

Running Head: PARENT TRAINING FOR PRESCHOOLERS WITH AD/HD BEHAVIORS

The Incredible Years Basic Parent Training for Portuguese Preschoolers with AD/HD Behaviors: Does it Make a
Difference?

Andreia Azevedo, Maria João Seabra-Santos, Maria Filomena Gaspar & Tatiana Carvalho Homem

Abstract

Background: Evidence-based psychosocial interventions, like parent training programs, are strongly recommended as first-line treatment for preschool-age children with or at-risk of Attention Deficit/Hyperactivity Disorder (AD/HD).

Objective: Evaluate the effectiveness of the Incredible Years Basic Parent Training (IY) in hyperactive and inattentive behaviors of Portuguese preschoolers.

Methods: One hundred children, between three and six years-old, with AD/HD behaviors, who were part of a larger randomized controlled trial in which participants were allocated to either an intervention or control group. In this subsample analysis, there were 52 participants in the intervention condition (IYC) and 48 in the waiting-list control condition (WLC). Multi-informants and multi-measures of child and parenting behaviors were taken before and after the 14-week intervention. *Results:* Medium-to-large intervention effects were found in primary caregivers' reported measures of children's AD/HD behaviors and on self-reported parenting practices. Independent observations indicated significant short-term effects on positive parenting and coaching. Primary caregivers had a high attendance rate and reported high satisfaction with the program. Additionally, 43% of children in the IYC clinically improved in the primary AD/HD outcome measure, compared with 11% in the WLC. *Conclusions:* Preliminary results suggest that IY parent training seems to be an effective tool, making the difference in the behavior of Portuguese preschoolers with early signs of AD/HD and their mothers.

Keywords: parent training, Incredible Years Basic Parent Program, preschool-age children, attention-deficit/hyperactivity behaviors, early intervention

Attention Deficit/Hyperactivity Disorder (AD/HD) is increasingly being diagnosed in preschool-age children (Sonuga-Barke et al. 2006), making clear the need for early intervention. In addition, longitudinal studies reveal that AD/HD in preschoolers remains moderately stable over time (e.g., Harvey et al. 2009; von Stauffenberg and Campbell 2007), causes impairment for the child (e.g., school) and family (Sonuga-Barke et al. 2006), and increases the risk of further negative long-term outcomes (Lahey et al. 2004), which can be highly costly to society (Furlong et al. 2012). Consequently, effective early intervention, preventive of negative developmental trajectories in preschool children with and at-risk of developing AD/HD is a major public health concern, as well as an important target of investment for clinicians and policies (Murray 2010). In this context, this study evaluates the efficacy of the Incredible Years Basic Parent Training (IY) in a sample of Portuguese families with preschoolers presenting early signs of AD/HD.

AD/HD symptoms, like hyperactivity and impulsive behavior and/or inattention, can emerge during preschool years (American Academy of Pediatrics [AAP] 2011), and depending on their frequency, intensity and inconsistency with developmental level (American Psychological Association [APA] 2012), the AD/HD diagnosis can be considered. Thus, AD/HD may be validly diagnosed in preschool children, and when compared with school-aged children, a similar structure of symptoms and associated impairment has been described (Lahey et al. 2004). Early AD/HD also predicts the development of comorbid difficulties, especially oppositional defiant disorder (Campbell et al. 2000) and subsequent conduct disorder (Beauchaine et al. 2010).

Although there is strong evidence for genetic factors in AD/HD (Banaschewski et al. 2010), interaction between genes and environmental risk factors plays an important role in the development of multiple pathways of AD/HD (Sonuga-Barke et al. 2005). Several potential family risk factors are associated with AD/HD even in early years, especially when comorbid conduct problems are present (Johnston and Mash 2001): these include negative parent-child interactions (e.g., Keown 2011); dysfunctional parenting (e.g., Cunningham and Boyle 2002; DuPaul et al. 2001); low sense of parenting competence (e.g., Cunningham and Boyle 2002); family stress (e.g., DuPaul et al. 2001); parental psychopathology (e.g., Cunningham and Boyle 2002); as well as parental AD/HD symptoms (Thompson et al. 2009). Parenting behaviors can negatively impact the course of AD/HD symptoms (Lakes et al. 2011) and poorly regulated children present additional challenges to parents, prompting coercive parenting strategies, as a result of reciprocal influences (Patterson et al. 2000). This highlights the need to target parents in early effective intervention.

In fact, parent training (PT) is one of the behavioral interventions that meets the criteria for a well-established treatment for AD/HD, along with psychopharmacological interventions (see Pelham and Fabiano 2008, for a review). Results from a large randomized clinical trial (RCT), the Preschool AD/HD Treatment Study (PATS) has added support to the effectiveness of stimulant medication in reducing core AD/HD symptoms in preschoolers (Kollins et al. 2006).

Nevertheless, the effects were lower when compared to school-age children (Greenhill et al. 2006) and increased side effects were described (Wigal et al. 2006). Furthermore, the limited data about the long-term impact of stimulant medication on young child development, combined with parents' concerns about medicating such young children (Sonuga-Barke et al. 2006), reinforces the need for effective nonpharmacological interventions available for families of preschool-age children (Rajwan et al. 2012). Therefore, evidence-based psychosocial interventions, such as PT programs, are strongly recommended as first-line treatment for preschoolers with and at-risk of AD/HD, whereas stimulant medication is suggested only in the most severely symptomatic children and after behavioral therapy has failed (AAP 2011; Atkinson and Hollis 2010; Charach et al. 2011). Considering parents as the principal vehicle of change for young children (Sonuga-Barke et al. 2001), efficacious behavioral PT that targets both the child and their parents may be even more valuable in the preschool than the school years, before AD/HD behaviors become associated with school failure, social rejection and deterioration in adult-child interactions (Johnston and Mash 2001; Sonuga-Barke et al. 2006), and while children's behavior is more amenable to change (Pisterman et al. 1992).

There is growing evidence from different RCTs with preschool-age children with AD/HD and comorbid conduct problems of specific improvements in AD/HD symptoms, as well as additional benefits in parenting skills and competence, after a parental intervention (e.g., Herbert et al. 2013; Jones et al. 2007; Matos et al. 2009; Sonuga-Barke et al. 2001; Thompson et al. 2009), although some only reported PT effects on child compliance and parent-child interactions (e.g., Bor et al. 2002; Pisterman et al. 1992). The Barkley et al. (2000) study was an exception, with PT producing no effects at all; however, parents' attendance rates were very low in this study.

