Parenting Programmes

Toolkit technical report

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This report is produced in collaboration with staff from the Campbell Collaboration Secretariat. It is a derivative product, which summarises information from Campbell systematic reviews, and other reviews, to support evidence-informed decision making'.

Abstract/Plain Language summary

Parenting support programmes (also called parent training programmes) educate, support and assist parents to develop skills that will help them to address child behavioural problems and also promote desirable parent-child relationships. These programmes try to encourage parents to use consistent and contingent reinforcements for child behaviour. Modelling and role-play exercises, with homework, are frequently used to demonstrate parenting techniques and show parents how to use positive reinforcement to encourage prosocial behaviours amongst their children. Well known examples of parenting programmes are The Incredible Years and Triple P.

Programmes that are implemented with parents of young children (i.e., aged 0-3 years old) typically aim to prevent behavioural difficulties emerging or becoming embedded, and programmes implemented with older children (i.e., aged 3 – 12 years) are often for the treatment of behavioural difficulties or early onset conduct disorders. Parenting programmes can be implemented in one-on-one or group sessions.

Overall, parent training programmes are effective in reducing behavioural difficulties. The observed effect size of 0.39 reported by Piquero et al. (2016) report corresponds to an approximate reduction of 44% reduction in problem behaviours. The evidence rating is 3.

Programmes in the United States appear more effective, possibly because of the lack of intensive treatment in the control condition. Two branded programmes have a larger effect than the average effect across all programmes: Parent-Child Interaction Therapy (g = 0.98) and Triple P (g = 0.56). For the Incredible Years, the effect is a bit smaller than average (g = 0.31).

Three themes are identified in the qualitative synthesis:

- A family's experience of the programme can include low self-esteem before the programme and resistance to the programme due to perceived stigma. Recognising changes that parents were making, and a possible feeling that there is a need for further support once the programme ends, can remove barriers to participation.

- Valued aspects of programmes include (i) the nature of the facilitator (non-directive, non-judgemental, modelling techniques and giving a sense of hope), (ii) role playing to practise skills, (iii) home visits for individual support, although the experience sharing and mutual support of groups is also appreciated, and (iv) flexibility in responding to parents' needs.
- Barriers to participation or engagement include: (i) fear of being judged, (ii) not wanting to be told how to parent, (iii) lack of support from a co-parent or extended family, (iv) balancing the programme with other demands, and (v) feeling the programme was not right for them, because of being too technical or culturally inappropriate.

Parenting programmes have a benefit-to-cost ratio above 1.

Objective and approach

This technical report reviews evidence on the effectiveness of parenting support programmes as an early prevention strategy for youth offending.

Parenting support programmes educate, support and assist parents to develop skills that will help them to address child behavioural problems and also promote positive parent-child relationships. In the literature these are more commonly referred to as 'parent training' programmes.

This technical report relies mainly on the systematic review by Piquero et al. (2016), because it focuses on effects of parenting programmes on delinquency and antisocial behaviour. This report also takes account of the more specific reviews by Baumel et al. (2016) on digital parent training and van Aar et al. (2017) on the persistence of effects. Except in the case of Baumel et al. (2016), face-to-face parenting programmes are described. The review by Butler et al. (2020) is used to discuss the qualitative literature regarding the implementation of parenting programmes.

Inclusion criteria

To be included in this report a systematic review must:

- Review parenting support programmes, implemented with parents, caregivers or families of young children in the community, either in group or individual sessions.
- Review evaluations of programmes using experimental or quasi-experimental methods with before and after measures.
- Review programmes designed to: (1) reduce children's involvement in crime, violence or related behaviour (e.g., antisocial behaviour, conduct disorder); (2) increase positive parenting (e.g., positive reinforcement of prosocial behaviours); (3) increase parental competencies.
- Be reported in the English language and published in peer-reviewed journals or other reputable sources (e.g., Campbell systematic reviews, Cochrane systematic reviews), within the past 5 years (i.e., since 2015).

Exclusion criteria

There are many systematic reviews on parenting programmes, but this report is based on only 3 high quality, recent and relevant reviews. Reviews were excluded for the following reasons:

- The review was not published recently (e.g., Barlow & Parsons, 2005; Dretzke et al., 2009; Furlong et al., 2012), or has been updated since original publication (e.g., the included review of Piquero et al., 2016 is an update of Piquero et al., 2009).
- The review was a narrative review (e.g., Haggerty et al., 2013) or did not use systematic review methodology, such as including specific inclusion/exclusion criteria or information on systematic search strategies. For example, Carr et al. (2017) identified evaluations through established networks on a particular programme and Daley et al. (2018) identified evaluations by contacting practitioners.
- The review was a 'review of reviews' (e.g., Barlow & Coren, 2018).

- The review reported the impact of parenting programmes on related outcomes, but not specifically on child problem behaviour (e.g., internalising and externalising problems, Buchanan-Pascall et al., 2018).
- The review reported the impact of parenting programmes on non-child-focused outcomes (e.g., child maltreatment, Gubbels et al., 2019).
- The review did not focus on programmes implemented with community-based parents and/or children. For example, reviews of parent training for incarcerated mothers (Tremblay & Sutherland, 2017) were excluded.

Outcomes

The outcomes reported in evaluations of parenting programmes vary across studies. The reviews on which the present report is based reported outcomes for children (e.g., child behaviour problems) and parents (e.g., parent wellbeing, parenting behaviours, parent confidence/self-efficacy).

Piquero et al. (2016) specify that 'child behaviour problems' refers to conduct problems, delinquency and/or anti-social behaviour. Baumel et al. (2016) included evaluations that targeted 'child disruptive behaviours', but not delinquent behaviours or child maltreatment.

Both reviews included evaluations of programmes for attention-deficit hyperactivity-disorder, but Baumel et al. (2016) stated that studies of this kind were only included if their primary goal was to reduce externalising symptoms of ADHD.

