A review of evidence based practices to support students with oppositional defiant disorder in classroom settings

Conor Barker[1], Jenn de Lugt[2]

[1] Department of Psychology & Faculty of Education, Mount Saint Vincent University, Nova Scotia, Canada
[2] Faculty of Education, University of Regina, Regina, Canada

HOW TO CITE:
Barker, C., de Lugt, J. (2022). A review of evidence based practices to support students with oppositional defiant disorder in classroom settings. *International Journal of Special Education, 37*(1), 85-98

CORRESPONDING AUTHOR:
Conor Barker;
conor.barker1@msvu.ca

DOI:
https://doi.org/10.52291/ijse.2022.37.29

ABSTRACT:

The purpose of this systemic review of empirical research was to investigate available evidence-based interventions for use with students with oppositional defiant disorder (ODD) in general classroom settings. ODD is a specific disorder characterised by angry/irritable mood, argumentative/defiant behavior, and vindictiveness. Often ODD is hidden in the extant literature, as it is categorized under the umbrella term *emotional and behavioral disorders* (EBD) along with sometimes non-related disorders (attention-disorders, mood disorders, anxious disorders). This review of 26 articles focused on interventions for students whose behaviours were characteristic of ODD in classroom settings. While much of the research regarding the treatment of ODD consists of clinical strategies (e.g., family therapy, exercise programs, and community supports), it is essential that teachers have strategies to support students with ODD in inclusive general education classroom settings. Three main types of interventions emerged from this review: functional behaviour analysis, group contingency, and self-monitoring strategies. A number of other non-categorical strategies are also presented and discussed. Percentages of nonoverlapping data (PND) were calculated to explore the effect of these interventions in improving adaptive behavior, and in decreasing disruptive behavior. The resulting review provides recommendations and strategies for how teachers can support students with ODD in their classrooms.

Keywords: oppositional defiant disorder; classroom interventions; inclusive education; behavioural interventions; emotional and behavioural disorders

INTRODUCTION

In increasing rates, schools and classrooms are seeing a greater incidence of Oppositional Defiant Disorder (ODD) in their classrooms (Barcalow, 2006; McLean & Dixon, 2013). Students with ODD are often excluded from general classroom settings when teachers are not equipped with evidenced-based interventions that can support their learning needs. The current literature provides a great number of intervention and evidence-based treatments for students with ODD, however, a great deal of these studies focus on family or out-patient supports that can not be applied by teachers in inclusive classroom settings. This paper reviews the extant research related to interventions used or administered by classroom-based teachers in order to promote the inclusion of students with ODD.

CONTEXT

For this review, ODD is defined as per the Diagnostic and Statistical Manual, 5th Edition (DSM-V; American Psychiatric Association (APA), 2013). ODD is a disorder which first presents in childhood, and is characterised by irritable mood and affect as well as oppositional behavior. ODD occurs in approximately 3.3% of the population and is more prevalent in males before adolescence, but is equally prevalent among males and females after adolescence (APA, 2013). ODD occurs across cultures, races, and ethnicities (APA, 2013). ODD is often classified in the research as a disruptive behavior, emotional and behavioral disorder, and is often used interchangeably with Conduct Disorder; even though ODD is characterized by a specific set of symptoms. Generally speaking, symptoms of ODD can consist of anger/irritability, and non-compliance, and more often than not are specific to one authority figure or one specific environment (Gadow & Drabick, 2012).

Oppositional Defiant Disorder is characterized by persistent oppositional behaviour evident over the course of six months or more (APA, 2013). The DSM-V describes the disorder across three symptomology subtypes: Angry/Irritable Mood, Argumentative/Defiant behavior, and Vindictiveness. Children diagnosed with ODD must have at least four identified symptoms present for a minimum of six months. Symptoms must be beyond what is expected in normal child development (e.g., refusal behaviours of a three-year-old going to bed might not qualify, but refusal to come to a parent when called may qualify). These symptoms must be associated with some form of functional deficit (e.g., issues of oppositional behaviour must impact social or academic functioning). The severity is indicated by the number of environments affected by the behavioral issues; for example, a mild severity would indicate that the behaviours only impact one environment, a moderate severity would indicate two environments, and a severe severity would indicate three or more environments (APA, 2013).

ODD should be distinguished from other disorders, including: Conduct Disorder (a more severe conduct problem associated with breaking social rules and norms); Attention-Deficit/Hyperactivity Disorder (behaviours related to reduced sustained attention); Depressive and Bipolar Disorders (behaviours attributed to negative affect); Disruptive Mood Dysregulation Disorder (a chronic and severe mood disorder); Intermittent Explosive Disorder (characterized by a greater degree of anger); Intellectual Disabilities (behaviours related to not understanding or not being able to negotiate the environment); Language Disorders (behaviours associated with poor communication skills); or Social Anxiety Disorder (behaviours that result from a fear of social situations). While there may be situations where ODD would be comorbid with another disorder (e.g., ADHD), the symptomology to be classified as ODD would have to be in excess of that of the other disorder (APA, 2013).

Present research has moved towards the use of Emotional or Behavioural Disorders (EBD) when describing students with oppositional behaviours in school (Merrell & Walker, 2004). This term is not without controversy, as it tends to both oversimplify and overcomplicate discussions on how to define and support students with EBD in the classroom (see Kauffman, 2015, for a full discussion). This concern does not only apply to educational settings, as clinical research rarely distinguishes between Conduct Disorder and ODD, labelling both as behaviour disorders, even as their symptoms, course, and development appear to be distinct (Dinolfo & Malti, 2013). Further, researchers have suggested that such confusion results in misunderstandings due to discrepancies between research and clinical practice (McFarland et al., 2016). As such, the use of the term EBD further muddies the waters when looking for ways to support students with oppositional or defiant disorders as they are grouped together under one label even if their etiology may be quite different.

