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Article

School Reentry Plans for Students with Chronic Illness: A Literature Review

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Abstract: *Students with chronic illnesses benefit from coordinated school reentry plans developed in conjunction with families, school personnel, and medical specialists. A systematic literature review was conducted to study school reentry plans that are specific to students with chronic illnesses. Five studies met inclusion criteria and were synthesized and analyzed based on specific reentry characteristics as well as the overall impact transition plans had on student mental health and academics. Findings suggest that there is little standardization within reentry program research which leads to program variability. Nevertheless, findings also suggest that school reentry programs for students with chronic illness resulted in higher rates of school attendance as well as increased feelings of social connectiveness with their classmates. Further research within the area of hospital-to-school transition procedures for students with chronic illness is needed to establish practice guidelines within the medical and educational communities.*

Keywords: *children, chronic illness, education, school reentry*

School Reentry Plans for Students with Chronic Illness: A Literature Review

The continuity of schooling for children with chronic illnesses often gets interrupted because of frequent hospitalizations or medical treatments. Many children with chronic illnesses have the cognitive capabilities to academically perform well in school, however their frequent absences put them at risk for poor educational attainment and decreased social and emotional growth (Kearney, 2008; Shiu, 2001). Academic skills, such as fundamental reading skills, build upon each other as reading concepts progress throughout the grade levels. When students with medical needs are chronically absent from school, they are at risk for increased learning and academic difficulties (Wodrick & Cunningham, 2008).

Social skills and cooperative learning concepts are also very important behaviors that children learn through experience in the education setting (Durlak, et al., 2011). Children with chronic illness are at risk for deficits in obtaining mastery in these psychosocial competencies because of a decrease in opportunities to practice social skills in academic settings (Harris, 2009). Students who have been diagnosed with medical conditions frequently miss many opportunities to practice social skills through cooperative learning classrooms as their chronic health conditions cause an increase in school absences.

Pediatric Chronic Illnesses

Chronic illness is defined as a significant medical condition of an extended time period that creates impairments within an individual's academic functioning, communication, daily living, social interactions, and self-care (Notoras et al., 2002). Throughout childhood and adolescence, many students experience illnesses that cause minor disruptions to school attendance. However, students who have been diagnosed with significant chronic illnesses, for example, cancer, cystic fibrosis, cardiac conditions, and blood disorders, are at an increased risk for both academic and social difficulties due to lengthy school absences (Ireys, 2014). Table 1 provides a list of common chronic illnesses and their impact on a student's education.

Total MAS scores were not significantly correlated with any level or quality of exposure. However, when the MAS score was broken down by subscale, the cognition subscale was significantly correlated with the quality of exposure at the elementary level ($r = -.434, p = .002$) and secondary levels ($r = -.374, p = .008$). In contrast, neither the emotion nor behavior subscales were significantly correlated with amount or quality of exposure at any level. Because a lower score on the MAS represents a more positive attitude toward people with disabilities, a negative correlation involving MAS scores represents a positive relationship between the other variable in the correlation and attitude.

Table 1
Significant Chronic Illnesses: Definitions and Impact on Education

Chronic Illness	Definition	Academic and/or social needs	Average school year absences
Asthma	Chronic lung disease with periods of acute breathing problems including wheezing, coughing, chest tightness, or shortness of breath.	Fatigue, hypoxia, can cause anxiety and confusion.	12-36 days
Blood Disorders, Sickle Cell Anemia (SCA)	SCA is an inherited blood disorder, causes periodic episodes of severe pain.	Difficulties with verbal abilities, processing, attention, and memory. Periodic pain crisis increase risk for missing school days.	20 days
Cancer: Acute Lymphoblastic Leukemia (ALL), Brain Tumors	ALL is a fast-growing cancer of white blood cells. Brain tumors start in the brain or cancer that spreads to the brain.	Fatigue, increased risk for infections, loss of appetite, hair loss, attention difficulties.	25-80 days, depending on specific cancer diagnosis and treatment plan
Cardiac Conditions, i.e.: Congenital heart defects (CHD)	CHD: holes in the heart, obstructed blood flow, abnormal blood vessels, heart valve abnormalities, an underdeveloped heart, and combination of defects.	Some children with CHD have early delays in development, which makes early assessment and support vitally important.	10 or more days per year
Cystic Fibrosis (CF)	CF is a genetic disease that causes persistent lung infections and reduces the ability to breathe over time. There is no cure to the disease.	Stunted height and weight growth, overall pulmonary difficulties, reduction in appetite, academic and social difficulties due to increase absences.	19.5 days
Diabetes	Is a condition that causes a shortage of insulin, a hormone that allows sugar to enter the body's cells and to be converted into energy.	Verbal IQ, visuospatial/nonverbal functioning, memory, attention issues, especially if there is a high prevalence of seizures, unconsciousness, or ketoacidosis.	14 days
Juvenile Idiopathic Arthritis (JIA)	JIA is an inflammation of joints (ages 16 or younger). An autoimmune disorder that causes periodic painful flares.	Children with JIA can experience a decrease in concentration, academic difficulties due to heightened absences, and significant mood	15 days

Note. Information adapted from: American Cancer Society. (2010); National Heart, Lung, and Blood Inst. (1991); Shaw & McCabe (2008); Taras & Potts-Datema (2005).

Approximately 20% of school-aged children have medical conditions that severely impact their access to education (Compas et al., 2012; West et al., 2013). Advancements with medical treatments have allowed many children with chronic medical conditions to reenter the educational environment after periods of absences. For example, the use of chimeric antigen receptor T cell (CAR-T) therapy for medical treatment of children diagnosed with leukemia has helped to improve the survival rates for children diagnosed with this type of cancer (Wang et al., 2019).

Medical complexities and extended school absences create a unique experience for students with chronic illnesses. Coordinated school reentry plans may prove beneficial after long periods of absences to facilitate the transition from hospital to school setting. Previous research has examined school reintegration programs.

