Case Study 1: An Evidence-Based Practice Review Report

Theme: Interventions implemented by parents

How effective is Treatment Foster Care in improving challenging behaviour in adolescents in the United Kingdom?

Summary

Treatment Foster Care refers to intensive care programmes for looked-after children and young people in need of specialist support and services to address seriously challenging behaviour. Based on Social Learning theory and the Coercion Model proposed by researchers at the Oregon Social Learning Center, Treatment Foster Care provides wraparound specialist care that prioritises consistent boundaries and consequences for negative behaviours, positive reinforcement of prosocial behaviours, and close supervision of activities and interactions in and out of the home. It is an alternative to foster care as usual, psychiatric hospitalisation, or custodial sentences.

Much of the evidence base for Treatment Foster Care focuses on a specific US model of the approach: Treatment Foster Care Oregon (formerly known as Multidimensional Treatment Foster Care). However, there is limited empirical evidence to support the use of the intervention approach in the UK.

While it is the intervention endorsed by UK health and social care services to improve seriously challenging behaviour in looked-after children and young people, a critical review of research into the implementation and effectiveness of Treatment Foster Care models in the UK shows variability in intervention effects and

methodological quality of research. As such, evidence to support the use of Treatment Foster Care for adolescents as an effective intervention in the UK is inconsistent, and more relevant and methodologically sound research is needed to evaluate and compare the implementation and variations in UK-specific models.

Introduction

Looked-after children and young people (LACYP) are children subject to a care order or cared for by a local authority (Department for Education & Department of Health, 2015a). Legislation and guidance differ across the four nations of the United Kingdom (UK) where there are estimated to be over 102,000 LACYP as of 2019 (NSPCC, 2019). More recent data, for England specifically, show that of the 82,170 LACYP in 2022, 70% were in foster placements, 64% were over the age of ten, and the majority of LACYP had entered care due to risks of abuse and neglect (66%) or chronically inadequate parenting (13%) (GOV.UK, 2022). Given such adversity in early life, LACYP are at increased risk of social, emotional, and mental health (SEMH) difficulties as well as lower academic attainment which can lead to further challenges in adulthood (Kinsey & Schlösser, 2013; National Institute for Health and Care Excellence, 2021a; Waterman, 2021).

According to the Special Educational Needs and Disability (SEND) Code of Practice (Department for Education & Department of Health, 2015b), local authorities, as the corporate parents of LACYP, are required to safeguard and promote the welfare, including the educational achievement and emotional and behavioural development, of all children in their care. This must be detailed in a care plan, comprising a personal education plan and a health plan, which assesses and specifies the educational and health needs of LACYP and how these needs are to be met. As

such, educational psychologists (EPs), who are typically employed or commissioned by a local authority, are well placed to provide psychological assessment and advice to support the identification and implementation of effective interventions that meet the needs of LACYP.

For EPs working with LACYP, a point of reference is the National Institute for Health and Care Excellence (NICE) which provides guidance and quality standards for good practice in health and social care. Quality Standard 31 (NICE, 2013) states that high-quality foster care is provided by trained and supported foster carers and ensures access to specialist and dedicated services. In this way, foster carers are able to fulfil a child's basic need for love and care and meet emotional, physical, behavioural, and educational needs – all of which are conducive to positive well-being (NICE, 2013). Where LACYP are presenting with seriously challenging behaviour, NICE Guideline 205 recommends Multidimensional Treatment Foster Care (MTFC), now known as Treatment Foster Care Oregon (TFCO), which is a key example of a specialised foster care approach generally referred to as Treatment Foster Care (TFC) (Bezeczky et al., 2019; NICE, 2021b).

In an effort to standardise TFC, Bryant and Snodgrass (1991, p. 10) provide the following definition:

> "Treatment Foster Care is a program for children, youth and their families whose special needs can be met through services delivered primarily by treatment foster parents trained, supervised and supported by agency staff."

This definition highlights the common features that comprise TFC. And while some of these features are self-evident, other features that distinguish TFC from 'care as usual' may require further explanation. According to Bryant and Snodgrass (1991),

'program' refers to the wraparound multimodal care provided by a TFC placement. Similarly, 'treatment' highlights the joint working of agencies to facilitate the development of prosocial behaviours through assessment and intervention. Finally, 'agency staff' is the term used to refer to the multi-agency professionals that support foster carers with the provision of TFC.

Bryant and Snodgrass (1991) provide a useful framework to operationalise TFC and, therefore, this is the definition of TFC adopted in this review. However, it is worth noting that in actuality there is variation in the design and delivery of TFC intervention programmes (Bryant & Snodgrass, 1991; Turner & Macdonald, 2011).

Existing syntheses of evidence of the effectiveness of TFC are available. Turner and Macdonald (2011) conducted a systematic review of randomised controlled trials (RCTs) examining the effectiveness of TFC for children and young people (CYP). The data from this review suggested that TFC is an effective intervention for CYP with complex SEMH needs. However, all five studies included in the review were conducted in the United States (US), three of which investigated TFCO. As such, Turner and Macdonald concluded that the evidence base, while promising, was insufficient and in need of more research.

Åström et al. (2020) conducted a similar systematic review of comparative studies investigating the effectiveness of TFC for CYP demonstrating challenging behaviour. Their review identified eight studies and found some evidence that TFC may reduce the risk of delinquency. However, while their review included studies from the US, the UK, and Sweden, all the studies focused on TFCO.

The prevalence of TFCO in research into TFC is not coincidental. Rather, it is reflective of the psychological roots of TFC in Social Learning theory and research

conducted at the Oregon Social Learning Center (OSLC) that led to the development of the Coercion Model underpinning TFC as an intervention for challenging or antisocial behaviour (Fisher & Gilliam, 2012). The Coercion Model hypothesises that severe and inconsistent discipline methods can lead to the development of problem behaviours in children (Patterson, 1986). The model is initiated by the combination of three factors: negative behaviours are ignored or punished inconsistently which limits the child's ability to predict the likely consequences for such behaviours; positive behaviours are not positively reinforced; and the child is inadequately supervised and, therefore, some negative behaviours are unmonitored. With these three factors in place, Patterson posits that the child will develop negative or coercive behaviours, at the expense of prosocial behaviours, which results in social rejection from peers and school staff as the child attends school. This produces a vicious cycle in which opportunities for the development of prosocial behaviours and academic engagement are further constrained.

