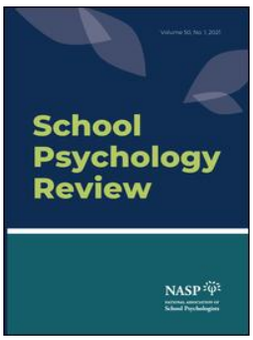

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CHILDREN, RESEARCH, AND PUBLIC POLICY

School-Based Interventions for Middle School Students With Disruptive Behaviors: A Systematic Review of Components and Methodology

Alexander Alperin, Linda A. Reddy, Todd A. Glover, Briana Bronstein, Nicole B. Wiggs, and Christopher M. Dudek

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ABSTRACT

This is the first systematic review of the school outcome literature for behavior interventions used with middle school students exhibiting disruptive behaviors. A total of 51 investigations (published between 2000 and 2020) including 6,498 students and 264 implementers were coded on four dimensions (i.e., sample, interventions, methodology, and outcomes). This review examined intervention effects on implementer and student outcomes, yielding small to large positive effects. Strengths of the reviewed studies included the specification of student characteristics, operationalization of implementers' professional development, and assessment of intervention fidelity. Most studies used single-case designs or randomized controlled trial experimental designs to evaluate the effectiveness of the interventions. Weaknesses included an absence of student diagnostic information; lack of data on implementers, attrition, and follow-up; and inadequate use of parent involvement. School practitioners should be mindful of developmental challenges and consider targets and barriers to implementation. Additional large-scale, rigorous experimental designs are warranted.

IMPACT STATEMENT

This is the first study to review the school outcome literature for behavior interventions and supports used with middle school students with or at risk of disruptive behavior disorders (DBDs). Research-based behavior interventions are essential to ameliorating the negative outcomes associated with student disruptive behavior in middle school, which is a significant transitional period.

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To ensure that school practitioners (e.g., school psychologists, interventionists, teachers) can adequately support middle school students (students in grades sixth through eighth) with or at risk of disruptive behavior disorders (DBDs), it is crucial to evaluate the existing intervention research for this population. DBDs, such as oppositional defiant (ODD) or conduct disorders (CD), are pervasive, chronic, and severe conditions that negatively impact many children and adolescents (Wang et al., 2012). Middle school students are at the highest risk of developing DBDs, with 25% of middle school students displaying disruptive behaviors (i.e., defiance, disobedience, aggression, and hostility toward authority figures) in the classroom (Erickson & Gresham, 2019).

DBDs among middle school students are particularly concerning given that middle school represents a significant developmental and vulnerable transition period. In addition to a new school environment with a greater number of teachers, larger class sizes, and more rigid academic expectations (Erickson & Gresham, 2019; Evans et al., 2005), middle school students also experience substantial emotional, physical, cognitive, and social changes (Farmer et al., 2015). For most students, the middle school years include puberty and reductions in parent and teacher supervision (Bierman et al., 2013; Eccles, 1999). During middle school, students become more dependent and influenced by their peer group. Peer group relationships can rapidly change, which may serve as a trigger for inappropriate behavior (Farmer et al., 2015; Lochman, 2010). Typically, academic performance, enthusiasm for school, and self-esteem decline throughout middle school, while loneliness, conflict with adults, and antisocial behaviors increase (Erath et al., 2009). Together, these factors contribute to a high-risk environment where students are more likely to act out their feelings of loneliness and fear (Eccles & Roeser, 2011).

Given these unique challenges, middle school students with or at risk of DBDs require targeted interventions to address their specific needs. Without appropriate interventions, students may be negatively impacted in many

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facets of their life. Specifically, middle school students with or at risk of DBDs are at an increased risk for future unemployment, mental health difficulties, and diminished overall well-being (Erickson & Gresham, 2019; Schwartz et al., 2018). Academically, students exhibiting disruptive behaviors are more likely than any other group of students to experience poor achievement (Bradley et al., 2008; Wagner & Davis, 2006). Socially, this population has difficulty building and maintaining relationships with peers, siblings, parents, and teachers (Baker, 2005; Malecki & Elliot, 2002; Walker et al., 2004).

Students' disruptive behavior also impacts teacher well-being and burnout, as well as the learning environment for other students in the classroom. In a national survey of teachers, 39% reported that students' disruptive and aggressive behavior was one of the primary reasons for resigning from their teaching positions (Bettini et al., 2020; United States Department of Education, Institute for Education Sciences, 2010). The risk of teacher burnout is increased by emotional exhaustion and low self-esteem and self-efficacy (Garwood et al., 2018), which are exacerbated by classroom disruptive behaviors. Recent estimates suggest that two and a half hours of classroom instruction are lost each week due to disruptive behaviors, which adds up to three weeks of instructional time over the course of a school year (Education Advisory Board, 2019). Moreover, greater levels of student disruptive behaviors are related to lower levels of teachers' self-efficacy (Zee et al., 2017), and lower levels of teacher self-efficacy are predictive of emotional exhaustion (Dicke et al., 2014). Similarly, difficulties in managing classroom behaviors contribute to teachers' diminished confidence, self-esteem, and self-efficacy, which negatively impact teacher–student interactions, student outcomes, teacher burnout, and retention (Aloe et al., 2014; Dicke et al., 2014). To address these negative outcomes, researchers have asserted that teachers need effective classroom behavior management training and supports (Bettini et al., 2020; Reddy et al., 2020).

Despite these consequences, many middle school students with disruptive behaviors often do not receive behavioral health services (e.g., Conroy & Brown, 2004; Epstein et al., 2015; Furlong & McGilloway, 2015; Murray et al., 2014). Factors interfering with the receipt of care include lack of problem recognition, provider inaccessibility, and negative parent and youth attitudes toward mental health (e.g., stigma; Chandra & Minkovitz, 2006; Erath et al., 2009). For students who do receive behavioral health services, Langer et al. (2015) report that 70–80% receive services through the school system. Emerging research suggests that schools can be successful in remediating some of these challenges (Kern et al., 2017) and accordingly, it is important to focus on the quality of support afforded in school settings. Reddy et al. (2020) suggest that providing school practitioners such as paraprofessionals with comprehensive professional development can lead to improved practices. Guidance from legislation (e.g., Every Student Succeeds Act [ESSA]; Civic Impulse, 2016) outlines the importance of school practitioners' professional development for maximizing student outcomes.

To help ensure that practices with the greatest potential for addressing the needs of middle school students with or at risk of DBDs are utilized, it is imperative that schools implement functionally indicated research-based behavior interventions. Research-based behavior interventions can be implemented by a wide range of school practitioners, including school psychologists, teachers, and paraprofessionals, and can have a far-reaching impact (Alperin et al., 2020). Such interventions are especially critical in middle school given that teachers at this level are responsible for the needs of multiple classes of students (e.g., five to six classes, more than 100 students; Evans et al., 2005; Peterson et al., 2009) and as a result, have less opportunities to intervene with individual students than in elementary grades.

Given the unique academic and social demands in middle school, it is important for school practitioners to be mindful of selecting environmentally and functionally appropriate research-based behavior interventions. In selecting interventions, it is important for school practitioners to consider the function of disruptive behaviors (e.g., attention-seeking or escaping work demands; Alperin et al., 2020; Cook et al., 2014), whether disruptive behaviors are pervasive within a class or confined to an individual or small group of students, and whether students require training in new skills or maintenance of existing competencies (Ramsey et al., 2017; Reinke et al., 2014).

In addition to selecting interventions based on their contextual appropriateness, it is also important to consider the quality of evidence supporting their efficacy and whether multiple methodologically sound, experimental investigations of their implementation have demonstrated positive outcomes (Cook et al., 2015). Recommendations for the use of interventions with strong empirical support are highlighted in guidelines from federal initiatives (e.g., ESSA; Civic Impulse 2016; Individuals with Disabilities Education Act [IDEA], 2004; No Child Left Behind [NCLB], 2002). Overall, it is important for school practitioners to be aware of the extent to which certain interventions are substantiated by investigations with rigorous research methodologies (Maggin et al., 2015). Several frameworks have been developed for determining the empirical rigor of intervention research, including the Council for Exceptional Children's (CEC, 2014) 28 quality indicators (QIs).

To ensure that school practitioners meet the complex and changing needs of students in middle school contexts, a comprehensive quality and quantity appraisal of school-based intervention research for this population is needed. Interventions that effectively ameliorate student disruptive behavior in middle school settings likely have different critical elements (e.g., greater emphasis on peer context) than those designed for use with elementary or high school students. To date, no systematic reviews or meta-analyses have critically analyzed school-based behavior interventions and supports for middle school students with disruptive behaviors. The existing reviews and meta-analysis of school-based interventions have mainly examined: (a) interventions (i.e., peer assisted learning interventions) for specific grade levels which do not include middle school (e.g., elementary school students; Ginsburg-Block et al., 2006; Rohrbeck et al., 2003); or (b) interventions (e.g., behavior contracts, coaching for specific behavior praise, group contingency, guided notes, opportunities to respond, response cards, social skills) for a broad age range (i.e., K–12) without disaggregating results for middle school students (e.g., Bowman-Perrott et al., 2015; Ennis et al., 2020; Konrad et al., 2009; MacSuga-Gage & Simonsen, 2015; Maggin et al., 2012; McKenna et al., 2016; Owiny et al., 2018; Randolph, 2007).

The aforementioned reviews were singularly focused on specific types of interventions (e.g., behavior contracts). No reviews have focused on multiple intervention types used exclusively with middle school students. Notably, although critical reviews by Evans et al. (2014, 2018), Pelham et al. (1998), and Pelham and Fabiano (2008) of psychosocial treatments for students with ADHD included studies with middle school students, they did not disaggregate findings for this population. Similarly, Lane et al.'s (2009) systematic review for function-based interventions for students with emotional and/or behavioral disorders synthesized research across both middle and high school settings. Further, although Simonsen et al. (2008) reviewed the intervention research on evidence-based classroom management practices and Thompson (2011) conducted a systematic review on evidence-based interventions for students with challenging behaviors, neither of these reviews disaggregated findings specifically for the middle school context. School practitioners need to consider the sample characteristics of the supporting research to choose interventions that best meet their students' needs. Understanding which interventions are appropriate for middle school students given their unique needs is crucial.

