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An investigation of predictors of attendance for fathers in behavioral parent training programs for children with ADHD

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Abstract

Behavioral parent training programs are evidence-based treatment for children with attention-deficit/hyperactivity disorder (ADHD), yet attendance in such programs is variable. Relative to mothers of children with ADHD, far less is known about fathers and what predicts their attendance in treatment. The current study aimed to explore predictors of father ($N = 171$) attendance using data from four studies that tested the efficacy of behavioral parent training programs aimed specifically at fathers. A hierarchical regression was performed to test four potential predictors of attendance, including father race/ethnicity, father education level, child medication status, and father ratings of the child's oppositional defiant disorder symptoms. Father education level was determined to be a significant predictor of attendance, whereas father race/ethnicity, child medication status, and father ratings of the child's ODD behavior were not. The results suggest that future parent training interventions may need to be adapted to improve attendance from fathers of lower education levels.

1. Introduction

Behavioral parent training (BPT) is an evidence-based treatment for children with ADHD (Charach et al., 2013; Evans, Owens, & Bunford, 2013; Evans, Owens, Wymbs, & Ray, 2018; Pelham & Fabiano, 2008; Pelham, Wheeler, & Chronis, 1998). Typical treatment programs include instruction on how to increase attention and rewards for appropriate behavior, how to manage the antecedents of appropriate behavior (e.g., providing effective instructions/commands; establishing house rules and routines; planning ahead), and how to use prudent punishment following misbehavior (e.g., timeout/grounding). Currently, multiple studies support the use of BPT as an effective approach, alone (Evans et al., 2018;

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Andrea C. Nicolìa: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualization, Writing - original draft, Writing - review editing. **Gregory A. Fabiano:** Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing - original draft, Writing - review editing. **Channele T. Gordon:** Data curation, Formal analysis, Investigation, Methodology, Resources, Software, Supervision, Validation, Visualization, Writing - review editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.childyouth.2019.104690>.

Pelham & Fabiano, 2008) and in combination with other treatments (Pelham et al., 2016; Wells, Widmer, & McCoy, 2004).

Studies have indicated that parent training is effective, and that there are approaches to implementing parent training that result in different rates of engagement (Becker, Boustani, Gellatly, & Chorpita, 2018; Lindsey et al., 2014). Attendance is the most common measure of engagement in the larger mental health literature (Becker et al., 2018), and attendance in traditional parent training programs is variable (Chronis, Chacko, Fabiano, Wymbs, & Pelham, 2004). For instance, some studies report more than half of parents offered BPT do not attend (Barkley et al., 2000). Surprisingly, even though ADHD is one of the most highly researched disorders in children, little is known about specific issues that interfere with the families of these children initiating or following through with treatment (Corkum, Bessey, McGonnell, & Dorbeck, 2015). Some studies on the components of BPT have yielded information on predictors of attendance. For example, Pelham et al. (2016) investigated the sequence with which medication and psychosocial treatments such as BPT were implemented. Results illustrated that when BPT was administered prior to medication, attendance was uniformly high. However, when medication occurred first, and parents were later offered BPT, attendance was low. Miller and Prinz (1990) illustrated that BPT sessions that were inclusive of discussion related to other concerns the parents may have (e.g., managing stress) were better attended than highly prescriptive sessions focused solely on child behavior management.

It is also important to note that this literature is made up largely of mothers of children with ADHD (Fabiano & Caserta, 2018; Fabiano, 2007). Relatively few studies have included fathers in BPT, and therefore less is known about potential predictors of fathers' attendance in BPT programs. In studies that have investigated predictors, lower levels of parent education has been observed to result in fewer sessions attended, illustrating the importance of investigating potential influences of treatment engagement (Laxman, Higginbotham, & Bradford, 2019). Fabiano and colleagues have developed an approach to parent training that incorporates father-child interactions within the context of soccer game activities (Chacko, Fabiano, Doctoroff, & Fortson, 2018; Fabiano et al., 2009, 2012), and the attendance of fathers in this type of programming is greater than standard BPT (Fabiano et al., 2009). Given the lack of father involvement within the larger BPT literature, however, a more nuanced review of predictors of BPT attendance is needed. For example, demographic variables such as the race/ethnicity and education level of the parent are important to explore as potential predictors as this may inform modifications to future iterations of programming. The concurrent use of stimulant medication is also a potential predictor of BPT attendance (e.g., Pelham et al., 2016). Comorbid oppositional defiant disorder symptoms the child with ADHD exhibits may also moderate attendance. The rationale for the exploration of each of these predictors will be briefly discussed, in turn.

