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FACTORS THAT FACILITATE OR HINDER SCHOOL REINTEGRATION AMONG CHILDREN AND ADOLESCENTS FOLLOWING COMPLETION OF CANCER TREATMENT

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ABSTRACT

Background. Returning to school after completing treatment for childhood cancer is a key milestone in the psychosocial recovery and successful reintegration of children and adolescents into everyday life. Although survival rates have improved considerably over recent decades, re-entering the school environment is often accompanied by physical, psychological, social, and educational challenges that may negatively affect school adjustment and overall quality of life.

Methods. This scoping review aims to map and synthesize the available scientific evidence regarding the factors that facilitate or hinder the return to school of children and adolescents following the completion of childhood cancer treatment. The review was conducted according to the methodological guidance of the Joanna Briggs Institute (JBI). A literature search was performed in PubMed, Scopus, Web of Science, PsycINFO, and Google Scholar databases. Research studies and literature reviews published between 2014 and 2026 involving children and adolescents aged 5–18 years were included.

Results. A total of 197 records were identified through the electronic databases, of which 9 publications were finally included in the review. The findings indicate that successful school reintegration is promoted by effective collaboration among families, schools, and healthcare professionals, the continuation of educational activities during treatment, and participation in structured school reintegration and psychosocial support programs. In contrast, persistent physical and psychological effects of the disease and its treatment, social stigma, and organizational and family-related barriers appear to hinder a smooth transition back to school.

Conclusions: Overall, the findings of this review contribute to a better understanding of the complex process of school reintegration following childhood cancer treatment. They also highlight the importance of interdisciplinary collaboration between healthcare professionals and educators and support the development of evidence-based interventions and educational policies aimed at promoting the successful academic and social reintegration of childhood cancer survivors.

Keywords: Childhood Cancer, Pediatric Cancer, Childhood Cancer Survivors, School Reintegration, Return to School, Education, School Adjustment, School Participation

1 INTRODUCTION

Childhood cancer is relatively rare compared with adult cancer but remains a major cause of morbidity and mortality among children and adolescents worldwide [1,2]. Childhood and adolescence are critical developmental periods for physical, cognitive, emotional, and social growth. School is central to this process because it provides education as well as opportunities for socialization, peer relationships, development of self-concept, and psychological well-being. For children and adolescents who have experienced cancer, however, maintaining or regaining participation in school may be complicated by the consequences of the disease and its treatment.

Improvements in diagnosis, treatment, supportive care, and survivorship have substantially increased the number of children who survive cancer and subsequently face the challenge of returning to everyday life and education [3,4]. Survival, however, does not necessarily indicate complete recovery of functioning. Survivors may experience fatigue, reduced physical endurance, neurocognitive difficulties, emotional distress, changes in body image, and other late effects that can influence learning, concentration, memory, school attendance, and social participation [3,5,6]. Neurocognitive sequelae are particularly relevant because difficulties with attention, processing speed, executive functioning, and memory may become apparent or remain clinically important after treatment has ended [7].

The transition back to school is therefore not simply an administrative event. It is a multidimensional process involving the child, family, educators, peers, and healthcare professionals. Evidence indicates that communication among these groups, continuity of education during treatment, preparation of the school environment, and individualized accommodations can facilitate reintegration [8-10]. On the contrary, insufficient information, lack of coordination, stigma, anxiety, and persistent treatment-related limitations can hinder the transition [8,9].

The available literature is heterogeneous in population, methodology, outcomes, and context. It includes qualitative studies exploring family experiences, quantitative surveys, mixed-methods studies, online-resource evaluations, and evidence syntheses [8-13]. A scoping review is therefore appropriate for mapping the range and nature of evidence and identifying gaps in knowledge [14,15].

The aim of this scoping review was to map and synthesize the available evidence regarding factors that facilitate or hinder the return to school of children and adolescents after completion of childhood cancer treatment. The review also examined the roles of families, schools, educators, and healthcare professionals and identified implications for practice and future research.

2 MATERIALS AND METHODS

2.1 Review design

A scoping review design was selected because the research question is broad and multidimensional and because the available evidence comprises different methodological designs. The review was conducted according to the methodological guidance of the Joanna Briggs Institute (JBI) for scoping reviews [15]. Scoping reviews are particularly suitable for mapping the extent and nature of evidence, clarifying key concepts, identifying knowledge gaps, and informing future research [14,15].