Students with ODD are frequently in our schools, and can present significant challenges to teachers, administrators, parents, and other students in general education settings. A commonly considered solution is to simply exclude these students from regular classrooms and schools, given the disruptive nature of their behaviors. Evans & Lester (2012) reviewed current practices of

zero-tolerance policies in schools, wherein students who display disruptive behaviours are given mandatory consequences that are prescribed by a school code of conduct, or in some cases legislation. Zero-tolerance often leads to the expulsion of students from classrooms and schools, at times for only one behavioral occurrence. Evans and Lester argued that students with EBD are unfairly impacted by these policies, as their individual needs are not being considered. Further, the impact of these policies contributes to the school-to-prison trajectories (i.e., students who are consistently in trouble at school end up within the criminal justice system). The authors further suggested that schools should view behaviour as a mode of communication (recognizing student frustration and a lack of ability to resolve the situation (e.g., Greene, 2014); consider the purpose of discipline (is it educative? Or is it an attempt to control the student?); employ an interdisciplinary approach (involving different stakeholders and specialists); foster safe and respectful school environments (allowing all children to thrive); and become proactive at facilitating system change, including advocating against zero-tolerance policies which are not supported by research as an effective practice.

Oppositional Defiant Disorder can be best considered to be an interactional disorder (APA, 2013; Barkley & Benton, 2013). This is to say that the symptoms of ODD largely occur within a relationship between the child and another person, within a social context. Generally speaking, children with ODD rebel against any attempt to modify or influence their behavior, both positively (e.g., using rewards) or negatively (e.g., using punishments; Barkley & Benton, 2013). In both instances, the child would see this as a manipulation, and will act in a way that counters the person trying to modify their behavior. It is also interesting to note that most cases of ODD, do not appear in all settings, except in the most severe of cases; as such, modifications and differences in the environment can be effective in the remediation of ODD.

Purpose

Of particular interest to teachers and school-based psychologists, is determining what interventions best support students with ODD. A great deal of clinical research has been conducted to determine best practices of clinical intervention, including individual and family therapies, exercise programs (e.g., Folino et al., 2014), and community supports, however, teachers are at a loss with what to do in their classrooms, especially if families do not have access, resources, or desire to participate in out-patient style therapies. Thus, this review of the literature intends to explore the current research regarding what teachers can do to support students with ODD in the classroom.

METHODOLOGY

Using the quality indicators for conducting systemic reviews for behavioural disorders (Maggin et al., 2017), a review of published articles was undertaken in order to answer the research question: "What evidence-based interventions have been validated in classroom settings to support students with ODD?" The systemic review involved establishing the eligibility criteria, conducting a systemic search, determining the sample to be reviewed, and subsequent analysis as described below.

Eligibility Criteria

A preliminary review of the available literature found that it was difficult to find research that was specific to ODD in classroom settings, as such, the eligibility criteria for the present study was broadened in order to generate applicable findings. To be included in the study, the journal article had to describe an original research study conducted within a classroom setting by a teacher (either classroom or special education). The study had to focus on challenges presented by students either being identified as having a diagnosis of Oppositional Defiant Disorder or used the keyword "Oppositional Defiant Disorder" in their search criteria. The students under study must have displayed symptoms consistent with the disorder (e.g., Angry/Irritable Mood, Argumentative/Defiant Behavior, or Vindictiveness; APA, 2013). The studies were to be empirical in nature, providing some form of numerical or graphical data to illustrate efficacy. Furthermore, the studies had to utilize a strategy or intervention and present outcomes or performance data. The studies were not limited by time period.

Some studies were excluded from this review. First, studies that did not clearly meet the above inclusion criteria were excluded. Secondly, studies that had an emphasis on another identified disorder (e.g., Attention Deficit Hyperactivity Disorder, Autism Spectrum Disorder, Anxiety Disorders, etc.) were excluded. Finally, research studies which reviewed several interventions, or were a meta-analysis, an opinion paper, or a review of the literature, were also excluded.

Search Procedures:

A systemic review of the literature was completed using the Education Resources Information Center (ERIC) and PsychInfo databases. Only published articles were includ-

ed in the review. English-language articles were reviewed without a limitation on publication year. The search was based on the following search string: ((Oppositional Defiant Disorder) OR (ODD) OR (Disruptive Behaviour Disorder) OR (Disruptive Behaviour Disorders)) AND (Classroom) AND ((Intervention) OR (Management)). Titles and abstracts were then reviewed to determine their appropriateness for the current review against the inclusion/exclusion criteria. The coders reviewed articles that met the inclusion criteria and reviewed the reference list for additional articles. The lead coder is an assistant professor of inclusive education. The secondary coder is an associate professor in inclusive education. Both coders are subject area experts, and collaborated to assure that relevant authors and articles were not omitted from the search.

Data Collection

This search was concluded in 2017 and resulted in a total of 144 studies. These results were then limited to peer-reviewed and scholarly journal articles, reducing the number to 108 studies. These studies were reviewed by the lead coder, with titles and abstracts reviewed against the inclusion/exclusion criteria with 49 articles remaining. Of the 49 articles that were included in the study, further deeper reading of the articles indicated that some did not meet in inclusion/exclusion criteria (e.g., articles which relate to teacher practice rather than student outcomes, insufficient evidence to suggest possible ODD symptomology). This resulted in a final number of 26 articles that were used for the review. Each article was reviewed in terms of: (1) sample characteristics (e.g., number, setting, age range, percentage of female participants); (2) variables relevant to ODD (e.g., dependent and independent variables); (3) the nature of the intervention (e.g., type of intervention, format, delivery, and who it was delivered by); and (4) the outcomes and limitations as discussed in the article.

Analysis of Results

A majority of the studies were single-subject research, and as such the percent of non-overlapping data (PND) was selected to provide a method to compare the interventions. PND is a method by which single subject research data can be tabulated and compared (Scruggs & Mastropieri, 1998). To calculate PND, the research-

