



What Works for
Children's
Social Care

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INCREDIBLE YEARS PARENTING PROGRAMME

EMMIE Summary





Acknowledgements

We thank our research colleagues at CASCADE, Cardiff University, who supported the preparation of this EMMIE summary report: Pierce, Adam; El-Banna, Asmaa; Daher, Shahd; and Maxwell, Nina.

This evidence summary is based on the following systematic review

Gardner, Frances., and Leijten, Patty., and Mann, Joanna., and Landau, Sabine., and Harris, Victoria., and Beecham, Jennifer., and Bonin, Eva-Maria., and Hutchings, Judy., and Scott, Stephen. (2017). Could scale-up of parenting programmes improve child disruptive behaviour and reduce social inequalities? Using individual participant data meta-analysis to establish for whom programmes are effective and cost effective. *Public Health Research*, 2017, 5(10).

About What Works for Children's Social Care

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generate, collate and make accessible the best evidence for practitioners, policy makers and practice leaders to improve children's social care and the outcomes it generates for children and families.

About CASCADE

The Children's Social Care Research and Development Centre (CASCADE) at Cardiff University is concerned with all aspects of community responses to social need in children and families, including family support services,

children in need services, child protection, looked after children and adoption. It is the only centre of its kind in Wales and has strong links with policy and practice.

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Incredible Years Parenting Programme

What is the intervention?

Persistent disruptive behaviour is the most common mental health problem in children, representing a large and costly public health issue. Disruptive behaviour problems, which include oppositional defiant disorder and conduct problems, usually derive from childhood, with less than 10% of persistent adult disruptive behaviour problems beginning after the age of 18 (Moffit and Caspi, 2003). Moreover, child disruptive behaviours increase the risk of alcoholism; drug abuse; criminality; domestic violence; sexually transmitted infections; poor mental health, including psychosis; and early death (Fergusson et al 2005; Odgers et al 2007; Piquero et al 2011). There are higher rates of disruptive behaviour in children in the most disadvantaged groups of the population (ONS 2004). Poor parenting skills are strongly predictive of youth disruptive behaviour (Ermisch 2008; Hoeve et al 2009). As the public health and financial burden of child disruptive behaviour and its later consequences are very high, it provides an excellent opportunity for early preventative parenting programmes.

Incredible Years is an evidence-based parenting programme that was developed by Carolyn Webster-Stratton in 1997. The programme is aimed at improving parenting skills, promoting the child's academic, social and emotional abilities and reducing disruptive behaviours. Incredible Years has been disseminated in England, under the UK Government Pathfinder Early Intervention programme, and in Wales, under the Welsh Government funded Parenting Action Plan. There have been eight community-based randomised controlled trials undertaken in Birmingham (Morphet, 2017), Wales (Hutchings et al., 2007; Hutchings et al., 2017), London (Scott et al., 2010; Scott et al., 2010; Scott et al., 2014 ;), Oxfordshire (Patterson et al., 2002; Gardner et al., 2006) and Plymouth (Scott et al., 2014). While its effectiveness has been supported by several studies across Europe, including the UK, little is known about whether the benefits are equitable amongst the most socially disadvantaged and troubled families, or whether Incredible Years is cost effective. This summary is based on the meta-analysis undertaken by Gardner and colleagues in 2017 which aimed to synthesise individual-level data from fourteen randomised trials across Europe in order to examine whether Incredible Years helps to reduce, rather than widen, socioeconomic inequality. In doing so, Gardner and



colleagues add to the evidence base for Incredible Years by offering detailed findings regarding the factors which moderate its effectiveness, namely child gender, age, ethnicity, the severity of behaviour problems, parental depression and parenting skills. The review also reports on the cost-effectiveness of the Incredible Years programme.

How strong is the evidence?