Examination of Literature Review

School reentry for students with chronic illness is defined as the reintegration into the school setting after an extended period of absence due to severe illness or injury (Schilling & Getch, 2018). Although there is a large number of descriptive articles detailing reintegration programs for students with chronic illnesses, a small amount of empirical research exists about the validity of reentry programs (Harris, 2009). Prevatt et al. (2000) reviewed fourteen articles focusing on school reentry programs for students with cancer published between the mid-1970s to the late 1990s. Within the Prevatt et al. review, reentry programs were classified as peer education programs, school personnel workshops, or comprehensive programs. Peer education programs consist of chronic illness education sessions that are directed at classmates of children who have been diagnosed with chronic illnesses. The goals of peer education session are to increase peer knowledge surrounding chronic illnesses which allow for great peer acceptance of children with chronic illnesses. Similar to peer education sessions, school personnel workshops are guided education sessions in which school staff are provided education on chronic illnesses. Goals of school personnel workshops are to increase educator chronic illness knowledge specific to academic and social needs of the students who have been diagnosed with specific illnesses. Finally, comprehensive school reentry programs focus on providing individualized academic and social support services to each child with a chronic illness. While comprehensive school reentry programs may include portions of both school personnel and peer education sessions, the purpose of comprehensive school reentry programs are to provide targeted reentry services specific to each student.

Although the Prevatt et al. (2000) review was the first to synthesize reentry programs into classifications, the authors focused exclusively on reentry programs for students with cancer, which may have overlooked other chronic illness reintegration programs. In addition, the authors acknowledged that small sample sizes limited group comparisons between school reentry programs specific to each cancer diagnosis (Prevatt et al., 2000).

Canter and Roberts (2012) completed a systematic review of 12 research articles targeting school reentry programs for children with chronic illnesses. In the Canter and Roberts review, all research was published between 1983 and 2007 and focused on a variety of different childhood illnesses such as cancer, Tourette's Syndrome, Sickle Cell Anemia, or Burn injuries. Like Prevatt et al. (2000), Canter and Roberts classified the 12 articles as providing school reentry education to either peers or school personnel; however, the components of interventions were not presented or described in detail. Unlike Prevatt et al., Canter and Roberts applied statistical methodologies within the review to determine if the program studies increased illness-specific knowledge and individual attitudinal changes regarding students with chronic illnesses.

Canter and Roberts reviewed school reentry programs for two outcome variables: attitudinal changes and increase in illness-specific knowledge. Although these are two valuable outcome measures—and can ultimately impact the social and emotional needs of children with chronic illnesses—little evidence was given on how the 12 programs addressed academic challenges faced by high rates of absences. Furthermore, the absence of details on program characteristics makes reentry program evaluation challenging for standardization of effective and efficient practice components.

Thompson et al. (2015) completed a literature review of 17 studies focused exclusively on school reentry programs for students with cancer. Research articles included within the Thompson et al. review ranged from 1995 to 2014. Listed article search criteria excluded research published in foreign languages, although a few included studies focused on programs located outside the United States. Thompson et al. reviewed school reentry articles that focused on developing full-school reentry approaches at the time of diagnosis. The authors found that when school reentry programs were implemented, classmates and teachers expressed a greater sense of knowledge regarding cancer as a chronic illness. Limitations with the review showed difficulty in determining specific long-term program metrics due to the lack of standardization of reentry program outcome measures within the field (Thompson et al., 2015).

The three previous reviews of school reentry programs (Canter & Roberts, 2012; Prevatt et al., 2000; & Thompson et al., 2015) contribute to the field of reentry research. The identification of peer, school personnel, and comprehensive programs has provided a general overview of program classifications (Prevatt et al., 2000). However, there remains a need for further and recent investigation into the specific components of reentry programs. Furthermore, previous reviews have included program descriptions or anecdotal evidence (Prevatt et al., 2000; Thompson et al., 2015). Empirically investigated programs provide the greatest confidence in results. In order for detailed analyses of reentry program efficacies, careful exploration of empirically examined program specifics is needed to allow for effective program development and implementation.

Purpose of this Review

Students with chronic illnesses are a diverse group of learners who experience frequent and consecutive school absences, which put them at risk for diminished social experiences and academic failure (Shaw & McCabe, 2008). This literature review contributes to the field by building on previous research and examining recent empirically investigated school reentry programs for students with chronic illnesses. Systematic comparisons of school reentry programs will allow for the identification of germane and extraneous components. In order to establish effective and efficient reentry programs, hospital and school personnel will benefit from a current review of school reentry program components. The following research questions guided our analysis:

1. What are the characteristics (i.e., components) of reentry programs that have been empirically investigated for students with chronic illness?
2. What dependent variables have been measured with reentry programs for students with chronic illness?

Method

Selection Criteria and Eligibility

Using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) screening tool developed by Moher et al. (2009), a systematic literature review search was conducted to identify research articles focusing on school reentry programs for students with chronic illness. Three eligibility criteria categories were established as a protocol screening tool to identify articles. In order to be included in this systematic literature review, each article was screened by the three categories established exclusively for this research. The three categories are listed as follows: (a) the article must focus on quantitative or qualitative research that investigates a school reentry methodology for students with chronic illness and has reportable outcomes (b) the research occurred within the United States and (c) the article must focus exclusively on students with chronic illness.

Any research that focused on mental health disorders were excluded. Various psychiatric hospitalization programs provide education support to students, however, the model of care for these treatment programs are focused on treatment of acute psychiatric symptoms (DeMaso et al., 2009). Although there are many social and emotional needs that students with chronic illnesses experience, the prevalence of acute psychiatric issues that require psychiatric hospitalizations are low (Wallander et al., 2003).

Any article that focused on school reentry for students with chronic illnesses that were descriptive in nature (i.e., without empirical investigation) were excluded. Finally, to be included within the review, the study must have occurred in the United States. Students with chronic illnesses may be eligible for education support services under the Individuals with Disabilities

Education Improvement Act (2004) or Section 504 Plan accommodations through the Rehabilitation Act of 1973, which is specific to U.S. legislation (Shaw & McCabe, 2008).

Information Sources and Search Terms

A search was conducted of the following databases: Eric (ProQuest), PsycInfo (EBSCOhost), Pubmed and Google Scholar, using search terms relative to each database. The Eric (ProQuest) and PsycInfo (EBSCOhost) databases were limited to peer-reviewed research published between 2000 and 2020. The Pubmed and Google Scholar databases were limited to research published between 2000 and 2020. The year 2000 was set as a beginning search term due to the publication of a literature review similar in scope (Prevatt et al., 2000). This review attempted to build on the previous review by synthesizing recent empirical studies of reentry programs for students with chronic illnesses.

