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The effectiveness and cost-effectiveness of behavioural and cognitive-behavioural group-based parenting programmes for early onset conduct problems in children aged 3 to 12

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Background

- 5% to 10% of children aged 5 to 15 years have clinically significant conduct problems (CP). (Loeber 2001).
- Early onset CP can lead to: higher rates of school drop-out; greater unemployment; antisocial and criminal behaviour; psychiatric disorders; drug and alcohol abuse; hospitalisation and mortality (Farrington 2007).
- Existing research supports the effectiveness of group-based parenting interventions that are informed by behavioural, cognitive and social-learning theory principles, in reducing the intensity of childhood CP (Webster-Stratton 2004; Hutchings 2007; Kling 2010).

Rationale for this review

Previous reviews of parenting interventions (e.g. Brestan & Eyberg, 1998; NICE, 2006; Dretzke, 2009) have methodological limitations:

- Many include non-randomised studies; fail to report heterogeneity and confidence intervals, and do not conduct intention-to-treat (ITT) and sensitivity analyses.
- Some have **also** combined the results of group-based behavioural programmes with other types of parenting programmes based on different theoretical models, as well as those with adjunctive treatments (e.g. marital training).

Thus, the evidence for behavioural group-based parenting programmes in reducing clinically significant conduct problems in young children, remains unclear.

Objectives

To examine the effectiveness and cost-effectiveness of behavioural and cognitive-behavioural group-based parenting programmes for children with early-onset conduct problems in improving child conduct problems, parental mental health and parenting skills.

Methods

Selection criteria

Studies were included if:

- they were Randomised (or quasi-randomised) Controlled Trials (RCTs) of behavioural/cognitive-behavioural group-based parenting interventions for parents of children aged three to 12 years with conduct problems; and
- incorporated an intervention group versus a waiting list, no treatment or standard treatment control group. We included studies that used at least one standardised instrument to measure clinically significant child conduct problems.

We assessed a larger number of outcomes compared to similar reviews :

- **Primary outcomes included**: Child conduct problems, parental mental health and parenting practices.
- **Secondary outcomes included:** child internalising problems, educational and cognitive ability; long-term outcomes in adolescence and adulthood and economic data.