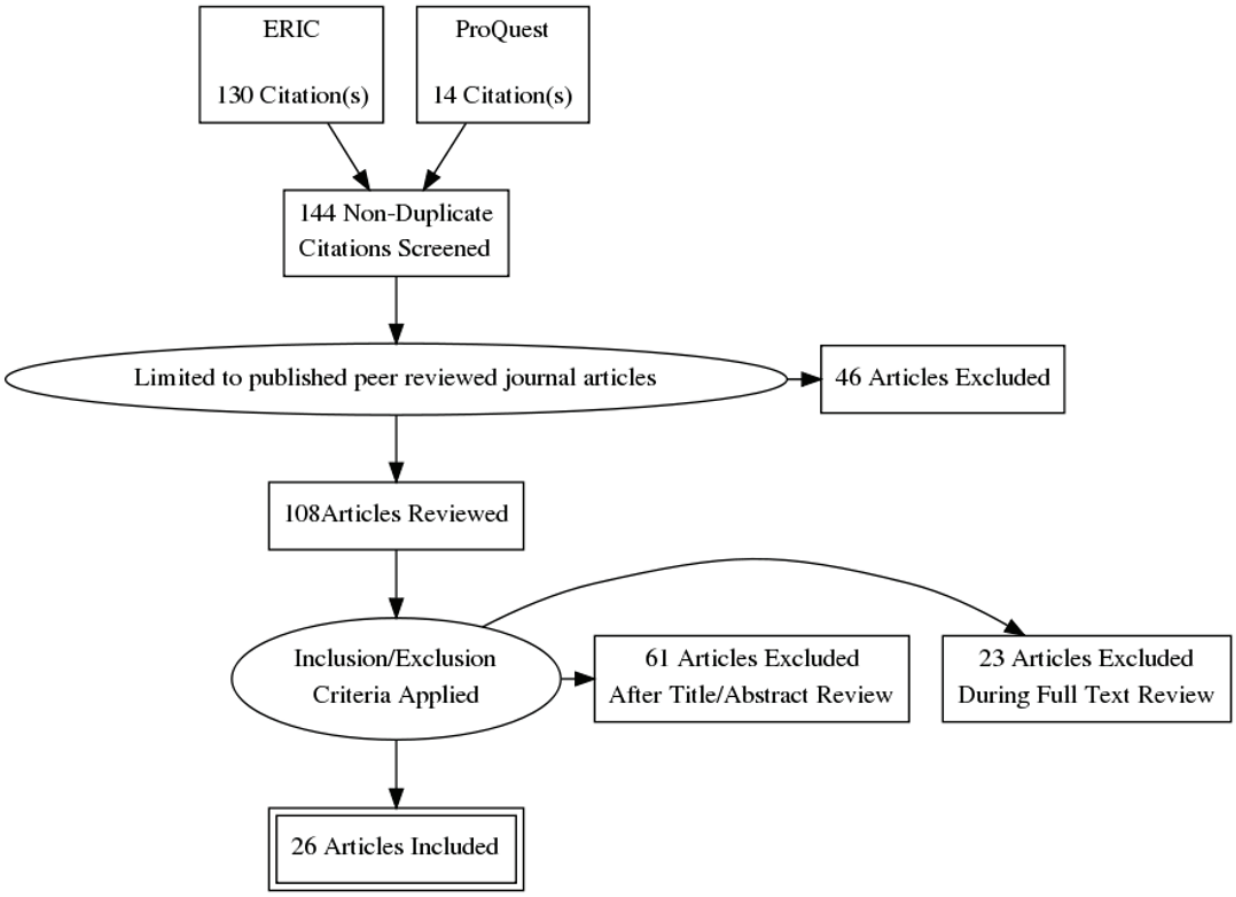

Fig. 1. Evidence based practices to support disruptive behavior

ers find the highest score in the baseline condition, and determine how many data points are above this score in the intervention or treatment condition. This number of points is divided by the total number of data points collected in the intervention condition (e.g., points above, plus, points below the highest baseline score). This score is multiplied by 100 to provide a percent of scores that were found to be above baseline. In cases where a decrease score is intended by the intervention, the lowest score in the baseline is used, and points below this baseline are included in the calculation. This method is used illustratively, and while a simple measure, it is comparable with other means of comparing different studies (Olive & Smith, 2005). PND was selected for its ease of calculation across multiple studies, and because it provides an at-a-glance summary of outcome and effectiveness.

PND cannot be calculated for studies that do not include full disclosure of their data, or if only mean scores are provided. Also, in cases where the baseline behaviour occurs already at a maximum level in increasing studies (or at minimum level in decreasing studies), a PND cannot be calculated, as there is no evidence of change. For six studies it was not possible to calculate a PND. In cases where multiple data sets were provided, a mean PND calculation (M PND) was determined in order to provide a sense of the aggregate data. In terms of comparing the different interventions, a Weighted M PND is provided by multiplying the M PND of the original studies with the number of participants in that study, and then providing an average percentage based on the total number of participants within that pool. In terms of effect size, PND values of over 90% are noted to be a large effect, values from 70-90% represent a moderate effect, values from 50-70% represent a low effect, and less than 50% is ineffective (Scruggs & Mastropieri, 1998).

RESULTS

Participant Characteristics

Twenty-six studies were found that met the criteria for inclusion in the present review. The studies ranged in publication date from 1986-2015, spanning nearly thirty years of research. A total of 664 participants were represented in these studies, with 19 studies including 1-10 participants (n = 58), five studies having 11-100 participants (n=186), and two studies having over 100 participants (n = 420). Studies were from around the world but were predominantly from American school contexts. Many ethnic and cultural diversities were represented in the research findings. Female participants averaged approximately 20% of the sample, which is consistent with research indicating that males typically display more externalizing behaviours in classroom settings. Participants ranged in age from 5-17 years, providing a breadth of experiences from elementary to high school settings. Only four studies referred directly to ODD, while most categorized the problem behaviours as EBD as loosely defined in American IDEA legislation, but described the behaviour of the student under study as being either (1) angry-irritable; (2) argumentative/defiant; or (3) vindictive (consistent with APA criteria for ODD). In terms of settings, sixteen studies were conducted in general classroom settings, that is, inclusive settings with all children, while 10 studies were conducted in alternative, special education, or segregated programs.

Variables

For the purposes of this review, variables were classified in terms of adaptive behaviours (e.g., prosocial and expected behaviours of students in school), and disruptive behaviours (e.g., behaviours that are not acceptable or encouraged in a school environment). Examples of adaptive behaviour include on-task behaviour, compliance, academic engagement, time on task, active responding, and prosocial behaviour. Disruptive behaviour was a term used more consistently, although some studies used off-task behaviour, aggression, and behavioural impairment. Common "disruptive behaviours" included inappropriate calling out, work refusal, poor social interactions with peers, or tantruming.

