Evaluating the Feasibility of the Incredible Years Attentive Parenting Program as Universal Prevention for Racially Diverse Populations

Xiang Zhou, PhD, Purdue University
100 University Street Beering Hall, West Lafayette, IN, 47907
Phone: 917-678-0987
Email: zhou0180@umn.edu

Richard M. Lee, PhD. University of Minnesota, Twin Cities
75 East River Pkwy, N219 Elliott Hall, Minneapolis, MN, 55454
Phone: 612-625-6357
Email: richlee@umn.edu

Judy Ohm, MSW, Amherst H. Wilder Foundation
Early Childhood Services, 911 Lafond, St. Paul, MN 55105
Phone: 651-280-2606
Email: judy.ohm@wilder.org

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Abstract

Parenting training (PT) can be implemented as a prevention program to effectively address children's behavioral and psychosocial problems. In the current feasibility study, we implemented the Incredible Years (IY) Attentive Parenting Program as universal/primary prevention in a community mental health setting with racially diverse families. We evaluated the attendance and treatment outcomes in a one-group pre-post design. A total of 152 parents (88% mothers; 81% non-White) participated in the IY Attentive Parenting Program. Parents who completed the program reported a significant decrease in conduct problems and an increase in prosocial behaviors in their children. Minimal differences among race and gender were found in parents' attendance, parenting stress, and children's internalizing and externalizing symptoms and prosocial behaviors. However, pre-treatment child externalizing behaviors predicted parents' attendance. The study provides preliminary support for the feasibility of the recently developed Incredible Years Attentive Parenting Program as a universal prevention program for behavioral and psychosocial problems in children.

Keywords: parent training, Incredible Years, attendance, prevention

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An estimated 22.8% to 31.9% three- to six-year-old children present with behavioral and psychosocial problems (Bufferd et al., 2012). Early onset of these problems predicts poorer long-term outcomes for children (Lavigne et al., 2001). In addition to the emotional burden to the family, these problems bring a long-term financial cost to the family and society, including healthcare and educational services (Chorozoglou et al., 2015). However, most parenting programs that address children's socioemotional and behavioral problems are not designed, implemented, or evaluated for ethnic-racial minority families (van Mourik et al., 2017), even though children of color under 18 are now the majority in the United States (Vespa et al., 2020). In this study, we evaluate the feasibility of the Incredible Year Attentive Parenting program (Webster-Stratton, 2012) as a universal preventive intervention for families from diverse racial backgrounds.

Parenting has been identified as one of the most significant and modifiable risk factors in the development of children's behavioral and psychosocial problems (Bøe et al., 2014). Effective evidence-based parent training (PT) can reduce children's socioemotional and behavioral problems with lasting, long-term impact (Sandler et al., 2011). It also demonstrates effectiveness in improving parental mental health, which can have a positive downstream effect on the parent-child relationship and children's mental health (Barlow et al., 2012). As such, PT can be implemented as either a prevention or intervention program. Parent training is often used as universal prevention. Universal prevention, broadly defined as interventions to stop a problem from ever occurring or delaying the onset of a problem in at-risk populations, has the potential to

promote an equitable approach to address social and health disparity (American Psychological Association, 2014; Kenny & Hage, 2009).

Effective and efficacious preventative PT programs delivered to ethnic-racial minority families are extremely limited (van Mourik et al., 2017). A recent meta-analytical review of 18 studies underscored the importance of detailing the PT programs available to racially diverse families (van Mourik et al., 2017). Racially diverse families are now the demographic norm (Vespa et al., 2020). To fill these gaps, our purpose was to evaluate the feasibility of the IY Attentive Parenting Program (Webster-Stratton, 2012) by examining program attendance and treatment outcomes with racially diverse parents in a community mental health setting. The Attention Parenting Program, which is a briefer and newer version of the evidence-based Incredible Years BASIC Parenting Program, has yet to be empirically tested.

The Incredible Years (IY) Parent Training Series

The IY Parent Training Program is part of a multifaceted treatment approach that was originally developed to target child conduct problems (Webster-Stratton & Reid, 2018). The IY Parent Training Program has been widely implemented globally for early intervention and prevention purposes (Borden et al., 2010; Leijten et al., 2018). The IY Parenting Training is also designed to encourage cultural adaptations to engage racially diverse families (Webster-Stratton, 2009). Webster-Stratton, the founder of IY, has discussed principles and strategies for cultural adaption, such as working collaboratively with interpreters or addressing cultural barriers with specific parenting skills (Webster-Stratton, 2009). The IY Parent Training series has several variations with different length, age focus, and special needs populations. The IY BASIC Parenting Program (Webster-Stratton, 2012) was the first and most evaluated version. The IY BASIC Parenting Program has demonstrated some efficacy among African, Asian, Hispanic,

Latinx, and Indigenous families in the United States (e.g., Dionne et al., 2009; Kim et al., 2008; Reid et al., 2001).

The IY Attentive Parenting Program is a manualized universal program (Webster-Stratton, 2012) based upon the original IY BASIC Parenting Program (Webster-Stratton, 2001). It was developed for low-resource settings but can be used as either booster sessions for parents who have completed the IY BASIC Parenting Program or for prevention purposes within a general population (Webster-Stratton, 2012). The IY Attentive Parenting Program is a minimum of 6 sessions, and the BASIC requires 14 to 18. Content also differs (e.g., the IY Attentive Parenting Program does not cover topics on effective limit setting, ignoring negative behaviors and timeout). The IY Attentive Parenting Program reduces the financial cost compared to IY BASIC Curriculum, which makes it more feasible from a universal prevention framework to provide general parent training and prevent children's socioemotional and behavioral problems before occurrence (Webster-Stratton, 2012). It has also been speculated that parents will be more likely to attend PT regularly with fewer sessions (Heinrichs et al., 2005).