Description of interventions

The key features of parenting programmes are that they train parents to notice what a child is doing, monitor the child's behaviour over long periods, clearly state house rules, and make positive and negative reinforcements consistent and contingent on the child's behaviour.

Parenting programmes are typically considered primary or secondary prevention strategies. Programmes that are implemented with young children (i.e., aged 0-3 years old) typically aim to prevent behavioural difficulties emerging or becoming embedded, and programmes implemented with older children (i.e., aged 3 – 12 years) are generally for the treatment of behavioural difficulties or early onset conduct disorders (Barlow & Coren, 2018). Parenting programmes may also be implemented with particular groups, for example, parents of children with attention-deficit hyperactivity-disorder or developmental disorders, or vulnerable parent groups (e.g., teenage parents; see Barlow et al., 2011).

This technical report focuses on parenting programmes as primary preventative measures or as intervention/treatment for children with behavioural difficulties. Piquero et al. (2016) reviewed programmes involving parents that included home visitation programmes and parent training programmes. The former are interventions whereby healthcare professionals conduct home visits with mothers and provide information about how to care for their children. The latter describe primarily group-based programmes that are implemented in a variety of settings, for example, clinics, schools and community settings. We focus on these latter programmes, which are typically called parent training, because they focus on methods that strengthen parent competencies to monitor and discipline children to reduce challenging behaviour. Parent training programmes also aim to promote child social and emotional competencies, utilise positive and non-violent reinforcement and try to foster good parent-child relationships through modelling and role-play activities.

Some parent training programmes will use specific cognitive behavioural techniques with parents and children to foster behaviour change. For example, 'Parenting Wisely' targets parent-child interactions that work to reinforce antisocial behaviour and encourage refraining and cognitive restructuring to create behavioural changes (Baumel et al., 2016).

Intervention components

Parent training programmes include some common intervention components and activities. Modelling and role-play exercises, with homework, are frequently used to demonstrate parenting techniques and show parents how to use positive reinforcement to encourage

prosocial behaviours amongst their children (Piquero et al., 2016). Even when interventions are delivered digitally, the content includes demonstrations or recorded role-play vignettes for scenario-based learning (Baumel et al., 2016).

Targeted or Universal

Parent training programmes are usually targeted interventions, as they are predominantly implemented with parents of children with behavioural difficulties. Evaluations of these programmes have been conducted whereby eligible families are screened at baseline and participants are selected based on these results. Children who are above the 'clinical cut-off' (for children aged 3 years and older) point on the specific measurement tool for child behavioural difficulties are identified and their parents are invited to be included in the evaluation. Most evaluations are conducted with a wait-list control group and a short post-intervention follow-up time point (but see Van Aar et al., 2017).

Implementing personnel

Parenting programmes are typically implemented by trained facilitators. Information available online about two well-known evidence-based parenting programmes (The Incredible Years and Triple P) outline the recommended facilitator background, and the extensive training involved for organisations or individuals who wish to implement either of these programmes. Neither Piquero et al. (2016) nor Baumel et al. (2016) provide information about the facilitators or trainers who implemented parenting programmes.

Accessibility is an issue which is often cited in relation to parent training programmes. Typically, parents who are recruited to take part in parenting programmes can find it difficult to participate in an intervention, due to work commitments, inflexible or irregular work patterns, child care issues or economic factors such as travel expenses. Baumel et al. (2016) reviewed digital parent training programmes: interventions that were delivered through digital media or software programmes. This included a range of media, including, CDs/DVDs, downloadable materials, and computer programs. These forms of implementing intervention programmes may reduce or remove barriers that families may face when accessing treatment.

Duration and Scale

The digital parenting programmes reviewed by Baumel et al. (2016) were typically quite short in duration. The duration of interventions ranged from two to three hours (e.g., Parenting Wisely, Adaptive Parenting Skills, 1-2-3 Magic Parenting Programme) to seven sessions implemented across 10 weeks (e.g., Comet parent training programme). Piquero et al. (2016) do not refer to the duration of the interventions, but the evaluations were generally 1-3 years long.

Van Aar et al. (2017) reported primarily on the evaluation follow-up time points, and not on the duration or scale of the actual parenting programmes. The period of follow-up in evaluations of parenting programmes ranged from 1 month to 3 years following implementation, with the majority of follow-ups occurring up to 6 months later (16%), between 6 and 12 months later (42%) or between 12 and 18 months later (35%). However, as this was data collection for evaluation purposes, it does not provide us with any information about the length of parenting programmes.

Examples of this approach

There are many 'branded' parenting programmes that have been implemented to reduce child antisocial behaviours. The following two programmes, The Incredible Years and Triple P, are included in this technical report as recognised examples of evidence-based, manualised parent training programmes.

1. *Incredible Years*[1]

   The Incredible Years (IY) parent training programme series incorporates this well-known evidence-based parenting programme, developed in the US, that targets parent competencies and parent-child relationships to promote child academic, social and emotional well-being and also reduce conduct problems. The long-term goal of the Incredible Years programme is to prevent involvement in crime, drug abuse and

[1] http://www.incredibleyears.com/about/

violence. This programme has been recognised by many statutory and voluntary bodies.

The proposed causal mechanism is that parent training will lead to decreases in the intensity and frequency of child behavioural difficulties (including child conduct disorder and hyperactive-inattentive behaviours), and there would also be desirable changes in child social skills and a desirable impact on parent stress, well-being and parenting practices.

The group-based programmes are delivered in the community, and parent groups typically attend 8-20 weekly sessions, each of about 2-3 hours. The sessions are delivered by trained facilitators and there are multiple programmes, depending on the age of the target child (e.g., programmes for parents of children aged 1-3 years, 3-6 years or 6-12 years old) of different lengths and intensity. The sessions largely focus on: strengthening parent-child interactions, nurturing parent-child relationships, reducing the use of harsh discipline and enabling parents to promote children's social and emotional development.

Piquero et al. (2016) computed a summary effect size based on 22 independent evaluations of the IY programme. This programme was significantly effective in reducing child problem behaviours (Hedges' $g = 0.31$, $p < .001$).