Father race/ethnicity.

The parent's race has been explored as a predictor of attendance in parent training programs. However, studies have shown inconsistent findings when exploring links between race and parent training engagement. In a study exploring the role of race and ethnicity in father

engagement, researchers hypothesized that race/ethnicity would be a predictor of supportive co-parenting and father engagement, and that this would prove to be stronger among minority families (Pudasainee-Kapri & Razza, 2015). However, the opposite was found to be true as the relationship between co-parenting and father engagement was stronger in Caucasian fathers in the intervention. This may be attributed to minority families placing an emphasis on extended support systems more so than those of Caucasian families (Pudasainee-Kapri & Razza, 2015). Likewise, another study also found that race/ethnicity was a significantly strong predictor of treatment completion and Caucasian families were more likely to attend sessions than minority families (Lavigne et al., 2010); the authors speculated this could be as a result of the absence of matching participants to therapists of similar racial and ethnic groups. In a large study of ADHD treatment, that included BPT, race/ethnicity did not influence treatment outcome results, when socioeconomic status was accounted for (Arnold et al., 2003), similar to other studies (Dumas, Nissley-Tsiopinis, & Moreland, 2007). Furthermore, additional research in the area of parent training programs for children with ADHD attempted to focus on race as a predictor for attendance by categorizing attendance into three levels: never attended, dropout, or completed (Chacko, Wymbs, Rajwan, Wymbs, & Feirsen, 2017). There were no significant differences found in session attendance between Caucasian, African-American, Biracial, and Latino individuals. However, this study focused on single mothers (Chacko et al., 2017), the role of race on father attendance was not explored. Other studies of parent training have yielded similar findings, illustrating a lack of moderating effects of race on BPT outcomes (Laxman et al., 2019; Scott et al., 2010). Although numerous studies have tested race as a predictor, few have tested race/ethnicity as a predictor for programs solely focused on father engagement for children with ADHD. Given the inconsistent findings in the literature, additional study of this potential predictor is needed.

Father education level.

It is also important to examine father education level as a predictor of attendance in parent training programs. Prior studies such as one that examined pretreatment demographics and patterns of attendance found that mother/father education level was associated to some degree with not completing treatment, with those parents with lower education levels being more likely to attend fewer sessions or drop out (Lavigne et al., 2010; Laxman et al., 2019). In another study testing parental education level as moderating effects of six SES variables, increased levels of parental education was positively correlated with greater treatment adherence (Rieppi et al., 2002).

Parental education has also been linked to treatment effectiveness. In addition to parent education level, socioeconomic status (which is typically associated with parental education) has also been found to be a predictor of this parent-training effectiveness in a follow-up analysis. At a one-year follow-up point from treatment, children from disadvantaged families were more likely to show less improvement, regardless of how their symptoms were at the initial intake point (Leijten, Raaijmakers, Orobio de Castro, & Matthys, 2013). Reasons for this could include that certain stressors that often coincide with disadvantaged socioeconomic status such as neighborhood insecurity and access to fewer public services (Pinderhughes, Nix, Foster, & Jones, 2001). However, this study did not directly investigate

the effects of parental education on treatment adherence. One recent study examined father education level and other demographic variables on attrition and attendance in a fatherhood education program. Results from the study indicated that father education was a significant predictor of attrition, with fathers with high school degrees and lower education levels being more likely to drop out of the program than fathers with advanced degrees (Laxman et al., 2019).

Child medication status.

In addition to other moderating variables, child medication status may provide valuable information into understanding father attendance rates in parent training programs. Given the pervasiveness of medication being used as a treatment for ADHD (Hales, Kit, Gu, & Ogden, 2018), many parents may view medication as the primary treatment for their child's impairment, and, subsequently, may view behavioral parenting training programs as a less important addition (Baker, Arnold, & Meagher, 2011; see also Pelham et al., 2016). However, the link between medication and behavioral parenting training is not well understood. Data from a recent study showed no significant differences in parent training attendance rates of children based on their medication level, with percent medicated being distributed evenly among those never attending, dropping out, or completing the program (Chacko et al., 2017). However, it is unknown whether this result generalizes to a father-focused intervention.

