

# A meta-analysis update on the effects of early family/parent training programs on antisocial behavior and delinquency

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## Abstract

*Objective* To update Piquero et al.'s meta-analysis on early family/parent training programs.

*Methods* Screening of eligible studies was carried out for the period between January 2008 and August 2015. An additional 23 studies were identified, which were added to the original database of 55 studies, totaling an overall sample of 78 eligible studies. A random-effects model was used to obtain an overall mean effect size estimate. Additional analyses were performed to assess publication bias and moderation.

*Results* An overall average, positive, and significant effect size of 0.37 was calculated, which corresponds to 32 out of 100 in a treated group versus 50 out of 100 in a control group who offended. There was some evidence of publication bias and moderation.

*Conclusions* Early family/parent training programs are an effective evidence-based strategy for preventing antisocial behavior and delinquency.

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## Introduction

Antisocial, delinquent, and criminal behavior, especially when sustained throughout the life-course, exerts a significant financial and human cost (Cohen and Piquero 2009). As a result, intervention in adolescence or even adulthood, while important, may occur a bit too late to thwart early-onset criminal careers. As a result, efforts at developing and evaluating prevention strategies early on in the life-course is of critical importance to building a safer society (Sherman et al. 2002; Tremblay and Craig 1995) and deterring the onset of early and especially persistent criminal careers.

One prominent set of prevention strategies surrounds early family/parent training programs. In brief, these efforts seek to provide families and parents with training and skills that help them better attend to the physical, mental, and social skills of their children. And while a variety of these programs exist, including several evidence-based efforts like The Incredible Years, Triple P Parenting, and Nurse Family Partnerships, they all focus on improving child outcomes via helping parents more effectively socialize their children.

In 2009, we published a meta-analysis of 55 high-quality early family/parent training programs, the results of which provided very strong support for the delivery of these programs in deterring subsequent antisocial behavior (Piquero et al. 2009). In this more recent meta-analysis, we provide an update to that original analysis that includes an additional 23 studies uncovered by our update spanning the January 2008–August 2015 period.

## Methods

### Criteria for inclusion and exclusion of studies

The primary inclusion/exclusion criteria for the Piquero et al. (2009) and the current review were as follows:

1. Types of studies: randomized controlled experimental design.
2. Types of participants: families with a child under age 5 or the mean age of the sample was approximately age 5 at the beginning of the intervention. Programs with physically and/or mentally handicapped children were excluded.
3. Type of intervention: parent training was a major component of the intervention.
4. Types of outcomes: child behavior problems such as conduct problems, delinquency, and/or antisocial behavior.
5. Sufficient data: adequate data was needed for calculating an effect size if one was not provided (i.e., means and standard deviations, *t*-tests, *F*-tests, *p*-values, etc.).

6. No time frame restrictions, except that the search began with the first study identified by Bernazzani et al. (2001).
7. No geographic restrictions.
8. Studies needed to be written in English.

A more detailed description of the methods related to the search strategy for the identification of relevant studies and the criteria for determination of independent findings can all be found in Piquero et al. (2009, pp. 91–94). In short, the current meta-analysis adopted the exact same strategies outlined in Piquero et al. (2009), although with a specific focus on identifying relevant published and unpublished studies that have become available since their 2009 review. Thus, this meta-analysis combines all of the relevant studies available from 2008 to 2015 with the data from Piquero et al.'s (2009) meta-analysis to provide a comprehensive and up-to-date resource on the effectiveness of early family/parent training programs on antisocial behavior and delinquency.

## Results

### Literature search

Our initial literature search for relevant studies available from January 2008 to August 2015 produced over 3,400 hits. Following this initial search, we reviewed these studies and discarded any duplicates, studies that were not published in English, and studies that did not upon further examination conform to our pre-defined inclusion criteria. This cleaning process left 29 studies. After further reviewing this reduced list, six additional studies were removed because they failed to provide data relevant for the coding of an effect size.<sup>1</sup> As such, our final sample of relevant studies identified post-Piquero et al.'s (2009) meta-analysis was 23 studies, which after combining these studies with the 55 studies from Piquero et al.'s (2009) meta-analysis left us with a total sample size of 78 randomized, controlled trials of early family/parent training programs. A complete description of all of these 78 studies can be found in the [Appendix](#).