There are a handful of reviews and meta-analyses specific to middle school, but these studies did not examine the evidence for interventions that aim to reduce disruptive behavior in the classroom. Rather, these reviews and/or meta-analyses evaluated the literature on drug prevention (i.e., Flynn et al., 2015; Lize et al., 2017), obesity prevention (i.e., Stevens, 2010), and strategies to enhance parent involvement (i.e., Hill & Tyson, 2009). Furthermore, the vast majority of these reviews did not utilize a systematic framework for evaluating the empirical rigor of the included studies (e.g., CEC, 2014). Overall, a synthesis of interventions and supports specifically for middle school students with disruptive behaviors is missing in the existing literature.

To address this gap, the present article systematically reviews the school-based literature on behavior interventions and supports implemented with middle school students (grades 6 to 8) exhibiting disruptive behaviors. This article serves as the first review focused on behavior intervention research for middle school settings (grades 6 to 8). To this end, we critically evaluate the extant literature based on: (a) sample characteristics, (b) intervention components, (c) research methodologies, and (d) outcomes reported. This analysis approach (i.e., quality and quantity appraisal of relevant literature) informs school practitioners and scholars about the extent to which research supports the use of interventions designed for specific contexts (e.g., for various behavioral functions, group sizes) with middle school students, a population that has been commonly overlooked. Thus, this systematic synthesis and evaluation of the behavior intervention literature for the middle school population offers targeted directions for research and practice.

METHOD

Literature Search and Selection Criteria

A comprehensive search was conducted in May of 2020 to ensure a thorough review of the research literature evaluating outcomes of behavior interventions used in the middle school population. Articles were selected for inclusion if they adhered to the following criteria: (a) published peer-reviewed articles and/or dissertations written in English[1]; (b) empirical analysis of original data (e.g., reviews and meta-analyses were not included); (c) investigations that examined the efficacy or effectiveness of a behavior intervention to reduce classroom disruptive behavior (i.e., behavior that results in an office discipline referral or is considered off-task, inappropriate physical, inappropriate verbal, and/or noncompliant; Alperin et al., 2020; Irvin et al., 2004; Simonsen et al., 2011); (d) inclusion of primarily middle school (50% or more; 6th through 8th grade) samples; and (e) published between 2000 and present. Exclusion criteria removed studies published before 2000 as well as commentaries, theoretical papers, reviews, and meta-analyses. Legislation such as the response to

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intervention (RTI) provision of the 2004 Individuals with Disabilities Education Act (IDEA, 2004), has led to a shift in the classroom environment and an uptick in the implementation of research-based interventions in schools during the early 2000s (Thompson, 2011). Thus, our review focused on studies from 2000 and beyond to compile behavior interventions that are relatively consistent with the current middle school classroom setting. In addition, we excluded investigations evaluating interventions for students with bullying or victim concerns, intellectual disabilities, autism spectrum disorders, bipolar disorder, or severe medical conditions (e.g., cerebral palsy) given differences in the origin of the disorder and the need for more unique and comprehensive interventions.

First, Quicksearch[2] (which includes hundreds of databases such as Education Resources Information Center [ERIC], National Social Science Database [NSSD], ProQuest, PsycArticles, and Web of Science) and Google Scholar databases were filtered to include results from the years 2000 to present and searched with the following key terms: strategies, interventions, behavior interventions, disruptive behaviors, externalizing behaviors, problem behaviors, middle school, and adolescent.[3] Once this search identified a possible intervention, it would then be entered into the databases along with the term "middle school" and/or "adolescent" (e.g., "response cards middle school"). To guard against publication bias, both published and unpublished studies were included in our search. Second, the Clearinghouse for Military Family Readiness Continuum of Evidence database was searched using the filtering function (i.e., the topic "Behavioral Problems", the target population "Adolescents" and "Middle Childhood", and the sector "School-based"). Similarly, The What Works Clearinghouse database was also searched/filtered by specifying the topic as "Behavior Interventions" and the grades as sixth through eighth. Third, a review (filtered to show results from 2000 to present) of pertinent journals[4] that publish research on behavioral interventions used with students was conducted to ensure a comprehensive search (i.e., *Journal of Positive Behavior Interventions, Psychology in the Schools, School Psychology Quarterly, School Psychology Review, Journal of Educational Psychology, Behavioral Disorders,* and *Journal of Emotional and Behavioral Disorders*).

Fourth, after the search was completed, the resulting investigation titles were screened for relevancy. Titles not pertinent to this review were discarded (e.g., having to do with national security, finances, entrepreneurship, etc.). Figure 1 presents a summary of the search that yielded a total of 1,450 published and 8 unpublished (i.e., dissertations) unique studies. Fifth, relevancy was further evaluated through a review of 1,458 abstracts using inclusion criteria. If not enough information was provided in the abstract (i.e., it was unclear whether disruptive behavior was targeted by the intervention, whether the study was a primary source for the data analysis, or who was included in the sample), the study was retained for further analysis. Using the relevant studies, the first author conducted an ancestral search using conceptual papers and reviews from relevant databases and journals to identify additional citations that may meet inclusion criteria. The review process resulted in a total of 71 studies.

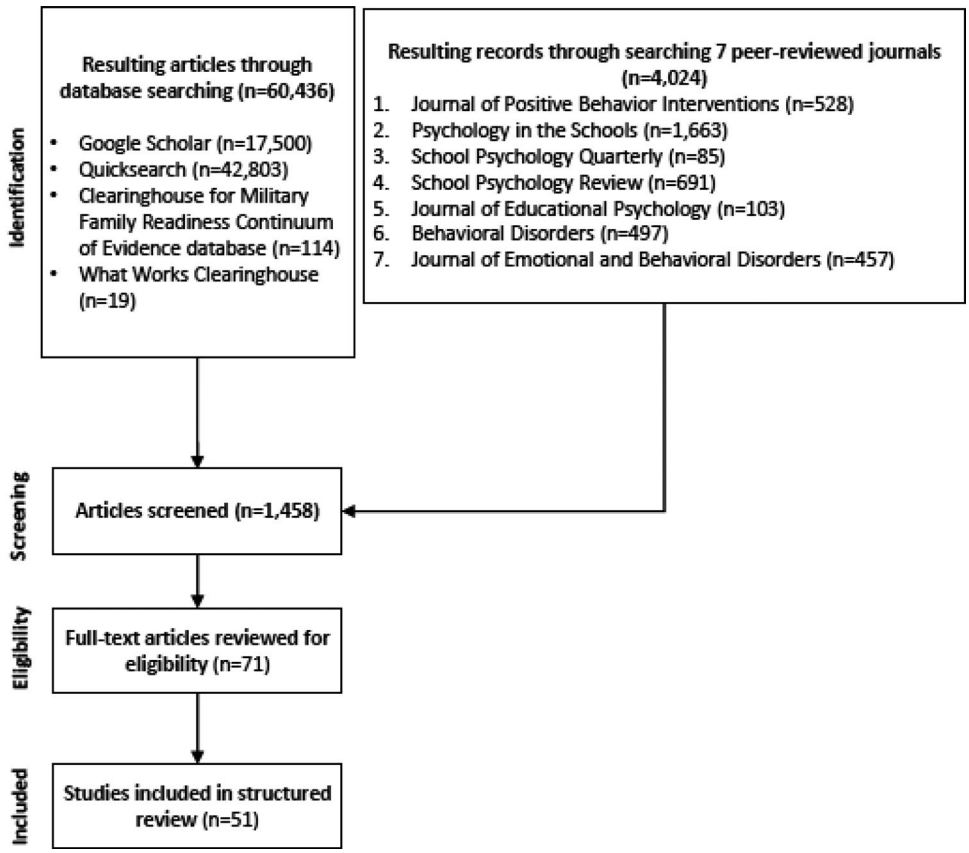
The complete manuscript for all 71 studies were obtained and systematically screened to ensure inclusion criteria were met. Studies that required additional review were evaluated on the inclusion criteria by multiple coders for consensus. Each of the 71 studies were examined for citations that would further expand the included literature. Citations that matched the needs of the present review were located and evaluated based on the inclusion criteria. A total of 51 investigations met our inclusion criteria and were subsequently coded.

Structured Review Coding Procedure

A systematic coding procedure used in prior intervention research for children and adolescents (e.g., Reddy et al., 2018; please see Supplemental Figure 1) was adopted to review the literature on four dimensions (50 variables): (a) sample characteristics, (b) intervention components, (c) research methodologies, and (d) outcomes reported. The dimensions and specific variables coded in this review were informed by previous meta-analytic reviews of school-based interventions for students with emotional and behavior disorders (e.g., Reddy et al., 2009). Variables were coded through either indicating (a) *Yes* or *No* (e.g., "Was intervention implementation fidelity assessed?"), or (b) providing descriptive information (e.g., "What was the name of intervention?"; please see Supplemental Figure 1 for more detail).

For the first dimension, *sample characteristics*, 20 variables were coded. These included student characteristics, specifically overall sample size, middle school sample size, mean age, gender, ethnicity, inclusion and exclusion criteria, special education classification, *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013) diagnosis, criteria or procedures used to diagnose students, comorbidity, other relevant factors (e.g., medical), and school-based services. Characteristics of the intervention implementer were also coded (i.e., number of implementers, term used to describe implementer, gender, age, ethnicity, education level, years of experience, and experience with specific disabilities).

