

Do Portuguese Preschoolers with High Hyperactivity Behaviors
Make More Progress than those with Low Hyperactivity
after Parental Intervention?

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Abstract

This paper analyses the improvement over 12 months of two groups of Portuguese preschoolers after a parental intervention with the Incredible Years Basic Parent Program (IY). The groups were defined by children initial levels of hyperactivity behaviors (High-hyperactivity, $N = 34$; Low-hyperactivity, $N = 18$). Changes in children hyperactivity reported behaviors and in mothers' self-reported parental practices and mood were evaluated from baseline to the 12-month follow-up. Preschoolers with higher initial hyperactivity levels seem to have benefitted more from the IY intervention compared to children with lower baseline levels. However, this Low-hyperactivity group also improved. Further exploratory findings also indicate high levels of maternal acceptance and satisfaction with the intervention in both groups, although some differences were observed. Overall, findings suggest that IY is equally suitable for parents of Portuguese preschoolers with high and low hyperactive behaviors at baseline, highlighting the usefulness of the program for children with different risk levels.

Keywords: hyperactivity behaviors; preschool children, early intervention; Incredible Years Basic Parent Training

Introduction

Attention-deficit/hyperactivity disorder (AD/HD) is more frequently identified in school-age children, even though AD/HD symptoms may be present in children under the age of 5 (e.g., Egger & Angold, 2006; Lahey et al. 1998). Despite the huge developmental changes within this age period (Kern et al. 2007; Sonuga-Barke et al., 2005), which requires a carefully staged approach to the early identification and intervention of AD/HD (National Institute for Health and Clinical Excellence [NICE], 2008), studies comparing this condition in preschool and school-age children show a similar symptom structure and neuropsychological patterns, as well as similar associated global impairment (e.g., at school, home and with peers) and long-term difficulties (e.g., academic underachievement, antisocial behavior, social exclusion, delinquency, and substance use) (e.g., Lahey et al. 2004; DuPaul et al., 2001; Sonuga-Barke et al., 2003). Thus, preschoolers presenting high levels of AD/HD symptoms are a prime target for early intervention (Sayal et al., 2012) in order to prevent the negative developmental trajectories (e.g., comorbid externalizing disorders) usually associated with early-onset AD/HD (Beauchaine & McNulty, 2012; Sonuga-Barke et al., 2011; Webster-Stratton et al., 2011).

Recent guidelines from the American Academy of Pediatrics (AAP, 2011) and from the NICE (2008) strongly recommend behavioral parent training (PT) as the first-line treatment option for AD/HD in preschool years, and hold that pharmacological treatment should only be considered when there is still significant room for improvement after a behavioral intervention trial or when this first-line approach is not available. In fact, growing empirical evidence from randomized controlled trials (RCT) shows that PT can reduce reported AD/HD symptoms (generally among children with other comorbid disruptive behaviors) and improve parenting practices in short- and long-term assessments (e.g., Bor et al., 2002; Herbert et al., 2013; Jones et al., 2008; Matos et al., 2009; Pisterman et al., 1992; Sonuga-Barke et al., 2001; Thompson et al., 2009; Webster-Stratton et al., 2012b).

In view of this, the Incredible Years Parent Training (Webster-Stratton, 2001), an evidence-based behavioral PT (<http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=311>) and 'promising'

program according to Blueprints criteria (<http://www.blueprintsprograms.com/factSheet.php?pid=7719a1c782a1ba91c031a682a0a2f8658209adbfb>), for children between 3 and 8 years of age with behavior problems, was selected for this study. IY has recently been shown to be effective in reducing AD/HD symptoms, and sustained improvements were demonstrated after long-term follow-up in two different trials of preschoolers with AD/HD symptoms and comorbid conduct problems (Jones et al., 2008; Webster-Stratton et al., 2011). As with other PT programs (e.g., Bor et al., 2002; Matos et al., 2009; Sonuga-Barke et al., 2001), the IY group intervention is based on social learning and operant condition theories (Webster-Stratton, 2001), and focuses on developing positive parent-child interactions and supportive parenting approaches, and on promoting children's social-emotional regulation skills (skills that are usually impaired in children with AD/HD [Webster-Stratton et al., 2012b]) through parenting.

In Portugal the effectiveness of the IY program is currently being tested (since 2009) in a longitudinal RCT with a sample of preschoolers at risk for externalizing disorders (Seabra-Santos et al., 2012). A previous analysis with a subsample of this trial comprising children with AD/HD behaviors whose parents had received the IY intervention for 14 weeks showed statistically significant short- (Azevedo, Seabra-Santos, Gaspar, & Homem, 2013a) and long-term improvements in reported measures of preschoolers' hyperactive behaviors and mothers' observed and self-reported parenting practices and sense of competence: 59% of the IY children clinically improved in a reported AD/HD outcome measure at 12-month follow-up (Azevedo, Seabra-Santos, Gaspar, & Homem, 2013b). Furthermore, IY has demonstrated good levels of acceptability among Portuguese participants (e.g., high attendance rates, low attrition rates, high levels of reported program satisfaction) (Azevedo et al., 2013a).

Despite the evidence for the effectiveness of PT, not all families benefit from it equally. Consequently, research has also aimed to identify the target populations for whom this type of intervention works best (e.g., Beauchaine et al., 2010; Gardner et al., 2010) and to identify the characteristics of children and parents that could contribute to different treatment outcomes (see Lundhal, Risser, & Lovejoy, 2006; Reyno & McGrath, 2006 for a revision). Among the different child variables that can predict the response to PT, the initial severity of child behavior problems has been identified as one of the most

studied predictors and is considered moderately associated with treatment outcomes (e.g., Reyno & McGrath, 2006). Nevertheless, the literature is not consistent about this issue: some studies show that children with high levels of behavior problems benefited from PT interventions more than children with lower levels of disruptive behavior (e.g., Hautmann et al., 2010; Jones et al., 2008; Reid, Webster-Stratton, & Baydar, 2004; Webster-Stratton et al., 2012b), while others suggest that severe behavior problems are resistant to change and are associated with poorer outcomes (e.g., Hinshaw, 2007; Kazdin & Wassel, 2000). Furthermore, the severity of AD/HD in preschoolers was identified as a significant risk marker of symptoms persisting into middle childhood and of a future externalizing trajectory (e.g., Lahey et al., 1998). Therefore, it is important to target children with early signs of AD/HD at an initial stage and to observe the differences in the outcome of treatment depending on initial levels of symptoms. This will enable early interventions to be better tailored to the specific needs of the children and their families, thereby maximising their success potential.