### Types of interventions

Generally speaking, the types of interventions identified in this review can broadly be classified as home visitation programs or parent training programs. The home visitation programs typically involve health professionals such as nurses, doctors, or paraprofessionals conducting in-home visits with the mothers to educate them on how to properly care for their children (for example, see Butz et al. 2001; Cullen 1976; Fergusson et al. 2005b; Heinicke et al. 2001; Kitzman et al. 1997; McCarton et al. 1997; Olds, Robinson, Pettitt et al. 2004; Stone et al. 1988). Comparatively, the parent training

<sup>1</sup> The descriptive results reported in these six studies indicated that significant and positive effects in terms of a reduction in problem behavior were detected for the treatment group relative to the control group in four of the six studies. These results are consistent with the significant effects noted for the 78 studies that are included in this review, where 67 out of 78 of the effects were positive and 38 of the 67 were significant at the  $p < .05$  level.

programs often relied on individual or group-based parent training sessions that were either conducted at a clinic, school, or some alternative community-based setting. The most recognizable of these types of parent training programs are the Incredible Years Parenting Program, the Triple P Positive Parenting Program, and Parent–child interaction therapy (PCIT). These types of programs often focus on methods of instruction to strengthen the parent’s competencies in monitoring and disciplining their child’s behavior and promoting the child’s social and emotional competence (Edwards et al. 2007; Gardner et al. 2006; Helfenbaum-Kun and Ortiz 2007; Kim et al. 2007; Patterson et al. 2002; Reid et al. 2007; Scott et al. 2001; Taylor et al. 1998; Tucker 1996; Webster-Stratton 1982, 1984, 1990b, 1992, 1998; Webster-Stratton and Hammond 1997; Webster-Stratton et al. 1988, 2001, 2004). In addition, these programs at times can also attempt to train parents to use positive and nonviolent techniques to manage their children’s behavior (Leung et al. 2003; Markie-Dadds and Sanders 2006; Morawska & Sanders, Sanders et al. 2000a, 2000b), or aim to foster a caring and responsive relationship between the parent and child through modeling and role playing (Brestan et al. 1997; Eyberg et al. 1995; McNeil et al. 1991; Schuhmann et al. 1998; Zangwill 1983).

