

Sibling relationships and pediatric cancer: A systematic review

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Abstract

In the literature, the experience of siblings of children and adolescents with cancer has been extensively explored, mainly along two lines of research: the psychological impact of the illness on the typically developing siblings, and the support interventions designed for them. Instead, the effect of cancer on the sibling relationship itself has received comparatively little attention.

This systematic integrative review aims to identify studies specifically focused on sibling relationships, to understand whether and how these relationships change during the illness, and what impact these changes may have on broader family dynamics. The review follows the PRISMA guidelines and includes seven studies identified through a comprehensive literature search.

The findings were analyzed according to the research methods used and the themes investigated. Most studies employed quantitative methods, such as questionnaires, while only two used qualitative approaches, including interviews and focus groups, primarily with typically developing siblings.

The studies reveal that siblings perceive changes in their relationship in ambivalent ways reporting both a general deterioration and an increased sense of closeness. These changes are also linked to their perceptions of the parental relationship.

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The results highlight a clear need for further research into the specific effects of cancer on sibling relationships and suggest indications for the psychological support to the whole family. More qualitative studies are recommended to explore the nuanced nature of these changes, with attention to the perspectives of both typically developing and siblings with cancer.

Key Words: Cancer, sibling relationships, children, young people, systematic review.

Introduction

The birth of a sibling marks the beginning of a very important and lasting relationship with unique characteristics. It can be characterized by strong closeness and cohesion, but it can also be changeable, dynamic, and highly complex (Dunifon et al., 2017). Especially in childhood and adolescence, siblings share spaces, play and daily life, which contributes to creating a complex emotional bond (Dunn & Kendrick, 1982). This context becomes even more complex when a serious illness such as cancer occurs.

In general, childhood cancer encompasses a heterogeneous group of malignancies that arise between 0 and 19 years of age and accounts for about 1% of all cancers; yet it remains one of the leading causes of disease-related death in childhood and adolescence (Bhakta et al., 2019; WHO, 2025). Over recent decades, therapeutic advances have led to 5-year survival rates exceeding 80% in high-income countries, particularly for acute leukemias, lymphomas, and some solid tumors, although marked global inequalities in access to care persist (Bhakta et al., 2019; Santero et al., 2025; WHO, 2025). The typical course involves an often-abrupt diagnosis, followed by intensive multimodal treatments (chemotherapy, surgery, radiotherapy, and, in some cases, stem cell transplantation), with frequent hospitalizations, invasive procedures, and prolonged outpatient follow-up. Even after the end of treatment, children and adolescents require long-term surveillance to monitor the risk of relapse and late physical and neurocognitive effects, with a lasting impact on developmental trajectories and quality of life (Patenaude & Kupst, 2005).

Therefore, when a child in a family develops a very serious illness like cancer, the entire system is affected by the new condition, which results in lifestyle changes, not only of the parents but also of the siblings (Deavin et al., 2018; Long et al., 2015; Rolland, 2018; Rostila et al., 2017). In fact, from parents' perspective, they report high levels of anxiety, depression, post-traumatic stress, and caregiving burden, especially in the initial phases of the illness and during the most intensive treatments; these difficulties may

interfere with couple functioning, day-to-day family organization, job stability, and financial security (Kazak, 2002; Pai & Kazak, 2006; Wiener et al., 2015).

In the literature, the experience of the siblings of children with cancer has been extensively considered and investigated (Cheung et al., 2020; Weiner & Woodley, 2018; Yang et al., 2016) with respect to two main lines of study: the psychological impact of the cancer on the healthy siblings and supportive interventions for them.

In the first line, research has investigated the psycho-social adjustment of typically developing siblings, their emotional, social and psychological needs, which are scarcely satisfied within the family of the child with cancer, and the impact of the sibling's illness on their mental health (Alderfer et al., 2015; Weiner & Woodley, 2018; Yang et al., 2016). In this regard, studies agree in presenting the siblings' experience as characterized by a sense of loss both towards the parents and the sibling and towards themselves, which leads them to take a marginal position within their own family (Alderfer et al., 2015; Weiner & Woodley, 2018; Yang et al., 2016). Typically developing siblings feel that parents focus their attention and energy solely towards the child with cancer and perceive a loss of self-esteem and identity as a child or sibling. This experience impacts on emotional, social and academic functioning, as they often report feeling anger, frustration, jealousy, guilt and isolation, emotions that can sometimes lead to anxiety and depression (Björk et al., 2009; Rosenberg et al., 2015). However, the literature also reports the positive impact that the disease has on the life of siblings as concerns psychological and social growth; some studies have reported an increase in the sense of responsibility, greater maturity and personal independence, social skills, empathy and care for others (Alderfer et al., 2015; Van Schoors et al., 2019).

