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Article

Meta-analysis of the Efficacy and Effectiveness of Parent Child Interaction Therapy (PCIT) for Child Behaviour Problems

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Abstract

Background: Parent-Child Interaction Therapy (PCIT) is a well-established treatment for behavioural, hyperactivity and oppositional-defiant problems in children. Previous meta-analyses are scarce, and they have tended to mix problems and measures. **Objective:** A meta-analysis study was conducted with all available studies on PCIT (1980 to 2020) to determine its specific efficacy and effectiveness for child behavioural problems. **Method:** Selection from databases collected a total of 100 studies. The inclusion criteria were to compare PCIT in children with behavioural problems between 2 and 12 years of age; comparing groups and using standardized instruments. **Results:** PCIT exhibited a significant mean effect size (d = -0.87 [95% CI: -1.10, -0.63] versus control and/or treatment-as-usual groups, but the effect size was smaller and not significant in follow-ups (d = -0.23 [95% CI: -0.49, 0.04]). The within-group studies, comparing versions of PCIT, also demonstrated a significant effect size (d = -0.26 (95% CI: -0.43, -0.08), and in pre-post comparisons this effect was greater (d = -1.40 [95% CI: -1.69, -1.10]). **Conclusions:** PCIT is an effective intervention for treating child behaviour problems such as disruptive, hyperactive, negative, and externalizing problems. It is supported by 40 years of experimental and clinical studies, and also by this meta-analysis.

Keywords: Parent-Child Interaction Therapy; PCIT; meta-analysis; behaviour problems; disruptive; hyperactivity; children.

Resumen

Meta-análisis Sobre la Eficacia y Efectividad de la Terapia de Interacción Padres-Hijos (PCIT) Para Problemas de Conducta Infantil. **Antecedentes:** la Terapia de Interacción Padres-Hijos (PCIT) es un tratamiento bien establecido para los problemas de conducta infantil. Los meta-análisis previos son escasos y mezclan problemas y medidas. **Objetivo:** realizar un meta-análisis con todos los estudios disponibles sobre PCIT (1980 a 2020) para conocer su eficacia y efectividad sobre los problemas de conducta infantil. **Método:** la selección final recogió 100 estudios. Los criterios de inclusión fueron: comparar la PCIT en niños con diversos problemas de conducta; comparar grupos y utilizar instrumentos estandarizados. **Resultados:** PCIT ha mostrado un tamaño del efecto medio significativo (d = -0,87 [IC 95%: -1,10, -0,63] frente a grupos de control y/o tratamientos usuales; pero ha sido menor y no significativo en los seguimientos (d = -0,23 [IC 95%: -0,49, 0,04]). Los estudios que comparan versiones de PCIT también han mostrado un tamaño del efecto significativo (d = -0,26 [IC del 95%: -0,43, -0,08]), al igual que los intra-grupo con un efecto mayor (d = -1,40 [IC del 95%: -1,69, -1,10]). **Conclusiones:** la PCIT es una intervención eficaz para el tratamiento de los problemas de conducta infantil, disruptivas, hiperactivas, negativistas y externalizantes. Está avalada por 40 años de estudios experimentales y clínicos, y también en este meta-análisis.

Palabras clave: Terapia Interacción Padres-Hijos; PCIT; meta-análisis; problemas de conducta; disruptivas; hiperactividad; infancia.

Parent-Child Interaction Therapy (PCIT) is a behavioural therapy that is an alternative to classical intervention for children with behavioural problems and their families (Eyberg, 1988; Eyberg & Funderburk, 2011; McNeil & Hembree-Kigin, 2011). PCIT is aimed at children aged 2 to 7 years old. The functional analysis of those problems generally has two functions: getting attention or stimulation and/or escaping from demands (Ferro & Ascanio, 2017). Thus, the two phases of the therapy are aimed at intervening on these two functions, with the aim of improving the interaction between parents and child. The novelties offered by PCIT compared to other child therapies are: its idiographic intervention, the live training of parents while they interact with their children, and the use of specific technical equipment to carry it out.

PCIT emerged in the 1970s (Eyberg & Johnson, 1974) and the study of its efficacy and effectiveness has continued growing exponentially in recent years. In 2017 the *California Evidence-Based Clearinghouse for Child Welfare* (CEBC) and later in 2020 the *Title IV-E Prevention Services Clearinghouse* (PSC) considers it a well-established therapy with a favourable impact on the child's well-being with respect to behavioural and emotional functioning, caregivers, positive parenting practices, and mental/emotional health. Recent reviews (Brabson et al., 2018; Ferro et al., 2020) conclude that PCIT is a well-established treatment for the following five issues: behaviour problems, oppositional defiant disorder (ODD), attention deficit hyperactivity disorder (ADHD), and prevention and treatment of child maltreatment.