To qualify as a universal intervention, the IY Attentive Parenting Program needs to be effective and efficacious for the general population—in the context of the U.S., a racially diverse population with children of color as the numerical majority (Vespa et al., 2020). It has yet to be empirically evaluated with racially diverse families. Different variants of the IY BASIC Parenting Program, such as IY School Readiness Parenting Program, are still under empirical evaluation (Hutchings et al., 2020). One randomized controlled trial (RCT) study in Norway (Reedtz et al., 2011) found that a shortened IY program, which eventually became the model for the IY Attentive Parenting Program, reduced harsh parenting and strengthened positive parenting and parents' sense of competence compared to the waitlist control group from a non-clinical

community sample. However, prior to an RCT study that focuses on the evaluation of treatment efficacy of the IY Attentive Parenting Program, it is crucial to examine its feasibility as implemented in a naturalistic environment.

Evaluation Outcomes

Our evaluation of the IY Attentive Parenting Program focused on both child (i.e., internalizing, externalizing, and prosocial behaviors) and parental outcomes (i.e., parenting stress)—two of most commonly assessed outcomes from PT. There is ample evidence demonstrating that PT, including IY BASIC Parenting Program, can benefit both children and parents (Barlow et al., 2012; Leijten et al., 2018; Menting et al., 2013; Mingebach et al., 2018; Yap et al., 2016). Children showed more reduction in externalizing rather than internalizing and prosocial behaviors (Leijten et al., 2018; Menting et al., 2013; Mingebach et al., 2018; Yap et al., 2016). The PT can also reduce parenting stress up to six months after the end of the treatment (Barlow et al., 2012). However, most of these findings were from intervention studies that targeted high-risk families, which may differ from implementation in universal prevention, selective prevention, or indicated prevention context (American Psychological Association, 2014; Gordon, 1983). Indeed, the IY BASIC Parenting Program demonstrated a stronger effect in intervention studies than indicated and selective prevention studies for externalizing behaviors (Menting et al., 2013).

In addition to treatment outcomes, we also evaluated parents' attendance in the IY Attentive Parenting Program. Consistent with prior PT studies (Joseph et al., 2019), we examined whether demographic (e.g., race and gender) and clinical characteristics (e.g., parenting stress, child psychopathology) would account for parent's attendance in IY Attentive Parenting Program. Studying the attendance rate in an implementation study is crucial to

understand the feasibility of PT. A comprehensive review of 262 studies (Chacko et al., 2016) found that less than half of those parents identified as appropriate for PT received the full benefits of treatment. Another significant gap is the lack of consistent reporting (Chacko et al., 2016)—only 56% of studies provided attendance, among which 77% did not report a true attendance percentage. Attendance percentage thus cannot be extracted from most of these studies because attendance was only reported as a percentage of participants who attended a percentage of sessions, for example, "88% completed at least 75% of sessions" (Heinrichs et al., 2005, p. 284). Moreover, findings have been mixed around these demographic and clinical characteristics as predictors of attendance. For instance, compared to White families, racial minority families were found to either attend fewer (e.g., Joseph et al., 2019) or the same amount of PT sessions (e.g., Baker et al., 2011; Dumas et al., 2007).

Study Purpose

This study evaluated the feasibility of the IY Attentive Parenting Program (Webster-Stratton, 2012) by examining program attendance and treatment outcomes. The IY Attentive Parenting Program was implemented as a universal preventive intervention with racially diverse parents using a one-group pre-post design. It was critical to evaluate the feasibility of the IY Attentive Parenting Program because there are few existing published studies with the IY Attentive Parenting Program. Additionally, feasibility studies are warranted when community partnerships need to be established and sustained (Bowen et al., 2009; Eldridge et al., 2016). We specifically focused on the limited efficacy and demand aspects of a feasibility study (Bowen et al., 2009). Limited efficacy refers to understanding the immediate pre-post effects with a community convenience sample and demand refers to the actual usage or attendance of the intervention (Bowen et al., 2009). We hypothesized that children's externalizing behaviors and

parenting stress would be significantly lowered after completion of the program. We hypothesized neither children's internalizing nor prosocial behaviors would significantly change after attending the IY Attentive Parenting Program, given their weak effects in prior IY BASIC Parenting Program research (Leijten et al., 2018; Menting et al., 2013; Mingebach et al., 2018; Yap et al., 2016). We also hypothesized these results would be similar across diverse families given past research with the IY BASIC Parenting Program (Kim et al., 2008; Leijten et al., 2017; Reid et al., 2001). Due to limited prior research on treatment utilization and inconsistent findings (e.g., Baker et al., 2011; Dumas et al., 2007; Joseph et al., 2019), we did not set any a priori hypothesis around attendance patterns in this study.

Methods

Procedure

A total of 152 participants were recruited during three years between September 2013 and October 2016 by a community mental health agency to receive the IY Attentive Parenting Program. This agency is a non-profit health organization that serves all ages, including children and families, and its mission is to address the needs of vulnerable populations in the Minneapolis-Saint Paul metropolitan area. Participants were recruited through informational flyers, affiliated social service agencies, partnership agencies, radio advertisements, parent informational events, and parenting blogs. The 152 participants were in 17 IY Attentive Parent Training groups, with the number of parents in each group ranging from 5 to 14. The inclusion criteria for receiving IY were to have one child between the ages of 3 and 6 years old. In terms of exclusion criteria, parents who requested specific resources for pre-existing mental health concerns were excluded and referred to a clinical social worker. We did not provide any other screening assessments for inclusion/exclusion to the program.