An Eric (ProQuest) advanced search was done using “students with chronic illnesses” OR “children with chronic illnesses” OR “teens with chronic illnesses” AND “school reentry” OR “school reintegration” as key search terms. A search of PsycInfo (EBSCOhost) was completed using “students with chronic illnesses” AND “school re-entry” OR “school reintegration” as search words. Finally, the Pubmed database was screened using the search terms of “students with chronic health conditions” AND “school re-entry” OR “school reintegration.”

Additional research articles were found by searching Google Scholar and by ancestral searches. Google Scholar was searched with “students with chronic illnesses” AND “school re-entry” OR “school reintegration” as key terms. Pertinent references found by screening the Canter and Roberts (2012) article, the Thompson et al. (2015) article, and other school reentry journal articles were added to the search total.

The PRISMA identification methodology was applied to each database and revealed a total of 140 journal articles. A screen of the ERIC(EBSCOhost) database produced 23 articles, the PsycInfo (EBSCOhost) search discovered 28 articles that were included in the total, and an examination of Pubmed’s database resulted in 27 included articles. A search of Google Scholar resulted in 54 articles that were subsequently screened. Finally, an additional eight articles were found through ancestral searches of the Canter and Roberts (2012) review, the Thompson et al. (2015) review, and other published research on school re-entry.

Article Screening and Coding

After article duplicates were removed, 118 articles remained to be evaluated by the defined eligibility criteria. A total of 62 articles were eliminated during the abstract screening process. Thirty articles were removed because they were written as master-level papers or doctorate theses and not peer-reviewed research. Thirty-two articles were excluded because the research was conducted outside of the United States. The remaining 56 articles were then assessed for full-text eligibility. Eighteen articles were removed due to the focus being on

specific collaborations between educators and medical professionals rather than identified school reentry programs. Six articles were removed because the study focused on education in regard to pediatric mental health. Five articles were removed as they detailed transitions from secondary education settings to post-secondary or vocational settings for students with chronic illnesses. Finally, two literature reviews were excluded, and three additional articles were removed due to not being within the stated purpose of this review.

The remaining articles were rescreened for study design and for independent and dependent variables. Articles that did not have either a qualitative or quantitative research design methodology with a school reentry focus for students with chronic illness were excluded. Seventeen articles were removed during this portion of the PRISMA screening. After the quantitative analysis was completed, five articles remained to be used in this literature review (see Figure 1).

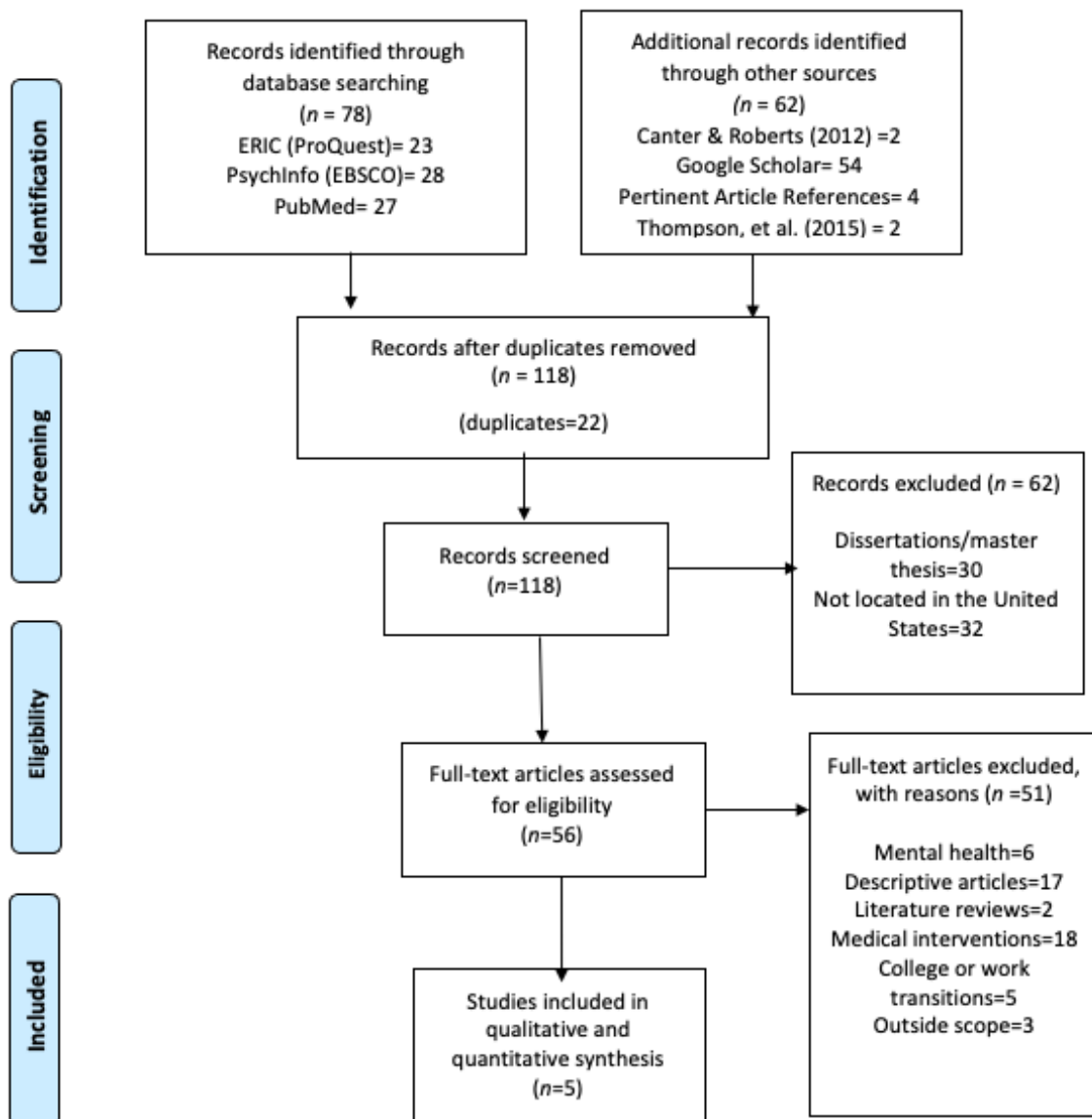


Figure 1. Preferred reporting items for systematic reviews and meta-analyses.