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Also, meta-analysis studies of therapy have been conducted. From eight meta-analyses, six showed significant differences when compared to control and usual groups. Gallagher (2003) selected 17 studies whereby all of which showed differences in pre-post measures for disruptive behaviours, but she offers the general results in percentage of change from studies. Thomas et al. (2007) conducted a meta-analysis comparing two programmes (PCIT and the Triple P), in which they concluded that both interventions had positive results (*d* between -1.31 and -.83). Cooley et al. (2014) selected 11 studies with between-group controls, applied to behavioural problems (*d* = -.98), although their main interest was parental stress. The study by Euser et al. (2015) reviewed programmes to prevent child maltreatment, but only selected 2 studies of PCIT. Kennedy et al. (2016) selected 6 studies where PCIT had been applied to parents that showed less recurrence of physical abuse and less parental stress than those in the control group, but not in disruptive or behaviour problems. Ward et al. (2016) selected 12 studies with pre-post measures and also 9 control group comparisons. Those authors concluded that all studies had a large effect on externalising behaviours in all studies (*d* = -1.65). The meta-analysis by Thomas et al. (2017) selected 23 studies, including within-group and between-group designs, to address externalising behaviours and parental stress, and all studies have significant effect compared to controls (*d* = -0.87).

There are hundreds of studies with different types of design, including single case studies that demonstrate the effectiveness of this therapy for the treatment of disruptive and externalising behaviour in children. However, to date the conducted review studies are partial, some which cover only a decade, presenting a mixture of different types of children's problems, or aiming to assess parental stress. In addition, the meta-analysis only reviews a small number of studies and they do not standardise designs, sample sizes, differences between boys and girls, differences between countries, or differences between professionals, etc.

The aim of the present work was to carry out a broad and systematic review and meta-analysis of the published empirical studies on PCIT, from the origin of this therapy until 2020, when it is applied to behavioural, hyperactivity or externalising problems, in children aged between 2 and 12 years. In addition, we specifically sought to compare this efficacy according to the quality or type of experimental design used, and also to compare efficacy in the long-term maintenance of results, with a minimum criterion o six month of follow-up.

Method

The present meta-analysis is based on a systematic review that was previously carried out by the same team (Ferro-García et al., 2020), but incorporating those studies that have a group design and offer sufficient data to carry out a quantitative analysis of their effects.

Search for documents

The systematic review and subsequent meta-analysis have been carried out (English and Spanish) from the following databases: *Scopus*, *Web of Science*, *Psyclit*, *Cochrane*, *Google Scholar*, *ResearchGate*, and *Dialnet*; and on other websites of the therapy itself, such as *PCIT International*, *UF Health*, and *UC Davis*. We also reviewed recent manuals, such as Girard et al. (2018) and McNeil et al. (2018), unpublished papers obtained from other sources (i.e., the grey literature), and articles in press from the author(s) of the studies.

The following keywords were used in the search, both in English and Spanish: ("Parent-Child Interaction Therapy" OR "PCIT" OR "Terapia de Interacción Padres-Hijos") AND ("Treatment" or "Intervention" OR "Tratamiento" OR "Intervención") AND ("Child" OR "Children" OR "Niñ*" OR "Infan*").

Selection criteria

The main inclusion criteria for the selection of articles were:

1) Experimental or quasi-experimental research studies, presenting specific data and/or measures of efficacy and/or effectiveness of PCIT.
2) To have group comparisons, either within-group designs (pre-post, repeated measures) or between-group designs, comparing different PCIT options, or comparing against control, waiting-list, or groups with other treatments.
3) The population were children aged between 2 and 12 years.
4) The problems treated were: behaviour problems or disorders, oppositional defiant disorder (ODD), attention deficit hyperactivity disorder (ADHD), externalising behaviours, disruptive behaviours; as well as comorbidity between these problems.
5) To use standardised instruments, such as the Eyberg Child Behavior Inventory (ECBI) questionnaire.

The exclusion criteria for studies were:

1) To be descriptive, theoretical, reviews or meta-analyses studies.
2) Do not provide data to allow inclusion in the statistical analysis.
3) Other types of child problem behaviours. In the final selection, studies on these other problems (e.g., autism, anxiety, depression, stuttering, maltreatment) were removed.
4) To have a focus on parents and/or teachers, without incorporating data regarding the efficacy on children's behavioural problems.
5) To have samples with adolescents.
6) To use single-case studies, even if they had comparative data and follow-ups. Their statistical analysis requires other tools for meta-analysis.

Selection process

Figure 1 shows the PRISMA scheme with the flow of decisions and selections through the different phases of this study. In a first search, a total of 352 articles were identified from the aforementioned databases, and 4 articles from other sources. Of these, 84 studies were excluded because of the abstract. From 272 articles, other 143 were excluded because different causes on the basis of the full-text review. Due to the great variability of problems covered in the different studies (finally 129), we decided to refine the selection criteria to only behavioural, ODD, ADHD, and externalizing problems in childhood. In this way, a total of 29 studies focusing on other problems were excluded. Finally, the studies included in the present meta-analysis were 100 empirical studies with quantitative results of PCIT (see Figure 1).