Intervention Procedures

This review identified three main types of interventions for addressing disruptive behaviours used in classrooms settings: (1) Functional Behaviour Analysis (n = 9); (2) Group Contingency (n=5), and (3) self-monitoring strategies (n=4). Eight studies did not fall within these categories.

Functional Behaviour Analysis. Functional Behaviour Analysis (FBA) is a process by which behaviour is assessed, hypotheses are made, baseline data collected, interventions are provided, intervention data is collected, and plans are revised based on the outcomes (Iwata et al., 1994). Functional Behaviour Analysis is based on behaviourist theory that posits that behaviour can be controlled through operant or classical conditioning of antecedent or consequential events (e.g., reward and/or punishment, reducing aversive stimuli by associating something more pleasurable). The theory behind FBA is that behaviour serves a function, either to meet a sensory,

Table 1. **Summary of FBA intervention studies for students with ODD or disruptive behavior in classroom settings**

Reference	Sample Characteristics	Intervention Setting	Dependent Variables	PND
(Umbreit, 1995)	n = 1 age 8 0% female	general classroom	adaptive behavior disruptive behavior	M PND Across Settings, adaptive behavior = 100%; disruptive behavior = 100%
(Ervin et al., 1998)	n = 2 age 13-14 50% female	general classroom	on-task behavior	M PND Across subjects and settings = 90%
(Hoff et al., 2005)	n = 1 age 12 0% female	general classroom	disruptive behavior	Final PND when hypothesis determined = 100%
(Kamps et al., 2006)	n = 2 age 7 50% female	general classroom	on-task data compliance disruptive behavior	PND could not be calculated reliably.
(Wright-Gallo et al., 2006)	n = 2 age 12-14 0% female	alternative classroom	disruptive behavior	PND could not be calculated reliably
(Restori et al., 2007)	n = 8 age 10-11 50% female	general classroom	disruptive behavior academic engagement	M PND in antecedent change = 100%; in consequence change = 89%
(Park & Scott, 2009)	n = 3 age 5-6 33% female	alternative classroom	disruptive behavior on task behavior	M PND for disruptive behavior (n=2) = 100% PND on task behavior (n=1) = 89%
(Nahgahgwon et al., 2010)	n = 3 age 5-6 0% female	general classroom	on-task behavior	M PND = 100%
(Turton et al., 2011)	n = 3 age 14-17 0% female	alternative classroom	on-task behavior	M PND = 100%
Total Studies = 9	**Total N = 25 Age Range: (5-17) 28% Female**	**Total General: 6 Total Alt: 3**	**Weighted M PND Across Studies: Adaptive Behaviors Improvement: 97% Disruptive Behaviors Reduction: 98%**	

escape, attention, or tangible desire. FBA was developed primarily for use with individuals with intellectual difficulties, however, it is increasingly being used in cases of students with disruptive behaviours in classroom settings.

The present review found nine studies which focused on either improving adaptive behaviour or decreasing disruptive behaviour. A total of 25 cases were examined in these studies. They were applied across all school age groups (ages 5-17 years), and to a sample that includes 28% female participants. The Weighted Mean PND was 97% for adaptive behaviour improvement across the studies, and 98% for disruptive behaviours decrease. Further, as two thirds of these studies were conducted in general classroom settings, and one-third in alternative classroom settings, it is a promising practice for the inclusive classroom.

Group Contingency Plans. Group contingency interventions involve a group of students being rewarded for the presence of absence of behaviour within a group (Little et al., 2015)single-subject design, school-aged children; N = 50. Three types of group contingency interventions were found in this review. Group contingency plans utilize group dynamics and peer monitoring to increase compliance with school rules. Students are placed into groups or teams and challenged to meet school expectations.

Table 2. **Summary of group contingency intervention studies for students with ODD or disruptive behavior in classroom settings**

Reference	Sample Characteristics	Intervention Setting	Dependent Variables	PND
(Wills et al., 2016)	n = 313 age 6-12 24% female	general classroom	on task behavior disruptive behavior	PND not calculated. On-task behavior improved by 20% compared to controls (from 60% to 80%) and disruptive behaviors decreased by 10% (from 17% to 7%).
(Cihak et al., 2009)	n = 19 age 8-9 42% female	general classroom	disruptive behavior	PND = 100%
(Kamps et al., 2011)	n = 107 age 5-10 unknown % female	general classroom	on task behavior	M PND = 97%
(Kamps et al., 2015)	n = 4 age 6-9 25% female	general classroom	on task behavior disruptive behavior	M PND on-task = 76%; M PND disruptive 72%
(Denune et al., 2015)	n = 14 age 12-15 21% female	alternative classroom	on task behavior off-task behavior	PND on-task = 81%; PND off-task = 91%
Total Studies = 5	**Total N = 457** **Age Range: (5-15)** **15% Female**	**Total General: 4** **Total Alt: 1**	**Weighted M PND Across Studies:** **Adaptive Behaviors Improvement: 95%** **Disruptive Behaviors Reduction: 94%**	

One group contingency intervention (Denune et al., 2015) is the "Good Behaviour Game" which was first described by Barrish et al. in 1969. In this game, the students have the opportunity to earn points when they demonstrate specific behaviours (e.g., sitting in seat, completing school work, respecting other students). The teacher would begin the class by reviewing the rules with the students. At teacher designated times, team points are awarded for the number of team members who are following the rules to a maximum of 4. Teams earning enough points, are given an immediate reward from a menu of selections (tangibles, such as gum, snacks, toys, etc.). In the second phase, they self-evaluated in addition to the teacher evaluation.

The second series of studies completed by Kamps and colleagues (Kamps et al., 2011, 2015; Wills et al., 2016) focused on the use of the Class-Wide Function-Related Intervention program (CW-FIT). This program also involved the teaching of skills that were expected of the students. Secondly, the students were put into groups. At specified intervals, a tone would ring and the teacher would award points based on the observed behaviours. Groups who reached a set target would receive a group reward from a selection of choices (e.g., 2 minutes extra recess, special game, special activity).

In the third group contingency intervention, (Cihak et al., 2009), students were required to write notes ("tootles") when prosocial behaviour was observed. The "Tootles" were to include the peer's name, the observer's name, what the peer did, and who the peer helped. Reinforcement was provided when the entire class submitted a certain number of "Tootles."