Gardner et al. (2019a) conducted a meta-analysis on the effectiveness of the IY programme on child conduct problems, based on evaluations conducted in Europe. A total of 15 independent trials of the IY programme were identified and these included 1,696 children aged 2 – 10 years old; 30% of children identified as an ethnic minority and 58% came from low-income families. Gardner et al. (2019a) reported that the Incredible Years programme caused a clinically significant reduction in child conduct problems (13.5 points on the Eyberg Child Behaviour Inventory Intensity scale, 95% CI 10.9 – 16.1) and there were no differential effects of the programme depending on socio-economic disadvantage or ethnic minority status.

2. *Triple P: Positive Parenting Programme*[2]

The Triple P Positive Parenting Programme is an evidence-based parent training programme that was developed in Australia and has been widely implemented in the United Kingdom and Ireland, that aims to improve child outcomes through the protective effects of positive parenting. This programme has been recognised by many statutory and voluntary bodies as an effective way to improve parent and child outcomes and act as a prevention programme for crime, violence and anti-social behaviour.

Triple P aims to improve a child's family environment and, by doing so, improve social and emotional outcomes. The intervention website suggests that, by improving parenting skills, solutions and engagement, and subsequently child outcomes and overall well-being, the programme can help future communities to reduce crime, violence and anti-social behaviour. The programme aims to offer flexible and accessible support to all families regardless of ability, need, or risk.

Piquero et al. (2016) computed a summary effect size based on 7 independent evaluations of the Triple P programme. This programme was significantly effective in reducing child problem behaviours (Hedges' $g = 0.56$, $p < .001$).

The Triple P programme works alongside multiple national-level agencies to implement a public-health-driven intervention and prevention approach.

Theory of change/presumed causal mechanisms

Parenting programmes aim to change parenting behaviour so that parents use consistent positive reinforcements for desirable behaviour and consistent negative reinforcements for undesirable behaviour, which are hypothesised to increase the likelihood of desirable behaviour by children and encourage the development of internal inhibitions against undesirable behaviour.

[2] https://www.triplep.uk.net/uken/

Prevention of early child problem behaviours is a form of violence prevention, as research has demonstrated that early child problem behaviours predict later offending, anti-social behaviour and violence (Erskine et al., 2016; Farrington et al., 1990; Rivenbark et al., 2018).

In an extensive systematic review and meta-analysis, Erskine et al. (2016) reported an odds ratio of 3.5 (95% CI 2.3 to 5.3) for conduct disorder predicting later violence. Assuming 100 children with conduct disorder and 100 control children, and that 25% of children with conduct disorder became violent, this OR would transform into a 65% decrease in violence for control children compared with children with conduct disorder. This estimate is not at all affected by variations in the prevalence of children with conduct disorder, and is not greatly affected by variations in the percentage of children with conduct disorder who become violent; for example, if we assumed that 10% of children became violent, the percentage decrease in violence would be 69% and, if we assumed that 40% of children became violent, the percentage decrease in violence would be 60%.

These assumptions about prevalence are not too unreasonable. For example, in the Cambridge Study in Delinquent Development, which is a prospective longitudinal study of over 400 London boys, 25% were convicted between ages 10 and 17 (Farrington, 2012). Also, Farrington et al. (1990) found that 24% had serious conduct problems by age 10, and the odds ratio for conduct problems predicting delinquency was 4.5. In the Pittsburgh Youth Study, which is a prospective longitudinal study of over 1,500 Pittsburgh boys, Loeber et al. (2008) found that 24% of the youngest cohort and 25% of the oldest cohort were arrested for serious violence by age 18.

Therefore, the presumed causal mechanism is that parenting programmes to reduce early child problem behaviour can act as an indirect form of violence prevention.

Evidence base (design of evaluations)

Descriptive overview

Piquero et al. (2016) included 78 evaluations of parenting interventions that have been undertaken across the world between 1976 and August 2015. The majority of evaluations were conducted in the USA (*n* = 46) and most were described as parent training (*n* = 67). The ages of the children of the participating parents ranged from birth to 11 years old, but the majority of evaluations were conducted with parents of children aged 3 – 8 years old.

Baumel et al. (2016) included 7 studies that reviewed digital parenting programmes that had been evaluated between 2000 and 2015. The majority of evaluations were published during or after 2010 and the locations of the evaluations were not provided. The mean age of children included in the evaluation ranged from 4.7 years to 14.4 years old. Most of the interventions were implemented with parents of 'younger' children (categorised in reviews as either aged 2-10 years or 3-12 years). Evaluations reported outcomes on child disruptive behaviour, parent behaviour and parent confidence/self-efficacy, used a wait-list control group and a 3-6 month follow up timeframe.

Assessment of the evidence rating

We have confidence that, at the time of writing, the reviews by Piquero et al. (2016), Baumel et al. (2016) and van Aar et al. (2017) represent the best available evidence on the effectiveness of parent training programmes on our outcomes of interest. Our decision rule for determining the evidence rating is summarised in the technical guide.

Two independent coders used a modified version of the AMSTAR2 critical appraisal tool was used to appraise the reviews by Baumel et al., (2016), Piquero et al. (2016), and van Aar et al. (2017). According to this tool, the review by Baumel et al. (2016) was rated 'high' and the reviews by Piquero et al. (2016) and van Aar et al. (2017) were rated 'low'. The results of this assessment are summarised in Annex 2.

All three reviews specified research questions and inclusion criteria that included components relating to the population, intervention, comparison group and outcome of interest. Van Aar et al. (2017) further specified a timeframe for follow-up in their research questions and inclusion criteria.

Van Aar et al. (2017) stated that the review protocol was registered with the PROSPERO international prospective register of systematic reviews. Neither Piquero et al. (2016) nor Baumel et al. (2016) refer to the registration of a protocol in the publication of their reviews.

Piquero et al. (2016) only included RCTs and specify the justification for doing so in an earlier version of their systematic review and meta-analysis (Piquero et al., 2009). Neither Baumel et al. (2016) nor van Aar et al. (2017) included a justification for only including randomised controlled trials in their respective reviews.