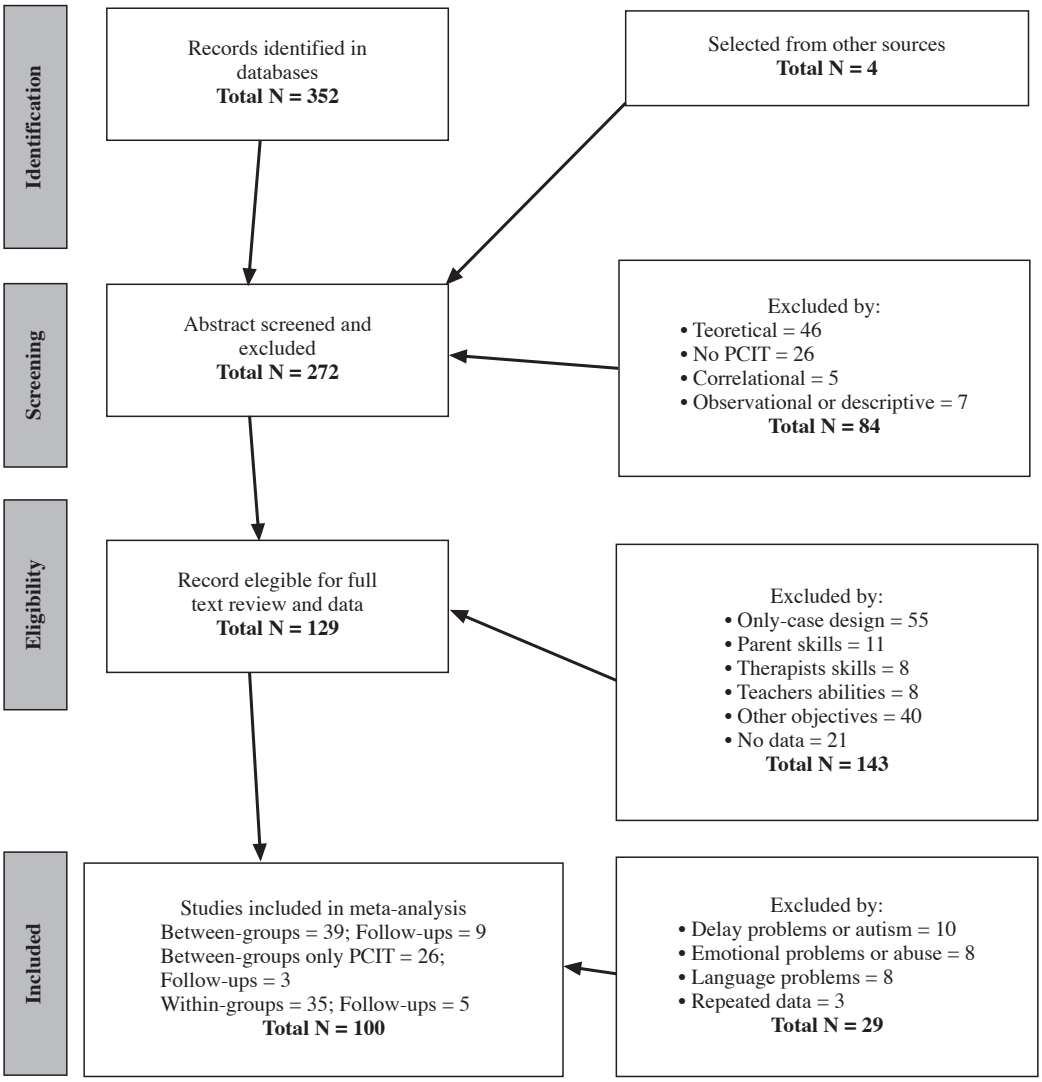

Figure 1. PRISMA scheme of the study selection process

Data mining

After the first selection, the studies were grouped according to their design and possible comparisons, including follow-ups. Then the relevant data for each study were extracted and inserted into an *Excel* file. The categories for the assignment and codification of each study were: author, date, design, measurement instruments, problem, total sample, sample of boys/girls, dropouts, maximum age, minimum age, mean age, country of the study, and comments on the study comparisons and results. As the fundamental instrument of comparison in all of the studies, the ECBI questionnaire (*Eyberg Child Behaviour Inventory*; Eyberg & Pincus, 1999; Eyberg & Ross, 1978) was used in its intensity parameter, which was the most widely used in almost all of the studies. It is a questionnaire for parents about their children's problem behaviours (between 2 to 16 years old). It has 36 items where a Liker scale (1 "never" to 7 "always") is used to evaluate the frequency of occurrence for each behaviour. The higher the score, the greater the importance of the problems, ranging from 36 to 252 points. In Spanish samples, the average score is 96 points, and it has high internal consistency (between $\alpha = .73$ and $\alpha = .93$), with high test-retest correlation (between $r = .89$ and $r = .93$) (García-Tornel et al., 1998). Other instruments measuring similar behaviours have been used (SESBI, BASC-External, CBCL-External, ECBS-Challenging, ITSEA-External, DECA-BehaviorCoding). In this *Excel* file we also included the specific data for each study: mean and standard deviation of the control group, experimental design, effect size, number of participants in each group, and months of follow-up.

This review task was carried out by two independent observers, with an overall reliability of .84 for the inclusion criteria of the various studies, and a Kappa index = .502 (moderate index) for agreement in the assignment of studies to design groups with six categories. Finally, discrepancies were resolved by consensus where there was a disparity.

Data analysis

Following this process, the statistical meta-analysis was performed on 100 studies: 36 between-group studies (PCIT vs. other) with random and factorial designs, including 9 follow-up

comparisons; 26 between-group studies (PCIT vs. other PCIT modality) also with factorial designs, including 3 with follow-ups; and 35 studies of within-group comparisons (PCIT pre-post), including 5 with follow-ups. More comparisons appear in the results presented below, because some studies make several comparisons within the same paper (either three groups, or two follow-ups).