By adolescence, Patterson argues that the child and their parent will use negative strategies to end conflict. This further reinforces the child's negative behaviours while increasing parental disengagement and lack of supervision. Meanwhile, rejection from prosocial peers and the school community pushes the child to affiliate with antisocial peers who further reinforce antisocial behaviours. In the conditions of limited adult supervision and typical development associated with adolescence, the child is at high risk of severely negative outcomes including school non-attendance, delinquency, substance abuse, and early sexual activity (Fisher & Gilliam, 2012).

However, by positioning parenting as the proximal cause of antisocial behaviour, the Coercion Model also highlights the potential for parenting interventions to break this

vicious cycle; this is the foundational principle of the OSLC underpinning the wide range of OSLC and non-OSLC parenting interventions (Fisher & Gilliam, 2012).

As previously mentioned, TFCO is the intervention recommended within the UK by NICE for LACYP presenting with seriously challenging behaviours. Yet, despite its prevalence and evidence base in the US, the transferability and implementation of TFCO in the UK have not been sustainable due to complex contextual differences between the US and the UK (Waterman, 2021). Consequently, investigations into the effectiveness of TFC must identify and include other models of TFC with due regard for the local context in which the model is implemented.

A better understanding of the effectiveness of TFC in the UK is likely to have implications for the practice of EPs providing psychological advice on effective interventions for LACYP with seriously challenging behaviour. To this end, this review seeks to answer the following question: how effective is TFC in improving challenging behaviour in adolescents in the UK?

Critical Review of the Evidence Base

Systematic Literature Search

A systematic literature search was conducted on 29th January 2023 using three online databases: APA PsycINFO, Web of Science, and Scopus. The search terms used are presented in Table 1.

In order to prioritise results relevant to this review's research question, search terms were included that reflect the language used within the UK such as "CLA" (Child Looked After) and "LACYP" (Looked After Child or Young Person or Looked After Children and Young People). Similarly, to avoid overlooking studies of potential

interest to the research question, the “Solihull Approach” was included explicitly as this intervention was developed in the UK, has been delivered to foster carers, and fits this review’s definition of TFC as previously stated. However, unlike Fostering Changes (a behavioural intervention also developed in the UK), studies of the Solihull Approach were unlikely to appear in search results for “treatment”, “therapeutic”, or “intensive” “foster care interventions”.

With reference to the inclusion and exclusion criteria outlined in Table 2, the initial database search found 151 records, 50 of which were removed by Mendeley reference management software as duplicated records. The remaining 101 records underwent title and abstract screening resulting in the removal of 91 records leaving 10 records remaining for full-text screening and the further removal of four records. The database searches were supplemented by a web search and ancestral search to identify any further literature relevant to the research question. This produced findings of 16 records that were screened and 15 that were subsequently excluded according to the exclusion criteria. Consequent to full-text screening, seven studies were included in the review and are presented in Table 3. A total of 19 studies were excluded from the review and are presented in Appendix A. A visual depiction of the distinct phases of the systematic literature search is illustrated in Figure 1.

Table 1
List of Terms Used in the Database Search

Population	Intervention	Context
looked-after OR	"Treatment Foster Care" OR	UK OR
"looked after" OR	"Therapeutic Foster Care" OR	"United Kingdom" OR
child* OR	"Intensive Foster Care" OR	England OR
young OR	"TFCO*" OR	Scotland OR
youth* OR	"MTFC*" OR	Wales OR
teen* OR	"Solihull Approach" OR	"Northern Ireland"
adolescen* OR	(Behaviour* AND Intervention*)	
LACYP OR		
CLA OR		
LAC		

Note. (*) indicates truncation and (“”) indicates phrase searching; each column was combined with AND; Child Looked After (CLA); Looked-After Child (LAC)

Table 2
Inclusion and Exclusion Criteria

	Criterion	Inclusion	Exclusion	Rationale
1	Publication type	Peer-reviewed	Non-peer reviewed	To ensure that the study has undergone a rigorous review
2	Language	English	Other languages	To allow for adequate appraisal in the author's first language
3	Study design	Designs that fall within levels 1 and 4 of the JBI Levels of Effectiveness with sufficient reporting of results that include or allow for the calculation of an effect size	Designs that do not fall within levels 1 and 4 of the JBI Levels of Effectiveness and/or do not report effect sizes or provide sufficient data that allow for the calculation of an effect size	To allow for an evaluation of an intervention's effectiveness through the analysis of effect sizes
4	Intervention outcome	Behavioural outcomes	Non-behavioural outcomes	To allow for the review of intervention effectiveness in improving challenging behaviours
5	Intervention deliverer	Trained, supervised, and supported foster carers	Other deliverers	To allow for the review of behavioural interventions delivered by treatment foster carers
6	Intervention type	Interventions delivered by trained, supervised, and supported foster carers that are intended primarily to	Interventions that are not primarily intended to address challenging behaviour	To allow for the review of the effectiveness of TFC as an intervention type

	Criterion	Inclusion	Exclusion	Rationale
		reduce challenging behaviour		
7	Participants	Includes LACYP from across the 10-17 age range	Does not include LACYP from across the 10-17 age range	To allow for the review of improved behavioural outcomes for adolescent LACYP
8	Geographic distribution	Conducted in the UK	Conducted outside of the UK	To allow for the review of interventions delivered in the UK