Of the fifteen randomised control trials, individual-level data were obtained from the fourteen studies where data could still be accessed. Such an approach serves to reduce potential reporting and publication bias as the fourteen datasets were reanalysed using the same pre-published data analysis strategies. However, this approach also introduced potential limitations, as data harmonisation was based on the assumption that different research instruments used in the studies measured the same constructs, with the same measurement error. Furthermore, it was assumed the norm values used on different measures were consistent across different countries. The review was also limited by the extent to which self-report measures were used, as this limited the extent to which data could be harmonised across studies. Finally, the review does not report on the long-term effect of Incredible Years as most of the fourteen studies adopted a waiting list approach where the control group received Incredible Years around six months later.

The review benefits from a large sample size ($n = 1799$) which yielded heterogeneity across countries, settings, ethnicity, and socioeconomic and participant profiles. The review also benefits from the inclusion of all randomised studies from 2001 to 2015, including those that had yet to be published. Moreover, all fourteen studies had been conducted by researchers who were independent of the Incredible Years developer.

Which outcomes were studied?

- Child attention deficit hyperactivity disorder symptoms
- Child emotional problems
- Parental mental health
- Harsh and inconsistent parenting
- Positive parenting
- Parental mental health



Effectiveness: how effective are the interventions examined?

Outcome 1: Child attention deficit hyperactivity disorder symptoms

Effect rating	+
Strength of Evidence rating	3



Outcome 2: Child emotional problems

Effect rating	0
Strength of Evidence rating	3



Outcome 3: Parental mental health

Effect rating	0
Strength of Evidence rating	3



Outcome 4: Harsh and inconsistent parenting

Effect rating	+
Strength of Evidence rating	3



Outcome 5: Positive parenting

Effect rating	+/-
Strength of Evidence rating	3





One of the review's main aims was to consider the effects of Incredible Years on social inequalities. These results are presented below under the heading 'moderators'.

A 12% reduction in attention deficit hyperactivity disorder symptoms (ADHD) was found for children whose parents had attended the Incredible Years programme as compared to 2% for the wait list group, who had not participated on the programme. These findings suggest that parenting programmes aimed at one externalising behaviour, such as conduct behaviour, may produce benefits in other externalising behaviours, such as ADHD. However, such benefits should be expected to extend to internalising problems, such as emotional problems. No differences were found in the reduction of child emotional symptoms between those who received Incredible Years and those who did not ($p=0.303$). No significant differences were found regarding parental mental health although non-significant differences were found for a reduction in parental depression (CI -0.17 to 0.01). Parenting stress and self-efficacy did not improve following Incredible Years.

Significant differences were found in the reduction of harsh and inconsistent parenting, including corporal punishment (CI -0.42 to -0.01), threatening (CI -0.36 to -0.06) and shouting (CI -0.61 to -0.01). Incredible Years was associated with increased use of positive praise (CI=0.01 to 0.51). Parents did not report using more tangible rewards or monitoring behaviours.

Mechanisms: how does it work?

The Incredible Years programme is underpinned by social learning theory and attachment theory. Specifically, parents learn techniques that are designed to break coercive cycles of parent-child interaction in which parents reinforce negative and aggressive behaviour in each other (Patterson, 1982). In this manner, Incredible Years is similar to other parenting programmes such as Triple P, Parent-Child Interaction Therapy and Parent Management Training: Oregon Model. However, the authors suggest that it is the collaborative and culturally sensitive nature of Incredible Years that lead to its applicability for families with different socio-economic and ethnic backgrounds (see 'moderators' section below).

Moderators: when, where and who does it work for?

Of the fourteen studies, six studies were undertaken in England, two in Wales, two in the Netherlands and one trial each in Ireland, Norway, Sweden and Portugal. The



findings therefore have a relatively strong applicability for the UK, compared with many meta-analyses of social interventions.

Across the fourteen studies, children were aged between two and 10 years old, with a mean age of 5.1 years. The results showed that programme effects were not moderated by age ($p=0.65$) suggesting that older children are just as likely to benefit as younger children. A significant effect was found for gender ($p=0.04$) with boys more likely to benefit from participation than girls. Boys represented over half of the sample (63%). The authors conclude that this evidence suggests that by targeting Incredible Years at boys with disruptive behaviours, a main source of inequality could be addressed.

