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REVIEW

Factors Influencing Treatment-Seeking Behavior Among Caregivers of Children with Cancer: A Scoping Review

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Background: The survival rates for children with cancer, particularly in developing countries, remain low. A key factor contributing to these poor survival rates is the late diagnosis of pediatric cancer, which is often due to insufficient treatment-seeking behaviors by parents. This study aimed to explore the factors that influence the treatment-seeking behavior among caregivers of children with cancer.

Methods: This study employed a scoping review approach. Data was gathered from three sources: PubMed, CINAHL, and Medline. The search protocol adhered to the PRISMA guidelines for scoping reviews, using the terms ("children OR childhood") AND ("cancer OR malignancy") AND ("factors OR causes") AND ("health-seeking behavior OR treatment-seeking behavior") AND ("treatment delay"). Selected studies were based on original research, utilized either a cross-sectional or qualitative approach, focused on caregivers of children diagnosed with cancer, and were published in the last ten years (2013–2023).

Results: A total of nine articles met the criteria for inclusion: seven were cross-sectional studies, while two were qualitative studies. The ages of the children ranged from 1 to 18 years. Caregivers included parents (mother, father, or both), uncles, siblings, and cousins. The number of respondents varied from 12 to 200. The findings of the studies indicate that a range of complex and interrelated factors affects parental behavior, which includes child-related factors, parent-related factors, knowledge-related factors, perception-related factors, access to health services, and levels of social support.

Conclusion: This study highlights that caregiver behavior in seeking treatment for children with cancer is influenced by various factors that all contribute to delays in the treatment. We advocate for increased health promotion initiatives by the government and policymakers aimed at enhancing parents' knowledge and awareness regarding childhood cancer and its early detection. Expanding the cancer service network in developing countries could improve public access to pediatric cancer services.

Keywords: children, factors, cancer, treatment delayed, health-seeking behavior

Background

Cancer is a long-term illness caused by mutations in DNA, many of which happen naturally or result from environmental influences.[1] It can impact both adults and children.[2] Cancer is a contributing factor to increasing child mortality rates in both developed and developing countries. Approximately 80,000 children die from childhood cancer annually out of 300,000 new cases worldwide.[3] Cancer is the second leading cause of death in one-year-old children following accidents. The incidence of cancer is approximately 12.45 per 100,000 children under 15 years of age, and it includes various types of cancer, including acute lymphoid leukemia (ALL), acute myeloid leukemia (AML), Hodgkin's disease, non-Hodgkin's lymphoma, and central nervous system tumors.[4,5]

Different countries experience varying survival rates for childhood cancer. In developed countries like Germany and Canada, the survival rate for children diagnosed with cancer reaches 90%, which is much higher compared to that found in

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developing nations.[6] Cancer patients in high-income countries have an 80% survival rate, while those in Africa have a survival rate of less than 30%.[7] In Asian countries such as Indonesia, the survival rate for childhood cancer is below 50%, which is lower than the average of less than 60% seen in other countries.[6] The World Health Organization, through its Global Action Plans, aimed to decrease noncommunicable disease deaths, including cancer, by 25% between 2013 and 2020.[8]

Several factors can affect the survival rates of children. These factors include age, the number of leukocytes detected in children with leukemia,[9] tumor location and size, cancer stage, the presence or absence of metastases in children with rhabdomyosarcoma[10] and osteosarcoma,[11] and the use of alternative medicine before medical treatment.[12] Low survival rates are attributed to various elements, such as challenges in accessing healthcare facilities, a lack of adequately trained healthcare professionals, and insufficient treatment resources.[7]

Research conducted in developing countries indicates that most children with cancer arrive at healthcare facilities when their condition is already advanced.[10,12,13] Approximately 29.4% of children with stage IIB or III osteosarcoma were admitted to the hospital.[14] Sevinir, Demirkaya, Baytan dan Günë (2011) reported that in Turkey, children with non-Hodgkin lymphoma are diagnosed at a later stage.[15]

One factor contributing to late diagnosis in children is that parents or caregivers take an extended period before seeking medical services for their child.[16,17] Many parents or caregivers tend to pursue alternative treatments rather than consulting health services when they observe potential symptoms of cancer in their children.[7,18] The interval between parents taking their child from when symptoms appear until they are first taken to health services is called parental delay. When parental delay exceeds 20 days, it adversely affects physicians' ability to make timely diagnoses.[17] The duration of parental delays differs across countries: in Nigeria, the average delay is 50 days;[19] in Turkey, it is 20 days;[17] in Indonesia, it is 50 days;[18] in Kenya, it is 63 days;[20] and in Ghana, delays can range from two weeks to one year.[21]

Early diagnosis of cancer patients is a fundamental goal in oncology because it allows children to receive treatment at an earlier stage, increasing their chances of survival. Initiating treatment early provides children with a more favourable prognosis, ultimately leading to an improved quality of life.[22] Patients' quality of life deteriorates as they progress to the advanced stage.[23] Children who progress to an advanced stage often need more extensive treatment, which can result in various complications.[24]

Taking children to alternative medicine or health services is an example of health-seeking behavior. Treatment-seeking behavior refers to a person's efforts or actions when suffering from an illness or accident, ranging from self-medication to seeking expert help.[25] Several studies have been conducted to examine the factors that influence treatment-seeking behavior in children with cancer.[18,20–22,24,26–29] However, no comprehensive study has thoroughly discussed every contributing factor from various perspectives and their relationships to one another. Consequently, it is essential to conduct a literature review to pinpoint the elements that impact the treatment-seeking behavior of cancer patients. It is crucial for healthcare professionals to comprehend the factors that affect treatment-seeking behavior in pediatric cancer patients. The insights gained from this will aid in health promotion strategies aimed at modifying individuals' behaviors regarding health service usage, as well as highlighting the significance of early cancer detection, a role that nurses can fulfill.[21]

Methods

Design

This study employed a design scoping review framework. Scoping reviews have been defined as a