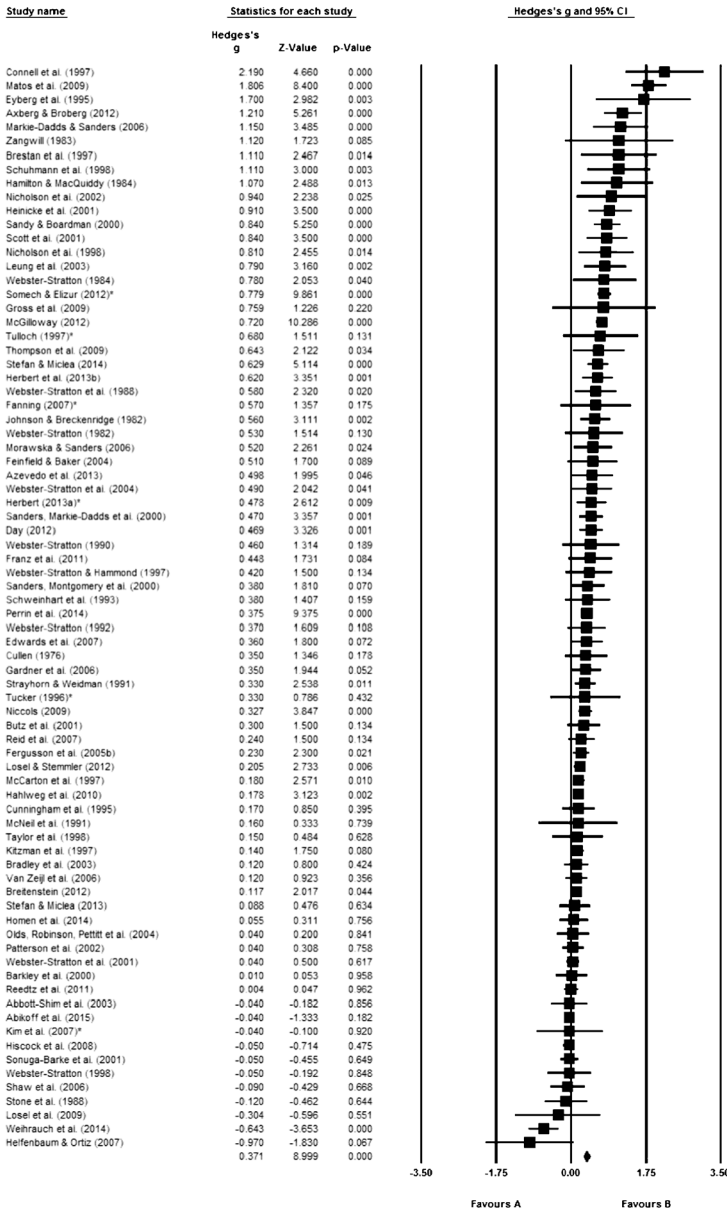
### Effect size

We relied on Cohen’s  $d$  (Cohen 1988) for determining the effect sizes for this meta-analysis, and the primary source for calculating Cohen’s  $d$  was the standardized mean difference. However, in the event where Cohen’s  $d$  effect size estimates were not provided or in situations where means and standard deviations were not provided, we relied on  $t$ -values,  $f$ -values,  $p$ -values, correlations, odds-ratios, etc. to calculate the effect sizes (see Lipsey and Wilson 2001 for the relevant formulas). Further, we applied the Hedges and Olkin (1985) adjustment and used inverse variance weights in calculating the effect sizes to be consistent with Piquero et al. (2009). All of the meta-analytic results described here and below were performed using Comprehensive Meta-Analysis (CMA) software, version 2 (Borenstein et al. 2005).

Figure 1 provides the results of a forest plot illustrating the individual study effects sizes that were obtained and/or calculated. These Hedges’s  $g$  estimates in the forest plot are organized in descending order of effect size magnitude along with their associated  $z$  statistic and corresponding  $p$ -values. In addition, the graph on the right side of Fig. 1 displays these estimates with their corresponding 95 % confidence intervals. As can be seen, the overwhelming majority of the effect sizes were positive (67 out of 78) and significant at the  $p < .05$  level (38 of the 67 positive effect sizes were statistically significant). Comparatively, only 11 of the studies yielded a negative effect size estimate, with only one of these negative effect sizes being statistically significant (Weihrauch et al. 2014). Also, as shown in Fig. 1, the overall mean effect size (with random effects) for these 78 studies was 0.37 ( $z = 8.99$ ,  $p < .001$ ).<sup>2</sup>

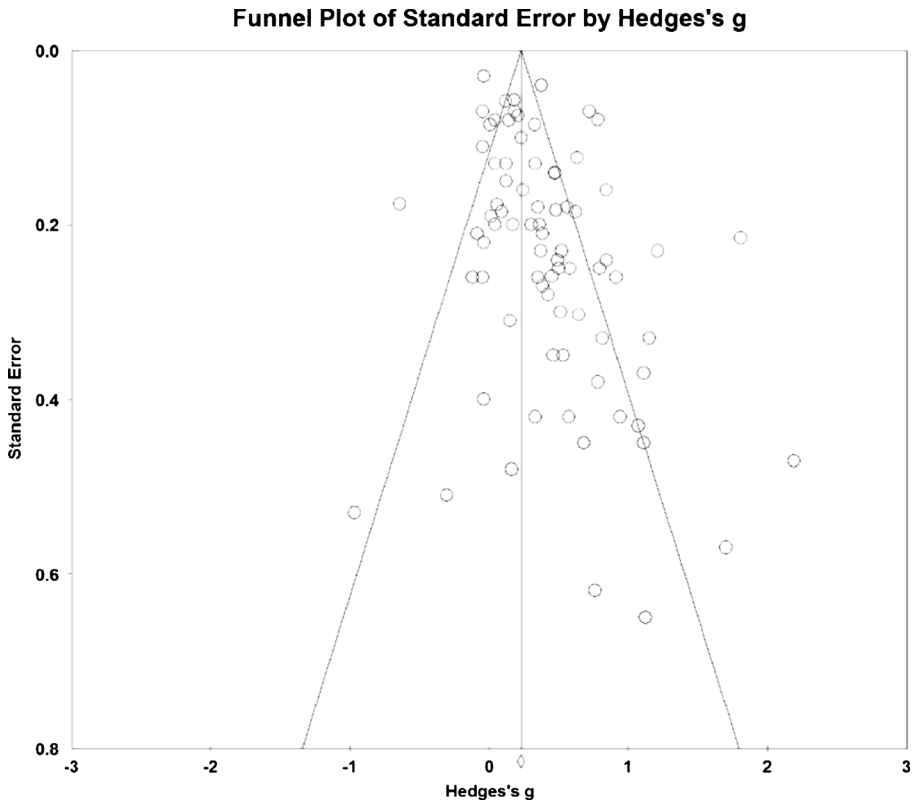
<sup>2</sup> We also calculated the average effect size for the 23 studies identified during the search period January 2009–August 2015. These results indicated a positive and significant average effect size of 0.39 (95 % CI = 0.24–0.54;  $z = 5.148$ ,  $p < .001$ ).