In general, these studies used PT programs originally developed for behavior problems (e.g., Bor et al. 2002 [Triple P]; Matos et al. 2009 [Parent-Child Interaction Therapy]; Jones et al. 2007 [IY]), with few studies using PT specifically designed for preschoolers with AD/HD (e.g., Sonuga-Barke et al. 2001 [New Forest Parenting Program]). The parenting program selected for the present study is the Incredible Years Basic Parent Training (IY; Webster-Stratton 2001), identified as a Blueprints Model Program by the Center for Violence Prevention at the University of Colorado (<http://www.colorado.edu/cspv/blueprints/modelprograms.html>), recommended by the American Psychological Association Task Force as meeting criteria for empirically supported mental health intervention for children (3-8 years old) with conduct problems (<http://www.incredibleyears.com>). The IY has been delivered in different countries for the past 30 years, and has been systematically evaluated and replicated (e.g., Webster-Stratton et al. 2012). It helps to counteract parental and family risk factors by developing positive and supportive parenting approaches that promote children's social and persistence competence, emotional regulation, problem-solving and pre-academic skills; and decrease negative behaviors through non-violent discipline methods. Although IY is not specifically designed to target AD/HD, this program has recently been shown to be equally effective in reducing

symptoms of AD/HD displayed by preschool children, both when it was offered alone in a sample of preschoolers with behavior problems, including AD/HD symptoms (Hartman et al. 2003; Jones et al. 2007), and when combined with a child intervention and a larger treatment dose in an AD/HD preschool sample (Webster-Stratton et al. 2011).

Furthermore, IY has already been translated (http://www.incredibleyears.com/Resources/basic-program-handouts_portuguese.pdf) and implemented in Portugal (see Webster-Stratton et al. 2012 for a review), and evaluated in a community sample of socio-economically disadvantaged families. Results showed significant changes in parenting practices and an increase in parents' empathy and availability regarding child's needs (Cabral et al. 2009/2010). A cross-cultural replication of the basic IY with a larger sample of preschoolers with disruptive behaviors is being completed, and preliminary results suggest that it is both effective in reducing children disruptive problems and in increasing positive parenting skills (Authors 2012).

Since intervention with preschoolers with AD/HD symptoms may have a positive impact on young children's developmental trajectory and in preventing later conduct problems (Webster-Stratton et al. 2011), additional research examining the effects of the IY in preschool children with early signs of AD/HD may make an important contribution to the literature in this area. Moreover, it adds additional support to the previous effects of IY in RCTs, by extending and replicating this intervention to a new population: Portuguese preschoolers with AD/HD behaviors, therefore contributing to research and clinical intervention in Portugal, where no valid alternative to nonpharmacological intervention is available for families of preschoolers.

This paper reports on a specific subsample of preschool-age children with early AD/HD behaviors from a main RCT, the first one conducted in Portugal using an evidence-based program, with a strong focus on the assessment process (i.e., assessment of AD/HD behaviors and parent outcomes by different informant sources and methods). The main purpose of this paper is to evaluate the acceptability and the short-term efficacy of the IY in reducing hyperactive and inattentive behaviors, compared to a waiting-list control condition (WLC). In line with previous research, we expected that parents in the intervention condition (IYC) would report significantly fewer AD/HD behaviors in their children (Jones et al. 2007; Webster-Stratton et al. 2011). Other possible changes in children's conduct behaviors and social skills were explored. Another aim was to evaluate the effects of the intervention on secondary outcome measures: mothers' sense of competence in their parenting skills, and self-reported and observed parenting practices.

Methods

Participants

Participants were drawn from a longitudinal main trial with a randomized sample (the *Early prevention/intervention in disruptive behavior disorders: Efficacy of parents and teachers programs* study; Authors

2012), from mixed community and clinical contexts in Portugal (Coimbra and Oporto cities). Four hundred and fifty-five preschool-age children were screened and 197 fulfilled the main trial's inclusion criteria: i. young children between three and six years old; ii. parent reports of child's behaviors equal or above the Portuguese borderline cut-off points (Abreu-Lima et al. 2010) on the Hyperactivity Scale (≥ 7) or Conduct Scale (≥ 5) of the Strengths and Difficulties Questionnaire (SDQ; Goodman 1997). Children were excluded if they had a formal diagnosis of neurological or developmental disorder (e.g., autism), severe developmental delay, or if they were undergoing pharmacological or psychotherapeutic intervention. From the 197 preschoolers with early signs of disruptive behaviors, only 125 participants were assessed and randomly allocated in two conditions (see Figure 1): the Incredible Years intervention condition (IYC) and the waiting-list condition (WLC). Recruitment for the subsample used in this paper analysis added another inclusion criterion: parents' reports of AD/HD behaviors equal or above the 80th percentile on the Werry-Weiss-Peters Activity Scale (WWPAS; Routh 1978), as a cut-off point (≥ 21 : equivalent to approximately the top 20% of a non-clinical Portuguese sample; Eugénio 2011). Thus, 100 previously randomly allocated children (52 in the IYC; 48 in the WLC) met the WWPAS criteria and took part in this subsample study (AD/HD trial) (Figure 1).

[Insert Figure 1]

Children and families' socio-demographic characteristics in this subsample did not significantly differ between conditions at baseline, as reported in Table 1. Most of the primary caregivers (from now on referred to as 'mothers') were biological mothers (94%) married or living as married (78%), with a mean age of 35.54 years ($SD = 5.83$). Half of the mothers (52%) had a high level of education (university degree). Nearly one quarter of the mothers (26%) self-reported depression symptoms above the clinical cut-off (17; $M = 9.83$, $SD = 7.82$) on the Beck Depression Inventory (Beck et al. 1961) and 18% self-reported AD/HD symptoms above the clinical level (≥ 9 symptoms score; $M = 11.11$, $SD = 8.06$) on the Adult AD/HD Rating Scale (Barkley and Murphy, 1998). Seventy-two percent of children were male, with an average age of 4.20 years ($SD = 0.89$). Half of the children were clinically referred (54%) and the majority had comorbid oppositional/aggressive problems (74% above the moderate-risk range on the Preschool and Kindergarten Behavior Scales- 2nd Edition ([PKBS-2], $M = 20.55$, $SD = 3.91$; scale's cut-off = 19, range of possible scores from 0 to 27). Regarding the AD/HD behaviors: all children had scores above the cut-off selected for this study on the WWPAS outcome measure ($\geq 80^{\text{th}}$ percentile; cut-off = 21, range of possible scores from 0 to 54) and 62% were above the 95th percentile on the same measure ($M = 32.36$, $SD = 7.90$); on the PKBS-overactivity/inattention subscale ($M = 18.78$, $SD = 3.44$), 30% were on the moderate-risk range (from 85th to 95th percentile) and 52% were in the high-risk range (top 5%) (scales' cut-offs = 16 and 19, respectively; range of possible scores from 0 to 24). [Insert Table 1]

Procedures

The procedures used during the different phases of this study (AD/HD trial) were the same as used in the main trial. Thus, information about the IY intervention was disseminated in pre-schools, first care, pediatric and mental health centers in Coimbra and Oporto during the screening phase, from January 2009 to September 2011. Children were referred from health professionals or self-referred by their parents, who learned of the intervention in different ways (e.g., pre-school, blog, newspaper advertising, and other parents). Before the baseline assessment, researchers provided detailed information about the requirements of the study, and parents gave written consent. Additionally, this study was authorized by the Portuguese National Committee of Data Protection and the Medical Ethical Committee (for children referred by a mental health center). In the first contact with the families, parents completed the SDQ screening questionnaire. Then, if they met SDQ criteria, researchers (first and fourth authors) interviewed the family for socio-demographic data and for a brief clinical history of the child. The parents of eligible children were invited to participate in the main trial and were subsequently assessed by two independent trained psychologists, before (baseline) the intervention took place. At baseline, the assessment protocol for the main trial comprised a semi-structured interview, child and parent-report measures, a laboratory-based mother-child interaction observation, and psychological testing of the child. Two questionnaires (SDQ and the PKBS-2) were also sent to the child's pre-school teacher (Authors 2013). After baseline assessment, the children were stratified by age and sex, and randomly allocated to an intervention (IYC) or waiting-list control condition (WLC). The IY program was delivered during 14 weekly 120-min sessions in a university community department or mental health center. Assessment was repeated six months after baseline (follow-up). All possible efforts were made to keep the evaluators blind to the participants' allocation group. For ethical reasons, IY was offered to the WLC families after follow-up assessment.