2.2 Research question and PCC framework

The primary research question was: Which factors facilitate or hinder the return to school of children and adolescents after completion of treatment for childhood cancer?

The Population–Concept–Context (PCC) framework was used. Population comprised children and adolescents aged 5–18 years who had completed treatment for childhood cancer. The Concept was school reintegration following completion of cancer treatment, focusing on factors that facilitate or hinder the process and on educational, psychosocial, and supportive interventions. The Context was the school environment and the wider educational, social, family, and healthcare systems involved in the transition back to school.

2.3 Search strategy and information sources

The literature search was developed in accordance with JBI guidance. A preliminary search of PubMed and Scopus was used to identify relevant terminology, indexing terms, and synonyms. The final search strategy incorporated keywords and where applicable, MeSH terms combined with Boolean operators. Core terms included childhood cancer, pediatric

cancer, childhood cancer survivors, childhood neoplasms, pediatric oncology, school reintegration, school re-entry, return to school, school return, education, school adjustment, school participation, academic achievement, children, adolescents, psychosocial support, social support, and quality of life.

The databases searched were PubMed, Scopus, Web of Science, PsycINFO, and Google Scholar. The review included publications from January 2014 through October 2026, reflecting the contemporary evidence base available for the topic.

2.4 Eligibility criteria

Eligible publications were primary or secondary research studies, including qualitative, quantitative, mixed-methods studies and literature reviews, published in English during the defined period. Studies had to concern children or adolescents aged 5–18 years who had completed treatment for childhood cancer and address school reintegration, school adjustment, educational participation, or related facilitating and hindering factors.

Publications were excluded when they focused exclusively on adult cancer survivors, populations outside the specified age range without relevant pediatric findings, or topics unrelated to school reintegration. Studies not available in English were also excluded.

