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ORIGINAL PAPER

The Incredible Years Series: A Review of the Independent Research Base

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Abstract The Incredible Years (IY) parent, teacher, and child training series, developed by Carolyn Webster-Stratton, has been studied extensively over the past several decades by the developer, her associates, and by other researchers. While Webster-Stratton has recently summarized much of her work, this paper provides a brief description of the IY programs and focuses on studies published by independent researchers. We review peer-reviewed papers that included either a control group or another intervention group in their design, with particular attention to each training program, combinations of training programs, multicultural applications, and interventions with special populations (e.g., foster parents, children with neurodevelopmental disorders). We also consider the literature on cost-benefit analyses of the program. There is solid evidence for the training program for parents of young children, and the literature provides support for its international applicability, but there is a paucity of independent research addressing the parent programs for children of other ages, the teacher program, the Dina Dinosaur program for young children, and combined programs. We conclude the review with directions for future research and a discussion of the limitations of our own review.

Keywords Incredible years · Young children · Conduct problems · Cost effectiveness

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Introduction

It is well documented that even very young children can demonstrate problematic, disruptive, and aggressive behaviors that, if left unaddressed or untreated, may lead to more serious difficulties (Côté et al. 2006; Fossum et al. 2008; Hutchings et al. 2007; Lochman et al. 1985; Webster-Stratton and Reid 2002; Williford and Shelton 2008). As many as 6–25 % of preschoolers and young children may exhibit troublesome behavior, lack social skills, have deficits in emotion regulation, and/or struggle to meet the demands of daycare and school settings (Elhamid et al. 2009; Webster-Stratton and Reid 2003). In particular, Oppositional Defiant Disorder (ODD) and early-onset Conduct Disorder (CD) have been cited as troubling diagnoses that may predict more serious behavioral and emotional difficulties (Campbell et al. 2000; Hinshaw and Lee 2003).

A number of interventions have been developed to address these problems when evident in young children, including the Chicago Parent Program (Gross et al. 2007), Early Risers (August et al. 2001), Parent Child Interaction Therapy (Eyberg 1979; Eyberg and Matarazzo 1980), and Triple P—Positive Parenting Program (Sanders 1999). The Incredible Years, another such program (IY; Webster-Stratton 1997; Webster-Stratton and Herman 2009; www.incredibleyears.com 2012) is well represented in the literature, has been disseminated both nationally and internationally, and is potentially of interest to psychologists and other mental health providers practicing in a range of settings. Well-articulated and detailed descriptions of IY's rationale, theoretical grounding, objectives, components, and materials, are available from several sources (e.g., Webster-Stratton 2005; Webster-Stratton and Reid 2003; www.incredibleyears.com) and, in particular, from Webster-Stratton's (2011) recent book.

The IY programs rely heavily on the use of videotaped vignettes that demonstrate the targeted skills. Webster-Stratton (2005) has noted that "We see the therapist's role as teaching, leading, reframing, predicting, and always within a collaborative context" (p. 513) that "is designed to ensure that the intervention is sensitive to individual cultural differences and tailored to each family's individual needs and goals… as well as to each child's personality and behavior problems" (p. 513).

The five BASIC programs (Baby, Toddler, Preschool/Early Childhood, Early School-Age, and Preadolescent, each encompassing eight to 20 sessions) are intended for parents of children from ages zero to 12 years and, depending on the age-group, focus on a range of topics (e.g., babies' sense of self, learning to read babies' minds, playing with a child, learning, parental attention, praise and rewards, setting limits, managing uncooperative behavior, misbehavior, time-outs and consequences, problem-solving, and preventive approaches). The School Age BASIC program also includes a module on Supporting Your Child's Education that incorporates topics such as homework support, reading, involvement at school, and teacher conferences (Webster-Stratton 2005; www.incredibleyears.com). Webster-Stratton has also developed two supplemental parent programs: the ADVANCED training and the School Readiness module. The former, which may follow after the BASIC program, encompasses nine to 12 sessions that address adult-oriented issues such as communication, self-control/anger management, problem-solving skills, and social support and self-care (Webster-Stratton 2005). The School Readiness program (four to six sessions) focuses on attention, emotional expression, self-esteem, problem-solving, and language skills and reading skills (www.incredibleyears.com).

In contrast to the 2-h, typically weekly, format for parents, the IY teacher training is structured as a 6-day program (www.incredibleyears.com). The topics are consonant with those for parents and include teacher attention, encouragement, and praise, the use of incentives to motivate students, preventing problems, reducing inappropriate behavior, positive relationships with students, and how to teach social skills, problem solving, and anger management (Webster-Stratton 2005).

The Dina Dinosaur Child Training Program (Dinosaur School) is the third IY intervention, which can be implemented as a prevention curriculum in the classroom or as a small-group treatment program in a clinic setting over the course of about 22 weeks (Webster-Stratton 2005; www.incredibleyears.com). This program for children from ages four to eight not only utilizes video segments (modeling) but also incorporates puppets, role-playing, art, and music to target a range of skills and issues including making friends, school rules, feelings, problem-solving, manners, and "doing your best in school".

Webster-Stratton (2011) in summarizing both her own and replication studies has reported effect sizes on several measures (observed and reported), ranging from $d = 0.32$ to $d = 2.87$, but indicating primarily moderate to large effects. Not surprisingly, then, several independent entities have included the Incredible Years Program in their listings of supported and/or effective interventions. IY has been noted for its quality and positive effects in the Substance Abuse and Mental Health Services Administration's (SAMHSA) National Registry of Evidence-based Programs and Practices (Substance Abuse and Mental Health Services Administration 2011), the University of Colorado's Center for the Study and Prevention of Violence/Blueprints (2012), and the Promising Practices Network (2012). In addition, the Office of Juvenile Justice and Delinquency Prevention (OJJDP 2000) "has designated the Incredible Years Training Series as an exemplary best practices program".

Independent Research

In this article we provide a brief overview of IY, followed by a summary of related studies conducted primarily by researchers Webster-Stratton and her colleagues. We consider each of the three main IY components (parent, teacher, and child, as well as combined treatments) and, in addition, discuss IY's application with different racial, ethnic, and cultural groups, and with specific populations (e.g., children with autism, foster families) before discussing its impact, strengths and limitations, and directions for future research. For this review we searched electronic databases using search terms including "incredible years", and Webster-Stratton, both individually and combined with terms such as "parent intervention". Our inclusionary criteria then required that studies: were conducted by independent researchers, incorporated either a control group or a non-IY intervention group, and were published in a peer-reviewed journal. These studies are listed in Table 1, which includes information about the IY program implemented, the population(s) and location of the studies, and the effect sizes when noted.