All three reviews reported a comprehensive literature search strategy including a number of different databases, designated keywords and search strategies. Piquero et al. (2016) was the only review not to restrict inclusion criteria to only include peer-reviewed publications and all four reviews do not provide justification for why reports published in languages other than English were not included.

Baumel et al. (2016) report that potentially eligible studies were reviewed by two authors against their inclusion criteria and disagreements were settled following discussion until a consensus was reached. Van Aar et al. (2017) report that one author screened search results, but coding of studies was conducted by two authors. The first author coded all studies and then a second author coded 23% of the studies. Piquero et al. (2016) do not report any information on the study selection or coding process.

None of the reviews reported a list of excluded studies. Piquero et al. (2016) did not include a measure of risk of bias beyond comparing effect sizes for published and unpublished studies. The presence of possible publication bias is discussed when interpreting the results of the meta-analysis. Van Aar et al. (2017) refer to assessing the risk of bias in included studies but did not name a specific tool. Baumel et al. (2016) used the Cochrane Collaboration tool for assessing risk of bias (Higgins et al., 2011). The review did not compare effect sizes according to risk of bias but did account for the risk of bias in individual studies when interpreting the results.

None of the reviews included any reference to funding sources. Baumel et al. (2016) included a declaration of possible financial interests or other conflict of interests.

All three of the reviews conducted a meta-analysis and reported detailed information on the synthesis and estimation of weighted effect sizes and adequately reported the heterogeneity between primary effects (Baumel et al., 2016; Piquero et al., 2016; van Aar et al., 2017). Each of the meta-analyses reported separate weighted effect sizes for independent outcomes and assessed multiple moderators as possible explanations for heterogeneity between primary effect sizes.

Since all three reviews included only randomised trials, the included studies should all have high internal validity. However, this may be limited by factors such as attrition and the non-independence of the evaluator.

Piquero et al. (2016) present an indirect effect size estimate based on 67 studies. There was high heterogeneity (I^2 = 80%) and the review was rated 'low' as per the AMSTAR tool, so the evidence rating is 3 for child problem behaviours. However, because the estimate of the effects on violence or offending is indirect, the evidence rating for these outcomes is 2. This is our preferred estimate to inform the headline metric for reductions in youth violence.

Baumel et al. (2016) provide an estimate of the effect on child disruptive behaviour based on 7 studies. The results were mildly heterogeneous (I^2 = 50%) and the review was rated 'high' as per the AMSTAR tool, so the evidence rating is 3 for child problem behaviours. Because the estimate of effects on violence or offending is indirect, the evidence rating is 2 for violence outcomes.

Impact

Summary impact measure

Overall, parent training programmes are effective in reducing a range of child behavioural outcomes. The included reviews also reported the effect of programmes on parenting outcomes but, for the purpose of this technical report, only child outcomes are included.

Piquero et al. (2016) found that parent training programmes were effective in reducing anti-social behaviour, delinquency, and conduct disorder outcomes. Their overall effect size (Hedges' g) was 0.39. This was converted into an odds ratio (OR) of 2.03 using the equation Ln(OR) = g/.5513 (Lipsey & Wilson, 2001, p. 202). If we assume equal numbers in the experimental and control conditions, and a prevalence of child problem behaviour of 25% in the control group (our standard method), the relative reduction would be 44%. Further information on how effect sizes are transformed to the relative percentage reduction in offending is provided in Annex 1. Of course, prevalence can vary greatly, for example depending on the definition and measurement, time, place, sample and time period covered,. However, the % reduction does not vary greatly, even if prevalence is varied from 10% to 40%. For example, with 10% prevalence, the % reduction is 48%, and with 40% prevalence, the % reduction is 38% (see Annex 1).

Piquero et al. (2016) note that the majority of programmes gave desirable effect on outcomes, and only one of the evaluations (Weihrauch et al., 2014) had a statistically significant undesirable outcome, possibly because that programme targeted single mothers.

Similarly, Baumel et al. (2016) found that digital parent training programmes were significantly effective in reducing child disruptive behaviours overall. The reported weighted mean effect size (Cohen's d = 0.44) translates to a relative reduction of 48%, assuming a prevalence of 25% in the control group. Once again, the relative reduction is not greatly affected by very different assumptions about the prevalence in the control condition. The reduction would be 52% with 10% prevalence and 42% with 40% prevalence (Annex 1).

Table 1

Mean effect sizes for child problem behaviours

Review	ES (*n*)	CI	*p*	% reduction	Evidence rating on indirect outcomes	Evidence rating on violence outcomes
Baumel et al. (2016)	OR = 2.22 (*n* = 7) *d* = 0.44	1.46, 3.31	< .001	48%	3	2
Piquero et al. (2016)	OR = 2.03 (*n* = 67) *d* = 0.39	1.55, 2.66	< .001	44%	3	2

Note: ES = the weighted mean effect size; *n* = number of evaluations used to estimate ES; CI = 95% confidence intervals for the mean ES; *p* = the statistical significance of the mean ES; OR = odds ratio

Effects on offending and violence

To the extent that both conduct disorder and violence are behavioural manifestations of the same underlying theoretical construct (e.g., an antisocial personality), then, if this is decreased by the parent training programme, we might expect that violence would be similarly decreased; in other words, that a decrease of 44-48% in conduct disorder might be followed by a decrease of 44-48% in the prevalence of violence. However, if this is not true, and instead decreases in conduct disorder cause decreases in violence, we might expect that the consequent decrease in violence would be less than the observed decrease in conduct disorder.