Implementation and Adaptation

The IY Attentive Parenting Program is a manualized program with each session lasting about two and a half hours. The core parenting concepts were introduced in successive sessions: 1) Attentive child-directed play promotes positive relationships and children's confidence; 2) Attentive academic and persistence coaching promote children's language and school readiness; 3) Attentive emotion coaching strengthens children's emotional literacy and empathy; 4) Attentive social coaching promotes children's cooperative friendships; 5) Attentive imaginative parenting promotes children's emotional regulation skills; and 6) Attentive creative play promotes children's problem solving and empathy. Each session modeled the IY BASIC Parenting Program, consisting of reviewing the homework and core concepts, watching and discussing vignettes, and role-plays. The number of IY curriculum sessions is designed to be "minimal," and group leaders are encouraged to lengthen these depending on the number of vignettes shown and parents' cultural and educational background and experiences (Webster-Stratton, 2009). We also added an introductory component to the standard protocol (Webster-Stratton, 2012) during the first session for parents to share their own upbringing and discuss their parenting motivations based upon previous cultural adaption work (Zhou et al., 2018). The goal of this added component was to better engage parents and create more connectedness among families (Zhou et al., 2018). As such, the IY Attentive Parenting Program was delivered in 6 to 9 weeks with most (n = 12) at 7 weeks.

Altogether six group leaders facilitated the IY groups. When possible, the race of the group leaders (i.e., two White, two Black, and two Asian American leaders, all women) was matched to the parents' race. These group leaders were all trained in a standard 3-day workshop to deliver IY BASIC Parenting Program and participated in a refresher training to deliver the

shortened IY Attentive Parenting Program. Group leaders have various experiences in facilitating (and participating as a parent in) different IY groups.

After each session in delivering the IY Attentive Parenting Program, the group leaders completed the standard fidelity checklist provided by the IY protocol (Webster-Stratton, 2012). The fidelity list included the number of vignettes shown, whether the core concepts in the respective session were discussed, and whether core activities (e.g., role-plays, breakouts, homework) were administered. The adherence to this checklist by all group leaders ensured a minimal level of quality and consistency across IY groups in a community mental health setting. Group leaders also followed up as a large group to discuss how each group went, its strengths, and any areas to ask for help in covering topics.

In order to remove logistic barriers for engagement and consistent with past treatment effectiveness studies, parents were offered free childcare services (concurrent to the parent training group and not a clinical intervention), meals, and transportation for attending the IY parent training programs (Ingoldsby, 2010). Parents who enrolled between January 2015 and October 2015, with the acquisition of the new project funding, received a $50 compensation upon completion of the IY with less than two sessions missing (n = 100). The incentive was further included as a covariate to control for its impact on attendance. Additionally, informational flyers were distributed in the serving neighborhoods. Two cultural navigators were also hired to connect available parenting resources to the agency's serving community, including providing information about the IY services.

Participants

Participants were 133 (88%) mothers and 22 (12%) fathers. In terms of race, 61 (40%) participants were Black. Forty-six (30%) were Asian American, who were predominantly

Hmong, with several other ethnicities (i.e., Nepalese, Tibetan, Karen, and Korean), as consistent with the demographics in the serving neighborhoods. In addition, 28 (18%) identified as White, seven (5%) identified as Latinx, five (3%) identified as mixed race, one identified as Middle Eastern, one identified as Native, and three (2%) did not report their race. The age of participants ranged from 18 to 60 (M = 31.91, SD = 8.19). Five grandparents and one uncle as primary caregivers participated in IY, and removing these six participants did not change our subsequent findings. Thus, the "parent" label was used for writing consistency.

In terms of target child's gender, 85 (56%) were boys, and 67 (44%) were girls. For parents who reported their education (n = 92), 11 (12%) had no schooling experiences, 40 (43%) graduated from high school, 14 (13%) had associate degrees, and 29 (32%) had bachelors' degrees or above. For parents who reported their annual income (n = 42), 23 (55%) were below $25,000 annual income, 15 (36%) were between $25,000 to $50,000, and 4 (10%) were above $50,000. For parents who reported their relationship status (n = 96), 60 (63%) identified as being a single parent. Overall, these indicators suggested that most families in the IY Attentive Parenting Program had low socioeconomic status, which mirrored the demographics of the general clientele served at this community agency.

Measures

Parenting Stress

Stress experienced by parents in relation to their parenting role was measured by the Parenting Stress Index—Short Form (PSI-SF; Abidin, 1990) at both pre- and post-treatment. This is the brief version of the Parenting Stress Index (PSI-SF), a widely used and well-researched measure of parenting stress (Haskett et al., 2006). The PSI-SF has 36 items, rated on a 1 (=Strongly agree) to 5 (=Strongly disagree) Likert-type scale, with higher scores indicating

more parenting stress (e.g., "I feel trapped by my responsibilities as a parent," reverse scored). The mean of the 36 items yielded an average stress score with excellent internal reliability (α = .96/.98 for pre-/post- treatment, respectively). A clinical cut-off score (i.e., 2.39) also was available, which indicates caseness (i.e., levels sufficiently high to indicate the need for professional help). The percentages of parents who met the clinical cutoff scores for parenting stress were 58% and 58% at the pre- and post-treatment, respectively.