Measures

Given the aims of the present study and the characteristics of the subsample (AD/HD trial), a set of specific measures were selected from the main trial assessment protocol. These are described below. All the measures completed by parents and teachers were available in Portuguese (see, Authors 2013 for description of the entire protocol and for previous studies with the selected measures with Portuguese samples).

Parent reports of children behavior (screening measures). The *Strengths and Difficulties Questionnaire* (SDQ; Goodman 1997) is a brief behavioral screening measure to assess the occurrence of conduct problems, hyperactivity, emotional symptoms, peer problems and pro-social behavior in children. The SDQ has been translated and adapted for use in Portugal (Fleitlich et al. 2005). The level of internal consistency as assessed by Cronbach alpha for the subscales used with this subsample were low (.52 for hyperactivity and .49 for conduct problems); nevertheless the SDQ has been included in similar studies (e.g., Hutchings et al. 2007) and has demonstrated good psychometric properties with English (Goodman 2001) and acceptable with Portuguese samples (e.g., $\alpha = .60$ for hyperactivity and α

= .59 for conduct subscale in the Abreu-Lima et al. [2010] study). The *Werry-Weiss-Peters Activity Scale* (WWPAS; Routh 1978) is a 27-item scale (0-2 scale) which provides a single overall rating of pre-school hyperactivity behaviors in different situations of daily life. It has been used in a number of treatment-outcome studies (e.g., Sonuga-Barke et al. 2001; Thompson et al. 2009), has shown good test-retest reliability ($r = .85$; Thompson et al. 2009), and Barkley (1988) reported that it discriminates between hyperactive and normal children. In Portugal, it has been tested in non-clinical samples of preschoolers (see Authors 2013 for these studies) showing internal consistency levels between .87 and .91, respectively. In the present study, internal consistency was high ($\alpha = .82$).

Parent and preschool teacher reports of children behavior outcomes. The WWPAS was also used for measuring the child behavior outcomes (primary outcome measure), as well as the *Preschool and Kindergarten Behavior Scales – 2nd Edition* (PKBS-2, Merrell 2002). The PKBS-2 is an 80-item behavior rating scale designed to evaluate social skills and problem behaviors of preschoolers (0-3 scale). For this AD/HD subsample, we analyzed three variables that were considered relevant to our aim. Two subscales from the problem behavior scale (PKBS- overactivity/inattention subscale [8 items; score range from 0 to 24]; PKBS-Oppositional/aggressive subscale [9 items; score range from 0 to 27]) and the social skills scale (PKBS-Social skills: 34 items; score range from 0 to 102) were analyzed as dependent measures for both mothers and pre-school teachers. The PKBS-2 was translated and adapted for Portuguese children by Major (2011) and has demonstrated good psychometric properties (Cronbach alpha coefficients between .76 and .97). In the present subsample, Cronbach alpha coefficients for the subscales used ranged from .72 to .92.

Parent interview of children behaviors. The *Parental Account of Childhood Symptoms* (PACS; Taylor et al. 1986) is a semi-structured clinical interview that evaluates the core symptoms of AD/HD and conduct problems over the previous six months across a wide range of situations. Trained interviewers rated the severity and frequency of symptoms from mothers' descriptions (0-3 scale or 0-4 scale), and two subscale scores (hyperactivity, scoring between 0 and 37; and conduct problems, scoring between 0 and 54), were derived. The modified version of the PACS for pre-school years was used, which has demonstrated higher inter-rater (between .92 and .98) and test-retest reliability (between .78 and .62) (Sonuga-Barke et al. 1994). An exploratory study (see Authors 2013 for this study) with a non-clinical sample of Portuguese preschoolers has shown satisfactory levels of internal consistency (between .64 and .71) and high inter-rater reliability (between .94 and .98). In this subsample, we looked at the hyperactivity subscale. The internal consistency for this subscale was .59. Inter-rater reliability between two raters (who independently rated 20% of all interviews) was good, with intra-class correlations of .98.

Ratings of parent-child interaction behaviors: Observation. The *Dyadic Parent-Child Interaction Coding System* (DPICS; Eyberg and Robinson 1981) is an observational measure that evaluates parent-child interaction quality

through parent and child behavior categories that are coded as present or absent for each 5-min segment of the 25 minutes lab interaction. Based on previous Portuguese and International research (M. Gaspar and M. Alarcão, personal communication, February 4, 2010; Hutchings et al. 2007; Webster-Stratton et al. 2011), we analyzed five different composites in this subsample. Two were related to observed child behavior: child deviance (cry-whine-yell, physical negative, smart talk, destructive and noncompliance behaviors) and child pro-social behaviors (nonverbal and verbal positive affect and physical warmth). The other three composites related to observed parenting: positive parenting (labelled and unlabelled praise, positive affect, physically positive behavior and problem-solving); coaching (descriptive/encouragement statements and questions, reflective statements and questions, and problem-solving); and critical parenting (critical statements and negative commands). Behaviors were coded by trained and supervised independent observers, blind to family group status. In order to assess inter-rater reliability approximately 20% of all recorded DPICS were coded by another rater, and an overall mean of 76% inter-rater agreement was achieved. In this subsample intra-class correlations for the variables analyzed were: .92 for child deviance; .53 for child pro-social behavior; .97 for positive parenting; .73 for coaching; and .91 for critical parenting.

Parents' self-reported competence and parenting practices. *The Parenting Sense of Competence Scale* (PSOC; Johnston and Mash 1989) assesses parental perceptions of their competence as parents (1-5 scale) in two dimensions, Satisfaction (9 items: score range between 9 to 45) and Efficacy (7 items: score range between 7 to 35). Higher scores indicate greater parenting self-esteem (total score range between 16 to 80). In Portugal PSOC has been used in non-clinical samples of preschoolers (see Authors 2013 for these studies) showing adequate internal consistency levels (between .75 and .78). The total scale and the two dimension measures have demonstrated satisfactory levels of internal consistency in this sample, between .70 and .83. *The Parenting Scale* (PS; Arnold et al. 1993) measures dysfunctional discipline practices through three different subscales: Laxness (11 items); Overreactivity (10 items) and Verbosity (7 items). A 7-point scale is used and answers can be anchored between two alternative responses to a situation (7 = indicates a high probability of using an ineffective discipline strategy; 1 = indicates a high probability of using an effective discipline strategy). Thus, higher scores indicate poor parenting. Internal consistency in the original study was adequate, ranging from .63 to .84 (Arnold et al. 1993). In Portuguese exploratory non-clinical samples with preschool-age children (see Authors 2013 for these studies) the PS has shown lower levels of internal consistency (from .63 to .74), especially for the Verbosity subscale (.41). The same was found for this study: Cronbach alpha coefficients for this scale range between .50 (Verbosity) to .70 (Laxness), indicating that the Verbosity subscale may not be reliable enough in this sample.