> type of evidence synthesis that aims to systematically identify and map the breadth of evidence available on a particular topic, field, concept, or issue, often irrespective of source (ie, primary research, reviews, non-empirical evidence) within or across particular contexts.[30]

This approach used data to examine research findings across a wide conceptual range in line with the research objectives. For this scoping review, we followed the methodological approach suggested by Arksey and O'Malley, which includes five steps: identifying the research question; identifying relevant studies; study selection; charting the data; and collating, summarizing, and reporting the results.[31]

This framework facilitates the integration of a wide variety of study designs to gain a comprehensive understanding of the research area. A scoping review's strength is that it synthesises an existing and evolving body of literature to determine gaps in the literature and identify areas for future empirical work.[32] This study used the PRISMA extension for scoping reviews (PRISMA-ScR) to identify articles that discussed the factors that influence the behavior of cancer parents in seeking treatment for their children.[33] The scoping review method began with a broad research question, which was narrowed during the study process to enable in-depth identification of the factors related to parents' treatment-seeking behavior for their children. The choice of scoping reviews as the review design was influenced by one of their significant strengths: the capacity to clarify essential concepts and definitions in the literature, as well as to uncover key characteristics or factors associated with a concept, specifically treatment-seeking behavior among parents of children diagnosed with cancer.[30,34]

Identification Problem

We employed the Population, Concept, Context (PCC) framework template to pinpoint the issue and develop the review question. The initial study question that guided the literature search was: "What are the factors that influence the behavior of cancer parents in seeking treatment for their children?"

Eligibility Criteria

Inclusion Criteria

- Population: studies involving children diagnosed with cancer who are 18 years old or younger, along with their caregivers.
- Concepts: health-seeking behavior or treatment-seeking behavior.
- Context: treatment delayed.
- Study type: a cross-sectional, cohort study, retrospective study, and qualitative study.
- The article's publication year ranges from January 2013 through December 2023.

Exclusion Criteria

- Studies on caregivers of young adults and adult cancer patient.
- Studies for children with other chronic health problems outside cancer.
- Feasibility studies, study protocols, conference proceedings, thesis/dissertation, or abstracts.
- Studies in languages other than English.
- Articles with no full text.

Search Strategy

To capture the relevant literature, a search was conducted across the following electronic databases: CINAHL, Medline, and PubMed. A systematic search strategy was employed, focusing on research questions that aligned with medical subject headings, phrases, and combinations of subject synonyms. During the searches, Boolean operators ("AND" and "OR") were utilized for each database. The search strategy included the following terms: ("child" OR "childhood" OR "pediatric") AND ("cancer" OR "malignancy") AND ("treatment-seeking behavior" OR "health-seeking behavior") AND ("treatment delay") AND ("cause" OR "factor").

Study Selection

The study selection process utilized a team-based method. Two reviewers (IN and DH) conducted independent screenings of the articles retrieved from three databases. All search results were organized in a reference management program for efficient data management. The two reviewers assessed and verified the remaining articles separately after eliminating duplicate entries using the Mendeley reference manager. Any disputes regarding the inclusion of an article were settled with the assistance of a third and fifth reviewer (FA and HSM). The initial researchers (IN, DH) who screened the database assessed the studies based on the relevance of their titles. Any studies that failed to meet the inclusion criteria for the titles were discarded at this phase. A reference management application was utilized to document studies that fulfilled the inclusion criteria for titles and abstracts, and full texts were subsequently retrieved. Prior to entering the full texts into the data extraction table, all researchers (DH, IN, FA, NN, HSM) evaluated them for adherence to inclusion

criteria and methodological integrity. All reviewers collaborated in gathering pertinent information from each article, which included the publication year, study location, research methodology, sample size, and the factors influencing health-seeking behavior. The study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (Figure 1).[33]

Quality Appraisal

In scoping reviews, conducting a quality appraisal or assessing the risk of bias is considered optional rather than obligatory.[34] For this particular review, the author carried out a quality evaluation to enhance the methodological integrity of the study.[34] The authors employed the Joanna Briggs Institute (JBI) critical evaluation approach to assess the quality of the articles included in the scoping review. The JBI method involves detailing the content of each article and evaluating its quality based on the research design, serving as a guideline for determining whether the study is suitable for review. The authors analyzed the quality of the articles using the JBI Critical Appraisal Tool assessment for cross-sectional studies[35] and the JBI Critical Appraisal Tool assessment for qualitative research.[36]

