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ORIGINAL PAPER

Teacher Acceptability of Evidence-Based and Promising Treatments for Children with Attention-Deficit/Hyperactivity Disorder

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Abstract This study examined teachers' acceptability of evidence-based and promising treatments for children with attention-deficit/hyperactivity disorder (ADHD). Teachers ($N = 156$) from 11 elementary schools read a vignette describing a boy with symptoms typical of combined type ADHD. Using the Intervention Rating Profile-10, teachers rated the acceptability of three promising treatments (peer tutoring, self-reinforcement, and social skills) and three evidence-based treatments, both psychosocial (daily report card and time-out) and pharmacological (stimulant medication). Teacher factors, including teacher self-efficacy, were evaluated as predictors of treatment acceptability. The daily report card (DRC) received the highest mean acceptability rating among the treatments, and was rated significantly higher than 4 of 5 other treatments; the DRC was not rated significantly higher than the self-reinforcement strategy. Years of experience was predictive of acceptability in that more experienced teachers rated time-out as more acceptable than peer tutoring. Results replicate previous findings and uniquely indicate that promising treatments are considered as acceptable, and in some cases, more acceptable than evidence-based treatments for children with ADHD.

Keywords Teacher acceptability · Evidence-based treatment · Promising treatment · ADHD · Classroom intervention

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Children with attention-deficit/hyperactivity disorder (ADHD) experience functional challenges in academic, social, and familial domains. Some have argued that the classroom setting presents the greatest challenge for these children (Pfiffner & O'Leary, 1993), as many demonstrate deficiencies in attending to relevant material, task persistence and completion, study skills, organization, and classroom conduct. Many children with ADHD also present with a comorbid learning disability (e.g., Holborow & Berry, 1986; Schachar, Rutter, & Smith, 1981) and experience poor relationships with peers and teachers (e.g., Greene, Beszterczey, Katzzenstein, Park, & Goring, 2002; Hoza, 2007). Given these debilitating factors, it is not surprising that children with ADHD experience negative academic outcomes including grade retention, suspensions/expulsions, and early school drop out (e.g., Loe & Feldman, 2007).

"Well established" treatments (heretofore referred to as "evidence-based") are those that have met criteria outlined by the American Psychological Association (Lonigan, Elbert, & Johnson, 1998). Interventions falling within this status for ADHD include (1) medications including central nervous system stimulants or atomoxetine; (2) behavioral interventions including classroom management, parent training, and intensive peer interventions; and (3) a combination of these interventions (see Pelham & Fabiano, 2008; Waxmonsky, 2005). However, no one treatment has been shown to cure ADHD, normalize the behavior of all children with ADHD, or produce long-term benefits or consistent results across individuals and settings (Pelham, Wheeler, & Chronis, 1998).

Due to these and other limitations, researchers continue to examine treatments that have not reached the well-established status, but that are candidates for further evaluation (Huang et al., 2005). Worthy candidates are those that have demonstrated some empirical support for

improving on-task behavior, reducing disruptive behavior, and increasing academic performance (Raggi & Chronis, 2006), but have not been replicated enough or by different laboratories, or have not been compared to a rigorous control condition (Lonigan et al., 1998). These treatments have been labeled "probably efficacious" (Pelham et al., 1998) or "promising" for children with ADHD (Raggi and Chronis 2006; Waschbush & Hill, 2003) (heretofore referred to as "promising"). Treatments that currently hold this status include peer tutoring, classroom-based social skills training, self-reinforcement, and computer-based instruction.

Successful intervention depends, however, upon more than just the efficacy of a particular treatment, particularly given that many evidence-based and promising treatments for children with ADHD are implemented by classroom teachers (DuPaul & Stoner, 2003). Examining the process of treatment includes the construct of treatment acceptability and its contribution to treatment implementation and outcome. It has been argued that treatment acceptance is a "necessary precondition" to implementation (MTA Cooperative Group, 1999, p. 1089). Further, incorporating views of key stakeholders, such as teachers, helps to diminish the gap between treatment research and practice in community settings (Foster & Mash, 1999).

Several studies have demonstrated a positive relation between individuals' treatment acceptability ratings and treatment referral, enrollment in treatment, treatment implementation, and treatment effectiveness (e.g., Kazdin, 2000; MacKenzie, Fite, & Bates, 2004; Von Brock & Elliot, 1987), as well as treatment adherence and treatment response (e.g., Allinder & Oats, 1997; MTA Cooperative Group, 1999). This positive relation has been demonstrated among multiple treatment providers (e.g., physicians and mental health providers) and parents of children with disruptive behavior disorders. Yet, despite teachers' substantial involvement in treatment implementation in the classroom, research on teachers' acceptability is limited.