Parent Training

This is the IY component which has garnered the most extensive empirical support with studies including broad range of parent populations, settings, and goals. An early study by Spaccarelli et al. (1992) compared IY parent training plus extra discussion, IY plus problem-solving

Table 1 Summary of independent studies evaluating the incredible years series

Intervention	Author	Population and location	Most critical findings	Effect sizes reported
Parent training	Azevedo et al. (2013)	100 children between the ages of 3 and 6 years old, with ADHD behaviors (Portugal). 52 participants were assigned to the intervention condition, while 48 were allocated to the wait-list control condition	The IY parent intervention offered medium to large intervention effects for children's ADHD behaviors and on self-reported parenting. Significant short-term effects were found for positive parenting and coaching. Finally, results of the study found that 43 % of children in the IY condition showed clinical improvement in ADHD symptoms, compared to 11 % of controls	Effect sizes were measured using partial eta square analyses. Effect sizes for mother self-reports: Total parenting sense of competence scale (0.05), and Total parenting scale (0.19). Effect sizes for lab observed behaviors included (0.18) for positive parenting, (0.04) for coaching, and (0.03) for critical parenting
	Connolly et al. (2001)	Parents of children with behavioural and emotional difficulties participated in the study (Ireland). The parent training only group was comprised of 34 children's parents. The parent training plus child intervention group included parents of 71 children. The wait list control group included parents of 24 children	Results found that the Webster-Stratton program significantly reduced children's problem behaviors, as measured by the CBCL. The intervention was significantly more effective at reducing problem behaviors for both intervention groups, compared to those in the control group. At follow-up, 41 % of those in the parent training group, and 65 % of those in the parent plus child training group maintained positive changes	No effect sizes calculated
	Cummings and Wittenberg (2008)	54 Families; 52 mothers and 2 fathers, each with children with ODD, ages 30–72 months, (Canada)	Both treatment conditions produced similar effects (i.e., large effect sizes for reducing child externalizing behavior and increasing positive parent–child interactions, and small effect sizes for parents' mental health improvements)	Effect sizes were calculated using the Cohen *d* statistic. The mean SET-PC within-group effect size was $d = 0.66$ ($SD = 0.65$), and for IYPP the effect size was $d = 1.06$ ($SD = 1.57$). Both are considered large effects
	Dionne et al. (2009)	49 Families with American Indian children, ages 3–11	Families in the intervention group showed significant pre and post-improvements in child behavior and parenting. Those individuals also reported high satisfaction with the intervention	No effect sizes reported
	Gardner et al. (2006)	76 Children (aged 2–9) with conduct problems and their parents. Primarily low-income families (USA)	Post-intervention parents reported improvements in parenting skills, confidence, and depression (excluding maternal depression). Child behavior also improved, and improvements in parenting strategies mediated change in child behavior	Effect sizes were calculated using the Cohen *d* statistic. Large effect sizes for independent play (0.77), and observed negative behavior (0.78) Medium effect sizes for child behavior Eyeberg Problem Score Intervention (0.48), Eyeberg Intensity Scale (0.55), Parent Sesne of Competence (0.4), Parent Scale Total (0.65), and Observed negative strategies (0.74) Small effect sizes for Beck Depression Total (0.35), and observed positive strategies (0.38)
	Gardner et al. (2010)	153 Preschool children at risk for conduct problems, and their parents (located in Sure Start areas)	Greatest improvement was noted in boys and young children with depressed mothers. Results also indicate that the intervention was least effective for the most disadvantaged families	Effect sizes were calculated using the eta square analysis. No significant moderator effects for single parenthood ($ES = 0.005$), with very low income ($ES = 0.002$), or teen parenthood ($ES = 0.002$). Effect size for moderator effect of gender was $ES = 0.03$, with a maternal depression moderator effect of $ES = 0.05$. Moderator effect of child's age was $ES = 0.03$, and $ES = 0$ for observed child behavior

Table 1 continued

Intervention	Author	Population and location	Most critical findings	Effect sizes reported
	Gross et al. (1995)	46 Mothers, fathers, and their toddlers	Results showed significant increases in maternal self-efficacy, decreased maternal stress, and improved quality f mother-toddler interactions	No effect sizes reported
	Helfenbaum-Kun and Ortiz (2007)	39 Married fathers registered with Head Start programs, and 24 of their partners (New York City). Children were ages 3–5	70 % of fathers in the experimental group attended fewer than half the sessions. No significant treatment effects were found. However, trends indicate that the experimental group had fewer behavior problems than those in the control group	Effect sizes were calculated using partial eta-squared analyses. Moderate effect sizes were found for all variables: (0.257) for father reported decreases in dyadic adjustment, (0.269) for father ratings on ECBI indicating less intense child behavior problems for those in the experimental group, (0.166) for mothers' report of increased internalizing problems as measured by the ECBI for those in the control and experimental group, and (0.208) for teacher reported decreases in child externalizing behavior problems for children whose fathers were in the experimental group
	Hutchings et al. (2007)	153 Parents with children aged 36–59 months, at risk for conduct disorder (Wales)	Parenting and problem behavior in children showed significant improvement for those in the intervention group	Effect sizes were calculated using the Cohen *d* statistic. Effect sizes were 1.03 for the ECBI-I (intensity), 0.7 for ECBI-P (problem scale), 0.78 for the Conners, 0.46 for Kendall SCRS, 0.43 for the SDQ conduct problems, 0.48 for SDQ hyperactive, 0.74 for the Sibling ECBI-I, 0.39 for the Sibling ECBI-P, and 0.32 for the child deviance-observation
	Jones et al. (2007)	133 Families, parents and children, mean age = 46.28 months (Wales)	Post intervention, parents in the experimental condition reported significantly fewer parent-inattention and hyperactive/impulsive problems as compared to the control group	No effect sizes reported
	Lau et al. (2011)	54 Chinese American parents. All participants were a part of high-risk immigrant families (USA)	Results showed that parents in the intervention group exhibited less negative discipline and more positive parenting. Children in the intervention group showed decreased externalizing and internalizing problems than controls. Treatment effects were highest for families with more problems and less parental stressed at baseline	ANCOVA analyses found large effect sizes for externalizing problems, ($\eta^2\rho = 0.11$), and for positive involvement ($\eta^2\rho = 0.17$). No significant group effects were observed at posttreatment for parenting stress when controlling for baseline levels. Medium to large effect sizes were noted for positive involvement in parenting ($\delta = 0.49$), and for negative discipline ($\delta = -.71$), with a negligible effect on parenting stress ($\delta = 0.07$). Medium effect sizes were also observed for internalizing problems ($\delta = -.51$), and for externalizing problems ($\delta = -.40$)
	Lavigne et al. (2008a)	117 Children with ODD, ages 3–6 years, seen in primary care settings (Chicago, IL)	Higher levels of initial life stress, parenting distress, functional impairment, internalizing problems, and poor temperament were associated with greater improvement. However, families with lower levels of these variables had less conduct problems at posttreatment and follow-up. Gender was also a significant moderator	No effect sizes reported
	Lavigne et al. (2008b)	117 Children with ODD, aged 3–6, and their parents (Chicago, IL)	All groups showed improvement posttreatment and at 12-month follow-up. However, there were no overall treatment group effects	No effect sizes reported

