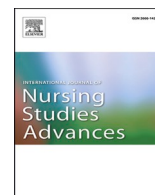


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Cancer parents' experiences of parenting concerns about minor children: A meta-synthesis of qualitative studies

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ABSTRACT

Background: Some cancer patients not only endure physical and mental distress due to the disease and treatment but also shoulder the responsibility of raising their children. This situation significantly impacts the patients' quality of life. While there is a growing body of qualitative research focusing on parenting concerns among cancer patients, there remains a lack of comprehensive qualitative evidence.

Objective: This study aims to conduct a systematic review and synthesis of qualitative research evidence, investigating the experiences of cancer patients in raising minor children.

Design: Systematic review and synthesis of qualitative studies.

Setting(s): Through a screening process employing inclusion/exclusion criteria, qualitative studies specifically addressing cancer patients raising minor children were identified.

Participants: Participants: A total of 669 participants from 40 studies were included in the review.
Methods: Four English (Pubmed, Web of Science, Embase and Cochrane Library) and three Chinese (CNKI, Wanfang and Sinomed) databases were searched for qualitative studies of the real-life experiences of raising children in cancer patients from the establishment of the library to January 2024. The methodological quality of the included literature was assessed using the Critical Appraisal Skill Program (CSAP). Qualitative data were extracted, summarized, and meta-synthesized.

Results: A total of 26 studies were included in this meta-synthesis, encompassing 11 different countries. 160 themes were extracted from these included literatures, which were combined into ten categories, ultimately forming four themes: the impact of parents' disease on their children, the challenges of parenting, coping strategies, and multifaceted parenting needs. Based on the Confidence in the Output of Qualitative research synthesis (ConQual) approach, the confidence level of the synthesized findings ranged from moderate to low.

Conclusions: Cancer patients experience significant psychological stress while raising children, which can lead to a reduction in their quality of life and influence treatment decisions. These findings elucidate the parenting concerns experienced by cancer patients, allowing medical staff to understand their emotions and treatment preferences. Additionally, healthcare professionals should pay attention to the special needs of this group and develop targeted interventions to support and reduce patients' psychological stress and burden.

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1. Background

According to the latest cancer data released by the International Agency for Research on Cancer (IARC) of the World Health Organization, there are approximately 19.3 million new cancer cases worldwide, and nearly 10 million patients die from cancer in 2020 (Sung et al., 2021). Cancer remains a major public health problem of global concern and a serious threat to human health. Around 22 % of cancer cases are diagnosed in adults aged 25–59 (Weaver et al., 2010), a population commonly engaged in parenting responsibilities for minor children. For parents with cancer, parenting becomes a burden as they face a range of physical and mental discomforts associated with the disease and the need to care for their minor children during treatment.

The concept of parenting concerns, typically defined as the worries parents have about the impact of cancer on their children and their ability to fulfill their parenting roles (Rauch and Muriel, 2004), resides at the intersection of oncology and supportive care. Cancer-affected parents not only worry about the adverse effects of their illnesses on their children's growth and development (Inhestern et al., 2021), but also express concerns about a range of parenting issues, such as their limited energy and time due to prolonged hospitalization and physical exhaustion, which affects the amount of time they can spend with their children and the ability of their co-parents to care for their minor children (Muriel et al., 2012). These psychosocial distresses can lead to a higher likelihood of depression and anxiety disorders and compromised quality of life for this population (Johannsen et al., 2022).

In recent years, there has been a gradual increase in the number of qualitative studies on the parenting of minor children by parents with cancer, which have already delved into the experiences of cancer patients in parenting their minor children. Especially in China, qualitative studies on parenting concerns have mainly focused on exploring the internal experiences of women with breast cancer, including communication challenges between breast cancer patients and their children (Huang et al., 2015), women's struggles in fulfilling their parental responsibilities and the needs of their children (Huang et al., 2020; Chin et al., 2021; Liu et al., 2022). Meanwhile, there has been some Meta-integration of qualitative studies on parenting minor children by cancer patients (Iyu et al., 2022; Kuswanto et al., 2018; Semple and McCance, 2010; Tavares et al., 2018), summarising the problems of mothers with cancer in parenting and the impact of cancer diagnosis and treatment on the role and identity of mothers. However, the issue of parenting for men with cancer should not be overlooked, as fathers often take on the role of breadwinner for the entire family. Their health is of great significance to all members of the family, and they play an indispensable role in determining the health of their children in particular (Bonhomme, 2007). When suffering from a major illness such as cancer, fathers may be reluctant to disclose their emotions to their families, influenced by traditional notions of masculinity (Ridge et al., 2011). The sudden change in health status can increase their burden and threaten their parenting role. This reveals that male cancer patients are equally afflicted by parenting concerns. It is necessary to compare and integrate the inner experiences of all patients with parenting needs to better guide the development of clinical practices. In addition, the impact of the disease on children's growth and development is a source of concern for parents with cancer. Changes in the behavior, emotional and physical functioning of parents with cancer and in family functioning can also affect the behavioral and emotional (Osborn, 2007), physical functioning, and academic performance of their children (Grabiak et al., 2007). The current systematic reviews of the parenting experiences of parents with cancer lack analyses centered around the psychological, physiological, and social changes of the minor children as perspective (Wang et al., 2023; Matuszczak-Świgń and Bakiera, 2021). Therefore, there is also a need to consider the impact of the patient's illness on all aspects of their children in a holistic manner. This will lead to a deeper understanding of parenting in cancer patients and provide a better basis for guiding the subsequent implementation of family-centered interventions.

Meta-analysis, as a research methodology that analyses, interprets, and integrates evidence from multiple qualitative studies (Barnett-Page and Thomas, 2009), can provide a more comprehensive and deeper understanding of the phenomenon (Siddaway et al., 2019). In view of the above considerations, this study employs a comprehensive research approach that systematically collates all qualitative research relevant to parenting concerns in cancer patients, including those of different genders and different disease types. In addition, this study analyses different perspectives such as physiological and psychological changes in minor children, patients' cognitive attitudes, needs, and coping strategies, which provide a new perspective for a deep understanding of the inner experience of cancer patients when facing parenting issues and evidences to support the development of patient- and family-centered interventions in the future.

2. Methods

2.1. Aims

This meta-synthesis aimed to explore the experiences of cancer patients in parenting their minor children and understand their inner feelings, concerns and challenges, and needs in parenting.

2.2. Study design

This meta-synthesis was conducted following the thematic synthesis proposed by Thomas and Harden (2008). This synthesis methodology was chosen to integrate the in-depth experiences and perspectives of parents with cancer about parenting minor children across genders and disease types, and to serve as a 'transparent' method that could most directly 'inform practice' (Thomas and Harden, 2008). The reporting of this meta-synthesis follows the Enhancing Transparency in Reporting Synthesis of Qualitative Research (ENTREQ) (Tong et al., 2012). Details of the protocol for this review have been registered on PROSPERO

(CRD42023429792).

2.3. Inclusion and exclusion criteria

The inclusion criteria were determined based on the PICO principles (Methley et al., 2014). The criteria included: (a) cancer patients with minor children; (b) exploration of the experiences, stresses, concerns, and feelings of cancer patients during parenting; (c) conducted at home or in the hospital; (d) all types of qualitative research; (e) publications in English and Chinese.

The exclusion criteria: (a) Publication type were conference, symposium, and poster abstract; (b) Published as secondary data analysis paper, theoretical paper, or commentary; (c) Duplicate publications, incomplete data, or inaccessible full-text literature.

2.4. Search strategy

A systematic search strategy was conducted in January 2024 to identify qualitative studies addressing the experience of parenting concerns among patients with cancer. The computer system performed a comprehensive search across seven databases: CNKI (China National Knowledge Infrastructure), Wanfang Data, Sinomed, PubMed, Web of Science, Embase, and Cochrane Library. The search encompassed the period from the establishment of the databases to January 10, 2024. The search strategy employed a combination of MeSH terms and entry terms to ensure a thorough search. Additionally, the references of the retrieved literature were examined to ensure the inclusiveness of the search. The complete search strategy for PubMed is detailed in [Box 1](#).

