

Child Impairment and Parenting Self-Efficacy in Relation to Mothers' Views of Attention-Deficit/Hyperactivity Disorder Treatments

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Abstract

Objective: This study assessed the relations of child impairment and parenting self-efficacy with parental views of the acceptability and effectiveness of behavioral, medication, and combined treatments for child ADHD. Child impairment and parenting self-efficacy were also assessed in relation to the effectiveness views of specific behavioral treatment strategies. **Method:** Ninety-five mothers of children with ADHD completed questionnaires assessing child impairment, parenting self-efficacy, perceptions of the acceptability and effectiveness of ADHD treatments, and views of the effectiveness of specific behavioral treatment strategies. **Results:** Hierarchical linear modeling using child impairment and parenting self-efficacy as predictors of treatment views suggest that mothers viewed combined treatments as most acceptable and effective when their child was more impaired, and mothers with higher parenting self-efficacy rated behavioral treatment strategies as more effective. **Conclusion:** Child impairment and parenting self-efficacy are related to perceptions of the acceptability and/or effectiveness of ADHD treatments.

Keywords: Attention-Deficit/Hyperactivity Disorder, ADHD, treatment acceptability, treatment effectiveness

Parenting Self-Efficacy and Child Impairment in Relation to Mothers' Views of Attention-Deficit/Hyperactivity Disorder Treatments

Attention-Deficit/Hyperactivity Disorder (ADHD) is associated with developmentally inappropriate inattentiveness and/or hyperactivity-impulsivity, as well as significant functional impairment in a variety of domains (American Psychiatric Association, 2000). It is estimated to occur in 3-7% of elementary school-aged children (American Psychiatric Association, 2000). Although efficacious treatments are now established, lack of treatment engagement remains a barrier to therapeutic success (Hoza, Johnston, Pillow, & Ascough, 2006). Studying how parents view different treatments for ADHD may improve our understanding of parents' decision-making regarding treatments.

Behavioral, medication, and combined behavioral and medication treatment are each efficacious in managing ADHD (American Academy of Pediatrics, 2001; Pelham & Fabiano, 2008). Despite evidence supporting the efficacy of treatments for ADHD, rates of adherence remain relatively low and parents appear to be using alternative nonempirically-supported treatments, suggesting possible dissatisfaction with current empirically-supported treatments (Chan, Rappaport & Kemper, 2003; Corkum, Rimer, & Schachar, 1999; Dosreis et al., 2003; Johnston, Seipp, Hommersen, Hoza, & Fine, 2005).

Research and theoretical models suggest that parental attitudes regarding treatments are important determinants of treatment engagement (Hoza et al., 2006; Mah & Johnston, 2008). Specifically, parental attitudes regarding the acceptability of treatments have been the focus of study. Treatment acceptability refers to an overall evaluation of the fairness, intrusiveness, and appropriateness of a treatment procedure (Kazdin, 1980). While evidence for the link between treatment acceptability and adherence to ADHD treatments is sparse and mixed (Bennett, Power,

Rostain, & Carr, 1996; Corkum et al., 1999), a significant relation between acceptability views and treatment dropout is well-documented in the wider population of parents of children with disruptive disorders (Kazdin, Holland, & Crowley, 1997; Nock & Kazdin, 2001). It seems reasonable to argue that parents who accept particular treatments for child ADHD will be less likely to drop out or be noncompliant with the course of treatment.

In addition to acceptability, perceptions of treatment effectiveness may also play a role in predicting adherence. Effectiveness refers to the perceived potency of a treatment to assist in alleviating symptoms. Although acceptability and effectiveness views are correlated (Johnston, Mah, & Regambal, 2010; Reimers, Wacker, Cooper, & de Raad, 1992), effectiveness is distinguished by its focus on treatment success, and appears separate from treatment acceptability (Johnston, Hommersen, & Seipp, 2008). Parental perceptions of treatment effectiveness also may be better predictors of treatment use than acceptability, at least with respect to behavioral treatment. For instance, Johnston et al. (2010) examined mothers of children with ADHD, and found that although their views of the acceptability of behavioral treatment did not predict their experience using the treatment, mothers who viewed behavioral treatment strategies as more effective subsequently reported more positive experiences implementing these strategies. Thus, we argue that a better understanding of treatment engagement and adherence necessitates assessment not only of parental views of treatments as appropriate (acceptable), but also as likely to work (effective).