Given the positive relation between acceptability of treatments and the implementation and effectiveness of that treatment, understanding more about teacher acceptability holds the promise of accelerating the pace of treatment dissemination into the classroom setting. A recent review of factors affecting teachers' sustained implementation of school-based mental health programs identified four higher-order factors (program acceptability, program effectiveness, program feasibility, and program adaptability) as well as broader political, bureaucratic, and systems factors that can enhance or interfere with program sustainability (Han & Weiss, 2005). In the proposed model, teacher acceptability is considered a pre-implementation factor. As such, it may serve as a necessary condition for treatment adoption and initiation; this highlights the importance of expanded research in this area.

Examining the construct of teacher acceptability can provide information about the match between teacher preferences, intervention characteristics, and school context. Such information may be directly useful to professionals who consult with teachers as well as to treatment development teams. For example, by understanding teacher acceptability ratings of a given intervention, consultants may be better equipped to prioritize their recommended interventions, to adapt interventions to better correspond with teacher preferences and styles, and to provide education to teachers to enhance their understanding of the treatment, all of which may enhance teacher acceptability (Tingstrom, 1989). In addition, acceptability information provided directly from the consumer of the treatment can inform the treatment development and treatment refinement process (Evans, Green, & Serpell, 2005). Next, we review the teacher acceptability literature to provide a context for the extensions conducted in this study.

Teacher Acceptability of Treatments for Children with ADHD

Studies have consistently documented that teachers prefer positive (pro-social, rewarding) over reductive treatments (removal of privileges) and treatments that require less time and complexity (Elliot, Witt, Galvin, & Peterson, 1984; Witt, Martens, & Elliott, 1984). Yet, only a few studies have examined the acceptability of different types of treatments specifically for children with ADHD or factors related to the acceptability of those treatments.

Epstein, Matson, Repp, and Hesel (1986) examined teacher acceptability of medication, behavior modification, counseling, special education programming, and affective education, and found that teachers (both general and special education) preferred all psychosocial interventions significantly more than medication. Power, Hess, and Bennett (1995) examined teacher acceptability of a daily report card procedure, a response-cost intervention, and stimulant medication. Teachers rated the daily report card as significantly more acceptable than both the response-cost intervention and stimulant medication. When asked to rank acceptability for these treatments individually and in combination, results showed that the daily report card combined with stimulant medication was most acceptable among teachers. These results demonstrate that stimulant medication and may be viewed as acceptable under some circumstances.

Pisecco, Huzinec, and Curtis (2001) examined teacher acceptability of the daily report card, a response-cost intervention, classroom lottery, and stimulant medication.

Again, the daily report card was the most preferred intervention and was considered to be more acceptable, effective, and quicker to produce change than other behavioral strategies. Interestingly, the daily report card was rated as more acceptable than medication, and as effective and timely as medication. These findings were replicated in an international sample in New Zealand (Curtis, Pisecco, Hamilton, & Moore, 2006).

Research examining teacher factors that may influence teachers' treatment acceptability has produced equivocal results. One study found that teachers' knowledge of ADHD and teacher training in ADHD were positively related to treatment acceptability (Vereb & DiPerna, 2004); however, other studies have failed to find this relation (Power et al., 1995). Similarly, some studies have demonstrated that teachers' years of experience is related to treatment acceptability (e.g., Vereb & DiPerna, 2004), whereas others have found no relation (Pisecco et al., 2001; Power et al., 1995). These differences may be a function of variations in the methodologies across studies. For example, teachers in the study by Vereb and DiPerna (2004) were asked to think of a child they know and provide acceptability ratings for a vague description of "behavioral treatments." In contrast, other studies provided a vignette and specific treatments descriptions to consider (Pisecco et al., 2001; Power et al., 1995). Regardless, researchers (Power et al., 1995; Vereb & DiPerna, 2004) have stated that future research should continue to explore additional treatments, as well as additional teacher factors that may predict acceptability of treatments for ADHD. One such factor may be teacher perceived self-efficacy.