2.5. Quality appraisal

Two investigators (JLL, QY), trained in evidence-based nursing, independently assessed the methodological quality of the included studies using the Critical Appraisal Skill Program (CASP, 2013) developed by the Centre for Evidence-Based Medicine at the University of Oxford. The tool comprises 10 items that assess various aspects, including the research objectives, appropriateness of qualitative research methods, research subjects and data collection methods, consideration of ethical issues, and clarity and significance of research report findings. Each item is rated as 'yes', 'no', or 'unclear'. A grade of A indicates that the study meets the above standards and has the lowest possibility of bias. Partially meeting the above quality standards results in a grade of B, with a moderate possibility of bias and the study is graded C if it does not meet the above quality standards at all and has the highest possibility of bias. After independently and rigorously evaluating the literature, the screening and evaluation results of the two researchers (JLL, QY) were compared. In case of disagreement, the researchers engaged in comprehensive discussion and analysis until reaching a consensus. If consensus couldn't be reached, a third researcher (NL) was invited for arbitration. Finally, studies with quality grades A and B were included, and those with quality grade C were excluded.

2.6. Data extraction and synthesis

The researchers (JLL, QY) meticulously reviewed the complete text of the included research and extracted relevant data, comprising the publication year, first author, country, research object, phenomenon of interest, data collection method (semi-structured interview, focus group, etc.), research type (grounded theory, phenomenology, ethnography, etc.), and key research findings. The results were consolidated by Thomas and Harden's thematic analysis methodology of synthesizing qualitative studies (Thomas and Harden, 2008). In the first stage, the two researchers (JLL, QY) repeatedly read and analyzed the meaning of each finding, and all the results and findings were coded line by line according to their meaning and content. The second stage created descriptive themes by grouping the similarities and differences of these codes, and the initial coding was expanded in the analysis stage. Finally, the reviewers completed an inductive analysis of the topic and developed new concepts and explanations. A summary table was developed, incorporating codes, categories, and quotations, to facilitate the comparison and contrast of each finding based on the identified themes.

Box 1

Example of Search Strategy.

-
- | | |
|----|--|
| #1 | 'neoplasms'[mesh terms] OR 'tumor'[title/abstract] OR 'neoplasm'[title/abstract] OR 'tumors'[title/abstract] OR 'neoplasia'[title/abstract] OR 'neoplasias'[title/abstract] OR 'cancer'[title/abstract] OR 'cancers'[title/abstract] OR 'malignant neoplasm'[title/abstract] OR 'malignancy'[title/abstract] OR 'malignancies'[title/abstract] OR 'malignant neoplasms'[title/abstract] OR 'neoplasm, malignant'[title/abstract] OR 'neoplasms, malignant'[title/abstract] |
| #2 | 'child'[mesh terms] OR 'children'[title/abstract] OR 'minors'[mesh terms] OR 'minor'[title/abstract] OR 'adolescent'[mesh terms] OR 'adolescents'[title/abstract] OR 'adolescence'[title/abstract] OR 'teens'[title/abstract] OR 'teen'[title/abstract] OR 'teenagers'[title/abstract] OR 'teenager'[title/abstract] OR 'youth'[title/abstract] OR 'youths'[title/abstract] |
| #3 | 'parenting'[mesh terms] OR 'bring up'[title/abstract] OR 'parenting experience'[title/abstract] OR 'experiences limited'[title/abstract] OR 'parenting concern'[title/abstract] |
| #4 | 'qualitative research'[mesh terms] OR 'research, qualitative'[title/abstract] OR 'grounded theory'[title/abstract] OR 'phenomenology'[title/abstract] OR 'ethnography'[title/abstract] OR 'action research'[title/abstract] |
| #5 | #1 AND #2 AND #3 AND #4 |
-

2.7. Assessing certainty in the findings

The final synthesized findings were graded following the Confidence in the Output of Qualitative Research Synthesis (ConQual) approach for establishing confidence in the output of qualitative research synthesis (Munn et al., 2014). In the ConQual approach, each paper is then graded for “dependability”, and then “credibility”. Credibility assesses the quality of the included original studies and dependability evaluates the degree of “fit” between the authors’ interpretations and the supporting data. All qualitative studies were first rated as “high”, included studies, and final synthesized findings were then downgraded based on the aggregate level of credibility and dependability. The final ConQual score was then determined due to the levels of dependability and credibility.

3. Results

3.1. Literature search outcome

Following the search strategy, a total of 1151 publications were retrieved from the electronic database during the initial search. The literature management system identified and removed 236 duplicate publications. Subsequently, the full text was carefully reviewed and re-screened according to predetermined inclusion and exclusion criteria to exclude studies that were not relevant to the study population, study content, and study type and for which the original text was not available. 40 publications met the requirements and were selected for Meta integration. Fig. 1 provides the specific details of the study selection process.

3.2. Characteristics of the included literatures

This qualitative study conducted a meta-integration of 40 eligible studies, all published between 2005 and 2023. The study included 669 participants from eleven countries: China (N = 6), the United States (N = 12), the United Kingdom (N = 3), Australia (N = 4), Ireland (N = 1), Japan (N = 2), Korea (N = 1), Norway (N = 1), Canada (N = 4), Sweden (N = 3), Denmark (N = 1), Portugal (N = 1) and Germany (N = 1). There were 123 fathers and 546 mothers among the included study participants. The study employed a range of research designs, including phenomenology (N = 8), grounded theory (N = 7), exploratory qualitative research (N = 6), Qualitative content analysis (N = 7) and qualitative descriptive research (N = 12). The data collection methods comprised semi-structured interviews (N = 27), in-depth interviews (N = 7), focus group discussions (N = 5), and open-ended, audiotaped interviews (n = 1). A concise summary of the Characteristics of the included literatures is shown in Table 2.

3.3. Quality results of the studies

The methodological quality of the included qualitative studies was evaluated according to the ten items of the CASP tool (Table 3). All studies strictly followed the qualitative and data collection methods employed, and all findings were clearly stated. However, three studies did not indicate whether the study design was appropriate to the study objectives and nine studies did not clearly describe the relationship between researcher and participants. But these studies were well assessed in other areas. Therefore, all 40 studies were eventually included.

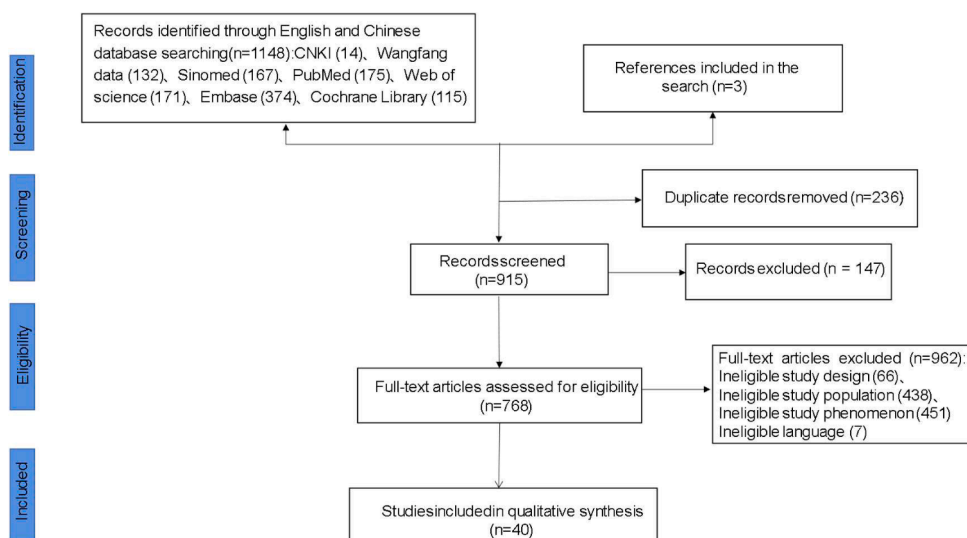


Fig. 1. Flow diagram of studies selection.

Table 2
Summary of included Studies.