When the combined interventions were aggregated, the Weighted M PND indicated improvements in adaptive behaviours (WMPND = 95%) and a decrease in disruptive behaviours (WMPND = 94%) which suggests that group contingencies are a promising practice for students with ODD. The majority of this research has occurred in the last 10 years, and represents a total of 457 subjects. The research has been largely completed within general settings (n=4), and one study was completed in an alternative setting (Denune et al., 2015).

Self-Monitoring Strategies. Self-monitoring strategies are interventions which encourage students to reflect

Table 3. **Summary of self-monitoring intervention studies for students with ODD or disruptive behavior in classroom settings**

Reference	Sample Characteristics	Intervention Setting	Dependent Variables	PND
(Kern et al., 1994)	n = 6 age 11-13 0% female	alternative classroom	on task behavior disruptive behavior	PND not calculated. Average increase in on-task behavior from baseline = 18%. Disruptive behavior dropped to <1% from 4%.
(Wilkinson, 2005)	n = 2 age 9-11 0% female	general classroom	adaptive behavior	M PND 100% at intervention, 88% at follow up.
(McGoey et al., 2007)	n = 2 age 5-6 0% female	general classroom	disruptive behavior	PND for (n=1) = 70%. Other case could not be calculated.
(Bruhn & Watt, 2012)	n = 2 age 13-14 100% female	general classroom	academic engagement, disruptive behavior	M PND for academic engagement = 95% and disruptive behavior = 89%
Total Studies = 4	**Total N = 12 Age Range: (5-14) 17% Female**	**Total General: 3 Total Alt: 1**	**Weighted M PND Across Studies: Adaptive Behaviors Improvement: 98% Disruptive Behaviors Reduction: 83%**	

on their own behaviour, while tracking changes over time (Snyder, 1979). The following four studies used different self-monitoring strategies to improve student behaviour and performance in school.

McGoey et al., (2007) explored the effect of written notes to parents regarding their child's behaviour. Three times a day, the teacher and the student would meet about the student's behaviour. The student rated their day on a chart (smile, neutral, sad), and the teacher would provide feedback if they agreed or disagreed. This note was then sent home, with a request that positive behaviour reports be subsequently rewarded at home. The authors emphasized the importance of having the home and school coordinate efforts regarding behavioural expectations.

Bruhn & Watt (2012) exposed students to a multicomponent self-monitoring program. This study focused on young adolescents in a regular classroom. During this program, the students rated themselves out of three on their adherence to the classroom expectations (i.e., did they follow all three stated expectations). The students then submitted their self-evaluations to the teacher, who also rated them. If the ratings were not consistent, the teacher and the student would conference to find an agreement. Teachers were also encouraged to provide immediate feedback as to whether students were on-task or off-task. If by the end of the day students had achieved an agreed upon score, a reward was selected from a menu of options. If consistently achieved over the week, a greater reward was offered.

Wilkinson (2005) utilized a behavioural consultant who met with teachers and parents to discuss areas of behavioural challenge. Through this consultation behavioural targets were created for the children and presented to them. These goals were then rated by the students to monitor their progress towards the identified targets. Students with EBD were given one behavioural target for the 45-minute class in which the intervention was taking place. To support the students in achieving the behavioural target, the consultant would discuss with each student what the target behaviour would look like by developing examples and non-examples. Each time a bell rang, the students would mark, either a "yes" or "no", depending on whether or not they were on target.

The amalgamated results displayed on Table 3 demonstrate that self-monitoring strategies indicate promise; more so for increasing adaptive behaviours (GWPND = 98%), than for reducing disruptive behaviours (GWPND = 83%) for students with ODD. A limitation to evaluating this method is the relatively limited number of participants in these studies (n=12).

Other Teaching Strategies. The following studies do not fall into the categories of interventions, they include

Table 3. **Summary of other intervention studies for students with ODD or disruptive behavior in classroom settings**

Reference	Sample Characteristics	Intervention	Intervention Setting	Dependent Variables	PND
(Rosenberg, 1986) *	n = 5 age 7-9 0% female	Token Economy with and without rule reminders	alternative classroom	time on task disruptive behavior	M PND for on-task behaviors 82% with rule reminders, 56% without. M PND for disruptive behavior 91% with rule reminders, 76% without.
(Stage, 1997)	n = 36 age 12-17 30% female	In-school suspension, teacher feedback, problem solving techniques.	alternative classroom	on-task behavior disruptive behavior	PND not calculated. In school suspension did not seem to affect disruptive behavior.
(Kamps et al., 1999)	n = 28 age 6-12 7% female	Preventative strategies, social sills, tutoring, behavior management programs	general classroom	compliance aggression recess behaviors	PND not calculated Study used a control group to demonstrate moderate efficacy in these strategies.
(Musser et al., 2001) *	n = 3 age 8-10 33% female	Teaching strategies including rules, proximity controls, scripted language, token economy, mystery rewards.	alternative classroom	disruptive behavior	M PND = 97%
(Grskovic & Goetze, 2005) *	n = 4 age 12-14 50% female	Life Space Crisis Intervention	alternative classroom	disruptive behavior	M PND = 100%
(Sutherland & Snyder, 2007)	n = 4 age 11-13 0% female	*Peer Tutoring	alternative classroom	disruptive behavior active responding	M PND not calculated for disruptive behavior, active responding = 38%
(Reinke et al., 2014)	n = 23 age 5-8 30% female	*Incredible Years Teacher Management Classroom Management Program	general classroom	disruptive behavior prosocial behavior	M PND not calculated. T-tests indicate that IY-TMC had a significant effect on disruptive behavior, and reduction in reprimands.
(Owens et al., 2012)	n = 66 age 5-10 13% female	*Daily Report Card	general classroom	behavioral impairment	M PND not calculated. It appears that the report card improved behavior cumulatively over the four-month study.
Total Studies = 8	**Total N = 169 Age Range: (5-17) 19% Female**		**Total General: 3 Total Alt: 5**	**Range M PND Across Studies: Adaptive Behaviors Improvement: 38-82% Disruptive Behaviors Reduction: 91-100%**	

universal teaching practices, preventative practices, and different ways of responding to disruptive behaviours.