Finally, within each study, the mean, standard deviation and the number of participants in each group were used to calculate the mean effect size (Cohen's *d*). The data about this index *d* are negative value, because the effect of PCIT is to decrease the amount of children's problems after the treatment. Thus, the more negative the value of *d*, the greater the therapeutic effect. The confidence interval (CI) and significance of each comparison was also calculated. The weight on the total mean effect was calculated for each study, and as they were very similar, no change or estimation was made in the weight of the studies. We also estimated the 95% confidence interval of the *d* index, as a random-effects model, through the inverse of the comparison variances to estimate the overall effect. When the design involved three or more groups, pairwise comparisons were made, always comparing the PCIT group with the control, waiting-list or with the standard group. Regarding studies with follow-up, only those involving more than 6 months, or several follow-ups at 6 and 12 months, were considered.

These data were imported into *RevMan 5.3* (http://tech.cochrane.org) to perform the statistical of the meta-analysis, which was carried out by sections, according to the design or type of comparison of the study, as described above. Also, a *funnel plot* was performed to observe the possible publication bias, and the analysis of which studies contribute or do not contribute to this possible bias. Also, the *forest plot* with the studies ordered by its weight was compared to analyse this possible bias. In order to analyse the sensitivity of the overall effect found, a re-analysis was performed by eliminating each study one by one as a "*trim & fill test*", observing the effect achieved, in order to show the greater or lesser robustness of the average effect found in each comparison.

Results

The age of the population collected ranged from 12 to 156 months, with a mean age of 55.20 months (*SD* = 15.17). Proportionally there is a higher participation of boys, with a total of 4111 (*M* = 41.95, *SD* = 39.33), than of girls, with a total of 2141 (*M* = 21.85, *SD* = 24.10). The studies that note participant dropout, they report a wide range (from 0% to 74%) of dropouts (*M* = 19.78, *SD* = 20.19), generally because parents drop out before the end of the programme, specifically some studies compare parents who finished or drop-out the treatment.

In terms of the problems treated, there is a higher percentage of comorbidity: multiple behavioural problems, ODD, and ADHD. Regarding the locations of the research groups, the vast majority (57%) are from North America, including 9% from the lead author Eyberg and his group; and to a lesser extent from Australia (7.9%), and from other countries. There is no mention of a group studying PCIT in Spain.

Between-group studies

Thirty-nine studies have been analysed, but with 44 comparisons (see Figure 2). Some studies involve two comparisons of the PCIT group with one control and one standardised group. The mean effect size is -0.87 (*CI* = -1.10, -0.63), which implies that there is a significant effect ($Z = 7.16$, $p < .000001$) in reducing behaviour problems by the PCIT treatment (see Figure 2). There are some studies that present quite large sizes (*d* = -3.46 to *d* = -2.10) (e.g., Bagner et al., 2010; McNeil et al., 1999; Mersky et al., 2016; Rodríguez et al., 2014). However, only one study present results in favour of the control groups (Veen-Mulders et al., 2018).

The total number of participants in the PCIT groups was 1152, compared to 1216 participants in the control groups. No single study has a much higher weight than others (between 1.9 and 2.5% to the overall result). There is an uneven distribution in the total number of participants, ranging from Furukawa et al. (2018) with only 21 participants to Lanier et al. (2014) with 130 participants. However, the comparisons of these studies present quite a lot of heterogeneity in a random effects model ($Tau^2 = 0.52$, $Chi^2 = 286.02$, $df = 43$, $I^2 = 85\%$), which calls for a cautious interpretation of the overall conclusions about these comparisons.

Bias analysis using the *funnel plot* has shown a possible publication bias, as the study by Mersky et al. (2016) has the largest effect size and deviates from the *funnel plot* of the other studies. The distribution of studies by weight showed a bias through studies with less participants. Sensitivity analysis has also been performed, removing one by one the dataset from each study, but this does not substantially change the average effect, which always ranges between -0.80 and -0.90. So, we can assume that the results are robust.

Follow-ups of between-group studies

The analysis of follow-ups from those between-group studies, 12 comparisons have been made, corresponding to 9 studies (see Figure 3). In this case, no overall significant effect can be claimed, with a mean difference of *d* = -0.23 (*CI* = -.49, 0.04) ($Z = 1.67$, $p = .10$). In total, 236 participants in the PCIT groups are compared to 278 participants in other long-term control groups. Almost all of the studies contribute equally to the total outcome (between 6.9% and 9.8%), and it can be argued that there is little heterogeneity ($Tau^2 = 0.11$, $Chi^2 = 21.59$, $df = 11$, $I^2 = 50\%$), and the conclusions would therefore be robust.

When comparing the long-term effects in these studies, PCIT is similar to the other standardised or control groups for parenting programmes that are aimed at reducing disruptive behaviours. The study by Boggs et al. (2005) has the largest effect (*d* = -1.16, *CI* = -1.79, -0.53) in favour of PCIT, but in almost half of the other studies have similar results (see Figure 3). The *funnel plot* indicates that there was no effect of publication bias, also the distribution of studies by weight was similar, and the sensitivity was high, as the effect of repeating the analysis is always between -0.19 and -0.27.

Between-group studies with only PCIT

A large number of between-group studies has been found that compares standardised PCIT treatment with other versions, for example, treating in groups, with other materials, using videos or Internet, in other contexts, applied intensively or briefly, with different types of therapists, with different levels of parental involvement, comparing children with and without development delays, or drop-outs versus those who complete the entire programme.