Thus, this study supplements our previous IY effectiveness study of a sample of Portuguese preschoolers (Azevedo et al., 2013a) by analysing the potential differences in IY benefits, taking into account the initial level of hyperactivity behaviors. More specifically, it aims to explore differences in 12-month change in two groups of preschoolers with different levels of initial hyperactivity behaviors (High- and Low-hyperactivity groups) after an IY intervention that had previously demonstrated short- and long-term effects with these children and mothers in general. Long-term change in this study was defined as the difference in children and mothers' outcome measures from pre- to 12-month follow-up assessments. Further exploratory analyses were conducted to investigate group differences regarding levels of satisfaction with the IY program as regards the ease and usefulness of the parenting strategies covered and the methods used throughout the program.

Methods

Study Participants and Procedures

The participants in this study were drawn from a larger sample of a longitudinal RCT (the main trial) which tested the effectiveness of the IY program in Portuguese preschoolers at risk of disruptive behaviors (Seabra-Santos et al., 2012). Children eligible for the main trial had either been referred by health professionals or were self-referred by their families, and had scored equal to or above the Portuguese borderline cut-off levels (Abreu-Lima et al., 2010) on the Conduct (≥ 5) or the Hyperactivity Scale (≥ 7) of the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 2001). Other inclusion criteria were the child's age (between three and six years) and parental interest in attending a 14-session group intervention, combined with their ability to read Portuguese. For this study (at risk for AD/HD sample) another criterion was considered: scoring equal to or above the Portuguese at risk cut-off level (≥ 21 corresponding to the 80th percentile) (Eugénio, 2011) as assessed by the Werry-Weiss-Peters Activity Scale (WWPAS) (Routh, 1978). All the families gave their written consent and the study design was approved by the Portuguese National Committee of Data Protection and by the Medical Ethical Committee of the mental health centre involved in this study.

This paper analyses participants who received the IY intervention and were evaluated at baseline and at 12-month follow-up (although measures were also collected 6 months after baseline, these were not taken into account in this study). Children were included in a High-hyperactivity group if they scored equal to or above the 95th percentile (≥ 28) on the WWPAS at baseline. All the other children were included in a Low-hyperactivity group. Of the 52 children at baseline, 34 were in the High-hyperactivity group and 18 were in the Low-hyperactivity group. The sociodemographic characteristics of the High and Low-hyperactivity groups of participants (children and mothers) are shown in Table 1. No differences were found between groups with regard to these characteristics. [Insert Table 1]

Study Measures

The measures selected for this analysis (mother's interview, maternal rating scales of the child's behavior problems, and self-reported assessments of parenting effectiveness, mood and satisfaction with the program) are described in detail in the assessment protocol of the main trial (Seabra-Santos et al., 2013). These measures were

previously used in preliminary studies with Portuguese samples (see Seabra-Santos et al., 2013 for description of these studies) and are the most frequently used in similar high-standard studies (e.g., Hutchings et al., 2007b; Thompson et al., 2009).

Werry-Weiss-Peters Activity Scale (WWPAS Routh, 1978). This 27-item mother-reported measure evaluates the hyperactivity behaviors of preschoolers in different situations of daily life (e.g., during meals, watching television, drawing, playing, sleeping). Parents rate the frequency of symptoms as occurring *none* (0), *some* (1) or *much* (2) of the time, and a total score (ranging from 0 to 54) is derived by adding up these ratings. WWPAS has been used in several studies of behavioral problems (including AD/HD) in preschool-age children, and has shown good psychometric properties (e.g., Eyberg et al., 2001; Sonuga-Barke et al., 2001; Thompson et al., 2009). Studies that used this measure with non-clinical Portuguese samples have shown high levels of internal consistency (between 0.87 and 0.91; Almeida, 2009; Eugénio, 2011). For this particular sample, the Cronbach alpha coefficient was .82.

Preschool and Kindergarten Behavior Scales – 2nd edition (PKBS-2; Merrel, 2002). This rating scale assesses preschoolers' social skills and problem behavior. For this study we selected two subscales, which were filled in by the mother: the Overactivity/Inattention subscale (PKBS-O/I: 8 items) and the Oppositional/Aggressive subscale (PKBS-O/A: 9 items). Internal consistency for these subscales in this sample was .72 and .91, respectively.

Parental Account of Childhood Symptoms (PACS; Taylor et al., 1986). PACS is a semi-structured clinical interview that evaluates the AD/HD and conduct symptoms and their impact on family functioning over the previous six months. For this study, the PACS preschool version from Sonuga-Barke et al. (1994) was used. The Cronbach alpha coefficient for PACS subscales in this sample ranged from .59 (Hyperactivity subscale) to .72 (Conduct problems subscale), and the inter-rater reliability between two coders was .98 (ICC).

Parenting Scale (PS; Arnold et al., 1993). This self-reported measure assesses parents' dysfunctional discipline practices. A total score and three subscale scores can be derived: Laxness (11 items); Overreactivity (10 items) and Verbosity (7 items). Internal consistency for this sample was low, ranging from .50 (Verbosity) to .70 (Laxness). In this scale higher scores represent more use of negative parenting practices.

Beck Depression Inventory (BDI; Beck et al., 1961). This 21-item self-reported inventory measures the severity of symptoms associated with depression. In this study, the internal consistency of the total scale as assessed by Cronbach's alpha was .90.

Parental Satisfaction Questionnaire (Webster-Stratton, 2001). At the end of the 14-week intervention program, parents completed a 53-item questionnaire regarding their general satisfaction with the IY program (9 items). They were also asked to score the following dimensions: the level of difficulty and usefulness of the methods used (16 items; e.g., group discussion, role-play, use of DVDs) and parenting strategies trained (14 items; e.g., play, praise, ignore); their satisfaction with the group leaders' skills (10 items); and the level of support from the group (4 items). A 7-point scale was used, where a higher score meant a higher level of satisfaction. In this study, the mothers' satisfaction concerning the methods used and the parenting strategies covered through the program were analyzed.

Intervention: Brief Protocol Description

The IY manualized program was delivered during 14 weekly sessions (of approximately 2 hours each) at a university-based facility ($N = 9$ groups) or mental health centre ($N = 2$). Groups of nine to 12 parents were run by six group leaders, who had been trained in the program and had extensive clinical experience ($N = 2$ per group). The IY program, developed by Webster-Stratton (2001), is based on social learning and collaborative principles, and addresses different parenting strategies (e.g., play, descriptive comments, praise and rewards, rules and routines, commands, parents'

calming thoughts, ignoring, time-out, consequences, problem solving) using a multi-method approach (e.g., role-play, DVDs, group discussion, reading materials). To ensure the implementation of the program according to integrity requirements, group leaders had been reliably trained and received continuous support from different IY-accredited mentors. Besides, they had all had previous experience with the program prior to the trial study. After each session, a leader checklist was completed in order to closely monitor the adherence to the protocol. Self- and peer-evaluation questionnaires were also filled in so that the degree of fidelity in IY implementation could be appraised in peer-coach supervision sessions.