Comorbid Oppositional/Defiant Behavior (ODD).

ODD symptoms may be an important predictor of future parenting program attendance, as they may serve as a marker for the severity of behavioral dysfunction. Parents who rate their children as high in ODD symptoms may be relating the presence of a strong coercive family process (Patterson, 2016), which may mean more intensive and lengthy treatment is needed to undue maladaptive styles of relating for both the parent and child. Alternatively, ODD symptoms may be more malleable, relative to ADHD symptoms, in response to changes parents make in their approach, following parent training, because changes in parenting (e.g., use of planned ignoring, effective commands and follow-through, increased praise) may attenuate noncompliant behavior.

Few studies have explored the effects of child ODD symptoms on parental attendance in ADHD populations. In one parent training study targeting parents of children with oppositional defiant disorder, families were assigned to standard parent-child interaction therapy, modified parent-child interaction therapy that included videotapes, telephone calls, and some in-person sessions, or the no-treatment waitlist control group (Nixon, Sweeney, Erickson, & Touyz, 2003). At the conclusion of the program, those families who completed the program, and those who did not, did not differ on any demographic or pretreatment variables, which included ODD behaviors as reported by a parent, suggesting that there were no significant differences in attendance based on child's ODD symptoms. Another study, which examined the outcome of behavioral parent training for children and their families, also found that children's ODD symptoms were a significant predictor of attendance. This could be as a result of parents' lack of understanding about skills being taught, or lack of ability to implement these appropriately in conjunction with their children's needs (Joseph et

al., 2018). Other studies illustrate that there can, in fact, be a decline among sessions with those families of children who have higher ratings of oppositional defiant disorder. One study attempted to assess ODD symptoms (as well as other comorbid ADHD symptoms) before and after a behavioral parent training program. Although there was significant reduction in the number of cases meeting clinical criteria for ODD by the end of the program, the family attendance in the program was also influenced by the child's disruptive behaviors (Malik & Tariq, 2014). In particular, compared to other parents in the program, those who rated their children as having high levels of disruptive behaviors were less likely to attend, even though these parents were initially more likely to enroll in parent training programs. These findings were replicated in another study that found that increased child aggression and disruptive behaviors during treatment programs was associated with poor parental attendance (August, Egan, Realmuto, & Hektner, 2003). Likewise, poor attendance rates, (i.e., higher program dropout rates) are associated with more severe child symptoms of conduct disorder, delinquency, academic issues, and/or social difficulties (Kazdin & Mazurick, 1994). As with the other potential predictors discussed above, it is unclear if the link between attendance and ODD symptoms would be replicated in a father-focused intervention.

2. Current study and hypotheses

The current study sought to examine predictors of attendance for fathers in four behavioral parent training studies: (1) a comparison of COACHES to a standard BPT program (Fabiano et al., 2009; N = 78); (2) a waitlist-controlled trial of COACHES (Fabiano et al., 2012; N = 28); (3) a comparison of fathers and mothers in COACHES versus standard BPT program (Fabiano et al., unpublished data; N = 37) and (4) a waitlist-controlled trial of COACHES in schools program (Fabiano et al., in preparation; N = 28). The child treatment outcome literature repeatedly issues calls to leverage randomized clinical trials to elucidate predictors (e.g., Fabiano, Chafouleas, Weist, Sumi, & Humphrey, 2014; Hinshaw, 2002; Kraemer et al., 2002, 2006; Kazdin & Nock, 2003; Pelham & Fabiano, 2008; Pfiffner, 2014). The study examined fathers specifically because this is an understudied population (Fabiano, 2007; Tiano & McNeil, 2005). In addition, increasing father involvement in parent training can greatly help to expand their role in familial social supports as well as consistency with regards to discipline (Chronis et al., 2004).

The study examined four variables (i.e., father race/ethnicity, father education level, medication, and child oppositional defiant disorder comorbid symptoms) as predictors of attendance level in BPT in order to gain insight into what factors may increase or decrease parent attendance. Using data from four separate parent training studies, a final sample of 171 fathers who were enrolled in a parent training program for children with ADHD were included in the analysis.