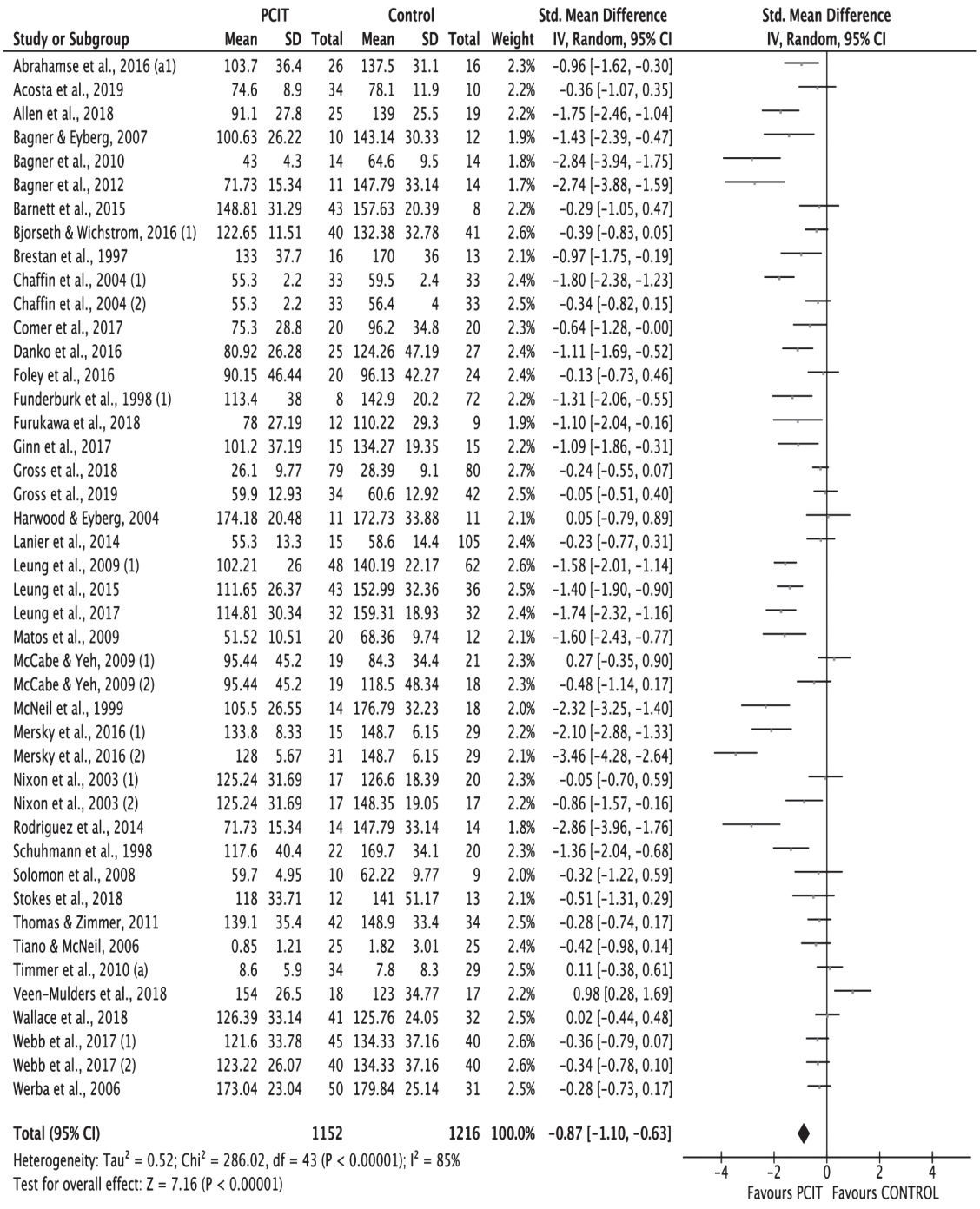

Figure 2. Data from between-groups studies, comparing PCIT versus control and standard groups

In this case, 33 comparisons have been made, corresponding to 26 different studies, as some of them have more than two groups in their design. An overall significant effect size of d = -0.26 (*CI* = -0.43, -0.08) ($Z = 2.90$, $p < .005$) appears to be in favour of the experiences in which PCIT includes some innovation. In total, 1222 participants in the standard PCIT groups and 1092 participants in other PCIT groups with variations (see Figure 4).

However, there is quite a disparity in the number of participants in the different studies, ranging from those with 12 participants (Lyon & Budd, 2010) to others with 187 participants (Allen et al., 2016). The weight of each study is homogeneous, with percentages between 1.4% and 3.8%. Heterogeneity is medium and significant, with a random effects model (Tau^2 = 0.17, Chi^2 = 117.75, df = 32, I^2 = 73%), hence the results should also be interpreted with caution. In addition, given the disparity of the PCIT programme innovation or diversity being compared, it is better to draw individual conclusions for each PCIT application.