Statistical Analysis

Analyses were carried out with SPSS 19.0, and results were considered to be statistically significant at an alpha level of $p < .05$ up to $.10$, thus including trends toward significance. Only the results of those that had completed the intervention were analyzed ($N = 44$: High-hyperactivity = 28 and Low-hyperactivity = 16), since previous analysis with this sample had shown similar results for both per protocol and intention-to-treat approaches. Furthermore, at 12-month follow-up, the level of attrition was small and the percentage of non-completers ($N = 8$) did not significantly differ between groups (High-hyperactivity = 17%; Low-hyperactivity = 11%; $\chi^2 = 0.38$, $p = .530$). Baseline sociodemographic and clinical differences were examined using the Mann-Whitney U test for continuous variables and Chi-square tests for categorical variables. Non-parametric tests were also performed for exploring differences in change from baseline to follow-up (12-month assessment) between groups defined by severity (High and Low hyperactivity behaviors) in selected child and mothers' outcome variables. Non-parametric statistics were primarily used in this analysis due to the small sample size.

Results

IY attendance

Preliminary analysis showed a non-significant difference between groups regarding the intervention drop-out rate (High-hyperactivity = 9% and Low-hyperactivity = 6%; $\chi^2 = 0.17, p = .674$). Excluding the four mothers that dropped out of the intervention, no significant differences were found in the program attendance rate, considering a number of sessions attended above or below nine (i.e., two-thirds of the total 14 sessions): 100% and 93% of the mothers in the Low and High-hyperactivity groups, respectively, attended 9 or more IY sessions (High-hyperactivity: $M = 11.45, SD = 1.80$ [7 to 14 sessions]; Low-hyperactivity: $M = 12.59, SD = 1.50$ [9 to 14 sessions]; $\chi^2 = 1.14, p = .285$). In addition, significantly more mothers from the High-hyperactivity group attended the IY with a second caregiver (High-hyperactivity = 55% with fathers and 3% with grandmother; Low-hyperactivity = 23% with fathers; $\chi^2 = 5.27, p = .022$).

Long-term intervention improvement

As expected, at baseline, the preliminary analyses showed significant differences between groups only in both AD/HD measures (WWPAS: $U = .000, p = < .000$; PACS-HP: $U = 144.000, p = .002$). For all the other measures, the groups were equivalent at baseline (see Table 2 for M and SD). [Insert Table 2]

As regards the progress made between the two assessments (from baseline to 12-month follow-up), the children and mothers in both groups showed positive alterations (as expected) for almost all the analyzed outcome measures (child AD/HD and oppositional/aggressive behaviors; and mothers' dysfunctional practices) (see Table 2 notes). Nevertheless, statistical differences were found between the two groups as regards the changes observed in four of the 10 outcome measures analyzed (Table 2). More specifically, there was a significantly greater improvement amongst the High-hyperactivity preschoolers compared to the Low-hyperactivity subgroup regarding AD/HD behaviors (WWPAS: $U = 110.500, p = .008$; PACS-HP: $U = 101.500, p = .055$). Similarly, the mother of children in this group also showed a significantly greater decrease in their overreactive parenting practices (PS-Overreactivity: $U = 117.000, p = .018$). Although the mothers in either group were not clinically depressed at baseline, those in

the High-hyperactivity group showed significantly more reduction (BDI: $U = 125.500$, $p = .032$). Further analysis comparing groups at follow-up showed no significant differences between them, except for interviewed AD/HD behaviors ($U = 135.000$, $p = .029$), meaning that, at follow-up, children in the High-hyperactivity group are still seen by their mothers as having more hyperactivity behaviors (however mean-scores at FU are below PACS clinical cut-off level) compared to the Low-hyperactivity subgroup. Besides, at follow-up, 25% ($n = 7$) of children from the High-hyperactivity group were above the 95th percentile on the WWPAS AD/HD outcome measure, compared to 100% at baseline; and 64% ($n = 18$) were above the 80th percentile, compared to 44% ($n = 7$) in the Low-hyperactivity ($U = 178.000$, $p = .191$).

Program satisfaction

Of the 52 mothers involved in the intervention at baseline, 45 completed the program satisfaction questionnaire (High-hyperactivity = 30; Low-hyperactivity = 15). Tables 3 and 4 show the percentage of highest positive ratings (rates 6 and 7 on a 7-point scale) regarding ease and usefulness of the program's methods (8 items) and parenting strategies (7 items), and the means and standard deviations of mothers' ratings for each dimension. Overall, program satisfaction was high and similar for both groups (most mean ratings were above 5 [*somewhat easy/useful*], and above 6 in most of the usefulness items [*very easy/useful*]). Nevertheless, there was a significant difference between groups regarding the perceived usefulness of the program's methods (Total for High-hyperactivity > Low-hyperactivity: $U = 102.000$; $p = .051$): when compared with mothers in the Low-hyperactivity subgroup, mothers in the High-hyperactivity group specifically considered role-plays ($U = 97.000$; $p = .027$) and leaders' phone-calls ($U = 93.500$; $p = .020$) significantly more useful. Additionally, these mothers (High-hyperactivity group) measured time-out ($U = 94.000$; $p = .063$) and the overall parenting strategies covered along the IY parent training ($U = 101.000$; $p = .079$) as significantly easier. As regards the major problems that originally prompted mothers to join the IY program, a significant difference was also found ($U = 150.000$; $p = .040$), with 93% of mothers reporting these problems as *improved* or *greatly improved* in the High-hyperactivity subgroup compared with 80% in the Low-hyperactivity subgroup (data not shown). [Insert Table 3 and 4]

Discussion

This paper has analyzed the progress made after a 12-month period between two groups of Portuguese preschoolers with diverse levels of AD/HD behaviors at baseline (High and Low-hyperactivity levels), whose mothers attended a 14-week parent training intervention (IY).

Overall, there were improvements in both groups from baseline to 12-month follow-up, indicating the benefits of the IY program regardless of the severity of the initial hyperactivity behaviors. However, preschoolers with higher initial hyperactivity levels made greater progress compared to preschoolers with lower levels of hyperactivity as regards the children's AD/HD behaviors reported by mothers through interviews or rating scales. Moreover, mothers of more impaired children saw a greater reduction in their negative overreactive practices and a greater improvement in their mood. Thus, in these specific outcomes, this group underwent a more marked change and seems to have benefitted more from the IY program than the lower hyperactivity group.

Similar findings (although with different analyses) were described in other studies, suggesting that children with greater behavior problems tend to improve more after a PT program (e.g., Beauchaine et al., 2005; Hautmann et al., 2010; Jones et al., 2008; Reid et al., 2004; Webster-Stratton et al., 2012b). However, in the Multimodal Treatment of Attention Deficit-Hyperactivity Disorder study (MTA Cooperative Group, 1999), the initial severity of AD/HD was associated with worse results for both pharmacological and behavioral treatment approaches (Hinshaw, 2007). These differences may be attributed to the way participants were selected (through a clinical diagnosis in the MTA study or based on questionnaires' cut-off scores in other studies, including ours). Besides, our children were younger than those in the MTA study, having therefore a shorter negative trajectory, which might have contributed to the amount of change in the most severe group (Hautmann et al., 2010; Jones, 2008).