First author/ year	Country	Methodology	Data collection	Participant (N, male/ female)	Phenomenon of interest	Qualitative findings
Check/2017	US	Qualitative descriptive study	Semi- structured interviews	N = 42(15/ 27)	How parental values and concerns motivate patients' preferences about aggressiveness of advanced cancer treatment.	Influence of parental concerns on preferences for advanced cancer treatment. Influence of parental role on preferences for hospice and palliative care services.
Chin/2021	China	Qualitative content analysis	Semi- structured interviews	N = 16(0/16)	Taiwanese mothers' experiences of and cultural practices embedded in parenting young children while in treatment for breast cancer.	Maternal limited disclosure, complementary with children's tacit knowledge. The scar is no longer a scar, but a symbol for intimate bonding. Issues of Maternal Absence for Young Children and School- aged Children. The power of "we are a family".
Davey/2012	US	Qualitative descriptive study	focus group interviews	N = 9(0/9)	African American parents' experiences parenting their school- age children while navigating breast cancer to develop culturally sensitive family intervention programs.	Increased desire to protect their children. Parental concerns for children's coping. Openness and transparency with children. Rely on children for Support. Calibrate one's own responses. Using the illness experience as a teachable moment for the children. Rely on others for parenting support.
Helseth/2005	Norway	Exploratory qualitative	In-depth interviews	N = 10(3/7)	parenting experiences in order to understand the main challenges involved in parenting of young children when a parent has cancer.	Striving for normality in an abnormal situation. Focusing on the children's well- being. Balancing between different needs. Openness and support.
Houldin/ 2006	US	Qualitative descriptive study	Semi- structured interview	N = 14(9/5)	The experiences of patients living with newly diagnosed stage III or IV colorectal cancer.	Parents struggled with how to tell their children about their cancer. They did not know how to talk about the cancer without worrying their children. Some parents tried to spend more time with their children.
Kim/2011	Korea	Exploratory qualitative	in-depth interview	N = 7(0/7)	The impact of breast cancer on Korean mothers and their children following diagnosis.	Focusing foremost on being sick—a delicate balance. The continuing challenge of taking care of children. Revealing to share strength. Building up. Relinquishing and re- envisioning the future.
Kissil/2014	US	Qualitative content analysis	focus group interviews	N = 9(0/9)	Psychological distress experience of young and middle-aged patients with advanced cancer.	community of support. Being the family emotional regulator. Highlighting positives. Spirituality.
Loggers/ 2019	US	Qualitative content analysis	focus group interviews	N = 9(0/9)	Hispanic mothers' willingness to communicate with dependent children about her actual or hypothetical advanced cancer diagnosis.	Parenting challenges. Concerns for their children. Hopes and expectations for their children. Advanced cancer as an opportunity for positive change. Communication with their children about advanced cancer.

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Table 2 (continued)

First author/ year	Country	Methodology	Data collection	Participant (N, male/ female)	Phenomenon of interest	Qualitative findings
Lundquist/ 2020	US	Phenomenology	Semi- structured interviews	N = 12(0/12)	"I'm still Mom" as described by young women living with advanced breast cancer.	Being Mom is hard. Time is short. It's not easy for my kids.
O'Neill/2018	Ireland	Phenomenology	in-depth interviews	N = 10(10/0)	The experiences of fathers diagnosed and living with cancer while also having parental responsibility for children.	Fathers' embodied experience of the illness and its disruption to their lives. Discovery of the significance of fatherhood and the creation of new meaning in their role. The complexity and diversity of fathers' roles, family structures and familial relationships.
Park/2017	US	Qualitative descriptive study	Semi- structured interviews	N = 42(15/ 27)	The experience of living with advanced cancer as a parent	Parental concerns about the impact of their illness and death on their children. "Missing out" – losses of parental roles and responsibilities. Maintaining parental responsibilities despite life- limiting illness. Parental identity influencing decision-making about cancer treatment.
Rashi/2015	Canada	Qualitative descriptive study	Semi- structured interviews	N = 12(7/5)	The cancer experience of parents and their perceptions of supportive strategies to assist them with illness- and family-related challenges.	Parental self-activated strategies. Tangible social networks. Suggestions to enhance person- and family-centered care.
Romare Strandh/ 2023	Sweden	Phenomenology	Semi- structured interviews	N = 22(4/18)	parenting concerns and challenges among parents with cancer.	Navigating dual roles as a parent With cancer. Impact of cancer on parenting. Impact on everyday family life.
Semple/2010	UK	Qualitative descriptive study	in-depth interviews	N = 12(10/2)	The experience and support needs of parents with head and neck cancer.	At diagnosis. During treatment. Living with the consequences of having cancer. Support networks for parents with head and neck cancer
Steiner/2020	Australia	Exploratory qualitative	in-depth interviews	N = 8(1/7)	Hospital-based parenting support delivery from patient and co-parent perspectives in context to their parenting experience and support needs.	Experience of parenthood: IESC journey. Safeguarding children's multidimensional well-being. Patient experience. navigating the IESC journey: existential, emotional, psychological, social, and physical challenges. Co-parent experience. Navigating the IESC journey: emotional, social, physical, and practical challenges. Engagement with professional supports: information, education, and linkage. Patient and family.
Stiffler/2008	US	Empirical phenomenologic	open-ended, audiotaped interviews	N = 8(0/8)	maternal parenting during the time when a mother is diagnosed with and treated for breast cancer.	A battle to be fought on many fronts. I tried to tell her. Mobilizing to protect self while preserving parenting. Voices of fear.
Tamura/ 2021	Japan	Grounded theory	Semi- structured interviews	N = 24(24/0)	The experiences of Japanese fathers with cancer.	Recognizing they are not the fathers they thought they were. Experiencing cancer's effect on children. Noticing fathers and children need each other.

(continued on next page)

Table 2 (continued)

First author/ year	Country	Methodology	Data collection	Participant (N, male/ female)	Phenomenon of interest	Qualitative findings
Zhu/2022	China	Phenomenology	Semi-structured interviews	N = 21(0/21)	The nuances of the interactive challenges with adolescent daughters from breast cancer-afflicted mothers' perspective.	Placing more value on time with children than on work.. Nurturing children like they would not be able to do in the future. Mothers are lost in chaos. Mothers struggle to maintain balance.
Huang/2020	China	Phenomenology	Semi-structured interviews	N = 16(0/16)	The real parenting experience of breast cancer patients raising minor children.	Mothers are immersed in guilt. Worried about children. Communication problems. Protect children. The power from children. Presence of fear.
Campbell-Enns/2013	Canada	Grounded theory	Semi-structured interviews	N = 8(0/8)	The process of decision-making in mothers with cancer when they are mothering young children.	Maternal responsibilities. Maternal figures and sisters. Inseparable decisions.
Elmberger/2005	Sweden	Grounded theory	Focus group interviews	N = 10(0/10)	How women with a diagnosis of cancer (lymphoma) deal with moral concerns related to their responsibility as parents.	Interrupted mothering. Facing a life-threatening illness and children's reactions. Striving to be a good mother. Dealing with moral responsibility. Coming to terms with mothering.
Sheehan/2010	US	Grounded theory	Semi-structured interviews	N = 9(3/6)	Interaction patterns between parents with advanced cancer and their adolescent children.	Not having enough time together. Making the most of the time we have left together.
Mary/2000	US	Qualitative descriptive study	Semi-structured interviews	N = 19(0/19)	Mothers' reported methods of interacting with the Mothers' school-age children about their breast cancer.	Talking about the breast cancer. Explaining treatment and care. Providing experiences. Doing things to help kids cope.
Fisher/2012	Australia	Qualitative descriptive study	in-depth interviews	N = 8(0/8)	The impact of breast cancer on the identities of young women as "mothers."	Diagnosis as disruption. Maintaining normality. Continuing the mothering role. Experiencing survivorship.
Strickland/2015	Canada	Grounded theory	Semi-structured interviews	N = 18(0/18)	How young mothers manage their maternal roles and responsibilities during their journey as patients with cancer.	Customizing exposure. Reducing disruption to family life. Finding new ways to be close.
Billhult/2003	Sweden	Phenomenology	Semi-structured interviews	N = 10(0/10)	The experience of breast cancer in mothers of dependent children and the strategies these women use to handle their situation of illness in relation to the children.	4.Increasing vigilance. Balancing between being needed and perhaps not existing. Balancing between own demands, a will to be strong and allowing herself to be sick. Balancing between telling the truth and protecting the children. Gaining strength and support. Turn into positive.
Pritlove/2022	Canada	Qualitative descriptive study	Semi-structured interviews	N = 20(0/20)	The experiences of moms living with cancer, their need for psychosocial and childcare support.	Continuing everyday life. Adding illness-management work to already busy lives. The emergence of a work hierarchy and the impact on health and well-being. "A pillar" of support: NAN's impact on mothers' experiences of care work, health, and well-being.
Tavares/2022	Portugal	Exploratory qualitative	Focus group interviews	N = 18(0/18)	Needs and preferences of mothers with breast cancer.	Contents of the intervention. Potential benefits of group intervention.