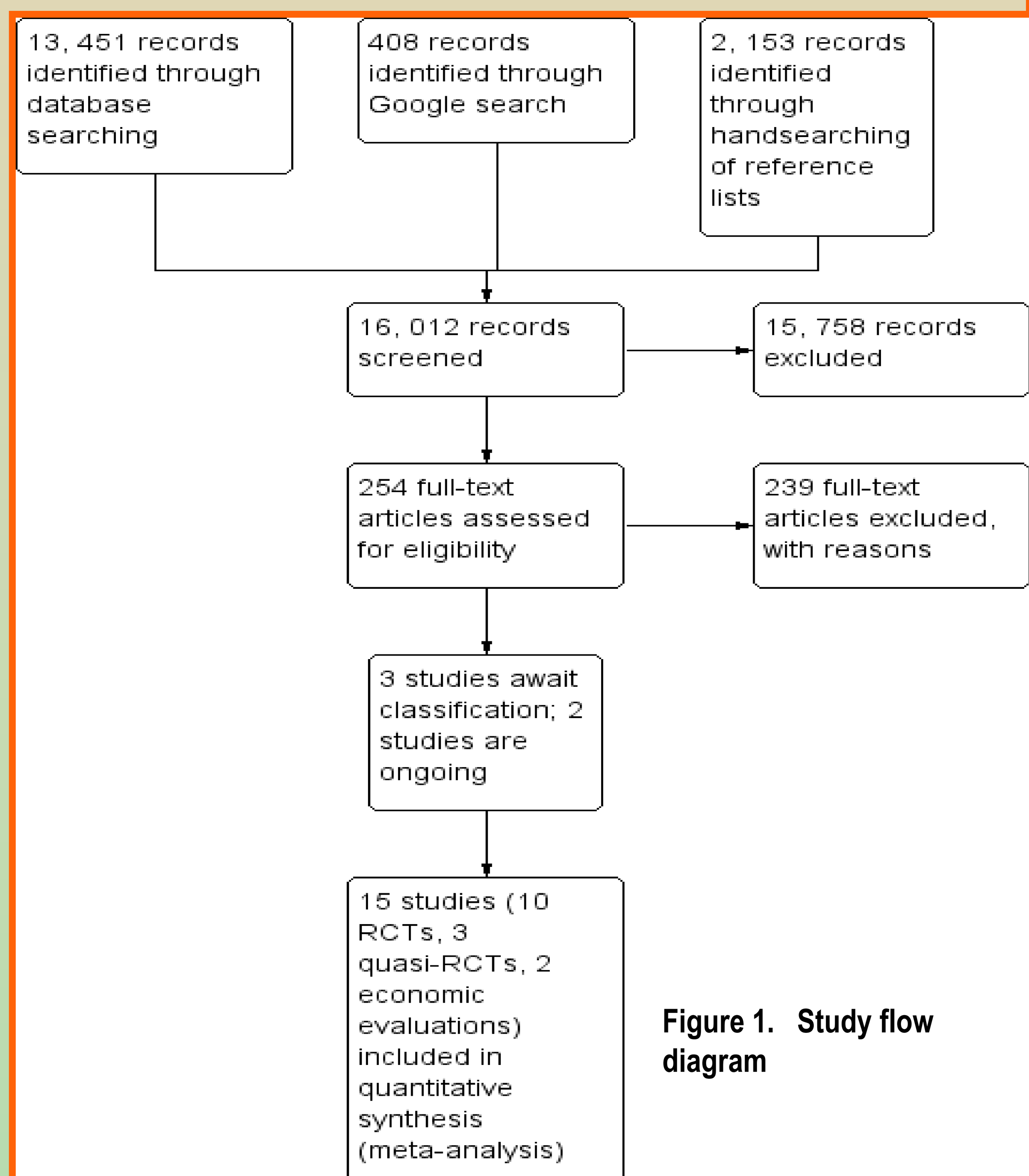

Figure 1. Study flow diagram

Results

Summary of studies

- 15 eligible studies were identified:
  - 9 included Incredible Years (IY) parent programme (five being independent replications) Webster-Stratton 1984; Webster-Stratton 1988; Webster-Stratton 1997; Scott 2001; Webster-Stratton 2004; Gardner 2006; Hutchings 2007; Larsson 2008; McGilloway 2009;
  - 1 was Group Triple P (Martin 2003)
  - 1 was Barkley's Parent Training Programme (Barkley 2000)
  - 1 was Parent Management Training (Braet 2009)
  - 1 was Comet Parent Management Training (Kling 2010)
  - Both cost studies were conducted alongside IY RCTs. Edwards 2007 was based on Hutchings 2007 and O' Neill 2011 was based on McGilloway 2009.
- Studies were conducted in USA (5), Europe (7) and Australia (1).
- N = 1078 participants (646 intervention, 432 control).
- Parents included 83% mothers, self and professionally referred;
- Children included 68% boys with mean age of 64 months.
- All children in 6 studies were diagnosed with Conduct Disorder.
- Participants in 7 studies suffered high levels of social disadvantage

Summary of outcomes

- Short-term outcomes were 0-3 months post-treatment.
- Results indicated moderate statistically significant improvements in:
  - Child conduct problems, assessed by parents (SMD -0.53; 95% CI -0.72 to -0.34) and independently (SMD -0.44; 95% CI -0.77 to -0.11).
  - Parental mental health (SMD -0.36; 95% CI -0.52 to -0.20)
  - Positive parenting skills, based on parent reports (SMD -0.53; 95% CI -0.90 to -0.16), and independent reports (SMD -0.47; 95% CI -0.65 to -0.29) **(see Figures 2 to 4)**.
- Results were maintained across different settings, levels of disadvantage, diagnostic categories.
- The results of the meta-analyses remained robust to all sensitivity analyses except a reduction to statistical non-significance within child conduct problems (based on independent report) when studies without an ITT analysis were removed.
- There was insufficient evidence to test for child internalising problems and cognitive/educational performance.
- The parent-training cost approximately $2500 (£1712/€2217) per family to bring the average child with clinically significant conduct problems into the non-clinical range.