Parent's self-reported program satisfaction: Consumer satisfaction. After the 14 sessions, parents were asked to rate their levels of satisfaction regarding the IY program on a 1 to 7 point scale (ranging from 1 = not satisfied

to 7 = very satisfied) concerning the degree of difficulty and usefulness of the different methods and strategies used, the group leaders' skills, and the group of parents, through a detailed questionnaire developed by the program's author (Webster-Stratton 2001). A higher rate means a higher level of satisfaction. Specifically in this paper we analyzed parent satisfaction with the IY program concerning: improvement in child's problems; approach used to address change; impact on personal and family problems; confidence in managing current or future child behavior problems. The parent's need for additional support and the recommendation of the program to other parents were also included in the analysis.

Parent Program Intervention: The Incredible Years Basic Parent Training

The IY program was delivered to groups of nine to 12 parents through 14 weekly sessions by a total of six trained group leaders (with two assigned to each group). Two additional booster sessions were carried out, three and nine months after the intervention in order to review the program principles and parenting tools for specific child behaviors, to discuss new problems and prevent relapses, and to reinforce parents' efforts and support networks (Webster-Stratton et al. 2001). All sessions took place in the evening (after work, from 6 to 8 pm) in sessions lasting approximately 2 hours. Nine groups were run in a university community facility (82% of groups) and two in a mental health center (18% of groups). Childcare and snacks were provided, and both parents were strongly encouraged to attend the program. The main goals of the program were: to strengthen the parent-child relationship and encourage child cooperation; to increase parents' nurturing and positive parenting skills; to encourage effective limit setting; and to promote the use of non-violent discipline strategies. Topics included play, descriptive commenting (social, emotional, persistence and academic coaching), praise and rewards (e.g., incentive systems like sticker charts), household rules and routines, clear commands, parents' self-calming thoughts, ignoring, time-out, consequences and problem-solving (Webster-Stratton 2001). Sessions were run in an atmosphere of collaborative learning and problem-solving between parents and group leaders. Each session followed the same structure and included a review of the previous one (e.g., parent principles), feedback and discussion about parents' home activities (e.g., skill practicing, buddy-calls, book chapter reading), introduction of a new topic (e.g., brainstorming, pros and cons), presentation of video vignettes illustrating parenting skills (with Portuguese subtitles), group discussion and practice of new strategies (e.g., buzzes, role-plays). In order to promote the relationship between parents and leaders; and to keep parents involved in the group training (e.g., check difficulties with home assignments, encourage the use of the IY principles in the "real world" context), the group leaders called the parents every week. In addition, individual extra time was offered at the beginning of each session and handouts were sent to parents who missed a session (Webster-Stratton et al. 2001).

Treatment Integrity

Assumptions of fidelity and integrity regarding treatment were respected. All the six facilitators who ran the intervention groups had at least 10 years of previous experience in clinical child psychology or psychiatry (two PhD students; two PhDs; and the other two had a degree in medicine); and had followed the Incredible Years accreditation process to ensure quality in the program delivery: leaders had attended the accredited three-day IY basic leader training by a IY-accredited trainer ; had run a pilot group prior to the study; had received videotape feedback on a session by an independent IY trainer who evaluated the treatment implementation fidelity, and had been accredited as group leaders ($n = 4$) or were undergoing the accreditation process ($n = 2$). Eighty percent of all the sessions delivered were videotaped (124 sessions) for weekly self-evaluation and for regular peer supervision. Group leaders received support and consultation from an IY-accredited trainer. Also in order to guarantee treatment integrity (Hutchings et al. 2007), group leaders closely followed the IY protocol; provided standardized materials and translated handouts for all parents; completed leader checklists for 80% of all delivered session for monitoring protocol adherence; reviewed peer and self-evaluation questionnaires and the weekly parent-satisfaction questionnaires to check parents' participation and engagement in the program and treatment delivery (e.g., content, methods, use of video, role plays, homework assignments). Data from leaders' checklists were not analyzed in this paper.

Data Analysis

This paper analyzes data from primary caregivers, most of whom were mothers or, in some cases, other female figures (Table 1). Due to the small number of fathers present at baseline ($n = 38$; IYC = 23; WLC = 15) and post-assessment ($n = 32$; IYC = 20; WLC = 12), independent analysis of fathers' data will not be carried out.

Statistical analyzes were performed using SPSS 19.0. Baseline comparisons of continuous and categorical variables were done with *t*- and chi-square tests, respectively. The effects of the interaction from baseline to follow-up assessment between groups (IYC and WLC) were analyzed in all dependent variables using the General Linear Model (GLM) for repeated measures analyzes of variance (ANOVAs). ANOVAs were also used in secondary analyzes of post-differences between groups. Non-parametric tests (McNemar, chi-square) were used to examine categorical data. Clinical significance of the change was defined considering two different sets of criteria and informants: i. A reduction above 30% from baseline to follow-up scores in child AD/HD behaviors at home (WWPAS – primary outcome measure), a method used previously with IY studies by Axberg and collaborators (2007) and suggested by Webster-Stratton et al. (1989); ii. The percentage of children in the IYC and WLC that moved from a moderate- or high-risk range to the normative range (Major 2011) from baseline to follow-up in reported AD/HD behaviors at school and at home (PKBS-Overactivity/inattention). Effect sizes (ES) were estimated using partial eta square (η_p^2) and classified as follows: 0.01 for a small effect, 0.06 for a medium effect and 0.14 for a large effect size (Cohen 1998). An alpha level of $p < .05$ was

considered a statistically significant result; nevertheless marginal results ($p > .05$ and $p < .10$) were also reported. An intention-to-treat analysis (ITT) was also carried out, which included all allocated cases and adopted the conservative assumption of no change from baseline to follow-up in the lost cases.

Results

Preliminary Analyzes

Preliminary analyzes showed no significant differences between groups at baseline (see Table 2 for M and SD), except for mothers' DPICS observed coaching variable ($WLC < IYC$; $t(82) = -2.39$, $p = .019$).

Program Attendance Rate

Regarding the IYC ($n = 52$), four mothers (8%) dropped out of the intervention (for medical, professional, or unknown reasons). Including these mothers, a 79% IY attendance rate was achieved, with 46 mothers (88%) attending nine or more sessions (i.e., two thirds of the program), 62% at least 12 sessions and 17% all program sessions ($M = 11.10$, $SD = 3.2$).

