Case Study 1: Evidence Based Practice Report

Theme: Interventions implemented by parents.

How effective is the Incredible Years Parent Program (IYPP) in reducing problem externalising behaviour in children in foster care?

Summary

The Incredible Years Parenting Program (IYPP) is a structured intervention that aims to equip parents with skills to promote healthy social, emotional and language development and reduce problem behaviour in their children (Webster-Stratton, 1984). The intervention ranges from 10 – 24 weeks in length and each session lasts approximately 2 hours. The programme uses a range of teaching methods such as role play, peer support and watching videos of parenting scenarios to trigger discussions and problem solving (Webster-Stratton, 2016). IYPP has been developed for biological parents of typically developing children, however, it can be adapted and used for special groups such as children with autism and children in care (Webster-Stratton & Reid, 2010; Williams et al., 2020). Research has found that children in foster care are more likely to experience emotional and behaviour problems (Bovenschen et al., 2016) and foster carers reported feeling ill equipped to manage this behaviour (Egelund & Vitus, 2009). Recent government guidelines highlighted the need for high quality training for foster carers (DfE, 2018). In response to this, this review aimed to provide an updated analysis of the evidence for the effectiveness of IYPP in reducing problem externalising behaviour in children in foster care. A systematic review of the literature was undertaken and six studies were evaluated using the Weight of

Evidence Framework (Gough, 2007). Effect sizes were calculated to establish the impact of the intervention. This review found that there is evidence to suggest that IYPP is effective in reducing problem externalising behaviours in children in foster care. However, this needs to be taken with caution due to limitations within the studies evaluated. Due to this, further research has been suggested.

Introduction

What is the Incredible Years Program and how is it used?

The Incredible Years Parent Program (IYPP) has the following main goals: promote parents' competencies and strengthen attachment between the parent and child; improve parents' ability to use child-directed play to develop their child's social, emotional and language development; reduce harsh discipline practices; improve family support networks and finally, strengthen parental involvement in their child's school related activities. IYPP is split into separate programmes appropriate for the child's age: babies (0-1 year), toddlers (1-3 years) pre-schoolers (3-6 years) and school age children (6 – 12 years) (Webster-Stratton, 2016). The programme also outlines short-term and long-term outcomes for the child following the intervention. Short term outcomes include: increased school readiness, emotional regulation and social competence. Long term outcomes include: reduced conduct disorders, school drop out and increased academic achievement (Webster-Stratton, 2016; Webster-Stratton et al., 2011).

The programme is delivered by two facilitators who have been appropriately trained and accredited. Webster-Stratton recommends that the sessions are

held weekly and are 2 hours in duration. The programme length ranges from 10 – 24 weeks, depending on the needs of the group. Group size is recommended to be between 10 – 12 parents. The programme uses several teaching methods including role-play, peer support and showing videos of parenting scenarios to trigger discussions and problem solving within the group (Webster-Stratton, 2016).

The programme is a manual-based intervention and so requires a certain amount of fidelity. However, the programme is delivered by highly skilled facilitators who are able to tailor the intervention to the needs of the group (McDaniel et al., 2011).

Several studies have found the IYPP to be effective in reducing conduct problems in children (Bywater et al., 2009; Webster-Stratton et al., 2011) and it has been judged to be cost-effective (Edwards et al., 2016). Subsequently, the IYPP was named as a successful parenting intervention in a report by The Social Mobility Commission in 2017 (Social Mobility Commission, 2017) and is currently offered as a parenting programme by several local authorities across the United Kingdom.

IYPP was initially created for biological parents and is influenced by several different psychological theories and approaches (McDaniel et al., 2011). Firstly, Bandura's (1977) social learning theory and self-efficacy. The intervention uses video-based modelling techniques which support the learning of new parenting skills (Webster-Stratton, 2016). Secondly, the intervention programme uses principles from attachment theory (Ainsworth et

al., 1974; Bowlby,1980) to reinforce positive, secure attachments and relationships between the parent and child.

Why is it relevant to foster parents and children?

Research shows that children who become looked after by local authorities are more likely to experience social, emotional and conduct problems (Semik et al., 2008). Further to this, children in foster care are three to ten times more likely to experience emotional and behaviour problems compared with other children (Bovenschen et al., 2016). This may lead to further negative outcomes such as placement breakdown, criminality, substance abuse and relationship difficulties (Chamberlain et al., 2006). Many foster parents report feeling they have a lack of skill and receive little support in managing this behaviour and this often leads to placement breakdown (Egelund & Vitus, 2009). Research has found that the instability which is caused by changing placement can make emotional and behavioural problems worse and thus entering into a cycle of relationship and placement breakdown (Schofield & Beek, 2005; Munro & Hardy, 2006). Therefore, it is important that foster parents receive adequate training and support to ensure that their child can potentially avoid these negative consequences and develop positive relationships with their foster children (Buehler et al., 2006).

In 2007, the government published its plan to improve the outcomes for children in care (Department for Education and Skills, 2007). Within this, it was recognised that foster carers needed access to specialist training. This was updated in 2018 whereby the government set out ambitions for the foster system in the UK. A key aim was that 'foster parents receive the support and

respect they need and deserve to care for children' and they are able to access a range of training (Department for Education, 2018). The IYP programme has been recommended for use with children in foster care (Webster-Stratton, 2014) and due to the skilled facilitators, the programme can be adapted to meet the specific needs of foster parents and their children (McDaniel et al., 2011).

Rationale and relevance

Educational Psychologists (EPs) are required to work ethically and work within their level of competence (British Psychological Society, 2018). Therefore, having an up to date knowledge of effective, evidence-based interventions is important.

Currently, several local authorities recommend the use of IYP programme and parents are able to access it in different ways, depending on the local authority. In some cases, by directly applying and in other cases, by obtaining a referral from a social worker or an Educational Psychologist.

Given the need for high quality training for foster carers (Department for Education, 2018, p.24) and the fact that IYP has a large evidence base in reducing social, emotional and conduct problems (Bywater et al., 2009; Webster-Stratton et al., 2011) and was recommended by The Social Mobility Commission in 2017, there is a need for a review on the effectiveness of the IYP programme in reducing conduct problems in foster children.

A meta-analysis was conducted in 2015 which reviewed the independent research base of the Incredible Years Program (Pidano, 2015). This review

considered the Incredible Years Program as a whole, including teacher-training programmes. While the review did consider the impact on special populations such as foster carers, there have been studies published more recently and so there is a need for an updated review.

Review question

Therefore, the current review aims to address the following question: How effective is the Incredible Years Parent Program (IYPP) in reducing problem externalising behaviour in children in foster care?

Critical Review

Literature search

A systematic search of the literature was carried out on 17th January 2023 using the online databases: PsycINFO, ERIC (ProQuest), Web of Science and Social Care Online. A combination of key-word searches and subject heading searches were performed and are detailed in Table 1. Searches were limited to peer reviewed journal articles.