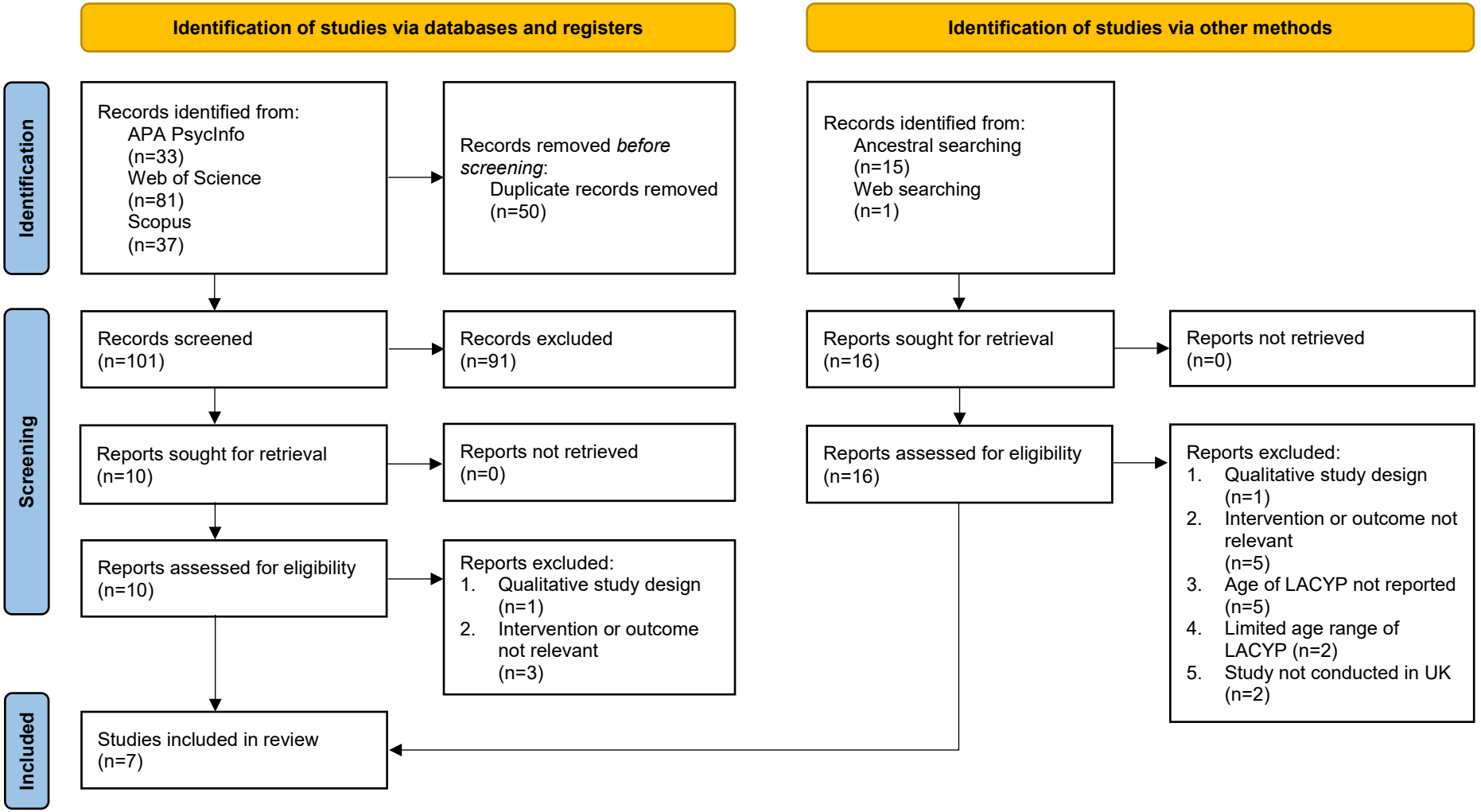
Note. The Joanna Briggs Institute (JBI)

Table 3
List of Studies Included in the Review

Included Studies
Biehal, N., Ellison, S., & Sinclair, I. (2011). Intensive fostering: An independent evaluation of MTFC in an English setting. *Children and Youth Services Review*, *33*(10), 2043–2049. https://doi.org/10.1016/j.childyouth.2011.05.033
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. https://doi.org/10.1111/j.1365-2214.2010.01155.x
Green, J. M., Biehal, N., Roberts, C., Dixon, J., Kay, C., Parry, E., Rothwell, J., Roby, A., Kapadia, D., Scott, S., & Sinclair, I. (2014). Multidimensional Treatment Foster Care for adolescents in English care: Randomised trial and observational cohort evaluation. *The British Journal of Psychiatry*, *204*(3), 214–221. https://doi.org/10.1192/bjp.bp.113.131466
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. https://doi.org/10.1080/13575279.2010.522979
Moody, G., Coulman, E., Brookes-Howell, L., Cannings-John, R., Channon, S., Lau, M., Rees, A., Segrott, J., Scourfield, J., & Robling, M. (2020). A pragmatic randomised controlled trial of the Fostering Changes programme. *Child Abuse & Neglect*, *108*, 104646. https://doi.org/10.1016/j.chiabu.2020.104646
Rhoades, K. A., Chamberlain, P., Roberts, R., & Leve, L. D. (2013). MTFC for high-risk adolescent girls: A comparison of outcomes in England and the United States. *Journal of Child & Adolescent Substance Abuse*, *22*(5), 435–449. https://doi.org/10.1080/1067828X.2013.788887
Roberts, R., Glynn, G., & Waterman, C. (2016). 'We know it works but does it last?' The implementation of the KEEP foster and kinship carer training programme in England. *Adoption & Fostering*, *40*(3), 247–263. https://doi.org/10.1177/0308575916657956

Figure 1

Prisma Flow Diagram Depicting Flow of Information Through the Different Phases of the Systematic Literature Search (BMJ, 2021)



Weight of Evidence

A critical appraisal of each of the seven studies was conducted in line with Gough's (2007) Weight of Evidence (WoE) framework. As such, each study was appraised according to its methodological quality (WoE A), the relevance of its methodology (WoE B), and the relevance of the focus of the study to this review's research question (WoE C).