Figure 1. Flowchart of the Literature Review Process



The *intervention components* dimension included 14 variables. First, the intervention implementation process was coded, which consisted of detailing the name of the intervention, function of the intervention (i.e., classroom, acquisition, attention, and escape), dosage (sessions and duration), parent involvement, use of manual, fidelity, progress monitoring, and social validity. Second, the components of professional development (PD) delivered to intervention implementers, were coded. This included whether training was given to implementers, focus of the training (e.g., behavior interventions, knowledge), trainer information, duration of training, and information on training elements. Information on implementer training elements were coded such as: (a) rationale (i.e., the importance for training and/or selected intervention was provided to implementers), (b) description (i.e., training and/or intervention was explained to the implementers), (c) intervention script (i.e., explicit directions were provided to implementers for what they should say to students when implementing an intervention), (d) fidelity checklist (i.e., printed list of intervention steps were shared with implementers), (e) training materials (i.e., training resources, such as PowerPoint slides, were shared with implementers), (f) modeling (i.e., in-person or video representation of intervention implementation was provided to implementers), (g) role playing (i.e., implementers practiced intervention with other adults), (h) lecture (i.e., there was a didactic component in the training), (i) test performance (i.e., implementer had to achieve a certain score, such as 90%, on a test in order to complete the training), (j) feedback (i.e., implementers were given feedback/directions on how to improve knowledge and/or skills following implementation), (k) self-monitoring (i.e., implementers tracked aspects of their own performance or behavior in regards to implementation of intervention), and (l) follow-up (i.e., implementer intervention practices were monitored after training).

The third dimension, *research methodology*, included 14 variables consisting of research design, use of a control group, treatment alternative group, random assignment, attrition, data collection (measures, method, stages, and source), interrater reliability, descriptive statistics, statistical tests and techniques, and clinical significance tests (use and type of test). Two variables, outcomes (i.e., adult, students) and type of outcomes (i.e., skills, knowledge, or behavior), were coded on the fourth dimension, *outcomes reported.*

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Coder Training and Reliability

A total of 11 coders reviewed the resulting 51 investigations meeting study criteria. Ten of the coders were advanced school psychology doctoral students, and one coder was full-time research staff member with over 20 years' experience as a behavioral consultant in schools. The lead author trained and supervised coders on the coding system via several methods. First, coders were trained on the structured coding system and coding was modeled by the trainer (approximately 2 hours). Second, coders independently practiced coding two studies and were provided feedback on their codes compared to a master coding sheet. Third, coding practice continued until coders reached the criteria of 90% accuracy. Once accuracy was obtained, coders independently reviewed studies. Two coders reviewed each study. A coding to mastery approach was used to evaluate coder accuracy and reliability. The lead author separately reviewed and coded all studies, the results of which were used as the criterion. The accuracy of a second coder for each article reviewed was then compared against the master-coder criterion. The lead author discussed differences in coding, and established agreement on coding of the studies. Overall, percent of coder agreement was 99% (SD = 1.06%; range of agreement per study was 96% to 100%; please see Supplemental Tables 1 and 2).[5]

Quality Appraisal

A total of 43 studies met criteria for and were reviewed using the CEC (2014) QIs. The remaining eight articles could not be coded for quality because they consisted of baseline intervention research designs without a comparison group, which is not considered sufficient for making causal inferences about efficacy, according to CEC (2014) guidelines. Of the 43 investigations, a total of 28 QIs (i.e., 22 apply to single-subject designs and 24 apply for group comparison designs) addressed the following areas: (a) Context and Setting; (b) Participants; (c) Intervention Agents; (d) Description of Practice; (e) Implementation Fidelity; (f) Internal Validity; (g) Outcome Measures/Dependent Variables; and (h) Data Analysis. The CEC (2014) defined methodologically sound studies as meeting all QIs across 8 areas. Each of the 43 studies were coded for all 28 QIs (i.e., *Yes, No,* or *N/A*) by authors. Approximately 30% of the studies were double coded to ensure consistency. Consensus coding was used to address discrepancies.

To quantify the intervention's impact on student disruptive classroom behavior, effect sizes were used. If effect sizes were not provided in a single-subject investigation, they were calculated (if possible) by subtracting the reported intervention mean from the baseline mean and dividing the result by the pooled baseline standard deviation (where provided; Thompson, 2011). When the means and standard deviations were not provided in an article, the study author was contacted to provide the missing information. This approach was consistent with Thompson's review (2011). For randomized controlled trial experimental research designs, the effect size was calculated using Hedges g, which is a bias corrected standardized mean difference (i.e., comparing treatment and control groups at posttest; Bonvanie et al., 2017). Cohen's (1988) d-ratios and Hedges g (i.e., effect sizes of .20 to .49 were small; .50 to .79 medium; and .80 and greater were large) were used for interpretation.

RESULTS

Sample Characteristics

Student Information

A total of 6,498 students were included in 50 reviewed articles (Hunter & Haydon, 2019 did not report the number of students; see Tables 1 and 2). Middle school students comprised the entire sample in 47 of the 51 studies (92%). Gender was reported in 82% (42/51 studies) of the investigations with 2,756 male students and 1,969 female students. Of the 34 studies (67%) that reported race and/or ethnicity, 16 studies contained primarily White samples, eight studies had mostly Black participants, and seven studies were comprised predominantly of Hispanic participants. Inclusion and exclusion criteria for the student sample was reported in 35 out of 51 (69%) studies. Special education classification for participants was included in 14 articles (27%), with seven studies and three studies reporting that a majority of their sample had a classification of Emotionally Disturbed (ED) and Other Health Impaired (OHI) for ADHD, respectively. Each of the 11 studies (22%) that reported DSM information on participants also reported that a majority of their participants had a diagnosis of ADHD. Comorbid diagnoses were reported in six studies (12%). Approximately 55% of the studies (28/51 studies) reported information on educational placement with general education classrooms used in the majority of the studies (14/28 studies, 50%).

Intervention Implementer Data

A total of 41 of the 51 studies (80%) provided information on the implementers of the intervention. Of these studies, 23 reported that the classroom teacher served as the primary implementer of interventions. In total, there were 264 implementers. Implementers were primarily female (77 females, 60 males) and gender was reported in 45%

Table 1. Empirical Studies of Classroom-Wide Behavior Intervention Studies

Author(s)	Intervention Name	Participant Sample Number and Type	Classroom Setting	Research Design	Student Outcomes	Adult Outcomes
			Class-Wide Intervention Strategies			
Kartub et al. (2000)	Positive Behavior Support: Hallway Noise	525 students	Not reported	Pre and post study design; no comparison group	Hallway noise decreased postintervention and at follow-up.	Not reported
Mitchem et al. (2001)***	Class-wide Peer-Assisted Self-Management	97 students; 10 students at risk for DBDs; 1 teacher	General education language arts classroom	Single-subject research design: multiple baseline	Improved on-task bx compliance, and social skills for all students in 3 classes and 10 target at-risk students. Social competence ratings increased, while antisocial behavior ratings decreased.	Not reported
Oswald et al. (2005)	PBS: Hallway Noise	950 students; 60 middle school staff	Not reported	Pre and post; no comparison group	Increased hallway transition bx (i.e., decreases in run, jump, curse, kick, push, and/or scream).	Not reported
Kamps et al. (2008)*	Class-wide Peer Tutoring	975 students; 25 teachers	Not reported	Quasi-experimental interrupted time series design; in conjunction with the single-subject reversal design	Increased active student behaviors (i.e., reading, writing, answering questions); decreases were noted in disruptive behavior. Addition of motivational component (i.e., lottery system) was more effective than when intervention implemented independently.	Not reported
Conklin (2010) *Dissertation***	CW-FIT	80 students (38 were in middle school); 3 teachers (1 middle school)	Not reported	Single-subject ABAB reversal and multiple baseline	Increased student adaptive behaviors (i.e., compliance, hand raising, and on-task behavior).	Increase in teacher adaptive behavior (i.e., specific praise).
Beeks and Graves (2016)	Mystery Motivator	26 students; 1 general education teacher	General education science classroom	Single-subject; AB changing criterion	Decreased talking, out-of-seat, and hitting peer behaviors.	Not reported
Dart et al. (2016)***	Classroom Password	41 students; 3 general education teachers	General education	Single-subject; concurrent multiple baseline	Increased on-task behaviors and decrease of disruptive behaviors.	Not reported
Harvey (2018) *Thesis***	Good Behavior Game (GBG)	4 students with emotional disturbance; 1 teacher, 1 paraprofessional, and 4 behavior interventionists	Alternative school for students with disruptive behaviors	Single-subject; ABCAC reversal	Decreased inappropriate behaviors; increase in appropriate behaviors.	Not reported
Chaffee et al. (2020)***	Tootling	41 students with disruptive behaviors; 2 general education teachers	General education	Single-subject: A-B-A-B-C reversal design w/ maintenance phase	Decreased class-wide disruptive behavior and increase in class-wide academic engagement.	Not reported
Wills et al. (2019)***	CW-FIT	6 students; 3 general education teachers	General education	Single-subject; ABAB withdrawal	On-task behavior varied across classrooms; the average improvement was greater than 20%.	Two of the three teachers increased praise statements and decreased reprimands.
Monson et al. (2020)**	CW-FIT	56 students; 2 students at risk in at least one of the School Social Behavior Scales, Second Edition (SSBS-2); 2 art teachers	General education art classrooms	Single-subject; ABAB reversal	Increased classroom on-task behavior; 1 target student increased his on-task behavior.	Increased teacher praise.
Speight et al. (2020)***	CW-FIT	35 students with low rates of on task behavior; 3 general education teachers; 2 special education teachers	1 general education, 2 inclusion classrooms	Single-subject; multiple baseline across conditions	Immediacy and strength of change in student on-task behavior was evident in all classrooms.	Increased levels of praise; decrease of reprimands in two of the three classrooms.

Note. $N = 12$ classroom wide behavior intervention studies targeting middle school students with or at risk of DBDs. Articles denoted with ***received 100%; **80–99%; *>80%; based on the CEC QI. Italicized articles did not require CEC QI scores due to study designs.