Results

Five studies identified for review were summarized using the following variables: (a) types of chronic illnesses addressed in the study, (b) participant descriptions, (c) reentry program characteristics (i.e., independent variable[s]), and (d) outcome measures (i.e., dependent variables). Results are presented in relation to each research question. Individual study results are presented in Table 2. Specific study results are mentioned whenever there is a need for detailed research outcomes.

Table 2 *School Reentry Program Studies*

Author (first)	Chronic illnesses	n-size	Study participants	Reentry program characteristics	Dependent variables
Colbert (2019)	Various medical illnesses	89	Students with chronic illness <ul style="list-style-type: none"> • Mean age = 12.2 yrs. • Male = 47 • Female = 52 	A hospital-based multidisciplinary school program provided individualized reentry programming. Components included: <ol style="list-style-type: none"> 1. Academic support 2. Medical and psychosocial support 	Improve health-related quality of life outcomes for student with chronic illness: <ul style="list-style-type: none"> • School absences • Coping skills • Medical management of chronic illnesses
Dubowy (2006)	Cancer	41	Teachers <ul style="list-style-type: none"> • Mean = 34.5 yrs. old • Male = 6 • Female = 35 • Mean 9.5 yrs. teaching exp. 	Web-based training modules on childhood cancer. Each module was 25 minutes in length, completed over 2 weeks. Components of training modules included: <ol style="list-style-type: none"> 1. Overview of childhood cancer 2. Brain anatomy and cognitive effects 3. Interventions to assist students 4. Special education services & neuropsychological reports 	Improve classroom teacher characteristics: <ul style="list-style-type: none"> • Teacher knowledge • Teacher confidence • Teacher skills in working with students who have been diagnosed with cancer
Duggan (2004)	asthma, cancer, diabetes, sickle cell, AIDS, & fetal alcohol syndrome	91	Teachers & Administrators <ul style="list-style-type: none"> • Mean age = n/a • Male = 11 • Female = 80 	Three-part intervention program addressing students with chronic illnesses: <ol style="list-style-type: none"> 1. Inservice addressing emotional and cognition needs (one 2-hour inservice) 2. Resource packets with local/national resources. 3. Website with educational materials 	Improve teacher and administrator characteristics: <ul style="list-style-type: none"> • Teacher and administrator knowledge • Teacher and administrator confidence • Teacher and administrator attitudes
Holtz (2007)	Tourette Syndrome (TS)	179	Peers of student with TS <ul style="list-style-type: none"> • Mean age = 9.5 yrs. • Gender = n/a 	Recorded video by hospital. Approximately 60 minutes. Components of video included: <ol style="list-style-type: none"> 1. Explaining of TS 2. Associated behaviors of TS. 	Improve social outcomes for students with TS <ul style="list-style-type: none"> • Social interactions at recess • Social engagement during partnered activities
Koontz (2004)	Sickle Cell Anemia (SCA)	24	Students with chronic illness <ul style="list-style-type: none"> • Mean age = n/a • Age range = 8-12 yrs. 	Comprehensive program individualized to student with SCA. Components included: <ol style="list-style-type: none"> 1. School personnel & peer education in-services (one-hour per each in-service) 2. Education consultative meetings with families and school (1x monthly) 3. School medical plans reviewed and modified. 	Improve outcomes for students with SCA, families, teachers, administrators, and peer <ul style="list-style-type: none"> • Attendance • Academics (e.g., grades) • Family knowledge SCA • Teacher, administrator, and peer knowledge of SCA

Characteristics of Reentry Programs

Two studies (Colbert et al., 2019; Koontz et al., 2004) used comprehensive study design approaches in implementing school reentry programs concentrated directly on students with chronic illnesses. Two studies (Duggan et al., 2004; Holtz & Tessman, 2007) used combinations of multi-media presentations with education sessions led by trained professionals that focused on specific medical conditions such as Tourette's Syndrome or Traumatic Brain Injury. One study (Holtz & Tessman, 2007) focused on providing chronic illness education to peers through targeted education sessions or workshops. Based on these characteristics and following previous classifications by Prevatt et al. (2000), reentry programs included in this review were classified into three categories: a) student-focused reentry programs, b) school personnel-focused reentry programs, and c) peer-focused reentry programs. The characteristics of each category are described below.

Student-Focused Reentry Programs

Participant and Setting Description. One hundred and thirteen students with various chronic illness diagnosis participated in diagnosis-specific school reentry programs. Participants with chronic illness diagnoses included students with sickle cell anemia (n=24), students with other medical conditions (n=19), students with diabetes(n=14), students with kidney disease (n=9), students with metabolic disorders (n=9), students with cancer (n=8), students with blood disorders (n=8), students with congenital disorders (n=8), students with seizure disorders (n=7), and students with digestive disorders (n=7). Participant ages ranged from 7 to 21 years old, (M=12.22 years). All study settings for comprehensive school reentry programs were conducted in pediatric hospital facilities.

Components of Programs. Students with chronic illnesses in the Colbert et al. (2019) and Koontz et al. (2004) studies received individualized programming directly correlated to specific disease diagnoses. Characteristics of the Colbert et al. and Koontz et al. programs were the development of individualized academic support services, student training on emotional coping strategies and resilience skills, and medication management. The Koontz et al. program specifically included one hour each of peer education sessions and school personal workshops devoted to general Sickle Cell Anemia awareness. Both programs focused on improving health-related quality of life outcomes for students with chronic illnesses by providing in-services to both school personnel and same-aged peers. Families were also highly involved in student-focused reentry programs by receiving education on appropriate school accommodations for their children and disease management support.

Dependent Variables. Both the Colbert et al. (2019) and Koontz et al. (2004) research measured improved health-related quality of life outcomes for students diagnosed with chronic illnesses as dependent variables within the respective studies. Health-related quality of life outcomes within the Colbert et al. and Koontz et al. studies included increases in school attendance, improvement in grades, medical self-management, and emotional regularity. The

Colbert et al. and Koontz et al. research also measured participant chronic illness knowledge as additional dependent variables.