Table 1 continued

Intervention	Author	Population and location	Most critical findings	Effect sizes reported
	Letarte et al. (2010)	35 Parents listed with child protective services, 26 intervention participants, and 9 waiting list participants. Children were aged 5–10 years old (Quebec, Canada)	Results show that the Incredible Years intervention had positive effects on parenting strategies, and parents' interpretation of child behavior	Effect sizes were measured using eta square analyses. Small effects were observed for group by time interaction, [$F(1, 35) = 8.53$; $p < 0.05$, Êta = 0.21], physical punishment [$F(1,35) = 4.85$; $p < 0.05$, Êta = 0.13], and praise and incentives [$F(1,35) = 7.20$; $p < 0.05$, Êta = 0.18] Moderate effects were observed for appropriate discipline [$F(1, 35) = 12.70$; $p < 0.001$, Êta = 0.28]; and monitoring [$F(1, 35) = 11.65$; $p < 0.05$, Êta = 0.26] Large effects were found for positive verbal discipline [$F(1, 35) = 24.14$; $p < .001$, Êta = 0.43]
	Linares et al. (2006)	128 Biological and foster parents of neglected children ages 3–10 (New York, NY).	Significant improvements in positive parenting and co-parenting between biological and foster parents were noted. These improvements were noted at the 1-year follow-up, and included fewer child externalizing behaviors	Effect sizes were measured using Cohen's *d* analyses. Concluding the intervention, researchers found the following effect sizes (*d*): positive discipline (0.40), flexibility (0.42), mutual social support (0.34), and problem solving (0.52). At 3-month follow-up notable effect sizes were: positive discipline (0.59), and clear expectations (0.54)
	McIntyre (2008)	44 Families, each with developmentally disabled children (New York, USA)	Results suggest that the IY Parent Program is more effective than treatment as usual at increasing positive parent–child interactions, and decreasing problem behaviors	The authors used partial eta-squared (η^2) values as estimates of effect sizes. Effect sizes were (0.37) for inappropriate behavior, (0.15) for child-directed praise, (0.33) for CBCL, (0.18) for internalizing problems, (0.28) for externalizing problems, (0.17) for negative impact composite, and (0.21) for positive impact composite
	Patterson et al. (2002)	Parents of children aged 2–8 years	The intervention was effective at reducing conduct problems in children, and also resulted in short term improvements in parent's social dysfunction	Effect size was measured using a Cohen's *d* analysis. An effect size of 0.6 on the Eyeberg Child Behaviour Inventory Intensity Score
	Perrin et al. (2014)	273 Parents of children (ages 2–4 years) with disruptive behaviors (Boston, MA)	The IY intervention groups showed greater improvement as compared to the wait-list group. Improvements in parenting practices and disruptive child behaviors were also noted	No effect sizes reported
	Posthumus et al. (2011)	144 Families, with children aged 4 years old (The Netherlands)	At 2-years follow-up, parents in the intervention condition showed more improved parenting skills than controls. Children in this group exhibited fewer conduct problems than controls	No effect sizes reported
	Scott et al. (2010a)	Parents of 174 5 and 6-year-old children in four schools (Southwark, London, England)	Black African, African-Caribbean, White British, and other ethnic group parents participated. Approximately 93 % of parents reported being well or extremely satisfied with the program. At 1 year follow-up, intervention parents showed significant improvements in parent–child relationship compared to controls. However, child behavior problems and reading did not improve	Effect sizes were calculated using eta-squared analyses. The study found significant effect sizes for the intervention on the frequency of use of child centered parenting ($ES = 0.42$), and a significant reduction in global negative affect ($ES = 0.33$)
	Scott et al. (2001)	141 Children, ages 3–8 years, with antisocial behavior, and their parents (London, England)	Children in the intervention group showed a significantly greater reduction in antisocial behavior as compared to wait-list children. Parenting practices also improved more in the intervention group	Effect size between groups for conduct problems was 1.06 SD (95 % confidence interval 0.71–1.41), $p > 0.001$). Increased praise by intervention parents, as compared to control parents showed effect sizes of 0.76 (0.16–1.36), $p = 0.018$

Table 1 continued

Intervention	Author	Population and location	Most critical findings	Effect sizes reported
	Scott et al. (2010b)	Parents of 112 6 year-old children who scored high on measures of antisocial behavior (London, England)	Parents in the IY condition used more effective parenting strategies including praise, rewards, and time out more than control parents. Intervention children's CD and ODD diagnoses also decreased more than controls	Medium effect sizes for praise (0.59), rewards (0.41), harsh discipline (0.48), expressed emotion warmth (0.63), criticism (0.51), positive attention (0.54), antisocial behavior (0.52), and ADHD symptoms (0.44) Small effect sizes for play (0.31), time out (0.38), seek cooperation (0.35), appropriate and positive (0.23), harsh and inconsistent (0.28), reading (0.36), Eyeberg Child Behavior Inventory (0.34)
	Stanger et al. (2011)	47 Mothers with substance abuse problems, and their children ages, 2–7 years	Children in the parent training and incentives condition showed greater decreases in child externalizing and internalizing symptoms than children in each of the other conditions. Parenting issues also decreased most for this intervention group	No effect sizes reported
Teacher training	Baker-Henningham et al. (2012)	Twelve classrooms received the IY Teacher Training intervention, while twelve were assigned to a control condition. Three children with the highest levels of conduct problems were evaluated from each class, ages 3-6 years old (Kingston, Jamaica)	Children in the IY conditions showed significantly less conduct problems, increased friendship skills, reductions in teacher and parent reported behavior problems, and increased social skills, and increased attendance as compared to children in the control group	Effect sizes were: $ES = 0.42$ for reduced conduct problems, $ES = 0.74$ for increased friendship skills, $ES = 0.47$ for reductions in parent reported behavior difficulties, $ES = 0.22$ for teacher reported behavior difficulties, $ES = 0.59$ for social skills, and $ES = 0.30$ for child attendance
	Hutchings et al. (2007)	23 Teachers, and their classes (North Wales, UK)	Results showed that overall, teachers in the intervention condition reported high satisfaction with the training program. Teachers in the TCM condition gave clearer directions to children, and the children showed more compliance than those with untrained teachers	Effect sizes were calculated using Cohen's *d* analyses. Differences observed between TCM and non-TCM teachers revealed the following effect sizes: (0.77) teacher negatives, (0.69) teacher positives, (0.86) teacher praise, (0.20) indirect commands, (0.94) direct commands, (0.79) no opportunity, (0.63) compliance, (1.13) non-compliance, (0.99) child positives, and (0.17) child negatives
	Hutchings et al. (2013)	Six intervention, and six control classrooms participated in the study, which included 12 teachers and 107 children, ages 3–7 years (North West Wales)	The study examined the efficacy of the I Teacher Classroom Management (TCM) program. Results revealed a significant reduction in off-task classroom behavior, teacher negatives to target children, target child negatives towards the teacher, and target child off-task behavior	Cohen's *d* analyses revealed the following effect sizes for classroom outcomes: Teacher positive to class (0.17), teacher negative to class (0.03), class compliance (0.12), class non-compliance (0.30), class negatives to teacher (0.22), class prosocial behavior (0.12), class deviant behavior (0.07), class off-task behavior (0.53) Cohen's *d* analyses revealed the following effect sizes for index child outcomes: teacher positive to index child (0.03), teacher negative to index child (0.36), child compliance (0.37), child noncompliance (0.36), child negative to teacher (0.42), child prosocial behavior (0.23), child deviant behavior (0.38), child off-task behavior (0.48), and total number commands (0.48)
	Raver et al. (2008)	35 Classrooms, led by 94 teachers, and including 602 children (Chicago, IL)	Classrooms in the treatment condition had significantly higher levels of positive classroom climate, teacher sensitivity, and behavior control, as compared to control classrooms	Effect size was measured using a Cohen's *d* analysis. Effect size of treatment impact is $d = 0.89$ Effect size for treatment impact was $d = 0.64$ for negative climate. Effect size for Chicago School Readiness Project (CSRP) impact on teacher sensitivity was $d = 0.53$ Effect size for teachers' classroom management, $d = 0.52$
Child training	Hutchings et al. (2011)	24 High-risk children, ages 5–9 years old (Gwynedd County, Wales)	No significant differences between conditions were found post-intervention	No effect sizes reported