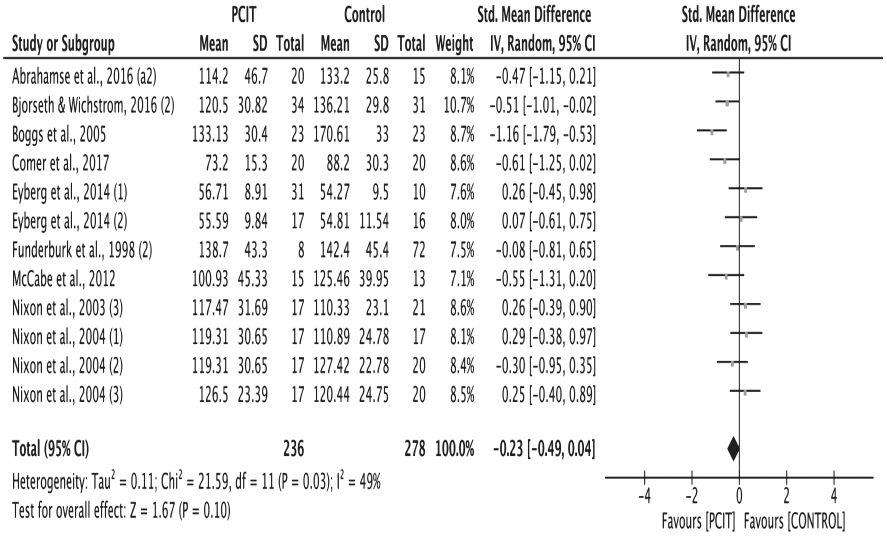

Figure 3. Data from follow-up between-groups studies, comparing PCIT versus control and standard groups at 6 or 12 months

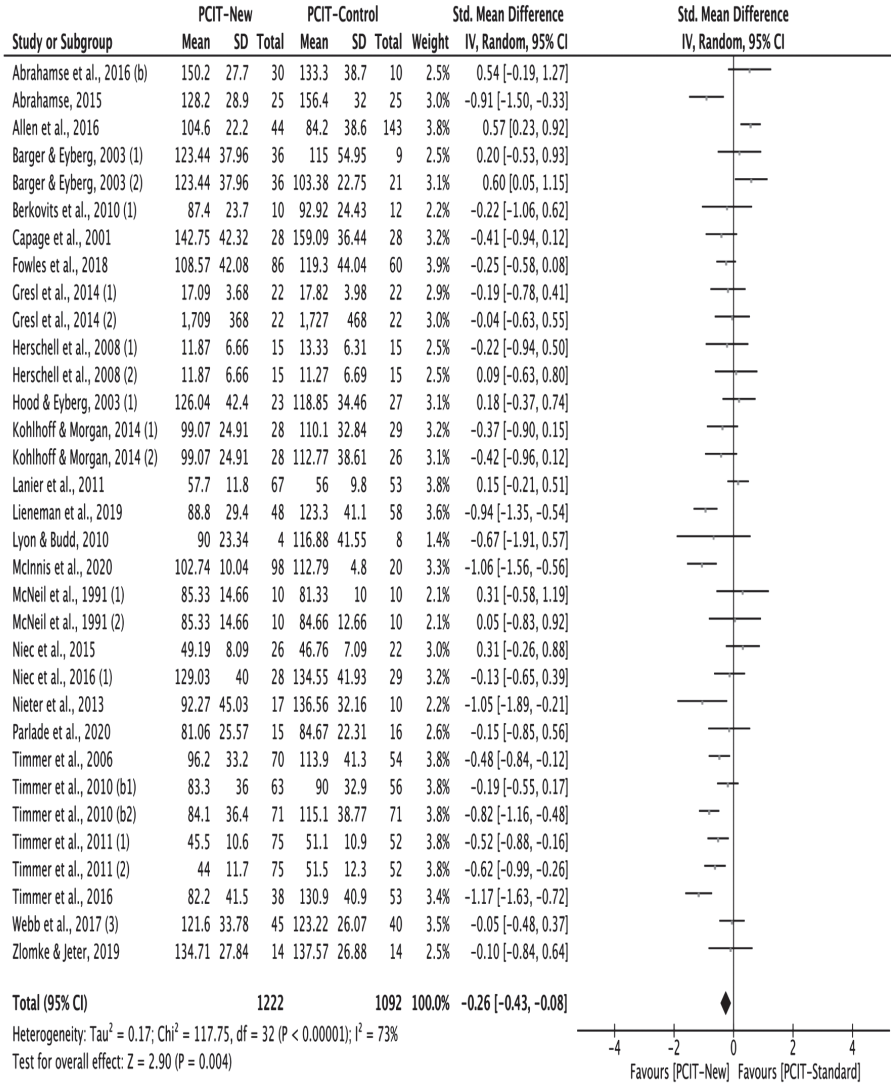

Figure 4. Data from between-groups studies, comparing only standard PCIT and other forms of PCIT

In this group, the *funnel plot* figure shows no publication bias. All studies are very similar, and the sensitivity shows minimal effect size changes between -0.22 and -0.28 which, in this comparison, represent robust data.

Follow-ups of between-group studies only with PCIT

Of the above studies, only 4 comparisons have been made in 3 studies, as one of these studies also has two follow-ups. These studies have a total of 72 participants with standard PCIT and 69 participants with the same PCIT with changes. In this case, there is also an effect size in favour of the PCIT programmes with innovations d = -.79 (CI = -1.70, 0.11), but it does not reach significance (Z = 1.71, p = .09). Given the low number of studies, hence we do not consider this follow-up comparison in the overall study results.