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Table 2 (continued)

First author/ year	Country	Methodology	Data collection	Participant (N, male/ female)	Phenomenon of interest	Qualitative findings
Johannsen/ 2023	Germany	Qualitative content analysis	Semi- structured interviews	N = 18(6/12)	Patients' perspectives on their experiences regarding family- centeredness in cancer care.	Structure of the intervention. The other types of support. Characteristics of an (in) adequate family-centered cancer care. Profession-related differences. Barriers and facilitators to the integration of parenthood. 4. Wishes for future (family- centered) cancer care.
Asbury/2014	UK	Qualitative content analysis	Semi- structured interviews	N = 10(0/10)	Investigate the experiences of mothers in telling their children of their diagnosis.	Protecting children. Use of knowledge and experience of relationship with children. Information management.
Dencker/ 2019	Denmark	Exploratory qualitative	Semi- structured interviews	N = 15(5/10)	How patients balance the demands of parenthood with those of being a seriously ill patient.	Patient identity. Parent identity.
Huang/2017	China	Qualitative descriptive study	Semi- structured Interviews	N = 40(0/40)	How Chinese mothers with breast cancer communicate about their illness with their children.	Breaking the news. Explaining to children. Disclosing versus concealing. Information needs.
Park/2021	US	Qualitative descriptive study	Semi- structured interviews	N = 40(0/40)	The psychosocial and parenting concerns of English speaking women with metastatic cancer.	Communication challenges. Uncertainty about health and illness trajectory. Emotional burden. Individual approaches to addressing prognosis.
Sinclair/ 2019	Australia	Exploratory qualitative	Semi- structured Interviews	N = 13(10/ 13)	The communication and resource needs of families in which a parent was diagnosed with cancer treated with curative intent while parenting a young child.	Open and honest. Protecting children. Delivery of communication information.
Turner/2007	Australia	Qualitative content analysis	in-depth interviews	N = 8(0/8)	The specific needs of parents with advanced cancer in relation to their children, their access to resources, and the relevance of the existing research evidence.	Honesty. Staging information. Routine. Involvement of children in treatment. Getting support for yourself. Telling the school.
Zhang/2022	China	Qualitative descriptive study	Semi- structured interviews	N = 20(0/20)	why breast cancer patients do not share disease-related information with their dependent children.	Uncertainty about the future. Useless and risky for children to know the truth. All for their children's sake.
Lalayianis/ 2018	UK	Phenomenology	Semi- structured interviews	N = 7(0/7)	How women with secondary breast cancer experience telling their adolescent children	Easier to tell. Impact on family system.
Shands/2021	US	Grounded theory	Semi- structured interviews	N = 27(5/22)	The worries and concerns the parent wonders their child is "holding," but has not spoken, about the parent's cancer.	Being concerned and scared about my cancer. Worrying about me. Changing how we talk and live day-to-day. Not Knowing what will happen. Having unanswered questions about my cancer. Understanding my disease is terminal.
Wang/2020	China	Grounded theory	Semi- structured interviews	N = 18(6/12)	Chinese cancer parents' perspectives toward informing children of their diseases.	Inappropriate to disclose the true diagnosis to children. Appropriate to disclose the true diagnosis to children. Communication content between cancer patients and their children in regard to cancer. Attitude on ways of disclosing cancer diagnosis to children.

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Table 2 (continued)

First author/ year	Country	Methodology	Data collection	Participant (N, male/ female)	Phenomenon of interest	Qualitative findings
Yoshida/ 2010	Japan	Qualitative content analysis	Semi- structured interviews	N = 30(0/30)	Decision-making by breast cancer patients about telling their children about their illness.	Reflections on parenting style. Unmet needs of information and support. Positive effects for patient. Positive effects for child. Positive effects for patient and child. Negative effects for patient. Negative effects for child. Negative effects for patient and child.

Table 3

Methodological quality of each included studies.

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Scoring
Check et al., 2017	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Chin et al., 2021	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Davey et al., 2012	Y	Y	U	Y	Y	Y	Y	Y	Y	Y	9
Helseth and Ulfsaet, 2005	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Houldin and Lewis, 2006	Y	Y	U	Y	Y	Y	Y	Y	Y	Y	9
Kim et al., 2012	Y	Y	U	Y	Y	Y	Y	Y	Y	Y	9
Kissil et al., 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Loggers et al., 2019	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Lundquist et al., 2020	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
O'Neill et al., 2018	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Park et al., 2017	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Rashi et al., 2015	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Romare Strandh et al., 2023	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Semple and McCance, 2010	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Steiner et al., 2020	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Stiffler et al., 2008	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Tamura et al., 2021	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Zhu et al., 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Huang et al., 2020	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Campbell-Enns and Woodgate, 2013	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Elmberger et al., 2005	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Sheehan and Draucker, 2011	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Shands et al., 2000	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Fisher and O'Connor, 2012	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Strickland et al., 2015	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Billhult and Segesten, 2003	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Pritlove and Dias, 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Tavares et al., 2022	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Johannsen et al., 2023	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Asbury et al., 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Dencker et al., 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Huang et al., 2017	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Park et al., 2021	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Sinclair et al., 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Turner et al., 2007	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Zhang et al., 2023	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Lalayiannis et al., 2018	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Shands and Lewis, 2021	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10
Wang et al., 2020	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	9
Yoshida et al., 2010	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10

Appraisal checklist: ①Was there a clear statement clear of aims? ②Is qualitative method appropriate? ③Was the research design appropriate? ④Was the recruitment strategy appropriate? ⑤Was data collected to address the issue? ⑥Has the relationship between researcher and participants been considered? ⑦Have ethical issues been considered? ⑧Was data analysis rigorous? ⑨Is there a clear statement of findings? ⑩How valuable is the research?.

Appraisal result: Y, Yes; N, No; U, Unclear.

Table 4
Research results, categories and meta-themes of included studies.