As can be seen in the mapping of the evidence (Table 4), the seven included studies employed four different study designs which warranted the use of four different appraisal tools for WoE A. It should be noted that Green et al.'s (2014) study consisted of two quantitative arms using different designs and from hereon will be referred to individually as Green et al.'s randomised controlled trial (RCT; 2014) and Green et al.'s case-control study (CCS; 2014).

Consequently, the included studies were appraised with reference to the design-specific critical appraisal checklists for randomised controlled trials, quasi-experimental studies, case-control studies, and case series as available in the Joanna Briggs Institute's (JBI) Manual for Evidence Synthesis (Aromataris & Munn, 2020) – these have been included in Appendix B.

WoE B was judged by determining the extent to which the design of the study is appropriate for investigating intervention effectiveness. The JBI Levels of Evidence for Effectiveness (Munn et al., 2015), presented in Table 5, were used as the criteria underpinning ratings.

As presented in Table 6, WoE C was determined according to the criteria set by the author and given a binary classification (0=No and 1=Yes). These criteria were

based on this review's research question seeking to investigate the effectiveness of TFC in improving challenging behaviour in adolescents in the UK. As this review sought to include different models of TFC, it was appropriate to consider whether or not the interventions being studied met this review's definition of TFC. Additionally, given the range of measures used in studies, it was appropriate to give more weight to those studies that sought to limit bias by including measures other than carer reports. Finally, it was pertinent to the review question to give greater consideration to those studies that included LACYP from across the adolescent age range of 10 to 17.

WoE D was calculated as the mean of WoE A-C to give each study an overall judgement score out of three – this is presented in Table 7 as a summary of WoE A to D.

Table 4

Map of the Evidence Presenting Core Key Information About the Seven Included Studies

	Study	Design	Sample			Intervention	Outcome(s)	Measure(s)
			N	Age Range	Age Mean (SD)			
1	Biehal et al. (2011)	Quasi-experimental design	47	NR	15.2 (NR)	TFCO	Reconviction	The Asset
2	Bywater et al. (2011)	RCT	46	2-17	9.43 (3.88)	IY	Behaviour	ECBI
3 (a)	Green et al. (2014)	RCT	34	10-17	13.1 (NR)	TFCO	Social functioning	HoNOSCA
3 (b)	Green et al. (2014)	Case-control study	185	10-17	13.1 (NR)	TFCO	Social functioning	HoNOSCA
4	McDaniel et al. (2011)	Case series	13	8-13	11 (NR)	IY	Behaviour	ECBI
5	Moody et al. (2020)	RCT	311	2.1-21.2	11.3 (NR)	FC	Behaviour	SDQ
6	Rhoades et al. (2013)	Case Series	58	12-16	13.74 (1.21)	TFCO	Behaviour	Official social care data

7	Roberts et al. (2016)	Case Series	214	9.75-17.58	14.17 (1.63)	KEEP	Behaviour	SDQ

Note. Fostering Changes (FC); Incredible Years Basic Parenting (IY); Multidimensional Treatment Foster Care/Treatment Foster Care Oregon (TFCO); KEEP Safe (KEEP); Strengths and Difficulties Questionnaire (SDQ); Eyberg Child Behaviour Inventory (ECBI); Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA)

Table 5
Levels of Evidence for Effectiveness Studies

	Levels of Evidence - Effectiveness	WoE B
Level 1 Experimental Designs	Level 1.a – Systematic review of Randomized Controlled Trials (RCTs)	3
	Level 1.b – Systematic review of RCTs and other study designs	
	Level 1.c – RCT	
	Level 1.d – Pseudo-RCTs	
Level 2 Quasi-experimental Designs	Level 2.a – Systematic review of quasi-experimental studies	2
	Level 2.b – Systematic review of quasi-experimental and other lower study designs	
	Level 2.c – Quasi-experimental prospectively controlled study	
	Level 2.d – Pre-test – post-test or historic/retrospective control group study	
Level 3 Observational – Analytic Designs	Level 3.a – Systematic review of comparable cohort studies	1
	Level 3.b – Systematic review of comparable cohort and other lower study designs	
	Level 3.c – Cohort study with control group	
	Level 3.d – Case-control study	
	Level 3.e – Observational study without a control group	

	Levels of Evidence - Effectiveness	WoE B
Level 4 Observational – Descriptive Studies	Level 4.a – Systematic review of descriptive studies	0
	Level 4.b – Cross-sectional study	
	Level 4.c – Case series	
	Level 4.d – Case study	
Level 5 Expert Opinion and Bench Research	Level 5.a – Systematic review of expert opinion	
	Level 5.b – Expert consensus	
	Level 5.c – Bench research/single expert opinion	

Table 6

WoE C Criteria Used to Assess the Relevance of Included Studies in line with the Review Question

Included study	Does the intervention meet this review's definition of TFC?	Is behaviour measured by means other than carer report?	Does the study include adolescents from across the 10-17 age range?	WoE C
Biehal et al. (2011)	1	1	0	2
Bywater et al. (2011)	1	0	1	2
Green et al. (RCT; 2014)	1	1	1	3
Green et al. (CCS; 2014)	1	1	1	3
McDaniel et al. (2011)	1	0	0	1
Moody et al. (2020)	1	0	1	2
Rhoades et al. (2013)	1	1	0	2
Roberts et al. (2016)	1	0	1	2

Table 7

Summary of WoE Scores (WoE A-C) and Overall Average Score (WoE D)

Included study	WoE A	WoE B	WoE C	WoE D
Biehal et al. (2011)	3 High	2 Medium	2 Medium	2.33 Medium
Bywater et al. (2011)	2 Medium	3 High	2 Medium	2.33 Medium
Green et al. (RCT; 2014)	2 Medium	3 High	3 High	2.67 High
Green et al. (CCS; 2014)	3 High	1 Low	3 High	2.33 Medium
McDaniel et al. (2011)	2 Medium	0 Low	1 Low	1.00 Low
Moody et al. (2020)	2 Medium	3 High	2 Medium	2.33 Medium
Rhoades et al. (2013)	2 Medium	0 Low	2 Medium	1.33 Low
Roberts et al. (2016)	2 Medium	0 Low	2 Medium	1.33 Low

Note. WoE scores between 2.5 and 3 are described as ‘High’; scores between 2 and 2.5 are described as ‘Medium’; and scores below 2 are described as ‘Low’.