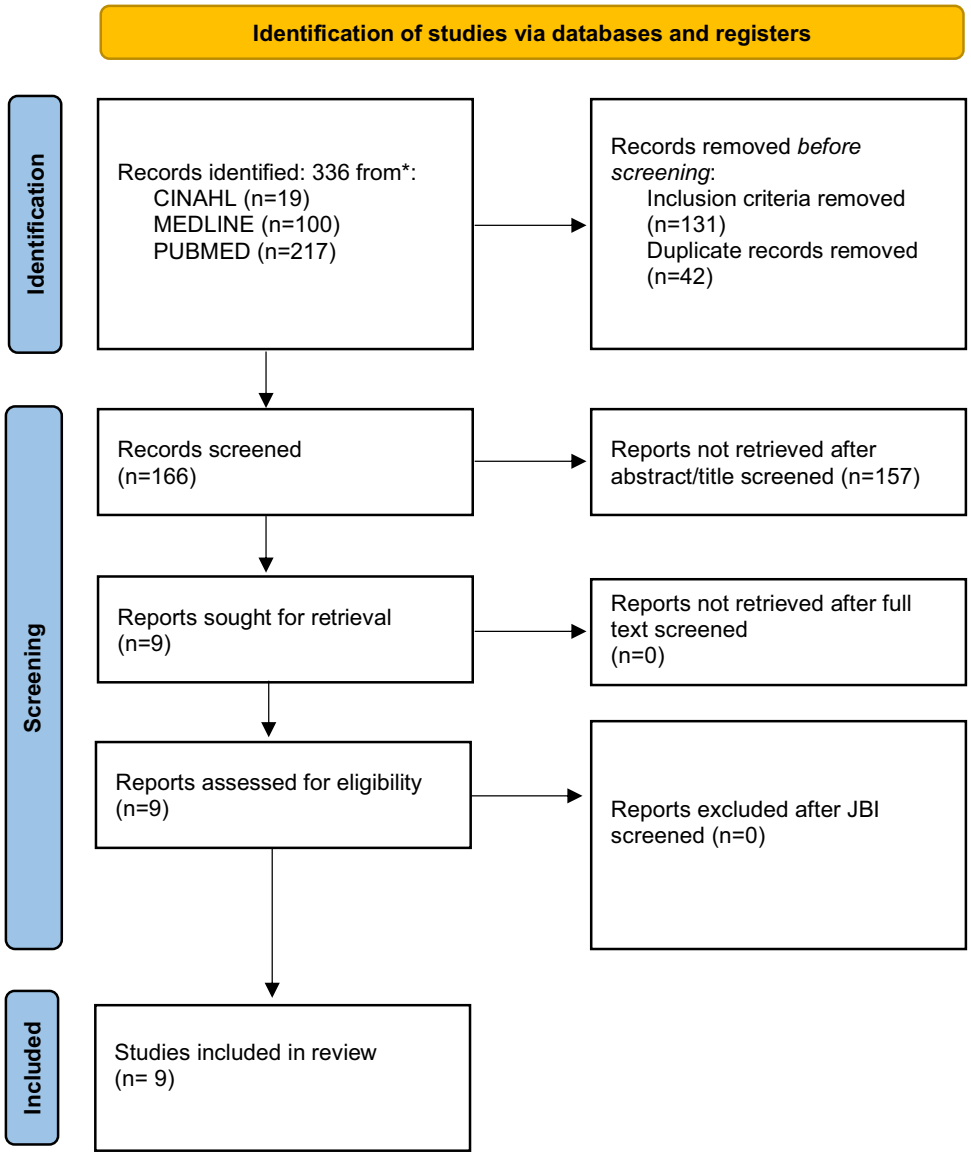

Figure 1 PRISMA flow diagram.
Notes: Adapted from Adapted from Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated: guideline for reporting systematic reviews. *BMJ*. 2021;372:n71. Creative Commons.

The article evaluation method assigned a score to each statement (yes, no, unknown, not applicable). A score of "Yes" is valued at 1, while all other responses receive a score of 0. The authors determined the criteria for the articles used and analyzed in this study by their JBI rating score of 70% or higher, according to Viswanathan et al (2012) and their relevance to the topic.[37] The quality appraisal findings are displayed in Table 1.

Data Extraction

Two reviewers (DH and IN) extracted information from the selected studies and organized it into a Microsoft Word table that included the authors' names, year of publication, research origin, study purpose, methodological designs, sampling methods, key factors, and main conclusions. The review team developed the data extraction sheet, which was pilot-tested on four studies, resulting in only minor modifications. Ultimately, the authors thoroughly reviewed the included papers to verify and minimize errors in the data extraction process. Table 2 presents the results of the data extraction.

Data Analysis

The JBI scoping review guidelines suggest employing basic qualitative content analysis, which is a descriptive method that utilizes open coding to assign concepts or characteristics into broader categories.[38] Earlier guidelines, including those from JBI, have not clearly outlined the specifics of basic qualitative content analysis, and it is recognized that a variety of analytical methods may be utilized.[30]

In this research, the authors utilized the analytical framework proposed by Pollock et al (2024), which outlines basic qualitative content analysis specifically for scoping reviews.[30] This framework includes stages of open coding, extraction and organization, and categorization.[30] Initially, the author (IN) read the transcript repeatedly to identify the unit of analysis in the form of meaningful statements in the findings in each article. In this study, the unit of analysis comprises words, sentences, or paragraphs that encapsulate significant elements, which are then condensed into meaningful units and assigned labels or codes.[39] All findings from the selected papers were systematically extracted and presented in a spreadsheet format. Since only one researcher handled the open coding, inter-coder reliability was not evaluated. To anticipate this limitation, the team conducted a joint review of the coding that had been developed. In the joint review process, a consensus is reached when there is a disagreement about the coding conducted by the principal investigator. This consensus was achieved by soliciting the views of the fourth and fifth researchers, who also served as supervisors for this study. In the second step, codes that have similarities are then extracted and grouped/organized into categories. The final stage is building categories within categories.[40] Figure 2 illustrates the coding tree used for the analysis in this study. The reviewer consistently compared findings and patterns, identifying commonalities and differences that facilitated the development of categories. Finally, all authors collaborated to generate conclusions and verified the category framework. Subsequently, all authors proposed a scheme outlining factors that influence treatment-seeking behavior based on the results of an inductive analysis of data from the included studies (see Figure 3).

Table 1 The JBI Critical Appraisal Tool

Author, Published Year	JBI Critical Appraisal Tool	Study Design
Abdelkhalek et al (2014)[22]	87.5% (7/8)	Cross-sectional study
Begum et al (2016)[24]	75% (6/8)	Cross-sectional study
Buckle et al (2013)[20]	75% (6/8)	Cross-sectional study
Faruqui et al (2019)[27]	90% (9/10)	Descriptive Qualitative
Gardie et al, (2023)[34]	75% (6/8)	Cross-sectional study
Handayani et al (2016)[18]	75% (6/8)	Cross-sectional study
Njuguna et al (2016)[7]	75% (6/8)	Cross-sectional study
Renner and McGill (2016)[21]	90% (9/10)	Exploratory qualitative study
Venkatasai et al (2017)[29]	75% (6/8)	Cross-sectional study

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Table 2 Study Characteristics