Attrition

Eighty-seven percent of participants were retained at follow-up assessment (six months after baseline). Of the 13 families who did not complete follow-up, six dropped out of the trial (two from the IYC, and four from the WLC) and seven failed to return the questionnaires (all from the WLC). Significantly, more families from the WLC were lost for follow-up assessment compared to the IY ($\chi^2 = 8.03$, $p = .005$).

Short-term Intervention Effects

The means and standard deviations for both conditions (IYC, WLC), results of the repeated measures ANOVAs (Group X Time effect) and effect sizes (at baseline and follow-up) are reported in Tables 2 and 3. In the text, we will only report outcomes for participants who completed the assessments. However, the results from the ITT analysis are presented in Tables 2 and 3. In general, the two analyzes produce identical results. [Insert Table 2]

Adult-reported child behavior outcomes. Regarding child attention-deficit/hyperactivity behaviors reported by mothers, significant interaction effects (group X time) were found in WWPAS ($F(1, 86) = 10.59$, $p = .002$, $\eta_p^2 = 0.11$) and in PKBS-Overactivity/inattention subscale ($F(1, 84) = 9.94$, $p = .002$, $\eta_p^2 = 0.11$). From baseline to follow-up, mothers reported significantly lower AD/HD scores in the IYC comparing to the WLC (see Table 2). No significant interaction effect was found for oppositional/aggressive behaviors reported by mothers (PKBS-Oppositional/aggressive). In relation to social skills (PKBS-Social skills), an approaching significance group X time

interaction effect was found in mothers' reports, indicating a marginal increase in social skills in treated preschoolers compared to the control group ($F(1, 84) = 3.88, p = .052, \eta_p^2 = 0.04$).

The same results were found for AD/HD behaviors when reported by pre-school teachers (PKBS-Overactivity/inattention) ($F(1, 71) = 4.55, p = .036, \eta_p^2 = 0.06$), indicating a significantly larger decrease in AD/HD behaviors at follow-up in the IYC compared to the control group. Regarding other reported pre-school teacher measures, an approaching significance group X time interaction effect was found for oppositional/aggressive behaviors (PKBS- Oppositional/aggressive) ($F(1, 71) = 2.98, p = .088, \eta_p^2 = 0.04$). No significant effects were found in the social skills domain at school (see Table 2). [Insert Table 3]

Child behavior outcomes: Parent's interview. No group X time interaction effect was found in the PACS interview AD/HD subscale.

Observed parent-child interaction behaviors: DPICS. The DPICS observational measure showed a significant group X time interaction effect on two observed parenting variables, respectively: positive parenting ($F(1, 66) = 18.21, p < .001, \eta_p^2 = 0.21$) and coaching ($F(1, 66) = 4.09, p = .047, \eta_p^2 = .06$). Positive parenting and coaching increased in the IYC from baseline to follow-up assessment and decreased in the WLC (see Table 2). Observed child pro-social behaviors followed the same trend (see Table 2), showing a marginal group X time interaction effect ($F(1, 66) = 3.88, p = .053, \eta_p^2 = 0.06$). No significant differences were found for child deviance or for critical parenting.

Mothers' self-reported outcomes. Regarding mother outcomes, significant interaction effects (group X time) were found for two of the three self-reported measures (see Table 3). As reported in Table 3, a significant interaction effect was found in the domain of mothers' sense of competence ($F(1, 84) = 4.04, p = .048, \eta_p^2 = 0.05$). Additionally, the self-reported sense of efficacy subscale followed the same trend, showing a marginal group X time interaction effect ($F(1, 84) = 3.86, p = .053, \eta_p^2 = 0.05$).

Regarding self-rated parenting practices, results suggested a significant interaction effect, indicating a larger decrease in mothers' dysfunctional discipline practices in the intervention group compared to the control mothers ($F(1, 86) = 19.82, p < .001, \eta_p^2 = 0.19$). Specifically, interaction effects were found for mothers' reported overreactivity ($F(1, 86) = 9.93, p = .002, \eta_p^2 = 0.12$) and verbosity practices ($F(1, 86) = 19.46, p < .001, \eta_p^2 = 0.19$).

Clinical significance of change. Results indicate that after the IY intervention, 43% of children showed a clinically significant improvement, with a reduction of over 30% from the initial baseline scores in AD/HD behaviors at home (WWPAS), compared with 11% in the WLC ($\chi^2 = 11.66, p = .003$). Regarding teacher-reported AD/HD behaviors (PKBS-Overactivity/inattention), 41% of the children changed from a moderate- and high-risk to a non-risk range of AD/HD behaviors between baseline and follow-up in the IYC, compared with 7% in the WLC (PKBS-

Overactivity/inattention). This pre- to post- assessment change at school was clinically significant on the McNemar change test only for the IYC ($p = .001$). Using the same reported measure, completed by mothers, we also found a clinically significant change in the IYC from baseline to follow-up assessment in the McNemar Test ($p = .027$): 33% of children moved from moderate- or high-risk to a non-risk range of AD/HD behaviors in the IYC, compared with 17% in the WLC.

Consumer satisfaction. After the 14-session program, 89% of mothers considered that there had been a slight improvement (58%) or great improvement (31%) in their child's major problem(s), those that had prompted them to enrol in the trial. In addition, 89% of mothers felt that their child's behavior improvements were "slightly positive" (36%) or "very positive" (53%). All mothers felt that the IY approach, used to change child's behavior problems, was "appropriate" (29%) or "greatly appropriate" (71%). Additionally, IY helped parents with other personal and family problems not directly related to the child ($M = 6.14$, $SD = 0.96$ [between 6 (*helped*) and 7 (*helped very much*)]). Furthermore, 89% of mothers felt "confident" or "very confident" in managing current (78% and 11%) or future (82% and 7%) behavior problems at home, by using the IY on their own. Seventy-three percent of mothers reported that they did not need further parenting support. All primary caregivers would "recommend" the program to a friend or relative, and 96% would "strongly recommend" it.

Discussion

In this study, our aim was to evaluate the efficacy of the IY (Webster-Stratton 2001) in a sample of Portuguese preschoolers with AD/HD behaviors. We compared the baseline and follow-up assessments of two groups (IYC and WLC) selected from a sample of a RCT according to AD/HD criteria, using different measures by multi-informants. Overall, it was expected that the changes in children and parents' outcomes from baseline to follow-up would be greater after the 14-week parent intervention compared to the WLC.

Results suggest that IY can make a positive short-term difference on Portuguese children and parents behavior outcomes. Medium intervention effect sizes were found in mothers' and teachers' reports of children's AD/HD behaviors; and medium-to-large effect sizes were found for reported and observed parenting skills. Despite some variability in outcomes (possibly related to the multi-method and multi-informant approach used), IY is found to be effective both by per protocol and ITT analysis. A clinical improvement was found in AD/HD behaviors reported, and significant percentage of children whose parents had participated in the intervention moved from a risk to a non-risk range (33% and 41% at home and school respectively); almost half the children showed a reduction of over 30% of their initial baseline scores at home. Additionally, mothers in our study were extremely committed to the program, revealing the positive acceptability of IY in Portugal, as shown by a high attendance rate and reported satisfaction with

the impact of the program in their children. Most of the mothers claimed to have enough confidence to manage their children's behavior problems in the present and future, and felt no need for further parenting support. All said they would recommend the IY to other parents.