School Personnel Focused Reentry Programs

Participant and Setting Description. Three hundred and eleven school personnel participated in school personnel training workshops with the intended outcomes of increasing chronic illness disease knowledge. Personnel included classroom teachers and classroom assistants (n=119), special education teachers (n=5), classroom teachers in training (n=3), school administrators (n=3), and media specialists (n=2). Teaching experience for school personnel workshop participants varied with a mean of 9.5 years. Public school corporations were the settings where the school personnel workshops were conducted.

Components of Programs. Both the Dubowy et al. (2006) and the Duggan et al. (2004) research comprised of providing chronic illness information through in-person education sessions or through an online education format. Printed materials pertaining to chronic illnesses, development of disease-specific websites, and information regarding chronic illnesses presented in the audio-visual format were main components within both Dubowy et al. and Duggan et al. studies. Program materials and implementation in the Dubowy et al. study was developed and conducted by individuals from the medical community. School psychologists implemented school personnel trainings in the Duggan et al. study. The intensity of trainings consisted of four 25-minute modules (Dubowy et al., 2006) and one 2-hour in service.

Dependent Variables. The Dubowy et al. (2006) and Duggan et al. (2004) studies measured participant chronic illness knowledge, confidence, and attitudinal changes as dependent variables within the school reentry research. Chronic illness factual questions were answered to measure knowledge and self-reported rating scales were used to measure confidence and attitudinal changes.

Peer-Focused Reentry Programs

Participant and Setting Description. One hundred and seventy-nine school aged peers (boys [n=91] and girls [n=88]) participated in peer education sessions on Tourette's Syndrome. Student ages within peer education sessions ranged from 7 years to 15 years (M=9.5 years). Peer education sessions were conducted within school corporations.

Components of Programs. Peers within the Holtz and Tessman (2007) study received in-person chronic illness education sessions in combination with multi-media tools such as videos and printed materials on a specific illness topic. Participants were also given opportunities to ask questions specific to Tourette's Syndrome during an open discussion portion of the program. The intensity of the peer program consisted of a single 60-minute session.

Dependent Variables. The outcomes of the Holtz and Tessman (2007) study were to increase peer knowledge and attitudes. of Tourette's Syndrome. In increasing peer knowledge

and attitudes, the authors claimed, peers would more likely maintain or initiate positive social relationships with their classmates who have chronic illnesses. The authors reported increases in knowledge and attitudes but did not directly measure changes in student behaviors.

Discussion

The purpose of this literature review was to identify characteristics that are associated with successful school reentry outcomes for students with chronic illnesses. In addressing the diverse health, academic, and social characteristics linked to school-aged children with health conditions, this review contributes to the field by examining what is known from five empirically investigated school reentry programs conducted between 2004 and 2020. The following research question guided our analysis: 1) What are the characteristics (i.e., components) of reentry programs that have been empirically investigated for students with chronic illness? and 2) What dependent variables have been measured with reentry programs for students with chronic illness?

Findings from this review are consistent with previous research that school reentry programs are directed at three audiences: School personnel, peers, or individual students who have been diagnosed with chronic illnesses (Prevatt et al., 2000). All three school reentry programs have reported measures of success in relation to targeted outcomes. Although only one study measured maintenance of intervention and reported decrease use of program strategies, printed materials, and websites devoted to chronic illnesses by school personnel during the two-month post intervention follow-up query (Duggan et al., 2004). Overall, however, the five studies did increase participant knowledge on chronic illnesses and showed levels of improvement for addressing the academic and social needs for students with chronic illnesses.

Examination of School Reentry Programs **School Personnel Programs**

School personnel programs are a classification of reentry programs that provide chronic illness education to school personnel (Prevatt et al., 2000). Many school staff feel unprepared to meet the educational and social needs of students with chronic illnesses. During a survey of educators regarding their impressions of students with chronic illnesses, educators rated personal liability concerns stemming from student health emergencies as their greatest concern (Olsen et al., 2004). Personal liability was the greatest concern even though the likelihood that students with chronic illnesses will experience significant medical emergencies in school is very low; however, academic and social needs for students with chronic illnesses are significant (Olsen et al., 2004). There appears to be a disconnect between the content of school personnel programs that educators want (i.e., liability information) and what students with chronic illnesses need (i.e., academic and social support).

Dependent Variables. School personnel programs are beneficial to students with chronic illnesses as both the Dubow et al. (2006) and Duggan et al. (2004) studies increased

educator knowledge surrounding chronic illnesses. The use of multi-media tools, such as web-based modules and printed materials, can be beneficial in reaching large audiences. However, there is a need for further research into this approach, as the Duggan et al. study reported little educator use of both the website and printed materials at a two-month post-session survey. In addition, researched school personnel programs lacked details as to the content needed to best affect outcomes.

Overviews of illness characteristics provides cursory information and likely increases general knowledge. Increases in knowledge correlated with confidence and attitudinal changes as suggested by the Dubowy et al. and Duggan et al. studies., however, do increases in knowledge, confidence, and attitude correlate with positive outcomes for students with chronic illnesses? The answer to this question is less clear in the literature. Intuitively, knowledge and attitudinal changes among educators should positively affect a student's school experience, yet the direct connection between these two measures has not been empirically investigated. Previous research has implied a connection (Worchel-Prevatt et al., 1998), however, future research should empirically examine correlations between school personnel programs and student with chronic illness outcomes to ensure academic and social needs of these students are met. Furthermore, additional investigation into the content of school personnel programs will allow for more explicit standardization of program and content structure. Current ambiguities in school personnel programs create unclear long-term effectiveness within this school reentry model.

Peer Support Programs

Peer support programs are used to provide age-appropriate education on chronic illnesses to school age students. Peer support programs are like school personnel workshops in that both programs address participant knowledge on chronic illnesses. The Holtz and Tessman (2007) study included in this review suggested increases in knowledge, attitudes, and behavior intentions. The findings from this included study are inconsistent with previous peer support studies that suggest increases in knowledge yet mixed results for changes in attitudes (Canter & Roberts, 2012). It appears programs designed to increase peer knowledge of chronic illnesses are effective, yet researcher have not demonstrated a correlation between peer knowledge and attitudes similar to that of school personnel programs.

