

Case Study 1: Evidence Based Practice Report

Theme: Interventions implemented by parents.

How effective is the KEEP intervention at reducing child externalising behaviours?

Summary

The KEEP intervention was developed in Oregon by Dr Patricia Chamberlain (KEEP, n.d.), a 16 week programme delivered to foster and kinship carers of children who display challenging behaviours. The intervention comprises of one 90 minute session a week, with follow up phone calls to gather information on the child's behaviour throughout the intervention. The current literature review aimed to find out how effective the KEEP intervention is at reducing child externalising behaviours. A systematic literature search was completed, which identified six studies to be included in the review; included studies were then evaluated using the Gough (2007) weight of evidence (WoE) framework; the Gersten et al., (2005) checklist was used to appraise the studies for WoE A. Effect sizes and significance of results were considered alongside the WoE ratings given to each study. The review found that KEEP does seem to be effective at reducing child externalising behaviours, however, some recommendations for future research are provided.

Introduction

What is KEEP and how is it used?

The KEEP intervention (Keeping Foster and Kinship Parents Supported and Trained) is a training programme delivered in groups, for foster or kinship caregivers, of children who display challenging behaviour, and who are aged between 5 and 12 years old (Early Intervention Foundation, 2023). The KEEP intervention runs over the course of 16 weeks; throughout these 16 weeks, foster and kinship parents attend weekly, 90 minute sessions, run by two trained facilitators (Price, Roesch & Burce, 2019). These sessions follow a set model (one area for each of the 16 weeks), however they will cover a range of topics, including those raised by the parents during the group (Chamberlain et al., 2016); topics include dealing with challenging behaviour, how to encourage success in school, and positive peer interactions (Buchanan, et al., 2013). It is recommended that parents complete a home practice each week, which is related to the content explored in the session. Each week the facilitator also makes phone calls to the parents/carers to gather information on the child's behaviour (Knibbs, Mollidor & Bierman, 2016). The aim of these sessions is to provide foster and kinship carers with the strategies they need to effectively cope with their child's emotional and behavioural challenges (Roberts, Glynn & Waterman, 2016). KEEP uses video training, face to face training, and KEEP-Up sessions (twice a year for facilitators) in order to ensure fidelity of the programme (Early Intervention Foundation, 2023).

Psychological theory of KEEP intervention

The KEEP curriculum is based around Social Cognitive Theory (Early Intervention Foundation, 2023). Social Cognitive Theory (SCT) highlights the importance of behaviours and the environment, in shaping what will become one's behaviour (Bandura, 1986). environmental factors were considered to be what support is available, and the barriers an individual may face (Ramirez et al., 2012). In the context being discussed, the foster or kinship parents have a vital role in providing the support the child needs in order to acquire positive, adaptive behaviours (Grusec, 1992). Research has found that increased perceived parental support results in lower risk of mental health problems in adolescence (Macalli, Côté, & Tzourio, 2020). By Providing foster and kinship carers with the strategies and tools they need to not only manage children's behaviour, but support them and model adaptive behaviours, it allows these children to learn how to regulate their emotions, and adopt these more positive behaviours.

Importance in educational psychology

In 2020, the number of children in foster care had grown by roughly 11% since 2015 (National Statistics, 2021). Looked after children are at increased risk of behavioural difficulties (Dubois-Comtois et al., 2015) and emotional dysregulation (Pears et al., 2010), and have been found to have lower wellbeing than their peers (Narey & Owers, 2018); over 40% of children and young people in foster care showed extremely high levels of externalising behavioural difficulties (Casanueva et al., 2014). As a consequence, children who are in kinship or foster care placements have poorer educational

outcomes, like many other children who are also disadvantaged.

Academically, children in foster care do not perform as well as their peers who are not involved with children's services (Melkman, 2018; Narey & Owers, 2018). In the academic year 2021/22, just 6.7% of disadvantaged students achieved A* grades at A Level, compared to 13.6% of students who are not disadvantaged (Government Education Statistics). Looked after children are also more likely to be excluded from school (Mathers et al., 2016).

It has been found that the home environment is the largest predictor of social and cognitive development in children (Sylva et al., 2015). A link between caregiver's providing support for learning as well as wellbeing, and the child's educational and emotional development has been suggested (Cameron, Connelley, & Jackson, 2015). In order to minimise the potentially detrimental impacts of being in foster or kinship care on a child's education, foster and kinship carers should receive effective training to support the children in their care. By teaching children and young people how to regulate their emotions effectively, modelling pro-social behaviour, and providing a supportive environment for learning at home, foster and kinship carers may be able to help children who have experienced challenges in early life achieve well academically.