Table 1 continued

Intervention	Author	Population and location	Most critical findings	Effect sizes reported
Parent–child training	Barrera et al. (2002)	116 European American, and 168 Hispanic children and parents	Post-intervention, children in the treatment condition showed less negative behaviors than controls. At 1 year follow-up, treatment children exhibited less internalizing and antisocial behavior as compared to controls	Effect sizes were calculated using Cohen's f statistic. Effect size were listed as follows: $f = 0.31$ for aggressive participants, $f = 0.24$ for non-Hispanic children in the intervention condition who had lower internalizing symptoms than those in the control group, $f = 0.18$ for girls in the intervention condition with lower levels of internalizing problems, and $f = 0.24$ at the 1 year follow-up for intervention children having lower levels of antisocial behavior than control children
	Drugli et al. (2009)	54 Children with ODD/CD (mean age = 6.6 years), and parents (Norway)	At the 5–6 year follow-up, 2/3 of children no longer qualified for a CD/ODD diagnosis. Pre-treatment predictors were living with mother and being a girl. Powerful post-treatment predictors were high levels of child externalizing problems	No effect sizes reported
	Drugli et al. (2010)	127 Children with conduct problems, aged 4–8 years, and their parents (Universities in Norway, Trondheim, and Tromsø)	High levels of internalizing and aggression problems were pre-treatment predictors of child conduct problems at 1-year follow-up. Being listed with child protective services was the only family characteristic that predicted long-term behavior problems in children	No effect sizes were reported
	Drugli and Larsson (2006)	127 Children with conduct problems, aged 4–8 years, and their parents (Universities in Norway, Trondheim, and Tromsø)	One year post-intervention, the majority of children still showed clinical levels of conduct problems. The parent training and child training combined group produced the most promising treatment effects, but the effects were not maintained 1 year later	Effect sizes were calculated using eta square analyses. The study found large effects (ES = 11.8 %) on child aggression problems in daycare/school settings. At follow-up analyses revealed a significant time by treatment group interaction, (ES = 6 %). Finally, from pre-to posttreatment large effects were noted for social problem-solving strategies (ES = 14.8 %), while follow-up data revealed medium effects for social problem solving strategies (ES = 7 %)
	Drugli et al. (2007)	127 Children ages 4-8 years, included for treatment of oppositional or conduct problems (Universities in Norway, Trondheim, and Tromsø)	Parent and child treatments combined produced the most favorable results at improving child social competence. Father reports also showed positive results for children in the parent-only condition	Effect sizes were calculated using eta square analyses. Results were a significant main effect (ES = 15.3 %) for treatment condition in father reports of social competence, a significant effect of treatment condition posttreatment (ES = 5.7 %) for mother ratings of child social competence on the CBCL, and a significant main effect of treatment condition after treatment (ES = 9.4 %) for child report of number of prosocial strategies used. At the 1-year follow-up, father reports on the CBCL showed a significant difference (ES = 18.2) for children with comorbid ADHD diagnoses versus those without a diagnosis

Table 1 continued

Intervention	Author	Population and location	Most critical findings	Effect sizes reported
	Larsson et al. (2008)	127 Norwegian children with ODD or CD, aged 4–8 years (Norway)	Participants in the parent condition and the parent–child condition reported less child conduct problems posttreatment then participants in the control condition. Positive parenting strategies also increased posttreatment for parents in the experimental condition	Effect sizes were calculated using Cohen's *d*. PT versus WLC effects: *d* = 0.65 for ECBI intensity (mother), and 0.8 for father ratings. ECBI problems (mother) = 0.47, and (father) = 0.75. CBCL aggression (mother) = 0.58, and (father) 0.40. CBCL attention (mother) = 0.53, and (father) = 0.34. CBCL internalizing (mother) = 0.57, and (father) = −0.07 PT + CT versus WLC: *d* = 0.42 for ECBI intensity (mother), and 0.17 for father ratings. ECBI problems (mother) = 0.55, and (father) = 0.02. CBCL aggression (mother) = 0.75, and (father) 0.52. CBCL attention (mother) = 0.59, and (father) = 0.50. CBCL internalizing (mother) = 0.60, and (father) = 0.33 PT versus PT + CT *d* = 0.22 for ECBI intensity (mother), and 0.54 for father ratings. ECBI problems (mother) = -0.03, and (father) = 0.67. CBCL aggression (mother) = −0.15, and (father) −0.12. CBCL attention (mother) = −0.03, and (father) = −0.24. CBCL internalizing (mother) = −0.05, and (father) = −0.36
Parent–teacher training	Baker-Henningham et al. (2009)	Five pre-schools, 27 classrooms, with an average of 21 children in each (Kingston, Jamaica)	Positive findings include increased positive teaching behavior, reduced negative behavior, more promotion of children's social and emotional skills, increase in children's behavior, and increased child enthusiasm	No effect sizes were reported
	Kratochwill et al. (2003)	125 Preschool children attending a Head Start program (Wisconsin, USA)	The IY video condition did not show superior results in observed behavior as compared to the manualized condition. respect to observed behavior. However, both parents and teachers reported that children met overall behavior goals	Effect sizes ranged from −3.46 to 3.00 for the manual treatment group, −3/32 to 3.53 for the videotape group, which yielded mean effect sizes of −0.09 and 0.05 for each group respectively
	Williford and Shelton (2008)	96 Preschoolers, teachers, and caregivers (USA)	As compared to children in the control group, children in the experimental group showed greater decreases in disruptive behavior, increases in positive teaching strategies, and more positive parenting practices	No effect sizes were reported

The statistic used is included, unless the author(s) did not report how effect sizes were calculated

training and a wait list control group and found that both treatments were effective based on parent report. Only the problem-solving group demonstrated reductions in behavioral intensity on the Eyberg Child Behavior Inventory (ECBI; Eyberg and Pincus 1999) and improvements in parental attitudes. However, this study did not include an IY-only condition which somewhat limits the implications for IY parent training. Another study (Gross et al. 1995) compared an IY parent training condition with a control condition; unlike many studies, both mothers and fathers participated. At follow-up, mothers in the intervention group reported greater parenting self-efficacy and less parenting stress than mothers in either the control group or a "drop out" group, while there were no such effects for fathers. Further, observations of parent–child interactions indicated that mothers in the intervention group demonstrated more labeled and unlabeled praise. The only difference noted for fathers was that children of those in the drop-out group became more negative with their fathers over time. The authors also noted that increases in self-efficacy were associated with a number of outcomes for measures for both fathers and mothers.

Other researchers (Connolly et al. 2001; Helfenbaum-Kun and Ortiz 2007) have also studied the IY parent training program with varying results. Connolly et al. (2001), utilizing an Irish population, reported improvement in scores on the Child Behavior Checklist (CBCL; Achenbach 1991) for both an IY group and an IY plus child intervention group in comparison with a control group with the greatest changes noted in the child intervention group. On the other hand, Helfenbaum-Kun and Ortiz (2007) conducted a study of the IY parent training program with 39 fathers only, all of whom were ethnic minorities. Unfortunately, a large majority of fathers in the intervention group attended fewer than half of the sessions and, in addition, the authors noted that low statistical power precluded determining significant effects. Even so, they indicated that results based on teacher and father reports (but not mother reports) suggested fewer behavioral problems for the children in the experimental group. However, no differences were noted for fathers' discipline skills, nurturance, or participation in child-rearing activities and there were "indications that the intervention had a negative impact on the marital/cohabitating relationship" (p. 48), although these were not consistent or dramatic. Gardner et al. (2006) reported positive results of IY including post-intervention differences between a treatment (14-week parent program) group and a control group as well as maintenance of improvements in parenting and child behavior at 18-month follow-up with a clinic-based sample evidencing conduct problems.