Teacher self-efficacy is the extent to which a teacher believes that he or she can have a positive effect on student performance (Ashton, 1985). Self-efficacy pertains to perception of competence rather than actual level of competence. It has been argued that teacher perceived self-efficacy is context specific such that teachers do not feel equally efficacious for all teaching situations (Tschannen-Moran, Hoy, & Hoy, 1998); thus, the construct requires that the context and teaching task be taken into consideration (e.g., teaching math, managing student behavior).

Teachers' sense of self-efficacy has been shown to be related to important educational variables such as student achievement and motivation, teachers' professional commitment, enthusiasm, teacher absenteeism, and teacher stress and burnout. Not surprisingly, teachers' self-efficacy beliefs are related to their behavior in the classroom. Teachers with higher self-efficacy tend to demonstrate greater levels of planning and organization, are more open to new ideas and willing to experiment with new methods, tend to be less critical of students, are willing to work longer with struggling students, and are less inclined to refer a difficult student to special education (Tschannen-Moran & Hoy, 2001). Further, Gonzalez, Nelson, Gutkin, and Shwery (2004) found that teacher self-efficacy was positively related to effective school consultation. Given that teacher perceived self-efficacy has been a fruitful factor in education, it is worth exploring its role in regard to treatment acceptability. Noteworthy, however, is that most studies examining teacher self-efficacy have focused on teacher's beliefs with regard to educational programming rather than behavior management programming and on educational outcomes rather than behavioral outcomes for students (Han & Weiss, 2005). This study expands the exploration of the role of teacher self-efficacy into the behavior management domain.

Limitations of Previous Work

The extant literature on treatment acceptability provides an important foundation; however, there are limitations within this body of work. First, previous studies have only examined those treatments that are considered to be evidence-based, namely stimulant medication and behavior modification (Curtis et al., 2006; Pisecco et al., 2001; Power et al., 1995; Vereb and DiPerna, 2004). To date, no study has examined teacher acceptability of promising treatments such as peer tutoring, self-reinforcement, and classroom-based social skills. Second, teacher acceptability of academic interventions that simultaneously address classroom behavior and academic impairment (i.e., peer tutoring) has been neglected in the literature (Foster & Mash, 1999). Third, the descriptions of some treatments in previous studies are vague, outdated, and overly broad, rendering interpretation difficult (Epstein et al., 1986; Vereb & DiPerna, 2004). These limitations warrant research that assesses teachers' acceptability of more accurately described and updated evidence-based and promising approaches to classroom-based interventions and stimulant medication for children with ADHD.

This study was designed as a replication of previous work, as well as an extension that addresses the limitations described above. In an effort to replicate previous work (e.g., Pisecco et al., 2001; Power et al., 1995; Vereb & DiPerna, 2004), the authors used the measures and methods of the studies that were characterized by the strongest methodological rigor and psychometric properties. This study extends the literature by examining teacher acceptability of promising treatments (as well as evidence-based treatments), and by exploring the relation between teacher self-efficacy and acceptability ratings. The primary research questions are How acceptable are promising treatments as compared to evidence-based treatments for children with ADHD? Among the promising treatments, which ones are the most acceptable to teachers? Based on

previous literature, it was expected that the daily report card would be significantly more acceptable than all other treatments (Curtis et al., 2006; Pisecco et al., 2001; Power et al., 1995) and that positive treatments (which includes promising treatments) would be significantly more acceptable than the negative treatment (e.g., time out). It was also hypothesized that stimulant medication would be rated no higher than a negative psychosocial treatment (time-out). Among promising treatments, it was suspected that both social skills and peer tutoring would have significantly higher ratings of acceptability than the self-reinforcement strategy as these interventions provide benefit for the entire class while concurrently addressing functional deficits of children with ADHD. The secondary analyses answer the research question: What teacher factors (e.g., age of teacher, number of students taught with ADHD, teacher self-efficacy, grade taught by teacher, teachers' highest obtained education level) predict treatment acceptability when promising treatments are included?