Within-group studies

These types of studies only compare PCIT before and after the intervention. In this case, 35 studies have been found, but one of them has two comparisons with different assessment times. The overall effect size was d = -1.40 (CI = -1.69, -1.10) and it was significant (Z = 9.36, p < .00001). Therefore, in almost all of the studies the intensity of child behaviour problems decreases after PCIT treatment (see Figure 5). Some studies have very high effect sizes (e.g., Eisenstadt et al., 1993; Graziano et al., 2015; Herschell et al., 2017), but they have few participants. Also, only three studies show mean differences against PCIT, although they have also only 5 participants. So, in this comparison all the studies have few participants, which increases variability and weakens the conclusions in this regard (see Figure 5).

In these comparisons, 1291 participants have been included, compared to 1297 in the pre-assessment. Also, the contribution of each to the total weight is small (between 1.8 and 3.4%). Despite this, the data are heterogeneous, and even when applying a random effects model (Tau^2 = 0.63, Chi^2 = 347.25, df = 35, I^2 = 90%), hence caution should be exercised when interpreting these overall results.

The *funnel plot* analysis shows no bias effect of publications, and no bias for weight of each study. Only the study by Graziano

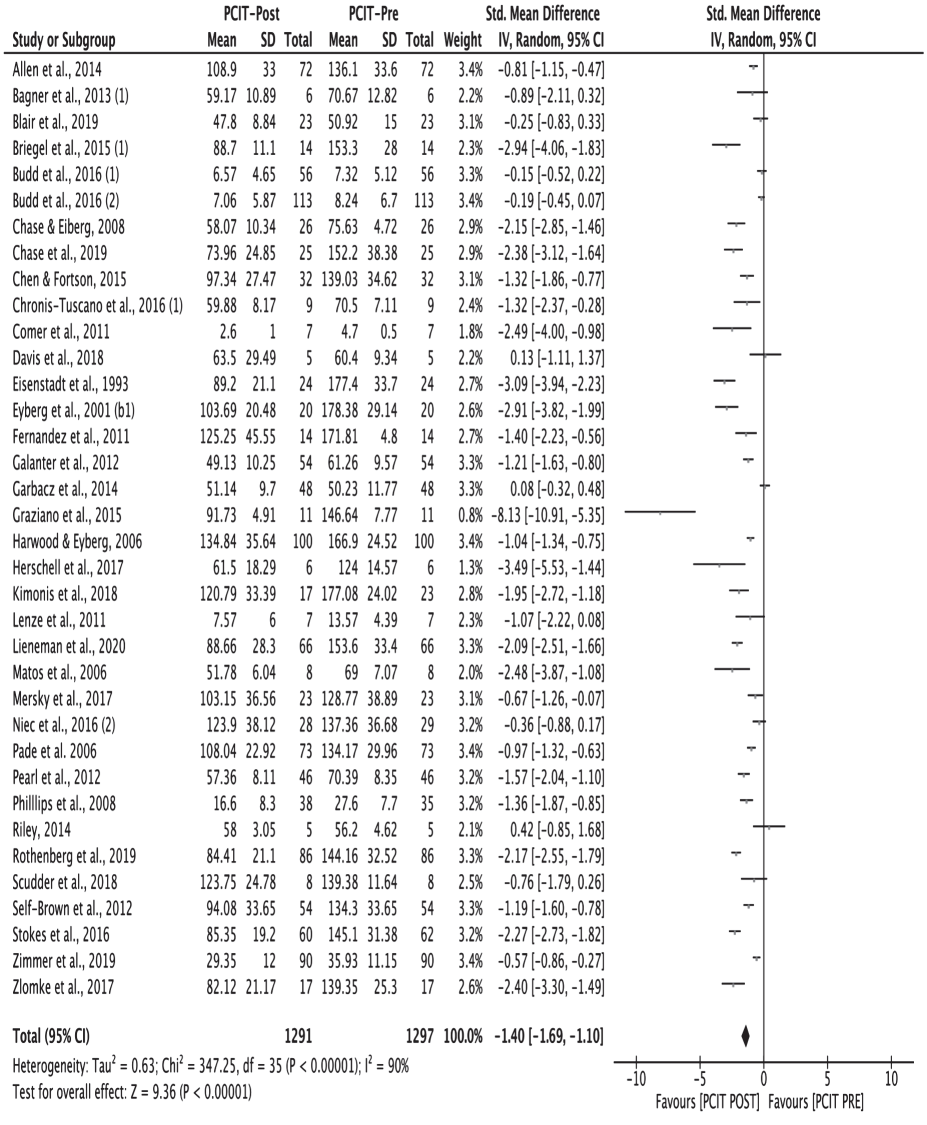

Figure 5. Data from within-groups designs comparing only PCIT

et al. (2015) diverges from the scheme and has a greater effect but shows the lowest contribution to the mean effect size due to its weight (only 0.8%). The sensitivity analysis shows robustness, as all indices range between -1.34 and -1.43, showing great stability

Follow-ups of the within-group studies

Among the above groups, only 5 have multiple follow-ups, although one has dual longer-term follow-ups. The total population has been made up of 77 participants, and the contribution of each study is larger (between 13.2% and 19.5%). Moreover, some of the studies have a very small-sized population (e.g., Bagner et al., 2013; Chronis-Tuscano et al., 2016). In this comparison there is no significant mean effect size (d = -.02, CI = -0.70, 0.73) (Z = 0.05, p = .96), hence it cannot be claimed that there are long-term effects in these few studies. The *funnel plot* analysis shows regular clustering of all studies, but little sensitivity because the studies have disparate results at follow-up.