Scott et al. (2001, 2010b) reported on a study involving parents of children (ages 3–8) who were referred to clinics for antisocial behavior, as well as on the results of combining the IY parenting program with a literacy program (Scott et al. 2010a, b). In Scott et al. (2001) children of parents in the treatment group evidenced substantial decreases in problematic behavior while those in a wait list condition did not; however, one-third of those in the treatment condition still met the criteria for ODD. This study was conducted in a community-based setting and all of the children initially evidenced high levels of behavior problems while Scott et al. (2010a) collected data from families at schools in "an inner-city London borough that ranks in the highest 2 % of deprivation levels in England" (p. 1332). One-third of families never attended a session; 1-year follow up data indicated some differences in parenting behavior between those in the program and controls but there were no effects related to either child behavior or reading skills (Scott et al. 2010a). Based on their studies, Scott and colleagues have suggested that IY may be more appropriate for intervention than prevention. Conversely, Patterson et al. (2002) who recruited families to participate in an IY program in Oxford, England, found that children of parents in both the treatment and control groups demonstrated positive changes in intensity and problem behavior on the ECBI at post-treatment and at the 6-month follow-up. Children in the treatment group evidenced increases in prosocial behaviors but neither group demonstrated changes on a peer relationship scale.

Lavigne et al. (2008a) focused on the implementation of the IY parenting program in the context of pediatric primary care, and reported positive results for both a 12-week IY intervention group and a "book only" group in which parents were provided only the book that accompanies the IY program. Both conditions resulted in significant decreases on the Intensity scale of the ECBI and the CBCL, leading the authors to suggest that the "book only" intervention may be the first choice for treating children with oppositional behaviors (Lavigne et al. 2008b). More recently, Perrin et al. (2014) have also reported positive results of IY training with 273 parents of 2–4 year-old children with disruptive behaviors; the training was implemented in 11 pediatric offices and resulted in improvements in both reported and observed behaviors.

A series of papers by Hutchings et al. (2010), Edwards et al. (2007), Gardner et al. (2010), Hutchings et al. (2007), Jones et al. (2007) have also described IY parent training implementation. For example, Hutchings et al. (2007) obtained data from 153 parents whose children were deemed at-risk as a consequence of scoring above the clinical cut-off on the ECBI (Eyberg and Pincus 1999). Children in the treatment condition demonstrated decreased antisocial and hyperactive behavior as well as increased self-control vis-à-vis the children from wait list families. Utilizing data from this same cohort, Jones et al. (2007) reported that "the intervention group was associated with significantly lower levels of parent-reported inattention

and hyperactive/impulsive difficulties… [and] 52 % of those in the intervention condition, compared with 21 % in the control condition, displayed clinically reliable improvements post intervention…" (p. 749).

Letarte et al. (2010) conducted a study with neglectful parents and found positive effects for the intervention group with respect to both parenting skills and children's problem behaviors (all assessed by parent self-report). Consistent with other studies summarized here, McIntyre (2008), Dionne et al. (2009), and Lau et al. (2011) have also reported positive results for the IY parenting program, the first study employing a usual care comparison and the latter two a wait-list, delayed treatment condition.

Cummings and Wittenberg (2008) compared IY directly with another intervention, Supportive-Expressive Therapy-Parent Child (SET-PC), which the authors describe as a manualized, psychodynamically-based individual intervention that, like IY, utilizes videotapes and discussion. Results from this study, which included CBCL and ECBI intensity scores, yielded only one statistically significant difference between the two groups in observed positive parent behavior. At 1-year follow-up, IY mothers were more positive than SET-EC mothers.

In addition, two groups of researchers have conducted relatively long-term follow-up studies of IY. In Norway, Larsson et al. (2008) found evidence for the superiority of IY parent training over a waiting list control condition while Drugli et al. (2009) reported on 5- to 6-year follow-up data providing support for long-term benefits of IY treatment (parent IY or parent plus child IY). Posthumus et al. (2011) published results from a 2-year follow-up of an IY intervention in the Netherlands in which they found improvements in parenting skills and decreases in observed (but not parent-reported) child behavior problems over time, although they note the limitation that parents were not randomly assigned to the intervention and control groups.

Recently, and importantly, Menting et al. (2013) published a meta-analytic review of the IY parenting program, and reported a modest mean effect size ($d = 0.27$) "concerning disruptive child behaviors across informants". They also found that the effect size was substantially larger for treatment studies than for prevention studies. This is consonant both with their finding that studies including children with more severe behavior problems demonstrated greater effect sizes and with the suggestion made by Scott and his colleagues regarding intervention and prevention.

Teacher Training

Raver et al. (2008) reported on the implementation of the IY teacher training program at 18 Head Start centers which were randomly assigned to either an intervention or a control condition. Teachers in the experimental group received training in IY and also received coaching one morning a week from a classroom consultant while teachers in the control condition received support from teacher's aides. Using intent-to-treat analyses the researchers assessed factors such as positive and negative classroom climate, classroom management, and teacher sensitivity (Raver et al. 2008). Results indicated significant differences between the two groups for both positive and negative classroom climate with less robust differences in classroom management and sensitivity. Similarly, in Jamaica, teacher training resulted in reduced child conduct problems and increased child friendship skills in a group of children who had been identified as those with the greatest pre-intervention conduct problems. The research was conducted in a middle-income location with limited resources and the authors also noted that violence among youth and adults in Jamaica is "particularly prevalent" but that nearly universal preschool provides a forum for early intervention (Baker-Henningham et al. 2012). A report from the United Kingdom (Hutchings et al. 2013) also summarized positive results from the IY teacher program in that IY-trained teachers used more direct and specific commands with children and also waited longer after a command before giving another command. Further, the observers noted significantly less non-compliant child behavior in the intervention classes as well as more positive behavior. Trained teachers used more praise than non-trained teachers but not at a level of statistical significance.

Child Training: Dina Dinosaur

We located one study that evaluated only the IY program for children and met our inclusionary criteria. Hutchings et al. (2011) reported on the IY small group program (as opposed to the more preventatively-oriented, full classroom curriculum) with 24 5- to 9-year old children. The authors noted that the program was abbreviated to 10 weeks to comply with the school and research schedule. The researchers found no difference between the treatment and control groups post-intervention.

Combined IY Intervention Studies

Parent–Child Interventions

In 2002, Barrera et al. (2002, p. 91) reported on the Schools and Homes in Partnership (SHIP) project that combined the IY parent training program and the Dinosaur program, along with a program that focused on academic and social classroom behaviors, and one that included a reading

program as well. Results were mixed in terms of significant treatment effects and the authors stated that perhaps the "most important effect of the intervention might have been its reduction in the rate of directly observed negative behavior toward peers".

Drugli et al. (2007, 2009, 2010) Drugli and Larsson (2006), Larsson et al. (2008) have published extensively on the implementation of IY parent training and combined parent and child training. Larsson et al. (2008) reported on a sample of 127 families, with 4- to 8-year-old children with behavior problems. Families were assigned to either parent training or parent and child training combined treatment conditions. The study found that those in the combined condition demonstrated more positive changes than those on the waiting list, but differences between the two treatment groups were quite small. Results indicated positive behavior changes on the CBCL and ECBI as well as positive changes in parenting practices. The authors noted that at the 1-year assessment over three-quarters of children no longer met criteria for ODD although Drugli and Larsson (2006), reporting on the same cohort, found variability in generalization across settings. For example, those in the combined treatment condition showed decreased aggressive behavior in school or day care, but, unfortunately, this reduction in aggressive behavior was not maintained at a significant level at the 1-year follow-up (Drugli and Larsson 2006).