The second line of studies concerns the interventions to support the siblings of children with cancer. A systematic review (Guan et al., 2021) reports that most interventions are psycho-social and addressed to the following topics: how to inform about cancer, working on peer group support and communication within the family, improving their quality of life and supporting their self-esteem (Barrera et al., 2018; Neville et al., 2016; Nolbris et al., 2014a, 2014b).

Despite the multiplicity of studies on these issues, there are few contributions regarding the impact that the disease has specifically on sibling relationships. The study by Cheung and colleagues (2020) is the only review in the literature that aims to provide an overview of research on sibling relationships in the context of illness. It highlights greater attention to the social context and family's relational functionality. However, the review

focuses on the psychosocial and family factors affected by illness, touching only marginally on the quality of sibling relationships.

Aims

This systematic integrative review aims to bridge this gap by identifying the research focused specifically on the siblings' relationship, reporting the topics they deal with, and which are worthwhile exploring.

For the detailed formulation of a precise research question and to clearly focus the study, we structured its components using the PICO framework (Polit & Beck, 2018). Specifically, we identified as the Population children and adolescents with a cancer diagnosis and their typically developing siblings; as the Intervention exposure to pediatric cancer; and as the Outcome changes in the sibling relationship and their impact on other family relationships.

In summary, this review aims to examine, based on the available literature, the changes (O) that cancer (I) in a child or adolescent produces in the sibling relationship (P), and how these changes are in turn influenced by other family relationships, particularly those with parents (O).

Specifically, the research questions posed for the review concerned:

- RQ (1) which methods are employed for investigating the impact of the disease on the sibling relationship;
- RQ (2) whether and how the sibling relationship changes during the illness;
- RQ (3) whether and how changes in the sibling relationship impact other family relationships.

It is crucial to assess the impact that the child's illness may have not only on individual siblings but also on the quality of their relationship and on their perception of each other. Finally, being aware of these relational dynamics in a context of illness can suggest more specific psychological supportive interventions for the whole family.

Methods

This study was based on the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Page et al., 2021). The protocol of this review was not prepared and registered on the International Prospective Register of Systematic Reviews.

Information sources and search strategy

The systematic literature search was performed by the two authors from January 2024 to December 2024. The review was updated through a second literature search in March 2025. We consulted the databases of PsycINFO, SCOPUS, Web of Science and PubMed. First, we employed specific keywords including “sibling* AND child cancer”, “children cancer AND sibling* OR sister* OR brother*”, “sibling* AND child cancer OR childhood cancer OR oncology OR cancer”. To find specific studies on the research topic, then we used keywords including “sibling* relationship AND child cancer”.

We retrieved 467 articles. After eliminating duplicates with *Zotero*, 378 contributions were reached.

Inclusion criteria

Studies were included in this review based on the following criteria:

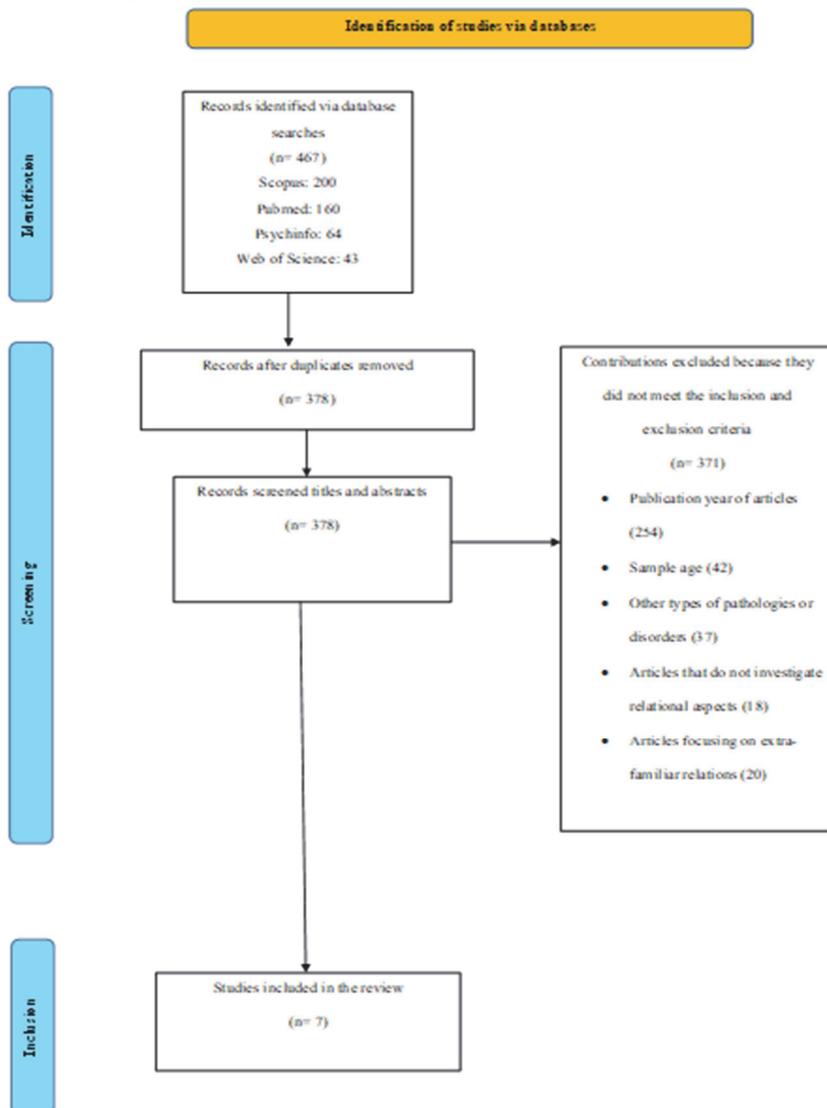
- (1) they were published between 2000 and March 2025 (254 articles excluded) to provide the most up-to-date overview possible of the research topic;
- (2) only articles written in English were considered;
- (3) they were focused on siblings in childhood and youth (age ranging from 3 to 25 years), phases of life in which siblings spend more time together (Dunifon et al., 2017) (42 articles excluded);
- (4) they were focused on cancer and not on other pathologies (e.g., chronic and/or genetic diseases) or disorders (for example, autism spectrum disorder) (37 articles excluded);
- (5) they were focused specifically on the relationship between siblings (38 articles excluded).

Furthermore, based on inclusion criteria (1), (2), and (3), specific filters were applied to each database to facilitate the search.

Identification and selection of studies

The authors independently assessed titles and abstracts to identify relevant studies. After this initial screening, assessment was carried out based on the full texts. The authors compared their results, and, in case of disagreements, they resolved them by mutual consensus. The overall inter-rater agreement was 95%. Seven studies that satisfied the inclusion criteria were selected for the review (Figure 1).

Fig. 1 - Flow diagram of the search strategy



Analysis of the studies

The studies included in the review were analysed by the first author based on the following general characteristics: authors and year, country, sample characteristics, methods, topics and main results. These categories are summarized in Table 1. Subsequently, some emerging themes were identified from the topics and main results.

Tab. 1 – Studies included in the review

Author	Country	Sample	Methodology	Topics	Results
Erker et al. (2018)	USA	n = 73 age M = 13	PROMIS	Subjective experiences of family relationships	Siblings of therapy patients score worse on family relationship than their siblings
Faith et al. (2022)	USA	n = 104 (Typically development siblings) age M (SD) = 12.4 (3.8) 44.2% females	Sibling Relationship Quality Questionnaire	Perception of sibling relational quality in relation to parental coping ability	Adaptive coping skills associated with a positive perception of the quality of the sibling relationship
Fladeboe et al. (2018)	USA	n = 128 (Typically development siblings) age M (SD) = 8.38 (5.61)	Sibling Relationship Questionnaire	Stress resulting from illness and degree of conflict in the sibling relationship	High levels of stress are associated with a perception of a high degree of conflict
Hovén et al. (2021)	Sweden	n = 30 (Typically development siblings) age M = 18	Focus group	Personal experience of being the sibling of a pediatric cancer patient	Perception of an important change in the relationship that follows the disease evolution
Katz et al. (2019)	USA	n = 119 (siblings with cancer) age M(SD) = 6.3 (3.5); 49% male	Sibling Relationship Questionnaire	Stress resulting from illness and degree of conflict in the sibling relationship	Higher level of perceived stress associated with an increased degree of conflict
Labay and Walco (2004)	USA	n = 29 (Typically development siblings) age M(SD) = 11.23 (2.97) 20 males, 9 females	Sibling Relationship Questionnaire	Relational quality	The birth order, the number of family members and the degree of closeness influence the perception of the relationship