No	Author, Year	Country	Aim	Participants	Design	Factors
1	Abdelkhalek et al (2014)[22]	Mesir	To investigate and determine the causes of delays in childhood cancer diagnosis in Egypt.	172 caregivers with children (0–15 years) diagnosed with cancer in two oncology units: Zagazig University Pediatric Oncology and The Banha Pediatric Oncology	Retrospective cross-sectional study	1. Children aged 5–10 are more delayed than those under five years. 2. Low parental education. 3. The parents' economic status
2	Begum et al (2016)[24]	Bangladesh	To investigate components that may contribute to delays in diagnosing and treating childhood cancer in Bangladesh.	One hundred seventy-one caregivers of children under 18 diagnosed with cancer at the National Institute of Cancer Research and Hospital in Dhaka, Bangladesh.	Cross-sectional study	1. Have no health insurance. 2. The belief that the disease cannot be cured. 3. Difficult access to healthcare 4. Debates about family responsibilities 5. Child's age 6. Father's previous education 7. Family Income 8. Parent knowledge regarding childhood cancer
3	Buckle et al (2013)[20]	Uganda	To identify factors that influence delays in diagnosis and treatment in children with Burkitt Lymphoma in Uganda and Western Kenya.	Eighty-two parents of children diagnosed with Burkitt lymphoma at Jaramogi Oginga Odinga Teaching and Referral Hospital (JTRH) and Uganda Cancer Institute (UCI).	Cross-sectional study	1. Family Income 2. The caregiver's belief in cancer cure. 3. Perception of cancer as an infectious disease. 4. Transportation Costs 5. Debates over household responsibilities
4	Faruqui et al (2019)[27]	India	Identifying barriers to health care from the onset of symptoms to the start of treatment, based on the perspective of caregivers of children with cancer in India	Thirty-nine caregivers of children under 18 were diagnosed with cancer at seven tertiary-level hospitals in New Delhi and Hyderabad.	Descriptive Qualitative	1. Information from different parties (relatives, friends, and strangers). 2. Previous experience in the healthcare system. 3. Lack of knowledge and awareness regarding childhood cancer.
5	Gardie et al, (2023)[34]	Ethiopia	To assess delay in diagnosis and associated factors among children with cancer admitted to the pediatric oncology ward,	Two hundred medical charts of children diagnosed with cancer who were registered from January 1, 2019, to December 31, 2021.	Institutional-based retrospective cross-sectional study	1. Rural residence 2. Absence of health insurance 3. No referral 4. Absence of comorbid disease

6	Handayani et al (2016)[18]	Indonesia	Exploring the various types of delays in children with cancer and the factors that influence them.	145 Parents of Children Newly Diagnosed with Cancer.	Cross-sectional study	1. Parents' belief in traditional medicine. 2. Social support 3. Age of the child 4. Parental perceptions of healthcare services
7	Njuguna et al (2016)[7]	Kenya	To identify the types of delays in pediatric cancer patients at teaching hospitals and the factors that influence the time from diagnosis to treatment.	Ninety-nine parents with children diagnosed with cancer in hospitals in Kenya.	Cross-sectional study	1. Lack of health insurance 2. Use of alternative medicine before attending conventional health services 3. The type of cancer 4. The type of health facility attended
8	Renner and McGill (2016)[21]	Ghana-Africa	To investigate the factors that influence the decision of parents of children with cancer to attend health facilities and barriers to treatment.	12 Parents who have children with cancer in the Pediatric Oncology Unit.	Exploratory qualitative study-	1. A lack of parental knowledge about childhood cancer. 2. Individual and environmental variables interact to determine search behavior treatment. 3. Orthodox medical care is widely regarded as beneficial to the family.
9	Venkatasai et al (2017)[29]	India	This study aims to evaluate referral patterns and identify potential delays in diagnosing childhood cancer in developing countries.	Seventy parents of children with hematological cancer are receiving treatment at Sri Ramachandra Hospital.	Retrospective cross-sectional study	1. Distance to health care (from rural areas) 2. Lower income. 3. Low parental education. 4. Parents' belief that previous conditions cause symptoms. 5. There is no correlation between the child's age and parental or diagnosis delay.

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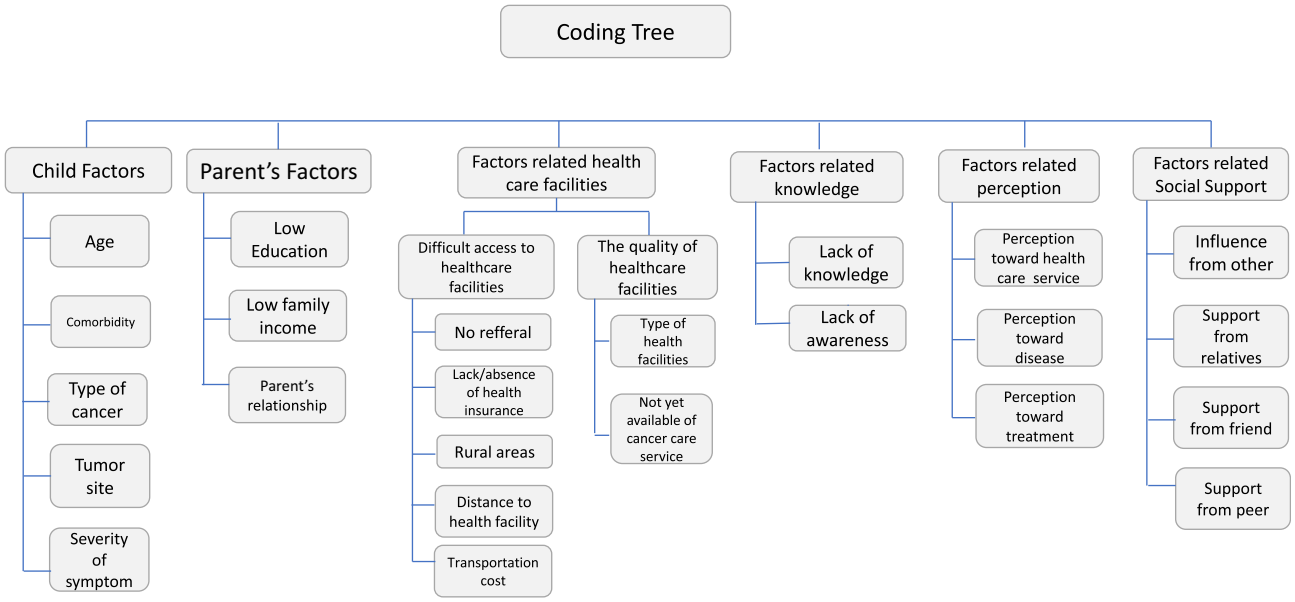

Figure 2 Coding tree.