Meta-themes	Category	Results
The impact of parents' disease on their children	Worrying about the physical and mental health of children	Cancer may be passed on to children (Davey et al., 2012; Zhu et al., 2022; Huang et al., 2020); Separation anxiety in young children, lack of self-confidence and escapism in adolescents (Chin et al., 2021; Lundquist et al., 2020; Steiner et al., 2020; Elmberger et al., 2005; Chin et al., 2021; Davey et al., 2012; Stiffler et al., 2008; Shands and Lewis, 2021); Physical changes in parents with cancer lead to fear, low self-esteem and self-doubt in children (Check et al., 2017; Tamura et al., 2021; Zhu et al., 2022; Asbury et al., 2014; Chin et al., 2021).
	Worrying about the life and future of their children	A parent's cancer diagnosis can rob a child of a happy childhood (Kissil et al., 2014; Lundquist et al., 2020; Zhang et al., 2023; Campbell-Enns and Woodgate, 2013); Parents rush to teach their children life skills (Loggers et al., 2019; Lundquist et al., 2020; Park et al., 2017); Children's excessive worry about their parents' illnesses leads to poor academic performance or even dropping out of school (Zhu et al., 2022; Huang et al., 2020; Zhang et al., 2023; Wang et al., 2020; Lundquist et al., 2020); Decreased participation of children in recreational and social activities (Kim et al., 2012; Park et al., 2017; Huang et al., 2020); Children may associate with the wrong crowd (Lundquist et al., 2020; Huang et al., 2020); Children miss the opportunity to find a suitable partner because of their parents' illnesses (Zhu et al., 2022; Huang et al., 2020); Parents may miss important days for future children (Park et al., 2017; Romare Strandh et al., 2023; Semple and McCance, 2010; Sheehan and Draucker, 2011).
The challenges of parenting	The difficulty of communicating with children	Physical and psychological changes in parents hindered the ability to communicate with their children (Zhang et al., 2023; Campbell-Enns and Woodgate, 2013); Parents lack communication skills and experience with their children (Houldin and Lewis, 2006; Park et al., 2021; Sinclair et al., 2019; Fisher and O'Connor, 2012); The diagnosis triggered a strong emotional response in the children (O'Neill et al., 2018; Semple and McCance, 2010; Asbury et al., 2014); Honest and open communication with children (Davey et al., 2012; Kim et al., 2012; Loggers et al., 2019; Semple and McCance, 2010; Stiffler et al., 2008; Turner et al., 2007; Park et al., 2021; Dencker et al., 2019; Shands et al., 2000; Strickland et al., 2015; Pritlove and Dias, 2022; Tavares et al., 2022; Lalayiannis et al., 2018; Wang et al., 2020).
	A difficult choice between parents and patients	Fathers chose not to disclose their pain to their children to maintain a fatherly image (Tamura et al., 2021; O'Neill et al., 2018); Parents maintained interaction with their children as usual (Check et al., 2017; Davey et al., 2012; Lundquist et al., 2020; Romare Strandh et al., 2023; Zhu et al., 2022; Huang et al., 2020; Asbury et al., 2014; Turner et al., 2007; Elmberger et al., 2005; Strickland et al., 2015; Billhult and Segesten, 2003); Parents chose life-prolonging palliative care over comfort-seeking (Park et al., 2017); Parents' inability to devote quality time to childcare due to physical and mental changes (Helseth and Ulfsaet, 2005; Loggers et al., 2019; O'Neill et al., 2018; Semple and McCance, 2010; Dencker et al., 2019; Campbell-Enns and Woodgate, 2013; Sheehan and Draucker, 2011; Fisher and O'Connor, 2012).
	The ability of spouses to care for their children	The patient's partner felt isolated and overwhelmed in caring for the children (Kim et al., 2012; Lundquist et al., 2020; Park et al., 2017; Semple and McCance, 2010; Stiffler et al., 2008); Spouse's future choice of partner capable of caring for children (Huang et al., 2020; Billhult and Segesten, 2003).
Coping strategies	View their disease experience as a teachable moment for their children	Parents used their own illness to educate their children about the disease and made their children aware of the significance of healthy eating and exercise habits (Davey et al., 2012; O'Neill et al., 2018; Tamura et al., 2021; Huang et al., 2017; Shands et al., 2000); Parents taught their children to have the courage and perseverance to overcome hardships (Chin et al., 2021; Kissil et al., 2014; Park et al., 2017); Children are able to achieve independence, responsibility and mutual love for their parents (Kim et al., 2012; Lundquist et al., 2020; Stiffler et al., 2008; Zhu et al., 2022; Wang et al., 2020; Yoshida et al., 2010).
	Maintain strong relationships with their children	Parents opened up with their children (Asbury et al., 2014; Park et al., 2017; Turner et al., 2007; Kim et al., 2012; Shands and Lewis, 2021; Shands et al., 2000; Fisher and O'Connor, 2012; Strickland et al., 2015; Yoshida et al., 2010); Parents increased the amount of time they spend with their children (Houldin and Lewis, 2006; Rashi et al., 2015; Romare Strandh et al., 2023; Loggers et al., 2019); Cherished the time they spend with their children (Semple and McCance, 2010; Tamura et al., 2021; Sheehan and Draucker, 2011)
	Involve their children in their disease treatment	Children helped their parents with household chores in order to grow in maturity and responsibility (Davey et al., 2012);

(continued on next page)

Table 4 (continued)

Meta-themes	Category	Results
Multifaceted parenting needs	External support network	Children provided comfort to their parents through words, actions and emotions (Helseth and Ulfsaet, 2005; Kim et al., 2012; Semple and McCance, 2010; Tamura et al., 2021; Huang et al., 2020; Campbell-Enns and Woodgate, 2013; Billhult and Segesten, 2003); Children monitored parents' adherence to treatment and maintenance of healthy behaviours (Chin et al., 2021; O'Neill et al., 2018). Patients have received parenting support by establishing contact with other family members, such as parents and siblings (Davey et al., 2012; Helseth and Ulfsaet, 2005; Stiffler et al., 2008; Yoshida et al., 2010); Parents with cancer gain experience and parenting support from patients and health workers with the disease (Campbell-Enns and Woodgate, 2013; Elmberger et al., 2005; Billhult and Segesten, 2003); Parents informed their children's teachers of their condition so that they can monitor their children's emotional well-being and academic progress (Huang et al., 2020; Semple and McCance, 2010); Seeking help from the church (Kissil et al., 2014; Semple and McCance, 2010).
	Professional information support	Parents wanted professional organizations to provide them with science-based strategies (Kissil et al., 2014; Park et al., 2017; Semple and McCance, 2010; Huang et al., 2020; Helseth and Ulfsaet, 2005; Kissil et al., 2014); Parents relied on the expertise of professionals for information support (Dencker et al., 2019; Turner et al., 2007; Huang et al., 2020; Helseth and Ulfsaet, 2005; Kissil et al., 2014); Parents hoped hospitals or counselling services to provide useful resources in the form of books or websites (Huang et al., 2017; Tavares et al., 2022; Romare Strandh et al., 2023; Johannsen et al., 2023).

3.4. Qualitative synthesis

The included studies encompassed diverse experiences related to parental concerns among patients with cancer. The 160 qualitative findings from the forty studies were summarized into results and ten categories, which were then integrated into four meta-themes (Table 4): (a) the impact of parental illness on children; (b) parenting challenges; (c) coping strategies; and (d) multifaceted parenting needs.

Theme 1: The impact of parents' disease on their children

The diagnosis of cancer often disrupted the normal functioning of patients' families, as patients had to cope with both the physical and mental distress caused by the disease and treatments, while also assuming the responsibility of raising children and being concerned about their children's physical and mental well-being. This topic focused on the concerns of parents with cancer regarding the effects of their illness on their children, encompassing aspects such as the children's physical and mental health, as well as their lives and futures.

Category 1: Worrying about the physical and mental health of children

Certain cancers exhibit a distinct genetic predisposition, which instilled concern among individuals diagnosed with cancer regarding the elevated likelihood of their offspring developing the disease (Davey et al., 2012; Zhu et al., 2022; Huang et al., 2020). In particular, mothers with breast cancer were concerned that their daughters are more likely to develop breast cancer than others. Additionally, Patients were often concerned about the potential psychological impact their illness may have on their children, including the effects on their emotions and personalities (Check et al., 2017; Chin et al., 2021; Davey et al., 2012; Lundquist et al., 2020; Steiner et al., 2020; Stiffler et al., 2008; Tamura et al., 2021; Asbury et al., 2014; Zhang et al., 2023; Elmberger et al., 2005; Tavares et al., 2022; Lalayiannis et al., 2018; Shands and Lewis, 2021a; Wang et al., 2020; Yoshida et al., 2010). Some patients expressed fear that their children might not accept their parents' cancer diagnosis. This distressing news may trigger profound thoughts, bring about great psychological stress, and generate negative emotions such as anxiety and depression (Zhu et al., 2022; Zhang et al., 2023; Lalayiannis et al., 2018; Wang et al., 2020; Yoshida et al., 2010). Younger children mainly show separation anxiety, with extreme attachment to parents and nightly distress (Chin et al., 2021; ; Steiner et al., 2020; Elmberger et al., 2005), while adolescents mainly show a lack of self-confidence and even show avoidance and disinterest in their parents' situation (Chin et al., 2021; Davey et al., 2012; Stiffler et al., 2008; Shands and Lewis, 2021). In addition, the physiological alterations arising from the parents' illness, encompassing factors like hair loss, scars and vomiting triggered by surgery, chemotherapy, and radiotherapy (Check et al., 2017; Tamura et al., 2021; Zhu et al., 2022; Asbury et al., 2014), can cause children to develop fears and even low self-esteem. Parents concerned about what others think of them because of these side effects, which prompts them to curtail outdoor activities with their children. Consequently, this may engender psychological challenges for children such as diminished self-esteem and heightened self-doubt (Zhu et al., 2022; Chin et al., 2021).

