

A Comprehensive Review of Educational Challenges Faced by Adolescents with Chronic Conditions

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Abstract

Chronic illnesses present unique educational challenges, influencing not only academic performance but also social experiences and emotional well-being. This review examines the educational experiences of students with chronic illnesses, addressing key aspects of their learning such as academic performance, school engagement, absenteeism, teacher preparedness, and existing intervention programs. Following the PRISMA guidelines, a designed search across PubMed, Google Scholar, Gale, and Wiley was executed during the month of October 2024. 71 relevant studies, which were screened based on inclusion criteria such as empirical research, relevance to academic outcomes, and focus on K-12 students, were identified. After full-text assessment, 13 studies were selected to be included in the final review. The analysis revealed 5 central themes: Academic Performance and Educational Attainment; Absenteeism, School Reintegration, and Homebound Instruction; Social Experiences, Bullying, and Peer Relationships; Teacher Perceptions and School Support Systems; Intervention Programs and Technological Solutions. Findings highlight persistent barriers to consistent attendance, academic success, and social inclusion. Despite emerging interventions, policy implementation, teacher preparedness, and individualized academic support remain limited. Hence, addressing both academic and social barriers is essential to foster inclusive and productive learning environments. Collaboration between educators, healthcare professionals, and policymakers is critical in ensuring that students with chronic illnesses receive the support needed to thrive academically and socially.

Keywords: Adolescents, Chronic conditions, School re-entry, Mental health

1. Introduction

Education is a fundamental pillar of personal and societal development, shaping opportunities for individuals and influencing broader social and economic structures. However, various factors can hinder equitable access to education, including health disparities that affect students' ability to engage consistently with their learning environments. Across the world, education systems strive to create inclusive environments that support students with diverse needs. While efforts have been made to accommodate students with disabilities and learning differences, students with chronic illnesses remain an often-overlooked population within educational research and policy discussions. Unlike other groups that may have continuous support structures in place, students with chronic illnesses face unpredictable medical disruptions, fluctuating health conditions, and prolonged absences, making their educational experiences uniquely challenging. These students must navigate not only the academic consequences of their conditions but also the social, emotional, and institutional barriers that come with balancing school and healthcare needs.

Chronic illnesses in children and adolescents encompass a broad range of conditions, including but not limited to asthma, diabetes, epilepsy, cancer, cystic fibrosis, and autoimmune disorders. The severity and frequency of symptoms vary widely, meaning some students may experience only occasional interruptions to their education, while others may require long-term medical interventions, homebound instruction, or alternative learning arrangements. These

circumstances often lead to missed instructional time, difficulties keeping pace with coursework, and inconsistent engagement with peers and teachers. Additionally, students with chronic illnesses frequently encounter administrative and structural challenges within schools, as many education systems are not fully equipped to provide flexible accommodations that align with their health-related needs.

At the core of these challenges lies a lack of standardized policies and sufficient teacher training to support students with chronic illnesses effectively. Teachers may have limited knowledge about the medical conditions which their students face. Accordingly, teachers may struggle to modify coursework, provide alternative assessment options, or maintain open communication with students who experience frequent health-related absences. Meanwhile, schools often lack well-defined protocols for academic reintegration, leaving students to manage their educational progress with minimal guidance. The intersection of health, education, and social development for this population requires a more comprehensive approach, one that includes targeted academic interventions, enhanced teacher preparedness, and increased institutional support.

This study seeks to explore the educational experiences of students with chronic illnesses, focusing on their academic performance, school engagement, absenteeism, and the role of teachers and intervention programs. Through a systematic review of the existing literature, this research aims to provide a clearer understanding of the barriers faced by these students and the strategies that have been implemented to improve their educational outcomes. By examining both the challenges and the solutions that exist within the current educational landscape, this study contributes to the ongoing conversation about how schools can better support students with chronic illnesses, ensuring that they have access to the same learning opportunities as their peers.

2. Methods

This study employs a systematic review approach to synthesize available literature on the challenges faced by students with chronic conditions or special needs in educational settings. The objective is to obtain a comprehensive understanding of the existing research on this topic and identify key trends, gaps, and implications for educational policies and practices. The selection of databases was based on their academic reputation and relevance to the field of education and special needs research. The following databases were utilized for this study: PubMed, Google Scholar, Gale, and Wiley. These databases were chosen for their extensive collection of peer-reviewed publications and their focus on high-impact research in education, disability studies, and public health.