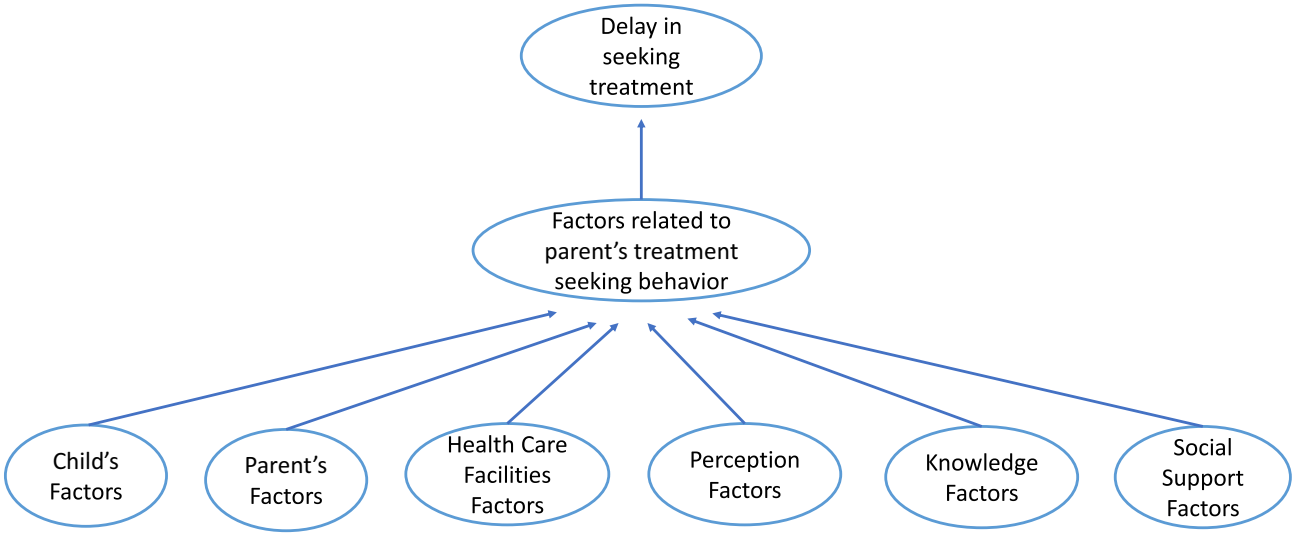

Figure 3 Generated model of factors related to treatment-seeking behavior in parents of children diagnosed with cancer.

Results

The author identified 336 articles through keyword search results. After filtering out duplicates and applying inclusion criteria, we narrowed it to 166 articles. The authors chose papers based on their titles and abstracts. Subsequently, the authors reviewed the full texts and excluded articles following the exclusion criteria, resulting in nine articles. The authors thoroughly double-checked to guarantee that only high-quality, relevant publications were considered. All nine selected articles fulfil the minimum risk of bias standards as evaluated by the JBI Critical Appraisal Tool for cross-sectional studies[35] and the JBI Critical Appraisal Tool for qualitative research.[36]

Study Characteristics

The majority of the countries involved in the study are classified as developing and/or low-income, including Bangladesh, Ethiopia, Indonesia, India, Ghana, Kenya, Egypt, and Uganda. This region encompasses both Asia and Africa. The study

participants consisted of caregivers for children diagnosed with cancer, including fathers, mothers, uncles, siblings, and cousins. These studies were generally conducted on pediatric cancer patients, with two focused on specific types of cancer (Burkitt lymphoma and haematological cancer). The research design included seven quantitative studies and two qualitative studies. Among the quantitative studies, four utilized cross-sectional designs,[7,18,20,24] while three followed a retrospective approach.[22,29,41] Additionally, the qualitative studies adopted an exploratory research design. The quantitative studies had sample sizes ranging from 70 to 200 respondents, whereas the qualitative studies included between 12 to 39 participants. Data collection methods encompassed interviews (70%), observations (10%), questionnaires (10%), and group discussions (10%). The characteristics of the studies are presented in Table 2.

Factors Influencing Treatment-Seeking Behavior

Based on the review's findings, multiple complex and interconnected elements affect the treatment-seeking behavior of children with cancer. Five out of the nine studies examined the role of illness perceptions and parental income. Four studies highlighted the importance of social support, healthcare access, and the child's age. Three studies addressed knowledge, perceptions regarding treatment and health services, and parents' educational level, while one study considered factors related to child comorbidities. Table 3 illustrates the factors that impact the treatment-seeking behavior of caregivers for children diagnosed with cancer.