Category 2: Worrying about the life and future of their children

Parents firmly believed that minor children had the right to experience an unburdened childhood and thrive in a conducive growth environment. Some participants observed that a cancer diagnosis could impose excessive stress on children, surpassing their coping abilities and depriving them of a joyful childhood (Kissil et al., 2014; Lundquist et al., 2020; Zhang et al., 2023; Campbell-Enns and Woodgate, 2013). However, to equip their children for self-care, parents with cancer had to teach their children critical life skills in a

very short period (Loggers et al., 2019; Lundquist et al., 2020; Park et al., 2017). The majority of dependent children of cancer patients fell within the age range of 8 to 18 and were enrolled in elementary, middle, or high school. Parents were concerned that their children would worry excessively about the disease, which may affect their attention to learning and reduce their motivation, leading to poor academic performance or even dropping out of school (Zhu et al., 2022; Huang et al., 2020; Zhang et al., 2023; Wang et al., 2020). Parents often assumed the responsibility of assisting their children with homework within the family. However, due to illness and medical treatment that leaves them physically and mentally exhausted, they are unable to supervise and guide their children's studies as they used to do, thus affecting their children's education (Lundquist et al., 2020). Furthermore, social interaction plays a crucial role in a child's development. Parents with cancer highlighted that the presence of illness at home prevented them from accompanying their children to regular social activities, leading to a notable reduction in their children's participation in recreational and social endeavors, ultimately hindering their developmental progress (Kim et al., 2012; Park et al., 2017; Huang et al., 2020).

Adolescents are known to have dramatic and unpredictable mood swings. In particular, mothers suffering from cancer were concerned that their daughters may associate with the "wrong crowd" after losing their mothers, which may adversely affect the child's character and prospects (Lundquist et al., 2020; Huang et al., 2020). Additionally, in addition, parents often blame themselves because their illness may lead to discrimination against their children by outsiders or even affect their chances of finding a suitable partner (Zhu et al., 2022; Huang et al., 2020). Naturally, parents harbored greater anxiety about their children lacking guidance when confronted with setbacks and difficult decisions in life. Many Participants expressed uncertainty about handling specific life events without a mother or father and even harbored fears of missing out on significant milestones in their children's futures, such as weddings, important birthdays, and educational accomplishments (Park et al., 2017; Romare Strandh et al., 2023; Semple and McCance, 2010; Sheehan and Draucker, 2011).

Theme 2: The challenges of parenting

Cancer patients encountered a multitude of challenges in the realm of parenting. These challenges encompassed difficulties in communicating with children, the difficult choice between parents and patients, as well as the capability of spouses to provide adequate care for their children.

Category 3: The difficulty of communicating with children

Parents grappled with the decision of whether to disclose their cancer diagnosis to their children. Based on the findings, a majority of parents deemed it inappropriate to divulge the full extent of their condition to their children (Houldin and Lewis, 2006; Kissil et al., 2014; O'Neill et al., 2018; Semple and McCance, 2010; Tamura et al., 2021; Asbury et al., 2014; Huang et al., 2017; Sinclair et al., 2019; Zhang et al., 2023; Campbell-Enns and Woodgate, 2013; Fisher and O'Connor, 2012). Patients faced multiple challenges when dealing with cancer, including physical symptoms, treatment side effects, and emotional turmoil characterized by fear and anxiety. These difficulties often hindered their ability to communicate effectively with their children (Zhang et al., 2023; Campbell-Enns and Woodgate, 2013). Parents are also concerned that their children are too young to understand the seriousness of the condition due to limited real-life experience and lack of medical knowledge, much less provide any practical help or financial support (Houldin and Lewis, 2006; Huang et al., 2017; Sinclair et al., 2019; Fisher and O'Connor, 2012). Revealing a cancer diagnosis may trigger a strong emotional response in the child, with potential implications for the child's wellbeing and significant moments (O'Neill et al., 2018; Semple and McCance, 2010; Asbury et al., 2014). Some patients held a different view and wanted communication with their children to be honest and open to strengthen trust between parent and child and to help the child cope better with life in the future (Davey et al., 2012; Kim et al., 2012; Loggers et al., 2019; Semple and McCance, 2010; Stiffler et al., 2008; Turner et al., 2007; Park et al., 2021; Dencker et al., 2019; Shands et al., 2000; Strickland et al., 2015; Pritlove and Dias, 2022; Tavares et al., 2022; Lalayiannis et al., 2018; Wang et al., 2020). However, adapting messages to children of different ages and finding the right time to discuss them can be a challenge (Helseth and Ulfsaet, 2005; Asbury et al., 2014; Pritlove and Dias, 2022; Lalayiannis et al., 2018). Many parents similarly lack guidance on how to communicate with their children. They are eager to seek professional help to improve communication skills so that children and parents can communicate effectively with each other and respond to problems scientifically (Zhu et al., 2022; Huang et al., 2017; Sinclair et al., 2019; Zhang et al., 2023; Tavares et al., 2022; Wang et al., 2020).

Category 4: A difficult choice between parents and patients

For cancer patients raising minor children, it was difficult to balance the dual roles of parent and patient (Check et al., 2017; Davey et al., 2012; Helseth and Ulfsaet, 2005; Kim et al., 2012; Lundquist et al., 2020; O'Neill et al., 2018; Park et al., 2017; Romare Strandh et al., 2023; Semple and McCance, 2010; Steiner et al., 2020; Tamura et al., 2021; Zhu et al., 2022; Huang et al., 2020; Asbury et al., 2014; Dencker et al., 2019; Turner et al., 2007; Elmberger et al., 2005; Strickland et al., 2015; Billhult and Segesten, 2003; Campbell-Enns and Woodgate, 2013; Sheehan and Draucker, 2011; Fisher and O'Connor, 2012). Some fathers with cancer chose not to reveal their pain to their children and only invited them to the hospital when they felt well, to uphold their image as a father. Consequently, they found it challenging to share their concerns and perceived vulnerabilities with others, and they silently endured their hardships (Tamura et al., 2021; O'Neill et al., 2018). Despite the suffering caused by their illness, some parents persevered in fulfilling their parental duties. To reduce the burden on others and minimize the impact on their children's lives and education, they continue to take their children to and from school, do household chores, and participate in their children's parent-child activities as they did before. (Check et al., 2017; Davey et al., 2012; Kim et al., 2012; Lundquist et al., 2020; Romare Strandh et al., 2023; Zhu et al., 2022; Huang et al., 2020; Asbury et al., 2014; Turner et al., 2007; Elmberger et al., 2005; Strickland et al., 2015; Billhult and Segesten, 2003). Treatment preferences were also influenced by the parental role, with most parents prioritizing their child's best interests when making decisions. Some parents even opted for life-prolonging palliative care instead of seeking comfort (Park et al., 2017). Some parents, on the contrary, find it difficult to fulfill their parental role. Those diagnosed with cancer suffered physical and emotional pain, accompanied by treatment side effects such as weight loss, hair loss, nausea, and vomiting, and therefore required long periods of rest and recuperation. According to some participants, their illness prevented them from devoting quality time to their children's lives,

leading to feelings of not fulfilling their family obligations, which resulted in feelings of sadness and anxiety (Helseth and Ulfsaet, 2005; Loggers et al., 2019; O'Neill et al., 2018; Semple and McCance, 2010; Dencker et al., 2019; Campbell-Enns and Woodgate, 2013; Sheehan and Draucker, 2011; Fisher and O'Connor, 2012)

Category 5: The ability of spouses to care for their children

When a parent was suffering from an illness, particularly when the side effects of treatment became more evident, the spouse assumes primary responsibility for caring for the child. In most families, mothers are closer to their children than fathers, have a better understanding of their children's lives, and are therefore more attentive in caring for them. When mothers had cancer, they often experienced heightened anxiety, worrying that their partners might feel isolated and overwhelmed by the loss of their significant other (Kim et al., 2012; Lundquist et al., 2020; Park et al., 2017; Semple and McCance, 2010; Stiffler et al., 2008). Patients believed that their children needed their comfort more than their spouses, who could manage independently or seek new companionship following their demise. Children were vulnerable to losing their parents' affection. Patients hoped that if they were to face mortality someday, their spouses could remarry, but they desired the assurance that their children would receive adequate care from their selected partner (Huang et al., 2020; Billhult and Segesten, 2003).

Theme 3: Coping strategies

Amidst numerous concerns and challenges inherent in parenting, patients developed strategies to navigate the dual roles of being a patient and a parent. These strategies encompassed perceiving their disease experience as an opportunity for teaching their children, cultivating enduring relationships with their offspring, and engaging their children in their treatment process.