Dependent Variables. Peer support programs do show evidence that peers have a greater understanding of chronic illnesses, however persistent attitudes and misconceptions among peers persists. Given that knowledge and attitudes can be used as a predictor of behavior (Ajzen, 1980), it is understandable that some reentry programs target peers of students with chronic illnesses. Peer relationships can greatly impact school outcomes for students with chronic illnesses. For example, positive peer relationships have shown to improve emotional wellness and medical self-management for students with chronic illnesses (Noll et al., 1996; Skinner et al., 2000). Further research concerning peers support programs is needed to more explicitly establish a correlation between knowledge and attitudes. Programs that focus on

attitudinal beliefs and misconceptions surrounding chronic illnesses may demonstrate more positive increases in these domains, beyond general knowledge.

Similar to school personnel programs, future research should investigate whether changes in peer knowledge and attitudes cause or correlate with changes in peer behavior towards students with chronic illnesses. Acknowledging the role peers play in a student's reentry program is appropriate. Furthermore, intervention programs targeting peer outcomes are worthwhile. However, if the goals of a student reentry program are to enhance the quality of reentry for students with chronic illnesses, then measuring specific student outcomes should be a priority among researchers.

Student Reentry Programs

Individualized and comprehensive school reentry programs are fully inclusive programs that are initiated within the hospital setting by professionals who have knowledge in education and medical methodologies (Northman et al., 2015). Hospital liaisons, who are licensed educators that are employed by hospitals, are typically assigned to work with families who have children with chronic illnesses (Prevatt et al., 2000). The liaisons' main tasks are to increase collaborations between hospitals, families, and schools.

Dependent Variables. Both the Colbert et al. (2019) and the Koontz et al. (2004) studies demonstrated positive outcomes for students with chronic illnesses. Students who participated in the two studies had an increase in chronic illness knowledge and showed marked improvement in school attendance and positive social-emotional growth. Benefits of comprehensive school reentry programs, such as the Colbert et al. and Koontz et al. studies indicate that individualized programming promote positive school engagement for students with chronic illnesses. Although there is a small amount of research available, individualized programming may be able to consider the student's specific illness and medical treatment as well as other psychosocial needs that may impact school attendance or social-emotional outcomes. One advantage of individualized programming is the ability to implement a school reentry plan on specific student variables while also including general chronic illness information to benefit the entire school population.

Additional Considerations

Although evidence suggests individualized and comprehensive school reentry programs are effective in improving academic and social needs for students with chronic illnesses, there are barriers to implementing these programs. One significant barrier is the high costs hospitals incur from implementing school reentry programs and the salaries of educational liaisons who are devoted to this work (Thompson et al., 2015). School reentry programs are non-revenue-generating programs for hospitals, so these programs may be cost-prohibitive (Thompson et al., 2015). Additionally, large pediatric facilities support many patients which

ultimately may lead to hospital liaisons triaging patient school reentry needs so that only a portion of students with chronic illnesses receive reentry services.

One possible solution to overcome cost-prohibitive barriers is the use of telemedicine practices to virtually connect with patients, their families, school personnel, and peers. Many hospitals already use telemedicine practices to connect with patients, therefore, training and software expenses may remain low. The COVID-19 pandemic has essentially normalized the use of virtual mediums for meetings and instruction. Family members and peers may have less reluctance to technological adoptions based on increased familiarity with the technology. Video conferencing could be a more cost-effective way for hospitals to provide chronic illness education by eliminating the need for in-person education (Spaulding et al., 2008). Given that a virtual component of comprehensive student programs has not been empirically investigated, future researcher should consider this when developing efficacious and efficient reentry programs.

There also is a significant need to establish roles within school reentry programming, as there are discrepancies between medical professionals or school personnel who are tasked in leading this work. Healthcare professionals are focused on the medical aspects of children with chronic illnesses and may have little familiarity on school policies, procedures, and educational laws that benefit their patients (Moore et al., 2009). Due to the low incidence of chronic illness diagnosis within the total school population, many educators feel that their lack of knowledge impacts their ability to provide appropriate academic supports (Thompson et al., 2015). A hospital education liaison can serve as the communication facilitator between the medical community, family, and school environment as well as direct appropriate school reentry programs (Moore et al., 2008).

Implications

This review highlights several implications for the need of empirically supported school reentry programs focused on students with chronic illnesses. Studies included within this review demonstrated that school personnel workshops, peer education sessions, and student-focused reentry programs increase participant knowledge surrounding chronic illnesses. Both school personnel programs and peer support programs have not demonstrated a direct effect on students with chronic illness outcomes.

Comprehensive student programs have shown increases in desired student outcomes, yet the multifaceted components of these programs make it difficult to identify specific component effect variance. Furthermore, a small sample size of research within the field creates difficulty in overall program evaluation and standardization for future program developments. Based on the results of this review and previous research we suggest:

1. Individual student programs offer a comprehensive approach to meeting the needs of students with chronic illnesses. Student programs have demonstrated positive effects on

student academic and social outcomes. Student programs have the greatest barriers to implementation based on multicomponent programs with a lead personnel. Additional research is needed to investigate components of student programs to identify what really works.

2. School personnel programs are easier to implement than comprehensive student programs and have shown efficacy in increasing knowledge and attitudes towards students with chronic illnesses. School personnel programs have not demonstrated positive effects for students with chronic illness outcomes.
3. Peer education programs increase knowledge about chronic illnesses yet have mixed results for attitude changes. Additional research is needed to assess the extent peer knowledge correlates with changes in peer behavior toward students with chronic illnesses.

The value of comprehensive student programs is that all three groups (peers, school personnel, student) are involved in the reentry process to some degree. In addition, both comprehensive student programs included in this review involved components that worked with family members (Colbert et al., 2020; Koontz et al., 2004). The coordination and implementation of such programs, however, are extensive and likely require a trained professional who is knowledgeable about both the student's medical need educational needs.