Firm conclusions cannot be drawn from the extant literature on the perceived acceptability and effectiveness of ADHD treatments among parents. Firstly, existing studies of ADHD treatment-related acceptability have yielded mixed results. For instance, some have found that parents of children with ADHD view behavioral treatment as more acceptable than

medication (e.g., Johnston et al., 2008; Krain, Kendall & Power, 2005; Liu, Robin, Brenner, & Eastman, 1991) while others have found that parental acceptability views of behavioral treatment and medication for ADHD do not differ significantly (e.g., Gage & Wilson, 2000). Considering the acceptability of combined treatment, Liu et al. (1991) found that mothers of children with ADHD rated behavioral treatment as more acceptable than combined treatment, which was more acceptable than medication, whereas Gage and Wilson (2000) found that parents rated combined treatment as more acceptable than behavioral and medication treatment. There is also a paucity of research on effectiveness views of ADHD treatments among parents of children with ADHD. Existing research suggests that mothers of children with ADHD do not rate the effectiveness of behavioral treatment and medication differentially (Johnston et al., 2008).

Studying parent and child characteristics may shed light on the inconsistencies in the literature on treatment attitudes. Indeed, most research on treatment acceptability suggests that beyond treatment characteristics, there are also parent and child characteristics that are predictive of levels of acceptability (Calvert & Johnston, 1990). For example, in non-ADHD samples, the severity of child behavior problems is positively associated with treatment acceptability (e.g., Elliott, 1988). As well, evidence suggests a matching between the acceptability of a treatment and the complexity and severity of problem behavior, such that a treatment of high complexity is most acceptable for a problem of high severity (Elliot, Witt, Galvin, & Peterson, 1984). However, studies of problem severity as a correlate specifically of treatments for child ADHD have yielded inconsistent results. Bennett et al. (1996) found that externalizing problems in children with ADHD were positively associated with parental acceptance of counseling, but not medication. In contrast, Johnston et al. (2005) found that parents of children with ADHD who also had comorbid disorders had lower beliefs in both behavioral and medication treatment.

Finally, Johnston et al. (2008) found that comorbid symptoms of ADHD and Oppositional Defiant Disorder (ODD) in the child had no effect on parents' acceptability ratings of ADHD treatments.

It is possible that the focus on disorders comorbid with ADHD has not captured the important dimensions of child problem severity that predict acceptability views in the other populations. We propose that the functional impairment resulting from ADHD may be a more important predictor of treatment acceptability. It is known that functional impairment is an important discriminator between children with and without ADHD (Fabiano et al., 2006; Harrison, Vannest, & Reynolds, 2011). As well, functional impairment may be the most important target for ADHD treatments, as it predicts future outcomes (Evans & Youngstrom, 2006; Pelham, Fabiano, & Massetti, 2005). Given the more intensive nature of combined treatment in comparison to behavioral or medication treatment alone, it is predicted that the more impaired a child with ADHD is, the more open a parent will be to receiving a more comprehensive treatment. Thus, views of the acceptability and effectiveness of combined treatment are predicted to be positively associated with impairment in the parent's own child.

We also examined the role of parenting self-efficacy as a predictor of treatment acceptability and effectiveness. Parenting self-efficacy is the belief of the parent that he/she is a competent parent who is capable of effectively managing child problems (Coleman & Karraker, 1997), and lower parenting self-efficacy is associated with negative reactions to problematic child behaviors (Bondy & Mash, 1999; Bugental, Blue, & Cruzcosa, 1989). Studies have found that parenting self-efficacy is positively related to intentions to seek treatment and treatment outcomes in both ADHD and general samples (e.g., Hoza et al., 2000; Maniadaki, Sonuga-Barke, & Kakouros, 2006; Spoth, Redmond, Haggerty, & Ward, 1995). For example, Johnston et al.

(2010) found that higher parenting self-efficacy was related to mothers' more positive experiences using behavioral treatment to manage their child's ADHD, and that this relation was mediated through mothers' treatment effectiveness views. Thus, we predicted that parenting self-efficacy would be positively related to mothers' acceptability and effectiveness ratings for treatments involving behavioral strategies, that is, behavioral and combined treatments.