The higher reduction of overreactive maternal practices observed in the severe AD/HD group is particularly relevant, since less coercive and more positive and effective practices have been associated with improvements in preschoolers disruptive behaviors

(e.g., Beauchaine et al., 2005; Gardner et al., 2006; Gardner et al., 2010, Posthumus et al., 2011).

In spite of the more impressive changes observed in preschoolers with more severe hyperactivity behaviors at baseline, they continue to be perceived by their mothers as more impaired regarding hyperactivity behaviors at 12-month follow-up, which may indicate the need for further monitoring and additional intervention.

Further exploratory findings indicate a high level of mother's acceptance and satisfaction with the IY program in both groups (comparable levels of satisfaction), irrespective of hyperactivity severity between groups. Even mothers of lower hyperactivity children (who might have less to change) were motivated and interested in the program, and had on average a slightly higher program attendance rate. Interestingly, compared with lower hyperactivity children, there were twice as many higher hyperactivity children who had two caregivers engaged in the IY intervention. We could speculate that the more the children are perceived as difficult by their mothers, the greater the level of engagement in the program expected on the part of the family (Reid et al., 2004), especially from the father, who might also have more difficulties in parenting a particularly challenging child. Besides, fathers' involvement in PT may contribute to the maintenance of PT gains (Fabiano, 2007). Additionally, a higher percentage of mothers of severe hyperactivity children were more satisfied with their preschoolers' improvements compared with mothers of children with lower AD/HD behaviors. Mothers' improved parenting practices, their feelings of satisfaction about the child's behavioral changes and the support of having a second caregiver attending the program may have contributed to improving the mother's mood over time in the High-hyperactivity subgroup. Moreover, an improvement in the mother's mental health (depression) has been described in the literature as a significant mediator of change in the child's behavior (e.g., Hutchings et al., 2012). Furthermore, mothers in this group evaluated the overall parenting strategies as more easy to use (including specific non-violent strategies, such as time-out) for decreasing children's negative behaviors and increasing children's self-control; and IY methods were rated as more useful, especially concerning parent support (leaders' weekly phone-calls) and practicing new skills (role-plays). These have, indeed, been identified as key components for effective parent interventions (see Hutchings et al., 2004; Kaminski, Valle, Filene, & Boyle, 2008).

This paper has important strengths. First, it is a secondary analysis of a larger study that fulfilled the methodological requirements needed to evaluate the efficacy of the IY program in a sample of Portuguese preschoolers with AD/HD behaviors (see Azevedo et al., , 2013a for study details), using a broadly researched intervention program, the IY, which has demonstrated good levels of acceptability in Portuguese samples (Webster-Stratton et al., 2012a) and particularly in this one (high levels of parent attendance and satisfaction; low levels of attrition). This longitudinal study (change was evaluated from baseline to 12-month assessment) also benefitted from different assessment methods (e.g., questionnaires and interview) in order to diminish possible mother's rating bias.

The study also has several limitations, which should also be discussed, as they may reduce the generalizability of the findings. Firstly, the sample size is small and groups are unequal, which can reduce the statistical power of the analyses. Secondly, the analyzed data were exclusively from mothers (who had attended the IY program) and thus reveal the mother's perception of children's behaviors, which might differ from that of different informants (e.g., Roskam et al., 2010), particularly from the father. Finally, some of the measures used in this study had a worryingly low level of internal consistency (due to the limited availability of feasible instruments for preschoolers in Portugal), an issue that must be addressed in other studies.

Future analysis should include a larger Portuguese sample, comparable groups and longer follow-up assessments. These will allow for the use of more specific analyses and will shed light on the generalizability of these findings and on which kind of children and families benefit more from the IY intervention (e.g., Gardner et al., 2010). Since on average the higher AD/HD children at baseline still present higher AD/HD behaviors at 12-month follow-up, future studies should identify more thoroughly the characteristics of participants for whom the IY intervention was not sufficient (Webster-Stratton et al., 2012b). Additional analyses of mediator (e.g., program dose, parenting practices) and moderator variables (e.g., engagement of one or two caregivers) will provide more precise information about the active ingredients of change and for whom this program works the best (e.g., Gardner et al., 2006, 2010). Besides, a comparison of the longer and shorter versions of the IY program (e.g., Webster-Stratton et al. study [2011] used an IY version lasting 20-week sessions; this study and the Jones et al. study [2008] reported IY effects using shorter versions of the program, 14 and 12- week sessions respectively) in a head-

to-head study would be useful to clarify the outcome differences found in children with higher levels of hyperactivity behaviors at baseline.

The present study contributes with a more detailed evaluation of the effects of IY in a Portuguese sample of preschoolers with AD/HD behaviors. It highlights the impact of different levels of initial hyperactivity behaviors on the progress made by children and mothers over time, and therefore adds valuable information to our previous knowledge about the effectiveness of the program with such children (Azevedo et al., 2013a; 2013b). To sum up, these findings have important clinical and policy implications for a more tailored IY intervention. Firstly, in response to our initial question, the findings showed considerable improvements in the more severe children, supporting the benefits of IY even for these higher risk children, when implemented in the early years. Moreover, children with lower hyperactivity behaviors at baseline also benefitted from the program and, as they have similar risk factors (e.g., nearly half of them were clinically referred and most had comorbid oppositional/aggressive behavior problems) and, since different developmental trajectories can link risk to later AD/HD disorder (Sonuga-Barke et al., 2005). Thus, they are also important targets for early identification and intervention (Beauchaine & McNulty, 2012; Tandon, Si, & Luby, 2011). Community settings, such as schools (Sayal et al., 2012) and primary care centers could be preferential contexts for screening children with AD/HD risk and comorbid behavioral problems (Lakes et al., 2009). Following NICE guidelines for AD/HD in preschool-age children (NICE, 2008) and considering this exploratory study findings, a stepped care approach should be endorsed. Therefore, after offering an evidence-based parenting program such as the IY, clinicians should monitor children who were more severe at baseline, since these children are at the same time the ones who might benefit most from the program but also those whose risk might remain at a higher level. Further evaluation of these children may identify those for whom additional intervention is still necessary (Hautmann et al., 2010; Webster-Stratton et al., 2012b). From now on, there is sufficient preliminary evidence in Portugal to offer the IY to parents of preschoolers with AD/HD behaviors, thus minimizing the developmental risk and high service costs usually associated with significant negative outcomes in the academic, behavioral and social functioning of children with AD/HD (DuPaul et al., 2001; Sayal et al., 2012). Therefore, the dissemination of interventions that 'work' among professionals and the increasing access of families to evidence-based

intervention programs (Hutchings & Gardner, 2012) should be a priority for policy makers in Portugal.