2.5 Study selection and data charting

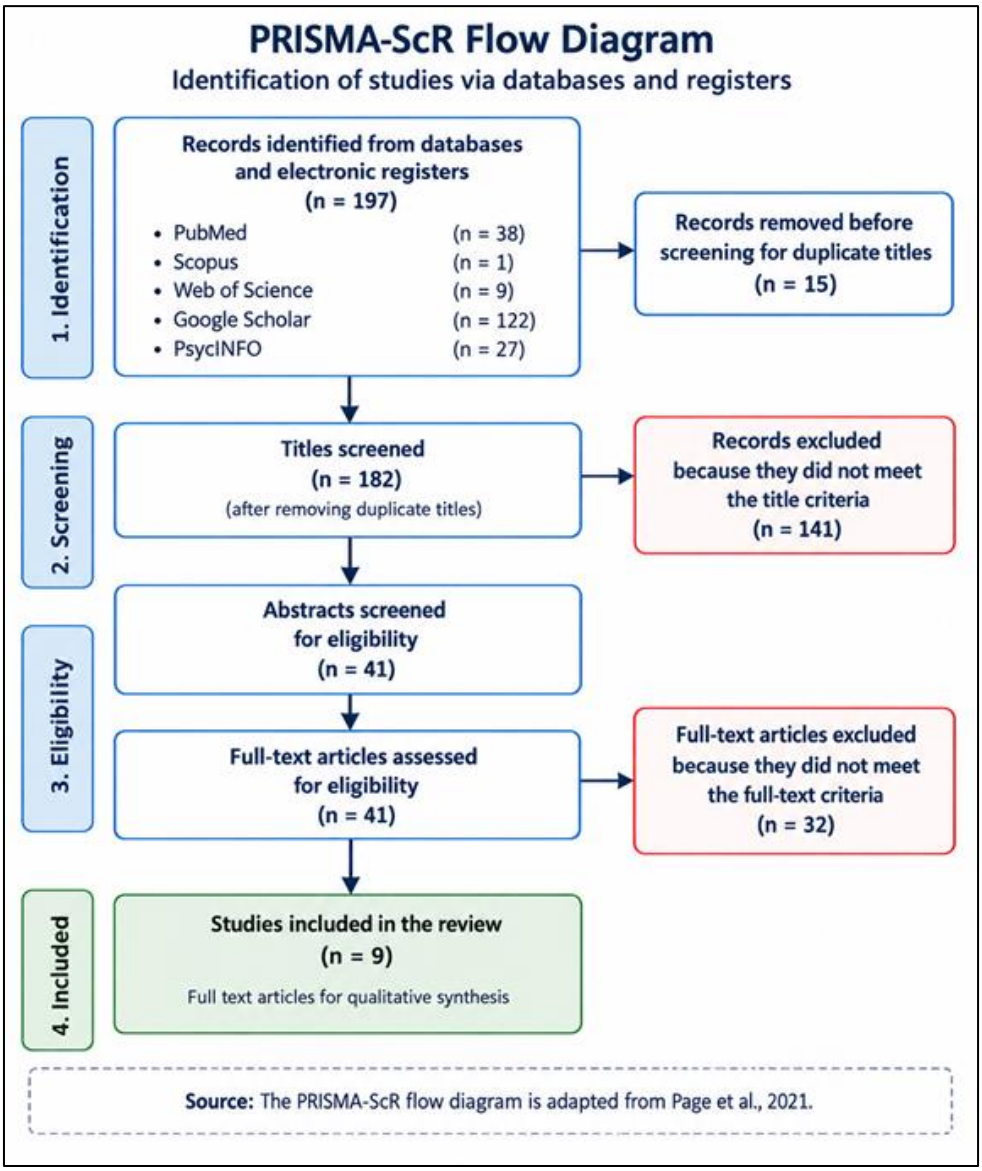


Figure 1: The PRISMA-ScR flow diagram

Study selection followed the principles of the PRISMA Extension for Scoping Reviews (PRISMA-ScR) [16]. Retrieved records were organized using reference-management software, with duplicate records removed. Titles and abstracts were screened against the eligibility criteria, followed by full-text assessment of potentially relevant publications. The overall study-selection process is presented in Figure 1. Data were charted using a structured extraction approach that recorded authors, year, country, study design, sample or material, facilitating factors, barriers, roles of family, school and healthcare professionals, and key conclusions corresponding to the columns presented in Table 1.

2.6 Data analysis and synthesis

Data were analyzed descriptively and synthesized thematically. The extracted information was organized into comparative tables and grouped into recurrent themes. The principal themes were: psychological impacts after treatment, social and educational challenges, facilitators and barriers to school reintegration, and the roles of families, schools, educators, and multidisciplinary teams. Recommendations for improving support services and educational policies were also identified. Given the heterogeneity of the included publications, no statistical meta-analysis was undertaken.

3 RESULTS

3.1 Characteristics of included publications

Nine publications were included in the review (Table 1). The studies covered the period 2015–2026 and were conducted predominantly in countries with established pediatric oncology and educational systems. Six publications originated in the United States, with one each from South Korea, Germany, and India. The included evidence comprised qualitative, quantitative, mixed-methods, and secondary research designs.

Table 1: Characteristics of included publications

Study	Country	Year	Design	Sample/material	Main focus
Kazak et al. [8]	USA	2015	Psychosocial/literature study	Children and families with cancer	Psychosocial assessment in pediatric cancer care
Krull et al. [7]	USA	2018	Literature review	Long-term childhood cancer survivors	Neurocognitive outcomes and interventions
Ruble et al. [10]	USA	2020	Online-resource assessment	Online resources concerning return to school	Quality and usefulness of online information
Lee et al. [9]	South Korea	2020	Quantitative, multicenter survey	Parents of children/adolescents with cancer	Parents' perceptions of challenges and needs during school re-entry
Fotheringham et al. [11]	USA	2021	Mixed methods	Children, parents, educators, peers	School reintegration and factors affecting return
Bhatt et al. [12]	USA	2023	Qualitative	19 caregivers of adolescents after allogeneic hematopoietic cell transplantation	Barriers and facilitators in return-to-school process
Inhestern et al. [13]	Germany	2024	Quantitative	Childhood cancer survivors and families	Reintegration into school, kindergarten, and work
Parrillo et al. [17]	USA	2024	Integrative review	35 studies on school reintegration support from parents' perspectives	Communication, knowledge, access to support, facilitators and barriers

Prasad et al. [18]	India	2026	Retrospective quantitative	596 childhood cancer survivors	School reintegration, school trajectory, and early survivorship outcomes

3.2 Social and educational challenges and facilitating factors for school reintegration

The most consistent facilitating factor was effective collaboration among the family, school, and healthcare team. When information about the child's health status, treatment-related effects, functional limitations, and educational needs was shared in a coordinated manner, schools were better positioned to prepare for the student's return [9,11-13].