Discussion

A systematic review and meta-analysis of 100 comparative group studies on the application of PCIT in children with behavioural problems has been carried out. The comparisons were made according to designs of these studies, so that conclusions can be drawn based on the greater or lesser quality control of these studies. The results showed that treatment based on PCIT is effective in reducing behavioural problems, problems of negativism such as ODD, and even ADHD, with a mean size of change that reaches -1.40. Furthermore, this effectiveness is greater when PCIT use intensive and complete treatment, or treatment with technologies. PCIT has also been shown to be effective in reducing these problems when compared to other control, educational, or social programmes, with a mean effect size of -0.87. It is at follow-up where there are fewer studies, and the results are no longer as evident in the different subgroups that are compared.

Considering the criteria for levels of evidence for well-established therapies (Southam-Gerow & Prinstein, 2014), this meta-analysis shows that PCIT is a Level 1 therapy, a well-established treatment, as it shows efficacy independently, and effectiveness against other standardised treatments, and it shows this in multiple independent teams in several countries. Furthermore, for behaviour disorder problems in children aged 2-12 years it shows effect sizes that are far superior to other treatments.

We believe that this meta-analysis study is rigorous, although it has a focus on child behavioural problems. Compared to other meta-analyses, a large number of studies have been incorporated in the present meta-analysis, with no time limit, and with searches of a large number of databases and also 'grey literature' searches. For example, the meta-analysis of Gallagher (2003) has only 17 studies; Thomas et al. (2007) only compares against another standardised parenting programme; the meta-analysis of Cooley et al. (2014) has only 11 studies; and Ward et al. (2016) have only 12 studies. They have found mean size effects between d = - 1.65 to -.83, here the general effect was d = -.87 that is in the range of those other studies, but here with a great sample of studies including also the follow-ups. The most similar meta-analysis to ours is that of Thomas et al. (2017), which also only focuses on outcomes of decreasing externalising or disruptive behaviours, but only incorporates 23 studies. Other types of meta-analyses have been based on either a particular aspect, such as possible physical abuse, parental stress, cultural adaptation, or general parent training, and they are not considered here.

The differentiation between designs in this meta-analysis allows the quality of the studies to be stated as a moderating variable. Randomised and between-group design have shown a clear effect on decreasing child problem behaviours, but with some study results similar to the control group; while between-group or within-group designs using only PCIT show higher levels of change in children, although their quality is lower. Similarly, many studies include what they consider to be 2 or 3 month follow-ups, and here we have considered only 6 month or more as the actual follow-up criteria. In such cases, long-term efficacy seems to decrease significantly, and we cannot claim that PCIT has a better effect than other treatments in the long term.

Also, the fact that 65% of the samples are boys as opposed to girls, may also be considered moderating variables in the distribution of the samples. It seems that behavioural problems are more in boys, but it has not been possible to analysis the differences, because usually the studies do not include separate data in their results. What the authors do highlight in many of the studies, and it appear as an important moderating variable is the dropout or degree of parental involvement. In general, the more sessions they attend (fewer dropouts), completing the program in its two phases, and the more involvement they have (generally only the mother), the better the results.

As limitations of this meta-analysis, it can be argued that different measurements have not been considered. Only a few studies that did not include the ECBI other measures have been considered, but always referring to behavioural problems, discipline, disruptive behaviour, etc. However, for the purpose of rigour and standardisation, preference was given to choosing the ECBI with its data intensity and other similar parameters of behavioural problems, which appears in almost all the studies. In this way, at least it is possible to affirm the efficacy and effectiveness for those general child problems. Nothing is stated about the emotional, school problems, parental stress, teachers' training, etc., those must be answered with another type of meta-analysis. They were exclusion criteria, so the efficacy conclusions are limited to behavioural problems, and no other of the many variables studied with PCIT. Another limitation could be argued about reliability of the coders with respect to the design used by each study. The kappa index was moderate, but this is algo because six design categories were assigned. Also, in many cases the studies do not mention which design they used, and it is difficult to extract this from the data and tables themselves.

In general, regarding these studies, not all of them reflect participant dropouts, especially since it is the parents who often drop out of the programme after several sessions. The dropout data are quite disparate, but they have shown the greatest effectiveness when parents manage to complete all phases of the PCIT programme. This factor may also be a limitation of the conclusions, and the relationship between drop-outs and effectiveness should be studies in detail; but that would be part of a different study.

We also suggest that studies about PCIT in the future should be conducted with a longer follow-up time. We considered a minimum of six months. In this regard, some studies often report a follow-up of two to three months. Here there is no evidence of a long-term effect. We have seen that, when considering follow-ups, the results of PCIT are not so evident, and in some studies, they eventually

have the same results as other standardised programmes. It would be important for subsequent meta-analyses to include this type of long-term analysis.

In short, PCIT is an effective and efficient treatment for child behaviour problems, with more than 40 years of research behind it, with very diverse applications in terms of how it is applied, where it is undertaken and who carries it out (parents, teachers, therapists), including the use of technologies, recordings, group applications, etc. This wide variety of studies, also reflected in this broad meta-analysis, supports the usefulness of PCIT for all kinds of children's problems, including ODD and ADHD. However, it is striking that PCIT appears to be rarely applied in Spain. We hope that this study will encourage its greater use, as it is an empirically well-proven programme.

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