Nolbris et al. (2007)	Sweden	n = 10 (Typically development siblings) age M = 14.5 6 females, 4 males	Interview open questions	Personal experience of being the sibling of a pediatric cancer patient	Ambivalent feelings affect the sibling relationship
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Results

General characteristics of the studies

First, the general characteristics of the studies included are presented below.

Five studies were conducted in the USA and two in Sweden, between 2004 and 2022.

Five studies had a sample size ranging from 12 to 105 siblings (Erker et al., 2018; Faith et al., 2022; Hoven et al., 2021; Labay & Walco, 2004; Nolbris et al., 2007), while the remaining two did not explain the number of siblings involved but the number of families who participated, in particular 103 families in Fladeboe and colleagues' study (2018) and 159 families in the Katz and colleagues' study (2018). In four studies the most frequent diseases of the child were leukemia, Central Nervous System tumor, sarcoma and lymphoma. The other three studies (Erker et al., 2018; Hoven et al., 2021; Katz et al., 2018) did not report this information. Only two studies (Katz et al., 2018; Faith et al., 2022) involved siblings with cancer.

Methods

The first research question (RQ1) aimed to investigate which methodologies were employed by the included studies to examine the impact of pediatric oncological illness on the sibling relationship.

The most common study design was longitudinal (n = 2); other types of study designs employed were cross-sectional, focus group and qualitative studies. Two of the reviewed studies (Faith et al., 2022; Labay & Walco, 2004) did not disclose the research design.

Two papers used a qualitative survey method for data collection. Hoven et al. (2021) explored the personal experience of 14- to 23-year-olds having a brother or sister diagnosed with cancer using a focus group approach (Peterson-Sweeney, 2005). Nolbris et al. (2007), pursuing roughly the same

goal, used a narrative interview with open-ended questions with children of an average age of 14 to allow participants to talk more deeply about their experience of being the siblings of a cancer patient.

Other articles used a quantitative methodology for data collection. Faith et al. (2022), with children with an average age of 12, proposed the “Sibling Relationship Quality Questionnaire” (SRQ-C; Furman & Buhrmester, 1985), which provides the indices of warmth/proximity, dominance and conflict to evaluate the quality of sibling relationship. Another study (Labay & Walco, 2004) also investigated the quality of siblings relationship considering warmth, status, conflict and rivalry, with children aged between 7 and 16, using the Sibling Relationship Questionnaire (SRQ; Furman & Buhrmester, 1985). In Erker and colleagues’ paper (2018), PROMIS (Patient-Reported Outcomes Measurement Information System; Bevens et al., 2017) is used with children aged between 8 and 17 to evaluate the subjective experiences of family relationships from the point of view of the patient and of his/her sibling, differentiating the experiences based on the conclusion or not on the treatments.

Finally, in two articles (Fladeboe et al., 2018; Katz et al., 2018) the Sibling Relationship Questionnaire (Furman & Buhrmester, 1985) was proposed to the primary caregiver of the siblings in order to evaluate the relationship between sibling conflict and family stress, during the first year of treatment.

Changes in the sibling relationship

The second research question (RQ2) focused on capturing any changes that the sibling relationship underwent during the illness. In response to this question, we identified some topics in the studies examined.

The first is the perception of changes. Two studies analysed the point of view of the siblings regarding the changes experienced in their relationship (Hovén et al., 2021; Nolbris et al., 2007). Through focus groups conducted with siblings aged between 14 and 23, Hoven’s study highlighted how the perception of change in the relationship depends on the disease phase. During the treatment the changes were perceived as temporary and reversible, while at the end of the treatment the siblings felt that “everything has changed”, a “before” and an “after” having been created, the relationship had worsened and there was no going back.