Adjustment Problems

The target child's adjustment problems were measured by the 25-item Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001) at both pre- and post-treatment. Items related to their child's behaviors were rated by parents on a three-point scale: 0 (= Not true), 1 (= Somewhat true), and 2 (= Certainly true). The SDQ measures emotional problems (5 items; e.g., "Often unhappy, downhearted"), conduct problems (5 items; "Often fights with other children"), hyperactivity (5 items; "Sees tasks through to the end," reverse coded), peer problems (5 items; "Picked on or bullied"), and prosocial behaviors (5 items; "Helpful if someone is hurt"). The SDQ has demonstrated adequate reliability and validity across multiple cultural groups (Achenbach et al., 2008). Sum scores for each subscale [range 0 to 10] were calculated with higher scores on prosocial behaviors subscale (ω = .79/.81 for pre-/post- treatment, respectively) reflect strengths; whereas higher scores on the other four subscales—emotional symptoms (ω = .62/.64), conduct problems (ω = .77/71), hyperactivity (ω = .80/.83), and peer problems (ω = .55/.40)—reflected difficulties. McDonald's omegas, rather than Cronbach's alphas, were reported for internal consistency following suggestions by Stone et al. (2015). The low internal consistency on the peer problems subscale was consistent with Goodman, Lamping, & Ploubidis (2010), who found that both parent- and youth-reported peer problems had lower internal

consistency compared to other SDQ subscales. Similar to PSI, clinical cutoff scores also were available for SDQ. The percentages of children that met the clinical cutoff scores were 16% and 9% for emotional problems, 45% and 31% for conduct problems, 30% and 27% for hyperactivity, 39% and 34% for peer problems, and 10% and 5% for prosocial behaviors at the pre- and post-treatment respectively.

Attendance. Attendance was documented for parents at each session by the group leaders. Attendance was calculated as the percentage of sessions attended (range 13–100%). On average, parents attended 71% (SD = 30%) sessions. Nineteen participants (12.5%) only attended the first session. The remaining 133 participants attended an average of 79% (SD = 23%) sessions (range 29-100%).

Missing Data Analysis

Given missing data at pre-treatment surveys ranges from 2.7% to 4.0%, further analyses based only upon pre-survey data (i.e., MLM in attendance) utilized full information maximum likelihood estimation (FIML) in assuming Missing at Random (MAR). However, missing data at post-treatment ranges from 32.0% to 38.7%. Parents who did not fill out the post-treatment survey (n = 58) were compared to those who did (n = 94) on studied variables (i.e., parent and child gender, race, PSI, and SDQ subscale scores) using independent samples t-tests and chi-squared tests. We found that parents who did not fill out the post-treatment surveys, compared to those who did, endorsed higher conduct problems scores (t = 2.11, df = 146, p = .036, d = .36) in the pre-treatment survey. Thus, neither Missing Completely at Random (MCAR) nor Missing at Random (MAR) could be assumed. Because imputation methods may create more biases under the assumption of Missing Not at Random (Sterne et al., 2009), further analyses involving post-treatment data (i.e., MLM in treatment effects) utilized the complete dataset (i.e., list-wise

deletion) with a sample size of 94. We further addressed the limitations to interpret the pre-post treatment effects in the discussion section.

Results

Preliminary Analyses

Means, standard deviations, and point-biserial correlations among study variables were presented in Table 1. In the pre-treatment surveys, all SDQ scores were also correlated in theoretically expected directions in small to medium range [.19–.61]. Similarly, among pre- and post-treatment SDQ scores, externalizing symptoms (i.e., hyperactivity and conduct problems) were highly correlated [.53–.72], whereas internalizing symptoms (i.e., emotional and peer problems) and prosocial behaviors were moderately correlated [.12–.59]. Overall, PSI and SDQ scores were not correlated with each other, suggesting parenting stress was independent of child adjustment concerns.

Paired *t*-tests indicated the conduct problems significantly decreased from the pre-treatment (M = 2.29, SD = 2.03) to post-treatment (M = 1.97, SD = 1.82), $t(92) = 2.17$, $p = .03$, $d = .23$, and prosocial behaviors significantly increased from the pre-treatment (M = 7.60, SD = 2.15) to post-treatment (M = 8.02, SD = 1.99), $t(91) = -2.13$, $p = .03$, $d = .23$. To understand its clinical significance, McNeMar's test indicated only the proportions of children who met the clinical cutoff for conduct problems have significantly decreased from the pre-treatment (42%) to post-treatment (31%), $\chi^2_{(1)} = 4.05$, $p = .04$. PSI or other SDQ subscale scores did not significantly change, ps > .05.

Attendance

To investigate the nested structures of participants within groups, we conducted MLM in Mplus 8.3 (Muthén & Muthén, 1998–2017). MLM has advantages over general linear

regressions by taking into account variances within each parenting group, thus providing a more accurate estimation (Raudenbush & Bryk, 2002). Two sets of models were fitted for attendance as the outcome variable, using full information maximum likelihood estimation. We first fitted the unconditional intercept model to check if multilevel modeling was needed. Intraclass correlation coefficients (ICC; Raudenbush & Bryk, 2002) were computed to check whether the nesting of participants within groups would require multilevel modeling. Multilevel modeling is recommended if an ICC value reaches .05 or higher (Bliese & Hanges, 2004; Raudenbush & Bryk, 2002). The ICC for attendance was calculated to be .24 in an unconditional model. This suggested that parents within the same group attended similarly rather than if they were parents in a different group.

In the second step, random intercept models (Table 2) were fitted to examine the individual and group differences that might account for attendance variances. In the random intercept models for attendance: parent gender, race, PSI, and 5 SDQ subscale scores were entered as predictors at Level 1. Parent gender and race were dummy coded using mothers and White as the reference groups, respectively. The incentive was entered as a predictor at Level 2. The final model was specified as,

Level 1: $\text{Attendance}_{ij} = \beta_{0j} + \beta_{1j}*\text{Father} + \beta_{2j}*\text{Asian} + \beta_{3j}*\text{Black} + \beta_{4j}*\text{Others} + \beta_{5j}*\text{PSI} + \beta_{6j}*\text{EP} + \beta_{7j}*\text{CP} + \beta_{8j}*\text{HP} + \beta_{9j}*\text{PP} + \beta_{10j}*\text{PB} + \varepsilon_{ij},$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}\ \text{Incentive} + \xi_{0j}$

where Attendance_{ij} represents the attendance for participant i in group j; β_{0j} the mean attendance in group j after the effects of gender, race, PSI, and SDQ are adjusted; β_{kj} represents the coefficients for the k^{th} predictor at the individual level, and β_{kj} is held not to vary across groups; ε_{ij} represents the unique contribution of participant i in group j; γ_{00}, the intercept,

represents the estimated average amount of attendance across all participants; γ_{01} represents the regression coefficient for the effect of incentive on adjusted attendance; ξ_{0j} represents the group-level error term or unique contribution of group j. Including group- and participant-level error terms accounted for the nested structure.