We explored four specific research questions and corresponding hypotheses. First, we examined differences in parent training attendance levels based on father race/ethnicity. In particular, we examined if fathers of children in the majority group (e.g., Caucasian fathers who were not Hispanic/Latino) would have higher attendance levels than those who identified as being in minority groups (e.g., fathers who were Hispanic/Latino and/or of

African American, American Indian/Alaska Native, Asian, and Native Hawaiian/Other Pacific Islander race). We hypothesized that, based on prior research (e.g. Lavigne et al., 2010), the majority group would have higher attendance rates than those fathers who came from any other racial group. Secondly, we sought to test if there was a difference in father attendance level among children whose fathers have different education levels. Given previously found links between parental education and attendance (e.g. Lavigne et al., 2010; Laxman et al., 2019), we hypothesized that fathers with higher education levels would be more likely to attend sessions than fathers of lower education levels. Third, we sought to examine if there was a difference in attendance levels among fathers of children based on their child's medication status. Based on previous literature that suggests medication use may attenuate parent training attendance (e.g., Pelham et al., 2016), we predicted that fathers of children who were medicated would attend fewer sessions than those who were not medicated. Lastly, our study examined whether father attendance levels differed among children who had higher reported levels of ODD symptoms. Prior studies (e.g. Joseph et al., 2018; Malik & Tariq, 2014; August et al., 2003) suggests that higher levels of parent-rated disruptive behaviors is associated with lower levels of attendance; we hypothesized that also in our study children with higher symptom severity ratings of ODD would have significantly lower father attendance rates than children that had lower ODD symptom rating scores.

3. Method

3.1. Participants

As stated, voluntary participants in our study were selected from four separate behavioral parent training studies all utilizing the Coaching Our Acting-out Children: Heightening Essential Skills (COACHES) program or a related group parent training approach: (1) a comparison of COACHES to a standard BPT program (Fabiano et al., 2009; N = 78); (2) a waitlist-controlled trial of COACHES (Fabiano et al., 2012; N = 28); (3) a comparison of fathers and mothers in COACHES versus standard BPT program (Fabiano et al., unpublished data; N = 37) and (4) a waitlist-controlled trial of COACHES in schools program (Fabiano et al., in preparation; N = 28). This provided us with a final sample of 171 fathers, after we omitted those fathers in waitlist conditions from study 1, 2 and 4.

COACHES is a two-hour program that integrates sports activities into a parent training program. For the first hour, children practice soccer skills (Pelham, Greiner, & Gnagy, 1998) while the fathers meet in a large group and review effective parenting strategies (Cunningham, Bremner, & Secord, 1998). During the second hour, the fathers coach the children in a soccer little league game, and they are asked to practice the parenting strategies (e.g., praise) within the context of the sport. The program has demonstrated positive outcomes for fathers of children with ADHD relative to a waitlist (e.g., Fabiano et al., 2012) and relative to typical parenting programs (Fabiano et al., 2009). Recent adaptations have illustrated positive effects in preschools as an afterschool program to promote father engagement (Caserta et al., 2018) and as an approach to promote shared book-reading between fathers and children (Chacko et al., 2018). Samples 2 and 3 also included fathers who were assigned to a traditional group parent training class that did not include the shared

sports activity (e.g., Cunningham et al., 1998). The duration ranged from six (sample 4) to eight sessions (samples 1–3).

The four studies utilized uniform recruitment and enrollment procedures, and the diagnostic assessment procedure was identical across studies. All fathers included in this study were recruited through direct mailings, flyers distributed to schools, pediatric offices, and mental health providers, direct mailings, and radio advertisements. Fathers provided informed consent to participate in the research studies, and children over seven provided informed assent. Families completed an intake process to confirm the ADHD diagnosis. Families included children in grades kindergarten to sixth diagnosed with ADHD through parent and teacher Disruptive Behavior Disorder (DBD) rating scales of ADHD symptoms (Pelham, Gnagy, Greenslade, & Milich, 1992) and a semi-structured DBD clinical interview with the child's parents to obtain contextual information regarding symptoms and document the age of onset (Masseti et al., 2003; Pelham, Fabiano, & Massetti, 2005). Cross-situational impairment was assessed through parent and teacher ratings on the Impairment Rating Scale (IRS; Fabiano et al., 2006). Children were diagnosed with ADHD if they met DSM-IV (American Psychiatric Association, 1994; first three studies) or DSM-5 (American Psychiatric Association, 2013; fourth study) symptom criteria for ADHD at home and school, and impairment ratings indicate at least one impairment domain at home *and* school.