Table 1 Demographic characteristics of participants

Characteristic	*N* (%)
Highest level of education	
Bachelor's degree	25 (16.0%)
Bachelor's with additional credits	39 (25.0%)
Master's degree	70 (44.9%)
Master's with additional credits	22 (14.1%)
Certification	
Regular education only	128 (82.0%)
Special education only	12 (7.7%)
Both	16 (10.3%)
Gender	
Male	9 (5.8%)
Female	147 (94.2%)
Ethnicity[a]	
Caucasian	153 (98.1%)
Other	1 (0.6%)
Age (*M*, *SD*)	40.16 (11.7)
Years of experience (*M*, *SD*)	15.12 (10.39)

$N = 156$

[a] Indicates 2 participants did not respond (1.3%)

Method

Participants

Participants were 156 teachers (general and special education) of grades Pre-K through 6, from 11 elementary schools in Southeastern Ohio (see Table 1 for characteristics). Students eligible for free and reduced-price lunches at these schools ranged from 35 to 99% with a mean of 59% (U.S. Department of Education, 2005). The overall response rate across schools was 74%.

Measures

Demographics Questionnaire

Participants provided information about age, ethnicity, gender, highest level of education, current grade level being taught, years of teaching experience, and classification (regular or special education).

Intervention Rating Profile-10 (IRP-10)

The IRP-10 (Power et al., 1995) was selected so that the results could be directly compared to previous work. The IRP-10 assesses teachers' acceptability of individual treatments. Items are rated on a 6-point scale that ranges from 1 ("Strongly Disagree") to 6 ("Strongly Agree"). Ratings for each item are summed to yield a total score reflecting a single dimension of acceptability. Higher scores indicate higher acceptability of that treatment. IRP-10 items require that teachers indicate the extent to which they find the treatment acceptable, reasonable, fair, beneficial, and effective; the extent to which they are concerned about negative side effects; and the extent to which teachers would recommend the treatment to other teachers. The IRP-10 has excellent reliability with alpha coefficients ranging from .95 to .97 (Power et al., 1995) and the IRP-15 (the measure from which the IRP-10 was derived) has effectively discriminated between a variety of interventions showing good validity (Martens, Witt, Elliott, & Darveaux, 1985). The IRP-10 was used to evaluate the acceptability of each of the six treatments in this study. Total scores on this scale range from 10 to 60. In the current sample, internal reliability estimates across the six treatments were excellent, ranging from .94 to .97.

Ohio State Teacher Efficacy Scale (OSTES)

The OSTES (Tschannen-Moran & Hoy, 2001) is a 24-item scale consisting of three subscales: efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement. This measure has an overall reliability of .94 and the internal reliabilities for each subscale were .91, .90, and .87, respectively. For this study, only the classroom management efficacy subscale was used. Scores range from 8 to 72. In the current sample, the alpha coefficient for the subscale was .92.

Procedure

Procedures were approved by the University's Institutional Review Board prior to the start of recruitment. For 8 of the 11 schools, surveys were administered in a group format during the first half hour of a teacher in-service training held on different days at different schools (6 schools in August 2005; 2 schools in August 2006). For the remaining 3 schools, surveys were administered during faculty or grade level meetings (March 2006). Chi-square analyses and *t*-tests indicate that participants sampled at different times do not differ in demographic characteristics or acceptability ratings. Teachers were provided with a packet containing a description of the study and passive consent procedures. Teachers first read a vignette describing the behaviors of a child diagnosed with ADHD. To maintain consistency with previous studies, the vignette is a replication of that used by Power et al. (1995):

> John often does not follow the teacher's instructions or classroom rules. He has difficulty starting assignments and fails to complete assignments virtually everyday. He is earning passing grades, but he seems to be performing below his potential in most subjects. At times, he gets out of his seat when he shouldn't and when seated he fidgets and squirms quite a bit. Several times per day, John causes a disruption in class by making comments out of turn and by making in appropriate noises. In the lunchroom, he tends to be loud and to play roughly and he gets teased more than most of his peers. Professionals outside the school have determined that he has Attention Deficit Hyperactivity Disorder (ADHD).

Next, teachers were asked to read about six treatments (daily report card, time-out, self-reinforcement, peer tutoring, social skills, and medication) that could be used to modify the behavior of a child like the one in the vignette. The daily report card and medication were included because of the evidence to support them and to remain consistent with previous studies. Time-out was chosen as it is often included as part of evidence-based treatment packages for children with ADHD and serves as a reductive intervention. Although response cost is an intervention viewed as commonly used in schools, time-out was chosen for this study as it is the most common reductive intervention studied in the broader treatment acceptability literature (i.e., that examining treatment for disruptive behaviors in the classroom). Thus, time-out represented a reductive intervention, so as to remain consistent with previous literature. The three promising interventions were identified through review articles and chosen because they have shown some evidence for the reduction of both core symptoms and associated problems in children with ADHD (Raggi & Chronis, 2006; Waschbush & Hill, 2003). (Computer-assisted instruction was excluded from the promising treatments examined because the schools in this sample were not equipped with the necessary computer technology and the authors anticipated that this lack of feasibility would likely have skewed teacher's rating of this intervention.) After reading each treatment description (see Appendix), participants rated its acceptability by completing the IRP-10. This process continued for each treatment until all interventions had been rated. The order of the six treatments was counterbalanced. Participants then completed the self-efficacy measure and the demographics questionnaire, and received a $5 Wal-Mart Gift Card for participating.