Limitations

There are at least three limitations to this review that require discussion. First, the search procedures resulted in a small sample size of empirically investigated school reentry programs for students with chronic illnesses between 2004 and 2020. The small number of included studies limits the generalizability of finding from this review. The search results also suggest additional research in school reentry programs is warranted.

There are high quantities of articles regarding chronic illnesses in children, however, the majority of information focuses on impact of childhood illness on families (e.g., Fairfax et al., 2019). One reason for the depth of literature that focuses on children with chronic illnesses and family outcomes is that many children with significant health conditions previously had not regularly attended school (Lynch et al., 1993). Advancements in medical treatments in the past few decades are allowing many students with chronic illnesses to return to school and are in need of specialized support to address academic and social concerns.

Second, the search procedures did not include reentry programs for students with mental health needs per the rationale as described in the methodology. Including participants with mental health reentry needs was beyond the scope of this review, however, future research should explore evidence from mental health reentry programs. Valuable information from that line of research may contribute to the quality of reentry programs for students with chronic illnesses.

Finally, a lack of maintenance data regarding the long-term impacts of school reentry programs limited our ability to evaluate program longevity. Future research should consider

post-intervention data collection procedures to ensure immediate effects are sustained. Furthermore, an examination of whether school personnel knowledge and attitudinal changes generalize across chronic illnesses may inform whether future programs need to implement a new training per student with chronic illness, or whether one training is sufficient. Overall, maintenance and generalization of school reentry programs need further exploration.

Conclusion

In the late 1990s, the Leukemia Society of America identified the development and evaluation of school reentry programs for children with cancer as a top health priority (McCarthy et al., 1998). The literature suggests school reentry programs show promise of positive outcomes for peers, school personnel, and students with chronic illnesses, however, the results from this review identified a void for empirically studied school reentry programs. A consensus opinion (with some empirical evidence) may be that comprehensive student-focused programs, that incorporate all stakeholders, will result in the greatest outcomes for students with chronic illnesses. We agree. However, the more comprehensive a student program is, the more need there is for resources, training, and implementation fidelity. We encourage the field to continue exploring the balance between effective school reentry programs and practical implementation realities.

References

**Denotes included studies in review*

- Ajzen, I. (1980). Understanding the attitudes and predicting social behavior. Prentice-Hall.
- American Cancer Society, Inc. (2020). When your child has cancer. Retrieved on December 1, 2020, from <https://www.cancer.org/treatment/children-and-cancer/when-your-child-has-cancer.html>
- Badger, K. (2008). School reentry for the elementary school child with an altered physical appearance as a result of injury or illness. *School Social Work Journal*, 32(2) 87-102.
- Canter, K. S. & Roberts, M. C. (2012). A systematic and quantitative review of interventions to facilitate school reentry for children with chronic health conditions. *Journal of Pediatric Psychology*, 37(10), 1065-1075. <https://doi.org/10.1093/jpepsy/jss071>
- *Colbert, A. M., Edlynn, E., Mueller, V., Ariefdjohan, M., Lindwall, J. (2020) Evaluating health-related quality of life and school attendance in a multidisciplinary school program for youth with significant medical needs. *Journal of Clinical Psychology in Medical Settings*, 27, 416-428. <https://doi.org/10.1007/s10880-019-09675-7>
- Compas, B. E., Jasper, S. S., Dunn, M. J., & Rodriguez, E. M. (2012). Coping with chronic illness in childhood and adolescence. *Annual Review of Clinical Psychology*, 8(1), 455-480. <https://doi.org/10.1146/annurev-clinpsy-032511-143108>
- DeMaso, D., Martini, D., & Cahen, L., (2009). Practice parameter of the psychiatric assessment and management of physically ill children and adolescents. *Journal of the American Academic of Child and Adolescent Psychiatry*, 48, 213-233. <https://doi.org/10.1097/CHI.0b13e3181908b>
- *Dubowy, R. L., Rieger, B. P., Songer, N. S., Kleinmann, A. E., Lewandowski, L. J., Rogers, C. L., & Silber, J. M. (2006). Teaching teachers about childhood cancer: The effects of a web-based training program. *Journal of Pediatric Hematology/Oncology*, 28, 729-733. <https://doi.org/10.1002/pbc.25760>
- *Duggan, D. D., Medway, F. J., & Bunke, V. L. (2004). Training educators to address the needs and issues of students with chronic illnesses: Examining their knowledge; confidence levels, and perceptions. *Canadian Journal of School Psychology*, 19(1), 149-165. <https://doi.org/10.1177%2F082957350401900108>
- Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Weissberg, R. P., & Schellinger (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405-432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Fairfax, A., Brehaut, J., Colman, I, Sikora, L, Kazakova, A., Chakraborty, P., Potter, B.A., (2019). A systematic review of the association between coping strategies and quality

- of life among caregivers of children with chronic illness and/or disability. *BMC Pediatrics*, 19(215), 1-16. <https://doi.org/10.1186/s12887-019-1587-3>
- Harris, M. S. (2009). School reintegration for children and adolescents with cancer: The role of school psychologists. *Psychology in the Schools*, 46(7), 579-592. <https://doi.org/10.1002/pits.20399>
- *Holtz, K. D., & Tessman, G. K. (2007). Evaluation of a peer-focused intervention to increase knowledge and foster positive attitudes toward children with Tourette Syndrome. *Journal of Developmental and Physical Disabilities*, 19, 531-542. <https://doi.org/10.1007/s10882-007-9042-z>
- Individuals with Disabilities Education Act of 2004, 20 U.S.C. § 1400 et seq. (2004). <https://sites.ed.gov/idea/>
- Ireys, H. T. (2014). Epidemiology of childhood chronic illness: Issues in definitions, service, use, and costs. In H. Koot and J. Wallander (Eds.), *Quality of life in child and adolescent illness: Concepts, methods and findings*. Taylor & Francis.
- Kearney, C. A. (2008). School absenteeism and school refusal behavior in youth: A contemporary review. *Clinical Psychology Review*, 28, 451-471. <https://doi.org/10.1016/J.CPR.2007.07.012>
- *Koontz, K.; Short, A. D., Kalinyak, K., & Noll, R. B. (2004). A randomized, controlled pilot trial of a school intervention for children with sickle cell anemia. *Journal of Pediatric Psychology*, 29(1), 7-17. <https://doi.org/10.1093/jpepsy/jsh002>
- Lynch, E. W., Lewis, R. B., & Murphy, D. S. (1993). Improving education for children with chronic illnesses. *Principal*, 73, 38-40.
- McCarty, A. M., Williams, J., & Plumer, C. (1998). Evaluation of a school reentry nursing intervention for children with cancer. *Journal of Pediatric Oncology Nursing*, 15(3), 143-152. <https://doi.org/10.1177%2F104345429801500303>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Med*, 6(6), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- Moore, J. B., Kaffenberger, C., Goldberg, P., Oh, K. M., & Hudspeth, R. (2009). School reentry for children with cancer: Perceptions of nurses, school personnel, and parents. *Journal of Pediatric Oncology Nursing*, 26(2), 86-99. <https://doi.org/10.1177%2F1043454208328765>
- National Heart, Lung, and Blood Inst. (1991). *Managing asthma: A guide for schools*. Washington, DC.
- Noll, R. B., Vannatta, K., Koontz, K., Kalinyak, K., Bulowski, W. M., & Davies, W. H. (1996). Peer relationships and emotional well-being of youngsters with Sickle Cell Disease. *Child Development*, 67, 423-436. <https://doi.org/10.1111/j.1467-8624.1996.tb01743.x>