2.1 Search Procedures

The systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A literature search was performed in October, 2024 using a combination of key descriptors relevant to the research topic. The search terms included: “chronic illness and education,” “special needs students and learning challenges,” “educational policy reform,” “school completion and school re-entry.”

To ensure relevance and quality, the search was restricted to:

- Full-text, peer-reviewed journal articles
- Open-access publications
- Studies categorized under 'education' in the K-12 setting
- Articles published in English
- Publication period from 2010 to 2025, ensuring relevant findings

The initial search yielded 150 articles. After removing duplicates, 71 unique articles remained. The first screening stage involved analyzing titles and abstracts based on pre-established inclusion criteria. After this step, 31 articles were selected for full-text review. The final selection process involved independent evaluation by 1 reviewer. The final selection was conducted by a single reviewer due to project scope and time constraints. Bias was minimized by the use of a structured, pre-defined inclusion and exclusion criteria developed prior to screening. These criteria were formatted as a checklist used in the screening of titles, abstracts, and full-texts. In an attempt to ensure consistency

and objectivity, a random subset of articles were re-evaluated after initial screening to confirm adherence to the criteria. Finally, 13 articles have been included in this systematic review. The literature selection process is illustrated in Figure 1 using a PRISMA flowchart.

2.2 Inclusion and Exclusion Criteria

To ensure the selection of high-quality and relevant studies, the following inclusion criteria were applied:

- Empirical research published in peer-reviewed journals
- Focus on academic outcomes and/or interventions
- Focus on only K-12 students with chronic conditions or special needs

Studies were excluded if they:

- Were theoretical or opinion-based papers
- Were a review paper
- Lacked a focus on education
- Investigated populations outside the K-12 education system

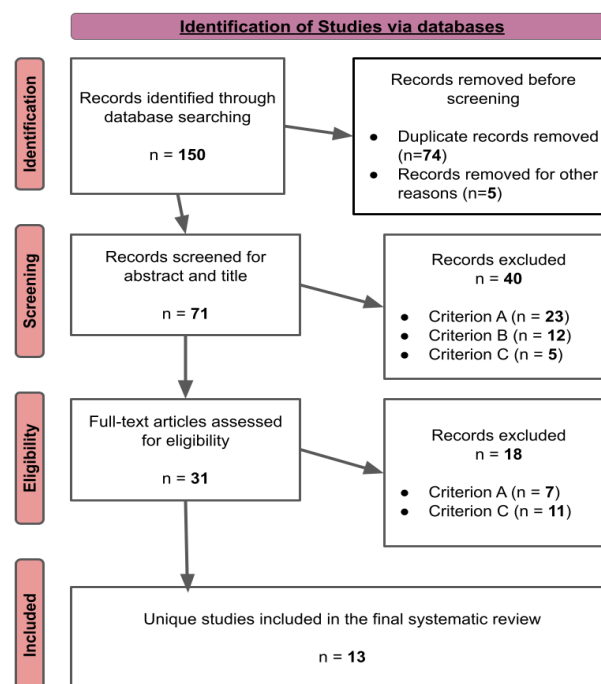


Figure 1. PRISMA Study Selection Flowchart.

2.3 Data Extraction and Analysis

The selected studies were analyzed from two perspectives: (1) descriptive analysis, including authorship, research objectives, methods, participant demographics, and key findings, and (2) evaluation of study quality and validity, particularly concerning methodology, data collection, and relevance to the research objectives. The extracted data were synthesized thematically, highlighting major trends such as the impact of chronic conditions on academic performance, barriers to inclusive education, and teacher support mechanisms for students with special needs.

By conducting this systematic review, the study aims to provide evidence-based insights into the educational challenges faced by students with chronic conditions or special needs and inform potential strategies for fostering inclusive learning environments.

2.4 Quality Assessment

Study quality was assessed using the MMAT appraisal. According to the MMAT appraisal, 8 were rated high quality 4 as moderate and 1 as low quality. Most studies demonstrated clear research purposes and appropriate data collection methods, but several lacked detailed reporting on participant selection and had potential confounding variables.