The remaining eight studies focused more on teaching strategies broadly than on specific interventions. With the advent of Response to Intervention (RTI) strategies (see (Fuchs & Fuchs, 2006) a focus on good teaching practice is certainly warranted. Good teaching practice, including having class rules, providing consistent feedback to students, proximity control are all well known and often used in classrooms. Three studies focused on these universal skills. Skills taught included proactive teaching, feedback, token economies, social skills training, and tutoring. Each of these studies indicated a reduction in disruptive behaviour when these approaches and strategies were implemented.

Other studies focused on setting conditions for students to experience success in school. Rosenberg (1986) reviewed the use of peer tutoring as a teaching strategy between students with identified emotional and behavioural difficulties, and while curricular outcomes were improved, minimal improvement was observed in adaptive and disruptive behavior.

The remaining studies focused on teacher response to the disruptive behaviour. Stage (1997) found that in school suspensions had limited impact on the incidence of disruptive behaviours in high school students. Grskovic & Goetze (2005) explored problem solving conversations using the Life Space Crisis Intervention to allow the student to self-regulate before returning to the classroom, which demonstrated a large effect (M PND = 100%). Owens et al. (2012) reviewed a daily behavioural report card, indicating promising outcomes.

DISCUSSION

This review intended to present the research documenting interventions for students with ODD that have been trialed in classroom settings. The present review found three categories of interventions practiced in schools and classrooms: (1) functional behavioural analysis, (2) group contingency plans, and (3) self-monitoring procedures. The reality of teaching today is that students with oppositional behaviours are often present in classrooms, and teachers must have tools that they can use in their classrooms to not only support the learning of the student with oppositional behaviour, but the entire class as well.

In our review, FBA strategies demonstrated the strongest support (i.e., highest degree of PND, and greatest sample size). FBAs have been used widely across settings and student populations to good effect (Gage et al., 2012; Goh & Bambara, 2012; Hurl et al., 2016)particularly students with or at risk for emotional and/or behavioral disorder (EBD. Our review does not suggest that FBA is the only intervention that demonstrates efficacy, but that it has most evidence in support of its use. Of the interventions reviewed, FBA takes the most amount of time and resources to implement effectively, while also being the method that is most suited to the individual student's needs. As such, its use should be limited to the most severe of cases whenever possible, especially if other less onerous interventions could be used to similar effect.

Group contingencies also demonstrate similar degrees of effectiveness. Other studies have shown that regardless of the type of group intervention used (independent or interdependent), significant effect sizes have been demonstrated (Little et al., 2015)single-subject design, school-aged children; N = 50. This strategy may be particularly valuable for students with oppositional behaviour, as it reduces the direct involvement of a supervising teacher or educational assistant. Continual monitoring of inter-group dynamics would be an important consideration with the implementation of this strategy in order to minimize social difficulties that may arise. In addition to single-subject designs, group contingency strategies have been validated in large sample studies (e.g., Wills et al., 2016), further demonstrating that this strategy has a high promise for classroom teachers to implement.

Self-monitoring strategies also indicate improved student performance in the classroom. In our review, self-monitoring strategies demonstrated an increase in adaptive skills, with less effect on disruptive behaviours. If self-monitoring can be used to promote other desirable behaviours (i.e., such as walking in the hallway instead of running) then they could, in turn, be effective in decreasing disruptive behaviours as well.

One final note, is that this review included both general education and alternative education settings for intervention practices. While inclusive philosophy suggests all students should be supported within the general classroom setting, at time structural constraints and a lack of resources result in students being referred to alternative settings. Research does not indicate that interventions are more or less effective in general or alternative settings, rather, it is the smaller class size that seems to account for the majority of benefits evidenced in alternative settings as compared to general education classrooms (Flower et al., 2011)AE programs must utilize effective intervention practices for students to get the most out of the program and make appropriate behavioral changes. This review examined the literature base of behavioral interventions

implemented in AE settings from 1970-2010 to assess the inclusion of nine effective practices recommended for use in alternative settings (Tobin & Sprague, 2000; Nelson, Sprague, Jolivette, Smith, & Tobin, 2009. Our goal for this review was to support the inclusion of students with oppositional behaviours in general classroom settings, and these identified strategies demonstrate promising practices to support students with ODD in age-appropriate, general education classroom.

From our professional and clinical roles, the following ideas continue to apply. No matter the intervention chosen, when working with students with ODD, employing evidence-based practices are important. It is critical to work as a team, and for teachers to be able to seek assistance from their administrators, school division specialists (e.g., psychologists, consultants, and counsellors), and teacher colleagues. While this review did not focus on external resources, clinical work with the family extends the continuum of care and further supports the student and should be used in conjunction with classroom-based strategies.

Limitations

One limitation was the limited data available specifically regarding students with ODD within school settings, and lack of specificity when addressing symptoms of ODD in classrooms. School-based interventions are limited, as noted that only four of the twenty-six articles used for this review specifically provided data for students with ODD, while the remainder needed to be inferred by the subject's description by the authors across the symptoms of ODD as defined by the DSM-V. This issue is further complicated by the term EBD which also combines all other mental health concerns that children may face in schools (e.g., anxiety, depression, attention-deficit hyperactivity disorder, intermittent explosive disorder, phobias, trauma-based disorders, reactive attachment disorders, etc.). Oppositional behaviour is a specific subset that presents a unique challenge to schools and warrants a more in-depth review.

The second limitation is the use of PND as a comparison calculation. While PND provides a measure of scores consistently above (or below) baseline, it does not exemplify the degree to which a change is made, as the number of measurements and consistency of measurement scales cannot be compared. More robust statistical analysis to determine the effect size would provide this information, however, as the purpose of this study was to examine the effects of interventions for use with oppositional behaviour, and very few studies targeted this population, a power analysis would not have been possible. What the PND does show is that some change occurs consistently with multiple trials, and therefore indicates a promising practice for teachers to use in their classroom settings.

Future Research Directions

First and foremost, we would advocate for more studies focused on students with ODD specifically. Given the occurrence of these disorders in regular classrooms, with ever decreasing resources for teachers to teach the curriculum while managing behaviour, this is an area of needed attention. A specific focus on what can be done at the classroom level is imperative; outside agency supports may not be available to children as a result of lack of access (in the case of rural schools) or lack of support (family or financial).