In the random intercept model (Table 2) for attendance, the fixed effects for conduct problems (b = -.037, SE = .016, p = .02) and hyperactivity (b = .013, SE = .005, p = .02) were significant. This suggested with one unit increase in conduct problems, the attendance decreased by 3.7% sessions, whereas every unit increase in hyperactivity was accompanied by 1.3% sessions' increase in attendance. The fixed effects were not significant for gender, race, PSI, or other dimensions of SDQ. The fixed effect of incentive was also not significant.

We ran an additional random intercept model (Table 2) for attendance with a subsample of participants who returned after the first session (n = 133) to capture the non-linear nature of attrition in attendance. We found only the fixed effect for conduct problems (b = -.030, SE = .010, p = .004) was significant, suggesting with one unit increase in conduct problems, the attendance decreased by 3.0% sessions. The fixed effects were not significant for gender, race, PSI, or other dimensions of SDQ. The fixed effect of incentive was also not significant.

Treatment Effects

To account for the nested structures of participants within groups, similar to the procedures for testing models of attendance, two sets of models were fitted for the treatment effects of PSI and 5 SDQ dimensions, respectively (i.e., 12 models in total). In the first step, we fitted six unconditional intercept models with changes in PSI and 5 SDQ scores (e.g., Δ_{EP} = pre-minus post-treatment emotional problems subscale scores) as dependent variables. The

unconditional intercept models allowed for investigating if the changes in parenting stress and child outcomes were significant after accounting for the nested structure.

In the second step, we fitted the random intercept models (Table 3) for all six outcome variables to investigate the individual and group differences in treatment effects. Parent gender and race were entered as covariates at Level 1 for PSI outcomes. Child gender and race were entered as covariates at Level 1 for SDQ outcomes. Child gender was entered as a covariate due to past findings suggesting gender differences in externalizing and internalizing behaviors. In addition, past meta-analysis results (Menting et al., 2013) indicated that the initial symptom of child behaviors was the strongest predictor of treatment effects in IY parent trainings. Thus, the pre-treatment PSI or SDQ scores were also entered at Level 1. No covariates were entered at Level 2. The final model was thus specified as,

$$\Delta_{PSI/SDQ(ij)} = \gamma_{00} + \beta_{1j}*\text{Female} + \beta_{2j}*\text{Asian} + \beta_{3j}*\text{Black} + \beta_{4j}*\text{Others} + \beta_{5j}*\text{Pre-treatment PSI/SDQ} + \xi_{0j} + \varepsilon_{ij},$$

where $\Delta_{PSI/SDQ\,(ij)}$ represents the change scores in parenting stress or child adjustment (i.e., treatment effects) for participant i in group j; β_{0j} the mean change scores in group j after the effects of child gender, race, and pre-treatment symptoms are adjusted; β_{kj} represents the coefficients for the k^{th} predictor at the individual level, and β_{kj} is held not to vary across groups; ξ_{0j} represents the group-level error term or unique contribution of group j; ε_{ij} represents the unique contribution of participant i in group j. Including group- and parent-level error terms accounted for the nested structure. γ_{00}, the intercept, represents the estimated average amount of treatment effects across all participants. Pre-treatment PSI and SDQ scores were grand-mean centered to facilitate the interpretation of the intercept. After grand-mean centering, γ_{00}

represents the estimated treatment effects for a White mother with an average amount of parenting stress or reported child adjustment symptoms prior to IY.

In the random intercept model for parenting stress (Table 3), no covariates were statistically significant, indicating the lack of variations in the reduction of parenting stress across parent gender, race, and pre-treatment PSI scores.

In the random intercept models for child adjustment outcomes (Table 3), the covariate of pre-treatment SDQ scores was statistically significant across all five models. Thus, indicating with one unit increase in parent-reported emotional problems, conduct problems, hyperactivity, and peer problems pre-treatment, there were greater symptoms reductions by .52 (*SE* = .09), .36 (*SE* = .10), .25 (*SE* = 1.04), and .40 (*SE* = .08) in respective domains. With one unit decrease in parent-reported prosocial behaviors prior to IY, there was a .51 (*SE* = .26) greater improvement in prosocial behaviors after IY. In addition, only the covariate of child gender was statistically significant in the model intercept model for peer problems (b = -.78, *SE* = .25, *p* = .002). This suggested after controlling for race and pre-treatment peer problems, parents with boys reported less symptom reduction in peer problems by .78 compared to those with girls.

As post-hoc analyses for the treatment effects, we ran the same models using multiple imputation rather than list-wise deletion in handling missing data. The results from these two missing data methods were similar, except two (out of 18) racial differences emerged in the results with multiple imputation (see supplement).