Thanks to the use of narrative interviews, Nolbris and colleagues (2007) found that the siblings consider the sibling relationship as something that requires a special closeness. In most cases the disease increases their awareness of this belief and, consequently, leads the relationship itself to change, even positively. Typically developing siblings feel the need to stay

close and to protect their sibling and that the disease has contributed to making their relationship clearer, tighter, stronger, and more harmonious than in the pre-sickness period.

Another theme that emerged in two studies is the presence of ambivalent feelings as characterizing the sibling relationship during the sickness. Nolbris and colleagues (2007) found that typically developing siblings develop ambivalent feelings toward their sibling which could have an impact on their bond. They would like to continue to cultivate their own interests such as school, work and friends; on the other hand, they feel the need to be close to their sibling in a delicate moment of their life. This induces an ambivalent mood and behaviour towards the sibling with cancer and fosters a strong sense of interdependence. This specific feeling also emerged in the study of Hovén et al. (2021), which identified it as a moral dilemma. The authors report that the typically developing siblings frequently say they feel a conflict between the awareness that the sibling's disease requires them to sacrifice some aspects of their daily life, and the occurrence of negative emotions of loneliness, shame and guilt affecting the relationship itself.

Finally, another important theme emerged from the studies analysed is the effect of the child's disease on the quality of the siblings' relationship.

Labay and Walco (2004) focused on quality relationship characteristics such as warmth, status, conflict and rivalry, finding a correlation between birth order and the quality of the sibling relationship. When the younger sibling falls ill, the typically developing sibling tends to have a worse perception of the quality of their relationship, especially concerning rivalry. Another aspect that influences the quality of the sibling relationship is family size. The larger the number of family members, the greater the complexity of the relationships. Consequently, an increase in the extent of conflict and rivalry may be observed, as emotional resources are threatened by the onset of the disease. Finally, what emerges from this study is that, during the disease, a particularly close siblings' relationship can lead siblings to experience particularly demanding and stressful challenges.

Parents and sibling relationship

Finally, the third research question (RQ3) aimed to investigate whether and how changes in the sibling relationship may also impact other family relationships.

The close intertwining between the sibling's relationship and relationships with other family members emerges from the study by Erker and collaborators (2018). The authors investigated the subjective experience of children with cancer and their 8-17-year-old siblings, highlighting how

siblings' bonds, during the illness, can influence the relationships experienced with their parents. The more patients and their siblings perceive each other's suffering (depressive and anxious symptoms, difficulties in peer relationships), the more family relationships are also perceived as worse.

Another study focused on the quality of the sibling relationship (Faith et al., 2022) investigating the impact of parental coping skills on it. Parents who are better able to cope with stress see the sibling's relationship as characterized by more warmth and less conflict and dominance. However, the correlation between parental coping skills and positive perception of the quality of sibling relationship is mediated by an emotional socialization based on coaching and not on dismissing (Eisenberg et al., 1998).

Other studies considered in this review focused on a particular index of the quality of siblings' relationship, that is conflict, often intertwined with parental relationship. The study by Fladeboe and colleagues (2018) examined how family stress resulting from pediatric cancer could influence sibling conflict at a specific time, i.e., during the first year of therapy, a period when very high distress is experienced by the family. In this period the psychological resources of family members can be depleted and can have repercussions on relationships within the family. The authors reported that parents who are particularly challenged by their child's illness may be less able to support and mediate sibling relationships and, as a result, more sibling conflict may be generated. In support of this, several studies have been cited (Nixon & Cummings, 1999; Wilkins & Woodgate, 2005), which have pointed out that children and adolescents perceive different treatment by their parents when their sibling has cancer, and this could easily contribute to exacerbating conflicts.

Furthermore, the intensity and the duration of the child's therapeutic treatments impacts on the level of conflict. If the child must face a series of demanding therapeutic procedures for a longer period, the resulting continuous stress can have consequences on the sibling relationship in terms of conflict, making it more difficult for both siblings to adjust to the disease (Fladeboe et al., 2018).

Katz and colleagues' article (2018) seems to move in the same direction as the study above. The authors highlighted that in most cases typically developing siblings may initially be reluctant to enter into conflict with their sibling because they feel concerned for their well-being and life. However, over time, the feeling of receiving differential treatment or the frustration stemming from the changes occurring within the family, can lead to increased conflict. Despite this evidence, the two articles reported that, in general, the average level of conflict perceived by siblings appears to be comparable to what is recorded in typical sibling relationships (Fladeboe et al., 2018; Katz et al., 2018).