Results

Treatment Acceptability

Teachers' acceptability of all treatments for children with ADHD were examined using a one-way (Treatment Type) repeated measures analysis of variance. Treatment Type was a repeated measures variable because each teacher completed acceptability ratings for all six treatments (see Table 2 for descriptive statistics by treatment). Only planned comparisons were conducted, thus *p*-values were not adjusted (see Table 3 for effect sizes).

Omnibus results indicated that significant differences existed among teacher acceptability ratings of the treatments, $F\ (5,151) = 21.03,\ p < .001$. As hypothesized, planned comparisons revealed that the daily report card received the highest mean rating among the treatments and was rated significantly higher than 4 of 5 other treatments. The daily report card was not rated significantly higher than the self-reinforcement strategy. Among the promising treatments, the self-reinforcement strategy received the highest mean rating; it was rated significantly higher than peer tutoring ($d = .57$), although not significantly higher than social skills.

As hypothesized, positive psychosocial treatments were rated as more acceptable than the reductive psychosocial

Table 2 Descriptive statistics for treatment acceptability ratings

Treatment	Mean	SD	Minimum	Maximum
Daily report card	45.69	8.60	17	60
Self-reinforcement	44.57	8.88	18	60
Social skills	43.55	9.49	14	60
Stimulant medication	39.82	8.46	10	59
Peer tutoring	39.08	10.33	10	60
Time-out	35.42	11.09	10	59

Higher scores indicate higher acceptability

Table 3 Planned comparison and effect size statistics for teacher acceptability ratings

Planned comparisons	*M* Difference	*F*	*d*
Daily report card vs. time-out	10.27	100.82***	1.04
Self-reinforcement vs. time-out	9.15	70.57***	.92
Social skills vs. time-out	8.13	51.01***	.79
Peer tutoring vs. time-out	3.66	12.83***	.34
Self-reinforcement vs. peer tutoring	5.49	27.28***	.57
Self-reinforcement vs. social skills	1.02	1.27	.11
Social skills vs. peer tutoring	4.47	22.89***	.45
Time-out vs. stimulant medication	4.40	23.11***	.45

*** $p < .001$

treatment. Given their positive nature, all promising treatments were rated significantly higher than the evidence-based reductive treatment (i.e., time-out). Lastly, it was believed that stimulant medication would be rated no higher than the reductive psychosocial treatment (time-out). In contrast, time-out was rated significantly lower than stimulant medication ($d = .45$). Thus, teachers found time-out to be the least acceptable among these treatments for children with ADHD with the lowest mean rating.

Teacher Factors as Predictors

Predictors of treatment acceptability were investigated in a series of repeated measures analysis of variance; each predictor was examined independently. Treatment type was a repeated measures factor and the predictor was entered as the covariate for quantitative variables (i.e., age of teacher, number of students taught with ADHD, teacher self-efficacy) or as a between-subjects factor for categorical variables (grade taught, teacher's education level) (see Table 4 for statistics and effect sizes). Age, number of students taught with ADHD, teacher self-efficacy, and grade taught did not predict treatment acceptability. However, years of experience F (5, 150) = 2.389, $p < .05$ and teachers' highest obtained education level F (15, 450) = 1.84, $p < .03$ predicted treatment acceptability ratings.

Table 4 Teacher factors as predictors of treatment acceptability

Teacher factors	*F*	η_p^2
Teacher age	1.488	.048
Years of experience	2.389*	.074
Number of students taught with ADHD	1.105	.042
Teacher self-efficacy	2.095	.065
Teacher grade	1.036	.041
Education level	1.850*	.059

* $p < .05$

Significant predictors were examined further using simple contrasts to identify which treatments' acceptability was being influenced by the predictor. Bonferonni's correction was used to adjust the p-value (.05/15 = .003). Results showed a significant difference in time-out and peer tutoring when years of experience was added to the model as a predictor F (1, 1420.72) = 9.15, $p = .003$. A difference score was computed to subtract the peer tutoring treatment acceptability score from the time-out treatment acceptability score. The correlation between this difference score and the teacher years of experience yielded a positive sign, indicating that as teachers gain more years of experience they tend to find time-out significantly more acceptable than peer tutoring. Lastly, no contrasts between treatments were significant at the $p < .003$ p-value when teacher's highest obtained education level was entered as a predictor.