Continuation of educational activity during treatment and maintenance of contact with the school and peers were also identified as important. Maintaining links with classmates can reduce social discontinuity and help preserve the child's sense of belonging. Educational continuity may also reduce the academic gap that can develop during prolonged treatment and absence [10,11].

Individualized educational accommodations were another important facilitator. Depending on the child's needs, these may include a gradual return, reduced workload, additional time for assignments, flexibility in attendance, and adaptation of physical activities. Such measures recognize that completion of cancer treatment does not necessarily mean an immediate return to pre-treatment functional capacity [9,11,13].

Psychological and psychosocial support was also emphasized. Children may experience anxiety, concerns about peer acceptance, changes in body image, or uncertainty about their ability to meet academic and social expectations. Access to appropriate psychosocial support can help children and families manage these concerns and improve adaptation to the school environment [8,12,13].

3.3 Psychological impacts after treatment and barriers to school reintegration

Physical and neurocognitive effects were among the main barriers. Persistent fatigue, reduced endurance, concentration difficulties, memory problems, and other treatment-related effects can interfere with classroom participation and academic performance [5,7,13]. These difficulties may not be immediately visible to teachers and can therefore be underestimated.

Psychological and social barriers included anxiety about returning to school, fear of rejection, concerns about altered appearance, and difficulties reconnecting with peers. Stigma and insufficient understanding among classmates or school personnel may further complicate reintegration [9,11,12].

Organizational barriers were also repeatedly identified. These included inadequate teacher knowledge, lack of clear communication channels between healthcare services and schools, insufficient individualized accommodations, and overreliance on parents to communicate the child's needs [9,12,17]. The absence of structured reintegration pathways may result in inconsistent support between schools and between individual students.

Family-related difficulties can further affect the transition. Parents may experience persistent anxiety and may require practical guidance regarding communication with the school and management of their child's changing needs after treatment. The burden placed on families is particularly important when formal systems for hospital–school communication are absent [12,17].

3.4 Role of the family

Families have a central role in communicating the child's needs, supporting emotional adjustment, and coordinating with educators and healthcare professionals. Parents often possess detailed knowledge of the child's functional status and can identify changes that may not be immediately apparent in the classroom [9,12,17].

At the same time, the literature indicates that parents themselves may need continuous information, psychosocial support, and practical guidance. When the family is left to coordinate the entire reintegration process, the burden can become substantial. Structured communication between health and education services can reduce this burden and support more consistent planning [11,12].

3.5 Role of schools and educators

Schools are not only educational settings but also important environments for social recovery and restoration of everyday routines. Educators can contribute to a supportive environment by understanding possible physical, cognitive, psychological, and social consequences of cancer treatment [9,11,13].

Preparation before the student's return may reduce uncertainty and facilitate appropriate adjustments. Depending on individual needs, schools may modify workload, allow additional time, provide a gradual return, or adapt participation in physical activities. Communication with peers, when appropriate and agreed upon by the child and family, may reduce misunderstanding and social exclusion [11,17].

However, inadequate training and limited knowledge among educators remain important barriers. Teachers may be uncertain about the consequences of treatment or about appropriate educational responses. The evidence therefore supports the development of practical guidance and educational programs that improve staff preparedness [9,12,17].

3.6 Role of healthcare professionals

Healthcare professionals have an important role extending beyond disease treatment to include functional, psychosocial, and educational recovery. Pediatric oncology teams can provide information regarding health status, potential treatment-related effects, physical activity, infection prevention, and other considerations relevant to school participation [11,13].

Nurses may act as an important link between the healthcare setting, family, and school. Their continuing contact with children and parents may facilitate early identification of physical or psychological difficulties and support communication with educational services. Psychologists and social workers can address anxiety, body-image concerns, social difficulties, and family distress [12,13].

The overall evidence indicates that the most favorable conditions arise when healthcare professionals, schools, and families communicate regularly, establish shared goals, and adapt support to the individual child rather than relying on a uniform model [11-13].

4 DISCUSSION

This scoping review demonstrates that return to school after childhood cancer treatment is a complex process rather than a single event. Medical completion of treatment does not necessarily coincide with full functional, psychological, or social recovery. Persistent fatigue, neurocognitive difficulties, anxiety, changes in body image, and concerns regarding peer acceptance may continue to influence school participation [5,7,9,13].