Child Factors

Factors related to the child that affect parents' decisions to seek treatment include the age of the child, any existing comorbid conditions, the type of cancer, the location of the cancer, and the severity of the symptoms. The study's findings indicated that children over 15 years old were taken to conventional health services at a later stage. This review demonstrated that as the child's age increased, the time to consult a doctor for the first time also increased. Conversely, one study did not find a correlation between the age of the child and their behavior regarding the first visit to a healthcare provider.[29]

One study revealed that the presence or absence of comorbid diseases in a child influences caregivers' behavior in seeking cancer treatment.[41] If a child with cancer does not have any comorbid conditions, parents are twice as likely to

Table 3 Factors That Influence Treatment-Seeking Behavior in Children with Cancer

Author, Year	Identified Factors								
	Sociodemography Factors				Parent Knowledge	Parent Perception Toward Disease	Parent Perception Toward Treatment or Healthcare Services	Social Support	Access to Healthcare Services
	Child's age	Child's Comorbid	Parent's Education	Family Incomes					
Abdelkhalek et al (2014)[22]	Yes		Yes	Yes					
Begum et al (2016)[24]	Yes		Yes	Yes	Yes	Yes			Yes
Buckle et al (2013)[20]				Yes		Yes			Yes
Faruqui et al (2019)[27]					Yes		Yes	Yes	
Gardie et al, (2023)[34]		Yes							Yes
Handayani et al (2016)[18]	Yes						Yes	Yes	
Njuguna et al (2016)[7]							Yes	Yes	Yes
Renner and McGill (2016)[21]					Yes	Yes		Yes	
Venkatasai et al (2017)[29]			Yes	Yes		Yes			Yes

https://doi.org/10.2147/JMDH.S497004

delay taking them to the hospital.[41] Additionally, other research has indicated that factors such as the type of cancer, its location, and the intensity of the child's symptoms significantly influence parents' behavior to seek treatment.[7,22,41] The more severe the child's symptoms are, the faster parents tend to seek care at a medical facility. Parents are quicker to identify solid tumors compared to blood cancers. The site of the cancer also plays a role in how parents recognize symptoms, with those situated in easily visible areas of the body being more readily noticed.

Parent Factors

Parental factors that influence treatment-seeking behavior include parents' educational level,[22,24,29] parental income,[20,22,24,26] and parental income, and the dynamics of the mother-father relationship.[20,24] This scoping review indicated that as parents' education level decreased, the time taken to access health services increased.[22,24,29] Begum et al (2016) reported that 55.6% of fathers had completed higher education.[24] Studies in Egypt revealed that 47.7% of parents had less than six years of schooling,[22] while a study in India reported that 46% of parents graduated from high school.[29] The higher the father's education level is, the faster the child is taken to a medical facility.[24] Begum et al (2019) demonstrated no relationship between mothers' educational level and treatment-seeking behavior.[24] Nevertheless, two studies indicated that both fathers' and mothers' levels of education influence parents' delays in bringing their children to healthcare.[22,29]

This study revealed that parents with higher income levels accessed health services for their children more promptly than those with lower incomes.[20,22,24,26] Another factor to consider is the father-mother relationship. Another important aspect to examine is the relationship between fathers and mothers. Two studies indicated that strained father-mother relationships, marked by frequent conflicts over family and household duties, create tension between parents. This situation notably affects the choice to seek treatment for their children.[20,24]

Access to Health Care Services Factors

Access to health services is another factor that influences parental behavior when seeking treatment. Access to health services refers to an individual's ability to seek necessary health services.[42] This factor highlights two key conditions: restricted geographic and economic circumstances as well as the presence of health insurance. Poor access to healthcare services lengthens the duration it takes for caregivers to initially seek medical care for their children,[24] due to long distances, limited transportation options, and financial limitations.[20] A study by Begum et al (2016) stated that poor access to health services increases the time caregivers take their children to health services for the first time.[24] Buckle et al (2013) elaborated that this delay is attributed to great distances, insufficient transportation availability, and financial constraints.[20] A study in India showed that 70% of parents with children diagnosed with cancer resided in rural regions, leading to notably longer delays in seeking care compared to parents living in urban settings.[29]

In Africa, a significant majority of families with children suffering from cancer (67%) lack health insurance prior to the onset of the disease's symptoms, while 64% of these families had no insurance at the time they sought hospital care.[7] Access to health insurance influences how quickly parents seek health services for their child for the first time.[43]

Knowledge Factors

This study revealed that most parents, particularly those residing in rural communities, only became aware of cancer after their child received a diagnosis and went through treatment.[20,21,27] Many parents lack knowledge about the causes of cancer in children.[27] This knowledge gap suggests that caregivers or parents may not recognize their children's symptoms, health conditions, and the necessity for prompt action. One study indicated that parents who were familiar with childhood cancer were more inclined to bring their children for medical consultations compared to those who were unaware of the illness.[24]

Perception's Factors

Perception factors affecting how parents seek treatment include their views on the disease, their understanding of treatment, and their opinions about health care services. Some parents hold the belief that supernatural forces are behind their child's cancer, leading them to pursue alternative therapies like consulting a smart healer[18] or engaging in prayer.[27]

A study conducted in Turkey revealed that 43.9% of parents believe that cancer is a result of a curse from God or the influence of evil spirits.[44] Additionally, parents often perceive cancer as both an incurable and contagious illness.[20,21,24] They tend to attribute childhood cancer to frequent exposure to sunlight, injuries, and infectious diseases.[21]

Parents' perception of conventional medical care significantly impacts their behavior in seeking treatment. Some parents choose alternative treatments if their child shows signs of cancer. Parents prefer alternative medicine because they believe it is safe, provides comfort, has the potential to cure, is affordable, and allows them to care for their children at home.[7,18] The results of this review indicate that various perceptions regarding conventional health services lead caregivers or parents to postpone seeking treatment for their children. Some parental views on conventional treatment or health services include beliefs that medical interventions are ineffective, challenges in scheduling appointments with healthcare providers, negative past experiences with health services, and the absence of insurance, which complicates treatment processes.[7,18,27] Faruqui et al (2019) noted that parents often express scepticism towards hospital care due to overcrowding and lengthy procedures.[27]

Social Support

Parental behavior regarding treatment-seeking for children with cancer is significantly shaped by support from family, friends, and various community members.[7,18,21,27] In a study conducted in Indonesia, it was found that 45% of parents opted for alternative therapies when they observed symptoms in their children, relying on recommendations from friends (33%), relatives (31%), grandfathers (24%), traditional elders (21%), village communities (19%), and religious groups (5%).[18] Similarly, a study in Kenya revealed that 58% of parents pursued alternative treatments based on suggestions from grandparents (53%), village communities (51%), friends (47%), relatives (42%), partners (26%), religious groups (16%), health professionals (7%), and the oldest tribal chiefs (2%).[7] The influence of their social circle also plays a role in parents' decisions to avoid conventional healthcare for their children.[7,18]