Category 6: View their disease experience as a teachable moment for their children

Patients perceived their battle with cancer as an opportunity to impart valuable life lessons to their children (Chin et al., 2021; Davey et al., 2012; Kim et al., 2012; Kissil et al., 2014; Loggers et al., 2019; ; O'Neill et al., 2018; Stiffler et al., 2008; Tamura et al., 2021; Zhu et al., 2022; Huang et al., 2017; Park et al., 2017; Shands et al., 2000; Wang et al., 2020; Yoshida et al., 2010). Recognizing that children often lacked life experience and health awareness, parents with cancer believed that they could use their own disease experience to educate their children. Through this approach, children could acquire knowledge about cancer, including its symptoms, treatments, and side effects. Furthermore, they could develop essential skills in basic healthcare, such as regular medical check-ups, and understand the significance of cultivating healthy diet and exercise habits (Davey et al., 2012; O'Neill et al., 2018; Tamura et al., 2021; Huang et al., 2017; Shands et al., 2000). Many parents aimed to instill in their children a sense of gratitude for what they had and to avoid taking life for granted. Their ultimate goal was to empower their children with the resilience and fortitude needed to face potential illnesses in the future, mirroring their own strength and courage (Chin et al., 2021; Kissil et al., 2014; Park et al., 2017). Parents strongly believed that true personal growth for their children lay in becoming independent and responsible individuals. Therefore, after disclosing their true condition to their children, they hoped that the significance of independence, responsibility, and reciprocal love for their parents would be realized (Kim et al., 2012; Lundquist et al., 2020; Stiffler et al., 2008; Zhu et al., 2022; Wang et al., 2020; Yoshida et al., 2010).

Category 7: Maintain strong relationships with their children

When parents were diagnosed with cancer and shared the news with their children, they were concerned about the potential impact on their children's physical and mental health, as well as the parent-child relationship. Therefore, it was essential to manage this relationship in a positive and constructive manner. 'Open up to your children and let them know what you were going through as a person', as some parents emphasized (Asbury et al., 2012; Park et al., 2017; Turner et al., 2007). They acknowledged the significance of explaining facts to their children, actively communicating with them, and understanding their inner feelings. By doing so, parents could overcome their own worries with a positive attitude while interacting with their children confidently. This approach brought about new developments in the parent-child relationship (Kim et al., 2012; Shands and Lewis, 2021; Shands et al., 2000; Fisher and O'Connor, 2012; Strickland et al., 2015; Yoshida et al., 2010). Children might experience feelings of loneliness and abandonment following a parent's illness, which might threaten the parent-child relationship. To address this issue, parents found ways to increase the time spent with their children and fostered confidence and trust in their parental care (Houldin and Lewis, 2006; Rashi et al., 2015; Romare Strandh et al., 2023; Loggers et al., 2019). In the past, parents were often preoccupied with pursuing fame and fortune, prioritizing work over their personal lives. However, having experienced cancer, they came to recognize the significance of family and cherish the time they shared with their children. They engaged in more interactions with their children, resulting in a stronger family atmosphere (Semple and McCance, 2010; Tamura et al., 2021; Sheehan and Draucker, 2011).

Category 8: Involve their children in their disease treatment

Parents who were ill should have involved their children in their entire treatment phase rather than being preoccupied with all aspects of their children's problems. Illness may have debilitated parents, preventing them from fully attending to family matters. This situation created opportunities for children to express care and love for their parents. This process enabled children to gradually develop a sense of responsibility towards their family and handle life's trivialities, fostering optimal growth and enhancing their maturity (Davey et al., 2012). Furthermore, children could serve as potent motivators for numerous patients, encouraging them to adhere to treatment and overcome obstacles. Children offered comfort to their parents through words, actions, and emotions. For instance, a child's words of encouragement like, 'Mom, you'll be alright', could provide tremendous comfort and solace to parents (Helseth and Ulfsaet, 2005; Kim et al., 2012; Semple and McCance, 2010; Tamura et al., 2021; Huang et al., 2020; Campbell-Enns and Woodgate, 2013; Billhult and Segesten, 2003). When parents exhibited a negative attitude towards treatment, children could play a vital role in supervising their parents, encouraging adherence to treatment, and promoting healthier behaviors, such as quitting smoking, maintaining a balanced diet, and engaging in physical exercise (Chin et al., 2021; O'Neill et al., 2018).

Theme 4: Multifaceted parenting needs

During the illness, parents found themselves lacking the necessary experience to cope with the effects of the disease, the pain of

treatment, and the challenges of managing their relationship with their children and raising them. As a result, they had multiple needs. This topic can be broadly categorized into two key areas: external support networks and professional information support.

Category 9: External support network

Cancer patients recognized their inability to maintain optimal family functioning and provide the same level of care to their children as they did before. They had to rely on other family members, friends, and social support resources for assistance (Davey et al., 2012; Helseth and Ulfsaet, 2005; Kim et al., 2012; Kissil et al., 2014; Semple and McCance, 2010; Stiffler et al., 2008; Huang et al., 2020; Campbell-Enns and Woodgate, 2013; Elmerberger et al., 2005; Billhult and Segesten, 2003; Tavares et al., 2022; Yoshida et al., 2010). Apart from their significant other, the majority of participants also developed close relationships with individuals who could provide additional emotional support. For example, connections could be made with other family members, such as parents, siblings and sisters, to get help with parenting without interfering with a spouse or partner (Davey et al., 2012; Helseth and Ulfsaet, 2005; Stiffler et al., 2008; Yoshida et al., 2010). Some participants would also seek support from other patients with the condition and health workers for constructive experiences and ways of parenting (Campbell-Enns and Woodgate, 2013; Elmerberger et al., 2005; Billhult and Segesten, 2003). Parents with cancer felt the need to inform their children's teachers about their condition, not only to help them comprehend their family situation but also to enable them to closely monitor their children's emotional well-being and academic progress (Huang et al., 2020; Semple and McCance, 2010). Due to their illness and the subsequent emotional upheaval, cancer-stricken parents often perceived themselves as burdensome to their loved ones, and they harbored concerns about the impact of their condition on their children. Consequently, some parents sought support from the church, which offered guidance to help them find meaning in their lives while also aiding them in caring for their families (Kissil et al., 2014; Semple and McCance, 2010).

Category 10: Professional information support

The majority of parents with cancer expressed a strong desire to receive personalized information support and parenting guidance from relevant professional organizations (Kissil et al., 2014; Park et al., 2017; Semple and McCance, 2010). Due to a lack of effective communication skills and limited access to pertinent information, parents facing cancer often struggled to communicate their condition to their children. Consequently, some patients expressed hope that professional organizations could provide them with scientifically proven strategies to effectively communicate with their children, fostering a more harmonious relationship and aiding their children in better understanding their parents' illness (Huang et al., 2020; Helseth and Ulfsaet, 2005; Kissil et al., 2014). Many patients primarily relied on the expertise of professionals for information support. Some parents were satisfied with the information provided by professionals about the treatment of the disease and related side effects (Dencker et al., 2019; Turner et al., 2007). However, the demand for information surpassed the available resources, and they sought greater guidance from professionals on fulfilling their parental role in the context of cancer (Zhu et al., 2022; Semple and McCance, 2010). Unfortunately, such information was often difficult to obtain. Additionally, parents hoped that hospitals or psychological counseling agencies could offer useful resources in the form of books or websites to facilitate communication with their children and help them comprehend disease-related information (Huang et al., 2017; Tavares et al., 2022; ; Johannsen et al., 2023).

3.5. ConQual summary of findings

Regarding the evaluation of reliability, nine studies did not clearly articulate the cultural and theoretical standpoint of the researchers, nor did they discuss the reciprocal impact between the research and the researchers. Consequently, the overall reliability rating of twenty-six studies was downgraded by one level. With respect to credibility, the results of integrations 1, 2, and 4 were derived from multiple original studies, thus maintaining their credibility. However, integration result 3 lacked an apparent connection with the original study, thereby decreasing its credibility rating by one level. The ConQual system was employed to assess the overall quality of the 'evidence body'. Integrations 1, 2, and 4 received a rating of 'moderate', whereas integration result 3 received a rating of 'low'. The ConQual grades are presented in Table 5.

Table 5
ConQual summary of findings.