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Table 2. Empirical Studies of Small Group or Individual Behavior Intervention Studies

Author(s)	Intervention Name	Participant Sample Number and Type	Classroom Setting	Research Design	Student Outcomes	Staff and Parent Outcomes/Validity
			Acquisition Intervention Strategies			
Gonzales et al. (2004)	Bridges to High School Program	22 students; 30 family members; 1 marriage/ family therapist, 2 bachelors level case workers, and 3 clinical psychology doctoral students	Not reported	Pre/post study design, no controls	Increased use of coping strategies; decreased depressive symptoms and disruptive bx; students reported using learned skills at follow up interview (12 months post).	Improved parenting practices; parents reported improved discipline and relationship with their child at follow up interview (12 months post).
Gureasko-Moore (2004) Dissertation**	Self-Management	6 students with ADHD; 1 researcher	General education	Single-subject: two multiple-baseline designs	Increased class prep skills (i.e., in seat, on-task, materials ready) and homework bx.	Not reported
Hansen and Lignugaris-Kraft (2005)*	1. Social skills instruction 2. Dependent group contingency	9 students w/emotional disturbance (5 middle school); 1 special education teacher; 1 special education paraprofessional	Self-contained special education classroom	Single-subject research design: withdrawal	Increased number of positive statements students emitted to peers; decreased rate of negative statements emitted to the same peers (only when group contingency intervention was implemented with students).	Not reported
Gureasko-Moore et al. (2006)**	Self-Management	3 students with ADHD; 1 researcher	Not reported	Single-subject multiple baseline across participants	Improved class preparation bx (i.e., in seat, on-task, materials ready, homework complete/ on time).	Not reported
Evans et al. (2007)**	Challenging Horizon Program – consultation model	79 students with ADHD; after attrition, 29 treatment; 24 control	Not reported	RCT	Increased social functioning and decreased inattention.	Not reported
Langberg et al. (2007)**	Challenging Horizons Program-after school version	48 students who scored "below basic" on a standardized test; (21 tx, 27 control); undergraduate student implementers (total *n* not reported).	Not reported	RCT	Improved academic progress, self-esteem, and overall severity of problem bx.	Not reported
Molina et al. (2008)**	Challenging Horizons Program-after school version	23 students with ADHD (12 tx; 11 control); 8 undergraduate student implementers	Not reported	RCT	Improved functioning (internalizing symptoms and self-esteem); treatment prevented the deterioration in functioning seen in the comparison group.	Not reported
Peterson et al. (2009)*	Coping Power Program	119 high-risk students (107 middle school; 63 treatment; 56 control); 9 program facilitators, 2 clinical psychologists; 7 masters-level graduate assistants	Not reported	RCT	Improved adaptive skills across groups Tx group: decrease in depressive symptoms, learning difficulties and school problems; increased positive social skills and functional communication; more positive bx (children participating in groups of more experienced leaders).	Not reported
Lochman et al. (2010)**	Fast Track	891 students exhibiting disruptive behaviors (445 tx; 446 control); implementers not reported	Not reported	RCT	Grade 7 students decreased hyperactive problems behaviors and lower rates of self-reported delinquency; little overall impact on student functioning in disruptive bx problems, peer deviance, and social skills.	Not reported
Thompson and Webber (2010)	STAR intervention	10 students with emotional disturbance; 4 special education teachers, 1 social worker	Alternative setting	Single-subject: AB design	Improved student/ teacher relations; increased student time dedicated to academic work; fewer student bx problems; reduction in teacher-generated office referrals.	Not reported

(*Continued*)

Table 2. Continued

Briere and Simonsen (2011)**	Self-Monitoring Intervention	2 students with high levels of off-task behavior; 1 researcher	Not reported	Single-subject: reversal	Decreased off-task bx for functionally relevant bx vs. nonrelevant bx.	Not reported
Gonzales et al. (2012)**	Bridges to High School Program	516 students (338 Tx; 178 control); implementers/staff not reported	Not reported	RCT	Positive effects at 1-year posttest; improved coping efficacy, academic engagement, family cohesion, and GPA; reduced externalizing and internalizing symptoms, substance use, and disciplinary actions; majority of effects were moderated by language (Spanish versus English speaking).	Improvements in parenting practices
Evans et al. (2016)**	Challenging Horizons Program-after school version	326 students with ADHD (112 CHP-AS group; 110 CHP-M group, 104 control); number of implementers (undergraduate students) not reported.	Not reported	RCT	CHP-AS group showed improved organization, time-management skills, homework, and ADHD symptoms of inattention (maintained into next school year), and small GPA improvements.	Not reported
Floyd (2016) *Dissertation***	Self-Monitoring Intervention	3 students with learning disabilities; 1 researcher	Inclusion classroom	Single-subject: ABAB withdrawal	Improved on-task and compliance bx; students learned to accurately self-monitor when cued.	Not reported
Smith et al. (2017)**	I Control	152 (83 Tx; 69 control) students w/ emotional and/or behavioral challenges; 17 special education teachers.	Self-contained	RCT	Tx group students were better able to initiate tasks and reported better emotional control.	Not reported
Strait et al. (2017)**	Student Check Up	88 students; 41 treatment; 46 control; 11 undergraduate psychology student implementers	General education	RCT	Tx group self-reported higher self-efficacy and effort self-efficacy; higher ratings of importance of in-class participation.	Not reported
Martin (2018) *Dissertation***	Self-Regulation instruction	27 students; 14 treatment; 13 control; 1 researcher	Not reported	RCT (mixed method)	Increased mastery goal orientation and greater reduction in disciplinary referrals related to avoidance behaviors.	Not reported
Muratori et al. (2020)**	Coping Power Universal for middle school students	839 students (497 Tx; 542 control); 20 teachers in Tx; control not reported	Not reported	RCT	Reduced internalizing problems; improved prosocial bx (home and school). Parents of Tx group reported small improvement in externalizing problems.	Not reported
			Attention Seeking/Reinforcement Intervention Strategies			
Jones et al. (2000)*	Positive Peer Reporting (PPR)	3 students; 1 teacher	Residential program for delinquency	Single-subject: nonconcurrent multiple baseline	Increased use of prosocial bx with peers; increased sociometric ratings.	Not reported
March and Horner (2002)*	1. Behavior Education Program (BEP) 2. Functional Based Support	1. 24 students with disruptive behaviors; 3 special education teachers, 1 school psychologist, 1 school counselor, 1 educational assistant 2. 3 students; 5 teachers	1. Not reported 2. General and special education classrooms	1. Pre/ post study design, no controls 2. Single-subject: multiple baseline across participants	1. 80% (4 of 5) students w/ (adult) attention maintained bx and 62.5% (5 of 8) w/ (peer) attention maintained bx improved; 27% (3 of 11) students w/ escape maintained bx improved. 2. Students with escape-motivated bx reduced problem bx and increased academic engagement.	Not reported
Hawken and Horner (2003)**	Behavior Education Program (BEP)	4 students with disruptive behaviors; staff not reported	Not reported	Single-subject: multiple baseline across subjects	Reduced problem bx; increased academic engagement.	Not reported
Davis and O'Neill (2004)*	Response Cards	4 students with disruptive behaviors; staff not reported	Resource classroom; writing class	Single-subject: ABAB reversal	Increased weekly quiz scores, rate and accuracy of academic responding; varied effects on off-task bx.	Not reported

(*Continued*)

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Table 2. Continued

Hawken (2006)	Behavior Education Program (BEP)	10 students with disruptive behaviors; number of implementers was not reported	Not reported	Pre/post study design, no controls	Decreased problem bx (reductions in office discipline referrals).	Not reported
George (2010)**	Response Cards	29 students with emotional behavior disorders; 5 special education teachers	Emotional support classrooms	Single-subject: within subject crossover	Increased on-task bx in Tx (M = 93%) vs. control (M = 84%). Tx post-tests scores (M = 75.82) greater than control (M = 66.27). Tx students higher average levels of academic responding and more correct academic.	Not reported
Haydon and Hunter (2011)**	Opportunities to respond	2 students (1 with off-task behaviors); 1 general education teacher	General education classrooms	Single-subject: ABCBC	Increased students' time on-task correct academic responses, and test scores.	Decrease in teacher redirections; increased praise statements, increase in student opportunities to respond.
Simonsen et al. (2011)**	Behavior Education Program (BEP)	42 students with disruptive behavior (27 Tx; 15 control); 3 school counselors, 1 social worker, 1 school psychologist, 2 vice principals,3 graduate student interns	Not reported	RCT	Decreased off-task bx.	Not reported
Lane et al. (2012)*	Behavior Education Program (BEP)	4 students with disruptive behaviors; 1 paraprofessional	General education	Single-subject: single-subject changing criterion	Increased students' performance to match or exceed the established goals per intervention phase (maintenance was limited).	Not reported
Maynard et al. (2014)**	Check and Connect	260 students (134 Tx; 126 control)	Not reported	RCT (Randomized block design)	Improved student academic performance; significantly fewer office disciplinary referrals.	Not reported
Turtura et al. (2014)**	Academic behavior check-in/check-out	3 students with disruptive behaviors; 1 Paraprofessional	General education	Single-subject: ABAB reversal	Decreased off-task and disruptive bx; increased classwork and homework completion and correct responses.	Not reported
Simmons and Smith (2015)	Response Cards	5 students; 2 teachers	Inclusion classroom	Single-subject: AB	Increased student on task bx, class participation and weekly quiz and test scores.	Not reported
Powers et al. (2017)***	Check and Connect	54 students (27 Tx; 27 control); 27 mentors (graduate students)	Not reported	RCT	Positive impact on school attendance; no improvement in grades/ disciplinary referrals.	Not reported
			Escape Intervention Strategies			
Ervin et al. (2000)*	Antecedent Modifications	3 students w/ADHD, (ODD/emotional disturbance); 3 teachers	General education	Single-subject: alternating treatments	Decreased disruptive bx.	Not reported
De Pry and Sugai (2002)**	1. Active Supervision 2. Precorrections 3. Daily data review	26 students with disruptive behaviors; 1 teacher	General education	Single-subject: ABAB	Decreased classroom bx problems.	Increased teacher use of active supervision and/or precorrection.
Kern et al. (2002)**	1. Choice Making 2. Incorporation of high-interest activities	6 students with severe emotional disturbances; 2 teachers	University-affiliated approved private school serving students with severe behavioral challenges	Single-subject: ABAB	Positive effects on student engagement and disruptive bx.	Not reported
Ramsey et al. (2010)***	Choice Making	5 students with diagnosis of emotional and behavior disorders with a concomitant psychiatric disorder (2 high school; 3 middle school); 3 special education teachers	Residential Setting	Single-subject: ABAB withdrawal	Increased on-task bx, task completion, and task accuracy; two of the three middle school students exhibited higher percentages of time on task, task completion, and task accuracy.	Not reported

(*Continued*)

Table 2. Continued

Faul et al. (2012)**	Precorrection	2 students with disruptive behaviors; 2 general education teachers	General education	Single-subject: alternating treatments	Decreased off-task and increased on-task bx.	Not reported
Andreasen (2015) *Thesis*	Noncontingent Reinforcement	4 students with disruptive behaviors; 4 general education teachers	4 general education classrooms	Single-subject: AB	Decreased disruptive bx (i.e., talking and out-of-seat).	Not reported
Ramsey et al. (2017)*	Choice Making	9 students with emotional and behavior disorders; 1 teacher	2 classrooms; residential facility	Single-subject: reversal	Increased task completion and accuracy; reduced disruption.	Not reported
Hunter and Haydon (2019)	Classroom management package (i.e., precorrection, active supervision, and explicit timing)	Number of students not reported; 3 teachers that were identified by administrators due to an excessive number of student disruptions.	3 classrooms with each classroom including more than 30 students	Single-subject: AB	Decreased student disruptive bx.	All 3 teachers decreased teacher redirections.