Discussion

Treatment-seeking behavior, also known as health-seeking behavior, describes individuals' actions when they are suffering from an illness, which can range from self-treatment to consulting healthcare professionals.[25] There are various approaches that parents can take when their child shows signs of cancer, including 1) taking no action; 2) self-medicating; 3) seeking care at a traditional healing center; and 4) visiting a conventional medical facility.[25]

Some parents might choose not to act because they believe the symptoms (such as fever) will resolve on their own and that the illness will not disrupt their child's normal activities. Additionally, parents may resort to self-medication based on past experiences where their child's symptoms improved after they were self-treated. Another common behavior is that parents attempt to take their children to traditional healing centers. In rural areas, traditional medicine is often preferred over other treatment options. This preference stems from the belief within the community that health is shaped by cultural factors rather than purely physical ailments. If a child's condition does not get better with traditional remedies, the parents will then seek care at a modern (conventional) medical facility.

Seeking appropriate treatment first can help avoid diagnostic delays, increase compliance with care, and improve health promotion in various settings.[45] The findings of this study reveal several complex and interconnected factors that influence parental behavior in seeking treatment, including child factors, parental factors, knowledge factors, perception factors, health services factors, and social supports (see Figure 3).

Parental behavior is influenced by socio-demographic factors that include both the child's attributes (such as age, cancer type, cancer location, and comorbidity) and the parents' characteristics (including education, income, and relationship status). The findings of the study showed that the older the child, the longer the time to first diagnosis, as parents are more accurate in detecting cancer symptoms in younger children than in older ones.[24] Parents are also more vigilant in monitoring the health of their younger children and checking their children's health conditions more frequently. Older children, particularly teenagers, rely more on themselves and hesitate to share symptoms with their parents.[18] This means that if a teenage child has cancer, parents are more likely to delay taking them to health services. Additionally, children without comorbid conditions were found to be twice as likely to experience delays in diagnosis compared to those with comorbidities, while all other factors were held constant. This could be attributed to the fact that

patients with comorbid conditions tend to pursue additional healthcare, potentially shortening the time needed for a childhood cancer diagnosis.[41]

Parental education is a crucial factor that affects parent behavior when seeking healthcare for their children with cancer. Formal education plays a significant role in shaping individuals' understanding. The relationship between education and socioeconomic status is vital in determining how parents recognize and interpret cancer signs and symptoms in their children. Parents with a higher level of education are more likely to take their children to hospitals and private clinics with more excellent clinical expertise. Consequently, this can enhance the likelihood of early diagnosis.[22] Additionally, parental income impacts how parents pursue treatment options. A lower family income is strongly linked to delays in seeking healthcare for children due to the high costs associated with medical care and transportation.[20] The financial strain on families escalates as they also consider nonmedical expenses such as travel, accommodation, and food.[29]

The knowledge factor has been recognized in numerous related studies. Knowledge encompasses the experiences, understanding, and capability to grasp specific issues that affect individual behavior.[46] Knowledge is closely linked to formal education but can also be acquired through informal education. This study revealed that knowledge plays an essential role in the behavior of parents who are seeking treatment for their child's cancer late. The results show that parents' awareness of cancer is notably low, with most only becoming informed after their child receives a diagnosis. A study in Turkey found that mothers' understanding of cancer is still quite limited, and many do not possess sufficient information about the disease. The majority of mothers obtained their knowledge of cancer from various sources: television (45.9%), school (20.2%), health professionals (23.5%), friends or family (9.8%), and newspapers or magazines (0.6%).[47]

Parental health-seeking delay is also influenced by parental perception. Perception is a complex cognitive process that creates a unique view of reality, which may not align with actual circumstances.[48] This study found that parents' treatment-seeking behavior is influenced by their perceptions of illness, treatment, and health services. This aligns with the Health Belief Model, which suggests that the beliefs or perceptions individuals hold about diseases and prevention methods significantly impact their health-seeking behaviors.[49,50]

The findings of this study contribute to the translation of the Health Belief Model in the pediatric oncology setting. Parents' lack of awareness regarding cancer symptoms results in a misunderstanding of the symptoms' seriousness (perceived severity). In this study, parents believed their child's cancer was a curse from God, evil spirits, or supernatural forces. Parents believe cancer is an incurable and contagious disease.[20,21,24] This leads parents to seek alternative medicine, consult a smart healer or shaman,' and engage in prayer when faced with symptoms.[7,18,24] Parents believe traditional medicine is beneficial to their children (perceived benefit).

Parents believe alternative medicine is a treatment option free from side effects, offers greater comfort to children, and is perceived as healing. In addition to providing care for their children at home, parents also see alternative medicine as a cost-effective treatment.[7,18] This leads parents to choose alternative treatments when they notice symptoms in their children. However, the initial reliance on alternative treatment approaches can delay seeking conventional medical care, which is closely linked to delays in doctors reaching a diagnosis.[7,18,24]

The Health Belief Model theory indicates that health-seeking behavior is affected by individuals' perceptions of barriers.[49] This study found that one of the factors affecting parents' decisions to seek treatment is their views on obstacles to accessing healthcare. Negative perceptions towards health services also play a role in shaping parental actions. Parents often view medical treatment as providing limited benefits. They find it challenging to schedule an appointment with a doctor at a healthcare facility, and negative past experiences with health services,[27] along with the lack of insurance, complicate the treatment process.[7,18] Additionally, parents perceive hospital treatments as overwhelmed and associated with lengthy procedures.