Participants

In line with the review question, all the included studies involved adolescent index LACYP (that is, the specific child or young person subject to the intervention) displaying challenging behaviour and eligible for intensive behavioural intervention. Across the seven studies, there were 908 index LACYP aged between 2-21 years with an overall weighted average age of 12.67 years. As very few studies identified in the literature search focused solely on behavioural outcomes for adolescents from within the age range of 10-17, studies with a wider age range were included as per the inclusion criteria. Two studies (McDaniel et al., 2011; Rhoades et al., 2013) did not include index children from across the 10-17 age range and were therefore penalised in WoE C. One study (Biehal et al., 2011) did not report the age range of their participants and was also penalised in WoE C. Among the comparative design studies (Biehal et al., 2011; Bywater et al., 2011; Green et al., RCT and CCS, 2014; Moody et al., 2020), there were no significant differences reported in the characteristics of index LACYP in the intervention group and those in the comparison group. This was recognised by a higher score in WoE A.

Research Designs

Each study was appraised using a checklist specific to the type of design from the JBI Manual for Evidence Synthesis (Aromataris & Munn, 2020). As can be seen in the evidence map, four study design types were included in the review: RCTs (Bywater et al., 2011; Green et al., RCT, 2014; Moody et al., 2020), quasi-experimental design (Biehal et al., 2011), case-control study (Green et al., CCS, 2014), and case series (McDaniel et al., 2011; Rhoades et al., 2013; Roberts et al., 2016). This was reflective of the diversity of methodologies adopted by researchers.

RCTs are regarded as the gold standard for effectiveness research due to the random allocation of participants which reduces bias allowing for a more accurate examination of causal relationships between interventions and outcomes (Hariton & Locascio, 2018). This resulted in a higher WoE B score. However, the use of RCTs within the field of social work is controversial and limited due to concerns about the ethicality and feasibility of randomisation particularly when working with vulnerable groups such as LACYP (Dixon et al., 2014; Mezey et al., 2015). As such, the three RCTs included in the study did not involve true randomisation which was accounted for in their WoE A score. Additionally, two studies (Biehal et al., 2011; Green et al., CCS, 2014) that included non-randomised comparative designs to assess effectiveness were given lower scores in WoE B than RCTs but higher scores than the non-comparative studies (McDaniel et al., 2011; Rhoades et al., 2013; Roberts et al., 2016). Despite the substantial limitations of non-comparative studies of effectiveness, it was decided to include these studies, albeit penalised in WoE B, to recognise the difficulties of conducting research with LACYP as previously highlighted (Dixon et al., 2014; Mezey et al., 2015).

Interventions

Across the included studies, four different behavioural interventions were identified. As part of WoE C, each intervention was assessed against this review's definition of TFC adopted from Bryant and Snodgrass (1991) and consequently deemed to be relevant to the review question.

Treatment Foster Care Oregon (TFCO)

TFCO was the focus of three studies (Biehal et al., 2011; Green et al., RCT and CCS, 2014; Rhoades et al., 2013). TFCO is a multimodal 9-month OSCL TFC

programme specifically for LACYP with seriously challenging behaviour. In this intervention, treatment foster carers are supported by agency staff to provide LACYP with a highly structured and nurturing environment of boundaries and consequences. The child's activities and interactions both inside and outside of the home are closely monitored, and prosocial behaviours are positively reinforced through the provision of privileges and incentives.

KEEP Safe

An adapted version of TFCO that was also included in this review is the OSCL KEEP programme which offers a lower-intensity group-model TFC approach to provide foster carers of LACYP with a range of emotional and behavioural difficulties with the strategies and support needed to promote positive behaviours (Roberts et al., 2016). The model of KEEP appraised in this study was KEEP Safe which is designed specifically for carers of adolescents between the ages of 12 and 17 and consists of 20 weekly 90-minute group sessions.

Incredible Years Basic Parenting

In addition to the OSCL programmes, this review also included Incredible Years Basic Parenting adapted for foster carers (Bywater et al., 2011; McDaniel et al., 2011). Incredible Years is a group therapeutic intervention that builds on Social Learning theory through the promotion of parenting techniques. The intervention is delivered over the course of 12 weekly two-hour sessions.

Fostering Changes

Additionally, this review included an effectiveness study on Fostering Changes which focuses on building positive relationships between carers and children to support the

development of prosocial behaviour through 12 weekly three-hour group sessions (Moody et al., 2020).

Measures

Across the seven studies, an array of different instruments was used to measure primary and secondary outcomes. Studies that elicited data from multiple sources using multiple measures scored higher in WoE A. Four studies (Bywater et al., 2011; McDaniel et al., 2011; Moody et al., 2020; Roberts et al., 2016) measured behavioural outcomes only through foster-carer-reported measures and were penalised in WoE C.

Strengths and Difficulties Questionnaire (SDQ)

Two studies (Moody et al., 2020; Roberts et al., 2016) used SDQ, a widely used assessment measuring social, emotional, and behavioural strengths and difficulties. SDQ has shown good internal consistency, reliability, and validity (Pote et al., 2020). However, as a carer-reported measure, this incurred penalties in WoE C.