Table 1

List of search terms used

Database	Search terms
PsycInfo	"incredible years" AND "foster care*" OR "foster parent*" OR "care experienc*" OR "child* in care" OR "child* in foster care" OR "looked after child" OR "local authority care"
Education Resources Information Centre (ERIC)	"incredible years" AND

Database	Search terms
Web of Science	"foster care*" OR "foster parent*" OR "care experienc*" OR "child* in care" OR "child* in foster care" OR "looked after child" OR "local authority care" "incredible years" AND "foster care*" OR "foster parent*" OR "care experienc*" OR "child* in care" OR "child* in foster care" OR "looked after child" OR "local authority care"
Social Care Online	"incredible years" AND "foster care*" OR "foster parent*" OR "care experienc*" OR "child* in care" OR "child* in foster care" OR "looked after child" OR "local authority care"

Screening of studies

Thirty seven studies resulted from the initial search. After removing duplicates (n=13), 24 titles and abstracts were identified and screened according to inclusion and exclusion criteria (see Table 2). Eleven articles were selected for full text screening and 5 studies were excluded (see Appendix 1 for reasons for exclusion from the review). Figure 1 provides an overview of the systematic search process. The six studies included in the review are listed in Table 3. Appendix 2 provides more information about the included six studies and their findings.

Figure 1
Overview of the Systematic Search Process

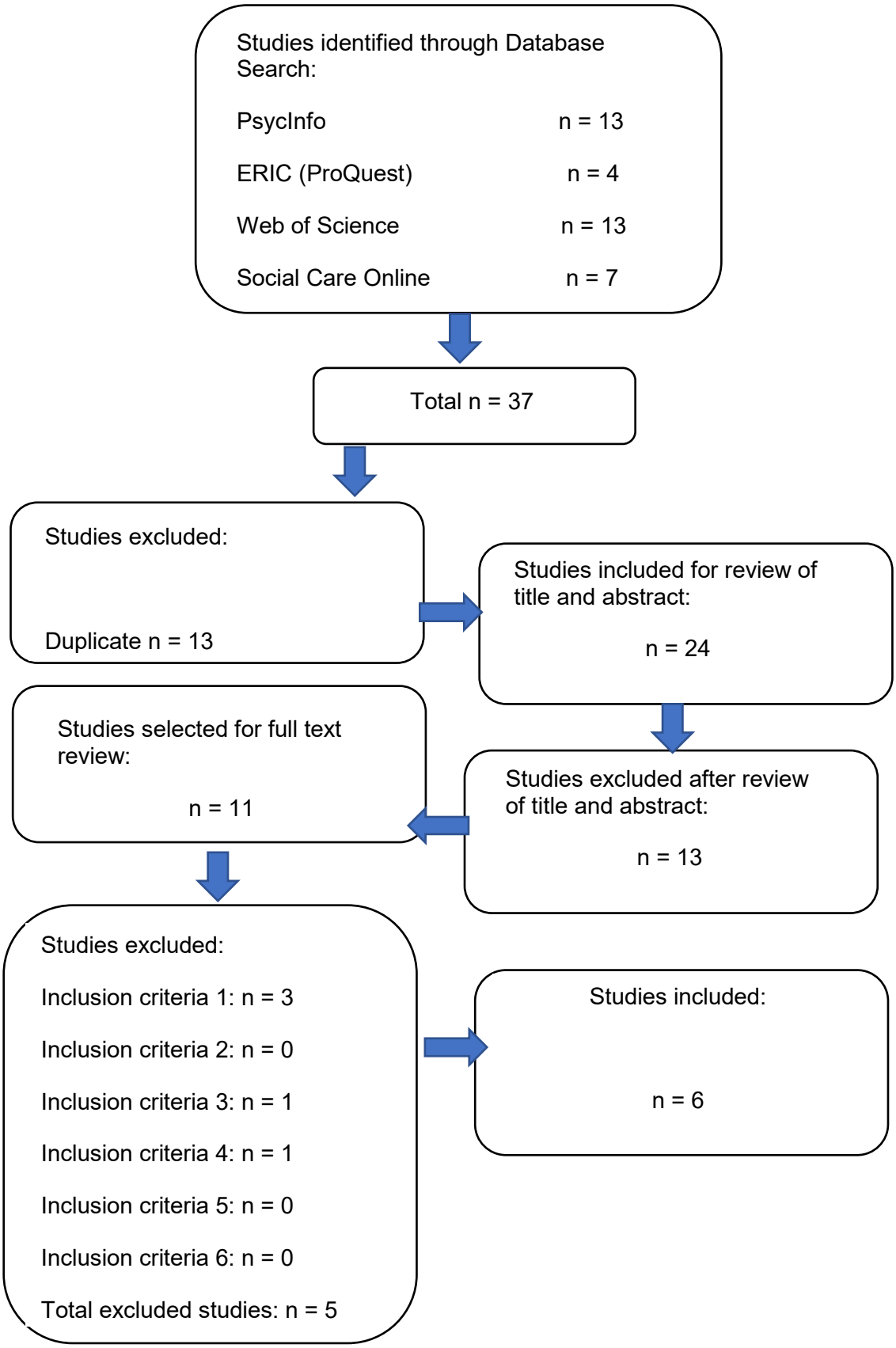

Table 2

Inclusion and exclusion criteria for current review

Study Feature	Inclusion Criteria	Exclusion Criteria	Rationale
1. Study type	Intervention studies that use an experimental or quasi-experimental research design and provide original empirical data to evaluate the impact of the IYPP curriculum on child behaviour.	Articles that do not use an experimental method or review findings from previously conducted studies and therefore do not include original empirical data	The review aims to evaluate the effectiveness of the IYPP intervention on child behaviour and therefore relies on original empirical research.
2. Type of publication	Peer reviewed Journal	Non-Peer reviewed journal	To ensure that the articles used are high quality and credible (Kelly et al., 2014)
3. Reporting	Studies that report the child's behaviour (externalising behaviours)	Studies that do not report the child's behaviour	This review is considering the use of the IYPP and focuses on reported behaviour.
4. Participants	Studies that include foster parents using the intervention	Studies that do not include foster parents, only biological parents or teachers.	This review is considering the effectiveness of the IYPP when used by foster parents.