Based on the review by Erskine et al. (2016), violence might be reduced by about 65% if all conduct-disordered children became non-conduct-disordered. Therefore, a relative reduction of 44-48% in conduct disorder might be translated into a relative reduction of about 13% in violence (see Annex 1 for calculation). Some of the outcomes in Piquero et al. (2016)

were of offending, but they were not disaggregated. Therefore, the most defensible conclusion is that parenting programmes might reduce offending and violence between 13% and 44%. However, these estimates are quite speculative and would vary with different assumptions. Longitudinal follow-ups of parent training programmes to study later effects on violence would be needed to verify them. To err on the side of caution given the current evidence, we suggest that parent training programmes may reduce violence by at least 13%.

Van Aar et al. (2017) published a multi-level meta-analysis of 40 randomised controlled trials of parenting programmes that included follow-up points beyond the immediate post-intervention data collection (up to 3 years later). The mean post-intervention change in effect between immediate and later follow up was d = 0.01 (95% CI -0.05 to 0.07, p = 0.78). This lack of change in the effectiveness of parenting programmes indicates that the effects of the intervention are sustained over time.

Moderator analyses

Reviews of parent training programmes have included a range of possible mediators and/or moderators as possible explanations for why there was significant heterogeneity between the results of primary evaluations. However, the possible relationship between specific components of parenting programmes (e.g., group-based versus individual-based; or programmes that include or do not include elements such as role-play, group discussion, observation of play and direct feedback) is not explored in either of the reviews that inform this technical report.

We have more confidence in the moderator analysis reported by Piquero et al. (2016), as it is our preferred review. However, extensive moderator analyses were not reported. Piquero et al. (2016) did report the summary effect sizes for three branded parenting programmes. The impact of each was statistically significant (i.e., Parent-child interaction therapy g = .98, p < .001; Incredible Years g = 0.31, p < .001; Triple P g = 0.56, p < .001). Each of these programmes was effective in reducing child problem behaviours, but the authors did not compare effect sizes for branded programmes with non-branded programmes.

Piquero et al. (2016) reported that evaluations conducted in the US found larger effects than evaluations that were conducted elsewhere, which may be because of the nature of the control condition. There may also be some publication bias evident in Piquero et al. (2016), as the authors note that published evaluations were associated with greater effectiveness than unpublished evaluations. It was also found that evaluations with smaller sample sizes (i.e., $N < 100$) were associated with greater effectiveness, in comparison to evaluations with larger sample sizes.

Baumel et al. (2016) identified an interesting relationship between the age of children enrolled in parenting programmes and overall effectiveness. The review grouped studies into those implemented with younger children who are considered within the clinical cut-off range for disruptive behaviours (ES = 0.61) and programmes implemented with older children who were mostly below clinical cut-off points for disruptive behaviours (ES = 0.21). The results suggest that parenting programmes implemented with the former are associated with greater effectiveness than the latter, although not statistically significantly so.

Baumel et al. (2016) suggest that these findings suggest a complex relationship between child age and the effectiveness of parenting programmes, and that other factors such as the range of clinical symptoms and the socio-economic status of participants could have a significant impact on results. A previous meta-analysis (Lundahl et al., 2006) found that parenting programmes were more effective with younger children, children with more severe clinical symptoms and higher socio-economic status. Therefore, the findings in the Baumel et al. (2016) review may be explained by a combination of all three of these factors. Similarly, other meta-analyses have found no significant relationship between child age and the effectiveness of the Incredible Years parenting programme on child problem behaviours (Gardner et al., 2019b).

Neither review included moderators relating to the gender of participants (parents or children) or the ethnicity of families taking part in parent training programmes.

Implementation

Butler et al. (2020) published a meta-synthesis of the qualitative literature on the implementation of parenting programmes. Twenty-six studies were included in the review, all of which were published after 2001. 822 parents were included across the primary studies, and branded parenting programmes, such as Triple P (*n* = 7) and Incredible Years (*n* = 6), were represented. Eight of the primary evaluations were conducted in the United Kingdom and two were conducted in Ireland. All the evaluations used interviews or focus groups to collect data, and the sample sizes ranged from 5 to166 parents of children aged 0-16 years old. Grounded Theory, Thematic Analysis and Interpretative Phenomenological Analysis were used to code and analyse primary data. Parents from a number of specific, possibly vulnerable, groups were represented in primary studies. For example, the review included the views of parents with mental health difficulties, parents who had interacted with child welfare agencies, parents who were homeless, single parents and low-income parents.

Butler et al. (2020) identified three key themes in their thematic analysis of the primary qualitative studies.

(1) A family's journey

This theme referred to how parents' experiences changed over the course of the evaluation/intervention. Before the programme, parents reported difficulties in managing their child's behaviour, low self-efficacy as parents and feelings of loneliness and desperation. Stigma about being a 'bad parent' was common among parents mandated to attend a parenting programme by child welfare agencies. Other parents reported that being invited to take part in a parenting programme felt like an acknowledgment or recognition of their difficulties. Commitment to becoming a better parent was commonly cited as a reason for attending the programme.

The subtheme of 'outcomes' was an important aspect of this overarching theme. Parents reported changes in themselves, their children and the family whilst taking part in the programme. Identifying these changes was important in removing barriers

to engagement, and parents' well-being and perceptions of self-efficacy. The development and application of new skills, or reinforcing/strengthening of existing skills as parents, was an important reason for observed changes in child problem behaviour and subsequently family life. Family and parent communication, with one another and their child, were frequently discussed by parents.

After the intervention, parents felt that the programme ended too soon and expressed a need for ongoing support. Sometimes this was addressed by seeking further support or through other means, such as maintaining relationships with other participants. Parents reported using material from the programme differently and some continued to use materials, while others adapted skills and used 'what works' for them and their families.

(2) Important and valuable aspects

Several aspects of the parenting programmes were reported as being important and/or valuable to parents. For example, parents reported appreciation for non-judgemental group facilitators and valued collaborative, non-directive instruction. Good facilitators were seen as those who modelled techniques, instilled hope and could manage the group dynamics. The most valuable aspect of the programme content was positive attention and the use of praise and/or rewards with children. Parents appreciated the use of role playing exercises to practise skills, and home visits were cited as important for individualised support. Flexibility in responding to parents' needs in the programme content and delivery, and setting realistic expectations, were also important. Group-based programmes were recognised as positive environments for sharing experiences and having a supportive, understanding outlet for receiving assurances and normalising feelings.