Discussion

To the best of our knowledge, the current study is the first to provide empirical evidence for the IY Attentive Parenting Program. We implemented the IY Attentive Parenting Program with racially diverse families in a community mental health setting. The purpose of this

feasibility study was to evaluate the attendance and treatment outcomes of the IY Attentive Parenting Program implemented as universal prevention. In addition to the standardization of treatment delivery and fidelity monitoring, we developed implementation strategies based upon adaptation and implementation recommendations (Baumann et al., 2015; Ingoldsby, 2010; Webster-Stratton, 2009) and past community-based participatory research with similar populations (Zhou et al., 2018). Although there is no one-size-fits-all approach to adapt and implement evidence-based interventions, our strategies are consistent with common domains highlighted in the PT literature (Baumann et al., 2015), including content (i.e., parents' upbringing and parenting motivation), persons (i.e., racial matching when possible), and method (i.e., incorporating cultural navigators). Meanwhile, framed as universal prevention to all families, our implementation may lack cultural specificity compared to prior PT studies. For example, in adapting and implementing Parent Child Interaction Therapy with Mexican American families, McCabe et al. (2005) addressed immigration-specific stressors, whereas in our study, although acculturation and immigration-related concerns were raised and discussed when related to specific groups, facilitators did not address the immigration topic upfront. These differences underlie the unique challenge to balance cultural inclusivity and specificity in designing universal prevention programs. Research is still nascent to unveil evidence-based implement strategies to deliver culturally inclusive universal prevention in a racially diverse society (Vespa et al., 2020). Thus, we echo suggestions for PT programs to plan and document a detailed implementation process to show high variability among studies and understand the best clinical practice, both universal and specific, to different implementation context (Baumann et al., 2015; Berkel et al., 2011; Ingoldsby, 2010).

Despite these efforts to engage and retain parents, we still observed a significant drop in attendance. The mean levels of attendance rates in this study were on par with previous PT studies (Chacko et al., 2016). We found pre-treatment conduct problems were associated with lower attendance, whereas pre-treatment hyperactivity problems were associated with higher attendance. This finding is interesting because conduct problems and hyperactivity problems, two dimensions of the SDQ externalizing symptoms, were moderately and positively correlated ($r = .61$). Although past studies found child externalizing symptoms were related to treatment participation, these studies tend not to differentiate conduct problems and hyperactivity problems as two dimensions of externalizing symptoms (Heinrichs et al., 2005; Schneider et al., 2013). Thus, our preliminary findings suggest the unique roles of children's conduct problems and hyperactivity problems in parents' attendance. Whereas attention-deficit/hyperactivity problems may be a motivating factor for parents to attend PT to learn parenting skills, conduct problems may pose additional barriers for attendance. A possible explanation for this might be that in a universal preventative implementation with an overall lower level of child behavioral problems, parents with more child conduct problems may have an elevated sense of reduced parenting efficacy and hopelessness that lead to dropout (Schneider et al., 2013). In addition to demographics of race and gender and clinical characteristics of parenting stress and child psychopathology, there may be others factors not measured in the current study and interactions among these factors that contribute to more nuanced understandings of treatment attendance (Chacko et al., 2016; Wells et al., 2016).

In terms of the treatment outcomes, we found preliminary evidence that the IY Attentive Parenting Program may reduce conduct problems and increase prosocial behaviors. However, only a reduction in conduct problems was clinically significantly. No statistically significant pre-

post changes were observed in emotional problems, hyperactivity problems, or peer problems. These results corroborate findings from previous work suggesting PT is better at reducing externalizing than internalizing behaviors (Leijten et al., 2018; Menting et al., 2013; Mingebach et al., 2018; Yap et al., 2016). Considered as two correlated yet independent dimensions of externalizing behaviors, hyperactivity problems tend to have weaker treatment effects than conduct problems (Leijten et al., 2018). It is worth noting that IY Attentive Parenting Program only focused on parenting skills to increase positive child behaviors and enhance parent-child relationships as a prevention curriculum, and omitted parenting skills from the IY BASIC Parenting Program that directly reduce negative child behaviors (e.g., effective limit setting, ignoring negative behaviors, timeout). Our findings suggest these foundational positive parenting skills can be active ingredients in IY parenting programs and a stand-alone intervention to help reduce child conduct problems.

After adding in demographic and clinical characteristics as covariates, in the conditional model, pre-treatment SDQ scores were robust predictors across all five domains, which is also consistent with past findings (Menting et al., 2013). That is, when parents reported a greater concern over conduct problems, hyperactivity problems, emotional problems, peer problems, or prosocial behaviors, they would report more benefits in these respective areas after attending IY. It is important to note that the attendance results were based upon the full sample, and the treatment outcome findings were based upon the subsample of parents who completed the post-treatment survey. Putting it together, our findings suggest parents with more child conduct problems are less engaged in the IY Attentive Parenting Program (e.g., attend fewer sessions, dropping out, and not filling post-treatment surveys). However, their children also benefited more from the program when parents completed the program. These findings from attendance

and treatment outcomes reinforce the need to routinely examine and incorporate attendance analysis into treatment evaluation studies (Chacko et al., 2016). Practitioners need to shift attention to actively incorporate strategies to engage and retain families with child conduct problems. For example, it might be helpful during the first session to validate parents with child conduct problems and connect program benefits to reducing child conduct problems to enhance their hope and expectations, which have been linked to treatment participation (Swift et al., 2012).

Contrary to our hypothesis and past research (Barlow et al., 2012; Hutchings et al., 2007), pre-post change in parenting stress was not significant. There are several possible explanations for this result. Compared to a minimum of 12 weekly sessions in IY Basic Parenting Program, the shorter sessions in IY Attentive Parenting may not offer adequate dosage for parents to report a reduction in parenting stress, either directly from participating in PT or indirectly from child's behavioral improvement (Barlow et al., 2012). Although families in the current universal prevention study represented a lower level of child clinical risk at baseline compared to past published IY intervention studies (Hutchings et al, 2007; Morpeth et al., 2017), baseline parenting stress in the current study was similar, if not higher, compared to other published IY intervention studies that used the PSI (Hutchings et al., 2007; Marcynyszyn et al., 2011). Consequently, parents in our study might be at higher risk than intended for a universal prevention framework, even though their children had fewer behavioral problems. Because parenting stress is influenced by a myriad of factors, including child and maternal psychopathology, family SES, and structural disadvantages for ethnic-racial minority parents (Nomaguchi & House, 2013; Williford et al., 2007), future research should continue to

investigate the mechanisms through which PT can or cannot reduce parenting stress, especially for ethnic-racial minority parents.