Synthesised Finding	Type of research	Dependability	Credibility	ConQual score	Comments
The impact of parents' disease on their children	Qualitative	Downgraded one level*	No change**	Moderate	*Dependability: Downgraded one level as 9/26 scored three for the dependability questions**Credibility: Remained unchanged due to all unequivocal findings.
The challenges of parenting	Qualitative	Downgraded one level*	No change**	Moderate	*Dependability: Downgraded one level as 9/26 scored three for the dependability questions**Credibility: Remained unchanged due to all unequivocal findings.
Coping strategies	Qualitative	Downgraded one level*	Downgraded one level**	Low	*Dependability: Downgraded one level as 9/26 scored three for the dependability questions**Credibility: Downgraded one level due to a mix of unequivocal and credible findings
Multifaceted parenting needs	Qualitative	Downgraded one level*	No change**	Moderate	*Dependability: Downgraded one level as 9/26 scored three for the dependability questions**Credibility: Remained unchanged due to all unequivocal findings.

4. Discussion

The aim of this meta-synthesis was to systematically review and reinterpret newer researches on the parenting experiences of parents with cancer. The aim of this integrative synthesis was to systematically review and reinterpret research on the parenting experiences of parents with cancer. Our main finding was that parents with cancer often have multiple and complex feelings, need to cope with multifaceted challenges and stresses, and desire for support and help in treating and parenting their minor children. The finding of this study have important implications for healthcare professionals in implementing psychosocial interventions for parents with cancer.

For parents with cancer, they were more likely to experience negative psychological emotions compared to ordinary cancer patients. From the moment of cancer diagnosis, their primary concern revolved around the potential for disease remission. As the illness progressed, they endured severe pain and fatigue symptoms, along with treatment side effects, which further exacerbated physical, mental, and spiritual distress. Moreover, in addition to their personal battles, these patients had to fulfill their parental responsibilities. The integrated findings of this study revealed that cancer patients could experience varying levels of negative emotions throughout the process of raising children. These emotions included anxiety about how their own illness might impact their children's physical and mental development, education, and overall life. They also harbored fear regarding the inheritance of cancer genes by their children, along with feelings of guilt for not being able to dedicate enough time to their kids. The presence of these negative emotions significantly diminished patients' quality of life and could also impede treatment outcomes. Consequently, it becomes crucial to prioritize the mental well-being of parents with cancer and facilitate timely adjustments. In recent years, various tools have emerged to assess the parenting concerns of parents with cancer. Muriel et al. (Muriel et al., 2012) developed a specific tool to measure the parenting worries of cancer patients, evaluating their experiences and potential psychological distress from three dimensions. Tavares et al. (Tavares et al., 2020) conducted a confirmatory study on the parenting anxiety questionnaire for Portuguese parents with cancer. Ting-ting Kang et al. (Kang et al., 2021) conducted a sinicization of the questionnaire in 2021, testing its reliability and validity. The results from this study show that parents with cancer have different coping styles in parenting, as well as a variety of parenting needs. This is a missing component of the questionnaire that has been developed and could be refined and matured in the future through further revision and refinement. Also, due to cultural differences between countries, each country needs to develop culturally competent assessment tools tailored to the unique needs of their patients, with the aim of constructing a comprehensive scale to assess the mental health of parents with parenting anxiety.

This study revealed that parenting challenges for parents with cancer are diverse and complex. These parents not only grappled with the difficulties of effectively communicating with their children and worrying about their spouse's ability to care for the kids, but also struggled to strike a balance between their roles as patients and parents. Thomas et al. (Krattenmacher et al., 2012) proposed that adopted positive coping styles can enhance personal satisfaction and happiness, thereby positively impacting mental health. Parents with cancer should actively employ developmental strategies to optimize their parental roles and responsibilities. Open and effective communication with children plays a crucial role in boosting parents' confidence in overcoming the disease and strengthening the parent-child relationship. In the study, it was found that the primary reason why parents with cancer hesitated to disclose their condition to their children is their lack of certain communication skills. However, medical institutions tended to overlook the individual needs of patients, and healthcare providers often lacked the necessary training in relevant skills, resulting in limited provision of useful information to patients. Moore et al. (Moore and Rauch, 2006) highlighted the importance of an organizational framework for parental conversations, which can enhance their confidence in discussing the topic of disease with their children. Certain cancer society websites offered guidance on effective communication strategies for parents, while professional organizations had published relevant books that can serve as valuable resources for parents dealing with cancer (Huang et al., 2012). Collaboration between professionals and the community could lead to the development of diverse parent-child communication and interaction programs for patients, which could strengthen the bond between parents and children and ensure the maintenance of normal family functions. Given that children are the primary concern for parents facing cancer, they play a crucial role in problem-solving. Based on the comprehensive findings of this study, it was evident that some parents adopted a positive approach in their interactions with their children. They strived to transform the experience of illness into an opportunity to impart important life lessons, enabling their children to maintain a courageous and optimistic outlook during challenging times. Moreover, parents involved their children in the process of disease treatment, teaching them gratitude and fostering a sense of responsibility. By approaching parenting from different perspectives, parents can create an environment that facilitates their children's personal growth (Loiselle and Santerre-Theil, 2017).

The results of this study found that fathers with cancer have different views than mothers about parenting. Mothers took on more parenting tasks, had more stress in caring for their children after the illness, and had more pronounced negative feelings, whereas fathers were more caring and gained in parenting after the illness. However, the main concern of fathers was not being able to continue to return to work and take on breadwinning. Interventions can be tailored to the different populations, for example, the Enhanced Linkage Project can be used to reduce mothers' depression and anxiety, improve parenting behaviour and improve their children's behaviour and emotional regulation through five telephone educational consultations every two weeks with cancer mothers and their families and the provision of pamphlets to study (Lewis et al., 2015). In the case of fathers with cancer, healthcare professionals should support fathers so that they can continue treatment without quitting their jobs, and refer them to internal cancer organisations to help fathers with work-related problems and to reach out to fellow patients who have had similar experiences that have had many positive effects (Yalom and Leszcz, 2005). This study demonstrated that adequate social support, particularly encouragement and assistance from family members, could greatly enhance the psychological well-being of patients (Ren et al., 2017). Family caregivers not only provided physical care for the cancer patients but also shared the responsibility of parenting. They could be guided to effectively communicate with patients and provide care based on their specific needs, thereby enabling patients to recognize their self-worth and

substantially improve their quality of life. Personalized information support and parenting guidance from relevant professional institutions also played a pivotal role. In certain regions, volunteer associations and community peer groups have established communication platforms to offer parenting support to parents with cancer (Pritlove and Dias, 2022). In the future, it is imperative to develop an improved support system that fosters collaboration among families, communities, and hospitals, thereby enabling parents with cancer to access multiple avenues for assistance.

5. Limitations

This meta-synthesis provides a comprehensive overview of the parenting experience among parents with cancer. While the study adhered to the ENTREQ guidelines, certain limitations should be acknowledged. Firstly, the inclusion criteria only encompassed papers published in English or Chinese, potentially overlooking relevant studies conducted in other languages that address parenting concerns in diverse cultural contexts. Most of the included literature originated from Europe and the United States, with differences in their cultural backgrounds and clinical scenarios. Future studies should combine our cultural backgrounds to explore the issue of parenting apprehension in a more comprehensive and in-depth manner.

5.1. Implications for practice

Under the premise of an in-depth understanding of the parenting experience of parents with cancer, healthcare professionals identified the dilemmas faced by patients during the disease process and treatment, providing evidence-based support for the formulation of targeted interventions in the future. However, existing effective interventions are not well reported. Future research could develop interventions to reduce the burden of parenting on parents with cancer and improve their physical and mental health. In addition, healthcare professionals should be systematically trained to learn to recognize parents facing additional burdens and needs, to clarify parental preferences regarding the level of parental involvement in family issues in cancer care, to understand the individual patient's situation, and to correctly manage the relationship between parents with cancer and their minor children.

6. Conclusion

The objective of this review is to provide a comprehensive overview of the parenting experience among individuals with cancer. The findings reveal that cancer patients face numerous concerns, stressors, and challenges in their parental roles, primarily due to the absence of specific parenting skills, which amplifies their need for external support. In the future, it is essential for medical professionals to prioritize this unique population and for research to concentrate on enhancing the positive psychological well-being of patients. This can be achieved through the development of personalized parenting programs, effective communication strategies with their children, and the establishment of a robust social support system.

CRediT authorship contribution statement

Jing-Ling Li: Investigation, Data curation. **Qin Ye:** Methodology, Investigation, Data curation. **Ning Liu:** Writing – review & editing, Supervision.

Declaration of competing interest

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