Discussion

This study contributes to the literature by replicating previous research and by uniquely providing the first examination of teacher acceptability of promising treatments. Results showed that promising treatments are considered as acceptable, and in some cases, more acceptable than evidence-based treatments for children with ADHD (e.g., time-out, medication). Namely, as expected, the daily report card (and positive treatments) received the highest acceptability ratings. However, the self-reinforcement strategy was also well-received among teachers, as it was not rated significantly lower than daily report card. It was also found that teaching experience predicted acceptability scores for some treatments. Next, we discuss implications for future research and practice aimed at improving outcomes for children with ADHD.

Promising Treatments

Among promising treatments, it was expected that both social skills and peer tutoring would have significantly higher ratings than the self-reinforcement strategy as these interventions provide benefit for the entire class while concurrently addressing the functional problems of children with ADHD. Surprisingly, self-reinforcement and social skills were equally acceptable (not significantly different) and significantly more acceptable than peer tutoring.

Because treatment acceptability ratings are associated with other critical variables, such as treatment implementation and treatment effectiveness (e.g., Kazdin, 2000;

MacKenzie et al., 2004), future research should attempt to understand why peer tutoring may be less acceptable to teachers. Although studies demonstrate that peer tutoring can improve both academic and behavioral functioning (e.g., DuPaul, Ervin, Hook, & McGoey, 1998), perhaps teachers may not anticipate the improvements in behavior from such an academic intervention, and thus may not rate this intervention as acceptable as one that has more direct relevance to managing disruptive behavior.

The acceptability rating of self-reinforcement strategy was not statistically different than that of the daily report card. Given that the daily report card has been consistently rated higher than other pharmacological and psychosocial evidence-based treatments (Pisecco et al., 2001; Power et al., 1995), the high level of acceptability for self-reinforcement treatment is noteworthy. Interestingly, the acceptability of self-reinforcement found in this study is consistent with studies that demonstrate that teachers highly value the promotion of student independence and responsibility (Pisecco et al., 1999). Self-reinforcement embodies several treatment characteristics similar to that of the daily report card (e.g., positive treatment, burden of changing behavior is shared), as well as ones that are unique (e.g., potential for sustainability of behavior change, potential for student independence). Future research should identify treatment characteristics (e.g., shared burden, class-wide versus individually focused, academic versus behaviorally focused) that contribute to higher treatment acceptability among teachers.

Daily Report Card

As hypothesized, and consistent with previous work (Curtis et al., 2006; Pisecco et al., 2001; Power et al., 1995), the daily report card received the highest rating of acceptability. Because the IRP-10 was used by Power et al. (1995), ratings across the two studies can be directly compared. The mean for the daily report card in this study ($M = 45.69$; $SD = 8.60$) was not statistically different from that found by Power and colleagues ($M = 44.4$; $SD = 10.3$). Participants ($N = 147$) in Power's study (1995) were located in a middle class, suburban community, whereas participants ($N = 159$) in this study were located in a rural, underserved community in the Appalachian region. This replication suggests that the high acceptability of the daily report card generalizes across locations, community types, and participant characteristics.

There are several plausible reasons for the high acceptance of the daily report card including (1) it is a positive treatment; (2) it provides a mechanism for parents and teachers to share the burden of managing behavior, as it typically includes both home and school aspects; and (3) it provides daily communication between home and school. The latter may be a particularly important mechanism, as research has demonstrated that teachers value interventions that facilitate teacher–parent communication (Pisecco, Huzinec, Curtis, & Mathews, 1999).