Inclusion criteria for the study include an ADHD diagnosis based on DSM criteria and fathers had to be able to attend parent training sessions (e.g., child custody arrangements would not impede attendance). Exclusion criteria for the study include a child with an IQ less than 70 and any child who has psychosis or pervasive developmental disorder.

Of the children of these fathers in our study, our sample had a larger number of male child participants ($n = 134$) than female participants ($n = 35$) with two values missing. Children of these fathers also ranged in age from ages 5 to 12 ($M = 8.29$, $SD = 1.83$). In addition, our sample had a larger percentage of children in the racial/ethnic majority group ($n = 133$) than the racial/ethnic minority group ($n = 35$), with three participants having this information missing. Fathers in our study ranged from age 26 to age 66 ($M = 41.40$, $SD = 8.03$). More of the fathers in our study identified with the majority group with race/ethnicity ($n = 134$) relative to the minority group ($n = 29$), with eight participants having this information missing. With respect to medication, usage was evenly split with 48% of children taking medication, and 52% not taking medication. There was also variability in the degree to which children were rated as having co-morbid ODD symptoms ($M = 1.26$, $SD = 0.71$, $Range = 0.00–3.00$). See Table 1 for further details regarding the information on variables of the father participants across studies.

4. Predictor measures

Father race/ethnicity.

Parents were asked to report race/ethnicity they most closely identified with, and report this at the time other demographic data was collected. With regards to race, parents could identify with the following choices: *Black or African American*, *White*, *American Indian/Alaska Native*, *Asian*, *Native Hawaiian or Other Pacific Islander*, or *Mixed Race*. Ethnicity

could be identified as *Hispanic or Latino*, or *Not Hispanic or Latino*. Participants were classified as majority race/ethnicity if they self-identified as White/Not Hispanic or Latino. Participants were classified as a minority race/ethnicity if they selected any other choice. Prior to running our data analyses, independent and dependent variables were coded to be consistent across all four studies. Father race was coded to be 1 = Majority (Caucasian and Non-Hispanic/Latino) and 2 = Minority (Any individual of another race/ethnicity). We did not have enough participants from each of the minority racial and ethnicity categories (e.g. African-American, American Indian/Alaska Native, Asian American, Native Hawaiian/Other Pacific Islander, and Mixed Race in addition to those who identified as Hispanic/Latino) to explore the effects of each on their own (see Table 1).

Father education level.

Parents were asked to report their highest education level at baseline when data was collected. They could list their highest education level, which was categorized into *High School, Some college, Associate's Degree, Bachelor's Degree, or Graduate School*. For our data analysis, father education was coded into one of five categories: 1 = High School (anything Grade 12 or less), 2 = Some college, 3 = Associate's Degree, 4 = Bachelor's Degree, and 5 = Graduate Degree (anything above a Bachelor's Degree).

Child medication level.

In our study, parents were asked to fill out a portion of the information form regarding their child's medication status. Parents were asked "*Is your child currently receiving medication for behavior, emotional, or other psychiatric problems?*" Children were classified as currently taking psychiatric medication, or not. Medication level was coded into 0 = Non-medicated and 1 = Medicated. This included only psychoactive medications that a child was currently taking-including both stimulant and non-stimulant ADHD medications.

Father ODD rating scale-Disruptive Behavior Disorders rating scale.

Prior to the child participating in the study, parents were asked to fill out the Disruptive Behavior Disorders (DBD) Rating Scale, based on the DSM-IV (Pelham et al., 1992). Only the oppositional defiant subscale was used in moderation analyses. Fathers were asked to rate their children on a Likert Scale, responding with 0 (*not at all*) to 3 (*very much*). Composite scores were calculated based on averaging the answers to the eight questions on the DBD reflecting ODD symptoms (Pelham et al., 1992). Mean scores from participants for the eight items on the scale ranged from 0 to 3. The DBDRS has demonstrated high internal consistency ($\alpha = 0.91-0.96$) and good test-retest reliability ($r = 0.88-0.90$; Pelletier, Collett, Gimpel, & Crowley, 2006).

Outcome measure.

The primary outcome measure for our study was attendance for individuals participating in the COACHES program. We categorized attendance into percentage of sessions attended. Percentage of sessions was used because there were differences in number of sessions across the parent training programs (range = 6–8).