Note. Articles denoted with ***received 100%; **80–99%; *> 80%; based on the CEC QI. Italicized articles did not require CEC QI scores due to study designs.

(23/51 studies) of the investigations. Nineteen studies specified the implementers' education; 18 studies reported the implementers' years of experience; 13 studies described the implementers' ethnicity; six studies stated the age of the implementers; and three studies provided information pertaining to the implementers' classroom experience with individuals with specific disabilities.

Intervention Components

Approximately 78% (40/51) of the studies specified the behavior function of the intervention that was used with students. Sixteen studies detailed interventions that were designed to address skill deficits; 10 studies used interventions geared toward class-wide behavioral problems; eight studies employed interventions to address attention seeking from peers and/or teachers; and six studies had interventions for escape motivated behaviors. Sixteen of the 51 (32%) studies reported that behavior interventions included parent involvement (e.g., completing of behavior education plans, daily report cards, homework behavior checklist, parent meetings with school staff, parent trainings). Of these 16 studies, nine involved enhancing communication with parents regarding student academic and/or behavioral progress, and seven studies included parent behavior management training (see Table 3 for details).

Thirty-one of the 51 studies (61%) reported providing professional development to the implementers of the intervention. All but two of the 31 studies focused professional development solely on the delivery of the intervention (i.e., the other two studies also aimed to enhance implementers general knowledge). The professional development of implementers was facilitated by "intervention developers" (Powers et al., 2017), researchers, and school psychologists. The duration of professional development ranged from 30 minutes to 45 hours. Across the 31 studies, 12 specific training elements were coded for the professional development of implementers (see Tables 3 and 4 for details).

Research Methodology

Studies were coded for research design. Approximately 63% of the studies (32/51), employed a single-subject research design, whereas fourteen studies (27%) utilized a randomized controlled trial experimental research design. Five studies (10%) had a one-group pretest–posttest research design, and one study (i.e., Kamps et al., 2008) used a quasi-experimental research design. Control groups were utilized in only 15 studies (29%). Attrition was reported in 16 studies overall (31%).

Data Collection

Baseline (pretest) and postintervention (posttest) data were reported in all 51 studies, with nine studies (18%) collecting follow-up data. Outcome data were reported

Table 3. Intervention Characteristics

Intervention Characteristics	Number of Studies (N = 51)
Interventions	
Specified function of behavior	40
Included a home-based component	16
Mainly communication with parent(s)	9
Parent trainings	7
Used manual	22
Assessed intervention implementation	42
Monitored student progress	40
Assessed social validity	30
Implementer Trainings	
Reported training implementers	31
Focus of training was solely implementation of intervention	29
6–9 training components	7
3–5 training components	16
1–2 training components	9
Assessed social validity	30

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Table 4. Description of Professional Development (PD) Components

PD Component	Description	Number of Studies (n = 51)
Rationale	The importance for training and/or selected intervention is provided. This often connects objectives/goals with training/intervention.	9
Description	Training and/or intervention is explained.	20
Intervention script	Explicit directions are provided to implementers for what they should say to student(s) when implementing an intervention.	8
Fidelity checklist	Printed list of intervention steps is shared.	12
Training materials	Training resources (e.g., PowerPoint slides) are shared.	21
Modeling	In-person or video representation of intervention implementation is provided.	8
Role playing	Implementers practiced intervention or strategies with other adults.	9
Feedback	After implementation, implementers are given feedback/directions on how to improve knowledge and/or skills.	14
Self-monitoring	Implementer track aspects of their own performance or behavior.	2
Lecture	There is a didactic component in the training.	11
Follow-up	Implementer intervention practices are monitored after training.	15
Performance criterion	Implementer had to achieve a score (e.g., 90%) on a test to start implementing intervention.	3

using observational assessments (36 studies, 71%), rating scales (27 studies, 53%), students' grades (11 studies, 22%), and office discipline referral data (i.e., number of times a student was referred to the school administrator for disruptive behavior; 7 studies, 14%). For observational assessments, two studies (i.e., Chaffee et al., 2020; Dart et al., 2016) used the Behavioral Observation of Students in Schools (BOSS; Shapiro, 2004), and one study (i.e., Kamps et al.,2008) employed the Code for Instructional Structure and Student Academic Response (CISSAR) ecobehavioral computerized observation system (Greenwood et al., 1994). The most frequently used rating scales were: Child Behavior Checklist (3 studies; CBCL; Achenbach, 1991), Behavior Assessment System for Children (3 studies; BASC; Reynolds & Kamphaus, 2004), Impairment Rating Scale (3 studies; IRS; Fabiano et al., 2006), Social Skills Rating System (3 studies; SSRS; Gresham & Elliot, 1990), and Social Skills Improvement System (2 studies; SSIS; Gresham & Elliott, 2006). Four studies conducted functional behavioral analysis interviews using the Functional Assessment Checklist for Teachers and Staff (FACTS; March et al., 2000).

Interrater reliability was collected in 33 studies (65%). All 51 studies specified the source of outcome data, with teacher (37 studies, 73%), student (25 studies, 49%), and parent raters (10 studies, 20%) serving as the most frequently used sources. Most of the investigations (38/51, 75%) used multiple data sources (e.g., students and parents, students and teachers) to inform outcome data.

Data Analysis

For data analysis, all studies used descriptive statistics to describe findings in at least one outcome behavior measure and approximately 47% (24/51) of the studies used statistical methods to analyze outcomes. Of the 24 studies that used statistical methods to analyze outcomes, 58% (14/24) were randomized controlled trial experimental research designs, 29% (7/24) were single-subject research designs, 8% (2/24) used one-group pretest–posttest research designs, and 4% (1/24; i.e., Kamps et al., 2008) employed a quasi-experimental research design. Parametric tests were used to analyze outcome data in 20 studies (39%; e.g., *t*-tests, multivariate analysis of variance, and general or hierarchical linear models). In regard to the research design of the 20 studies that analyzed outcome data with parametric tests, 70% (14/20) were randomized controlled trial experimental research designs; 15% (3/20) were single-subject research designs; 10% (2/20) employed one-group pretest–posttest research designs; and 5% (1/20; i.e., Kamps et al., 2008) used a quasi-experimental research design. Six studies used nonparametric tests (12%, e.g., chi-square tests), with four studies (4/6, 67%) employing single-subject research designs and two studies (2/6; 33%) utilizing randomized controlled trial experimental research designs. The clinical significance of intervention changes was examined in 26 of the 51 studies (49%) via percent improvement or effect sizes (see Table 5). Of these 26 studies, 50% (13/26) were randomized controlled trial experimental research designs, 42% (11/26) had single-subject research designs; and 8% (2/26) utilized either a one-group pretest–posttest research design (i.e., Oswald et al., 2005) or a quasi-experimental research design (i.e., Kamps et al., 2008).

Outcomes Reported

Across the 51 investigations, outcomes were reported for (a) students or (b) students and adults (e.g., parents and teachers). Specifically, 42 studies (82%) reported outcomes for students only and nine studies (18%) reported outcomes for both students and adults.

Using at least one or more outcome measures, positive findings were noted in all studies. Seven studies (14%) demonstrated improvements in teacher practices and skills in areas such as behavior management techniques and