References

- Abreu-Lima, I., Alarcão, M., Almeida, A., Brandão, T., Cruz, O., Gaspar, M., & Santos, M. (2010). Avaliação de intervenções de educação parental: Relatório 2007-2010 [Evaluation of parenting interventions: Report 2007-2010]. Retrieved from http://www.cnpcjr.pt/preview_documentos.asp?r=3493&m=PDF.
- Almeida, A.S. (2009). Contributo para a avaliação da Perturbação de Hiperatividade/Défice de Atenção: Avaliação de sintomas em crianças e nos seus progenitores [Contribution to the Assessment of Attention-Deficit/ Hyperactivity Disorder: Evaluating children's and parents' symptoms] (Unpublished Master's Thesis). Faculdade de Psicologia e Ciências da Educação da Universidade de Coimbra, Coimbra, Portugal.
- Almeida, L.S. (1988). O raciocínio diferencial dos jovens portugueses: Avaliação, desenvolvimento e diferenciação. [Differential reasoning in Portuguese youth: Assessment, development and differentiation]. Instituto Nacional de Investigação Científica, Porto.
- American Academy of Pediatrics (2011). ADHD: Clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics*, 128(5), 1-16. doi: 10.1542/peds.2011-2654
- Arnold, D., O'Leary, S., Wolff, L., & Acker, M. (1993). The parenting scale: A measure of dysfunctional parenting in discipline situations. *Psychological Assessment*, 5, 137-144. doi: 10.1037/1040-3590.5.2.137. 12
- Azevedo, A., Seabra-Santos, M. J., Gaspar, M. F., & Homem, T. (2013a). The Incredible Years Basic Parent Training for Portuguese preschoolers with AD/HD behaviors: Does it make a difference? *Child and Youth Care Forum*. doi: 10.1007/s10566-013-9207-0
- Azevedo, A., Seabra-Santos, M. J., Gaspar, M. F., & Homem, T. (2013b). A parent-based intervention programme involving preschoolers with AD/HD behaviours: Are children's and mothers' effects sustained over time? *European Child and Adolescent Psychiatry*. doi: 10.1007/s00787-013-0470-2
- Beauchaine, T., Hinshaw, S., & Pang, K. (2010). Comorbidity of attention-deficit/hyperactivity disorder and early-onset conduct disorder: Biological, environmental, and developmental mechanisms. *Clinical Psychology: Science and Practice*, 17, 327-336. doi: 10.1111/j.1468-2850.2010.01224.x
- Beauchaine, T. P., & McNulty, T. (2012). Comorbidities and continuities as ontogenic processes: Toward a developmental spectrum model of externalizing psychopathology. Washington State University. Retrieved from <http://www.incredibleyears.com/library/items/development-and-psychopathology-2013.pdf>
- Beauchaine, T.P., Webster-Stratton, C., & Reid, M.J. (2005). Mediators, moderators and predictors of 1-year outcome among children treated for early-onset conduct problems: A latent

- growth curve analysis. *Journal of Consulting and Clinical Psychology*, 73:371–388. doi: 10.1037/0022-006X.73.3.371
- Beck, A., Ward, C., Mendelson, M., Mock, J., & Erbaugh, G. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4(6), 561-571. doi: 10.1001/archpsyc.1961.01710120031004
- Bor, W., Sanders, M.R., & Markie-Dadds, C. (2002). The effects of the Triple P-Positive Parenting Program on preschool children with co-occurring disruptive behavior and attentional/hyperactive difficulties. *Journal of Abnormal Child Psychology*, 30, 571-587. doi: 10.1023/A:1020807613155
- DuPaul, G., McGoey, K. E., Eckert, T. L., & VanBrakle, J. (2001). Preschool children with attention-deficit/hyperactivity disorder: Impairments in behavioral, social, and school functioning. *Journal of Child & Adolescent Psychiatry*, 40, 508-515. doi:10.1097/00004583-200105000-00009
- Eyberg, S., Funderburk, B., Hembree-Kigin, T., McNeil, C., Querido, J., & Hood, K. (2001). Parent-child interaction therapy with behavior problem children: One and two year maintenance of treatment effects in the family. *Child & Family Behavior Therapy*, 23, 1–20. doi: 10.1300/J019v23n04_01
- Eugénio, S. (2011). Sentido de competência parental em mães/pais de crianças em idade pré-escolar [Parental sense of competence in mothers/fathers of preschoolers] (Unpublished Master Dissertation). Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra Coimbra, Portugal.
- Egger H. E., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of Child Psychology and Psychiatry*, 47, 313-337. doi:10.1111/j.1469-7610.2006.01618
- Fabiano, G. (2007). Father participation in behavioral parent training for ADHD: Review and recommendations for increasing inclusion and engagement. *Journal of Family Psychology*, 21, 683-693. doi: 10.1037/0893-3200.21.4.683.
- Gardner, F., Burton, J., & Klimes, I. (2006). Randomised controlled trial of a parenting intervention in the voluntary sector for reducing child conduct problems: outcomes and mechanisms of change. *Journal of Child Psychology and Psychiatry*, 47(11), 1123-1132. doi: 10.1111/j.1469-7610.2006.01668.x
- Gardner, F., Hutchings, J., Bywater, T., & Whitaker, C.J. (2010). Who benefits and how does it work? Moderators and mediators of outcome in an effectiveness trial of a parenting intervention in multiple 'Sure Start' services. *Journal of Child and Adolescent Psychology*, 39(4), 568-80. doi: 10.1080/15374416.2010.486315
- Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire (SDQ). *Journal of American Academy of Child and Adolescent Psychiatry*, 40, 1337-1345. doi: 10.1097/00004583-200111000-00015
- Hautmann, C., Eichelberger, I., Hanisch, C., Plück, J., Walter, D., & Döpfner, M. (2010). The severely impaired do profit most: Short-term and long-term predictors of therapeutic change for a parent management training under routine care conditions for children with externalizing