Ethnicity was not found to moderate the effects of Incredible Years ($p=0.75$). Hence, children from ethnic minority families were just as likely to benefit as those from ethnic majority groups.

The effectiveness of Incredible Years was maintained for socially disadvantaged families. Families characterised by high/low income status ($p=0.58$); high/low education status ($p=0.49$); un/employment ($p=0.21$); lone parent status ($p=0.88$); or teenage parent status ($p=0.13$) were just as likely to benefit from the intervention as those without these disadvantages. Therefore, there is no evidence to indicate that the intervention would increase or further widen existing social inequalities in child disruptive behaviour.

Regarding psychosocial disadvantage, the more distressed families and families with higher levels of problems showed greater improvements in child disruptive behaviour. This was especially pertinent for families with more severe disruptive child behaviour ($p=0.02$) and for parental depression ($p=0.01$), where children with a depressed parent benefited more from participation. Programme effects were not moderated by parenting variables such as praise and punishment, child emotional problems,

The programme was not moderated by parents' level of parenting skills, suggesting that the intervention is suitable and beneficial for parents across a range of levels and types of parenting skills.

Implementation: How do you do it?

Incredible Years consists of between 12 and 14 sessions delivered to groups of between 6 and 15 parents, in weekly sessions lasting around 2 to 2.5 hours and headed by therapists, or group leaders (Webster-Stratton et al 2010). It uses a collaborative, flexible approach where parents are viewed as experts on their own children. Parents are guided



to set weekly goals that fit with their personal needs and values. Central to the groups are videotaped scenes showing instances of parent-child interactions. A variety of topics are covered which encompass relationship building through playing or spending special time with the child; providing praise and rewards as reinforcements of positive behaviour; effective limit-setting; adequate disciplining techniques such as ignore and time-out techniques; and coaching children in social, emotional and academic skills. Parents are then guided to identify key parenting behaviours and principles that might be useful for their own family context.

There are also discussions about programme-driven and parent-initiated topics. Parents discuss different parenting techniques and participate in role-plays of those different techniques. A key component of the programme is encouraging parents to propose their own ideas and solutions before they practice or implement them through 'home practice'. Parents receive weekly check-in phone calls. The group format can play an important role in offering and allowing social support.

Economics: What are the costs and benefits?

Economic analysis methods

The systematic review also considered the cost-effectiveness of Incredible Years. Cost-effectiveness analyses measure and value differences in costs and differences in outcomes between an intervention and its comparator. This is summarised in an incremental cost-effectiveness ratio (ICER), which is defined as the additional cost of the intervention per one-unit change in outcome achieved, and is calculated per the equation below.

$$\text{ICER} = \frac{\text{Incredible Years cost} - \text{Comparator cost}}{\text{Incredible Years outcome} - \text{Comparator outcome}}$$

The cost-effectiveness analysis took a public sector perspective, including the cost of the intervention itself in addition to costs to the broader public sector. The primary cost-effectiveness analysis measured changes in the Eyberg Child Behaviour Inventory Intensity scale (ECBI-I), which assessed changes in disruptive child behaviours, particularly conduct problems. A secondary analysis assessed whether individuals moved below the ECBI-I clinical cut-off point (score ≥ 131 points) following the intervention.



To determine if the Incredible Years parenting programme was cost-effective, the estimated ICERs were compared to a range of cost-effectiveness thresholds - this is the monetary value given to a one-unit improvement in outcome. The thresholds ranged from £0 to £250. ICERs that fall below the threshold demonstrate that the intervention is cost-effective, and vice versa. Statistical methods were used to generate 10,000 estimates of the ICER. The probability that the intervention was cost-effective was determined by calculating the proportion of the 10,000 ICERs that fell below each threshold value.