3. Results

3.1 Identification of Selected Publications

The included studies explore various dimensions of the educational experiences of students with chronic illnesses and special needs. These studies provide insights into the academic, social, emotional, and systemic challenges these students face, as well as interventions aimed at improving their educational outcomes.

Themes:

1. Academic Performance and Educational Attainment
2. Absenteeism, School Reintegration, and Homebound Instruction
3. Social Experiences, Bullying, and Peer Relationships
4. Teacher Perceptions and School Support Systems
5. Intervention Programs and Technological Solutions

3.2 Description of the Articles Included

Academic Performance and Educational Attainment

Chronic illnesses have been consistently linked to lower academic achievement, increased dropout rates, and diminished long-term educational attainment. These outcomes are often driven by extended absences, cognitive difficulties resulting from medical treatments, and the systemic challenges of balancing school and health needs.

Forrest et al. (2011) conducted a quantitative study analyzing school outcomes for children with special healthcare needs using a dataset of 1,457 children from 34 schools in the United States. The study relied on parent-completed Children with Special Health Care Needs Screeners and gathered school records on attendance, grades, and standardized test scores. Their findings revealed that approximately one-third of children in the study screened positive for special healthcare needs. These students exhibited lower academic motivation, more disruptive behaviors, and significantly lower scores on standardized tests. Additionally, they were more likely to experience bullying and social rejection, which further compounded their academic struggles. The study underscored the importance of early intervention and stronger collaboration between educational and healthcare professionals to mitigate these challenges. Similarly, Champaloux and Young (2015) examined the long-term impact of chronic illness on educational attainment through a longitudinal study utilizing data from the National Longitudinal Survey of Youth (NLSY) 1997 cohort, which followed 8,984 adolescents aged 12-16 until they reached 21. The study measured school outcomes by tracking chronic illness status, school absences, grade repetition, and high school completion rates. Their analysis found that students with chronic illnesses were 15% less likely to complete high school than their healthy peers. The dropout rate for students with asthma was 17%, while those with conditions such as cancer, diabetes, or epilepsy faced a 20% dropout rate. The study identified absenteeism and grade repetition as significant mediators of these disparities, emphasizing the need for academic accommodations and mental health support to improve educational outcomes for these students.

Maslow et al. (2011) extended the discussion to long-term vocational and educational trajectories by examining how childhood-onset chronic illnesses affect adult educational and employment outcomes. Using data from the National Longitudinal Study of Adolescent Health, this study followed participants from adolescence into adulthood, assessing their highest level of educational attainment, employment status, and economic stability. The results showed that individuals with chronic illnesses were less likely to graduate from high school and college, had lower rates of job attainment, and were more likely to rely on public assistance. Financially, their adjusted mean income was \$5,157 lower than that of their peers without chronic conditions. The study highlighted the importance of early academic and career support programs, noting that without appropriate interventions the disadvantages experienced in childhood could translate into lifelong economic struggles.

Lum et al. (2019) explored the specific academic challenges faced by students with chronic illnesses, particularly their increased likelihood of grade repetition and parental concerns about their academic performance. This mixed-methods study surveyed parents and educators, revealing that students with chronic illnesses were significantly more likely to repeat a grade, with an adjusted odds ratio (aOR) of 3.80 (95% CI 1.65, 8.73, $p = .001$). Parents also reported a higher prevalence of academic difficulties in this population, with an aOR of 3.55 (95% CI 1.93, 6.54, $p = .001$). The study concluded that individualized education plans (IEPs) and targeted interventions were critical in ensuring these students had access to an equitable learning environment.

Across the four studies, absenteeism and grade repetition consistently emerge as key outcomes linked to chronic illness. Forrest et al. and Lum et al. both show higher rates of academic difficulty and grade repetition, while Champaloux and Young extend this to reduced high school completion, and Maslow connects it further to lower

college attainment and income in adulthood. The studies differ in emphasis—Forrest and Lum focus on day-to-day school performance, Champaloux and Young on dropout patterns, and Maslow on long-term socioeconomic impacts.

Absenteeism, School Reintegration, and Homebound Instruction

Absenteeism remains a significant barrier for students with chronic illnesses, as frequent hospitalization and prolonged recovery periods disrupt their learning continuity, social integration, and academic progress. Various studies have assessed how homebound instruction and alternative learning solutions address these disruptions.