In addition to examining the relations of child impairment and parenting self-efficacy to treatment views of overall behavioral, medication, and combined treatments, we also explored these child and parent characteristics in relation to mothers' views of the effectiveness of two different types of behavioral treatment strategies typically included in behavioral treatments: rewards and loss of privileges. In addition, we compared effectiveness ratings for the two behavioral strategies under circumstances where the child was on and off medication, hoping that this would shed light on the basis of mothers' views of the effectiveness of combined treatments. We predicted that child impairment would be positively related to the effectiveness ratings of behavioral strategies only when combined with medication, and that parenting self-efficacy would be positively related to the effectiveness ratings of behavioral strategies regardless of whether these strategies were combined with medication.

In sum, this study investigated the relations of child impairment and parenting self-efficacy to the acceptability and effectiveness views of behavioral, medication, and combined treatments among mothers of children with ADHD. As well, the relations of child impairment and parenting self-efficacy to the perceived effectiveness of behavioral strategies with and without medication use were assessed. We predicted that higher child impairment would be related to greater ratings of the acceptability and effectiveness of combined treatment, as well as higher perceived effectiveness of behavioral strategies paired with medication use. In addition,

we hypothesized that higher parenting self-efficacy would be related to greater ratings of the acceptability and effectiveness of treatments involving use of behavioral strategies, such as behavioral and combined treatment.

Method

Participants

Ninety-five mothers of 5- to 14-year-old children (mean age 10.28 years, $SD = 1.87$) with ADHD were recruited through ads in newspapers, a lab newsletter and website, an ADHD Program of a local Children's Hospital, and a registry of families interested in participating in research. Each mother had to be able to speak English and have at least one child diagnosed with ADHD. The children had been diagnosed for an average of 4 years, and all were diagnosed by a family doctor, pediatrician, psychiatrist, or psychologist. The majority (64%) of mothers were married or living with their child's biological or step-parent, 23% were separated or divorced, 5% were single and in a committed relationship, and 6% were single and never married. The remaining 2% did not answer the question. Average family socio-economic status was 2.40 ($SD = .88$, middle class) with a range of 1 to 5 on the Hollingshead (1975) Four-Factor Index of Social Status. Seventy-seven percent of mothers identified themselves as European-Canadian, 4% as Asian-Canadian, 4% as Indo-Canadian, and 10% identified themselves as of other ethnicities (e.g., of mixed ethnicity, Hispanic). The remaining 5% did not respond to this question. Sixty-seven (81%) of the children were male. Seventy-five percent of children were currently taking medication for their ADHD and of those not currently taking medication, 67% had taken medication in the past. Ninety-five percent of mothers were currently using behavioral treatment techniques to help their child's ADHD, and 3% reported never using behavioral

management techniques.

To assess the child's level of ADHD symptoms, mothers rated their children on the ADHD-IV Rating Scale (DuPaul, Power, Anastopoulos, & Reid, 1998), which assesses the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision (DSM-IV-TR) inattentive and hyperactive/impulsive symptoms on a 4-point scale ranging from *never or rarely* to *very often* and is both reliable and valid. Mothers responded to this questionnaire thinking of their child's behavior off of medication. In this sample, internal consistencies were .88 for the inattention subscale and .90 for the hyperactivity/impulsivity subscale. On average, mothers indicated levels of child ADHD symptoms above the 93rd percentile for both inattention and hyperactivity/impulsivity (mean for Inattention = 2.23, $SD = .61$, mean for Hyperactivity/Impulsivity = 1.89, $SD = .75$).

Procedure

This study was approved by our university's ethics review board. Upon calling the lab, mothers were informed of the details of the study by a research assistant. If they agreed to participate, mothers underwent a brief screening to determine eligibility, and were sent questionnaires regarding their views of ADHD treatments. A consent form was included with the questionnaires. Questionnaire order was counterbalanced across mothers. When the completed questionnaires were returned, mothers were mailed an honorarium of \$35.

Measures

Main variables.

Treatment Acceptability and Effectiveness Scale (TAES). The TAES is a modified version of the treatment acceptability measure used by Johnston et al. (2008). It utilizes an analog methodology which asks mothers to rate the acceptability and effectiveness of stimulant

medication, behavioral parent training, and their combination as treatments for hypothetical case descriptions of children with ADHD.¹ Analog methodology has been used extensively in treatment acceptability research (Reimers et al., 1992), and controls for variation in child ADHD characteristics and ADHD treatments.