# Meta Analysis



## Meta Analysis

Fig. 1 Forest plot of the distribution of effect sizes sorted by magnitude ( $n = 78$  studies). Note: \* = unpublished study

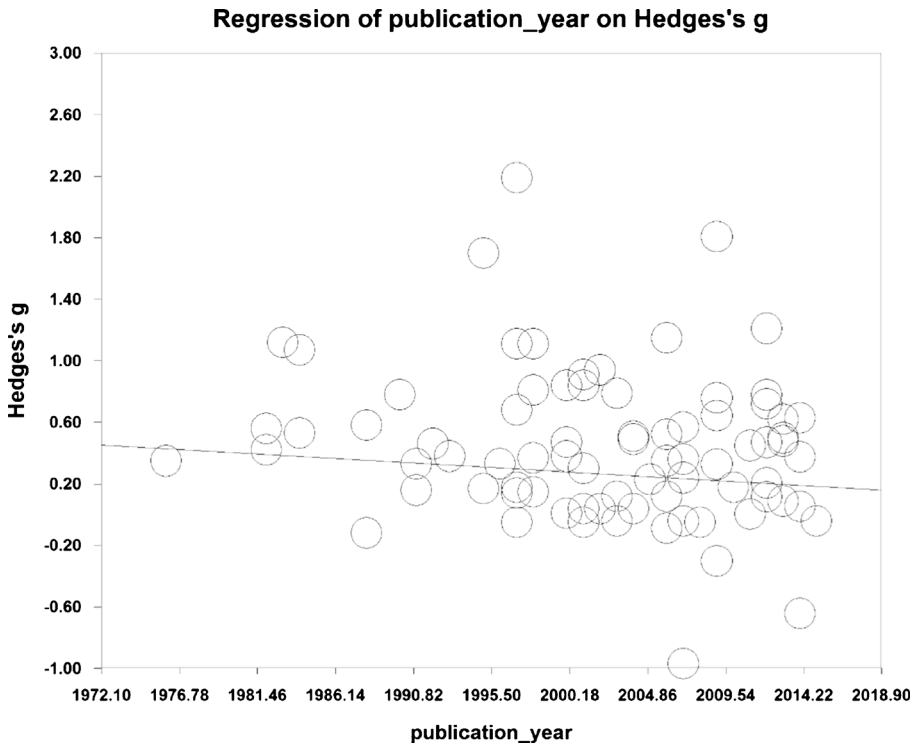


**Fig. 2** Funnel plot examining publication bias. Note: Kendall's tau statistic = 0.18,  $z=2.38$ ,  $p=.02$ ; Eggers regression intercept = 1.49, standard error = 0.41,  $t=3.66$ ,  $p<.001$

**Table 1** Weighted effect sizes, confidence intervals, z-tests and  $Q$  statistics of moderators (with random effects)

Variables	$N$	Weighted ES	Lower 95 % CI	Upper 95 % CI	Z-test	$Q$ -statistic
Country of publication						
US-based	46	.39	.28	.50	7.14***	239.62***
Non US-based	32	.35	.22	.48	5.41***	227.05***
Type of program						
Parent training	67	.39	.30	.48	8.67***	328.44***
Home visits	11	.28	.07	.49	2.67**	113.09***
Small vs large samples						
$N < 100$	50	.49	.35	.62	6.86***	312.19***
$N > 100$	28	.26	.16	.35	5.33***	158.41***
Publication bias						
Published	73	.37	.29	.45	8.74***	477.77***
Not published	5	.43	.16	.70	3.11**	1.93
Total	78	.37	.29	.45	8.99***	481.899***