Table 5. Effect Sizes Reported in Empirical Studies for Disruptive Behavior

Author(s)	Intervention	n[a]	Male (%)	Dependent Variable	CEC QIs (Met/Total)	ES Description
Class-Wide Intervention Strategies						
Dart et al. (2016)	Classroom Password	41	n/a	On-task behavior; inappropriate physical and verbal behavior	22/22	NAP = 0.64 to 0.99 Weak to strong effect sizes
Conklin (2010) Dissertation	CW-FIT	38	100%	Compliance; on-task behavior; inappropriate physical and verbal behavior	21/22	SMD ES = −3.86 to 4.66***
Monson et al. (2020)	CW-FIT	56	48%	On-task behavior	20/22	*Cohen's *d* = 1.24 to 2.41 Large effect sizes
Speight et al. (2020)	CW-FIT	35	n/a	On-task behavior	22/22	PND = 83% to 100% Moderate to strong effect
Oswald et al. (2005)	Hallway Noise	60	n/a	Disruptive behavior	n/a	Partial eta-squared is 0.49 Large effect size
Beeks and Graves (2016)	Mystery Motivator	26	38%	Inappropriate physical and verbal behavior	17/22	Cohen's *d* = 1.47 to 3.33 Large effect sizes
Mitchem et al. (2001)	Peer-Assisted Self-Management	10	70%	Antisocial behavior	22/22	SMD ES = −0.65 to −0.59***
Chaffee et al. (2020)	Tootling	41	56%	On-task behavior inappropriate physical and verbal behavior	22/22	NAP = 0.63 to 0.96 Tau-U = −1.04 to 0.92*** Weak to large effect sizes
Acquisition Intervention Strategies (Small Group/Individual)						
Gonzales et al. (2012)	Bridges to High School Program	338	49%	School engagement; externalizing symptoms; school disciplinary actions	21/24	ES = 0.32 to 3.49
Evans et al. (2007)	CHP – consultation model	53	77%	Disruptive behavior	23/24	Cohen's *d* = 0.27 to 0.65 Small to medium effect sizes
Evans et al. (2016)	CHP – after school version	112	71%	Disruptive behavior	23/24	*Hedges' *g* = 0.05 to 0.48. No effects to small effect sizes
Langberg et al. (2007)	CHP – after school version	21	67%	Impairment	21/24	Cohen's *d* = 0.23 to 0.77 Small to medium effect sizes
Molina et al. (2008)	CHP – after school version	11	74%	Externalizing problems; conduct problems	21/24	Cohen's *d* = 0.18. Small effect sizes
Muratori et al. (2020)	Coping Power Universal	839	49%	Disruptive behavior	22/24	ES = 0.06 to 0.14
Peterson et al. (2009)	Coping Power Program	63	61%	Attention problems; hyperactivity; externalizing problems; school problems; behavior symptoms	19/24	Cohen's *d* = 0.22 to 0.61. Small to medium effect sizes
Lochman et al. (2010)	Fast Track	445	69%	Disruptive behavior	22/24	Cohen's *d* = 0.14 to 0.16. Small effect sizes
Martin (2018)	Self-regulation instruction	13	63%	Disruptive behavior	21/24	Hedges' *g* = 0.44*. Small effect size
Briere and Simonsen (2011)	Self-Monitoring Intervention	2	50%	On-task behavior	19/22	Cohen's *d* = 0.34 to 1.06** Small to large effect sizes
Floyd (2016) Dissertation	Self-Monitoring Intervention	3	n/a	On-task behavior	19/22	Cohen's *d* = 1.79 to 3.59* Large effect sizes
Thompson and Webber (2010)	STAR intervention	10	80%	Office Disciplinary Referrals	n/a	Cohen's *d* = 0.52 to 3.25 Medium to large effect sizes
Strait et al. (2017)	Student Check Up	88	31%	Self-efficacy; Participation; Academic risk	22/24	Cohen's *d* = −0.23 to 0.45***. Small effect sizes
Smith et al. (2017)	I Control	83	n/a	Behavior regulation; Disruptive behavior; Social Skills	21/24	ES = −0.41 to 0.55***
Attention Seeking/Reinforcement Intervention Strategies (Small Group/Individual)						
March and Horner (2002)	Behavior Education Program (BEP)	24	83%	Office disciplinary referrals	16/22	Cohen's *d* = −0.95*, −0.28***, and 1.26[b] for functions of adult attention, peer attention, and escape. Small and large effective sizes.
George (2010)	Response Cards	29	79%	On-task behavior	20/22	Cohen's *d* = 1.11* Large effect size
Haydon and Hunter (2011)	Opportunities to respond	1	100%	On-task behavior	21/22	Cohen's *d* = 15.65* Large effect size
Simonsen et al. (2011)	Behavior Education Program (BEP)	42	76%	On-task behavior; problem behavior; social skills	22/24	ES = −0.90 to 0.65*** Small to large effect sizes
Lane et al. (2012)	Behavior Education Program (BEP)	4	100%	Compliance	17/22	Cohen's *d* = −0.18* to 1.47***. No effects to large effect sizes
Maynard et al. (2014)	Check and Connect	189	44%	Office Disciplinary Referrals	20/24	Cohen's *d* = −0.27*** Small effect size
Powers et al. (2017)	Check and Connect	45	67%	Office Disciplinary Referrals	24/24	Hedges' *g* = 0.10 to.52*[c]
Escape Intervention Strategies (Small Group/Individual)						
Faul et al. (2012)	Precorrection	2	100%	Disruptive behavior	19/22	Cohen's *d* = −2.35** to−1.86***. Large effect sizes
Hunter and Haydon (2019)	Precorrection, Active supervision, Explicit timing	n/a[d]	n/a	Disruptive behavior	n/a	Cohen's *d* = −16.27* to −3.37***. Large effect sizes

Note. **Authors** indicates randomized controlled trial (n = 14).
*Indicates that means and standard deviation was extracted from study to calculate effect sizes. **Indicates that authors were contacted and provided means and standard deviation in communication to calculate effect sizes. ***Negative effects indicate desired direction (e.g., reduction of negative behaviors).
[a]The n listed is what the articles used to calculate effect size. [b]For students with escape motivated disruptive behavior, their rates of ODR increased following BEP intervention. [c]Please note that Powers et al. (2017) effect sizes is for the control group having fewer ODRs than the treatment group. [d]3 classrooms.

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instructional support skills. Two studies (4%) indicated improvements in positive parenting practices (e.g., parental monitoring, consistent discipline; i.e., Gonzales et al., 2004; Gonzales et al. 2012).

Seventeen studies (33%) broadly described improvements in student disruptive behavior without clarifying a specific focus (i.e., problem behavior, disruptive behavior, appropriate behavior, conduct problems, functioning, and externalizing). Twenty-nine studies (57%) demonstrated improvements in student on-task behavior; 13 studies (25%) found improvements in student academic performance; six studies (12%) indicated that students' social skills had improved; five studies (10%) yielded positive results in students' self-regulation; four studies (8%) showed improvements in students' cooperation or compliance; and two studies (4%) described improvements in student coping skills. Five studies (10%) showed decreases in student office disciplinary referrals; four studies (8%) demonstrated decreases in student inappropriate verbal behavior; four studies (8%) indicated students had fewer internalizing problems; and two studies (4%) found decreases in students' inappropriate physical behavior. One study (i.e., Powers et al., 2017) found that students in the treatment group had significantly better eighth-grade attendance than controls, while another study (i.e., Gonzales et al., 2012) described improvements in family cohesion. Overall, the range in the magnitude of the effects (after removing the negative sign for desired reductions in negative behaviors) were −0.23 to 16.27[6] (see Table 5). For studies utilizing an RCT design, effect sizes ranged from −0.23 to 3.49. For the three primary dependent variables, effect sizes ranged from 0.05 to 16.27[7] for disruptive behavior, 0.34 to 15.65[8] for on-task behavior, and 0.07 to 4.76 for academic performance. For the studies that provided professional development to the implementers of the intervention, effect sizes ranged from −0.23 to 15.65.[9] Effect sizes for investigations that provided at least six training components (see Table 4) ranged from −0.23 to 2.41. In regard to studies that had teachers serve as implementers, effect sizes ranged from 0.06 to 16.27.[10]

Quality Appraisal

Of the 43 studies (29 single-subject and 14 randomized controlled trial experimental research designs) that were reviewed using the CEC QIs, seven studies (16%) met all 28 QIs and are considered methodologically sound. Of these seven studies, six were considered single-subject research designs (i.e., Chaffee et al., 2020; Dart et al., 2016; Mitchem et al., 2001; Ramsey et al., 2010; Speight et al., 2020; Wills et al., 2019) and one study (i.e., Powers et al., 2017) utilized a randomized controlled trial experimental research design. Only Speight et al. (2020) and Wills et al. (2019) corresponded to the same intervention (i.e., CW-FIT). Each of the other five studies corresponded to different interventions. Thus, other than CW-FIT, no intervention was supported by more than one methodologically sound study. On average, the 14 randomized controlled trial experimental research design studies met 90% of the 24 QIs and the 29 single-subject design studies met 86% of the 22 QIs.

Results varied across the QIs. All 43 studies (100%) provided adequate information regarding the critical features of the context or setting ("Context and Setting") and described the critical features of the practice or intervention ("Description of Practice"). Approximately 91% of the studies (39 total studies, including 25 out of 29 single-subject design studies and 14 out of 14 randomized controlled trial experimental research designs) analyzed data appropriately and reported information on effect sizes ("Data Analysis"). Thirty-four of the 43 studies (79%) assessed and reported fidelity of implementation ("Implementation Fidelity"). Twenty-seven of the 43 studies (63%) described the critical features of the intervention agent ("Intervention Agent"). Approximately 63% of the studies (27 studies; 19 out of 29 single-subject design studies and 8 out of 14 randomized controlled trial experimental research designs) used psychometrically sound outcome measures to gauge intervention effect ("Outcome Measures/Dependent Variables"). Approximately 60% (26/43) of the studies provided sufficient information regarding the population of participants (i.e., participant demographics, disability, risk status, and method for determining status; "Participants") and demonstrated adequate internal validity ("Internal Validity").

DISCUSSION

Results of the present study highlight the strengths and weaknesses of the existing school-based outcome literature for behavior interventions used with middle school students (grades 6 to 8) with or at risk of DBDs. To date, no systematic reviews or meta-analyses of behavior intervention outcome data for this school population exist. Given the developmental and environmental changes for students in middle school (e.g., Muratori et al., 2020; Powers et al., 2017), efficacious interventions may differ from those used at the elementary or high school level. Serving as the first systematic review of middle school behavior intervention research, this article provides readers a range of research-based behavior interventions and supports implemented with middle school students with disruptive behaviors. Further, the synthesis from this review spotlights areas of strength and gaps in the current literature

for future development and validation for the middle school population.

Strengths of the Empirical Literature

A key strength of the reviewed studies was the use of experimental design methodology for the majority of studies. Experimental designs provide greater control over the measured outcomes to reduce external factors contributing to the results. Thus, findings from such studies can be generalized with greater confidence. Although only 27% of studies utilized randomized experimental designs, which provide the greatest control over confounding factors and safeguards to maximize internal validity and promote generalizability (Shadish et al., 2002), single-case designs with some level of control for confounds were used in 63% of the studies.