4.1. Statistical analysis—Statistical analyses were performed using SPSS Version 25. Before exploring the predictors, descriptive statistics for father race/ethnicity, father education, child medication level, and father ODD rating on the four separate datasets were explored to determine the feasibility of combining data. To investigate the appropriateness of combining the datasets, an exploration of the consistency of participants included in the datasets was conducted. An analysis of mean differences indicated no significant difference across datasets for child age or sex, father age, or teacher rated ADHD symptom severity (*ANOVA* or *Chi-Square* analysis all yield $p > .05$). Thus, the datasets were combined to determine whether differences in attendance could be explained by the demographic variables of interest. A two-step hierarchical regression that included all of our predictor variables was then conducted. In the first block, the demographic variables were entered. This included parent training group, father race/ethnicity, father education, and child medication level. Then, father ratings of their child's oppositional defiant symptoms (based on the Disruptive Behavior Disorders Rating Scale) were entered in second step to explore the effects of the child's ODD symptoms regardless of the family's demographics. Because there were no differences found in type of parent training when studies were combined (COACHES, standard BPT), the type of parenting training group was not included in the final regression model. Thus, the final regression model focused on a more parsimonious analysis of father race/ethnicity, father education, and child medication level as demographic predictors, as well as father ODD ratings in a second block as potential predictors of attendance.

5. Results

The final sample used in this study contained 171 fathers of children with ADHD. Pairwise deletion was used to handle missing data, because several separate variables were examined, and the aim was to utilize as much data collected as possible. There were no significant concerns with collinearity, with VIF values ranging from 1.01 to 1.21. See Table 2 for detail regarding the correlations of predictors.

6. Hierarchical regression

A two-step hierarchical regression analysis was conducted to determine if father ODD scores were related to attendance, above and beyond the effects of father race/ethnicity, father education, and child medication level. As noted above, father race/ethnicity, father education, and child medication level were categorized as demographic variables. When entered as the first step, demographics significantly accounted for 15.8% of the variance in father parent training attendance rates, $R^2 = 0.158$, $F(3,136) = 8.52$, $p < .05$. The association between father attendance and race/ethnicity, controlling for father education and medication level, was not significant, $\beta = -0.03$, $SE = 5.85$, $t(136) = -0.40$, $p > .05$. Similarly, no significant effect for medication level was found, controlling for father race/ethnicity and father education, $\beta = 0.00$, $SE = 4.46$, $t(136) = 0.03$, $p > .05$. However, there was a positive association between father education level and attendance, $\beta = 0.39$, $SE = 1.44$, $t(136) = 4.98$, $p < .05$, $d = 0.28$. This was a small effect size, with the highest father attendance rates being for those who had a Bachelor's Degree.

When father ratings of the child's ODD symptoms were entered in the second step in the analysis, it did not contribute a significant amount of additional variance to father attendance rates, above and beyond demographic variables, $R^2 = 0.000$, $F(1, 135) = 0.03$, $p > .05$. There was no association between father attendance and ODD symptoms found, controlling for the demographic variables, $\beta = 0.01$, $SE = 3.38$, $t(135) = 0.16$, $p > .05$ (see Table 3).

Overall, father race/ethnicity, child medication status, and father DBDRS ODD rating did not appear to have a significant effect on father attendance rates while controlling for one another. However, father education level was a significant predictor of father attendance rates, above and beyond father race/ethnicity, child medication level, and father DBDRS ODD rating.

7. Discussion

The present study investigated potential predictors of parent training program attendance for fathers of children with ADHD. Exploring parameters of father engagement and attendance in treatment programs is an area highlighted as an area in need of additional study (Fabiano & Caserta, 2018; Fabiano, 2007; Tiano & McNeil, 2005). Predictors of attendance examined were father race/ethnicity, father education level, child medication status, and father oppositional defiant disorder ratings of their child. A two-step, hierarchical regression was conducted to determine the significance of these variables with regards to predicting attendance, with demographic variables, and study hypotheses were partially confirmed. As predicted, father education level was a significant predictor of attendance. However, father race/ethnicity, child medication status, and ODD rating were not significant predictors.