Eyberg Child Behaviour Inventory (ECBI)

ECBI was another instrument used by two studies (Bywater et al., 2011; McDaniel et al., 2011) to measure the intensity of challenging behaviour. ECBI has shown good validity and internal consistency but limited test-retest reliability (Pote et al., 2020). As a carer-reported measure, it incurred penalties in WoE C.

Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA)

HoNOSCA was used by Green et al. (RCT and CCS; 2014) to measure the severity of social functioning including disruptive, anti-social, or aggressive behaviour. This

measure has shown adequate internal consistency, reliability, and validity (Pirkis et al., 2005). The measure was completed by two independent researchers with reference to several sources including structured interviews with foster carers and LACYP, the carer-rated Child Behaviour Checklist and the self-rated Youth Self Report which have both shown good internal consistency, reliability, and validity (Pote et al., 2020), and data provided by education, health, and social care services. This systematic approach to ensuring the reliability and validity of the data was awarded higher scores in WoE A and WoE C.

Social and Legal Data

Two studies (Biehal et al., 2011; Rhoades et al., 2013), referred directly to official data to assess behavioural outcomes. Biehal et al. (2011) analysed data from the Asset (now known as the AssetPlus) which is an assessment used in the youth justice system to track data, identify risks, and plan interventions. Rhoades et al. (2013) referred to social care files and reports from key adults and practitioners. As these measures collated data from multiple sources, they did not incur penalties in WoE C.

Findings

The post-intervention effect sizes (Cohen's *d*) and associated significance values (*p*) are presented in Table 8. An alpha value was set at 0.05. While all the studies reported the significance of their findings, the effect sizes for most of the studies were not reported and have been calculated by the author using the Campbell Collaboration Calculator (Wilson, n.d.) and Psychometrica (Lenhard & Lenhard, 2016). Of the eight effect sizes, five were between subjects (Biehal et al., 2011; Bywater et al., 2011; Green et al., RCT and CCS, 2014; Moody et al., 2020) and

three were within subjects (McDaniel et al., 2011; Rhoades et al., 2013; Roberts et al., 2016).

Three studies (Bywater et al., 2011; Rhoades et al., 2013; Roberts et al., 2016) found medium intervention effect sizes that were statistically significant. However, it should be noted that two of these studies (Rhoades et al., 2013; Roberts et al., 2016) were given a low WoE D due to the substantial design limitations of case series as highlighted in WoE B. Additionally all three studies were penalised in WoE C: two studies (Bywater et al., 2011; Roberts et al., 2016) relied solely on carer-reported data, and the age range of the index LACYP in one study (Rhoades et al., 2013) was not from across the 10-17 age range.

Two studies (Biehal et al., 2011; Green et al., RCT and CCS, 2014) reported small effect sizes that were non-significant, while one study (Moody et al., 2020) found a significant difference between the intervention group and comparison group but an effect size that was negligible.

Only one study (McDaniel et al., 2011) found a large effect size; however, this was not statistically significant. Furthermore, this study scored the lowest in WoE D due to substantial limitations across WoE A-C: use of a case series design, carer report being the sole source of data on behavioural outcomes, and the recruitment of index LACYP from a limited age range.

Table 8

Summary of Effect Sizes for Reviewed Studies

Study	Design	*N*	Intervention	Outcome	Measure	Analysis	*d*	*p*	WoE D
Biehal et al. (2011)	Quasi-experimental design	47	MTFC	Reconviction	The Asset	Chi-squared test	0.49	0.1	2.33 Medium
Bywater et al. (2011)	Randomised controlled trial	46	IY	Behaviour	ECBI	*t*-test	0.67	0.004*	2.33 Medium
Green et al. (2014)	Randomised controlled trial	34	MTFC	Social functioning	HoNOSCA	ANCOVA	-0.25	0.68	2.67 High
Green et al. (2014)	Case-control study	185	MTFC	Social functioning	HoNOSCA	Propensity strength	-0.20	0.40	2.33 Medium
McDaniel et al. (2011)	Case series	13	IY	Behaviour	ECBI	Wilcoxon signed-ranks tests	-0.83	0.08	1.00 Low
Moody et al. (2020)	Randomised controlled trial	311	FC	Behaviour	SDQ	Regression analysis	-0.04	0.02*	2.33 Medium
Rhoades et al. (2013)	Case Series	58	MTFC	Behaviour	Official social care data	*t*-test	0.76	<0.001*	1.33 Low

Roberts et al. (2016)	Case Series	214	KEEP	Behaviour	SDQ	*t*-test	-0.78	0.01*	1.33 Low

Note. d = Cohen's d effect size (.20 = small effect, .50 = medium effect, .80 = large effect) (Cohen, 2013). (*) indicates statistical significance at p=0.05.

Conclusion and Recommendations

TFC, specifically TFCO, is the recommended intervention for LACYP with seriously challenging behaviour (NICE, 2021b). However, the evidence base supporting this recommendation draws largely on research conducted in the US (Bezeczky et al., 2019; Turner & Macdonald, 2011; Waterman, 2021). As such, the current review sought to evaluate the effectiveness of TFC in improving behavioural outcomes for adolescent LACYP in the UK.

Seven studies of four different TFC models met the inclusion criteria for the review and were appraised according to Gough's (2007) WoE framework. Of the seven studies, only one arm of one study received a high rating in WoE D; the remaining arm and three other studies received medium ratings. Three studies received low ratings.

Four studies found a statistically significant effect of TFC on behavioural outcomes ranging from small to large effect sizes. However, these findings should be treated with caution due to high levels of variability in the methodology and quality of studies. Indeed, the study with the largest significant effect also had the lowest WoE D rating. These inconsistent findings are indicative of the limited existing evidence base for the effectiveness of TFC for adolescent LACYP in the UK.

Moreover, the findings of this review support the position taken by Waterman (2021) who argues that while there is a strong evidence base for TFCO in the US, there is little empirical evidence demonstrating its successful transferability to the UK. Waterman attributes this to substantial weaknesses in the sustainable implementation of TFCO in the UK; rather than the intervention itself. As such, future research should seek to examine factors that promote sustainable implementation.