Of the fourteen RCTs, five met the criteria for inclusion in the economic analysis, and there was usable data from 608 participants (control group, n=236; intervention group, n=372). All costs were presented at 2014 prices, and no discount rate was applied as all costs and consequences occurred within a one-year time horizon.

Cost of the intervention

The cost of Incredible Years was estimated from data provided by six sites. All centres were requested to provide data using a Standardised Service Information Schedule. Staff costs were the largest contributor to the cost of the programme. Costs of venue hire, project management, administrative assistance, materials used during sessions, snacks, and provision of a crèche facility were all included in the cost estimate.

The cost per Incredible Years session ranged from £228 to £352. Participants receiving the intervention were offered on average 12.7 sessions and attended 8.7 sessions. The mean cost of the intervention per person was £2414 (SD £1248).

Public sector resource use

Resource use questionnaires were completed by participants to indicate the services they had accessed. Total costs associated with service use included costs of community health services, (e.g. primary healthcare), hospital services (e.g. A&E causality, ambulance, outpatient appointments, and inpatient stay), specialist mental health services, social care, accommodation away from home (e.g. foster care), as well as services provided by the voluntary sector.

There were no significant differences in costs between the Incredible Years group and the control group for all service categories except for mental health services, although this cost difference was small (£18).



How cost-effective is the intervention?

For the primary analysis, on average, unadjusted ECBI-I scores in the control group improved by 8.1 points, whilst for the intervention group by 30.7 points. For the secondary analysis, the chances of a child in the intervention group being below the ECBI-I clinical cut-off point following the intervention was 1.54 times as high as for a child in the comparator group.

The probability of cost-effectiveness was 50% at a threshold of £109 and over 99% at a threshold of £145. If a decision maker is willing to pay £145 to achieve a 1-point improvement in ECBI-I score, the Incredible Years programme has a 99% probability of being cost-effective.

Costs did not vary based on the participants' baseline characteristics, including social disadvantage, ethnicity, ADHD and emotional problems. In contrast to the main effectiveness analysis, there were also no cost variations associated with baseline levels of disruptive behaviour or parental depression.

The cost-effectiveness analysis, repeated for subgroups by gender, ECBI-I score, child age and parental depression at baseline, found that Incredible Years was more likely to be cost-effective for children with an ECBI-I score above the cut-off and for older children, aged above 5 years, for boys and for families with a parent who has at least a modest level of depression. However, the probability of cost-effectiveness was close to 100% at a threshold of £250 for all subgroups.

What are the strengths and limitations of the review?

This is a comprehensive review of almost all the Incredible Years randomised controlled trials across Europe from 2001 to 2015. The review strengthens findings by re-analysing the data from included studies with a pre-published data analysis protocol which was applied consistently across all fourteen studies. By pooling the data, there was greater statistical power to determine the effects. However, the review had a number of limitations, particularly pertaining to methodological aspects of the study. For example, several assumptions had to be made in order to harmonise the numerous data sets, and to account for the various instruments used across the different trials. Moreover, the variable used to measure and capture social status and socioeconomic status across these trials had to be reduced and simplified into binary variables..



This review shows that the positive benefits yielded by Incredible Years were equitable for socially disadvantaged families and those from ethnic minorities. However, it was more beneficial for the most distressed families including those where children had more severe behaviour problems and depressed parents. Incredible Years appears to have wide benefits and is likely to be cost-effective. The study did not account for potential inequalities to accessing the intervention, and as such, the authors recognise the need of further research on enhancing equality of access to the intervention.

Summary of key points

- The review provides no evidence to indicate that social inequalities in child problem behaviours would be increased by the Incredible Years intervention.
- Moderating effects discovered that the intervention was strongest in children with more severe behaviour problems.
- There was no evidence of moderation by age, with the findings indicating that the intervention is just as effective for older children as younger children.
- The Incredible Years intervention can be considered a cost-effective intervention.



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