Discussion

The main aim of this review consists in identifying and systematizing the studies focusing on the impact that the child's cancer has specifically on sibling relationships, trying to describe the main themes and the neglected aspects. Despite the extensive literature on the influence of this pathology on the typically developing siblings, only a small number of studies (7) focusing on the siblings' relationship have been found. Based on the questions research posed for the review, interesting results have emerged.

First of all, from a methodological point of view, quantitative methods (questionnaires) have been mainly used to investigate the sibling relationship; this makes it possible to provide a specific picture of the relationship at a given time, neglecting, however, subjective experiences about the changes. On the contrary, the qualitative methodology (i.e. focus group, narrative interviews), used in only two studies, has also made it possible to grasp the changes and the quality sibling relationship perceived by participants during the illness.

Another methodological aspect that emerged from the analysis concerns the research participants, who are mainly the typically developing siblings. However, it would be interesting to consider the point of view of the sibling with cancer as well. In fact, the literature underlines the importance of directly involving young patients and taking into account the perception of their illness impact (Corsano et al., 2013). Furthermore, unlike their siblings, they may be less influenced by the tendency to provide socially desirable responses.

From a content point of view, the themes emerging from the analysis allowed us to make several considerations in view of the research questions. The first theme that we have detected is the perception of change in the sibling's relationship because of the disease. Although the study of Hovén and colleagues (2021) highlighted that siblings are aware that the disease must modify the relationship and marks a "before" and an "after", the authors did not report the content of these changes, the typically developing sibling's perception of this relationship, the image this constructs of the sibling with cancer, or how the relationship evolved. Only from the interviews in the study by Nolbris and colleagues (2007) it emerges that illness increases awareness of the need to be close to siblings and makes the relationship closer and stronger.

With regard to the second theme identified, i.e. the presence of ambivalent feelings characterizing the sibling relationship, this datum confirms the literature, which more generally studies the relationship between siblings with typical and atypical development (Cebula et al., 2019; Corsano et al.,

2017). In fact, it has been possible to observe in typically developing siblings how there is both the desire to continue leading a normal life and feelings of guilt and protectiveness arising from the condition of their sibling.

As concerns the theme of the quality of sibling relationships, the work of Labay and Walco (2004) has offered numerous ideas regarding the relational elements that can influence it. We can hypothesize that typically developing siblings have a worse perception of the relationship when the younger sibling gets sick because they perceive in their parents an expectation regarding their own development of greater self-sufficiency, since parental attention is mainly focused on caring for the sibling with cancer. Moreover, it was emphasized how during the illness a particularly close relationship can lead to an increase in stress. In the specific case of the typically developing siblings, a perception of a particularly close relationship could lead them to experience a certain fragility during the separation from their sibling (Labay & Walco, 2004).

Furthermore, the results emerging from the studies confirm the models on family complexity and are thus in line with what was stated at the beginning of this review. The illness of a family member is an event that interferes in current relationships. Therefore, it is not possible to study the sibling relationship without placing it in a broader context and without considering the family variables that can play a mediating role in this type of relationship. This is an aspect highlighted mainly in the study by Faith and colleagues (2022) in which it is possible to see how a good parental coping ability based on coaching rather than dismissal is related to a qualitatively positive perception of the relationship between siblings. It is important for parents to use their children's negative emotional experiences as an opportunity to help them develop good coping skills, rather than tending to minimize or avoid the children's negative emotions that may occur more frequently during the disease.

Some aspects investigated both from the point of view of parents and children have shown conflicting data. This is the case of the studies by Fladeboe and colleagues (2021) and Katz and colleagues (2018) in which the increase in conflict between siblings emerged from the parents and not from the children. This datum can be interpreted in two ways. On the one hand, the parents, in view of the awareness of the stressful condition in the family and their preponderant focus on the child with cancer, would expect greater conflict between siblings, overestimating it. On the other hand, the answers provided by the siblings could be influenced by a certain degree of social desirability which would make it more difficult to express oneself with complete sincerity. Future studies could use other qualitative tools with typically developing siblings, such as drawing, which allow for greater

spontaneity of expression. Finally, in both articles the topic of the conflict that could eventually characterize the relationship between siblings is reported mainly from the parents' point of view, not paying much attention, however, to the opinion of siblings and what happens within the siblings' relational dynamics.