To evaluate IY Attentive Parenting Program's feasibility in racially diverse families, we did not find any differences across racial groups (i.e., White, Asian, Black) across attendance and treatment outcome results. And only one gender difference (out of five outcomes investigated) emerged that indicated girls benefited more than boys in peer problems after their parents completed IY Attentive Parenting Program. While some studies suggested no differences in PT attendance among ethnic-racially diverse families (e.g., Dumas et al., 2007), others found ethnic-racial minorities were less likely to attend (e.g., Joseph et al., 2019). The underlying factor beneath the mixed findings with ethnicity and race may be the cultural responsiveness of the PT and the facilitator. Parents have attributed culture-specific barriers to PT engagement, including fear of outsiders, and being judged for culturally accepted parenting practices such as corporal punishment (Owens et al., 2007). Therefore, the similar attendance and treatment outcomes found across diverse families should be interpreted in the context of our cultural adaptation efforts, which is consistent with the IY implementation guidelines for cultural adaptation (Webster-Stratton, 2009).

There are some additional limitations and future directions that need to be considered in interpreting these findings. First, the small sample size of fathers precluded us from drawing robust conclusions about fathers. Gender differences may exist, for example, in a recent study (Wells et al., 2016). Mothers' attendance was predicted by child behavioral problems, whereas fathers' attendance was predicted by child emotional problems. Second, our current analyses only focused on client-level factors. Multilevel analyses suggested variabilities among groups to be further modeled. Also, parents were nested within 17 groups run by six IY leaders. Our data

structure was best accounted for by a two-level structure (parents nested within groups), although some groups were also nested in IY leaders. This complexity could not be fully accounted for in the analyses (with limited sample size). Lastly, study results must be interpreted with caution due to the limitations of a pre-post one-group study design without a control or comparison group. A randomized controlled trial (RCT) study is needed to further explore program efficacy and effectiveness and investigate whether pre-post change can be attributable to the intervention. The one-group design also limited our ability to use more rigorous approaches to handle missing data (e.g., intent to treat analysis). Thus, the preliminary treatment effects estimated from the current feasibility study should be interpreted with caution

Notwithstanding these limitations, this study provides critical evidence in evaluating the feasibility of the IY Attentive Parenting Program implemented as universal prevention with racially diverse families. The findings suggest some short-term benefits from IY Attentive Parenting Program for child conduct problems and prosocial behaviors, but not for child hyperactive problems, emotional problems, peer problems, or parenting stress. Children with more pre-treatment concerns benefited more from the universal prevention. The universal program did not universally reach families with varying levels of child externalizing symptoms. For example, parents with more child conduct problems attended fewer sessions, whereas parents with more hyperactivity problems attended more sessions. However, the attendance and treatment effects were similar across these racially diverse families. Future research should continue to critically examine how universal prevention can be designed and implemented to serve all families at need.

Ethics

Ethical approval for the study was given by the Institutional Review Board at the University of Minnesota [ref number 1109S04123].

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Table 1

Means, Standard Deviations, and Bivariate Correlations for Parent Stress Index and Strength and Difficulty Questionnaire

	PSI	EP	CP	HP	PP	PB	M_{Post}	SD_{Post}	n
PSI	.91*	-.05	-.03	.02	-.13	.07	2.96	1.26	103
EP	.07	.50**	.37**	.12	.12	-.13	1.40	1.53	94
CP	.01	.46**	.72**	.54**	.33**	-.44**	1.97	1.82	93
HP	.04	.24**	.61**	.72**	.32**	-.44**	3.93	2.52	94
PP	.04	.31**	.36**	.19*	.56**	-.27**	2.09	1.85	93
PB	-.01	-.27**	-.59**	-.41**	-.42**	.59**	8.03	1.99	93
M_{Pre}	2.79	1.75	2.61	4.40	2.12	7.48			
SD_{Pre}	.97	1.82	2.15	2.54	1.63	2.09			
n	145	149	148	149	148	148			

Note. Pair-wise deletions were applied. Correlations among the Pre-Treatment Scores in the Lower-Left Matrix. Correlations between Pre- and Post-Treatment Scores in the Upper-Right Matrix. PSI = Parent Stress Index, EP = Emotional Problems, CP = Conduct Problems, HP = Hyperactivity Problems, PP = Peer Problems, PB = Prosocial Behaviors, M = Mean, SD = Standard Deviations, * p <.05, ** p <.01

Table 2

Multilevel Models for Attendance

	Full sample (n = 152)				Subsample (n = 133)			
	Estimate	*SE*	*t*	*p*	*Estimate*	*SE*	*t*	*p*
Fixed effects								
Intercept	.900	.211	4.265	<.001	.978	.125	7.848	<.001
Gender	-.093	.073	-1.260	.208	-.100	.052	-1.921	.055
Race								
Asian	-.087	.065	-1.331	.183	-.023	.050	-.453	.651
Black	-.049	.069	-.710	.477	.014	.041	.351	.726
Other	-.095	.079	-1.211	.226	-.101	.064	-1.569	.117
PSI	.023	.027	.831	.406	.001	.023	.054	.957
CP	-.037	.016	-2.322	.020	-.030	.010	-2.891	.004
HP	.013	.005	2.335	.020	.005	.006	.821	.412
PP	<.001	.017	.001	.999	.008	.011	.687	.492
EP	.003	.011	.310	.756	.002	.008	.319	.750
PB	-.019	.019	-.970	.332	-.018	.012	-1.504	.133
Incentive	.031	.091	.339	.735	.036	.091	.400	.689
Random effects								
Intercept	.010	.006	1.889	.059	.013	.006	2.304	.021
Residual	.062	.013	4.951	<.001	.028	.008	3.722	<.001

Note. PSI = Parent Stress Index, EP = Emotional Problems, CP = Conduct Problems, HP = Hyperactivity Problems, PP = Peer Problems, PB = Prosocial Behaviors.