Mothers were given case descriptions written as mental health files for children who had been diagnosed with ADHD. Case descriptions included information regarding the child and his/her family, and a one-paragraph description of the child's presenting problems. All of the cases described children between 6 to 7 years of age who had been diagnosed with ADHD within the past year by a qualified mental health professional. Child gender in the case descriptions matched the gender of the mothers' own child. Case descriptions also included brief background information, such as the child's interests and general health, the parents' ages and occupations, a note of any siblings, and a description of the family history. There were nine case descriptions of children in total, and these were randomly assigned to the three treatments within mothers.

Before reading the three case descriptions for each treatment, mothers first read a summary of the treatment. The descriptions of stimulant medication and behavioral parent training were identical to those used by Johnston et al. (2008). Each description was approximately a page in length, and included a summary of the procedures used in the treatment. For example, the description of behavioral parent training discussed how parents learning behavior management strategies can help children with ADHD, outlined the ways in which these strategies are taught to parents and the typical number of sessions, and provided specific strategies that parents learn, such as giving praise and using loss of privileges. Behavioral parent training was acknowledged in the description to be time consuming and likely to have its greatest impact on child compliance and misbehavior rather than on inattention, hyperactivity, or

impulsivity. For stimulant medication, the possible mechanisms by which this medication is effective was discussed. How medication is prescribed was outlined and its benefits were described. The description stated that most children with ADHD respond positively to medication and show significant decreases in hyperactivity, impulsivity, and inattention. The medication is also described as possibly having negative side effects such as trouble sleeping, headaches, decreased appetite, and abdominal pain for some children. These side effects were described as typically minor. We also assessed views of combined treatment. This description integrated the information on behavior management and medication. In addition to the description of procedures, benefits, and side effects, the combined treatment description stated that it is possible that the use of both medication and behavioral management strategies can be uniquely beneficial for children over and above the use of each treatment independently.

In counterbalanced order across mothers, mothers read each treatment description followed by the three cases randomly assigned to the treatment and rated the acceptability and effectiveness of the treatment for each of the cases using seven items adapted from the short form of Kazdin's Treatment Evaluation Inventory (TEI-SF; Kelley, Heffer, Gresham, & Elliot, 1989). Mothers responded on a 5-point scale from *strongly disagree* to *strongly agree* to four items assessing the acceptability of the treatment (e.g., *I find this treatment to be an acceptable way of dealing with the child's problem behavior*). Mothers also responded to three items assessing the treatment's effectiveness (e.g., *I believe this treatment is likely to be effective for this child*). Across the three case descriptions within each treatment, the internal consistencies for the acceptability questions were .94 for behavioral parent training, .94 for stimulant medication, and .95 for combined treatment. Therefore, these ratings were averaged into a total acceptability score for each of the three treatments. The effectiveness ratings had internal consistencies of .93

for behavioral parent training, .92 for stimulant medication, and .95 for combined treatment, and were also averaged to form total effectiveness scores.

Effectiveness of Behavioral Strategies Scale (EBSS). This measure was created to expand our assessment of mothers' views of the effectiveness of different behavioral strategies, as used with and without medication. Mothers imagined themselves and their own child in six scenarios in which the child misbehaved and the parent used a behavioral strategy to manage the behavior. In three of the scenarios, the child was described as having taken medication and in three as not medicated. If their own child was not currently taking medication, mothers were asked to imagine that the scenarios happened in the past when the child was taking medication. Eight mothers did not complete the measure because their child had never taken medication. The gender of the children in the scenarios was matched to the gender of the mother's child. The specific child problem behaviors involved the child not doing chores, not putting away his/her bike, not turning off video games, being slow in preparing for school, having bad table manners, and refusing to clean his/her room. Two types of behavioral strategies were rated: rewards and loss of privileges. The order of presentation of children who were medicated versus not medicated was counterbalanced across mothers, and the child problem behaviors and corresponding behavioral strategies were randomized within the questionnaire for each mother.²

For each scenario, mothers responded to four questions on a 7-point scale regarding the effectiveness of the behavioral strategy (e.g., would the strategy help the child change their behavior, help the mother's parenting, be valuable in treating the child's behavior, and be implemented effectively).³ For scenarios describing the child as on medication, ratings for rewards and loss of privileges had internal consistencies of .94 and .87, respectively. The ratings for rewards and loss of privileges for children not taking medication had internal consistencies of

.94 and .80. Therefore, the ratings were averaged into a total effectiveness score for each type of strategy within each medication condition.