Drugli et al. (2010) reported long-term results for just over half over the 99 children from the original cohort of 127 whose families had been in the two treatment conditions. One-third of children met criteria for ODD and/or CD and over half of those met criteria for ADHD as well (Drugli et al. 2010); this is in contrast to the finding that over three-fourths of children no longer met criteria at the 1-year assessment. Just over one- third of the children did not meet diagnostic criteria for any DSM-IV disorder.

Parent–Teacher Training

We located two independent studies (Kratochwill et al. 2003; Williford and Shelton 2008) that specifically addressed the combination of IY parent and teacher training. Kratochwill et al. (2003) conducted a study over several years in which they compared manualized parent training with IY parent training, and in which both parents and teachers participated. The training was administered individually rather than in groups and a limited consultation component was incorporated as well. Contrary to the authors' expectations the IY video-based condition did not yield superior results to the manual-based condition, with respect to observed behavior. Conversely, however, they stated that both parents and teachers reported that children met "overall behavior goals".

Williford and Shelton (2008) implemented the IY parent and teacher training components in combination with mental health consultation for teachers in Head Start classrooms. Results indicated that while teachers in the control group reported increases in children's problematic behavior over time, those in the trained group did not, although there were no differences in changes reported by the parents in the two groups (Williford and Shelton 2008). Approximately one-third of potential intervention condition parents participated in IY parenting training; given this low rate it is somewhat difficult to determine what impact this may have had on the lack of differences in the two groups. In addition, because there was no IY teacher training condition without mental health consultation, it is not possible to determine the effects of IY alone or the added value of the consultation.

Teacher–Child Training

The results from one published study (Baker-Henningham et al. 2009) that implemented the teacher training program and the Dinosaur curriculum in an early childhood setting provide initial support for combining these two components of the IY series. This study, which took place in preschools in Jamaica, utilized the IY teacher training and a somewhat abbreviated form (14 sessions) of the Dinosaur curriculum. The authors reported positive outcomes for the IY condition as opposed to the control condition. Specifically, the teachers demonstrated more positive and less negative behavior, fewer commands, and greater encouragement of social and emotional skills. In addition, children in the IY classrooms showed more enthusiasm and appropriate behavior than those in the control classrooms (Baker-Henningham, et al. 2009).

Parent–Child-Teacher Training

We did not find any published reports of independent studies that combined the IY parent, child, and teacher programs.

Domestic and International Applications of the Incredible Years Programs with Multicultural Populations

The studies we accessed suggest that one of the strengths of the IY programs may be that they meet the needs of families in various countries worldwide, and those of several different racial and ethnic populations within the United States. Although Webster-Stratton and colleagues (Reid et al. 2001; Gross et al. 2003), conducted several studies with multicultural populations in the United States several others groups have done so in the United States, Europe, and elsewhere.

Incredible Years Programs with Multicultural Populations in the United States

Independent researchers have found that the IY interventions are beneficial for a range of ethnic, racial, and lower socioeconomic status populations in the United States (Barrera et al. 2002; Lau et al. 2011; Raver et al. 2008). Studies have found that the IY interventions appear to be effective for minority populations, high-risk multi-ethnic communities (Scott et al. 2010b), and in high-risk urban communities (Brotman et al. 2003).

For example, Barrera et al.'s (2002) study on the Schools and Homes in Partnership (SHIP) project, researchers found a substantial lack of differential response to the intervention between Hispanic and non-Hispanic children. This suggests that the combination of the parent training and Dinosaur programs is culturally sensitive to both Hispanic and non-Hispanic children. Similarly, the IY parenting program has been adapted to meet the needs of American Indian families (Dionne et al. 2009). Using a two-phased motivational-intervention approach, families reported high satisfaction with the culturally adapted program, and noted improvements in parenting strategies and child behavior problems post-intervention.

Raver et al. (2008) focused on the implementation of IY for various socioeconomic groups with promising results. Researchers examined the implementation of IY's teacher training program in low-income schools in Chicago, IL. Classrooms assigned to the IY intervention demonstrated significantly greater reductions in negative classroom behaviors as compared to control classrooms. These findings are parallel to those of Gross et al. (2003), which found that the IY parent program was effective for low SES minority groups.

Incredible Years Programs with International Populations

Several peer-reviewed, randomized controlled studies (Azevedo et al. 2013; Bywater et al. 2010; Connolly et al. 2001; Larsson et al. 2008; Posthumus et al. 2011) have found that the IY parent program has been successful in reducing problem behaviors and increasing positive parenting practices for families with children at risk for developing conduct disorder in a number of countries outside the United States, including England, Ireland, Wales, the Netherlands, and Portugal. Likewise, studies have also shown that the IY Teacher Training program is effective in enhancing teaching styles and in raising students' social competence (Baker-Henningham et al. 2009, 2012; Hutchings et al. 2007) in Jamaica, the United Kingdom, Norway, and New Zealand.

A randomized controlled study (Bywater et al. 2010) in Wales examined the efficacy and cultural sensitivity of the IY Parent Program in foster care homes. Researchers found significant improvements in children's problem behavior and an increase in positive parenting strategies in foster care parents. Results also showed a decrease in carers' depressive symptoms, and improvements in carer-child relationships.

In a study by Azevedo et al. (2013) the effectiveness of the IY parent program was tested in Portugal, for preschool children at risk of developing ADHD. Results of the study found that compared to the wait list control condition, parents assigned to the IY intervention reported significantly higher satisfaction with treatment, and noticed significantly greater improvements in their children's ADHD symptoms. In another study (Connolly et al. 2001) conducted in Ireland, researchers investigated the effectiveness of the IY parent training program for parents with children suffering from emotional difficulties. The study found that the IY parent training program showed significant improvement in the parent intervention group, and in a group that offered both parent and child interventions, as compared to those in the control condition.

On the contrary, however, a study (Scott et al. 2010a) in London, England showed that although the IY Parent Training Program was effective in improving parent–child relationships among high-risk, multi-ethnic communities, the program was not successful in improving all aspects of maladaptive behavior. The authors reported that although parent–child communication improved, children's conduct problems did not.

Additional studies have provided support for the IY teacher training programs. Research conducted in Kingston, Jamaica (Baker-Henningham et al. 2009, 2012), found that the IY Teacher Training programs might be effective in reducing child conduct problems, and at improving friendship skills. Similarly, the IY teacher training program was implemented as a Classroom Management (TCM) Program in the UK (Hutchings et al. 2007), which resulted in high teacher satisfaction, significant improvement in effective teaching skills, and increased child compliance. These results tentatively suggest that the IY Teacher Training programs might be effective in the UK and Jamaica; however, more research is needed to reliably establish effectiveness.

It is also important to note that although the IY programs have been implemented in other countries including Sweden, Denmark, Ireland, New Zealand, and Wales (Axberg et al. 2007; Birk-Olsen and Horsted 2008; Bywater et al. 2011; Fergusson et al. 2009; Hutchings et al. 2004; McDaniel et al. 2011), thus further documenting its adoption internationally, these studies did not meet our inclusionary criteria.

Other Applications of the Incredible Years

Recent studies have suggested that Incredible Years programs demonstrate positive change in young children's antisocial behaviors as discussed previously (Scott et al. 2001), disruptive behavior (McIntyre 2008), and Attention Deficit Hyperactivity Disorder (Jones et al. 2007). The programs have also been effective in treating families in the foster care system (Bywater et al. 2010; Kleve et al. 2010; Letarte et al. 2010; Linares et al. 2006), and families suffering from substance abuse (Stanger et al. 2011).