Father attendance was impacted by the father's educational level. Specifically, fathers who had only attended high school had the lowest attendance rates. The attendance rates increased with fathers who had attended some college and those who received an Associate's Degree, with the highest attendance rates being those who had their Bachelor's Degree or higher. This finding could be due to the fact that parents who have lower educational attainment may face obstacles that may affect their availability, such as inconsistent work schedules or lack of transportation (see also Laxman et al., 2019). Additionally, parents with lower education levels may have a history of school failure (e.g., Kent et al., 2011), making the classroom-based parenting programs ill-suited for an individual with a history of difficulty in learning environments. Future studies should continue to explore the reasons behind parental educational level impacting session attendance, and examine ways to remove these barriers moving forward to help facilitate increased program engagement. Alternatively, individuals with ADHD are less engaged in academic and educational programming, in general (Kent et al., 2011). To the extent that lower educational attainment is associated with parental ADHD in our sample, this may also contribute to the findings. Future studies disentangling the effect of adult ADHD and educational attainment on attendance are needed. Our findings replicated another study where socioeconomic status (categorized by reports of family income, education level, and occupation) was examined as a predictor in parent training programs (Lundahl, Risser, & Lovejoy, 2006). In this study, socioeconomic status was a significant predictor of child behavior, parent behavior, and parental perceptions throughout the parent training programs.

Other predictors explored in this investigation did not have a significant impact on parent training attendance. Although it was initially hypothesized that father race/ethnicity would be a significant predictor of attendance in our study, it was not found to be significant. This is consistent with several studies that have examined race and ethnicity as predictors of program attendance (e.g., Dumas et al., 2007). However, it is important to note that we had predominantly Caucasian and non-Hispanic/Latino individuals and less variability among other racial and ethnic minority categories. Thus, it is necessary in future studies to further examine this predictor with more diverse samples. That medication use was not a significant predictor was an interesting finding, as we predicted that those fathers of children who were medicated for ADHD would attend fewer sessions because medication itself would be viewed as an adequate intervention. Our findings, that showed no significant differences in parent training attendance rates of children based on their medication level, are consistent with some studies (Chacko et al., 2017), but inconsistent with others (e.g., Pelham et al., 2016).

ODD ratings were not found to be a significant predictor of attendance. Other studies have also illustrated that comorbid ODD does not moderate treatment effects (Nixon et al., 2003). Malik and Tariq (2014) reported parents of children with ODD attended more sessions than parents of those without ODD. In addition, one study that used text messaging to improve attendance and completion in a parent training program found that difficult child behaviors motivated parents to complete the program, whereas increased parental stress due to difficult parent-child interactions deterred parents from attending and finishing parent training (Murray, Woodruff, Moon, & Finney, 2015). This study only included baseline ODD symptoms as a potential predictor, and may have underestimated the impact of ongoing ODD behaviors throughout the course of parent training. Therefore, future studies may explore the impact of the consequences of ODD behaviors and the stress that is placed on the family on attendance in parenting programs, rather than the diagnosis.

Together, these findings add to the existing literature on child mental health treatment engagement, and more specifically, the father treatment engagement literature. It is already established that attendance in child mental health interventions is variable (Becker et al., 2018; Lindsey et al., 2014). Haine-Schlagel and Walsh (2015) note that parent participation is a particularly important variable to consider in child mental health engagement because there are potential links between parent engagement and improvement in some child outcomes. Indeed, it is unlikely that children with ADHD will improve from psychosocial treatment without parent engagement, given that the evidence-based treatments for elementary-aged children all include active adult involvement (Evans et al., 2013, 2018; Pelham & Fabiano, 2008; Pelham et al., 1998). Given that fathers have traditionally been marginalized in treatment outcome studies (Fabiano, 2007), and likely in clinical settings as well, the present investigation begins to add to the literature base on characteristics of fathers that may contribute to treatment engagement. One major finding from the present study is that low levels of father education may need to be addressed in treatment engagement activities. For example, attention to the reading grade level of program recruitment materials, assessments, and treatment materials may be needed, given that the reading grade level required to negotiate clinical materials may be greater than that of the least educated parents (Jensen, Fabiano, Lopez-Williams, & Chacko, 2006).

8. Limitations

This study has limitations. As a secondary analysis of predictors of fathers' attendance in parent training programs, our analyses were limited to variables that were consistent across the samples. This includes the fact that our findings may be limited to behavioral parent training programs tailored to fathers. Indeed, the overall attendance rates across studies using the COACHES framework were high, suggesting that this approach may increase attendance rates across groups. Future studies should explore whether or not these findings are also true of mothers and/or couples participating in parent training as well whether the findings are consistent in traditional, classroom-based programs.