Predictor variables.

Child Impairment. At the conclusion of the ADHD-IV RS, mothers rated, on a 4-point scale, the degree to which their child's problems with inattention, hyperactivity, and/or impulsivity impair or interfere with his/her ability to function at home or at school. This question is modeled after the format of Fabiano et al.'s (2006) Impairment Rating Scale (IRS). Mothers were asked to think of their child's functioning as it would be off medication.

In addition to using child impairment as a predictor, child ADHD and ODD symptoms were controlled for in all analyses.

ADHD-IV Rating Scale. The ADHD-IV Rating Scale and its psychometric properties have been described above. Total child ADHD symptoms were computed by taking the average of the inattention and hyperactivity/impulsivity ratings. The internal consistency of this scale was .92.

Oppositional Defiant Disorder Rating Scale (ODDRS). The 8-item ODDRS evaluates the degree to which mothers felt that each of the eight DSM IV TR ODD symptoms were characteristic of their child (Hommersen, Murray, Ohan, & Johnston, 2006). Mothers rated these behaviors on a 4-point Likert scale from *not at all* to *very much*. Evidence exists for both this measure's reliability and its validity (Hommersen et al., 2006). The internal consistency of this scale was .92.

Parenting Sense of Competence Scale – Efficacy Subscale (PSOC). The 7-item Efficacy subscale of the PSOC assesses the degree to which mothers felt competent, familiar with parenting, and capable of problem-solving (Johnston & Mash, 1989). Mothers responded on a 6-

point Likert scale ranging from *strongly agree* to *strongly disagree*. This measure is reliable (Johnston & Mash, 1989), and evidence exists for its predictive validity with regard to views of the effectiveness of behavioral treatment and experience of this treatment (Johnston et al., 2010). The internal consistency in this study was .85.

Analysis Plan

Hierarchical linear modeling (HLM) was used, where repeated measures of treatment views of acceptability and effectiveness are nested within mothers. HLM was chosen as an alternative to ANCOVA because it allows for the modeling of the simple slopes of a main predictor (e.g., treatment type) at different levels of continuous predictors (e.g., child impairment, parenting self-efficacy, ADHD symptoms, ODD symptoms). In addition, ANCOVA's assumption of homogeneity of regression suggests that ANCOVA is not appropriate for our study, as interactions between treatment types with child impairment and parenting self-efficacy are predicted. Missing data for individual items for all measures was not higher than 5% and therefore likely negligible. Mean substitution was used in computing total scores when questionnaires were missing items. In the event of missing data in scores used for analyses, pairwise deletion was implemented.

Results

Descriptive Analyses

Descriptive information for the variables is presented in Table 1. Ratings of the acceptability and effectiveness of the three treatments averaged 3 to 4 on a 5-point scale, and scores assessing the effectiveness of behavioral strategies as used with and without medication averaged 4 to 5 on a 7-point scale, suggesting generally positive views of all treatments. Children's impairment scores indicated that, on average, the child's ADHD symptoms interfered with home or school functioning from *often* to *very often*. On average, children's total ADHD

symptoms scores were above the 93rd percentile. On average, children's ODD scores were within one standard deviation of the averages reported in previous studies of community samples of children diagnosed with ADHD (Johnston, Scoular, & Ohan, 2004; Ohan & Johnston, 2011). Sixty-one percent of girls and 58% of boys in our study had at least four symptoms of ODD. On the PSOC, mothers' average ratings were within one standard deviation of the average reported by a community sample of mothers of 4- to 9-year-old boys and girls (Johnston & Mash, 1989). Bivariate correlations between the predictors and treatment acceptability and effectiveness are presented in Table 2.