If, on the one hand, this review has confirmed the scarcity of studies focused specifically on the sibling's relationship, on the other it has made it possible to detect that it is undergoing changes. Although the studies do not describe them in depth, it is noted that they appear to be irreversible. They are partly positive because they increase the perception of closeness, and partly negative because they increase conflicts, interdependence and ambivalent feelings.

Conclusions, future developments and implications

The relationship between siblings represents one of the most enduring, strong and long-term bonds that can exist and is, therefore, an important source of support for children as they grow up. It acquires even greater significance when one of the siblings is affected by a serious illness such as cancer.

By virtue of this strong bond, the illness significantly affects not only siblings from an individual point of view, but also their relationships. The studies considered in this review have highlighted how cancer in a child or youngster contributes to significantly modifying the quality of the sibling relationship, connoting it with ambivalent feelings, conflictual aspects, but also by increasing a sense of cohesion. Furthermore, another aspect that seems to change because of the illness concerns family relationships, which are perceived as worse by the typically developing sibling.

From the analysis of the articles, it also emerged in which direction the research should continue.

First, although studies report the changes perceived by the siblings, these are not well explained or investigated in depth. In this regard, it would be useful to study the perception of the bond between siblings before the disease and how it changed after the diagnosis.

Second, in some studies it has emerged that in order to have a complete understanding of the fraternal relationship under the condition of illness, it would be appropriate to investigate it also with respect to parental variables. It would be interesting to analyse, for example, the impact that the ability of parents to cope with the stress of illness might have not only on their perception of the quality of the fraternal relationship, but also on the siblings'

own perception of it, or on the attitude of the typically developing sibling towards their sister or brother with cancer.

A further theme that could be explored is conflict as an element that characterizes the post-diagnosis fraternal relationship. It was noticed how this aspect of relational quality was mainly investigated from the parents' point of view, i.e., as a perception that they have of it. In this regard, it would be useful to also collect and analyse the point of view of the typically developing sibling, possibly comparing their perception of the conflict before and after the sibling's sickness.

From an applied and clinical standpoint, the findings of this review point to several implications for the psychological support offered to families. In particular, the centrality of the sibling relationship in the context of pediatric cancer underscores the importance of systematically including siblings in psychosocial assessment and care pathways, through interventions that foster the expression of ambivalent emotions, support the management of conflict, and strengthen the sense of family cohesion.

Within this perspective, professionals (psychologists, psycho-oncologists, and multidisciplinary teams) can draw on the evidence outlined in this review to inform clinical practice by designing targeted support interventions for siblings, psychoeducational groups involving the entire family, and counselling pathways that explicitly take into account the impact of changes in the sibling relationship on other family subsystems. Highlighting and integrating these aspects into routine practice may facilitate the earlier identification of support needs and the implementation of more tailored interventions that are sensitive to the complexity of siblings' experiences in pediatric oncology.

Finally, from the analysis of the literature it was observed that the studies mainly considered the point of view of the typically developing sibling. In this regard, it is thought that it may be useful to direct future studies also to the experience of the sibling with cancer regarding the sibling relationship changes. In conclusion, we believe that a more in-depth understanding of the disease's potential impact on the sibling relationship is important not only to enhance the literature on this topic, showing its complexity, but also to enable professionals to identify suitable support for young people and their families who are going through such a delicate phase of their lives.

Strengths and limitations

Our review has some important limitations.

First, no assessment of the methodological quality of the included studies was carried out.

Second, despite the large amount of literature on cancer and sibling relationships, we found only seven studies that met our inclusion criteria. In fact, we focused exclusively on studies that specifically investigated the sibling relationship and how illness can change siblings' perception of it. This narrow focus clearly represents a limitation in terms of the breadth of available evidence and the generalizability of the findings. At the same time, however, it can be regarded as a strength of the present review. By applying stringent, conceptually driven inclusion criteria, we were able to document the paucity of empirical studies that address the sibling relationship as a relational construct, rather than as a background variable. In this sense, the limited number of included studies provides a clear indication of a gap in literature and, considering the themes that emerged, offers a focused starting point for delineating novel directions for future research. Moreover, the review has additional strengths, including a systematic and transparent search strategy across multiple databases, the use of predefined inclusion criteria, a high level of inter-rater agreement in study selection, and the integration of quantitative and qualitative evidence to derive clinically relevant implications for psychosocial support to families.

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