Further, the overall sample had limited racial and ethnic diversity. Future studies should include more diverse racial and ethnic groups when testing for father attendance rates as this may change the pattern of results. It is not possible from the present sample to explore potential differences in attendance across minority racial and ethnic groups, and this represents a serious limitation of those data, making any findings from these analyses tentative. In addition, the majority of participants were from the same geographic locale, which means the results may not generalize to other areas.

Additional limitations relate to the secondary data analysis, which resulted in some questions being unanswered. For example, medication use was coded as a dichotomous variable, and we did not differentiate to the level of dose or type of medication, whether medication was used in the home setting, and whether the parent viewed the medication as an effective treatment. A more fine-grained coding of medication use, type and dose, may have uncovered potential differences regarding father attendance. For example, children effectively treated on high doses of psychoactive medication may have reduced their behavioral concerns to the point that parents felt parenting programs were no longer necessary. A more nuanced analysis of the role of medication use on concurrent parenting program attendance is needed in future studies. Similar limitations relate to more fine-grained analysis of the father's parenting role, co-parent attendance within the parenting program, and time spent with the child during the week.

9. Implications

The goal of this study was to test predictors of attendance across four separate studies of behavioral parent training programs aimed at fathers. Our study found that father education was a significant predictor of attendance, with those fathers from higher educational backgrounds attending more sessions, in general. Future studies now must examine various ways to increase father attendance, and more broadly parent attendance, from those coming from lower education and socioeconomic levels. These could potentially include having parent training instructors from similar socioeconomic backgrounds facilitate the training, as this has been proven to increase parent attendance and longevity in the program (Dumas, Moreland, Gitter, Pearl, & Nordstrom, 2008). In addition, further research should be done to explore the potential impacts of attendance and engagement among these families by using various programs such as internet-based parent training to increase engagement (McGoron, Hvizdos, Bocknek, Montgomery, & Ondersma, 2018). Furthermore, another way to increase

engagement may be by extending the duration of individual treatment sessions or decrease transportation burdens (Chacko et al., 2008). Preference surveys illustrate that an emphasis on positive program outcomes for the child may be highly desired for parents from low socioeconomic strata (Fabiano, Schatz, & Jerome, 2016). Findings from this study also suggest that fathers generally attend parenting programs regardless of race/ethnicity, comorbid child characteristics, or use of concurrent medication, making it a viable initial or adjunctive treatment for fathers of children with ADHD.

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Table 1

Mean attendance by predictor variable in final sample of 171 fathers (Values may not equal 171 due to missing data).

Variable	N (%)	Mean Percentage of Attendance
Race/Ethnicity		
Majority Group	134 (82%)	73.41%
Minority Group	29 (18%)	68.67%
Education		
High School	63 (43%)	62.04%
Some College	26 (18%)	79.33%
Associate's Degree	8 (5%)	75.00%
Bachelor's Degree	30 (20%)	88.33%
Graduate School	20 (14%)	87.08%

Table 2

Intercorrelations.

<i>Variable</i>	M	SD	1	2	3	4	5
Father Race/Ethnicity ^a	1.18	0.38	–				
Father Education ^b	2.44	1.53	–0.09	–			
Medication ^c	0.48	0.50	.20**	–0.01	–		
DBDRS ODD Rating	1.26	0.71	–0.36***	0.07	0.27***	–	
Father Attendance ^d	72.10	27.86	–0.07	0.40***	0.01	0.05	–

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

^a 1 = Majority (Caucasian and Non-Hispanic/Latino), 2 = Majority (Every other racial group and/or. Non-Hispanic/Latino).

^b 1 = High School (Grade 12 or less), 2 = Some college, 3 = Associate's Degree, 4 = Bachelor's Degree, 5 = Graduate School (Anything above a Bachelor's Degree).

^c 0 = Non-Medicated, 1 = Medicated.

^d Measured in percentage of sessions attended.

Table 3

Regression results investigating predictors of attendance.

Predictors	r	Model 1	Model 2
<i>Demographics</i>			
Father Race/Ethnicity	−0.07	−0.03	−0.03
Father Education	0.40 ***	0.39 ***	0.39 ***
Medication	0.01	0.00	−0.00
DBDRS ODD Rating	0.05		0.01
Total R^2		0.158 ***	0.158
Change in R^2		0.158 ***	0.000

*
 p 0.05.**
 p 0.01.***
 p 0.001.