Study Feature	Inclusion Criteria	Exclusion Criteria	Rationale
5. Outcome	The study must measure the child's behaviour pre and post intervention	The study does not measure the child's behaviour pre and post intervention	To review the effects of the intervention on the child's behavioural outcomes
6. Country of study	Study conducted in an Organisation for Economic Cooperation and Development (OECD) country	Studies conducted in non-OECD countries	OECD (2021) countries share contextual similarities with the United Kingdom which may therefore allow for more generalisability to a UK context

Table 3

Studies Included in this Review

	Included Studies
1	Bywater, T., Hutchings, J., Linck, P., Whitaker, C., Daley, D., Yeo, S. T., & Edwards, R. T. (2011). Incredible Years parent training support for foster carers in Wales: a multi-centre feasibility study. *Child: care, health and development*, *37*(2), 233-243. doi: https://doi.org/10.1111/j.1365-2214.2010.01155.x
2	Conn, A. M., Szilagyi, M. A., Alpert-Gillis, L., Webster-Stratton, C., Manly, J. T., Goldstein, N., & Jee, S. H. (2018). Pilot randomized controlled trial of foster parent training: A mixed-methods evaluation of parent and child outcomes. *Children and Youth Services Review*, *89*, 188-197. doi: https://doi.org/10.1016/j.childyouth.2018.04.035
3	Furlong, M., McLoughlin, F., & McGilloway, S. (2021). The incredible years parenting program for foster carers and biological parents of children in foster care: A mixed methods study. *Children and Youth Services Review*, *126*, 106028. doi: https://doi.org/10.1016/j.childyouth.2021.106028
4	Linares, L. O., Montalto, D., Li, M., & Oza, V. S. (2006). A promising parenting intervention in foster care. *Journal of consulting and clinical psychology*, *74*(1), 32.doi: https://doi.org/10.1037/0022-006x.74.1.32
5	McDaniel, B., Braiden, H. J., Onyekwelu, J., Murphy, M., & Regan, H. (2011). Investigating the effectiveness of the incredible years basic parenting programme for foster carers in Northern Ireland. *Child Care in Practice*, *17*(1), 55-67. doi: https://doi.org/10.1080/13575279.2010.522979
6	Nilsen, W. (2007). Fostering futures: A preventive intervention program for school-age children in foster care. *Clinical Child Psychology and Psychiatry*, *12*(1), 45-63. doi: https://doi.org/10.1177/1359104507071055

Mapping The Field

The studies included vary on research design, country of study and the measures used to measure the child's behaviour. However, the studies all include foster parents and children, involve the implementation of IYPP, measure pre and post outcomes of child behaviour and take place in an OECD country. Full details can be found in Appendix 2.

Weight of Evidence

In order to appraise the selected studies, Gough's (2007) Weight of Evidence Framework was used. The framework outlines three key dimensions that evaluated the extent to which the five included studies contributed to answering the review question. Weight of Evidence A (WoE A) examines methodological quality; Weight of Evidence B (WoE B) examines methodological relevance and Weight of Evidence C (WoE C) examines topic relevance. The three dimensions were then considered together to produce the overall Weight of Evidence (WoE D) for each identified study. WoE A involves appraising each study's methodological quality using an adapted protocol developed by Gersten et al. (2005). This protocol was selected due to its suitability for appraising studies that use experimental and quasi-experimental designs. It was adapted to break down some questions into sub-questions to ensure that each study was examined thoroughly. So that consistency was maintained, the same protocol was used to code all the studies. See Appendix 4 for the coding protocol used. Following this, studies were then appraised for methodological relevance (WoE B) in line with Guyatt et al.'s (1995) hierarchy of evidence. Details of this can be found in Appendix 6. WoE C provides a judgement of the topic relevance in relation

to the review question (Gough, 2007) and this can be found in Appendix 8. Therefore, within this review, it is evaluating the extent to which the Incredible Years Parenting Program (IYPP) is effective in improving behaviour in children in foster care. For a study to receive a rating, all criteria for that rating must be met.

Scores were given for each dimension (WoE A, B and C) and were then averaged to produce an overall WoE D rating. WoE D provides a judgement about the strength of the evidence. The higher the score, the more appropriate it is in answering the current review question. Judgements for each WoE category (A-D) can be found in Table 4.

Table 4

Overall Weight of Evidence Judgements (WoE D)

Study	WoE A	WoE B	WoE C	WoE D
Bywater et al. (2010)	2 (Medium)	3 (High)	2.5 (High)	2.5 (High)
Conn et al. (2018)	2 (Medium)	3 (High)	2.5 (High)	2.5 (High)
Furlong et al. (2021)	1 (Low)	1 (Low)	2.25 (High)	1.4 (Low)
Linares et al. (2006)	3 (High)	3 (High)	2 (Medium)	2.6 (High)
McDaniel et al. (2011)	1 (Low)	1 (Low)	2.5 (High)	1.5 (Medium)
Nilsen (2007)	1 (Low)	2 (Medium)	2 (Medium)	1.6 (Medium)

Note. <1.4 = Low score, 1.5-2.4 = Medium score, ≥2.5 = High score

Participants

There were a total of 261 participants across the studies. The smallest sample size was 14 (McDaniel et al., 2011) while the largest sample size was 128 (Linares et al., 2006). Two of the studies included both biological parents and foster parents. Four studies included foster parents only. Of 261 participants, 87 were biological parents. In line with the inclusion criteria, participants must have a child in the study where the intervention would be delivered by their foster parent. Biological parents where this did not apply were excluded from the review. As a result, pre and post intervention results

for 23 biological parents were not included in this review (Furlong et al., 2021). In line with the inclusion criteria, participants were parents of children aged 2 – 17 as this is the recommended age range for the Incredible Years Parenting Program (IYPP) intervention.

Studies received a high WoE C rating if participants were caring for their foster child for a duration of more than one year. This is because the longer the child in foster care is able to experience the benefits of the intervention, the more effective the intervention is likely to be. Conn et al. (2018) received a high rating for participants for this reason. One study (Linares et al., 2006) received a low rating for participants because although the study detailed that the children had spent an average of 8.4 months in regular foster care, it was unclear how long had been spent with the foster carer taking part in the intervention.

Participants included in this review were from four countries: Northern Ireland, Wales, Ireland and United States of America. The highest WoE C rating was given to countries within the UK due to the ability to apply findings of the review to the role of a UK-based EP.

Study Design

Study design was considered for each study using WoE A and B judgements. WoE A judgements were made by following an adapted version of a protocol designed by Gersten et al. (2005) and the rationale for this is explained in more detail in Appendix 3. The inclusion of the sub-questions was part of the 'Essential Quality Indicators' and so influenced the overall WoE A rating. Furlong et al. (2021) received a lower WoE A due to a sub-question exploring

how participants were assigned to each group and it was found that there was no control group and therefore no random assignment. Similarly, Nilsen (2007) received a lower WoE A rating as a result of this sub-question and it was found that they were not. McDaniel et al. (2011) also received a lower WoE A rating due to the sub-questions exploring areas that were found to be absent from the study. For example, there was no information on how the groups were assigned.

Randomised Control Trials were rated as the highest quality in line with Guyatt et al. (1995) hierarchies of evidence. Three studies in this review (Bywater et al., 2010; Conn et al., 2018, Linares et al., 2006) were randomised control trials and therefore rated highly for WoE B. All three of these studies included a control group of foster parents who did not receive the intervention. Two of these studies specified that the control group was placed on the waiting list (Conn et al., 2018; Bywater et al., 2010) and thus it is assumed that no intervention took place and care continued as usual.