Boonen and Petry (2011) examined the perceptions of students returning to school after a period of homebound instruction. Their study surveyed 60 children and their parents about their experiences with home-based education and subsequent reintegration into the classroom. The findings show that while 91.7% of students maintain some form of contact with their classmates through internet communication, phone calls, or visits, 90% still reported feeling a sense of detachment from their peers. Academically half of the students felt they could keep up with their school work while 42.6% struggled particularly with subjects like math. The study underscored that while homebound instruction helps students remain academically engaged, it does not fully replace the benefits of in-person learning, particularly in fostering social inclusion. In a similar way, A'Bear (2015) investigated how teachers adapt their expectations for students with chronic illnesses and the role of technology in bridging educational gaps. Through a series of qualitative interviews with educators, students, and parents, the study found that many teachers unintentionally lowered academic expectations for chronically ill students, creating learning gaps that were difficult to overcome upon reintegration. The study highlighted the potential of digital learning platforms, particularly those that enable real-time engagement with classrooms, in improving both academic outcomes and social inclusion for homebound students.

A broader analysis of hospital/homebound (H/H) students was conducted by Black et al. (2022), who examined six years of data from K-12 online learners. This study compared academic performance between H/H students and their non-homebound peers, finding that while the two groups performed similarly in terms of grades, H/H students had lower course completion rates, with only 36.4% successfully completing their courses compared to 43.5% of non-homebound students. This gap suggested that while online learning is a viable option for students with chronic illnesses, additional structured support is needed to help them persist through course completion.

All three studies agree that homebound or online instruction helps maintain some academic continuity but fails to fully address gaps. Boonen and Petry highlight persistent peer detachment, A'Bear finds lowered teacher expectations, and Black documents lower course completion rates despite comparable grades. The main difference lies in perspective: Boonen and Petry capture student/parent experiences, A'Bear centers teacher practices, and Black provides large-scale performance data.

Social Experiences, Bullying, and Peer Relationships

In addition to pure academic struggles, students with chronic illnesses frequently experience social isolation and peer victimization, further affecting their educational engagement and emotional well-being.

Kirkpatrick (2020) explored the impact of perceived school belonging on educational outcomes for students with chronic illnesses. The study used self-reported data to compare school belonging scores between healthy students and those with chronic medical conditions. Results showed the students with chronic conditions reported significantly lower levels of school belonging, with a mean score of 3.61 compared to 3.78 for their healthy peers. This lack of belonging correlated with lower high school completion rates, with 90.1% of students with chronic illnesses graduating on time compared to 94.4% of their healthy counterparts. The findings emphasized the need for school-wide initiatives to foster inclusive and supportive environments for students facing medical challenges. Further examining the social dimensions of chronic illness, Whitgob and Loe (2018) analyzed the experiences of students with chronic medical conditions in the child welfare system. Their study revealed that children with chronic illnesses in unstable home environments faced even greater academic and social risks. The study recommended a multidisciplinary approach involving healthcare providers, educators, and social workers to address the compounded barriers these students face.

Both studies highlight how the social environment profoundly shapes educational outcomes for students with chronic illnesses, but they focus on different dimensions of that environment. A clear similarity is that both point to

social belonging and support systems as critical protective factors—Kirkpatrick emphasizes the school climate, while Whitgob and Loe stress broader networks that include healthcare providers and social workers. The key difference lies in, yet again, scope: Kirkpatrick situates the problem primarily within the school context, identifying belonging as a measurable predictor of academic persistence, whereas Whitgob and Loe extend the issue to the intersection of illness and unstable home environments, showing how compounded vulnerabilities magnify risk. In essence, both studies agree that academic disparities cannot be addressed through academics alone, but they diverge in framing the solution—one calls for school-wide inclusion efforts, while the other argues for multidisciplinary, cross-sector collaboration.

Teacher Perceptions and School Support Systems

Teachers play a critical role in supporting students with chronic illnesses, yet systematic gaps in training and school support often limit their ability to provide adequate accommodations.