Treatment acceptability and its relations with child impairment and parenting self-efficacy

A two-level HLM was created where treatments were Level 1 predictors, and child impairment, child ADHD symptoms, child ODD symptoms, and parenting self-efficacy were Level 2 predictors. In the intercept-only model, 4.53% of acceptability variability occurred between participants. The two-level model resulted in a significant impairment by treatment interaction. The interaction of treatment with child impairment indicated that greater child impairment predicted higher acceptability of combined treatment, $\beta = .37$, $t(86) = 3.00$, $p < .005$, but not of behavioral or medication treatment. There was no effect of parenting self-efficacy.

Treatment effectiveness and its relations with child impairment and parenting self-efficacy

A two-level HLM was created where treatments were Level 1 predictors, and child impairment, child ADHD symptoms, child ODD symptoms, and parenting self-efficacy were Level 2 predictors. In the intercept-only model, 5.35% of effectiveness variability occurred between participants. The two-level model resulted in a significant impairment by treatment interaction. The interaction of treatment with child impairment in predicting effectiveness indicated that child impairment was significant in predicting ratings of the effectiveness of

combined treatment, $\beta = .34$, $t(86) = 2.94$, $p < .005$, but not medication or behavioral treatment. In addition, there was a borderline significant effect of child ADHD symptoms on effectiveness views for behavioral treatment alone, $\beta = -.27$, $t(86) = -1.99$, $p = .05$, but not medication or combined treatments. There was no significant interaction between child ADHD symptoms and treatment, and no effects of parenting self-efficacy.

Behavioral strategy effectiveness and its relations with child impairment, parenting self-efficacy, and medication status

A two-level HLM was created where type of behavioral strategy (rewards or loss of privileges) as well as medication status were Level 1 predictors, and child impairment, child ADHD symptoms, child ODD symptoms, and parenting self-efficacy were Level 2 predictors. In the intercept-only model, 28.17% of effectiveness variability occurred between participants. The two-level model resulted in no significant child impairment by treatment or parenting self-efficacy by treatment interactions. However, there were significant and marginally significant effects of parenting self-efficacy across both strategies and medication statuses (reward strategies with non-medicated children, $\beta = .20$, $t(75) = 1.89$, $p = .06$, reward strategies with medicated children, $\beta = .19$, $t(78) = 2.15$, $p < .05$, loss of privileges with non-medicated children, $\beta = .22$, $t(77) = 1.98$, $p = .05$, and loss of privileges with medicated children, $\beta = .21$, $t(78) = 2.15$, $p < .05$). Mothers with higher parenting self-efficacy rated behavioral strategies as more effective overall.

Discussion

This study examined the relations between child impairment, parenting self-efficacy, and mothers' views of the acceptability and effectiveness of three empirically-supported treatments for ADHD. Supporting our hypotheses, level of impairment in the mother's child was positively

associated with the acceptability and effectiveness of combined treatments as presented for a hypothetical child on the TAES, controlling for child ADHD and ODD symptoms. However, child impairment was not related to acceptability or effectiveness ratings for behavioral or medication treatment alone. We speculate that mothers considered treatments that involved use of combined strategies to require more impairment in the child before being justified, possibly due to the intensive nature of using both treatments together. Mothers who have experienced the consequences of more serious child impairment may better understand the need for a combined approach. In addition, a marginally significant negative relation between child ADHD symptoms and effectiveness ratings of behavioral treatment was found, in that mothers who had children with higher ADHD symptoms rated the effectiveness of behavioral treatment as lower than mothers of children with lower ADHD symptoms. This finding suggests that it is important to consider child ADHD symptoms at least with respect to views of the effectiveness of behavioral treatment, and that greater child ADHD symptoms may actually be associated with declines in mothers' views of the effectiveness of behavioral treatment. Still, the fact that child impairment predicted levels of the acceptability and effectiveness of combined treatment, even when child ADHD and ODD symptoms were controlled, suggests that it is also an important child characteristic to take into account.