Neurodevelopmental Disabilities

One study (McIntyre 2008) supported the effectiveness of the IY Parent Training Program in treating children with developmental disabilities. Forty-three families of children with developmental disabilities were randomized to a care-as-usual control condition or to a usual care plus the 12-week IY parent training experimental condition. Results indicated that families in the experimental condition had significantly fewer negative parent–child interactions, and negative child behaviors than those in the control condition. The study also found that children with autism experienced the same significant effects as other children with developmental disabilities (McIntyre 2008). While these findings suggest that IY may be useful for parents of children with neurodevelopmental disorders, it is imperative that more studies research the program's efficacy for this population.

Child Protective Services

In addition to reducing negative parenting behaviors and child conduct issues the IY Parent Training Program has shown similar effects in families registered with child protective services and foster care (Bywater et al. 2010; Letarte et al. 2010; Kleve et al. 2010; Linares et al. 2006). Linares et al. (2006) have reported on IY with a combined population of primarily Latino and African American foster care and biological parents in the United States, incorporating a co-parenting adaptation. Biological and foster parent pairs were randomly assigned to the intervention group or usual care. The authors noted that parents in the experimental condition demonstrated significantly more positive discipline both post-intervention and at a 3-month follow-up, clearer expectations at follow-up, and co-parenting flexibility and problem solving post-intervention (Linares et al. 2006). This study suggests that the IY Parent Training Program is effective for non-biological foster parents, in addition to biological parents that are registered with child protective services.

Parents with Substance Abuse Disorders

A unique Contingency Management (CM) intervention was created to help parents with substance abuse problems implement positive parenting strategies with their behaviorally-challenged children (Stanger et al. 2011). The CM condition was an adaptation of the Incredible Years Parent Training Program, which included contingency management as incentives for frequent monitoring of parenting strategies, child behavior, good attendance, and the completion of homework assignments. Research found that in a study comparing the effects of the parenting program without incentives (PT) versus the parenting program with incentives (PTI), the children in PTI group had fewer internalizing and externalizing symptoms than children in the PT group. Furthermore, parents randomized to the PTI group reported fewer parent problems and implemented more positive parenting strategies (Stanger et al. 2011). These findings suggest that slight variations to the IY Parent Training Program may be helpful in assisting families with substance abuse problems. Needless to say however, there are still elements in need of additional research.

The literature reviewed thus far has provided some support for positive impact of the IY programs and suggests its applicability for many different populations. However, most interventions have costs associated with them, and the IY series is no exception. It is imperative, then, to consider its cost effectiveness, which has been addressed in several papers (e.g., Charles et al. 2013; Edwards et al. 2007; O'Neill et al. 2013)

Cost Effectiveness of the Incredible Years Programs

The Incredible Years series is associated with a relatively high cost. Ranging from $1,150 for the Dina Dinosaur program's DVD training package, to $4,795 for the parent training series DVD package, the IY interventions are expensive, especially for schools and organizations located in low-SES areas (www.incredibleyears.com). One study found that the IY parent program costs approximately $3,800 per child, when taking the salary for two group leaders and material costs into consideration (Scott et al. 2010b). In evaluating the cost-effectiveness of any intervention intended for families with CD, it is important to consider the financial ramifications of the disorder without effective treatment. CD is highly correlated with increased peer rejection, social isolation, comorbid anxiety disorders, school drop-out, substance abuse, teen pregnancy, and incarceration (Cohen 1998; Miller-Johnson et al. 2002; Nock et al. 2006). Each of these scenarios is associated with substantial financial risk, and should to be thoroughly

considered when analyzing the cost-effectiveness of the Incredible Years programs.

In another study (Edwards et al. 2007), researchers in the United Kingdom examined the cost-effectiveness of the IY parent program using a cost per unit of improvement analysis. In evaluating the cost-effectiveness, the research team estimated that the incremental cost effectiveness ratio was one point on the Eyberg intensity scale per £73 spent. Using that ratio, the IY parent program is expected to be 83.9 % effective for children at risk of developing CD. This study supports the cost-effectiveness of the IY parent program and suggests that the IY parent program may be cost-effective when used alone, rather than in conjunction with the teacher and child interventions.

Discussion and Directions for Future Research

Although the IY intervention programs have been the focus of a substantial amount of research over the past several decades, there are several areas in need of additional investigation. One of the most evident gaps in the IY literature is the paucity of independent, randomized controlled studies for both the teacher and child intervention programs and for various combinations of programs, as well as for the programs for babies, toddlers, and older children. In addition, more longitudinal studies are needed to measure the long-term effects of IY interventions. Although there is some evidence that a significant proportion of children who received IY interventions maintain some positive behavioral improvements several years post-follow-up (e.g., Drugli et al. 2009), there have not yet been enough studies to confirm the long-term results of all IY interventions for various ages, diagnoses, and demographic populations.

Interestingly, however, a longitudinal study by Webster-Stratton et al. (2011), indicated that initial improvements in conduct behaviors were not maintained for a large percentage of the cohort. Eight to 12 years post-treatment 23 % of participants engaged in delinquent behavior, 46 % reported substance abuse problems, and 42 % presented with externalizing behaviors (Webster-Stratton et al. 2011). Although these results suggest that the IY parent intervention may not be effective long-term, Webster-Stratton et al. state that these percentages are similar to those found in the general population. In contrast to this statement, however, the Office of Juvenile Justice and Delinquency Prevention reported that, in 2009, the courts processed 13.2 juvenile delinquency cases per 1,000 children and adolescents (OJJDP 2000) or about 1.3 % of minors. Although statistics regarding the prevalence of all child and adolescent delinquency cases have not been formally published, this number is substantially less than the 23 % in Webster-Stratton's study. However, it is important to note that Webster-Stratton et al.'s study population was comprised of children with identified conduct problems, not children from the general population. In addition, not all children and adolescents who demonstrate delinquent behavior are apprehended or have cases processed in court so the OJJDP figure may be an underestimate.

Until recently, IY research has not included other child and adolescent age groups that are at risk for developing problematic behaviors. The infant, toddler, and preadolescent programs for example, are noticeably under-researched in comparison to the child IY programs. A few studies (Bywater et al. 2011; Gross et al. 2003; Hutchings et al. 2009) that have examined the IY programs in these age groups have shown promising results; however, neither the Gross et al. (2003) nor the Hutchings et al. (2009) study met our inclusionary criteria. In addition, there is a paucity of studies that compare IY to other clearly delineated interventions; Kratochwill et al. (2003), discussed in this paper, an early study by Taylor et al. (1998) and another by Cummings and Wittenberg (2008) are exceptions. In Taylor et al.'s study, researchers compared the effects of Webster-Stratton's Parents and Children Series (PACS) to an eclectic treatment approach, and to a wait-list control group. Results showed that although both experimental treatment conditions rendered positive results, parents in the PACS group experienced fewer behavior problems post-intervention and greater satisfaction with the therapy, as compared to the eclectic treatment group. As noted previously, Cummings and Wittenberg's results yielded little difference between IY and another intervention.