These results with a sample of Portuguese children with AD/HD behaviors are consistent with and follow the same trend as other effective parent-based interventions for preschoolers with or at-risk of AD/HD (e.g., Jones et al. 2007; Thompson et al. 2009; Sonuga-Barke et al. 2001; Webster-Stratton et al. 2011). In summary, these preliminary findings are encouraging and add new evidence to support the effectiveness of the IY parent program as a successful method of early intervention to change parenting skills and child AD/HD behaviors in a specific Portuguese sample of children with early signs of AD/HD. Thus, these results extend the impact of IY to a new segment of the Portuguese population, a population where these programs are taking their first steps through implementation and research (Webster-Stratton et al. 2012).

Regarding our major findings (primary outcomes), the main differences were found in AD/HD behaviors at home and school, as expected, suggesting the efficacy of the IY parent program in reported hyperactive and inattentive behaviors. Unexpectedly, small effect sizes regarding AD/HD were found in the clinical interview. Several explanations can be given for this finding. Firstly, it is important to recognise that the PACS evaluates the severity and frequency of behavior problems over the last six months, which are only partly covered by the 14-week intervention program. Thus, at post-assessment, mothers in the IYC may have had more difficulties describing their children's behavior because, although they recognize their improvements, they do not refer them to the whole 6-month period. Moreover, after IY sessions, as suggested by Posthumus et al. (2011), parents may be more skilled in identifying child's misbehaviors and able to answer specific PACS questions more accurately, since this is the second time that this instrument has been applied and meanwhile they had the occasion to focus their attention on specific behaviors. These factors may have contributed to inflate the mothers' descriptions of their children's problems at the IYC follow-up. Longer-term follow-up of this sample will also clarify the feasible presence of 'sleeper effects', those that are not immediately visible after an intervention (De Los Reyes and Kazdin 2006).

Further data exploration showed that treated children had significantly better social skills at home compared with non-treated children. This intervention effect was not significantly found at school given that pre-school teachers reported higher social skills than parents at baseline. Another possible explanation is associated with difficulties retrieving completed questionnaires from school, which reduced sample size. Also, it has not yet been established if the effects of a PT intervention for AD/HD may be generalized to non-targeted settings (e.g., school), or whether improvements in other areas of functioning (e.g., social skills) will arise in the sequence of this type of intervention

(Rajwan et al. 2012). Nevertheless regarding the target context, the marginal effect found in the children's observed pro-social behavior is consistent with the mothers' reports of increased social skills in treated children. These findings are relevant since these skills can play an important role in preventing negative outcomes in children with AD/HD behaviors, contributing to the establishment and maintenance of positive relationships with peers and adults (Beauchaine et al. 2010). Additionally, contrary to our predictions, no significant effect was found on reported oppositional/aggressive problems and observed child deviance. This result remains unclear; one possible explanation for the last result is related to the smaller sample size that might have reduced the DPICS power to identify small effects. Furthermore, DPICS parent-child interactions were videotaped in the laboratory, instead of observed in a naturalistic setting, which might have influenced child behavior. DPICS data must also be carefully interpreted, due to the lack of norms in Portugal.

In relation to our secondary outcome measures, the IY program seems to be effective in increasing mothers' sense of parenting competence (especially parental efficacy) and in reducing dysfunctional parenting, such as overreactivity and verbosity practices, although this latest result should be interpreted cautiously due to the low internal consistency of the subscale in our sample. These results are consistent with observed positive parenting and coaching skills after the IY, with parents showing an improvement in positive parenting skills during the parent-child interaction. They are also in line with previous studies (e.g., Gardner et al. 2006; Hutchings et al. 2007; Webster-Stratton et al. 2011) and are extremely relevant, since changes in parenting skills, specifically in positive parenting, are the target of the parenting program and an important mediator of change in child behaviors (Gardner et al. 2006; Healey et al. 2010).

This study, the first to be conducted in Portugal that systematically evaluates the effectiveness of a PT intervention in AD/HD behaviors of preschoolers, has several strengths. First, a widely researched intervention model was used, with a strong emphasis on collaboration and the development of positive parenting strategies, helping parents to be positive role-models for their children and promoting children's self-regulatory skills. In addition, the low dropout rate, high attendance and levels of satisfaction endorse the acceptability of the IY model in Portugal and are also a strong argument for the value of implementing this program in Portugal. Finally, it benefits from the support of a highly skilled and motivated team (Authors 2012). It was also a well-designed study with several different positive methodological elements; it is a subsample of a RCT with comparable samples in the two conditions; a low attrition rate was achieved; it uses multi-methods (including observational measures) and multi-informants (e.g., independent evaluation of change by the pre-school teacher), blind evaluators in both assessments and blind participants until group allocation, and a low attrition rate. All these positive aspects assure the study validity.

Limitations

There are some limitations to the study. First, small sample size limits the generalization of these results and reduces the power of the analysis to detect small effects. For this reason, marginally significant effects have also been reported. Moreover, results concerning the school setting and observed parent-child interaction behaviors are based on a smaller number of cases, due to the difficulties in retrieving completed questionnaires from pre-school teachers and to technical problems in video registration. Second, the generalization of findings must be carefully interpreted, due to: a potential sample selection bias, since not all families might have been willing to participate in this study because of its length (this issue must be systematically addressed and evaluated in future studies); to the fact that half of the mothers in this sample had attended higher education; and also because of the context in which this study took place (primarily, a university-based context). Third, this analysis is based on data collected with mothers, since the fathers small sample size limited the interpretation of the respective results. Fourth, comparison to other studies should be cautious once preschoolers in our study have been selected on the basis of questionnaire cut-off scores and not on explicit diagnosed criteria of AD/HD (Axberg et al. 2007), thus a heterogeneous sample was studied, including children with different risk levels, some of whom might have met diagnostic criteria of AD/HD if a clinical diagnosis had been made. Additionally, due to the lack of reliable Portuguese instruments for this age group, measures were selected based on other similar studies (e.g., Jones et al. 2007; Hutchings et al. 2007; Sonuga-Barke et al. 2001) and on previous data from Portuguese samples (Authors 2013). Nevertheless, the psychometric properties of some of the measures are motives for concern (e.g., PACS and PS) and must be addressed in future studies. Finally, the fact that the PACS interview provides a view of the child's behavior over the last six months, rather than only over the course of the intervention, seems to be critical and might have influenced the results. Follow-up studies might clarify this issue, by possibly highlighting effects that are not identifiable within this time limit

Future Directions and Clinical Implications

More evidence for using the IY as a first-line tool for early intervention into AD/HD behaviors in Portugal is still needed. These results must be replicated in future studies in Portugal involving larger randomized samples. Efforts should also be made to evaluate this program with parents of Portuguese preschoolers with AD/HD behaviors in different contexts (e.g., mental health context) and from different populations (e.g., socio-economically disadvantaged families) in order to examine the replicability of the intervention effects found. Coding DPICS "in vivo" in home setting would also add potentially instructive data to the multi-method assessment. Future studies with this sample should also analyze data on treatment integrity to see how clinicians adhered to the original treatment protocol and increase the confidence of results (Matos et al., 2009). Forthcoming papers will include 12- and 18-month follow-up assessments, in order to evaluate the sustainability of preliminary results and clarify the intervention effects found, especially the child

outcomes. Furthermore, studying the mediators and moderators of change in a larger sample will shed light on the active ingredients in change and for whom the intervention was more effective (e.g., Gardner et al. 2010). Regarding our sample's heterogeneity in particular, it will be interesting to examine the possible contribution of initial behavior severity to the significance of the changes noted.