Stimulant Medication

Contrary to the hypothesis, stimulant medication was rated significantly higher than the negative psychosocial treatment (i.e., time-out). In fact, time-out was rated significantly lower than all other treatments. This was surprising, given that previous literature has not shown stimulant medication to be significantly more acceptable than any negative, psychosocial treatment (Epstein et al., 1986; Power et al., 1995). There appears to be a pattern of increased acceptability of stimulant medication among teachers over time, from the earlier treatment acceptability studies (Epstein et al., 1986; Power et al., 1995) to the more recent one (Pisecco et al., 2001) including the current study. Perhaps, this trend parallels the proliferation of ADHD coverage in the media, the rapid rise in rates of mediation prescriptions for children (e.g., Safer, Zito, & dosReis, 2003), and increased documentation of the effectiveness of stimulant medication for ADHD (e.g., Coghill, 2005). Collectively, increased exposure to ADHD through either media or professional experience may account for the higher acceptability rating of medication found in this study. This trend is supported by research indicating that what teachers know about ADHD is positively and significantly related to medication acceptability (Vereb & DiPerna, 2004).

Positive Treatments

This study and others (Elliot et al., 1984; Power et al., 1995; Witt et al., 1984) overwhelmingly suggest that positive treatments will likely be found more acceptable than reductive treatments to address ADHD. Not surprisingly, because the promising treatments examined in this study are positive treatments, they were found to be more acceptable than the reductive treatment. This result presents a dilemma for school-based consultants, as several studies indicate that positive treatments alone are often insufficient for behavior change; instead mild penalties for inappropriate behavior are needed to produce and sustain behavior change (e.g., Pfiffner & O'Leary, 1987). However, obtaining teacher "buy in" of intervention strategies is critical to effective consultation (Han & Weiss, 2005). Future researchers could examine whether the order in which positive, reductive, or combined interventions are recommended influences teachers' willingness to engage in consultation and their adherence to the treatment protocol,

particularly when the treatment includes reductive components.

Teacher Factors

Results showed that only years of experience was a significant predictor, such that more experienced teachers are predictive of a greater preference for time-out over peer tutoring. Although speculative, it is possible that more experienced teachers are either more comfortable with reductive interventions or have more evidence for their effectiveness than less experienced teachers. Clearly, replication of this finding is warranted before such conclusions are drawn. As mentioned earlier, future research should attempt to clarify why peer tutoring may be less desirable to some teachers and how consultants may overcome this challenge in consultation.

Limitations

First, this study is limited by its use of an analog design to depict a child with combined type ADHD. Thus, the results may not generalize to actual teachers' treatment preferences and decisions in their classrooms. However, because this study sought to examine teacher's acceptability of treatments not previously studied (i.e., promising treatments), it was important to maintain the use of vignettes in the interest of high internal validity and consistency with previous studies. Second, the majority of recruitment occurred during teacher in-services that did not require teacher attendance. It is possible that teachers not in attendance would have produced a different profile of acceptability ratings. However, the respectable response rate (74%) provides greater confidence that the results represent the majority of teacher perceptions. Third, it may be considered a limitation that teachers were asked to rate interventions in isolation, rather than combining interventions (Power et al., 1995). Further, it is a limitation that time and treatment complexity were not directly examined or controlled for in this study and that a response-cost intervention was not one of the rated interventions. Finally, most study participants were Caucasian and female, limiting the generalizability of the findings. However, the consistency between this and other studies minimizes the likelihood of this limitation.

Conclusions and Implications for Future Research

Because children with ADHD have multiple functional problems and no evidence exists to suggest that evidence-based treatments address all of their needs, the search for efficacious treatments must continue (Huang et al., 2005). However, optimal outcomes are most likely when a treatment is efficacious, acceptable to the implementer and the treatment recipient, and compatible with the school structure and context (Han & Weiss, 2005). Thus, treatments must be developed and refined within the context of the classroom and with the guidance and assurance from those who are expected to implement them. Results of this study serve as feedback from teachers and a catalyst for further examination of factors affecting treatment acceptability and of treatments identified as promising for children with ADHD.

Given that teachers are at the forefront of intervening in the lives of children with ADHD, understanding factors that affect teachers' willingness to adopt an intervention and implement it with fidelity is imperative. As mentioned earlier, a recent review paper has identified four "essential ingredients" for sustained teacher implementation of school-based intervention programs, one of which is intervention acceptability. However, the role of teacher perceptions must be considered within the larger contexts of the school building's and school district's culture, infrastructure, resources, and policies. One facet of the school district's culture that may be particularly relevant to teachers' adoption and implementation of classroom interventions is that of a "learning culture" (Hemmelgarn, Glisson, & James, 2006); the extent to which teachers are encouraged and supported in their efforts to implement new innovations. Similarly, building administrator's attitudes toward innovation adoption as evidenced by their allocation of resources, training, incentives, and infrastructure development may influence teacher's attitudes about acceptability, sustained implementation of new programs, and ultimately intervention outcomes (e.g., Kam, Greenberg, & Walls, 2003).