An additional factor highlighted in this research that affects parents' behavior in seeking cancer treatment for their children is the accessibility of health care. Access to health services pertains to a person's capability to obtain necessary health services.[42] This accessibility is impacted by factors such as the availability of transportation, the distance to healthcare facilities, financial capacity, and the status of health insurance. The findings of this study indicated that inadequate access to healthcare services played a role in the choices parents made regarding treatment for their children. Limited access to health services prolongs the duration it takes for caregivers to bring their children to see a doctor for

the first time.[24] Long distances, limited transportation options, financial constraints, and the availability of health insurance are all barriers that parents face when taking their children to medical services.[7,20]

The last factor that influences parental behavior is social support. The decision to pursue treatment for children is influenced by parents, family members, relatives, and others in the community.[7,18,21,27] Social support refers to the presence of people–certain people who personally provide advice, motivation, and direction and who show solutions when individuals experience problems and when they experience obstacles in carrying out activities in a directed manner to achieve goals.[51] Social support encourages family and friends to seek treatment at healthcare facilities. Seeking treatment for children is influenced not only by their parents but also by family, relatives, and other community members.[7,18,21,27]

Support from the social environment determines whether parents are late in bringing their child suffering from cancer to health services. According to the present study, most parents do not receive social support when taking their children to healthcare facilities. Families, relatives, neighbors, traditional elders, religious communities, and village communities all help parents bring their children to alternative treatment.[7,18,21,27] Studies in Indonesia and India showed that parents' surroundings prevent them from taking their children to conventional health services.[7,18] This certainly plays a role in the delay of medical treatment for children with cancer.

Implication of Study

The World Health Organization (WHO) highlights the necessity of enhancing effective treatment strategies for all children diagnosed with cancer to improve survival rates, with a particular focus on developing nations.[52,53] Consequently, collaborative efforts from all stakeholders are essential to reach this objective. Healthcare professionals, especially nurses, are anticipated to assist in encouraging parents to seek health services for their children to minimize treatment delays and enhance survival rates. Progress can also be made by advancing early childhood cancer detection within primary healthcare systems, especially in developing regions. Furthermore, initiatives aimed at promoting health are vital. Nurses and healthcare workers can educate the community, especially parents, regarding health-related matters. Health promotion via educational efforts about the causes, signs, early detection, prevention, and treatment of childhood cancer is crucial for boosting parental understanding, awareness, and positive attitudes toward cancer.

A key factor to consider is enhancing access to health care. This study's results indicate that access to health services poses a challenge for parents aiming to take their children with cancer to healthcare facilities. Therefore, it is essential to improve accessibility to cancer services by evenly distributing cancer centers throughout various regions, thus minimizing the impact of distance. Furthermore, governments in developing nations should broaden health insurance coverage, especially for low-income individuals, to help avoid treatment delays for children with cancer. Medical professionals, including doctors, nurses, and other healthcare staff, play vital roles in the prevention, diagnosis, and treatment of cancer for children and their families. Additionally, healthcare workers can help streamline health service processes by creating a more efficient referral system, thereby improving parents' access to services for childhood cancer.

Another significant element that affects parental behavior relates to how parents perceive alternative medicine. Nearly all the studies included in this review indicate that one of the factors motivating parents to pursue treatment is the guidance provided by family and community leaders, who recommend seeking alternative medicine for the cancer symptoms their children experience. Consequently, parents often delay taking their children to healthcare facilities until the condition becomes severe. This delay can lead to late diagnoses and unfavorable outcomes. Therefore, it is crucial to implement health promotion strategies to enhance understanding of cancer. In addition to families, health promotion about cancer should also target influential individuals within communities, such as traditional leaders, heads of religious organizations, leaders of village societies, cultural figures, or other community representatives who hold significant sway.

Strength and Limitations

There are several limitations to this review. First, this study in this review is mostly from developing and/or low-income that located in the Asia-Africa region, including Bangladesh, Ethiopia, Indonesia, India, Ethiopia, Ghana, Kenya, Egypt, and Uganda, so it is less able to provide diversity in respondents' social and cultural characteristics. The study in this review is not focused on one type of childhood cancer or one specific outcome, which is a limitation of this review. Childhood cancers are

screened in general, and no criteria for specific cancer diseases are covered in this review. The criteria for inclusion in the review emphasized articles from peer-reviewed journals, which may create a bias favouring studies that have been accepted for publication. Preprints, which could offer pertinent insights, were not part of the selection process. Furthermore, the review did not consider studies published in other languages, potentially leading to a bias toward research conducted exclusively in English. This review employed a systematic search strategy across three primary databases; results may vary if additional databases are included in the search. Additionally, the open coding data analysis was conducted solely by the principal investigator, which means inter-coder reliability could not be assessed. Nonetheless, the overall data analysis process was undertaken repeatedly with the involvement of all research team members, which is expected to help reduce individual bias and enhance the reliability of the findings. Although this study has its limitations, it offers several advantages worth acknowledging. It employed a thorough search strategy and a systematic data extraction and quality evaluation process. Furthermore, this review specifically examines pediatric oncology settings to pinpoint the factors that affect how parents of children with cancer seek care. At the same time, another study looks at a wider scope within the pediatric population as a whole or among children with chronic illnesses. This research incorporated a range of complex and interconnected factors that affect the treatment-seeking behaviors of children diagnosed with cancer. Consequently, the results of this study present significant insights that could be used to develop health promotion interventions, enabling parents to seek appropriate treatment and thus minimize delays in care promptly.

Conclusions

Our study highlights the importance of parental behavior in seeking treatment for children with cancer, as these behaviors can lead to delays in diagnosis and treatment, ultimately resulting in lower survival rates for affected children. Various factors impact how parents seek treatment, including aspects related to the child, the parents themselves, their knowledge, perceptions, health facility conditions, and support from their social networks. Consequently, healthcare professionals should prioritize early detection and health education initiatives to enhance parents' understanding and favourable views on cancer and its treatment. Furthermore, improving accessibility to healthcare services is essential, enabling parents to reach nearby and more convenient cancer treatment facilities.

Data Sharing Statement

All the relevant data to the study are included in the article.

Ethics Approval and Consent to Participate

This scoping review article involved no subjects; hence, no ethical approval was required or attached.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of the data, analysis, and interpretation, or all these areas; took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for aspects of the work.

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