(3) *Challenges or Difficulties*

A number of personal and contextual barriers for parents were reported in studies reviewed (Butler et al., 2020). For example, fear of judgement and issues of privacy or

distrust in services were cited as common reasons why parents did not want to engage with a programme. Some parents reported difficulties with group settings, and some noted not wanting to be 'told how to parent'. Lack of support from co-parents or extended family was also common, particularly among two-parent families. Contextual barriers included difficulties with other demands, such as work commitments, financial issues and the expectations of the multiple services involved. Some participants also experienced significant adversities during the intervention and could not prioritise the programme. Some parents felt overwhelmed by the programme or thought that the content used too much technical language and was not relatable or enjoyable. Others noted that the intervention was not developmentally appropriate or there was a 'lack of cultural fit'. The use of 'time-outs' as a disciplinary strategy was the most commonly disliked aspect of the parenting programmes. Parents suggested that programmes should be better tailored to families' specific needs, and should ensure that the content is culturally appropriate and that the reality of the programme was better communicated.

Cost analysis

In the UK, an evaluation of the Incredible Years programme reported that the cost-effectiveness estimate was £73 per point on the intensity score for child behavioural problems (range was £42 to £140; Edwards et al., 2007). In other words, the average cost of each child improving 1 point was £73. The authors suggested that it would cost £5,486 to bring a child with the highest intensity score to below the clinical cut-off point and £1,344 to bring the average child in the intervention group to below the clinical cut-off point. More recently, Edwards et al. (2016) found that the mean cost of the IY programme was £2,418 per child in a group of 8 children. Similarly, Day et al. (2012) reported that the direct cost of implementing 'Empowering parents, empowering communities' was £2,700 per group of parents (ranged from 7 to 14 parents in a group).

Lee et al. (2012) found that the benefit-to-cost ratio for Parent-Child Interaction Therapy was 4.62 : 1. For the Triple P parenting programme the ratio ranged from 1.98 to 6.06 : 1. The ratio for the Incredible Years programme was 1.20 : 1.

Findings from UK/Ireland

Numerous evaluations of parenting programmes with young children have been undertaken in the United Kingdom and Ireland. Examples of these evaluations identified in the review conducted by Piquero et al. (2016) are shown in Table 2. Most of these are based on very young children.

Table 2

Evaluations of the effectiveness of parenting programmes in the UK and Ireland included by systematic reviews

Study	**Programme**	**Design**	**Impact**
Day et al. (2012) England	'Empowering parents, empowering communities' is a peer-led parenting intervention that aims to improve parent-child relationships and interactions, reduce child behaviour problems and increase parent confidence in parenting skills. The programme includes a structured manual and theories/methods on attachment, social learning, structural relational, and cognitive behavioural therapy. Intervention sessions include activities such as role play, demonstration, group discussions, reflection and homework tasks.	The evaluation took place in 2010 at different sites, including schools, children's centres and one church in an inner-city London borough and included families with children aged 2-11 years old and showing behavioural problems. 59 families were randomised to the intervention condition and 57 comprised the waitlist control group and one parent took part in the intervention. 71% of participants identified as BAME. Twelve trained peer facilitators delivered the intervention to groups of 7-14 parents over 8 weeks in 2hour sessions. The primary outcome was child	5 parents did not complete the intervention (retention rate of 92%), the mean session attendance was 7.10 (SD = .92). Intention to treat analyses showed that the intervention had significant impact on child disruptive behaviour (*d* = 0.38, 95% CI 0.01 – 0.75, *p* = .01) as measured on ECBI, positive parenting, but not on child mental health or parental-stress.

		disruptive behaviour measured by the Eyberg Child Behaviour Inventory (ECBI). Secondary outcomes included child mental health, parenting competencies, and parenting stress. Analyses were completed as intention-to-treat.	
Edwards et al. (2007) Wales	Incredible Years basic parenting programme strengthens parenting competencies and reduces risk of developing conduct problems. More info in Hutchings, Bywater, Daley, Gardener, Whitaker, Jones et al. (2007)	153 parents from Sure Start areas, who reported their child (aged 3 – 4 years) was above clinical cut off point on behavioural problem scale were randomised to intervention condition (n = 86) or waitlist control (n = 47). Child disruptive behaviours (Eyberg child behaviour inventory) were measured at in-home visits by researchers at baseline. Included an economic evaluation also (with 116 participants). Index children were mainly male (58%) in intervention group and control group (67%), the majority of families reported a weekly income of less than £200 (56%) and English was the main first language spoken. The mean age of children in the intervention group was 45.89 months and the mean number of children was 2.53 per household.	Clinical effectiveness, based on 116 participants, showed that the Incredible years parenting programme reduced incidence (t = 5.78, p < .001) and intensity (t = 7.37, p < .001) of child disruptive behaviour. At follow-up (i.e., 6 months post baseline) 62% of children who participated in the IY programme fell below the clinical cut-off point for problem behaviour intensity on the ECBI. In comparison, at follow-up 42% of control children fell below the clinical cut off point.