This study contributes to a growing body of literature concerning early psychosocial parental intervention in AD/HD, extending previously evidence to a new population (i.e., Portuguese population). Considering the negative and long-term outcomes associated with AD/HD (e.g., comorbidity, anti-social behavior, school failure, negative parent-child interactions) (Lahey et al. 2004), an investment in effective early intervention that could target important risk factors could be cost effective in the long term (Furlong et al. 2012). Therefore, efforts have to be made by Portuguese clinicians and policy makers to ensure the early identification of children at-risk for AD/HD, and the provision of evidence-based intervention programs. More specifically, this study has shown that the IY in children with AD/HD behaviors, when implemented with fidelity (Hutchings and Gardner 2012), is effective with Portuguese children with such characteristics and with their families.

Declaration of Conflicting Interests

The authors declare that they have no conflict of interest with respect to this study.

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Table 1. *Participants' socio-demographic characteristics*

Variable	Group		Test (<i>t</i> / χ^2)	Sig (<i>p</i>)
	IYC (<i>n</i> = 52)	WLC (<i>n</i> = 48)		
Child				
Age (months): Mean \pm SD	55.92 \pm 10.9	55.71 \pm 11.03	0.09	.978
Sex (male): No (%)	37 (71%)	35 (73%)	0.04	.511
Reference: Clinically referred No (%)	29 (56%)	25 (52%)	0.13	.433
Community self-referred No (%)	23 (44%)	23 (48%)		
Early identified behavior problems at school No (%)	37 (71%)	34 (71%)	0.02	.990
AD/HD behaviors: WWPAS (\geq 95 th percentile): No (%)	34 (65%)	28 (58%)	0.53	.468
PKBS-O/I (85 th to 94 th percentile): No (%)	15 (29%)	14 (30%)	0.01	.918
PKBS-O/I (\geq 95 th percentile): No (%)	29 (56%)	23 (49%)	0.46	.497
Children with oppositional/aggressive comorbid behaviors	41 (79%)	33 (70%)	0.97	.225
Primary Caregiver: No (%)				
Mother	48 (92%)	46 (96%)		
Adoptive mother	2 (4%)	2 (4%)	1.88	.390
Grandmother	2 (4%)			
Age (years): Mean \pm SD	36.37 \pm 5.66	34.65 \pm 5.94	1.48	.142
Marital Status: No (%) Married/as married	43 (83%)	35 (73%)		
Divorced/separated	8 (15%)	11 (23%)	1.47	.480
Single	1 (2%)	2 (4%)		
Years of education: Mean \pm SD	13.9 \pm 3.89	13.55 \pm 3.6	0.46	.644
Family SES*: No (%) Low	16 (31%)	17 (35%)		
Medium	22 (42%)	23 (48%)	1.53	.465
High	14 (27%)	8 (17%)		

Note. SD Standard deviation; WWPAS Werry-Weiss-Peters Activity Scale; PKBS-O/I Overreactivity/Inattention Subscale of the Preschool and Kindergarten Behavior Scales; SES Socioeconomic Status. * SES was defined using a standardized classification developed for the Portuguese population considering three categories (Almeida 1988): low (e.g., unskilled workers; industry, transport, agriculture and fishery workers); medium (e.g., intermediate technicians; administrative, trade and services professionals); and high (e.g., owners and entrepreneurs, managers, scientific and intellectual

professionals). Based on this classification, the family's SES was defined taking on the basis of the highest professional category and educational level of both parents.

Table 2. Group X Time interaction effects (children outcomes)

Variable	Per protocol analysis							Intention to treat analysis		
	IYC			WLC			(IYC = 52; WLC = 48)			
	Baseline	Follow-up	N	Baseline	Follow-up	Group X Time	ES	Group X Time <i>F</i>	ES	
Mother self-reports	N					<i>F</i> (<i>p</i>)	η_p^2	(<i>p</i>)	η_p^2	
WWPAS (21) ^a	50	32.26±7.68	23.40±8.67††	37	31.86±7.69	28.86±8.85††	10.59 (.002)	0.11	15.50 (<.001)	0.14
PKBS: O/I (16) ^{a b}	50	18.77±3.47	16.14±3.95†††	35	18.94±3.16	18.66±3.07†††	9.94 (.002)	0.11	12.05 (.001)	0.11
PKBS:O/A (19) ^{a b}	50	20.46±4.33	17.53±4.96	35	21.05±3.32	19.38±3.89	2.13 (.148)	0.03	3.60 (.061‡)	0.04
PKBS: SS (76) ^{a b}	50	71.67±10.93	78.97±8.74	35	71.97±10.46	75.17±11.24	3.88 (.052‡)	0.04	6.83 (.010)	0.06
Interview: PACS										
Hyperactivity (16) ^a	50	15.90±6.34	11.82±6.02†	37	17.03±5.42	14.47±5.34†	1.52 (.220)	0.02	2.95 (.089‡)	0.03
Pre-school teachers reports §								(IYC = 46; WLC = 38)		
PKBS: O/I (15) ^{a b}	42	16.73±5.48	13.6±5.51	30	14.96±6.16	14.63±6.59	4.55 (.036)	0.06	6.01 (.016)	0.06
PKBS:O/A (15) ^{a b}	42	15.16±6.54	12.45±6.09	30	13.46±7.36	12.96±7.32	2.98 (.088‡)	0.04	4.29 (.041)	0.04
PKBS: SS (69) ^{a b}	42	77.33±11.68	81.26±10.64	30	77.20±17.89	80.43±13.81	0.67 (.796)	0.01	0.39 (.536)	0.01
Lab observed behaviors: DPICS (Child) §§								(IYC = 46; WLC = 38)		
Child Deviance	40	15.50±13.61	13.27±14.48	27	16.00±15.60	10.76±10.86	0.66 (.420)	0.01	.36 (.552)	0.01
Child Pro-Social	40	6.95±6.12	8.87±7.42	27	7.29±4.73	5.96±4.25	3.88 (.053‡)	0.06	4.07 (.047)	0.05

Note. Results are expressed as mean ± standard deviation. § N differ due to missing data. §§Technical problems in video registration contributed for differences between the

original group size and available DPICS outcomes for each group. WWPAS Werry-Weiss-Peters Activity Scale; PKBS Preschool and Kindergarten Behavior Scales: O/I

Overactivity/Inattention; O/A Oppositional/Aggressive; SS Social Skills; PACS Parental Account of Childhood Symptoms; DPICS Dyadic Parent-Child Interaction Coding

System. ^a Cut-off; ^b Major 2011; ^c Thompson et al. 2009. Significant follow-up assessment differences between the two condition: † $p \leq .05$, †† $p \leq .01$, ††† $p \leq .001$. ‡ Marginal result ($> .05$ and $< .10$).