Three studies were Quasi-experimental design. Two of these received a low WoE B rating due to the absence of a control group. It has been argued that studies without a control group may overestimate the effectiveness of interventions. A reason for this may be that the effects observed may be due to confounding variables that cannot be eliminated without a control group present (Marsden & Tofeson, 2012). Furlong et al. (2021) compared the outcomes of the Incredible Years intervention between biological parents and foster parents. In line with the inclusion criteria, only outcomes due to the intervention being delivered by foster parents were included. Therefore, only

pre and post intervention existed for the intervention group with no control group. McDaniel et al. (2011) also did not include a control group, just a measure of pre and post intervention outcomes. Nilsen (2006) received a medium WoE B rating due the fact it included a control group. Participants were not randomly assigned because some participants expressed an interest in participating but had scheduling conflicts and so were assigned to the comparison group. Due to these limitations, Nilsen (2006), Furlong (2021) and McDaniel (2011) received a low WoE A rating.

Three of these studies included a qualitative component to the research design (Bywater et al., 2010; Conn et al, 2018.; Furlong et al., 2018) however only the quantitative aspect of the studies has been focused on for the purpose of the current review question.

Implementation Fidelity

WoE A and WoE C included measures of fidelity to the intervention and the quality of implementation. Bywater et al. (2010) and Conn et al. (2018) received high ratings for intervention fidelity in WoE C due to monitoring adherence through (video)taping groups. Furlong et al. (2021) also received a high rating for intervention fidelity in WoE C due to the use of regular supervision for the intervention facilitators and ensuring that checklists and protocols were followed.

Due to the nature of the Incredible Years Parenting Program (IYPP) and the special group targeted in this review (foster parents), the intervention facilitators may need to adapt their sessions to the needs of the participants. However, this needs careful consideration to preserve the integrity of the

IYPP intervention. The degree to which the IYPP is followed is likely to impact the outcome of the intervention. Furthermore, parents are likely to be trained to a higher standard if the intervention facilitator is suitably qualified. Therefore, a high WoE C rating was given if amendments were thoroughly described and carried out by an appropriately qualified trainer. Conn et al. (2018) received a high rating for the intervention facilitator in WoE C because the groups were led by a certified Incredible Years facilitator who was also a Masters-level psychologist, indicating that that had a high level of competence. McDaniel et al. (2011) also received a high WoE C rating for participants because the facilitators were qualified social workers as well as certified Incredible Years trainers.

Measures

The studies used a range of different tools to measure child's behaviour and this was evaluated using WoE A. All studies included in this review used measures that were administered to foster parents to report their perception of the child's behaviour pre and post intervention. For the purpose of answering the review question, outcome measures which aimed to measure the child's externalising behaviour or conduct problems were reported. Three studies (Bywater et al., 2010; Linares et al., 2006; McDaniel et al., 2011) used the Eyberg Child Behaviour Inventory (ECBI) (Eyberg & Ross, 1978) which is a 36-item measure used to assess both the frequency and severity of the child's disruptive behaviours and the extent to which the parent finds the behaviour to be problematic. Two studies (Linares et al., 2006; Conn et al., 2018) used the Child Behaviour Checklist (CBCL) (Achenbach & Ruffle, 2000). Conn et al. (2018) measured both externalising and internalizing

scales. For the purposes of this review, the externalising scale was reported. Linares et al. (2006) used the CBCL, ECBI and the Sutter-Eyberg Student Behaviour Inventory-Revised (SESBI-R) (Eyberg & Pincus, 1999) to measure behaviour and this was accounted for in the WoE A ratings. However, for the purposes of this review, CBCL externalising scale and ECBI were reported. Two studies (Bywater et al., 2010; Furlong et al., 2021) used the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) to measure child's behaviour although Bywater et al. (2010) states that the ECBI was used at the primary outcome measure. Nilsen (2007) used the Behavioural Assessment System for Children (BASC) (Kamphaus et al., 1999) to measure behaviour. For the purposes of this review, the externalising scale was reported.

Nilsen (2007) stated that 'test-retest, internal consistency, and interrater reliability are all good' for the BASC but no evidence was provided. Conn et al. (2018) reported high test-retest reliability estimates (>0.85) for the CBCL. Furlong et al. (2021) reported good internal consistency for the SDQ (α = 0.81). Bywater et al. (2010) and McDaniel (2011) did not report on reliability of outcome measures and this was reflected in the WoE A judgements.

One study (Nilsen, 2007) reported that the BASC had good construct, concurrent, discriminant and predictive validity but no further evidence was provided. The remaining 5 studies did not describe validity of measures.

Findings

Table 5 provides a summary of the outcome measures and effect sizes for the studies included in the current review. These were calculated using an

effect size calculator (Lenhard & Lenhard, 2016). Cohen's *d* was calculated using pre and post intervention mean scores and standard deviations. An interpretation of these can be found in Table 6 (Cohen, 1992).

Table 5

Outcome Measures and Effect Sizes for Reviewed Studies

Study	**Outcome Measures for Child's behaviour**	**Comparison**	**Effect Size Cohen's *d***	**Effect Size Descriptor**	**Overall WoE D Rating**
Bywater et al. (2010)	Eyberg Child Behaviour Inventory	Pre vs post intervention scores for treatment group	-0.34	Small	2.5 (High)
	Strengths and Difficulties Questionnaire		-0.32	Small	
Conn et al. (2018)	Child Behaviour Checklist (Externalizing scale only)	Pre vs post intervention scores for treatment group	-0.36	Small	2.5 (High)
Furlong et al. (2021)	Strengths and Difficulties Questionnaire	Pre vs post intervention scores for foster parent group	-0.84	Large	1.4 (Low)
Linares et al. (2006)	Child Behaviour Checklist (Externalizing scale only)	Pre vs post intervention scores for treatment group	-0.27	Small	2.6 (High)

Study	Outcome Measures for Child's behaviour	Comparison	Effect Size Cohen's *d*	Effect Size Descriptor	Overall WoE D Rating
	Eyberg Child Behaviour Inventory		-0.3	Small	
McDaniel et al. (2011)	Eyberg Child Behaviour Inventory	Pre vs post intervention scores for treatment group	**Intensity of behaviour** -0.83 **Perceived as problematic** -0.24	Large Small	1.5 (Medium)
Nilsen (2007)	Behavioural Assessment System for Children (Externalising scale only)	Pre vs post intervention scores for treatment group	**Externalising** -0.33	Small	1.6 (Medium)

Table 6

Cohen's d descriptors

Effect Size	Description
0.2	Small
0.5	Medium
0.8	Large

Bywater et al. (2010) found a small effect for the intervention in reducing problematic behaviour (as displayed in Table 5) as measured by the ECBI and SDQ. The study received a high overall WoE D rating suggesting that findings should be given due weight in evaluating the efficacy of the Incredible Years Parenting Program (IYPP).

A small effect size was found in the study by Conn et al. (2018), indicating a small improvement in externalising behaviour following the IYPP. This study also received a high WoE D rating due to its highly rated methodological quality and relevance to answering the review question.