- problem behavior. *European Child and Adolescent Psychiatry*, 19(5): 419-30. doi: 10.1007/s00787-009-0072-1
- Herbert, S., Harvey, E., Roberts, J., Wichowski, K., & Lugo-Vandelas, C. (2013). A randomized controlled trial of a parent training and emotion socialization program for families of hyperactive preschool-age children. *Behavior Therapy*, 44(2), 302-316. doi: 10.1016/j.beth.2012.10.004
- Hinshaw, S. (2007). Moderators and mediators of treatment outcome for youth with ADHD: Understanding for whom and how interventions work. *Journal of Pediatric Psychology*, 32(6): 664-675. doi: 10.1093/jpepsy/jsl055
- Hutchings, J., Bywater, T., Daley, D., Gardner, F., Whitaker, C., Jones, K.,...Eduards, R. (2007). Parenting intervention in Sure Start services for children at risk of developing conduct disorder: Pragmatic randomised controlled trial. *British Medical Journal*, 334, 678-682. doi: 10.1136/bmj.39126.620799.55
- Hutchings, J., Bywater, T., Williams, M., Lane, E., & Whitaker, C. (2012). Improvements in maternal depression as a mediator of child behavior change. *Scientific Research*, 3, 795-801. doi:10.4236/psych.2012.329120
- Hutchings, J., & Gardner, F. (2012). Support from the Start: Effective programs for three to eight year-olds. *Journal of Child Services*, 7(1), 29-40. doi: 10.1108/17466661211213652
- Hutchings, J., Lane, E., & Gardner, F. (2004). Making evidence-based interventions work. In D. Farrington, C. Sutton & D. Utting (Eds.), *Support from the start: Working with young children and families to reduce risks of crime and antisocial behavior* (pp. 92-107). Research Report 524. ISBN: 1 84478 203 4. London: Department for Education and Skills.
- Jones, K. (2008). *Early parent-based intervention for conduct problems and ADHD*. (Unpublished PhD Thesis). School of Psychology, Bangor University, Bangor.
- Jones, K., Daley, D., Hutchings, J., Bywater, T., & Eames, C. (2008). Efficacy of the Incredible Years Program as an early intervention for children with conduct problems and ADHD: Long-term follow-up. *Child: Care, Health and Development*, 34(3), 380-390. doi: 10.1111/j.1365-2214.2008.00817.x
- Kaminski, J., Valle, A., Filene, J., & Boyle, C. (2008). A Meta-analytic review of components associated with parent training program effectiveness. *Journal of Abnormal Child Psychology*, 36:567-589. doi: 10.1007/s10802-007-9201-9
- Kazdin, A.E., & Wassell, G. (2000). Predictors of barriers to treatment and therapeutic change in outpatient therapy for antisocial children and their families. *Mental Health Services Research* 2:27-40. doi: 10.1023/A:1010191807861
- Kern, L., DuPaul, G., Volpe, R., Sokol, N., Gary, L., Lauren, A.,...VanBrakle, J. et al (2007) Multisetting assessment-based intervention for young children at risk for attention deficit hyperactivity disorder: Initial effects on academic and behavioral functioning. *School Psychology Review* 36(2): 237-255.
- Lahey, B.B., Pelham, W.E., Loney, J., Kipp, H., Ehrhardt, A., Lee, S.,...Masseti, G. (2004). Three-year predictive validity of DSM-IV attention deficit hyperactivity disorder in children diagnosed

- at a 4-6 years of age. *American Journal of Psychiatry*, 161(11): 2014-2020. doi: 10.1176/appi.ajp.161.11.2014
- Lahey, B. B., Pelham, W. E., Stein, M. A., Loney, J., Trapani, C., Nugent, K.,...Baumann, B. (1998). Validity of DSM-IV attention-deficit/hyperactivity disorder for young children. *Journal of American Academy of Children and Adolescent Psychiatry*, 37(7), 695-702. doi:10.1097/00004583-199807000-00008
- Lakes, K., Kettler, R., Schmidt, J., Haynes, M., Feeney-Kettler, K., Kamptner, L.,...Tamm, L. (2009). The CUIDAR early intervention parent training program for preschoolers at risk for behavioral disorders: An innovative practice for reducing disparities in access to service. *Journal of Early Intervention*, 31(2), 167-178. doi: 10.1177/1053815109331861
- Lundahl, B., Risser, H., & Lovejoy, C. (2006). Meta-analysis of parent training: Moderators and follow-up effects. *Clinical Psychology Review*, 26: 86– 104. doi:10.1016/j.cpr.2005.07.004
- Matos, M., Bauermeister, J., & Bernal, G. (2009). Parent-child interaction therapy for Puerto Rican preschool children with ADHD and behavior problems: A pilot efficacy study. *Family Process*, 48(2), 232-252. doi: 10.1111/j.1545-5300.2009.01279.x
- Merrell, K.W. (2002). *Preschool and Kindergarten Behavior Scales – Second Edition*. TX: PRO-ED, Austin.
- MTA Cooperative Group (1999). A 14-month randomized clinical trial of treatment strategies for attention deficit hyperactivity disorder. *Archives of General Psychiatry*, 56, 1073–1086. doi:10.1001/archpsyc.56.12.1073.
- National Institute for Health and Clinical Excellence (2008). Attention deficit hyperactivity disorder: Diagnosis and management of ADHD in children, young people and adults (Clinical Guidance 72). NICE, London.
- Pisterman, S., Firestone, P., McGrath, P., Goodman, J.T., Webster, I., Mallory, R., & Goffin, B. (1992). The role of parent training in treatment of preschoolers with ADDH. *American Journal of Orthopsychiatry*, 62, 397-408. doi: 10.1037/h0079356
- Reid, M.J., Webster-Stratton, C., & Baydar, N. (2004). Halting the development of conduct problems in head start children: the effects of parent training. *Journal of Clinical Child and Adolescent Psychology*, 33:279–291. doi:10.1207/s15374424jccp3302_10
- Reyno, S., & McGrath, P. (2006). Predictors of parent training efficacy for child externalizing behavior problems: A meta-analytic review. *Journal of Child Psychology and Psychiatry*, 47 (1), 99–111. doi:10.1111/j.1469-7610.2005.01544.x
- Roskam, I., Stiévenart, M., Meunier, J., Van de Moortele, G., Kinoo, P., & Nassogne, M. (2010). Comment les parents, les enseignants et les cliniciens évaluent les troubles du comportement externalisé du jeune enfant ? Étude de la variabilité des jugements évaluatifs et de son impact sur le développement de l'enfant. [How do parents, teachers and clinicians assess young children's externalizing behavior? Variability in their assessment and its impact on children's development.] *Pratiques Psychologiques*, 16, 389-401. doi:10.1016/j.prps.2009.06.001
- Routh, D. (1978). Hyperactivity. In: Magrab P (ed) *Psychological management of paediatric problems*. MD: University Park Press, Baltimore, pp 3-8.