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

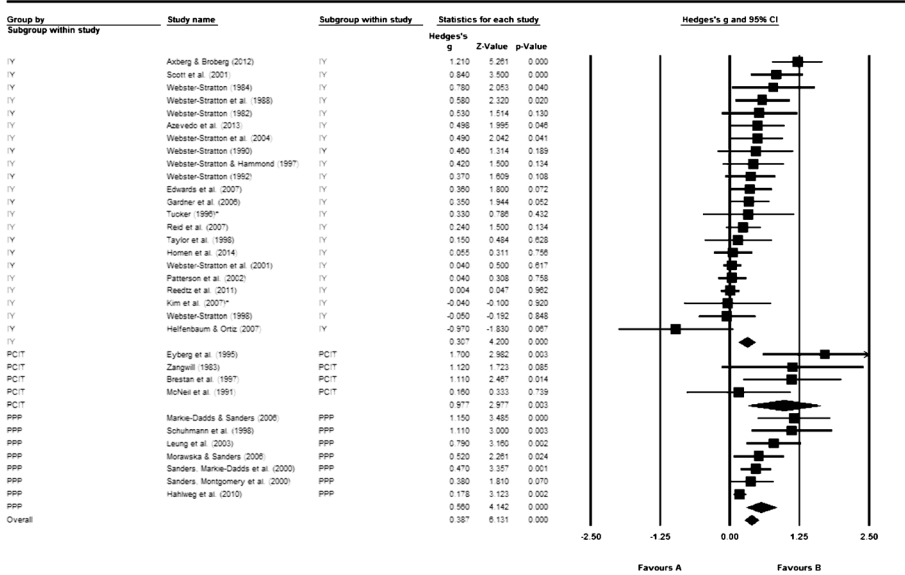


**Fig. 3** Meta-regression (with random effects, maximum likelihood). Note: publication year: regression coefficient (slope) =  $-.001$ , standard error =  $.001$ ;  $z = -1.14$ ,  $p = .26$

In order to remain consistent with Piquero et al. (2009), we included unpublished studies to address the “file drawer” problem. In this vein, we assessed the potential for publication bias through the use of a funnel plot and calculated relevant test statistics (e.g., Kendall’s and Egger’s tests) (see Fig. 2). Upon reviewing the funnel plot (where the larger studies are plotted at the top and the smaller studies are plotted at the bottom) and the associated Kendall’s ( $z = 2.38$ ,  $p = 0.02$ ) and Egger’s ( $t = 3.66$ ,  $p < .001$ ) test statistics, it appears that there is some evidence that publication bias may be present as the smaller studies do seem to be clustering more to the right. This asymmetry suggests that there seems to be a tendency for smaller studies to be published if they have larger than average effects.

Following Piquero et al. (2009) and our own analysis that revealed that there was not homogeneity in the effect sizes ( $Q = 481.89$ ,  $p < .001$ ), we estimated a series of moderator analyses to further explore where some of the source of this heterogeneity may exist. Table 1 presents the results for the categorical ANOVA moderator analyses (with random effects), relying on the exact same moderators evaluated by Piquero et al. (2009). The findings suggest that country of

# Meta Analysis



## Meta Analysis

**Fig. 4** Forest plot of the distribution of effect sizes sorted by magnitude and grouped by “brand” of early/ family parent training programs ( $N=33$  studies). Note: \* = unpublished study. *IY* = Incredible Years; *PCIT* = Parent-child interaction therapy; *PPP* = Triple P Parenting

publication (US versus not US), type of program (parent training versus home visits), sample size (small sample versus large sample), and publication bias (published versus unpublished) were all statistically significant effect size moderators. Finally, as plotted in Fig. 3, the results of a meta-analytic regression model (with random effects and estimated using a maximum likelihood function) did not demonstrate the year of the publication of the study to be a statistically significant effect size moderator.<sup>3</sup>

<sup>3</sup> It is important to note that we did also estimate a meta-analytic regression model (with random effects and using a maximum likelihood function) with all four of the categorical moderators and the continuous moderator of year of publication included simultaneously. However, as none of these variables were determined to be a statistically significant effect size predictor, we opted to not present the results of this full regression model.



In one final interesting and supplemental analysis, we filtered the 78 studies down to 33 studies that were specifically early family/parent training interventions of the three most popular “brands” of early family/parent training programs, that is, The Incredible Years Program, Parent–child interaction therapy, and the Triple P Parenting Program. Figure 4 illustrates the Hedges’s  $g$  estimates of these programs only in the forest plot, which are organized in descending order of effect size magnitude along with their associated  $z$  statistic and corresponding  $p$ -values and grouped by “brand” on the left side of Fig. 4. In addition, the graph on the right side of Fig. 4 displays these estimates with their corresponding 95 % confidence intervals. As illustrated, the overall mean effect sizes for all three “brands” are positive and statistically significant, with the largest mean effect size being observed for Parent–child interaction therapy (mean effect size=0.98,  $p < .01$ ), followed by the Triple P Parenting Program (mean effect size=0.56,  $p < .001$ ), and the Incredible Years Parenting Program (mean effect size=0.31,  $p < .001$ ).