Table 3. *Group X Time interaction effects (parental outcomes)*

Variable		Per protocol analysis							Intention to treat analysis (IYC = 52; WLC = 48)	
		IYC		N	WLC		Group X Time Pre-Post (<i>F</i> , <i>p</i>)	ES η_p^2	Group X Time Pre-Post (<i>F</i> , <i>p</i>)	ES η_p^2
N§	Baseline	Follow-up	Baseline		Follow-up					
Mother self-reports										
PSOC Total	48	56.17±7.66	59.84±6.81†††	37	52.64±7.52	53.78±8.95†††	4.04 (.048)	0.05	4.87 (.030)	0.05
Satisfaction	48	31.93±4.58	33.78±4.11†††	37	29.13±4.55	29.89±5.26†††	1.74 (.191)	0.02	2.21 (.140)	0.02
Efficacy	48	24.23±4.70	26.06±3.96†	37	23.51±5.01	23.89±5.06†	3.86 (.053)	0.05	4.51 (.036)	0.05
PS Total	50	3.59±0.42	3.04±0.46†††	37	3.69±0.54	3.56±0.49†††	19.82 (< .001)	0.19	23.19 (< .001)	0.19
Laxness	50	2.95±0.72	2.54±0.64†	37	3.07±0.91	2.88±0.86†	2.37 (.127)	0.03	3.28 (.073‡)	0.03
Overreactivity	50	3.63±0.70	3.13±0.71†††	37	3.76±0.86	3.77±0.83†††	9.93 (.002)	0.11	11.16 (.001)	0.11
Verbosity	50	4.23±0.88	4.25±0.88†††	37	3.39±0.70	4.01±0.77†††	19.46 (< .001)	0.19	22.12 (< .001)	0.19
Lab observed behaviors: DPICS (Mother) ‡‡								(IYC = 46; WLC = 38)		
Positive Parenting	40	18.35±12.1	27.6±11.83†††	27	17.81±10.19	14.33±6.86†††	16.89 (< .001)	0.21	17.57 (< .001)	0.18
Coaching	40	24.32±12.57	25.97±13.30†††	27	18.25±9.64	13.18±7.51†††	4.05 (.048)	0.06	3.64 (.060‡)	0.04
Critical Parenting	40	19.82±10.74	14.15±9.27	27	19.55±14.18	17.04±11.84	1.38 (.244)	0.02	2.44 (.122)	0.03

Note. § N differ due to missing data. Results are expressed as mean ± standard deviation. ‡‡ Technical problems in video registration contributed for differences between the original group size and available DPICS outcomes for each group. *ES* Effect size; *PS* Parenting Scale; *PSOC* Parenting Sense of Competence Scale; *DPICS* Dyadic Parent-Child Interaction Coding System. Significant follow-up assessment differences between the two condition: ††† $p \leq .001$. † $p \leq .05$, †† $p \leq .01$, ††† $p \leq .001$.

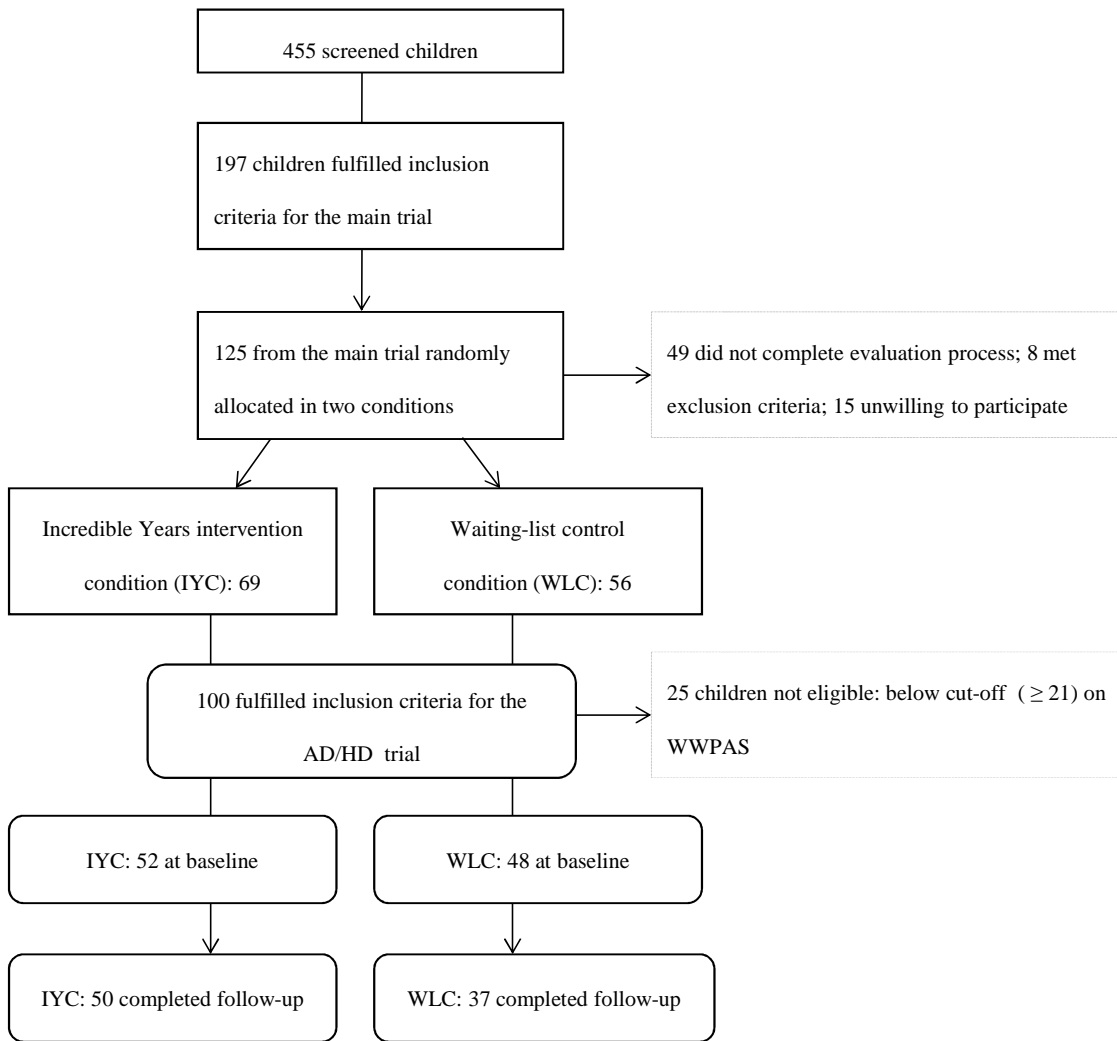


Fig. 1 Flowchart of participants