Edwards et al. (2016) England	Study to determine cost-effectiveness of Incredible Years basic parenting programme in Birmingham as part of the Brighter Futures initiative. Little et al. 2012 – pragmatic RCT of IY Birmingham Brighter Futures initiative included evaluations of Triple P, PATHS, and IY	The Strengths and Difficulties Questionnaire was used as a screening tool for children aged 3-4 years old. Parents completed the tool for their children and those that rated above the cut-off point for clinical concern were invited to take part. 161 families took part, with 110 in the intervention and 51 in the waitlist control group. Outcomes were measured at baseline and six-month follow-up from 144 participants (98% of sample). 37% of participants in the intervention group were female and the mean age was 3.34 years old. Parents were predominantly mothers (98%).	At the 6-month follow-up there were statistically significant improvements in child problem behaviour intensity (mean difference = -14.57, $p < .05$) and frequency (mean difference = -4.03, $p < .05$) and parenting skills (mean difference = -0.4, $p < .01$).
Gardner et al. (2010)	Incredible Years parenting programme. Facilitators implemented a structured sequence of topics using a collaborative approach: learning to play with your child, increasing positive behaviour through praise and incentives, limit setting and ignoring, and strategies for managing non-compliance and aggression. Intervention sessions include home	11 families from socially disadvantaged ('Sure Start') areas were recruited between Jan 2003 – Sep 2004. Health visitors administered screening tool with parents with respect to their child aged between 36 and 59 months. 153 families were eligible with one child scoring above the clinical cut off point, with 104 families randomly allocated to the intervention group	Observed changes in positive parenting acted as a mediator for the effectiveness of the intervention to reduce child problem behaviour ($t = 2.5$, $p = .014$). Single parenthood, low income or teen parenthood did not moderate the relationship between intervention

	assignments, videos, and practice activities to try at home. Strategies to enhance retention and engagement included home visits to parents who missed sessions, providing meals, daycare and transport.	and 49 comprised the control group. Unit of randomisation was the parent-child pair. Retention rate was 87% at the six-month follow up. Mean attendance was 9.2 sessions. 40% of participants were single parents, 56% had a weekly income less than £200 and the mean child conduct problem score was above the clinical cut off. Trained facilitators implemented the intervention in groups of 12 in weekly sessions of 2.5 hours. Parent reports of child problem behaviour were measured using the Eyberg child behaviour inventory problem scale. Outcomes included the number and intensity of conduct problems. The Dyadic Parent-Child Interaction Coding system was used to code observational data on parent and child behaviour at home.	condition and changes in child problem behaviour. The intervention was more effective for male children (ES = .03, p = .04). Maternal depression also moderated intervention effects (children of depressed mothers fared better, ES = .05, p = .004), as did child age (younger children fared better than older children, ES = .03, p = .04).
McGilloway et al. (2012) Ireland	Incredible Years basic parenting programme for children with behavioural problems. Described as a short 12 session group-based intervention that is guided by behavioural and social learning principles to	Randomised controlled trial with parents of children aged between 32 and 88 months that scored above the clinical cut-off on either intensity or problem subscales of the Eyberg Child Behaviour Inventory.	The IY programme significantly reduced child disordered behaviour on both the ECBI intensity (ES = 0.7, p < .001) and problem (ES = 0.75, p < .001) subscales.

	address conduct problems in early childhood. Sessions involve activities such as role play and watching videos to demonstrate several parenting and discipline strategies. Topics include play, attention and involvement, listening, problem solving, praise, incentives, and limit setting. The programme promotes positive parenting including child-directed play and encouragement to encourage child cooperation and strengthen parent-child relationships. Incredible years programme addresses problem behaviours by positive reinforcement of prosocial behaviours and non-aversive discipline strategies (e.g. time-out) in response to problem behaviours. Programme aims to improve intensity and frequency of child behavioural problems, child social skills, parent well-being and stress, and positive parenting practices.	149 participants were randomly allocated to intervention (*n* = 103) or waitlist control (*n* = 46) groups. 58% of intervention children were male, and most of the parents were female (*n* = 143). Participants completed data collection at baseline and after 6-month follow up (3 months post intervention) in two cohorts. A small payment was made after completion of data collection. The primary outcome of child problem behaviour was measured using the ECBI tool. The SDQ was used to measure secondary outcomes for children. Several other measures were employed to measure other variables of interest. The programme was evaluated with 9 intervention groups of 11-12 parents in 14 weekly 2 hour sessions.	Desirable intervention effects were also found for child hyperactive-inattentive behaviours, child social skills, and parent competencies and well-being. Moderator analyses showed that the effect was not impacted by child or family demographics or risk factors.
Thompson et al. (2009)	'Revised New Forest parenting programme' – a	41 children aged between 30 and 77 months meeting	The intervention had a desirable impact on

	specialised psychological intervention for preschool children with ADHD. The aim of the programme is to reduce core symptoms of ADHD in multiple settings, e.g., the home, at school and other 'functional' settings. The revised programme includes parents as agents of change to enhance regulatory skills and improve the deficits said to cause ADHD. The general goals of the programme are to improve: parental style, parent-child communication, management of oppositional defiant disorder symptoms, and improve child self-regulation through interaction and games. Intervention activities include a combination of psychoeducation, parent-child play, and parent-child tasks.	the criteria for ADHD from Guernsey were recruited. The majority of children were male (*n* = 31). Children completed a three-stage screening process involving a questionnaire, parental concern and a clinical interview. Children were randomised to the intervention condition (*n* = 21) or a treatment-as-usual (*n* = 20) control condition. Data collection was conducted at baseline, post-intervention (week 9) and follow-up (week 17). Outcomes of interest were child ADHD and oppositional (via parent-report scales and direct observation), non-compliant behaviour, parent ADHD, parental depression, and expressed emotion, and direct observations of mother-child interactions. Incomplete data was reported for 11 children, who had more severe ADHD.	parent-reported child ADHD (*d* = 1.92, *p* = .17), however the effect was not statistically significant.

Note. ADHD = attention-deficit hyperactivity disorder;

What do we need to know?

Reviews of parenting programmes did not compare effect sizes in relation to the specific elements of the intervention. Future research is needed to better understand how the

different components of parenting programmes may influence the impact on child outcomes. Moreover, the potential differences in the effectiveness of parenting programmes as prevention (i.e., with children under 3 years old) and as treatment (i.e., with older children) for child problem behaviours needs to be investigated further.

Parenting programmes can be implemented effectively in-person and also through digital or virtual means. This is particularly important in a post-COVID world. Recommendations about when digital parenting programmes are appropriate, or perhaps more effective than in-person programmes, are needed. There is currently no existing evidence that compares the two approaches.