## Discussion

The purpose of this paper was to update the early family/parent training meta-analysis conducted by Piquero et al. (2009) and published in the *Journal of Experimental Criminology*. Our updated search, from January 2008 to August 2015, yielded an additional 23 methodologically rigorous studies that we added to the existing database of 55 studies, which yielded a total sample size of 78 studies to be used in this update.

Four main findings emerged from our analysis. First and foremost, we replicated the substantive finding of our previous work; namely, that early family/parent training “is an effective intervention for reducing behavior problems among young children” (Piquero et al. 2009, p. 83). The overall mean effect size in our analysis of 78 individual effect sizes was 0.37, slightly higher than we obtained in our 2009 analysis (0.35). Second, we did find some evidence of publication bias, in that there was a tendency for smaller studies to be published if they have larger than average effects. Third, we also detected some evidence of moderating effects. In particular, country of publication, type of program, sample size, and publication bias were all statistically significant effect size moderators. Lastly, in one final and supplemental analysis, we determined that the overall mean effect sizes for all three “brands” of the most popular early family/parent training programs are positive and statistically significant, with the largest mean effect size being observed for Parent–child interaction therapy (mean effect size=0.98), followed by the Triple P Parenting Program (mean effect size=0.56), and the Incredible Years Parenting Program (mean effect size=0.31). In short, early family/parent training programs are an important evidence-based strategy that deserves continued application and expansion as part of a more general strategy for building a safer society.

## Appendix

**Table 2** Early family/parent training program evaluations included in meta-analysis

Author, publication date	Location	Type of intervention	Time of study <sup>b</sup>	Original sample size <sup>a</sup>	Targeted age(s)
Abbott-Shimm and Lambert (2003)	Southern Urban Setting USA	Parent training	1998–1999	E = 87 C = 86	4 years old
Abikoff et al. (2015)	New York, NY, USA	Home visits	2008–2012	E = 67 C = 34	3–4 years old
Axberg and Broberg (2012)	Sweden	Incredible Years Parenting Program Parent training	NR	E = 38 C = 24	4–8 years old
Azevedo et al. (2013)	Portugal	Incredible Years Parenting Program Parent training	2009–2011	E = 69 C = 56	3–6 years old
Bankley et al. (2000)	Worcester, MA, USA	Parent training	1991–1996	E = 79 C = 42	Kindergarteners ≈ 5 years old
Bradley et al. (2003)	Metropolitan Toronto Canada	Parent training	1998	E = 119 C = 109]	3–4 years old
Breitenstein et al. (2012)	Chicago, IL, USA	Chicago Parent Program Parent training	2002–2011	E = 267 C = 237	2–4 years old
Brestan et al. (1997)	USA	Parent–child interaction therapy Parent training	NR	E = 14 C = 16	Mean age = 4.54 years
Butz et al. (2001)	Two Urban Hospitals USA	Home visits	1994–1997	E = 59 C = 58	Birth
Connell et al. (1997)	Rural South East Queensland Australia	Parent training	NR	E = 12 C = 12	2–6 years old
Cullen (1976)	Australia	Home visits	1964–1967	E = 124 C = 122	1 year old
Cunningham et al. (1995)	Hamilton Schools USA	Parent training	1991–1993	E = 94 C = 56	Junior Kindergarten ≈ 4 years old
Day et al. (2012)	London UK	Parent training	2010	E = 54 E = 50	2–11 years old
Edwards et al. (2007)	North and Mid Wales UK	Incredible Years Parenting Program Parent training	NR	E = 86 C = 47	3–4 years old