- Sayal, K., Daley, D., James, M., Yang, M., Batty, M., Taylor, J.,...Hollis, C. (2012). Protocol Evaluating the effectiveness of a school-based group program for parents of children at risk of ADHD: the 'Parents, Teachers and CHildren WORKing Together (PATCHWORK)' cluster RCT protocol. *British Medical Journal Open*, 2:e001783. doi:10.1136/bmjopen-2012-001783
- Seabra-Santos, M. J., Gaspar, M. F., Azevedo, A., Homem, T., & Leitão, S. (2012, Março). *Developing and researching the Incredible Years programs in Portugal*. Paper presented at the Center for Evidence Based Early Intervention Annual Conference 2012 "Supporting Parents, Children and Teachers: Research and practice", Cardiff. Retrieved de <http://incredibleyears.com/programs/implementation/implementation-examples/>
- Seabra-Santos, M. J., Gaspar, M. F., Azevedo, A., Homem, T., Leitão, S., Pimentel, M., & Major, S. (2013). *Protocolo de avaliação no âmbito do Projeto "Prevenção/intervenção precoces em distúrbios de comportamento: Eficácia de programas parentais e escolares (PTDC/PSI-PED/102556/2008)" - Versão de Investigação*. [Protocol of measures for the evaluation of the "Early prevention/intervention in disruptive behavior disorders: Efficacy of parents and teachers programs' Project—Research version]. Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra, Coimbra. Retrieved de <http://fpce.uc.pt/anosincriveis/protocolo.doc>
- Sonuga-Barke, E., Auerbach, J., Campbell, S. B., Daley, D., & Thompson, M. (2005). Varieties of preschool hyperactivity: Multiple pathways from risk to disorder. *Developmental Science*, 8(2), 141-150. doi: 10.1111/j.1467-7687.2005.00401
- Sonuga-Barke, E., Dalen, L., & Remington, B. (2003). Do executive deficits and delay aversion make independent contributions to preschool attention-deficit/hyperactivity disorder? *Journal of American Academy of Child and Adolescent Psychiatry*, 42, 1335-1342.
- Sonuga-Barke, E., Daley, D., Thompson, M., Laver-Bradbury, C., & Weeks, A. (2001). Parent-based therapies for preschool attention deficit/hyperactivity disorder: A randomized controlled trial with a community sample. *Journal of American Academy of Child and Adolescent Psychiatry*, 40, 402-408 doi: 10.1097/00004583-200104000-000
- Sonuga-Barke, E., Lamparelli, M., Stevenson, J., Thompson, M., & Henry, A. (1994). Pre-school behavior problems and intellectual attainment: The associations of hyperactivity and conduct problems. *Journal of Child Psychology and Psychiatry*, 35, 949-960. doi: 10.1111/j.1469-7610.1994.tb02304.x
- Sonuga-Barke, E., Koerting, J., Smith, E., McCann, D., & Thompson, M. (2011). Early detection and intervention for attention-deficit/hyperactivity disorder. *Expert Review of Neurotherapeutics*, 11(4), 557-563 doi: 10.1586/ERN.11.39
- Tandon, M., Si, X., & Luby, J. (2011). Preschool onset attention-deficit/hyperactivity disorder: Course and predictors of stability over 24 months. *Journal of Child and Adolescent Psychopharmacology*, 21(4), 321-330. doi:10.1089/cap.2010.0045
- Taylor, E., Schachar, R., Thorley, G., & Wiselberg, M. (1986). Conduct disorder and hyperactivity I: Separation of hyperactivity and antisocial conduct in British child psychiatric patients. *British Journal of Psychiatry*, 149, 760-767. doi: 10.1192/bjp.149.6.760

- Thompson, M., Laver-Bradbury, C., Ayres, M., Le Poidevin, E., Mead, S., Doods, C.,...,Sonuga-Barke, E. (2009). A small-scale randomized controlled trial of the revised new forest parenting program for preschoolers with attention deficit hyperactivity disorder. *European Child and Adolescent Psychiatry, 18*, 605-616 doi:10.1007/s00787-009-0020-0
- Webster-Stratton, C. (2001).The parent and child series: A comprehensive course divided into four programs – Leaders' guide. The Incredible Years, Seattle.
- Webster-Stratton, C., Gaspar, M., & Seabra-Santos, M. (2012b). Incredible Years® parent, teachers and children's series: Transportability to Portugal of early intervention programs for preventing conduct problems and promoting social and emotional competence. *Psychosocial Intervention, 21*(2), 157-169.doi: 10.5093/in2012a15
- Webster-Stratton, C., Reid, J., & Beauchaine, T. P. (2011). Combining parent and child training for young children with ADHD. *Journal of Clinical Child and Adolescent Psychology, 40*(2), 191-203 doi: 10.1080/15374416.2011.546044
- Webster-Stratton, C., Reid, M. J., & Beauchaine, T.P. (2012a). One-year follow-up of combined parent and child intervention for young children with ADHD. *Journal of Clinical Child and Adolescent Psychology, 0*, 1-11.doi: 10.1080/15374416.2012.7232

Table 1. *Baseline characteristics for participants in Low and High Hyperactivity groups*

Baseline characteristics	Low hyperactivity (<i>n</i> = 18)	High hyperactivity (<i>n</i> = 34)	<i>P</i> -value
<i>Primary caregiver: no (%)</i>			
Mother	17 (94%)	31 (91%)	
Adoptive mother		2 (6%)	.527 ^a
Grandmother	1 (6%)	1 (3%)	
Age (years): mean \pm <i>SD</i>	36.33 \pm 4.06	36.38 \pm 6.19	.908 ^b
Years of Education: mean \pm <i>SD</i>	14.11 \pm 3.84	13.79 \pm 3.97	.840 ^b
<i>Marital Status: no (%)</i>			
Married/as married	15 (83%)	28 (82%)	.756 ^a
Divorced/separated/single	3 (17%)	6 (18%)	
Mother's depressive symptoms (BDI):	8.41 \pm 7.73	9.42 \pm 7.50	.545 ^b
<i>Family SES: no (%)</i>			
Low	5 (28%)	11 (32%)	
Medium	7 (39%)	15 (44%)	.750 ^a
High	6 (33%)	8 (24%)	
<i>Child</i>			
Age (years): mean \pm <i>SD</i>	4.17 \pm 0.71	4.21 \pm 0.95	.879 ^a
3 years: no (%)	3 (17%)	10 (29%)	.286 ^b
4 years: no (%)	9 (50%)	9 (27%)	
5 years: no (%)	6 (33%)	13 (38%)	
6 years: no (%)		2 (6%)	
Gender (male): no (%)	12 (67%)	25 (74%)	.603 ^b
<i>Reference: no (%)</i>			
Clinically referred	11 (61%)	18 (53%)	.573 ^a
Community referred	7 (39%)	16 (47%)	
Comorbid oppositional/aggressive behaviors: no (%)	15 (83%)	26 (77%)	.568 ^a

Note. *SD* Standard deviation; *SES* Socioeconomic Status; *BDI* Beck Depression Inventory; ^a Mann-Whitney *U*-test for continuous variables; ^b Chi-square tests for categorical variables; ^c SES was defined using a standardized classification developed for Portuguese population (Almeida, 1988).