The findings highlight the importance of viewing school reintegration as part of survivorship care. The school environment can provide continuity, social connection, and a sense of normality, while also presenting demands that may expose residual difficulties. A supportive school can therefore become an important component of psychosocial recovery, whereas inadequate preparation can amplify existing difficulties [8,11].

The importance of communication across sectors was particularly consistent. Families, schools, and healthcare professionals possess different but complementary forms of knowledge. Families understand the child's everyday needs; educators understand the classroom and school context; and healthcare professionals understand medical and treatment-related implications. Coordination among these perspectives can support timely accommodations and reduce the burden placed on parents as sole communicators [9,11,12].

The findings also reinforce the need for individualized approaches. Children differ in age, diagnosis, treatment exposure, duration of school absence, functional status, psychological needs, and family circumstances. Consequently, a uniform return-to-school protocol may be insufficient. Reintegration planning should be flexible and responsive to the child's evolving needs.

The evidence is also relevant to nursing and multidisciplinary pediatric practice. Nurses may contribute to assessment, education, coordination, psychosocial support, and communication between the hospital and community. Their role is particularly relevant where survivorship services seek to address quality of life and participation rather than focusing exclusively on disease control [6,13].

From an educational perspective, schools require accessible guidance on common late and persistent effects of childhood cancer treatment. Training should address fatigue, neurocognitive difficulties, emotional needs, physical

limitations, confidentiality, communication with families, and appropriate educational accommodations. Such preparation could reduce uncertainty and help prevent avoidable exclusion.

The limited geographic diversity of the available evidence is important. Most included studies originated from the United States, with additional evidence from Germany, South Korea, and India. This distribution suggests that findings may not transfer directly to countries with different healthcare and educational structures. In Greece, there is a need for context-specific research examining how pediatric oncology services, schools, families, and community services currently coordinate during school reintegration.

4.1 Clinical and educational implications

The evidence supports the development of structured school-reintegration pathways beginning before or around the end of treatment. Such pathways could include an individualized reintegration plan, designated communication between the healthcare team and school, assessment of educational and psychosocial needs, teacher preparation, peer-support strategies where appropriate, and scheduled follow-up after return.

Healthcare services should consider school participation as a meaningful survivorship outcome. Educational services should recognize that some consequences of treatment may be subtle and may require accommodation even when the child appears clinically well.

Families should be provided with clear information about whom to contact when new school-related difficulties emerge.

Limitations

This review has several limitations. First, as a scoping review, it maps and synthesizes heterogeneous evidence rather than estimating causal effects or pooled intervention effects. Second, only English-language publications were included, which may have excluded relevant evidence published in other languages. Third, the included studies differed in participants, methods, outcomes, and settings, limiting direct comparison. Fourth, many studies relied on self-reported experiences from children, parents, or educators, which may be influenced by individual perceptions and recall. Finally, the predominance of studies from countries with established pediatric oncology and education systems limits direct generalizability to settings such as Greece.

Recommendations for future research

Future research should evaluate structured school-reintegration interventions and determine which components produce the greatest benefit for different age groups and clinical populations. Longitudinal studies are needed to examine whether early reintegration difficulties persist over time and how educational and psychosocial outcomes evolve during survivorship. Research in Greece and other underrepresented settings is particularly important to identify local barriers, resources, and feasible models of hospital–school collaboration.

5 CONCLUSION

Return to school after completion of childhood cancer treatment is an important component of recovery and social reintegration. The evidence indicates that successful reintegration depends on more than medical recovery. Physical and neurocognitive effects, psychological distress, social concerns, school preparedness, family resources, and coordination between healthcare and education services all contribute to the process.

The most consistently identified facilitators are early preparation, continuity of education and peer contact, individualized educational accommodations, psychosocial support, active family involvement, and effective collaboration between schools and healthcare professionals. Conversely, fatigue, cognitive difficulties, anxiety, stigma, inadequate teacher knowledge, and poorly organized communication pathways can hinder a smooth transition.

A coordinated and individualized approach should therefore be incorporated into survivorship care. Further research should focus on structured reintegration programs and on models adapted to national educational and healthcare contexts, including Greece.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

No conflict of interest to be declared.

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