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Annex 1: Effect size calculations

This annex shows the calculation based on the results and assumptions given in the text. We assume 200 youth, evenly divided between treatment and comparison groups. That means there are 100 youth in the control group and 100 youth in the treatment group. Assuming that 25% of children in the control group had behavioural difficulties, the mean effect size for Piquero et al. (2016) can be easily transformed to a percentage reduction.

If the odds ratio for the incidence of child behavioural difficulties is 2.03, then using the table below and the formula for an OR, we can estimate that the value of X. The odds ratio is estimated as: A*D/B*C, where A is the number of children who do not report behavioural difficulties in the treatment group, B is the number of children who report behavioural difficulties in the treatment group, C is the number of children who do not report behavioural difficulties in the control group, and D is the number of children who report behavioural difficulties in the control group. Therefore, the value of X is 14.1 in the case of Piquero et al. (2016).

	No behavioural difficulties	Behavioural difficulties	Total
Treatment	100-x	x	100
Control	75	25	100

Therefore, the relative reduction in bullying is (25 – 14.1)/25 = 43.6%. In relation to the review by Baumel et al. (2016) the value of X is 13.05 and the relative reduction in bullying is 47.8%.

The prevalence of child problem behaviours likely to vary between study and can be influenced greatly by the type of report (e.g., parent-report or observation), the time period covered, the assessment tool used, the age of the participants, etc. If we were to vary our assumption that 25% of the control group show child behavioural difficulties, the overall relative reduction in the intervention group is not greatly affected.

For example, if we assume that 10% of the control group have child behavioural difficulties, the 2x2 table would be as follows and the value of X is 5.19 (for Piquero et al., 2016). Therefore, the relative reduction is 48.1% (i.e., (10-5.19)/10]*100).

	No behavioural difficulties	Behavioural difficulties	Total
Treatment	100-x	x	100
Control	90	10	100

Similarly, if we assume that 40% of the control group demonstrate child behavioural difficulties, the value of X is 24.72 (for Piquero et al., 2016) and the relative reduction in child behavioural difficulties is 38.2%. Given the dramatic difference in the assumed prevalence of child behavioural difficulties, the percentage relative reduction does not vary in a similar fashion. Table 3 shows this further.

Table 3

Variation of the relative reduction in child behavioural difficulties depending on various estimates.

	Baumel et al. (2016) OR = 2.22	Piquero et al. (2016) OR = 2.03
Assumed prevalence	Relative reduction	
10%	52.3%	48.1%
25%	47.8%	44.3%
40%	42.3%	38.2%

Calculation of indirect effects

To calculate indirect effects om offending we first calculate the prevalence of offending amongst children with and without a history of disruptive behaviour. We do this using the

odds ratio of 3.5 from Erskine (2016) and the assumption of 25% of children and young people without disruptive behaviour offend:

OR	3.5	Erskine (2016)
BO	25	% of those with disruptive behaviour who go on to commit crime (assumption)

	Offending	Not offending	Total	Prevalence offending
Disuptive Behaviour	50	150	200	0.25
Not DB	17.4	182.6	200	0.09
Total	67.4	332.6	400	

Next, we work out the number of offenders without and with the intervention, using our assumption that 25% of the control group have disruptive behaviour and the calculated impact of parenting on disruptive behaviour:

Without			
Not DB	300	Offend	26
		Don't offend	274
DB	100	Offend	25
		Don't offend	75
Total		Offend	51
		Don't offend	349
With			

Not DB	344	Offend	30
		Don't offend	314
DB	56	Offend	14
		Don't offend	42
Total		Offend	44
		Don't offend	356

We use these results to make a 2x2 table for offending with and without the intervention, from which we derive the odds ratio and so the d statistic:

	Offend	Don't offend	Total
Without	51	349	400
With	44	356	400

OR =	0.844	
d =	-0.094	d=(3^.5/π) l.n(OR)
% reduction	-13.9	

Sensitivity analysis

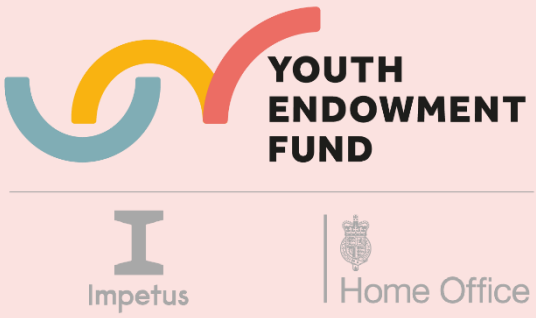
Varying the assumptions of control prevalence and offending amongst CYP without disruptive behaviour will affect the findings. We assume low values of 10% for each (which increases impact) and high values of 40% (which decreases impact). The results are:

	10% , 10%	40%, 40%
%	-16.7	-9.9
d	-0.105	-0.07

Annex 2: AMSTAR Rating

Modified AMSTAR item		Scoring guide	Parent training		
			Piquero 2016	van Aar 2017	Baumel 2016
1	Did the research questions and inclusion criteria for the review include the components of the PICOS?	To score 'Yes' appraisers should be confident that the 5 elements of PICO are described somewhere in the report	Yes	Yes	Yes
2	Did the review authors use a comprehensive literature search strategy?	At least two bibliographic databases should be searched (partial yes) plus at least one of website searches or snowballing (yes).	Yes	Yes	yes
3	Did the review authors perform study selection in duplicate?	Score yes if double screening or single screening with independent check on at least 5-10%	No	No	Yes
4	Did the review authors perform data extraction in duplicate?	Score yes if double coding	No	Yes	Yes
5	Did the review authors describe the included studies in adequate detail?	Score yes if a tabular or narrative summary of included studies is provided.	Yes	Yes	Yes

6	Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?	Score yes if there is any discussion of any source of bias such as attrition, and including publication bias.	Partial Yes	Partial Yes	Yes
7	Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?	Yes if the authors report heterogeneity statistic. Partial yes if there is some discussion of heterogeneity.	Yes	Yes	Yes
8	Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? Overall	Yes if authors report funding and mention any conflict of interest	No Low	No Low	Yes High



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