Furlong et al. (2021) reported a large effect size, indicating that IYPP had a large effect in reducing negative behaviour in the child, as reported by the foster parent. However, with the absence of a true control group and that this study received a low WoE D rating due to poor methodical quality and design, this result should be interpreted with caution.

Linares et al. (2006) reported a small effect size for the intervention in reducing problematic behaviour. This was measured by the CBCL and ECBI.

This study had the highest number of participants and received the highest WoE D rating due to highly rated methodological quality and design and this should be given due weight.

McDaniel et al. (2011) reported a large effect size for reducing the intensity of behaviour, as measured by the ECBI. However, only a small effect was reported for reducing the behaviour rated as problematic by the foster parent. This study had the smallest sample with only 14 participants and with the absence of a control group, this may not be an accurate reflection of the impact of the intervention. Furthermore, this study received a medium WoE D rating, with a low rating for methodological quality (WoE A) and so this should be accepted with caution

Finally, Nilsen (2007) found a small effect for the Incredible Years intervention reducing the externalising behaviour of children, as measured by the BASC. This study received a medium rating on the WoE D.

Conclusions and Recommendations

This review evaluated the effectiveness of the Incredible Years Parenting Program (IYPP) in reducing problem externalising behaviour in children in foster care. All studies found a positive effect size suggesting that there is some evidence that supports that this intervention is effective for this group.

However, it is important to note that the measures used in the studies reviewed relied on the foster parents self-reported data and their perceptions of the child's behaviour. Therefore, the validity of the measures must be questioned as the outcomes had not been cross-validated (Chan, 2010). A

further limitation is that all but one of the studies (Linares et al., 2006) had fewer than 50 participants. Therefore, the effect size may be inflated due to the small sample size or may have missed the true effect size that would have been found with a larger sample. Two of the studies (McDaniel et al., 2011; Furlong et al., 2021) did not include a control group so it is difficult to say with any confidence that the positive effects were due to the intervention and not other variables. Furthermore, many of the studies used an adapted version of IYPP. While the rationale for this is sound, it does raise questions about the reliability of the intervention itself and to question how much of the positive outcomes were due to IYPP itself of due to the facilitators' skills in tailoring the intervention to the needs of the participants.

Therefore, there seems to be a need for further, updated research into the effectiveness of IYPP in reducing externalising problem behaviour in foster children using larger sample sizes and which rely on a range of tools to measure the outcome variables and not only self-reported data. Only one study (Linares, 2006) included a follow up after three months and so this indicates that there may be a need to explore whether the positive effects of the intervention lasted.

In terms of EP practice, the findings indicate that the IYPP does have an effect in reducing the child's externalising problem behaviour. It has been reported that placement breakdown is often due to the foster carer's feeling unable to manage this behaviour (Chamberlain et al., 2006) and so this appears to be a useful training for foster carers to undertake, even if it only has an effect on the perception of the problem behaviour and not the

behaviour itself. However, there appears to be little research into the impact of IYPP on different cultures and backgrounds and so this may indicate a further research need. Reports have also found the IYPP to be cost effective (O'Neill et al., 2011) and EPs should consider all this information when recommending the programme.

References and Appendices

References

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Appendices

Appendix 1: Excluded Studies at Full Text Screening

Table 7

Studies Excluded at Full Text Screening

Reference	Reason for Exclusion	Inclusion/Exclusion Criteria Number
Gartenberg, A. S., & Lang, R. (2016). Considerations for the Dissemination of Incredible Years in Welfare Systems: Implications of the Case of" Cathy" for Intervention in the Foster Care System. *Pragmatic Case Studies in Psychotherapy*, *12*(2), 124-138. doi: https://doi.org/10.14713/pcsp.v12i2.1969	Article did not use an experimental method as it did not contain a control group with which to compare the effects of the intervention (it was a commentary on a case study).	1
Hutchings, J., & Bywater, T. (2013). Delivering the Incredible Years parent programme to foster carers in Wales: reflections from group leader supervision. *Adoption & Fostering*, *37*(1), 28-42. doi: https://doi.org/10.1177/0308575913477075	Article did not use an experimental method (it was a review other studies).	1
Linares, L. O., Li, M., & Shrout, P. E. (2012). Child training for physical aggression?: Lessons from foster care. *Children and Youth Services Review*, *34*(12), 2416-2422. doi: https://doi.org/10.1016/j.childyouth.2012.08.010	This study uses 'Incredible Years Dina Child Training Program' which is aimed at children, not foster carers.	4
Pearl, E. S. (2009). Parent management training for reducing oppositional and aggressive behavior in preschoolers. *Aggression and violent behavior*, *14*(5), 295-305. doi: https://doi.org/10.1016/j.avb.2009.03.007	Article did not use an experimental method (it was a review of interventions for reducing	1

Reference	Reason for Exclusion	Inclusion/Exclusion Criteria Number
	aggression in children).	
Silva, I. S., & da Fonseca Gaspar, M. F. (2014). Supporting Portuguese residential child care staff: An exploratory study with the Incredible Years Basic Parent Programme. *Psychosocial Intervention*, *23*(1), 33-41. doi: https://doi.org/10.5093/in2014a4	Article did not report on child's behaviour.	3

Appendix 2: Mapping the Field

Table 8

Mapping the Field

Authors and Title	Study Design	Country and Setting	Participants	Intervention Details	Outcome Measures	Main Findings
Author: Bywater et al. (2010) **Title:** Incredible Years parent training support for foster carers in Wales: a multi-centre feasibility study.	**Design:** Randomised Controlled Trial. **Groups:** Foster carers randomly allocated to intervention or control **Intervention:** N = 29 **Control:** N =17	**Country:** Wales **Setting:** Three local authorities in North and Mid Wales. Specific location of interventions not give.	**Sample:** 46 Foster carers of children aged between 2 and 17.	**Intervention:** Incredible Years Parenting Program (IYPP) **Duration**: 2 hour sessions **Frequency:** 12 sessions delivered weekly. **Intervention facilitator:** 2 facilitators per group **Control:** Usual practice (placed on waiting list). Control group were offered the intervention	**Child behaviour and emotional problems:** Eyberg Child Behavior Inventory [ECBI] (Eyberg and Ross, 1978) and Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) completed by the foster carer pre and post intervention was the primary outcome measure.	**Findings:** A significant change in mean ECBI scores for intervention condition children compared with control condition/ (Cohen's *d* = 0.67, p <0.01). This showed that foster parents reported a reduction in the intensity number of conduct problems following intervention.