Further, we would advocate for more single-case studies published in journals with interventions used in the field by school psychologists and teachers. This data, both successful and less-successful interventions would be invaluable in determining the best and most effective practices.

ACKNOWLEDGEMENT

None.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

FUNDING

None.

REFERENCES

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). American Psychiatric Association.

Barcalow, K. (2006). Oppositional defiant disorder: Information for school nurses. *The Journal of School Nursing*, *22*(1), 9–16. https://doi.org/10.1177/10598405060220010301

Barkley, R. A. & Benton, C. M. (2013). *Your Defiant Child: Eight Steps to Better Behavior*. Guilford Press.

Bruhn, A. & Watt, S. (2012). Improving behavior by using multicomponent self-monitoring within a targeted reading intervention. *Behavioral Disorders*, *38*(1), 3–17. https://doi.org/10.1177/019874291203800102

Cihak, D. F., Kirk, E. R., & Boon, R. T. (2009). Effects of classwide positive peer "tootling" to reduce the disruptive classroom behaviors of elementary students with and without disabilities. *Journal of Behavioral Education*, *18*(4), 267–278. https://doi.org/10.1007/s10864-009-9091-8

Denune, H., Hawkins, R., Donovan, L., Mccoy, D., Hall, L., & Moeder, A. (2015). Combining self-monitoring and an interdependent group contingency to improve the behavior of sixth graders with EBD. *Psychology in the Schools*, *52*(6), 562–577. https://doi.org/10.1002/pits.21846

Dinolfo, C. & Malti, T. (2013). Interpretive understanding, sympathy, and moral emotion attribution in oppositional defiant disorder symptomatology. *Child Psychiatry & Human Development*, *44*(5), 633–645. https://doi.org/10.1007/s10578-013-0357-y

Ervin, R. A., DuPaul, G. J., Kern, L., & Friman, P. C. (1998). Classroom-based functional and adjunctive assessments: Proactive approaches to intervention selection for adolescents with attention deficit hyperactivity disorder. *Journal of Applied Behavior Analysis*, *31*(1), 65–78. https://doi.org/10.1901/jaba.1998.31-65

Evans, K. R. & Lester, J. N. (2012). Zero tolerance: Moving the conversation forward. *Intervention in School and Clinic*, *48*(2), 108–114. https://doi.org/10.1177/1053451212449735

Flower, A., McDaniel, S. C., & Jolivette, K. (2011). A literature review of research quality and effective practices in alternative education settings. *Education & Treatment of Children*, *34*(4), 489–510.

Folino, A., Ducharme, J. M., & Greenwald, N. (2014). Temporal effects of antecedent exercise on students' disruptive behaviors: An exploratory study. *Journal of School Psychology*, *52*(5), 447–462. https://doi.org/10.1016/j.jsp.2014.07.002

Fuchs, D. & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly*, *41*(1), 93–99.

Gadow, K. D. & Drabick, D. A. G. (2012). Anger and irritability symptoms among youth with ODD: Cross-informant versus source-exclusive syndromes. *Journal of Abnormal Child Psychology*, *40*(7), 1073–1085. https://doi.org/10.1007/s10802-012-9637-4

Gage, N. A., Lewis, T. J., & Stichter, J. P. (2012). Functional behavioral assessment-based interventions for students with or at risk for emotional and/or behavioral disorders in school: A hierarchical linear modeling meta-analysis. *Behavioral Disorders*, *37*(2), 55–77. https://doi.org/10.1177/019874291203700201

Goh, A. E. & Bambara, L. M. (2012). Individualized positive behavior support in school settings: A meta-analysis. *Remedial and Special Education*, *33*(5), 271–286. https://doi.org/10.1177/0741932510383990

Greene, R. W. (2014). *Lost at school: Why our kids with behavioral challenges are falling through the cracks and how we can help them*. Scribner.

Grskovic, J. A., & Goetze, H. (2005). An evaluation of the effects of life space crisis intervention on the challenging behavior of individual students. *Reclaiming Children and Youth*, *13*(4), 231–235.

Hoff, K. E., Ervin, R. A., & Friman, P. C. (2005). Refining Functional Behavioral Assessment: Analyzing the Separate and Combined Effects of Hypothesized Controlling Variables During Ongoing Classroom Routines. *School Psychology Review*, *34*(1), 45–57. https://doi.org/10.1080/02796015.2005.12086274

Hurl, K., Wightman, J., Haynes, S. N., & Virues-Ortega, J. (2016). Does a pre-intervention functional assessment increase intervention effectiveness? A meta-analysis of within-subject interrupted time-series studies. *Clinical Psychology Review*, *47*, 71–84. https://doi.org/10.1016/j.cpr.2016.05.003

Iwata, B. A., Dorsey, M. F., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1994). Toward a functional analysis of self-injury. *Journal of Applied Behavior Analysis*, *27*(2), 197–209. https://doi.org/10.1901/jaba.1994.27-197

Kamps, D., Conklin, C., & Wills, H. (2015). Use of self-management with the CW-FIT group contingency program. *Education and Treatment of Children*, *38*, 1–32. https://doi.org/10.1353/etc.2015.0003

Kamps, D., Kravits, T., Stolze, J., & Swaggart, B. (1999). Prevention strategies for at-risk students and students with EBD in urban elementary schools. *Journal of Emotional and Behavioral Disorders*, *7*(3), 178–188. https://doi.org/10.1177/106342669900700306

Kamps, D., Wendland, M., & Culpepper, M. (2006). Active teacher participation in functional behavior assessment for students with emotional and behavioral disorders risks in general education classrooms. *Behavioral Disorders*, *31*(2), 128–146. https://doi.org/10.1177/019874290603100203

Kamps, D., Wills, H. P., Heitzman-Powell, L., Laylin, J., Szoke, C., Petrillo, T., & Culey, A. (2011). Class-wide function-related intervention teams: Effects of group contingency programs in urban classrooms. *Journal of Positive Behavior Interventions*, *13*(3), 154–167. https://doi.org/10.1177/1098300711398935

Kauffman, J. M. (2015). The 'B' in EBD is not just for bullying. *Journal of Research in Special Educational Needs*, *15*(3), 167–175. https://doi.org/10.1111/1471-3802.12102

Kern, L., Dunlap, G., Elfner, K., & Clarke, S. (1994). Use of a classwide self-management program to improve the behavior of students with emotional and behavioral disorders. *Education & Treatment of Children*, *17*, 445–458.