Lum et al. (2019) investigated the role of positive educational practices in supporting chronically ill students and found that while these practices increased school engagement, they did not fully address students' social and emotional needs. Many students continued to report lower well-being and struggled with feelings of isolation, suggesting that emotional support services must be integrated alongside academic interventions. Ellis et al. (2013) addressed the effectiveness of a videoconferencing intervention designed to help students with cancer remain connected to their school environment. Their study found that 15 out of 16 students reported positive experiences with virtual classroom interactions, stating that these connections helped them feel included and reduced feelings of loneliness. Teachers also observed an increase in peer empathy, suggesting that such interventions could improve social dynamics for chronically ill students. In this way, this article can also be considered under theme 5 for its technological involvement.

Findings converge on the importance of teacher-facilitated connection but show variation in outcomes. Lum et al. report that positive practices increase engagement but do not resolve isolation, while Ellis et al. find that videoconferencing can improve both academic presence and peer empathy. The difference lies in mediation type of the data—general positive practices versus specific technology-mediated strategies.

Intervention Programs and Technological Solutions

Several intervention programs have demonstrated success in improving both academic and psychological outcomes for students with chronic illnesses.

Kushner and Rengasamy (2024) evaluated a career-focused mentoring program for adolescents and young adults with cancer. Their study measured participants' school and career-related needs before and after mentoring, revealing a drop in reported unmet needs from 17.6 to 1.8. Additionally, all participants expressed a strong connection with their mentors, reinforcing the importance of structured mentorship in helping students navigate academic and vocational challenges. Ciucci et al. (2024) explored the benefits of hospital-based schooling and found that structured educational programs significantly reduced reported pain levels and increased positive emotions among hospitalized students. Their findings underscored the psychological benefits of maintaining an academic routine even in medical settings, further supporting the integration of education in healthcare plans.

Both Kushner & Rengasamy (2024) and Ciucci et al. (2024) demonstrate that well-designed interventions can support students with chronic illnesses not only academically but also psychologically, highlighting the dual importance of educational and emotional wellbeing. A clear similarity is their emphasis on structured programming—whether through mentoring or hospital-based schooling—as a means of reducing barriers and fostering resilience. The key difference lies in timeline: Kushner & Rengasamy target the long-term, future-oriented needs of adolescents and young adults by building career readiness and academic guidance through mentorship, while Ciucci et al. address the immediate, present-tense challenges of hospitalization, showing how continuity of schooling can alleviate pain and promote positive emotions. Together, the studies illustrate that effective interventions must operate across multiple timescales, offering both immediate supports during treatment and forward-looking resources that help students envision and prepare for life beyond illness.

4. Conclusion

This systematic review highlights the complex educational difficulties adolescents with chronic health conditions face in schools. The studies reviewed show that students with chronic illnesses face major educational challenges like reduced academic success, high rates of missed school days, and obstacles when returning to school after absences. School experiences for these students become more challenging due to social and emotional difficulties which include being isolated from peers and facing bullying. A lack of necessary training and resources for teachers creates systemic deficiencies in schools that prevent proper support for students with chronic conditions. Existing interventions like technology-based learning solutions and homebound instruction offer limited relief because they fail to universally address the broader social and emotional challenges that students face. Educational programs combining academic assistance with mental health resources and social reintegration strategies produce the best results. The majority of schools do not possess formal policies that provide fair educational opportunities to students who manage chronic illnesses.

Solutions that address all of these concerns are necessary to close the gaps for these students with chronic disease. Establishing stronger partnerships between educators and healthcare professionals along with policymakers and families helps create better educational frameworks that include all students. Teacher training programs need to integrate best practices for supporting students with chronic illnesses and schools must adopt flexible learning structures like hybrid education and telepresence technologies as strategies to lessen the impact of missed school days. A school atmosphere supporting social inclusion enhances academic participation and students' emotional health.

Supporting students with chronic illnesses in their educational journey is an essential component of academic fairness while functioning as a fundamental public health requirement and social justice necessity. Future studies should investigate new support methods that merge healthcare and educational services with psychological assistance to develop learning spaces that accommodate all students. Through strategic prioritization educators and policymakers will be able to break down existing obstacles and enable students with chronic illnesses to succeed in their educational pursuits and personal growth.

5. Limitations

The study selection was restricted to english-only studies across 4 databases. This may have prevented the selection of some relevant and high-quality studies. Additionally, with only 1 reviewer, there may have been selection bias although proper measures were taken to minimize this bias. Finally, sample sizes of population studies are relatively small. This is because the target population is understudied; however, this limitation may still contribute to an inaccurate representation.

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