- Northman, L., Ross, S., Morris, M., Tarquini, S. (2015). Supporting pediatric cancer survivors with neurocognitive late effects: A model of care. *Journal of Pediatric Oncology Nursing*, 32(3), 134-142. <https://doi.org/10.1177%2F1043454214554012>
- Nortoras, E., Keatinge, D., Smith, J., Cordwell, J., Cotterell, D., & Nunn, E. (2002). Parents' perspectives of health-care delivery to their chronically ill children during school. *International Journal of Nursing Practice*, 8, 297-304. <https://doi.org/10.1046/j.1440-172X.2002.00383.x>
- Olson, A. L., Seidler, A. B., Goodman, D., Gaelic, S., & Nordgren, R. (2004). School professionals' perceptions about the impact of chronic illness in the classroom. *Archives of Pediatrics & Adolescent Medicine*, 158(1), 53-58. <https://doi:10.1001/archpedi.158.1.53/>
- Prevatt, R. F., Heffer, R. W., & Lowe, P. A. (2000). A review of school reintegration programs for children with cancer. *Journal of school psychology*, 38(5), 447-467. [https://doi.org/10.1016/S0022-4405\(00\)00046-7](https://doi.org/10.1016/S0022-4405(00)00046-7)
- Rehabilitation Act of 1973, Section 504 Regulations, 29 U.S.C. § 794 et seq. (1973). <https://www2.ed.gov/about/offices/list/ocr/504faq.html>
- Schilling, E. J. & Getch, Y. Q. (2018). School reentry services for students with chronic health conditions: An examination of regional practices. *Psychology in the Schools*, 1027-1040. <https://doi.org/10.1002/pits.22154>
- Shaw, S. R., & McCabe, P. C. (2008). Hospital-to-school transition for children with chronic illness: Meeting the new challenges of an evolving health care system. *Psychology in the School*, 45(1), 74-87. <https://doi.org/10.1002/pits.22154>
- Shiu, S. (2001). Issues in the education of students with chronic illness. *International Journal of Disability, Development and Education*, 48, 269-281. <https://doi.org/10.1080/10349120120073412>
- Skinner, T. C., John, M., & Hampson, S. E. (2000). Social Support and personal models of diabetes as predictors of self-care and well-being: A longitudinal study of adolescents with diabetes. *Journal of Pediatric Psychology*, 25, 257-267. <https://doi.org/10.1093/jpepsy/25.4.257>
- Spaulding, R. J., Davis, K., & Patterson, J. (2008). A comparison of telehealth and face-to-face presentation for school professionals supporting students with chronic illness. *Journal of Telemedicine and Telecare*, 14, 211-214. <https://doi.org/10.1258/jtt.2008.071003>
- Taras, H., & Potts-Datema, W. (2005). Chronic health conditions and student performance at school. *The Journal of School Health*, 75(7), 225-266. <https://doi.org/10.1111/j.1746-1561.2005.tb06686.x>
- Thompson, A. L., Christiansen, H. L., Elam, M., Hoag, J., Irwin, M. K., Pao, M., Voll, M., Noll, R. B., Kelly, K. P. (2015). Academic continuity and school reentry support as a standard of care in pediatric oncology. *Journal of Pediatric Blood and Cancer*, 62, 805-817. <https://doi.org/10.1002/pbc.25760>

- Wallander, J. L., Thompson, R. J., Rr., & Alriksson-Schmidt, A. (2003). Psychosocial Adjustment of children with chronic physical conditions. In M. C. Roberts (Ed.), *Handbook of pediatric psychology* (pp. 141-158). New York, NY: Guilford Press. Retrieved from <http://psycnet.apa.org/record/2004-00032-009>
- Wang, S. S., Bandopadhayay, P., & Jenkins, M. R. (2019). Towards immunotherapy for pediatric brain tumors. *Trends in Immunology*, 40(8), 448-761. <https://doi.org/10.1016/j.it.2019.05.009>
- West, A. M., Denzer, A. Q., Wildman, D. G., & Anhalt, K. (2013). Teacher perception of burden and willingness to accommodate children with chronic health conditions. *Advances on School Mental Health Promotion*, 6(1), 35-50. <https://doi.org/10.1080/1754730X.2012.760920>
- Woodrich, D. L., & Cunningham, M. M. (2008). School-based tertiary and targeted interventions for students with chronic medical conditions: Examples from type 1 diabetes mellitus and epilepsy. *Psychology in the Schools*, 45(1), 52-62. <https://doi.org/10.1002/pits.20278>
- Worchel-Prevatt, F. F., Heffer, R. W., Prevatt, B. C., Miner, J., Young-Saleme, T., Horgan, D., ... & Frankel, L. (1998). A school reentry program for chronically ill children. *Journal of school psychology*, 36(3), 261-279. [https://doi.org/10.1016/S0022-4405\(98\)00012-0](https://doi.org/10.1016/S0022-4405(98)00012-0)