This study provides preliminary evidence that promising treatments are acceptable among teachers. These results require replication and expansion. Namely, future research must assess the ecological validity of the findings from this and other studies in the treatment acceptability literature, by exploring the relation between teachers' acceptability ratings and actual implementation of specific treatments in the classroom. In addition, future studies should examine additional treatment characteristics that may influence teachers' acceptability ratings (e.g., shared burden, academic versus behavioral intervention, for home–school communication). Finally, as we amass data specific to treatment acceptability, this construct should be examined within the broader realities of the school context. Han and Weiss (2005) have proposed a sequential model that highlights the many processes and essential ingredients underlying sustained implementation of classroom interventions by teacher. This model may offer avenues for further exploration regarding the relation between teacher acceptability, intervention implementation, and intervention outcomes within the complex context of the school system.

Appendix: Treatment Descriptions for Evidence-Based and Promising Treatments

The Daily Report Card (DRC)

The teacher identifies 2–4 specific behaviors that John needs to improve (e.g., work completion, raises hand to speak), clearly defines these behaviors for him, and decides what criteria he must meet in order to have a "successful DRC" and earn a reward (e.g., 70% complete, 3 interruptions). The teacher monitors and tracks his behaviors, provides verbal feedback on a daily basis, fills out the DRC indicating whether John has met his goals, gives John the report card to take home to his parents, and makes sure that DRC success is met with a reward for him either at home or at school. The teacher gradually changes the DRC to make it more challenging as John's behavior improves

Time-Out (TO)

Time-out involves removing John from an enjoyable activity or one that includes the rest of the class because he has displayed an inappropriate or negative behavior (e.g., aggression, disrespect to the teacher). Upon the violation, the teacher tells John that he has earned a time-out. The teacher informs him of the time-out location and length of time that must be served. The teacher keeps an eye on John's behavior from a distance and then instructs him to return to the prior activity after he has served his time-out appropriately.

Stimulant Medication (SM)

This medication (Ritalin) is used to improve John's attention span and work completion as well as reduce his impulsivity and classroom disruptiveness. The medicine is given before school by John's parents and at lunch by the school nurse. During a trial of medication which lasts 20 days, the teacher completes a 5-item rating scale at the end of each day in order to determine the effectiveness of the medication. Also, the teacher is asked to inform parents if they notice any changes in health status (e.g., complains of stomachaches) or mood while John is on medication. Once the correct dose is decided, the teacher completes a brief questionnaire once a month to determine whether the medication is having the intended effect.

Peer Tutoring (PT)

PT allows John to receive one-on-one instruction on an academic activity with another student (who is typically a higher achieving student). The higher achieving student provides assistance, instruction, and/or feedback to John as they work together. In the context of PT, the teacher divides the class into pairs, taking into consideration the academic strength of the students being paired. The teacher should monitor the tutoring, provide reinforcement for pairs of students who are following directions, and working appropriately. PT sessions typically last 20–30 min.

Self-Reinforcement (SR)

SR can be used to gradually fade out a behavior program in which the teacher has initially been providing John with points, tokens, or rewards for good behavior or removing these items when he displays inappropriate behavior. SR requires teaching John to observe and monitor this own behavior and to evaluate and reinforce his own performance. Both the teacher and John track his behavior and he is rewarded for good behavior with bonus points if his ratings match the teacher's ratings exactly. Over time, the teacher ratings are faded except for periodic "matching challenges" which encourages John to rate his behavior accurately. The teacher continues to reward John for good behavior and accurate ratings throughout the remainder of the treatment.

Social Skills (SS)

In Social skills instruction in the classroom setting, the teacher designates approximately 20 min to the social skill lesson. First, the teacher introduces the skill to the entire class in a brief manner. The topics teachers may choose from include skills such as giving and accepting a compliment, learning appropriate ways of making complaints, apologizing, learning how to say no, asking favors appropriately, beginning, listening, and ending a conversation, working cooperatively, helping, or sharing. The teacher models the skill for the class. Then students, including John, role-play the social skill. Teachers may also incorporate a short group game to allow students to practice the technique. Throughout the day, the teacher praises and reinforces students for using social skills outside of the 20-min social skills lesson.

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