Table 3

Multilevel Models for Treatment Effects

	Parenting Stress			Emotional Problems			Conduct Problems		
	Estimate	*SE*	*t*	*Estimate*	*SE*	*t*	*Estimate*	*SE*	*t*
Fixed effects									
Intercept	-0.15	0.13	-0.72	0.34	0.22	1.57	0.60*	0.26	2.29
Gender	0.22	0.20	1.07	0.41	0.26	1.59	0.23	0.33	0.70
Race									
Asian	-0.01	0.19	-0.05	-0.35	0.24	-1.48	-0.45	0.29	-1.55
Black	0.17	0.12	1.47	-0.45	0.28	-1.61	-0.72	0.41	-1.73
Other	0.18	0.34	0.54	-0.34	0.25	-1.33	-0.41	0.60	-0.69
Pre-PSI/SDQ	0.01	0.20	0.07	0.52***	0.09	6.05	0.36***	0.10	3.73
Random effects									
Intercept	0.04	0.09	0.65	<.01	0.11	0.03	0.01	0.28	0.03
Residual	0.25	0.05	4.56	1.70	0.28	6.01	1.48	0.27	5.52

Note. PSI = Parent Stress Index, SDQ = Strength and Difficulty Questionnaire; significance for fixed effects were identified with * p <.05, ** p <.01, *** p <.001.

Table 3 (cont')

Multilevel Models for Treatment Effects

	Hyperactivity Problems			Peer Problems			Prosocial Behaviors		
	Estimate	*SE*	*t*	*Estimate*	*SE*	*t*	*Estimate*	*SE*	*t*
Fixed effects									
Intercept	0.52	0.45	1.16	0.50**	0.16	3.18	-1.10***	0.29	-3.85
Gender	-0.37	1.86	-0.20	-0.78**	0.25	-3.14	0.41	0.60	0.68
Race									
Asian	-0.53	2.73	-0.20	-0.28	0.33	-0.87	0.79	0.45	1.74
Black	0.10	2.13	0.05	-0.22	0.28	-0.79	0.53	0.77	0.69
Other	0.91	1.14	0.80	0.71	0.39	1.83	0.37	1.31	0.28
Pre-SDQ	0.25***	0.06	4.29	0.40***	0.08	4.69	0.51*	0.26	2.00
Random effects									
Intercept	0.01	6.74	<.01	<.01	0.06	0.03	0.01	1.69	<.01
Residual	2.86	1.03	2.77	2.11	0.54	3.88	2.50	0.95	2.64

Note. SDQ = Strength and Difficulty Questionnaire; significance for fixed effects were identified with * p <.05, ** p <.01, *** p <.001.

Supplemental Materials

STable1

Multilevel Models for Treatment Effects

	Parenting Stress			Emotional Problems			Conduct Problems		
	Estimate	*SE*	*t*	*Estimate*	*SE*	*t*	*Estimate*	*SE*	*t*
Fixed effects									
Intercept	-0.04	0.15	-0.29	0.48	0.36	1.33	0.69*	0.27	2.56
Gender	-0.11	0.09	-1.32	0.28	0.25	1.11	0.24	0.24	1.00
Race									
Asian	0.09	0.18	0.50	-0.41	0.48	-0.86	-0.41	0.28	-1.45
Black	0.14	0.15	0.92	-0.43	0.35	-1.22	-0.68*	0.32	-2.11
Other	0.18	0.27	0.67	-0.36	0.60	-0.60	-0.50	0.51	-0.97
Pre-PSI/SDQ	0.09	0.12	0.75	0.53***	0.09	6.12	0.37***	0.06	6.19
Random effects									
Intercept	0.11	0.08	1.30	0.01	0.18	0.05	0.05	0.08	0.55
Residual	0.21	0.04	6.02	1.75	0.30	5.90	1.38	0.24	5.85

Note. Multiple imputation for missing PSI and SDQ scores was carried out using Bayesian analysis in Mplus 8.3. PSI = Parent Stress Index, SDQ = Strength and Difficulty Questionnaire; significance for fixed effects were identified with * $p < .05$, ** $p < .01$, *** $p < .001$.

STable1 (cont')

Multilevel Models for Treatment Effects

	Hyperactivity Problems			Peer Problems			Prosocial Behaviors		
	Estimate	*SE*	*t*	*Estimate*	*SE*	*t*	*Estimate*	*SE*	*t*
Fixed effects									
Intercept	0.22	0.39	0.56	0.41	0.30	1.39	-1.34***	0.30	-4.48
Gender	-0.26	0.55	-0.48	-0.80**	0.23	-3.44	0.57	0.35	1.63
Race									
Asian	-0.34	0.52	-0.66	-0.19	0.51	-0.39	0.77*	0.34	2.29
Black	0.30	0.62	0.48	-0.19	0.38	-0.49	0.55	0.49	1.13
Other	0.93	0.95	0.98	0.70	0.48	1.45	0.69	0.58	1.20
Pre-SDQ	0.22***	0.07	3.22	0.41***	0.09	4.74	0.52***	0.09	5.75
Random effects									
Intercept	<.01	1.17	0.002	0.06	0.11	0.57	0.00	0.45	0.01
Residual	2.88	0.41	7.026	2.12	0.41	5.23	2.52	0.50	5.05

Note. Multiple imputation for missing PSI and SDQ scores was carried out using Bayesian analysis in Mplus 8.3. PSI = Parent Stress Index, SDQ = Strength and Difficulty Questionnaire; significance for fixed effects were identified with * p <.05, ** p <.01, *** p <.00