Authors and Title	Study Design	Country and Setting	Participants	Intervention Details	Outcome Measures	Main Findings
				after the study was complete.		
Author: Conn et al. (2018) **Title:** Pilot randomized controlled trial of foster parent training: A mixed-methods evaluation of parent and child outcomes.	**Design:** Randomised Control Trial **Groups:** Foster parents randomly allocated to intervention or control **Intervention:** N = 16 **Control:** N = 17	**Country:** United States of America **Setting:** Paediatric medial home. Monroe County, New York. Sessions took place at an offsite community based location or onside at a paediatric medical home.	**Sample:** 32 Foster carers of children aged 2 – 7.	**Intervention:** IYPP that had been adapted to include information on trauma informed practices. **Duration**: 2.5 hour long sessions **Frequency:** One session per week for 13 consecutive weeks **Intervention facilitator:** Masters-level psychologist who was certified to lead IY curriculum. **Control: :** Usual practice (placed on waiting list).	**Child behaviour and emotional problems:** Child Behaviour Checklist (CBCL; Achenbach & Ruffle, 2000) administered to foster parents pre and post intervention.	**Findings:** Children in intervention group showed behavioural improvements (mean 4.1 point decrease in CBCL score) but it did not reach statistical significance (p = 0.15)

Authors and Title	Study Design	Country and Setting	Participants	Intervention Details	Outcome Measures	Main Findings
Author: Furlong et al. (2021) **Title:** The incredible years parenting program for foster carers and biological parents of children in foster care: A mixed methods study.	**Design:** Quasi-experimental design: non equivalent groups: pre test-post test design **Groups:** Separate groups of IYPP were delivered for biological parents and foster parents. 2 biological parent groups and 2 foster parent groups. **Foster parents:** N = 23	**Country:** Ireland **Setting:** Not reported	**Sample:** Foster parents and biological parents of 23 children aged 3 – 10 years.	**Intervention:** IYPP that had been adapted for children who had been maltreated in line with clinical recommendations. Also included a one to one, 'parent-coach' model in weeks 12-18 designed to reinforce skills taught within the intervention. **Duration**: Not reported **Frequency: :** One session per week for 18 consecutive weeks **Intervention facilitator:** IY facilitator, accredited in IYPP with at least six years' experience in	**Child behaviour and wellbeing:** Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) administered to foster and biological parents pre and post intervention.	**Findings:** Both biological and foster parents reported statistically significant positive improvements in child behaviour. Foster parents mean difference of 5.27 (Cohen's *d* = 0.32, p < 0.01)

Authors and Title	Study Design	Country and Setting	Participants	Intervention Details	Outcome Measures	Main Findings
	Biological parents: N = 23			delivering IYPP. They received fortnightly supervision from a certified IY trainer. **Control:** N/A		
Author: Linares et al. (2006) **Title:** A promising parenting intervention in foster care.	**Design:** Randomised Control Trial **Groups:** Biological and foster parent pairs randomly assigned to intervention or control group	**Country:** United States of America **Setting:** New York City, New York. Specific setting not reported.	**Sample:** 128 parents (64 foster, 64 biological) of children aged 3-10 and placed in foster care. .	**Intervention:** **Component 1:** Parents and Children Basic Series IY Program. **Component 2:** Offered individual sessions using a curriculum developed by Linares. **Duration:** Component 1 - 2 hours. **Component 2 –** duration not reported.	**Child externalising behaviour:** ECBI (Eyberg and Pincus, 1999) and CBCL (Achenbach & Ruffle, 2000) administered to both groups, collected pre and post intervention.	**Findings:** No statistically significant improvement in ECBI score or CBCL score.

Authors and Title	Study Design	Country and Setting	Participants	Intervention Details	Outcome Measures	Main Findings
	Intervention: N = 80 **Control:** N = 48			**Frequency:** One session per week for 12 weeks. **Intervention facilitator:** Delivered in pairs by trained bilingual (English/Spanish) team from agency mental health unit. **Control:** Usual care		
Author: McDaniel et al. (2011) **Title:** Investigating the Effectiveness of the Incredible Years Basic Parenting	**Design:** Single group pre-test and post – test design. Assessments carried out prior to the intervention (baseline) and immediately	**Country:** Northern Ireland **Setting:** Not reported	**Sample:** 14 foster carers of a child between the ages of 8 and 13. .	**Intervention:** IY programme **Frequency:** Not reported **Intervention facilitator:** Delivered	**Child behaviour and wellbeing:** ECBI (Eyberg and Pincus, 1999) administered to foster parents pre and post intervention.	**Findings:** ECBI scores indicated that parental reports of the intensity of child behaviour problems decreased from pre-test (M=136.31 SD = 36.81) to post-test (M=107.85, SD =31.59, p = 0.008).

Authors and Title	Study Design	Country and Setting	Participants	Intervention Details	Outcome Measures	Main Findings
Programme for Foster Carers in Northern Ireland	after the intervention.			by 2 qualified social workers and trained IY facilitators. **Control:** N/A		Foster carers' perceptions of child behaviour as problematic also decreased although not statistically significant.
Author: Nilsen (2007) **Title:** Fostering Futures: A Preventive Intervention Program for School-age Children in Foster Care.	**Design:** Quasi-experimental design **Groups:** Foster parents assigned to intervention or control group. Families who were interested in participating, but had scheduling conflicts with the group	**Country:** United States of America **Setting:** Delivered in a small group format, in the evenings.	**Sample:** 18 foster parents of children in foster care aged 5 – 12. .	**Intervention:** IY adapted for the needs of parents of children in foster care. **Duration:** 2 hours. **Frequency:** One session per week for 12 weeks. **Intervention facilitator:** Foster carers trained in delivering IY programme.	**Child externalising behaviour:** Behavioural Assessment System for Children (BASC; Kamphaus, Reynolds and Hatcher, 1999) administered to foster parents pre and post intervention.	**Findings:** Decrease in scores indicate a positive change in behaviour although not significant. When the specific externalizing subscales were examined, intervention group reported significantly less conduct symptoms in their foster children than families who did not

Authors and Title	Study Design	Country and Setting	Participants	Intervention Details	Outcome Measures	Main Findings
	meeting time, were assigned to the comparison group. **Intervention:** N = 11 **Control:** N = 7			**Control:** Not reported		attend groups (F(1, 16) = 6.26, p = .02) There were no significant differences between the two groups for parental reports of child aggressive (p = .63) or hyperactive behaviour (p = .15).

Appendix 3: Rationale for WoE A

Weight of Evidence A (WoE) A considered the methodological quality of the research. Due to the fact all included studies were experimental or quasi-experimental, an adapted version of Gersten et al. (2005) 'Quality Indicators for Group Experimental and Quasi-Experimental Research in Special Education' was used. To ensure consistency was maintained, this protocol was used to code all studies. An example of this can be found in Appendix 4. This protocol examined the following key methodological in two categories: essential criteria or desirable criteria. Each study was given a score ranging from 0 – 3 based on required criteria in each category. Table 9 shows the criteria required for each score.

The protocol was adapted, where appropriate, to ensure that questions were broken down into sub-questions to allow for a thorough examination of the research. Question 2 was broken down into sub-questions based on the recommendation from Gersten et al. (2005) that 'matching participants on a salient variable(s) and randomly assigning one member of each pair to a treatment condition'. The sub-questions allowed for these particulars to be considered. Question 4 was broken down into a further sub-heading to reflect the recommendation from Gersten et al. (2005) that research 'should provide a precise description of the independent variable to allow for systematic replication'.