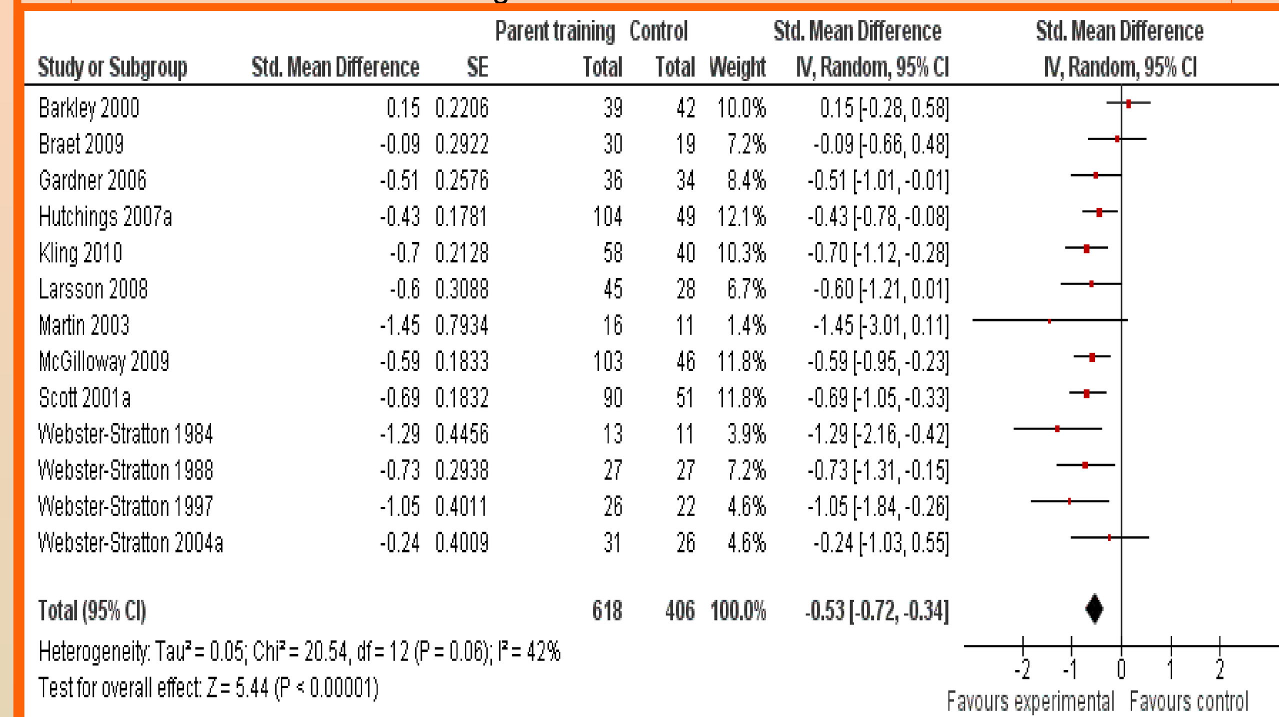

Figure 2. Meta-analysis of child conduct problems, parent training versus control: parent report