Table 2. *Change in outcome measures from baseline to follow-up in the High and Low hyperactive behaviors subgroups: Means, standard deviations and ps*

Variable	High hyperactivity (<i>n</i> = 28)			Low hyperactivity (<i>n</i> = 16)			<i>P</i> -value ^a
	Baseline (BL)	Follow-up (FU)	BL – FU	Baseline (BL)	Follow-up (FU)	BL – FU	
<i>Child behavior (Cut-off)</i>							
WWPAS ^b (21)	36.40±5.99	24.07±9.35	12.33±9.3 9	23.87±2.24.87	18.87±8.01	5.00±6.70	.008‡
PKBS: O/I (16)	19.23±3.04	15.73±4.13	3.29±3.96	17.93±4.38	15.43±4.01	2.50±3.72	.605
PKBS: O/A (19)	21.00±4.03	16.65±5.95	4.18±4.73	20.31±4.78	17.18±5.91	3.12±3.96	.488
Interview: PACS-HP ^b ^c (16)	17.82±6.01	11.25±5.01	6.57±7.14	12.13±4.66	8.00±5.22	4.12±5.50	.055
PACS-CP	16.25±6.88	10.25±7.18	6.00±6.80	17.38±6.36	11.81±3.88	5.56±6.83	.835
<i>Mother behaviour</i>							
PS Total	3.58±0.42	2.92±0.42	0.66±0.47	3.62±0.50	3.12±0.52	0.50±0.46	.357
Laxness	2.88±0.48	2.41±0.62	0.47±0.58	3.00±0.96	2.51±0.74	0.48±0.56	.577
Overreactivity	3.65±0.67	3.03±0.55	0.62±0.60	3.61±0.69	3.46±0.69	0.15±0.85	.018‡
Verbosity	4.33±0.93	3.29±0.81	1.04±0.96	4.25±0.84	3.73±0.78	0.88±0.89	.726
BDI	8.15±5.65	5.88±5.02	2.26±4.01	8.37±7.99	8.62±8.18 ^d	-0.25±8.59	.032‡

Note. Results are expressed as mean ± standard deviation. 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; *HP* Hyperactivity subscale *CP* Conduct problems subscale; *PS* Parenting Scale; *BDI* Beck Depression Inventory. ^a Mann-Whitney *U*-test for BL-FU difference between groups; ^b Significant baseline difference between groups in this measure; ^c Significant follow-up difference between groups in this measure; ^d All BL to FU within-group comparisons using the Wilcoxon test were statistically significant (all *p* values between $< .001$ and $.025$) except for BDI in the Low-hyperactivity subgroup ($p = .569$). [‡] Significant result ($p < .05$)

Table. 3 *Mothers' satisfaction with the program's methods: Mean ratings of ease and usefulness of methods and percentage of higher ratings.*

Dimension	High hyperactivity (<i>n</i> = 30)		Low hyperactivity (<i>n</i> = 15)	
	E + EE (%)	U + EU (%)	E + EE (%)	U + EU (%)
Program methods:	Ease	Usefulness	Ease	Usefulness
	(Mean \pm SD)	(Mean \pm SD)	(Mean \pm SD)	(Mean \pm SD)
(total: 8 items)	(5.30 \pm 0.81)	(6.52\pm0.32)\ddagger	(5.44 \pm 0.05)	(6.33\pm0.25)
Information presented by the leader	77%	100%	73%	100%
	(6.00 \pm 0.91)	(6.93 \pm 0.25)	(5.87 \pm 1.30)	(6.93 \pm 0.26)
Videotape vignettes	60%	97%	73%	100%
	(5.73 \pm 1.04)	(6.60 \pm 0.56)	(5.87 \pm 1.30)	(6.60 \pm 0.51)
Group discussion	73%	100%	60%	93%
	(5.83 \pm 1.02)	(6.67 \pm 0.48)	(6.00 \pm 0.93)	(6.67 \pm 0.62)
Practice of play skills at home	37%	100%	33%	92%
	(4.93 \pm 1.31)	(6.69 \pm 0.47)	(4.73 \pm 1.38)	(6.50 \pm 0.67)
Other home activities	20%	91%	20%	100%
	(4.53 \pm 1.27)	(6.31 \pm 0.89)	(4.93 \pm 0.88)	(6.42 \pm 0.51)
Buddy calls	28%	68%	29%	50%
	(4.50 \pm 1.74)	(5.84 \pm 0.99)	(5.00 \pm 1.04)	(5.42 \pm 0.90)
Practice/Role plays	40%	90%	28%	75%
	(5.13 \pm 1.31)	(6.38\pm0.67)\ddagger	(4.73 \pm 1.38)	(5.75\pm0.75)
Phone calls from leader	67%	100%	57%	83%
	(5.77 \pm 1.43)	(6.66\pm0.48)\ddagger	(5.64 \pm 1.08)	(6.00\pm0.85)

Note. SD Standard deviation; E Easy; EE Extremely easy; U Useful; EU Extremely useful. \ddagger Statistically significant mean difference between groups (highlighted in bold) according to the Mann-Whitney *U*-test: $p > .01$ and $< .05$

Table. 4 *Mothers' satisfaction with parenting strategies: Mean ratings of ease and usefulness of strategies and percentage of higher ratings.*

Dimension	High hyperactivity (<i>n</i> = 30)		Low hyperactivity (<i>n</i> = 15)	
	E + EE (%) U + EU (%)		E + EE (%) U + EU (%)	
	Ease	Usefulness	Ease	Usefulness
	(Mean ±SD)	(Mean ±SD)	(Mean ±SD)	(Mean ±SD)
(total: 7 items)	(5.29±0.83)	(6.62±0.46)	(5.03±0.73)	(6.59±0.47)
Play	65%	96%	75%	100%
	(5.79±1.05)	(6.82±0.47)	(6.17±0.83)	(7.00±0.00)
Descriptive commenting/attention	41%	87%	50%	93%
	(5.55±1.21)	(6.60±0.72)	(5.42±0.99)	(6.40±0.83)
Praise/Reward	69%	87%	100%	100%
	(6.21±1.15)	(6.73±0.69)	(6.42±0.51)	(6.73±0.46)
Ignoring	38%	93%	16%	87%
	(4.93±1.46)	(6.43±0.63)	(4.58±1.31)	(6.33±0.72)
Clear commands	38%	97%	33%	93%
	(5.03±1.29)	(6.63±0.56)	(4.58±1.44)	(6.33±0.72)
Time out	28%	90%	18%	93%
	(4.54±1.57)	(6.38±0.67)	(3.55±1.69)	(6.47±0.83)
Overall group of strategies	41%	100%	18%	93%
	(5.21±1.01)	(6.80±0.41)	(4.45±1.13)	(6.73±0.59)

Note. SD Standard deviation; E Easy; EE Extremely easy; U Useful; EU Extremely useful.