child care (Yogman et al., 2016). The father's involvement in caring chronic illness children resulting the higher obedience to the treatment and better health status (Yogman and Eppel, 2022). During treatment, significant and upsetting nutritional issues are

faced by families and children with cancer (Clarke et al., 2023). Uncomfortable side effects from anti-cancer medication include mucositis, vomiting, nausea, appetite suppression, and changes in taste and smell that could have a negative impact on a child's nutritional status (Triptodi et al., 2023). Parents, with the different parenting style affected the children ability in feeding. Involvement of both father and mother could help minimize the children with chronic illness in feeding difficulties. One of father's contribution in nutrition management could be in form of preparing meal. Furthermore, father also could prepare some meal options such as family menu. The higher frequency of offering various meal options helped to ease children find the best nutrition (Hasbani et al., 2023).

A study summarized several foods that could be used by fathers to determine dietary planning for their children. Foods that are salty and savory are favored over those that are sweet. When on steroids, strong-flavored and fried foods are preferred, but bland and light foods, including pasta and yogurt, are preferred and well tolerated during periods of poor appetite or nausea. Despite finding this approach taxing, parents consistently present their child with a variety of foods to tempt them to eat. Patients primarily despised commercial energy drinks, meat, and hospital cuisine. Foods recommended by their parents and meals they were accustomed to were more tolerated (Beaulieu-Gagnon et al., 2019a). Prior to being released from the hospital, the majority of parents do not comprehend or remember the information given by the doctor or nurse. Parents have also mentioned feeling uneasy to seek medical specialists for assistance on nutrition. Actually, the Internet, periodicals, and other parents are their main information sources (Arpaci et al., 2018). In addition to do minimal food work, fathers are perceived as being less concerned with the nutritional well-being of themselves and other family members. When it comes to feeding, a lot of fathers resorted to hasty and unhealthy solutions that moms specifically avoid. Traditional gender norms and expectations within families are reflected in and reinforced by fathers' food habits (Fielding-Singh, 2017).

### **Strength and Limitations**

This study reviewed articles from different kind of settings and different research method. In this study, articles included from different countries which might have different thoughts, beliefs, and needs related to the children nutrition. Further comprehensive review should consider about the value and beliefs of parents. This study was a review study with various cancer diagnosis and treatment. Different cancer and treatment types will produce different affect to each children's gastrointestinal system. The different effect side will also influence to the different nutrition management.

### **CONCLUSION**

Father's role might different according to the children's reaction to their treatment or therapy. Some of children might experience most of common nutritional problems meanwhile some of them might just experience few symptoms. In general, the father has in important role in maintaining a good nutrition for their children with cancer. The form could be in recognizing the nutritional problem and factors related. Furthermore, choosing the dietary menu and monitoring what the children ate during daily life were also important. More research is needed to better understand fathers' roles in juggling work and setting up structured mealtimes to feed the family, especially in diverse family configurations. This will help fathers participate in and contribute to the family meal environment. Supplying meals and cooking classes could help them fulfill their many responsibilities and increase productivity

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