**Table 2** (continued)

Author, publication date	Location	Type of intervention	Time of study <sup>b</sup>	Original sample size <sup>a</sup>	Targeted age(s)
Eyberg et al. (1995)	USA	Parent-child interaction therapy Parent training	NR	E = 19 C = 8	3–6 years old
Fanning (2007)*	USA	Parent training	2005–2006	E = 14 C = 14	3–5 years old
Fenfield and Baker (2004)	Los Angeles, CA, USA	Parent training	NR	E = 24 C = 23	4–8 years old
Fergusson et al. (2005b)	Christchurch New Zealand	Home visits	2000–2001	E = 220 C = 223	Birth
Franz et al. (2011)	Germany	Home visits	NR	E = 26 C = 35	3–6 years old
Gardner et al. (2006)	Oxford UK	Incredible Years Parenting Program Parent training	NR	E = 44 C = 32	2–9 years old
Gross et al. (2009)	Chicago, IL, USA	Chicago Parent Program Parent training	2002–2004	E = 135 C = 118	2–4 years old
Hahlweg et al. (2010)	Germany	Triple P Parenting Program Parent training	NR	E = 196 C = 94	3–6 years old
Hamilton and MacQuiddy (1984)	USA	Parent training	NR	E = 18 C = 9	2–7 years old
Heinicke et al. (2001)	Los Angeles, CA, USA	Home visits	NR	E = 31 C = 33	Birth
Helffenbaum-Kun and Ortiz (2007)	New York, NY, USA	Incredible Years Parenting Program Parent training	NR	E = 23 C = 16	3–5 years old
Herbert (2013)*	Massachusetts USA	Parenting Your Hyperactive Preschooler program Parent training	2009–2011	E = 17 C = 14	3–6 years old
Herbert et al. (2013)	Massachusetts USA	Parenting Your Hyperactive Preschooler program Parent training	2009–2011	E = 17 C = 14	3–6 years old
Hiscock et al. (2008)	Melbourne, Victoria Australia	Parent training	2004	E = 329 C = 404	6–7 month old
Homen et al. (2014)	Portugal	Incredible Years Parenting Program Parent training	2009–2011	E = 24 C = 12	3–6 years old
Johnson and Breckenridge (1982)	Houston, TX,	Parent training	1970	E = 214	1 year old

Table 2 (continued)

Author, publication date	Location	Type of intervention	Time of study <sup>b</sup>	Original sample size <sup>a</sup>	Targeted age(s)
Kim et al. (2007)*	USA First-generation Korean Americans, USA	Incredible Years Parenting Program Parent training	2003–2004	C = 244 E = 20 C = 9	3–8 years old
Kitzman et al. (1997)	Memphis, TN, USA	Home visits	1990–1991	E = 681 C = 458	Birth
Leung et al. (2003)	Hong Kong, China	Triple P Parenting Program Parent training	2001	E = 74 C = 17	3–7 years old
Lösel and Stemmle (2012)	Germany	Parent training	NR	E = 282 C = 327	Mean age = 4.7 years old
Lösel et al. (2009)	Germany	Parent training	NR	E = 54 E = 54	Mean age = 4.7 years old
Mankie-Dadds and Sanders (2006)	Australia	Triple P Parenting Program Parent training	NR	E = 32 C = 31	2–5 years old
Matos et al. (2009)	Puerto Rico USA	Parent training	2002–2004	E = 12 C = 20	4–6 years old
McCantton et al. (1997)	USA	Home visits	1984–1985	E = 377 C = 608	Birth
McGilloway et al. (2012)	Ireland	Parent training	2009	E = 103 C = 46	32–88 months old
McNeil et al. (1991)	USA	Parent–child interaction therapy Parent training	NR	E = 10 C = 10	2–7 years old
Morawska and Sanders (2006)	Brisbane, Queensland Australia	Triple P Parenting Program Parent training	NR	E = 85 C = 41	Mean age = 26.10 months
Niccols (2009)	Canada	COPing with Toddler Behaviour Parent training	2002–2005	E = 45 E = 45	1–3 years old
Nicholson et al. (1998)	USA	Parent training	NR	E = 20 C = 20	1–5 years old
Nicholson et al. (2002)	Large Urban Midwestern city USA	Parent training	NR	E = 13 C = 13	1–5 years old
Olds, Robinson, Pettitt et al. (2004)	Denver, CO, USA	Home visits	1994–1995	E = 480 C = 255	Birth