Table 9

WoE A Scores Given based on Fulfilled Methodological Criteria

WoE A Rating	Criteria
3 = High Quality	Total of ≥9 Essential Quality Indicators Total of ≥4 Desirable Quality Indicators
2 = Acceptable Quality	Total of ≥9 Essential Quality Indicators Total of <4 Desirable Quality Indicators
1 = Low Quality	Total of <9 Essential Quality Indicators;

Appendix 4: WoE A Coding Protocol

Coding Protocol:

Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. Exceptional Children, 71(2), 149–164.

Reference of the study: Bywater, T., Hutchings, J., Linck, P., Whitaker, C., Daley, D., Yeo, S. T., & Edwards, R. T. (2010). Incredible Years parent training support for foster carers in Wales: a multi-centre feasibility study. *Child: care, health and development*, *37*(2), 233-243.doi: https://doi.org/10.1111/j.1365-2214.2010.01155.x

Essential Quality Indicators		
A. Quality indicators for describing participants:		Criteria satisfied?
Criteria 1	Was sufficient information provided to determine/confirm whether the participants demonstrated the disability(ies) or difficulties presented? *(For the purpose of this systematic literature review, the focus of this question will be refined to focus on participants who are the parents of foster children, as a presenting difficulty).*	Overall Quality Indicator Met for criteria 1? ☒Yes ☐ No ☐Partially met
Criteria 2	Were appropriate procedures used to increase the likelihood that relevant characteristics of participants in the sample were comparable across conditions?	Overall Quality Indicator Met for criteria 2? ☒ Yes ☐ No

		☐Partially met ☐ Unknown/Unable to code
Sub questions considered within the rating	Were participants randomly assigned to the two conditions?	☒ Yes – participants were randomly assigned with a 2:1 intervention to waiting-list control condition, ☐ No ☐ N/A ☐ Unknown/Unable to Code
	Were participants matched on salient variables or a stratified assignment procedure employed?	Yes ☐ No ☒ N/A ☐ Unknown/Unable to Code
Criteria 3	Was sufficient information given characterizing the intervention facilitator provided? Did it indicate whether they were comparable across conditions?	Overall Quality Indicator Met for criteria 3? ☒ Yes –parents trained by facilitators. Some facilitators were experienced at delivering the intervention while others were delivering it for the first time. All facilitators received weekly supervision by a qualified IY professional ☐ No ☐Partially met ☐ Unknown/Unable to code
B. Quality Indicators for Implementation of the Intervention and Description of Comparison Conditions		
Criteria 4:	Was the intervention clearly described and specified?	Overall Quality Indicator Met for criteria 4? ☒ Yes ☐ No ☐Partially met ☐ Unknown/Unable to code

Sub question considered within the rating	Was enough information about the intervention provided to allow for replication? *E.g. conceptual underpinnings, detailed instructional procedures, teacher actions and language, use of instructional materials and student behaviours.*	☒ Yes ☐ No ☐Partially met ☐ Unknown/Unable to code
Criteria 5:	Was the fidelity of implementation described and assessed?	Overall Quality Indicator Met for criteria 5? ☒ Yes – intervention facilitators video recorded their delivery of the programme and took their tapes to supervision to receive feedback ☐ No ☐Partially met ☐ Unknown/Unable to code
Criteria 6:	Was the nature of services provided in comparison conditions described?	Overall Quality Indicator Met for criteria 6? ☒ Yes – comparison condition was a waiting-list control. ☐ No ☐Partially met ☐ Unknown/Unable to code
C. Quality Indicators for Outcome Measures		
Criteria 7:	Were multiple measures used to provide an appropriate balance between measures closely aligned with the intervention and measures of generalized performance?	Overall Quality Indicator Met for criteria 7? ☒ Yes – the two measures of child behaviour and emotional problems were used (ECBI and SDQ) ☐ No ☐Partially met ☐ Unknown/Unable to code
Criteria 8:	Were outcomes for capturing the interventions effect measured at the appropriate times?	Overall Quality Indicator Met for criteria 8? ☒ Yes

		☐ No ☐Partially met ☐ Unknown/Unable to code
D. Quality Indicators for Data Analysis		
Criteria 9:	Were the data analysis techniques appropriately linked to key research questions and hypotheses? Were they appropriately linked to the unit of analysis in the study?	Overall Quality Indicator Met for criteria 9? ☒ Yes ☐ No ☐Partially met ☐ Unknown/Unable to code
Criteria 10:	Did the research report include not only inferential statistics but also effect size calculations?	Overall Quality Indicator Met for criteria 10? ☒ Yes ☐ No ☐Partially met ☐ Unknown/Unable to code
Desirable Quality Indicators		
Criteria 11	Was data available on attrition rates among intervention samples? Was severe overall attrition documented? If so, is attrition comparable across samples? Is overall attrition less than 30%?	Overall Quality Indicator Met for criteria 11? ☐Yes ☒ No ☐Partially met ☐ Unknown/Unable to code
Criteria 12	Did the study provide not only internal consistency reliability but also test-retest reliability and interrater reliability (when appropriate) for outcome measures? Were data collectors and/or scorers blind to study conditions and equally (un)familiar to examinees across study conditions?	Overall Quality Indicator Met for criteria 12? ☐Yes ☒ No ☐Partially met ☐ Unknown/Unable to code
Criteria 13	Were outcomes for capturing the intervention's effect measured beyond an immediate post-test?	Overall Quality Indicator Met for criteria 13? ☐Yes ☒ No

		☐Partially met ☐ Unknown/Unable to code
Criteria 14	Was evidence of the criterion-related validity and construct validity of the measures provided?	Overall Quality Indicator Met for criteria 14? ☐ Yes ☐ No ☒ Partially met – states that measures are standardized and validated but detailed evidence not provided ☐ Unknown/Unable to code
Criteria 15	Did the research team assess not only surface features of fidelity implementation (e.g., number of minutes allocated to the intervention or teacher intervention facilitator following procedures specified), but also examine quality of implementation?	Overall Quality Indicator Met for criteria 15? ☐Yes ☒ No ☐Partially met ☐ Unknown/Unable to code
Criteria 16	Was any documentation of the nature of instruction or series provided in comparison conditions?	Overall Quality Indicator Met for criteria 16? ☐Yes ☒ No ☐Partially met ☐ Unknown/Unable to code
Criteria 17	Did the research report include actual audio or videotape excerpts that capture the nature of the intervention?	Overall Quality Indicator Met for criteria 17? ☐Yes ☒ No ☐Partially met ☐ Unknown/Unable to code
Criteria 18	Were results presented in a clear, coherent fashion?	Overall Quality Indicator Met for criteria 18? ☒Yes ☐ No ☐Partially met ☐ Unknown/Unable to code