Further, there are a number of other effective programs (e.g., PCIT, Early Risers Program; Triple P) for children at risk of developing or evidencing behavioral disorders (Eyberg and Pincus 1999; Nixon et al. 2004; August et al. 2001; Kaminski et al. 2008; Sanders 1999). Comparative research would help to identify the most critical components of each intervention program as well as their relative strengths and limitations. These data could also contribute to an understanding of which components the IY programs and other interventions have in common and which are unique, as well as which comprise "essential" components in achieving positive outcomes. For example, in PCIT the child and adult are together in the sessions and there is a clear focus on enhancing their relationship as well as on teaching the parent new and more effective strategies, while there is little emphasis on directly teaching the child new skills. IY, on the other hand, offers separate programs for children and parents, and clearly focuses on skills and problem solving for both groups. Similarly, IY is video- and vignette-based while some other interventions are not. While these programs, and others, all have at least some level of demonstrated effectiveness, we simply do not

know enough about how they compare with each other, what components they share, and—most importantly—how to create the most effective and "lean" program to facilitate implementation and accessibility. Kaminski et al. (2008) have suggested, based on a meta-analytic review of 77 studies of parent training programs (including IY, PCIT, and Triple P), that the most effective components may be those associated with "increasing positive parent–child interactions and emotional communication skills, teaching parents to use time out and the importance of parenting consistency, and requiring parents to practice new skills with their children during parent training sessions" (p. 567). Building on their findings to analyze and enhance interventions such as IY could help lead to more effective and streamlined programming.

While a comprehensive review of other programs or comparison with IY is beyond the scope of this paper, it may be illustrative to consider the Triple P Parenting Program as one other example given that, like IY, it is multi-faceted, has a substantial research base, and has been included in listing of effective and promising programs by NREPP, Blueprints, OJJDP, and the Promising Practices Network. Unlike IY, Triple P does not include specific programs for teachers or for young children themselves; however, it does offer a program for parents of teens, as well as "specialist programs" for such populations as parents of children who are overweight and parents of children with a disability that are in development (Triple P; Sanders 1999; www.triplep.net 2013). This differs from IY, for which a few studies (e.g., Jones et al. 2007; Kleve et al. 2010; Stanger et al. 2011) have implemented the standard program with particular targeted populations, in that Triple P actually has designated programs specifically designed for various groups and concerns. Of particular interest, Triple P can be implemented at different levels of intensity, as well as with different methods (e.g., individual, group).

As with IY, there is a growing body of research addressing Triple P's impact, although much of it has been published by the developer, Matthew Sanders, his collaborators, or by others at his home university. However, there are some independent studies as well; for example, in Germany, Hahlweg et al. (2010) reported both significant differences between their Triple P and control groups and maintenance of positive effects over a 2-year follow-up. However, Heinrichs et al. (2014) found mixed support for the impact of Triple P when implemented as a universal preventive program in preschools. After 4 years, the authors found that changes in parenting behavior persisted while they reported "little evidence for maintenance of change in behavior problems". Interestingly, a recent Canadian study (McConnell et al. 2012) indicated that parents who received both a parent education program and Triple P reported greater need satisfaction than those who had not. However, the authors also noted no significant differences between Triple P and treatment as usual on what they termed secondary outcomes, but which would appear to be quite important, including parenting stress and child behavior problems.

Of note, de Graff et al. (2008) reported positive effects of Level 4 of Triple P in a meta-analysis of 15 studies. However, the developer (Sanders) was an author on the vast majority of these. Nowak and Heinrichs (2008) also reported positive outcomes for Triple P in a meta-analysis but, again, included many studies that involved the developer. Wilson et al. (2012), in their meta-analysis of 33 studies (32 "authored by Triple-P affiliated personnel") reported mixed findings and indicated that the two studies "involving an active control group showed no between-group differences". In addition, some independent researchers have recently reported on failures to replicate positive findings. Eisner et al. (2012) described the implementation of Level 4 Triple P as a universal strategy and found that "the intervention had no consistent effects on either five dimensions of parenting practices or five dimensions of child problem behaviors…" (p.253). Similarly, Little et al. (2012) reported no effect for Triple P in a randomized controlled study, while positive effects were found for the Incredible Years and a third program. Although these studies offer valuable data by independent researchers, it is important to acknowledge that Triple P has generated less independently conducted research than the Incredible Years parenting intervention.

As Table 1 indicates, many of the studies we have reviewed reported effect sizes which ranged from small to large, with the majority being moderate. Some of the comparable results in studies published by Webster-Stratton and independent researchers may be due to several factors. For example, the IY series requires extensive training, which includes the submission of videotapes before accreditation can be granted. This stringent preparation required of facilitators may contribute to the similar outcomes of independent IY research and Webster-Stratton studies. In our opinion, some independent research has strengthened the credibility of the Incredible Years Series, which is why similar exploration may be useful for strengthening the reliability of programs like Triple P.

Clearly, no intervention will be effective for all children or their parents and, while there is support for IY, especially the parent program for young children, the support has not always been unequivocal or unqualified with some children not benefitting and some benefits not maintained over time. Therefore, future research should also consider how to enhance the benefits of IY and support its continued positive impact. In addition, several studies noted that substantial percentages of parents did not complete the IY program and, in some cases, declined participation; it will

be important to understand better why this happens and how to assist parents to stay involved. Interestingly, when August et al. (2006) studied the sustainability of the Early Risers' prevention program in community settings, they found that reduced levels of involvement on the part of the program developers were associated with lower attendance rates and limited positive outcomes. They attributed this not to difficulties with implementation or fidelity but rather to community and systems factors such as transportation, staff turnover, and agency downsizing (August et al. 2006). In addition, Lee et al. (2006) reported that barriers and difficulties varied according to the Early Risers program being implemented (child or parent). At present, it is unknown whether similar factors affect IY participation but this could be a fruitful direction for further research. IY would also benefit from greater understanding of the factors that affect such issues as agreeing to participate in the program, completing the program, external pressures that affect attendance and completion, and the like. Finally, while IY has been widely disseminated, it requires both significant training and substantial cost. While there is some evidence of both its clinical and cost effectiveness, the investment in terms of temporal and financial resources may prohibit both individual therapists and smaller organizations from being able to incorporate it in their practice.

Limitations of Review

This is the first overview of independent research on the various IY programs, both individually and combined, and contributes to the literature in that regard. There are, however, important limitations to this paper that need to be acknowledged. First, as noted, we established criteria for inclusion in the review which eliminated items such as some reports of community-based implementations, book chapters, and studies that did not include a control or comparison group. Second, we accessed only those materials that were available in English, and third, while we attempted to be as thorough as possible in our search and checked and cross-checked sources and reference lists in publications, it is certainly possible that we neglected to include the results of pertinent studies. Finally there is always the "file drawer" problem to consider (Rosenthal 1979); we did not have access to papers that met our criteria but have not been published.

Conclusion

We believe that Webster-Stratton and her colleagues, as well as other researchers, deserve credit for their on-going efforts both to assess the IY programs and to establish their effectiveness across a range of settings and cultures and, perhaps most impressively, with children and families who are either at risk due to poverty and other factors, or who have been diagnosed with a variety of mental health disorders. While no prevention or intervention program can be a universal panacea we contend that the research support for the IY Preschool/Early Childhood parent program, although not unequivocally positive and strong, is such that it merits the attention and substantial replication that it has accrued. The other parent programs, however, lack the same support, while the research base for the teacher training program, the Dinosaur children's program, and the program combinations is far more modest. Given the on-going need for evidence-based interventions for children, their parents, and teachers, it is our sincere hope that this review will encourage others to conduct research that will further enhance the understanding of the effectiveness of the IY series.

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