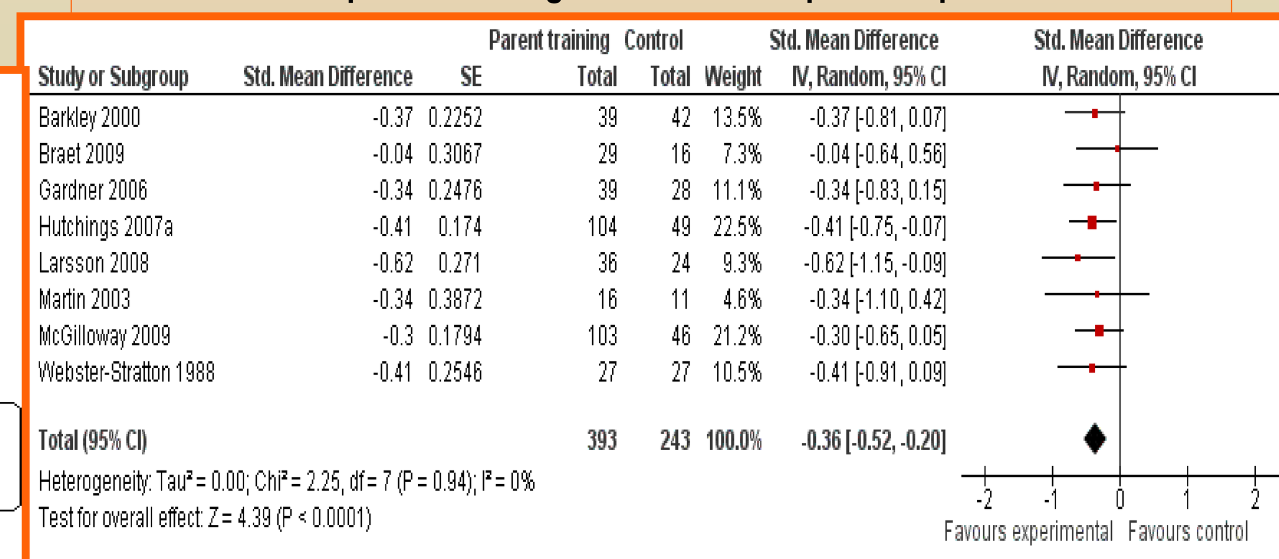

Figure 3. Meta-analysis of parental mental health, parent training versus control: parent report

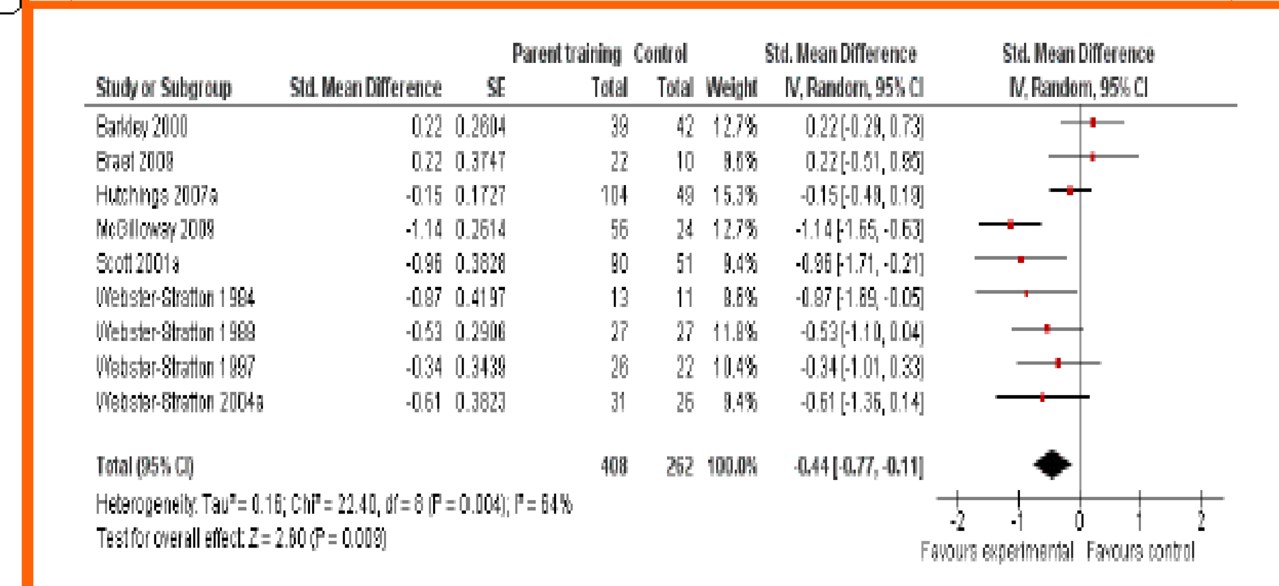

Figure 4. Meta-analysis of child conduct problems, parent training versus control: independent report