In contrast to these findings on the measure presenting hypothetical cases, child impairment, controlling for child ADHD and ODD symptoms, did not predict mothers' ratings of the effectiveness of behavioral strategies with or without medication as they might be used by the mother with her own child (as rated on the EBSS). Although the lack of relation between child impairment and ratings of behavioral strategies without concurrent medication use is consistent with the TAES results showing that child impairment did not predict the effectiveness

of behavioral treatment alone, the finding that child impairment did not predict the perceived effectiveness of behavioral strategies used concurrently with medication requires explanation. On one hand, rating the effectiveness of behavioral strategies in the context of medication use appears parallel to rating the effectiveness of combined treatment. However, it is possible that the particular format of the EBSS may have led mothers to place greater emphasis on evaluating the behavioral strategies rather than whether or not they were combined with medication. Specifically, the behavioral strategy was described throughout each scenario and also included in the question immediately preceding the ratings, whereas whether or not the child was medicated was mentioned only once at the beginning of each scenario. Therefore, mothers' views of the effectiveness of the combined behavioral strategy and medication on this questionnaire may not have been synonymous with their effectiveness ratings of combined treatments as presented on the TAES. This finding points to the importance of considering the specifics of different measurements used in treatment acceptability and effectiveness research, as results may change depending on the phrasing of questions. Use of more standardized measures applied systematically across studies as well as studies specifically testing the effects of stimuli/response formats on treatment attitudes would be beneficial in addressing these issues.

This study also explored whether parenting self-efficacy was related to mothers' acceptability and effectiveness views, and predicted that treatments involving the use behavioural strategies, such as behavioural and combined treatment, would be viewed as more acceptable and effective by mothers with greater parenting self-efficacy. In contrast to predictions, although correlations between parenting self-efficacy and both acceptability and effectiveness ratings of behavioral parent training were significant at the bivariate level, parenting self-efficacy was not related to acceptability and effectiveness ratings for any of the

treatments in the full model on the TAES. This likely reflects the influence of correlations among the predictors, and bivariate relations do suggest that mothers' feelings of competence are important predictors of their views regarding behavioral treatment, although not of medication or combined treatment. Parenting self-efficacy was not related to acceptability or effectiveness views of combined treatment, suggesting that the medication component, rather than the behavioural strategy component, of combined treatment may have been more salient to parents.

On the EBSS, parenting self-efficacy was significantly and marginally significantly related to mothers' ratings of the effectiveness of the specific behavioral strategies of rewards and loss of privileges. In contrast to the TAES, this questionnaire asked mothers to think of themselves and their own child in the scenario. Here, as expected, mothers with higher parenting self-efficacy viewed behavioral strategies as more effective, regardless of the child's medication status. That mothers with higher parenting self-efficacy viewed behavioral strategies as more likely to work is consistent with previous studies (e.g., Bondy & Mash, 1999; Bugental et al., 1989; Hoza et al., 2000; Maniadaki et al., 2006; Spoth et al., 1995), and with Johnston et al.'s (2010) finding that higher parenting efficacy is associated with views of behavioral strategies as more effective, which in turn predict more positive experiences using these strategies among mothers of children with ADHD. From a clinical standpoint, attention to parenting self-efficacy appears to be important, and clinicians may need to work to empower parents in order for the parent to feel confident in carrying out a behavioral treatment.

Limitations and Future Directions

This study is not without limitations. As already noted, the analog methodology of the TAES may not capture mothers' views of the acceptability and effectiveness of treatments for their own children. Our findings indicated that parent and child characteristics are differentially

related to acceptability and effectiveness views depending on whether the measure used hypothetical versus own child methodologies. Future studies will benefit from using measures that prompt parents to think of their ratings in reference to their own child. Such an approach, similar to the EBSS used in this study, could strike a balance between the control offered by a measure such as the TAES and more personalized ratings that are still based on the same descriptions of child and treatment characteristics. However, even with such modifications, these measures of parents' treatment attitudes remain removed from the parents' actual treatment decision-making for their own child as they initiate and progress through treatments. A further alternative entails assessing these attitudes as parents proceed with actual treatment decision-making. To do so will require longitudinal studies with more naturalistic measures that assess treatment attitudes repeatedly as parents move through stages from initial diagnosis and treatment decision-making to experiences trying different treatments and achieving various degrees of success.

Conclusion

Overall, our results suggest that greater impairment in the mothers' own children was related to higher ratings of the acceptability and effectiveness of combined treatment. Meanwhile, parenting self-efficacy was positively related to mothers' views regarding how effective behavioral strategies would be with their own child. Insight into the correlates of treatment-related perceptions may allow for a better understanding of issues with treatment engagement, and may be helpful to clinicians as they attempt to improve treatment adherence and increase the probability of treatment success.