However, the current review highlights some promising findings in variations to the models of TFC, particularly group-based models, such as KEEP Safe and Incredible Years Basic Parenting, which have the potential to be a more cost-effective mode of delivery. As such, future research should seek to employ experimental methods to assess the effectiveness of group-based TFC programmes in the UK.

The findings of this review have some implications for the practice of EPs providing psychological advice for LACYP presenting with seriously challenging behaviour. Primarily, EPs should bear in mind that despite its status as a NICE-recommended intervention programme for LACYP presenting with seriously challenging behaviour, TFCO has a limited evidence base for its effectiveness in the UK. Therefore, where EPs have deemed TFC to be a suitable intervention approach, it would be prudent to also consider alternative programmes that meet the criteria of TFC, that have been implemented with sustainability as a priority, and that have the added benefit of cost-effectiveness through group-based models of delivery. Such alternatives might include Incredible Years Basic Parenting or KEEP Safe.

A limitation of this review is in the array of study designs appraised which makes it difficult to draw comparisons between the findings of the research. However, this is reflective of the challenges of conducting randomly allocated comparative studies with vulnerable groups such as LACYP. As such, resources should be invested into more feasible and ethical alternatives such as high-quality single-case experimental designs to assess the effectiveness of interventions with vulnerable groups.

An additional limitation is a variation in measures and prevalence of carer-reported measures used to evaluate the effectiveness of TFC which increases the risk of bias and reduces the accuracy of findings. However, one study demonstrated that the use

of random allocation, multiple measures, multiple sources, and assessor blinding and masking are feasible within a mixed-methods design producing more reliable empirical evidence to support the use of interventions.

In summary, the findings of the current review reveal inconsistent levels of effectiveness of TFC highlighting a need for more high-quality experimental research to support its use in the UK for adolescent LACYP with seriously challenging behaviour in the UK.

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Appendices

Appendix A: List of Studies Excluded with Criterion Number as the Reason for Exclusion

Excluded Studies	Criterion
Alderson, H., Kaner, E., McColl, E., Howel, D., Fouweather, T., McGovern, R., Copello, A., Brown, H., McArdle, P., Smart, D., Brown, R., & Lingam, R. (2020). A pilot feasibility randomised controlled trial of two behaviour change interventions compared to usual care to reduce substance misuse in looked after children and care leavers aged 12-20 years: The SOLID study. *PLoS ONE*, *15*(9 September), 1–20. https://doi.org/10.1371/journal.pone.0238286	4
Briskman, J., Castle, J., Blackeby, K., Bengo, C., Slack, K., Stebbens, C., Leaver, W., & Scott, S. (2012). *Randomised controlled trial of the Fostering Changes programme*. Department for Education. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/183398/DFE-RR237.pdf	7
Brown, S. (2014). Clinical update: A small service evaluation of a Solihull Approach foster carer training group pilot study. *Practice*, *26*(1), 37–52. https://doi.org/10.1080/09503153.2013.860094	7
Curran, J., & Bull, R. (2009). Ross programme: Effectiveness with young people in residential childcare. *Psychiatry, Psychology and Law*, *16*, S81–S89. https://doi.org/10.1080/13218710802242029	4
Dallos, R., Morgan-West, K., & Denman, K. (2015). Changes in attachment representations for young people in long-term therapeutic foster care. *Clinical Child Psychology and Psychiatry*, *20*(4), 657–676. https://doi.org/10.1177/1359104514543956	4

Excluded Studies	Criterion
Davies, P., Webber, M., & Briskman, J. A. (2015). Evaluation of a training programme for foster carers in an independent fostering agency. *Practice*, *27*(1), 35–49. https://doi.org/10.1080/09503153.2014.983434	4
Gibbons, N., Bacon, A. M., & Lloyd, L. (2019). Is Nurturing Attachments training effective in improving self-efficacy in foster carers and reducing manifestations of reactive attachment disorder in looked after children? *Adoption and Fostering*, *43*(4), 413–428. https://doi.org/10.1177/0308575919884892	4
Golding, K., & Picken, W. (2004). Group work for foster carers caring for children with complex problems. *Adoption and Fostering*, *28*(1), 25–37. https://doi.org/10.1177/030857590402800105	4
Harris-Waller, J., Bangerh, P., & Douglas, H. (2019). An evaluation of the Solihull Approach foster carer course. *Practice*, *31*(3), 219–229. https://doi.org/10.1080/09503153.2018.1499891	7
Hartley, J. E. K., McAteer, J., Doi, L., & Jepson, R. (2019). CARE: The development of an intervention for kinship carers with teenage children. *Qualitative Social Work*, *18*(6), 926–943. https://doi.org/10.1177/1473325018783823	3
Herbert, M., & Wookey, J. (2007). The Child Wise Programme: A course to enhance the self-confidence and behaviour management skills of foster carers with challenging children. *Adoption and Fostering*, *31*(4), 27–37. https://doi.org/10.1177/030857590703100405	7

Excluded Studies	Criterion
Hutchings, J., & Bywater, T. (2013). Delivering the Incredible Years parent programme to foster carers in Wales: Reflections from group leader supervision. *Adoption and Fostering*, *37*(1), 28–42. https://doi.org/10.1177/0308575913477075	3
Laybourne, G., Andersen, J., & Sands, J. (2008). Fostering attachments in looked after children: Further insight into the group-based programme for foster carers. *Adoption and Fostering*, *32*(4), 64–76. https://doi.org/10.1177/030857590803200409	7
MacDonald, G., & Turner, W. (2005). An experiment in helping foster-carers manage challenging behaviour. *British Journal of Social Work*, *35*(8), 1265–1282. https://doi.org/10.1093/bjsw/bch204	7
Madigan, S., Paton, K., & Mackett, N. (2017). The Springfield Project service: evaluation of a Solihull Approach course for foster carers. *Adoption and Fostering*, *41*(3), 254–267. https://doi.org/10.1177/0308575917719373	7
McMillen, J. C., Narendorf, S. C., Robinson, D., Havlicek, J., Fedoravicius, N., Bertram, J., & McNelly, D. (2015). Development and piloting of a treatment foster care program for older youth with psychiatric problems. *Child and Adolescent Psychiatry and Mental Health*, *9*(1). https://doi.org/10.1186/s13034-015-0057-4	8
Midgley, N., Besser, S. J., Fearon, P., Wyatt, S., Byford, S., & Wellsted, D. (2019). The Herts and Minds study: Feasibility of a randomised controlled trial of mentalization-based treatment versus usual care to support the wellbeing of children in foster care. *BMC Psychiatry*, *19*(1). https://doi.org/10.1186/s12888-019-2196-2	4