Considering that the unique challenges of middle school can exacerbate maladaptive student behavior, it is important to note that a majority of the studies (47/51, 92%) in this review targeted middle school students only. Gender was reported in most studies (42/51, 82%), and a sizable female student sample was included in this review. This is important, given that girls are at a high risk of being underidentified and treated for their educational and behavioral needs (Coutinho & Oswald, 2005) and the importance of accounting for gender when examining student behavioral outcomes (Ferguson et al., 2010). It is also a strength of the reviewed literature that 100% (43/43) of the studies described the context and setting (QI 1.1; CEC, 2014) of the intervention, which further aids in replication efforts. If subsequent replication efforts confirm intervention efficacy, then the identification of context and setting will aide practitioners in selecting appropriate interventions to match the context of their students, classrooms, and schools.

The majority of reviewed studies (42/51, 82%) monitored implementation fidelity and student progress. Measuring fidelity is crucial to establishing the internal validity of an investigation (van Dijk, 2019). It is also important for operationalizing the critical components of the intervention that may contribute to its efficacy and determining which aspects of implementation are most feasible and where adaptations may need to be made to maximize outcomes (Dane & Schneider, 1998; de Leeuw et al., in press; O'Donnell, 2008; Swanson et al., 2013). Forty of the 51 studies (78%) also monitored student progress. This is a strength of the literature as research suggests that collecting data on student progress contributes to goal attainment (Bruhn et al., 2016).

Among the reviewed studies, most (41/51, 80%) reported the number of implementers and their respective roles (e.g., teacher, researcher, interventionist, etc.). Nearly half of the studies indicated teachers were the primary intervention implementer, suggesting that on an approximate equal basis other types of school personnel utilize and implement behavioral interventions for middle school students. Specification of the intervention provider is important for making inferences about the utility and feasibility of intervention implementation and intervention outcomes (Han & Weiss, 2005). This is important to determining, for example, whether a teacher may achieve better outcomes than a paraprofessional, school psychologist, or researcher who is implementing the same classroom-based intervention. Furthermore, specification of the implementer may afford insights into what knowledge base, education requirements, or experiences influence intervention uptake and success, as well help identify the appropriate intervention to match the type of implementer.

Nearly half of the studies (23/51, 45%) utilized professional development approaches that had three or more training components (e.g., rationale, description, etc.). Training implementers with a comprehensive professional development framework may enhance the learning of behavior management principles as well as promote transfer of skills (Reddy et al., 2020). This is essential, as managing students with disruptive behaviors is often challenging due to their complex academic and socioemotional needs and requires a great deal of flexibility from adults (Bauermeister et al., 2006; Liu, 2004; Reddy et al., 2020). Overall, effect size estimates were generally in the large range (Cohen, 1988) supporting the need for professional development when implementing behavior intervention for this population. Further comprehensive and effective professional development models may have led to more successful implementation, which in turn, might have led to improved student outcomes.

Weaknesses of the Empirical Literature

This review highlights several gaps in the reviewed empirical literature that offer opportunities for future research to practice initiatives. With respect to research design, although there were studies that utilized randomized, experimental designs, most did not. Randomized, experimental designs help rule out potential confounds in observed findings. The majority of studies (32/51, 63%) utilized single-case methods, which are vulnerable to threats to internal validity and overinflation of the magnitude of effects (Shadish et al., 2002). Furthermore, only 60% (26/43) of studies met the CEC's QIs for internal validity, which makes it difficult for school practitioners and scholars to rule out confounds in the findings from much of this literature. With regard to data analysis, less than half of the studies included statistical (24/51, 47%)

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and clinical significance (26/51, 49%) techniques (e.g., effect sizes) to assess outcomes, making it difficult to draw conclusions about intervention efficacy. Measuring the magnitude of effects of interventions and supports is imperative for helping practitioners and researchers select interventions that meet the needs of students.

It is noteworthy that less than half of the studies (22/51, 43%) in this review used manualized interventions. This makes it difficult to discern the consistency with which the interventions were implemented. Missing data, including attrition and follow-up data, is another weakness of the reviewed studies. Less than half of the articles (16/51, 31%) reported attrition, calling into question the accuracy of effect sizes obtained. It is possible that effects were inflated due to attrition of students who performed poorly. This may be especially problematic given the use of single-subject design studies for the majority of studies. Scholars have noted that "loss of respondents during a single-case time-series intervention study can produce artificial effects if that loss is systematically related to the experimental conditions" (Kratochwill et al., 2010, p. 10). In regard to outcome data, long-term follow up data (9/51, 18%) were often not reported. As middle school students with disruptive behaviors often have negative long-term outcomes, it is critical to examine the effects of behavior interventions on proximal and distal student outcomes.

Research suggests that school-based interventions that enhance the skills of middle school students, improve family–school relations, and encourage parent involvement can effectively reduce disruptive behavior in schools (Eyberg et al., 2008; Gonzales et al., 2004; Hill & Tyson, 2009). Despite these promising results, only 16 studies (31%) in this review included strategies to enhance parent involvement or support. It is possible that the limited use of parent involvement in intervention delivery for this population may have contributed to some of the modest findings reported in the reviewed studies.

Although the number of implementers and their position (e.g., teacher, researcher) were often reported in reviewed studies, information about their gender, ethnicity, age, education level, years of experience, and experience with specific disabilities was often not provided. It is important to evaluate the potential influence of such demographic and contextual characteristics on the efficacy of an intervention. Examining the influence of these factors may help to determine, for example, whether school practitioners with more experience implementing behavior interventions and supports in authentic classroom settings may yield greater student engagement, intervention fidelity (i.e., more skillful implementation), and subsequently better student outcomes than those with less or limited experience in schools (e.g., Peterson et al., 2009). Furthermore, teachers' beliefs, attitudes, and behaviors toward an intervention may contribute substantially to their fidelity of intervention implementation (Forman et al., 2013). It is important to examine these factors to help discern their potential influence.

While professional development was provided in over half of the studies (31/51, 61%) reviewed, few studies reported using experiential learning methods such as role playing and self-monitoring. Experiential learning experiences increase engagement from implementers and leads to more effective communication and implementation skills (Chen et al., 2003; Kolb & Kolb, 2009).

As only 60% (26/43) of studies met the CEC's QIs for providing sufficient information about the population of participants, student data collection was another weakness of the reviewed studies. A variety of demographic data were present in most of the articles; however, special education classifications, diagnostic data (DSM and comorbid diagnoses), and current school services were reported in less than half of the reviewed studies. Therefore, in the absence of such information it may be difficult for practitioners to interpret how findings from these studies apply to their own unique contexts. Similarly, the omission of data on special education status makes it difficult to make determinations about the effectiveness of interventions for students in special populations.

Finally, there were seven studies that met all the CEC's QIs for methodologically sound studies. However, due to the lack of research on behavioral interventions implemented in middle school, only the CW-FIT intervention had more than one methodologically sound single-subject study (i.e., Speight et al., 2020; Wills et al., 2019). Only the Check and Connect intervention had a supporting methodology sound group comparison study (i.e., Powers et al., 2017). This limits the confidence with which claims can be made about the effectiveness of individual interventions that school practitioners consider for middle school students displaying disruptive behaviors.

Implications for School Practice

Findings from this review offer suggestions for school-based practice. Middle school students with or at risk of DBDs need behavior interventions and supports. As middle school is a significant transition period for students, it is imperative that school practitioners are mindful of the developmental challenges in this context when selecting, tailoring, and implementing behavior interventions. The influence and frequent turnover of the peer group, as well as the increased academic expectations, interactions with multiple teachers and classrooms, and newfound

autonomy, should be considered when delivering behavior interventions and supports to meet students' needs. Below are highlights of example interventions with empirical support in the literature.

Due to the social and environmental changes (e.g., larger class sizes) inherent in middle school, class-wide interventions are a critical first step to addressing disruptive behaviors. Classroom interventions can positively affect 80% to 90% of students (Monson et al., 2020). Our review calls attention to some promising class-wide interventions for middle school students displaying disruptive behaviors. For example, CW-FIT is a multitiered group contingency intervention that utilizes evidence-based practices such as teaching classroom expectations and providing praise to students (Wills et al., 2019). CW-FIT also contains a social skills training component. Research demonstrates that this intervention is effective for increasing teacher praise and student on-task behavior (i.e., Conklin, 2010; Monson et al., 2020; Speight et al., 2020; Wills et al., 2019). Furthermore, according to the CEC 2014 QIs, two of the investigations in this review (i.e., Speight et al., 2020; Wills et al., 2019) that support CW-FIT can be considered methodologically sound. CW-FIT has also been found to have demonstrated implementation fidelity and social validity from teachers and students alike. In addition to CW-FIT, class-wide peer tutoring involves students collaboratively supporting each other's learning in dyads (Kamps et al., 2008). An advantage to class-wide peer tutoring is that students enhance their social and behavioral skills. Kamps et al. (2008) found that teachers could implement this intervention with fidelity, and it led to increased active student behaviors (e.g., class participation) and decreases in disruptive behavior.

Middle school students' disruptive behaviors can often be attributed to a skill deficit, which underscores the importance of choosing an intervention from the acquisition intervention category in Table 2 (Alperin et al., 2020). The following interventions have support from randomized controlled trials, which provide safeguards for reducing potential confounds and increasing interval validity and generalizability: Challenging Horizons Program (i.e., Evans et al., 2007, 2016; Langberg et al., 2007; Molina et al., 2008), Coping Power Program (i.e., Peterson et al., 2009), Fast Track (i.e., Lochman et al., 2010), Bridges to High School Program (i.e., Gonzales et al., 2012), I Control (i.e., Smith et al., 2017), Student Check Up (i.e., Strait et al., 2017), Self-Regulation instruction (i.e., Martin, 2018), and Coping Power Universal (i.e., Muratori et al., 2020). Of these interventions, the Challenging Horizons Program has an extensive research base. In addition, the after-school version of the Challenging Horizons Program has a social skills component and mandates three parent meetings over the course of the academic year. The after-school version also has evidence that its benefits are sustained at follow up (Evans et al., 2016). Despite the numerous strengths of this intervention, it is targeted to middle school students with ADHD and thus, might not be suitable for use with students who do not have this disorder. Furthermore, the intervention seems to increase attentiveness, but its impact on other classroom disruptive behaviors is mixed.