Risk of bias

- 3 studies did not have adequate randomisation and blinding procedures (Barkley 2000; Scott 2001; Martin 2003; Braet 2009).
- 8 studies dealt adequately with missing data based on parent reports, but two (Martin 2003; Braet 2009) demonstrated a high risk of bias. A further three showed an unclear risk of bias (Webster-Stratton 1984; Gardner 2006; Larsson 2008).
- 5 studies (Webster-Stratton 1988; Webster-Stratton 1997; Barkley 2000; Webster-Stratton 2004; Hutchings 2007) dealt adequately with missing data, based on independent reports, with three studies at high risk of bias (Scott 2001; Braet 2009; McGilloway 2009) due to conducting analyses on completers only, or conducting observations on a small proportion of the randomised sample., and three studies at unclear risk of bias (Webster-Stratton 1984; Gardner 2006; Larsson 2008) due to high levels of attrition (10%-20%) and the fact that an ITT analysis was not conducted.

Strengths of the review

1. Inclusion of economic studies:
   - Both studies reported:
     - (i) The costs of running the programme per parent;
     - (ii) The utilisation of public sector services across intervention and control conditions for a six-month period;
     - (iii) The calculation of an Incremental Cost-Effectiveness Ratio (ICER) using a 1000 replication bootstrap to provide a confidence interval and using appropriate sensitivity analyses;
     - (iv) the use of official sources to provide an estimate of unit costs.
   - But both studies failed to report
     - (i) measures of variance for mean cost of programme per parent; and
     - (ii) productivity costs (and benefits) for parents who attended the programme (e.g. loss of wages or childcare costs, in some cases), or for employment agencies.
2. Inclusion of all measures of an outcome within a study. using the effect measure of standardised mean differences (SMDs).
3. Inclusion of subgroup and sensitivity analyses.
   - **Sensitivity analyses** included:
     - (i) removing quasi-randomised studies, studies without blinding as well as those without an intention-to-treat analysis or with attrition greater than 20%;
     - (ii) changing how values were imputed for missing values; and
     - (iii) removing studies with only short term follow-up assessments.
   - **Subgroup analyses** were conducted across levels of social disadvantage, severity of problems at pre-treatment, trial setting and level of implementation fidelity.

Conclusions

- Behavioural/cognitive-behavioural group based parenting interventions are effective in reducing child conduct problems and in improving parenting skills and parental mental health, across various service settings, with parents of varying socioeconomic status and with children displaying varying degrees of conduct problems.
- Interventions demonstrating lower levels of implementation fidelity produced statistically non-significant results. Therefore, practitioners should ensure that their service/organisation has the requisite resources to deliver the programme with fidelity.
- The interventions appeared cost effective in reducing clinical levels of conduct problems to non-clinical levels. The cost of programme delivery ($2368.53 to $2464.24) is modest when compared with the long-term health, social, educational and legal costs associated with childhood conduct problems($118,350 to $355,100) (Fergusson 2005; Sainsbury Centre for Mental Health 2009).
- The absence of long-term assessment compromises the likelihood of finding positive effects for educational improvements (Melhuish 2008). Further research is needed to assess long-term outcomes.
- This rigorous review provides the most robust evidence, to date, that behavioural and cognitive-behavioural group-based parenting programmes are effective and cost-effective in reducing clinically significant conduct problems to non-clinical levels in young children.

Acknowledgements

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References

Please refer to the full Cochrane review for further details: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008225.pub2/abstract

Furlong M, McGilloway S, Bywater T, Hutchings J, Smith SM, Donnelly M. Behavioural and cognitive behavioural group-based parenting programmes for early-onset conduct problems in children aged 3 to 12. *Cochrane Database of Systematic Reviews* 2012 , Issue 2.