Excluded Studies	Criterion
Minnis, H., Pelosi, A. J., Knapp, M., & Dunn, J. (2001). Mental health and foster carer training. *Archives of Disease in Childhood*, *84*(4), 302–306. https://doi.org/10.1136/adc.84.4.302	4
Nash, J., & Flynn, R. J. (2009). Foster-parent training and foster-child outcomes: An exploratory cross-sectional analysis. *Vulnerable Children and Youth Studies*, *4*(2), 128–134. https://doi.org/10.1080/17450120902808349	8

Note. The descriptors for exclusion criteria numbers are included below:

1. Non-peer reviewed
2. Other languages
3. Qualitative
4. Non-behavioural outcomes
5. Other deliverers
6. Other behavioural interventions
7. Does not include LACYP from across the 10-17 age range
8. Conducted outside of the United Kingdom

Appendix B: Coding Protocols

The coding protocols for RCTs, quasi-experimental designs, case-controlled studies, and case series included below were adapted from the JBI Manual for Evidence Synthesis (Aromataris & Munn, 2020). The percentage of criteria met is calculated and associated with a score between 0 and 3 as can be seen at the bottom of the checklist. This score is the study's WoE A score.

Biehal, N., Ellison, S., & Sinclair, I. (2011). Intensive fostering: An independent evaluation of MTFC in an English setting. *Children and Youth Services Review*, *33*(10), 2043–2049. https://doi.org/10.1016/j.childyouth.2011.05.033

Quasi-Experimental Design	Yes	No	Unclear	N/A
Is it clear in the study what is the 'cause' and what is the 'effect' (i.e. there is no confusion about which variable comes first)?	X			
Were the participants included in any comparisons similar?	X			
Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest?		X		
Was there a control group?	X			
Were there multiple measurements of the outcome both pre and post the intervention/exposure?	X			
Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	X			
Were the outcomes of participants included in any comparisons measured in the same way?	X			
Were outcomes measured in a reliable way?	X			
Was appropriate statistical analysis used?	X			

≤25%	≤50%	≤75%	**≤100%**
Poor	Satisfactory	Good	**Excellent**
0	1	2	**3**

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. https://doi.org/10.1111/j.1365-2214.2010.01155.x

Randomised Controlled Trial	Yes	No	Unclear	NA
Was true randomization used for assignment of participants to treatment groups?		X		
Was allocation to treatment groups concealed?			X	
Were treatment groups similar at the baseline?	X			
Were participants blind to treatment assignment?			X	
Were those delivering treatment blind to treatment assignment?			X	
Were outcomes assessors blind to treatment assignment?			X	
Were treatment groups treated identically other than the intervention of interest?	X			
Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	X			
Were participants analyzed in the groups to which they were randomized?	X			
Were outcomes measured in the same way for treatment groups?	X			
Were outcomes measured in a reliable way?		X		
Was appropriate statistical analysis used?	X			
Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?	X			

≤25%	≤50%	**≤75%**	≤100%
Poor	Satisfactory	**Good**	Excellent
0	1	**2**	3

Green, J. M., Biehal, N., Roberts, C., Dixon, J., Kay, C., Parry, E., Rothwell, J., Roby, A., Kapadia, D., Scott, S., & Sinclair, I. (2014). Multidimensional Treatment Foster Care for adolescents in English care: Randomised trial and observational cohort evaluation. *The British Journal of Psychiatry*, *204*(3), 214–221. https://doi.org/10.1192/bjp.bp.113.131466

Case-Controlled Studies	Yes	No	Unclear	NA
Were the groups comparable other than the presence of disease in cases or the absence of disease in controls?	X			
Were cases and controls matched appropriately?	X			
Were the same criteria used for identification of cases and controls?	X			
Was exposure measured in a standard, valid and reliable way?	X			
Was exposure measured in the same way for cases and controls?	X			
Were confounding factors identified?	X			
Were strategies to deal with confounding factors stated?	X			
Were outcomes assessed in a standard, valid and reliable way for cases and controls?	X			
Was the exposure period of interest long enough to be meaningful?	X			
Was appropriate statistical analysis used?	X			

≤25%	≤50%	≤75%	**≤100%**
Poor	Satisfactory	Good	**Excellent**
0	1	2	**3**

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. https://doi.org/10.1080/13575279.2010.522979

Case Series	Yes	No	Unclear	NA
Were there clear criteria for inclusion in the case series?	X			
Was the condition measured in a standard, reliable way for all participants included in the case series?	X			
Were valid methods used for identification of the condition for all participants included in the case series?	X			
Did the case series have consecutive inclusion of participants?		X		
Did the case series have complete inclusion of participants?		X		
Was there clear reporting of the demographics of the participants in the study?	X			
Was there clear reporting of clinical information of the participants?	X			
Were the outcomes or follow up results of cases clearly reported?		X		
Was there clear reporting of the presenting site(s)/clinic(s) demographic information?	X			
Was statistical analysis appropriate?	X			

≤25%	≤50%	**≤75%**	≤100%
Poor	Satisfactory	**Good**	Excellent
0	1	**2**	3