Although efficacy of the Bridges to High School Program has support from only one randomized controlled trial research study (i.e., Gonzales et al., 2012; positive program effects were evident at 1 year follow up, effect sizes for reducing externalizing symptoms ranged from 0.32 to 3.49) and is designed for Mexican American students, it is a multicomponent intervention that targets parenting practices, student coping strategies, school engagement, and family relations. In addition, the Bridges to High School Program focuses on decreasing both student externalizing and internalizing problems. Taken together, this intervention appears to be a promising approach for use with middle school students with disruptive behaviors. Despite this intervention's positive benefits on key mediators (i.e., effective parenting, adolescent coping, adolescent school engagement, and family cohesion) and student behaviors, implementation might be considered challenging as the program required 45 hours of preservice training, 3 hours of weekly training, and 2 hours of weekly supervision. Furthermore, the Bridges to High School Program was validated with Mexican American students only and thus might not be generalizable to the wider middle school population.

Students often exhibit disruptive behaviors to gain attention from others (Cook et al., 2014). Table 2 presents two interventions, the Behavior Education Program (i.e., Simonsen et al., 2011) and Check and Connect (i.e., Maynard et al., 2014; Powers et al., 2017[11]), which are supported by randomized controlled trial design research (Powers et al., 2017 met all CEC QIs and is considered methodologically sound) to address students with problem behaviors maintained by peer or adult attention. Both the Behavior Education Program, also known as Check-In/Check-Out (CICO), and Check and Connect interventions are promising for use with middle school students displaying disruptive behaviors due to its emphasis on feasibility, parent involvement, progress monitoring, and academic engagement. The Behavior Education Program is especially suited for use with middle school students with disruptive behaviors as it often aims to enhance appropriate social behaviors.

Students with disruptive behaviors that are maintained by escaping demands present unique challenges in schools

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(Cook et al., 2014). These students often require great effort on behalf of educators to keep them engaged in academic work. Furthermore, common strategies, such as time out or office disciplinary referrals, often inadvertently reinforce the student's disruptive behaviors. Additional research is needed to investigate efficient research-based interventions that reduce disruptive behavior for escape-motivated middle school students (who do not have developmental disabilities). In Table 2, all escape intervention studies utilized single-subject research designs. Of the interventions presented in this category, the most promising may be Choice Making, which has three research studies (i.e., Kern et al., 2002; Ramsey et al., 2010, 2017) that support its efficacy. Specifically, Ramsey et al. (2010) met each of the CEC's QIs and can be considered a methodologically sound research study. Given middle school students demand for autonomy (Patall & Zambrano, 2019), Choice Making might be an ideal intervention as it facilitates students' sense of control over the classroom environment (Ramsey et al., 2010).

Summary of Implications for School Practice

Due to the importance of the peer group, increased academic demands, influence of multiple teachers and classrooms, and need for autonomy, it is essential that middle school practitioners select and adapt research-based interventions appropriately depending on the function on the student's disruptive behavior. Specifically, disruptive behavior can be widespread throughout a classroom or limited to a specific student or small group of students. Students might behave disruptively due to a skill deficit, a need to get attention from others, or to escape a situation or demand. When considering a behavior intervention, school practitioners, in addition to the function of the disruptive behavior, should be cognizant of several factors: the quality of the supporting research (e.g., RCT, CEC 2014 QIs), evidence of social validity and implementation fidelity, and whether the intervention targets social skills and encourages parental involvement. Highlights of example interventions with empirical support in Tables 1 and 2 include CW-FIT and class-wide peer tutoring (class-wide intervention strategies), Challenging Horizons Program and Bridges to High School Program (acquisition intervention strategies), Behavior Education Program and Check and Connect (attention seeking/reinforcement intervention strategies), and Choice Making (escape intervention strategies).

Implications for School-Based Research

Despite these limitations, findings from this review offer avenues for future research for youth in middle school. Additional large-scale investigations are needed that utilize rigorous experimental designs to assess the effects of specific interventions on teacher and student outcomes. Studies that employ a randomized controlled trial research design are crucial for ruling out confounds (i.e., aligning with CEC's QIs for internal validity) and generalizing findings about which interventions are most effective. Such studies are important for guiding school practitioners in selecting the most efficacious behavior interventions to use in their respective settings. Relatedly, to accurately assess the impact of an intervention, research should use significance tests in tandem with an appropriate research design to measure outcomes and effect sizes that estimate meaningful changes in the functioning of students (Reddy et al., 2018; Shadish et al., 2002). Effect sizes are essential in assisting scholars with the planning of replication research (Kenny & Judd, 2019).

In addition to conducting more rigorous and larger-scale investigations, future research should also evaluate the efficacy of behavioral interventions that can be used to address students who exhibit disruptive behavior to escape demands. Currently, the vast majority of research for escape-motivated disruptive behavior has focused on students with developmental disabilities and not typically developing students (Cook et al., 2014). In particular, Lane et al. (2012) propose that the Behavior Education Program, which is shown to be effective for reducing attention seeking student disruptive behavior (March & Horner, 2002), along with the use of a bonus clause (e.g., allows student to escape a nonpreferred activity if they meet behavior goal) might address middle school students whose disruptive behavior has the primary function of escape; however, additional research is needed in this area.

Another key finding in this review is the importance of parent involvement in behavior interventions for middle school students. Future research should investigate strategies that effectively enroll parent involvement and input in the intervention planning and implementation process in schools. Moreover, future studies should evaluate the level of parent involvement needed (e.g., simply enhance communication with parents, provide them with training, or conduct family psychotherapy) to obtain desired student outcomes.

It is important that future research focus on clear operationalization of intervention implementation. Use of manualized interventions can be helpful in this regard, as they have been found to contribute to a more effective, focused, data-based, and faithful service delivery as well as assist with replication (Dumas et al., 2001). As it is well documented that implementation fidelity maximizes an intervention's impact on student outcomes (Bianco, 2010), it is important that school practitioners have access to implementation data to make informed decisions about

which approaches can be implemented faithfully and have optimal impact on students. More research is needed to examine the effects of behavior interventions on implementation fidelity and student outcomes.

Future investigations are warranted to identify specific factors that moderate or mediate the effects of an intervention on student outcomes. Randomized controlled trials can be valuable for establishing the influence of specific student characteristics, to clarify when and with whom an intervention results in positive outcomes. Furthermore, since most of the implementers in the reviewed studies were teachers, it is important for additional investigations to rigorously examine the influence of roles (e.g., teacher, paraprofessional, interventionist), characteristics, and prior experiences of adult implementers on the quality of intervention delivery and student goal attainment in the middle school population. Finally, research is needed that examine the differentiated effects of published and nonpublished studies for this population and context. While we included peer-reviewed studies and dissertations that represented a range of research designs and methodologies, we did not examine the possibility of outcome differences in this body of literature.

LIMITATIONS

This review is not without limitations. The first limitation revolves around middle school literature on the whole. Limited peer-reviewed studies address middle school students who display disruptive behaviors in the classroom and thus the literature base limits the number of studies per intervention. Future research is needed that validates the efficacy of specific interventions with middle school students with or at risk for disruptive behavior disorders. Further, the existing literature does not allow for differentiation between intervention effects on specific disruptive behaviors or disability categories. Second, in our search procedures, we did not use a first author search or forward search of included articles. Third, the vast majority of the studies measured changes in dependent variables using observational assessments with a range of observer training methods. Observational assessments could lead to inconsistent data and observer drift during study implementation. Future research should use rigorous observer training and reliability criterion testing to assess changes in intervention practices and student outcomes. Fourth, we did not use methodological characteristics as part of the inclusion criteria given that we wanted to include all school-based intervention studies conducted for youth with disruptive behaviors in middle school contexts. While this review approach allowed for a greater level of inclusion, it is possible that the overall quality and rigor of research design varied across the published articles and dissertations. We elected to include investigations with more diverse qualities to most accurately and comprehensively represent the larger intervention literature and to guard against publication bias (e.g., Cooper, 2017). Fifth, many of the studies in this review did not fully meet the evaluation criteria (quality indicators) set forth by the Council for Exceptional Children (2014). Additional rigorous studies are needed to advance this research for this population. Finally, although this systematic review provides the first step for understanding the literature evaluating research-based behavior interventions and middle school student behavior outcomes, quantitative comparisons of the outcomes is not possible at this time.

CONCLUSION

This review offers a synthesis of the school-based behavior interventions and supports used with middle school students with or at risk of DBDs. We hope the findings from this review offer researchers and school practitioners valuable insights about the elements of behavior interventions for middle school students with challenging behaviors and possible effects of interventions on intended outcomes. Likewise, it is the goal of this review to offer an empirical foundation for developing and evaluating new behavior interventions and supports approaches that meet the unique developmental, social, and academic needs for this population.

NOTES

1. International studies were included provided they met inclusion criteria.
2. This database was also filtered to only include results written in English.
3. Boolean string: strat* OR interv* AND disrupt* OR external* OR problem OR behavior AND Middle School OR Adolescent*
4. Journals were searched with same key terms as databases.
5. Across all variables, coder agreement was 99% with agreement per variable ranging from 93.27% to 100%.
6. Conklin (2010), Haydon and Hunter (2011), and Hunter and Haydon (2019) investigations yielded very large effect sizes. When omitting these studies, effect sizes ranged from –0.23 to 3.59.
7. Without Hunter and Haydon (2019) investigation, effect sizes would range from 0.05 to 3.49.
8. Without Haydon and Hunter (2011) and Conklin (2010) investigations, effect sizes would range from 0.34 to 2.41.
9. Without Conklin (2010) and Hunter and Haydon (2019), effect sizes ranged from –0.23 to 3.49.

10. Without Conklin (2010), Haydon and Hunter (2011), and Hunter and Haydon (2019) investigations, effect sizes ranged from 0.06 to 3.33.
11. While this study did not demonstrate a decrease in office disciplinary referrals, it did impact school attendance positively. The authors speculate that school-level variables might have negatively impacted the students' office disciplinary referrals.

DISCLOSURE

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