Little, S. G., Akin-Little, A., & O'Neill, K. (2015). Group contingency interventions with children—1980-2010: A meta-analysis. *Behavior Modification*, *39*(2), 322–341. https://doi.org/10.1177/0145445514554393

Maggin, D. M., Talbott, E., Van Acker, E. Y., & Kumm, S. (2017). Quality indicators for systematic reviews in behavioral disorders. *Behavioral Disorders*, *42*(2), 52–64. https://doi.org/10.1177/0198742916688653

McFarland, P., Sanders, J., & Hagen, B. (2016). Perspectives on the aetiology of ODD and CD: A grounded theory approach. *Emotional and Behavioural Difficulties*, *21*(2), 241–256. https://doi.org/10.1080/13632752.2015.1120073

McGoey, K. E., Prodan, T., & Condit, N. (2007). Examining the effects of teacher and self-evaluation of disruptive behavior via school-home notes for two young children in kindergarten. *Journal of Early and Intensive Behavior Intervention*, *4*(1), 365–376. https://doi.org/10.1037/h0100349

McLean, F. & Dixon, R. (2013). Are we doing enough? Assessing the needs of teachers in isolated schools with students with oppositional defiant disorder in mainstream classes. *Education in Rural Australia*, *20*(2), 53–62. https://doi.org/10.3316/informit.624485013332593

Merrell, K. W. & Walker, H. M. (2004). Deconstructing a definition: Social maladjustment versus emotional disturbance and moving the EBD field forward. *Psychology in the Schools*, *41*(8), 899–910. https://doi.org/10.1002/pits.20046

Musser, E. H., Bray, M. A., Kehle, T. J., & Jenson, W. R. (2001). Reducing disruptive behaviors in students with serious emotional disturbance. *School Psychology Review*, *30*(2), 294–304. https://doi.org/10.1080/02796015.2001.12086117

Nahgahgwon, K., Umbreit, J., Liaupsin, C., & Turton, A. (2010). Function-based planning for young children at risk for emotional and behavioral disorders. *Education and Treatment of Children*, *33*, 537–559. https://doi.org/10.1353/etc.2010.0005

Olive, M. L. & Smith, B. W. (2005). Effect size calculations and single subject designs. *Educational Psychology*, *25*(2–3), 313–324. https://doi.org/10.1080/0144341042000301238

Owens, J. S., Holdaway, A. S., Zoromski, A. K., Evans, S. W., Himawan, L. K., Girio-Herrera, E., & Murphy, C. E. (2012). Incremental benefits of a daily report card intervention over time for youth with disruptive behavior. *Behavior Therapy*, *43*(4), 848–861. https://doi.org/10.1016/j.beth.2012.02.002

Park, K. L. & Scott, T. M. (2009). Antecedent-based interventions for young children at risk for emotional and behavioral disorders. *Behavioral Disorders*, *34*(4), 196–211. https://doi.org/10.1177/019874290903400402

Reinke, W. M., Stormont, M., Herman, K. C., Wang, Z., Newcomer, L., & King, K. (2014). Use of coaching and behavior support planning for students with disruptive behavior within a universal classroom management program. *Journal of Emotional and Behavioral Disorders*, *22*(2), 74–82. https://doi.org/10.1177/1063426613519820

Restori, A. F., Gresham, F. M., Chang, T., Lee, H. B., & Laija-Rodriquez, W. (2007). Functional assessment-based interventions for children at-risk for emotional and behavioral disorders. *The California School Psychologist*, *12*(1), 9–30. https://doi.org/10.1007/BF03340929

Rosenberg, M. S. (1986). Maximizing the effectiveness of structured classroom management programs: Implementing rule-review procedures with disruptive and distractible students. *Behavioral Disorders*, *11*(4), 239–248. http://dx.doi.org/10.1177/019874298601100405

Scruggs, T. E. & Mastropieri, M. A. (1998). Summarizing single-subject research: Issues and applications. *Behavior Modification*, *22*(3), 221–242. https://doi.org/10.1177/01454455980223001

Snyder, M. (1979). Self-monitoring processes. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 12, pp. 85–128). Academic Press. https://doi.org/10.1016/S0065-2601(08)60260-9

Stage, S. A. (1997). A preliminary investigation of the relationship between in-school suspension and the disruptive classroon behavior of students with behavioral disorders. *Behavioral Disorders*, *23*(1), 57.

Sutherland, K. S. & Snyder, A. (2007). Effects of reciprocal peer tutoring and self-graphing on reading fluency and classroom behavior of middle school students with emotional or behavioral disorders. *Journal of Emotional and Behavioral Disorders*, *15*(2), 103–118. https://doi.org/10.1177/10634266070150020101

Turton, A. M., Umbreit, J., & Mathur, S. R. (2011). Systematic function-based intervention for adolescents with emotional and behavioral disorders in an alternative setting: Broadening the context. *Behavioral Disorders*, *36*(2), 117–128. https://doi.org/10.1177/019874291103600203

Umbreit, J. (1995). Functional assessment and intervention in a regular classroom setting for the disruptive behavior of a student with attention deficit hyperactivity disorder. *Behavioral Disorders*, *20*(4), 267–278. http://dx.doi.org/10.1177/019874299502000407

Wilkinson, L. A. (2005). An evaluation of conjoint behavioral consultation as a model for supporting students with emotional and behavioral difficulties in mainstream classrooms. *Emotional and Behavioural Difficulties*, *10*(2), 119–136. https://doi.org/10.1177/1363275205054163

Wills, H., Kamps, D., Fleming, K., & Hansen, B. (2016). Student and teacher outcomes of the class-wide function-related intervention team efficacy trial. *Exceptional Children*, *83*(1), 58–76. https://doi.org/10.1177/0014402916658658

Wright-Gallo, G. L., Higbee, T. S., Reagon, K. A., & Davey, B. J. (2006). Classroom-based functional analysis and intervention for students with emotional/behavioral disorders. *Education and Treatment of Children*, *29*(3), 421–436.