3 = High Quality (Total of ≥9 Essential Quality Indicators; Total of ≥4 Desirable Quality Indicators)	
2 = Acceptable Quality (Total of ≥9 Essential Quality Indicators; Total of <4 Desirable Quality Indicators)	X
1 = Low Quality (Total of <9 Essential Quality Indicators; Total of 0 Desirable Quality Indicators)	

		Overall Evidence Rating (1-3)
Number of Essential Quality Indicators Met	10/10	2
Number of Desirable Quality Indicators Met	1/8	

Appendix 5: WoE A Summary Table

Table 10

WoE A Scores for Each Study

Study	Number of essential criteria	Number of desirable criteria	WoE A
Bywater et al. (2010)	10	1	Medium (2)
Conn et al. (2018)	9	3	Medium (2)
Furlong et al. (2021)	7	3	Low (1)
Linares et al. (2006)	10	4	High (3)
McDaniel et al. (2011)	6	1	Low (1)
Nilsen (2007)	7	2	Low (1)

Appendix 6: Rationale and Criteria for WoE B

Weight of Evidence B (WoE B) considered the appropriateness of the study design to answering the review question on the effectiveness of the Incredible Years Parenting Program (IYPP) in reducing problem externalising behaviour in children in foster care. Judgements for WoE B are based on evidence hierarchies whereby Randomised Controlled Trials (RCTs) are judged to be the most appropriate design for answering an effectiveness question (Guyatt et al., 1995). Table 11 shows the criteria for each WoE B rating.

Table 11

Criteria for WoE rating

WoE B Rating	Criteria
High (3)	Randomized Control Trials (at the foster parent level) with: • An appropriate control group (which contains foster parents for direct comparison) who receive no intervention/usual care. • Measures for child behaviour collected pre and post intervention and control to measure effectiveness of the intervention.
Medium (2)	Quasi Experimental Study (Non-random assignment) • An appropriate control group (which contains foster parents for direct comparison) who receive no intervention/usual care. • Measures for child behaviour collected pre and post intervention and control to measure effectiveness of the intervention.
Low (1)	Qualitative, Single Case and Non-Experimental Designs as these do not allow for effectiveness of an intervention to be measured appropriately. • No control or comparison group

WoE B Rating	Criteria
	• No pre-post measures of child behaviour
Zero (0)	Does not meet any of these criteria

Appendix 7: Summary Table for WoE B

Table 12

WoE B Scores for Each Study

Study	Overall WoE B
Bywater et al. (2010)	High (3)
Conn et al. (2018)	High (3)
Furlong et al. (2021)	Low (1)
Linares et al. (2006)	High (3)
McDaniel et al. (2011)	Low (1)
Nilsen (2007)	Medium (2)

Appendix 8: Rationale and Criteria for WoE C

WoE C evaluates a study based on its relevance to answering the review question (Gough, 2007). Therefore, within this review, it is evaluating the extent to which the Incredible Years Parenting Program (IYPP) is effective in reducing problem externalising behaviour in children in foster care. In order for a study to receive a rating, all criteria within that rating much be met. Table 13 provides the descriptor for each WoE C rating and the rationale for each criterion.

Table 13

WoE Rating Descriptors and Rationale

Criteria	WoE C Rating and Descriptor	Rationale
Intervention facilitator	3 High = parents trained by individuals who have undertaken IY training and at least one has relevant qualifications (e.g. psychologist or social worker). 2 Medium = parents trained individuals who have undertaken IY training but no additional qualifications specified. 1 Low = parents trained by individuals, who have not undertaken IY training (or not specified).	Children in foster care may have specific needs e.g. have experienced trauma and so having the expertise to support parents with these needs is important. Parents are likely to be trained to a higher standard if the intervention facilitators are suitably qualified to a high standard. Webster-Stratton (2016), states that parent training groups should be run by 2 trained individuals.
Intervention fidelity	High = 1:1 feedback and support is provided to facilitators delivering the intervention to parents e.g. through supervision, observation or video recorded sessions. Amendments fully described.	Due to the nature of the IY program, facilitators may need to adapt their sessions to the needs of the parents. However, this needs careful consideration to preserve the integrity of the IY program. The degree to which the IY program is followed is likely to impact the outcome of the intervention. Appropriate support is required to ensure that the adaptations are appropriate and that intervention fidelity is maintained.

Criteria	WoE C Rating and Descriptor	Rationale
	Medium = self-report of fidelity – such as how closely the IY program was followed and if any amendments to the program were made. No support provided. Low = No measures of fidelity	
Participants	High = the study includes foster carers who are caring for the child for a duration of more than 1 year minimum. Medium = the study includes foster carers who are caring for the child for a duration of 6 months minimum. Low = the study includes foster carers who are caring for the child for a duration of less than 6 months or not specified.	In order for the intervention to be effective, the child must be in the placement for an appropriate amount of time. The longer the child is able to experience the benefits of IY, the more effective the intervention will be.
Setting	High = Intervention takes place in the United Kingdom Medium = Intervention takes place in OECD countries Low = Intervention takes place in a non-OECD country	The research will be relevant to the role of an EP working in the UK if the intervention has taken place within the UK and parents/ children have experience of the UK care system.

Appendix 9: Summary Table for WoE C

Table 14

WoE C Scores for Each Study

Studies	Intervention facilitator	Intervention fidelity	Participants	Setting	Overall WoE C
Bywater et al. (2010)	2	3	2	3	2.5 (High)
Conn et al. (2018)	3	2	3	2	2.5 (High)
Furlong et al. (2021)	2	3	2	2	2.25 (High)
Linares et al. (2006)	2	3	1	2	2 (Medium)
McDaniel et al. (2011)	3	2	2	3	2.5 (High)
Nilsen (2007)	2	2	2	2	2 (Medium)

Note: WoE C scores ≤ 1.5 = 'low', > 1.5 and ≤ 2.24 = 'medium', and ≥ 2.25 = 'high'

Appendix 10: Overall WoE D

The judgements for WoE A, B and C were given equal weightings to produce an overall WoE D score. Therefore, WoE D provides a judgement

about the strength of the evidence. The higher the score, the more appropriate it is in answering the current review question. Judgements for each WoE category (A-D) can be found in Table 15.

Table 15

Overall Weight of Evidence Judgements

Study	WoE A	WoE B	WoE C	WoE D
Bywater et al. (2010)	2 (Medium)	3 (High)	2.5 (High)	2.5 (High)
Conn et al. (2018)	2 (Medium)	3 (High)	2.5 (High)	2.5 (High)
Furlong et al. (2021)	1 (Low)	1 (Low)	2.25 (High)	1.4 (Low)
Linares et al. (2006)	3 (High)	3 (High)	2 (Medium)	2.6 (High)
McDaniel et al. (2011)	1 (Low)	1 (Low)	2.5 (High)	1.5 (Medium)
Nilsen (2007)	1 (Low)	2 (Medium)	2 (Medium)	1.6 (Medium)

Note. <1.4 = Low score, 1.5-2.4 = Medium score, ≥2.5 = High score