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Footnotes

¹Copies of the treatment and case descriptions are available from the third author.

²Due to a counterbalancing complication, approximately half of the mothers rated the effectiveness of a particular type of strategy (rewards or loss of privileges) across two child problem behavior scenarios whereas the other half of the mothers rated the strategy with respect to only one scenario. Those mothers who rated two scenarios for the loss of privileges strategy rated one scenario for the rewards strategy and vice versa, which may have resulted in reduced reliability of the EBSS subscales. However, each scenario consisted of four questions, and the internal consistencies based on just one scenario for the rewards and loss of privileges strategies remained high at .84 and .83 respectively, suggesting that reduced reliability was unlikely to be a problem.

³Two additional questions were included in this measure but were not used, as data inspection suggested that many mothers misinterpreted the reversed anchors provided for the questions.

Table 1

Descriptive Statistics for Predictor and Outcome Variables

Variable	<i>M (SD)</i>	Range
Predictor variables		
Child impairment ^a	2.44 (.61)	1.00-3.00
Child ADHD symptoms ^a	2.06 (.61)	0.50-3.00
Child ODD symptoms ^b	1.66 (.82)	0.00-3.00
Parenting self-efficacy ^c	3.88 (.91)	1.00-6.00
Outcome variables		
TAES behavioral treatment acceptability ^d	3.24 (.91)	1.00-5.00
TAES medication treatment acceptability ^d	3.56 (.83)	1.56-5.00
TAES combined treatment acceptability ^d	3.97 (.82)	2.00-5.00
TAES behavioral treatment effectiveness ^d	3.03 (.86)	1.00-5.00
TAES medication treatment effectiveness ^d	3.64 (.74)	1.67-5.00
TAES combined treatment effectiveness ^d	3.99 (.74)	2.00-5.00
EBSS non-medicated rewards effectiveness ^e	4.61 (1.49)	1.00-7.00
EBSS medicated rewards effectiveness ^e	4.03 (1.54)	1.00-7.00
EBSS non-medicated loss of privileges effectiveness ^e	5.11 (1.30)	1.00-7.00
EBSS medicated loss of privileges effectiveness ^e	4.26 (1.54)	1.00-7.00

Note. ADHD = Attention-Deficit/Hyperactivity Disorder; ODD = Oppositional Defiant Disorder;

TAES = Treatment Acceptability and Effectiveness Scale; EBSS = Effectiveness of Behavioral

Strategies Scale. Sample sizes varied between 86-95. ^aRatings from 0 to 3 (0 = *never/rarely*, 3 =

very often). ^bRatings from 0 to 3 (0 = *not at all*, 3 = *very much*). ^cRatings from 1 to 6 (1 =

strongly agree, 6 = strongly disagree). ^dRatings from 1 to 5 (1 = *strongly disagree*, 5 = *strongly agree*). ^eRatings from 1 to 7 (1 = *strategy will not have helped/be valuable/have implemented correctly*, 7 = *strategy will have helped a lot/be valuable/have implemented correctly*).

Table 2

Bivariate Correlations between Predictor and Outcome Variables

Outcome variables	Predictor variables			
	Child impairment	Child ADHD symptoms	Child ODD symptoms	Parenting self-efficacy
Acceptability measures				
TAES behavioral treatment	-.21*	-.24*	-.03	.21*
TAES medication treatment	.22*	.13	.02	-.06
TAES combined treatment	.31**	.14	.01	-.02
Effectiveness measures				
TAES behavioral treatment	-.17	-.24*	-.02	.22*
TAES medication treatment	.18	.15	.03	-.04
TAES combined treatment	.32**	.16	.04	-.08
EBSS non-medicated rewards	-.06	-.05	-.15	.17
EBSS medicated rewards	-.06	-.11	-.08	.32**
EBSS non-medicated loss of privileges	-.07	-.08	-.05	.29**
EBSS medicated loss of privileges	.14	-.04	-.02	.11

Note. ADHD = Attention-Deficit/Hyperactivity Disorder; ODD = Oppositional Defiant Disorder; TAES = Treatment Acceptability and Effectiveness Scale; EBSS = Effectiveness of Behavioral Strategies Scale. Sample sizes varied between 78-95.

* $p < .05$. ** $p < .01$. *** $p < .001$.