**Table 2** (continued)

Author, publication date	Location	Type of intervention	Time of study <sup>b</sup>	Original sample size <sup>a</sup>	Targeted age(s)
Patterson et al. (2002)	Oxford United Kingdom	Incredible Years Parenting Program Parent training	NR	E = 60 C = 56	2–8 years old
Perrin et al. (2014)	Massachusetts USA	Parent training	2007–2010	E = 123 C = 61	Mean age = 2.8 years old
Reedtz et al. (2011)	Norway	Incredible Years Parenting Program Parent training	NR	E = 89 C = 102	2–8 years old
Reid et al. (2007)	Seattle, WA, USA	Incredible Years Parenting Program Parent training	NR	E = 89 C = 97	Kindergarteners ≈5 years old
Sandy and Boardman (2000)	New York, NY, USA	Parent training	1997–1999	N = 404	2–6 years olds
Sanders et al. (2000a)	Brisbane, Australia	Triple P Parenting Program Parent training	NR	E = 228 C = 77	3–4 years old
Sanders et al. (2000b)	Metropolitan city, Australia	Triple P Parenting Program Parent training	NR	E = 28 E = 28	2–8 years old
Schuhmann et al. (1998)	USA	Parent–child interaction therapy Parent training	NR	E = 37 C = 27	3–6 years old
Schweinhart et al. (1993)	Ypsilanti, MI, USA	Parent training	1958–1962	E = 58 C = 65	3–4 years old
Scott et al. (2001)	South London United Kingdom	Incredible Years Parenting Program Parent training	1995–1999	E = 90 C = 51	3–8 years old
Shaw et al. (2006)	Pittsburgh, PA, USA	Parent training	2001	E = 60 C = 60	2 years old
Somech and Elizur (2012)	Israel	Home visits	2007–2009	E = 140 C = 69	Mean age = 48 months
Sonuga-Barke et al. (2001)	Southampton	Parent training	1992–1993	E = 58 C = 20	3 years old
Strayhorn and Weidman (1991)	USA	Parent training	1987–1988	E = 50 C = 48	3–4 years old
Stefan and Miclea (2013)	Romania	Fast Track program Parent training	2009	E = 121 C = 83	Mean age = 50 months
Stefan and Miclea (2014)	Romania	Fast Track program	2009	E = 89	Mean age = 50 months

Table 2 (continued)

Author, publication date	Location	Type of intervention	Time of study <sup>b</sup>	Original sample size <sup>a</sup>	Targeted age(s)
Stone et al. (1988)	USA	Parent training Home visits	1977–1980	C = 69 E = 90 C = 60	Birth
Taylor et al. (1998)	Ontario, Canada	Incredible Years Parenting Program and Eclectic parent training	NR	E = 92 C = 18	3–8 years old
Thompson et al. (2009)	United Kingdom	Parent training	NR	E = 17 C = 13	30–77 months old
Tucker (1996)*	USA	Incredible Years Parenting Program Parent training	NR	E = 12 C = 12	2–3 years old
Tulloch (1997)*	Bronx and Queens, New York USA	Parent training	NR	E = 20 C = 7	3–5 years old
Van Zeijl et al. (2006)	Western region Netherlands	Parent training	2001–2002	E = 120 C = 117	1–3 years old
Webster-Stratton (1982)	USA	Incredible Years Parenting Program Parent training	NR	E = 16 C = 19	3–5 years old
Webster-Stratton (1984)	USA	Incredible Years Parenting Program Parent training	NR	E = 24 C = 11	3–8 years old
Webster-Stratton et al. (1988)	USA	Incredible Years Parenting Program Parent training	NR	E = 85 C = 29	3–8 years old
Webster-Stratton (1990)	USA	Incredible Years Parenting Program Parent training	NR	E = 31 C = 14	3–8 years old
Webster-Stratton (1992)	USA	Incredible Years parenting program Parent training	NR	E = 59 C = 41	3–8 years old
Webster-Stratton and Hammond (1997)	USA	Incredible Years Parenting Program Parent training	NR	E = 55 C = 22	4–8 years old
Webster-Stratton (1998)	USA	Incredible Years Parenting Program Parent training	NR	E = 345 C = 167	Pre-school children ≈4 years old
Webster-Stratton et al. (2001)	USA	Incredible Years Parenting Program Parent training	NR	E = 191 C = 81	4 years old
Webster-Stratton et al. (2004)	Seattle, WA, USA	Incredible Years Parenting Program	1995–1997	E = 80	4–8 years old

**Table 2** (continued)

Author, publication date	Location	Type of intervention	Time of study <sup>b</sup>	Original sample size <sup>a</sup>	Targeted age(s)
Wehrauch et al. (2014)	Germany	Parent training Parent training	2005–2006	C = 26 E = 26 C = 32	3 years olds
Zangwill (1983)	USA	Parent-child interaction therapy Parent training	NR	E = 8 C = 7	2–8 years old

Note: Group sample sizes that did not receive parenting intervention or were not in the control group are not reported in the figures above

<sup>a</sup> E = experimental, C = control, <sup>b</sup> NR = not reported

\* unpublished data

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