Review question

How effective is the KEEP foster and kinship caregiver intervention at reducing child externalising behaviours?

Critical review of the evidence base

A systematic literature search was carried out on the 4th of January 2023 on the following databases; Web of Science, Scopus, PsycINFO, ERIC, and PubMed. The search term used was ‘KEEP’ AND foster AND parent* AND intervention*. Figure 1 shows a flowchart, outlining the search and screening procedures followed to identify the studies to be included in the review. A set of inclusion and exclusion criteria, specific to the current literature review, were devised, and are outlined in Table 1, along with the rationale for why these criteria were chosen. Following the screening, six studies were selected for review; Appendix A shows a detailed mapping the field table for each study. Any studies that were excluded from the current review (using the inclusion and exclusion criteria) are detailed in Appendix B. The final studies included in the review are outlined in Table 2.

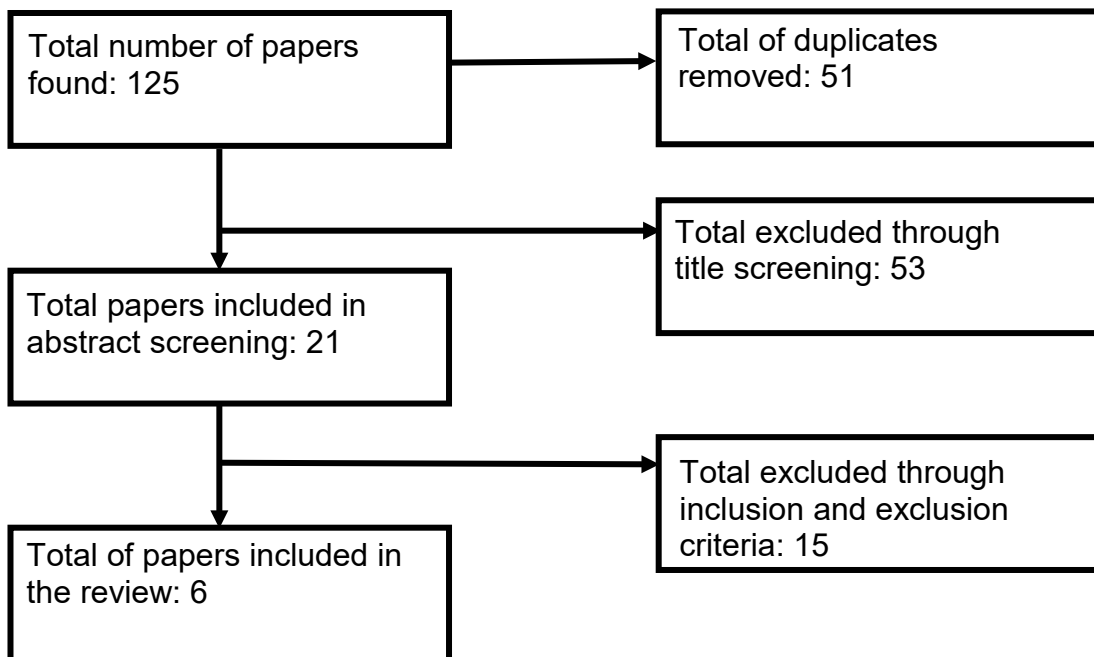


Figure 1: screening and search procedures

Table 1: inclusion and exclusion criteria used to screen the studies.

Criteria number	Criteria	Inclusion criteria	Exclusion criteria	Rationale
1	Intervention type	The paper looks specifically at the KEEP intervention.	The study looks at foster parent interventions other than KEEP.	The aim of this systematic literature review is to investigate the effectiveness of the KEEP intervention.
2	Language written in	The paper was originally written in English.	The paper was not originally written in English and has/has not been translated.	To ensure that the researcher can read the paper fully, and to avoid any errors that may occur during translation.
3	Country of study	The study was carried out in the USA.	The study was not carried out in the USA.	The KEEP intervention was developed in the USA, so this is the population which it was intended to help.
4	Outcome measures	The study looks specifically at the changes in behaviour	The study does not look at changes in behaviour.	Other outcomes are not relevant to the aim of the review.

before and after the intervention.

Criteria number	Criteria	Inclusion criteria	Exclusion criteria	Rationale
5	Age of children	The children included in the study are aged between 4 and 12 years old.	The children in the study are not aged between 4 and 12 years old.	The KEEP intervention was designed for children between the ages of 4 and 12.
6	Date of publication	The study was published after 2006.	The study was published before 2006.	As the target area of this literature review was the USA, studies published after 2006 were chosen, as this is when the 'child and family services improvement act' was signed into law.
7	Type of study	The study comprised of an intervention group and a control group.	The study comprised of an intervention group only.	In order to see whether the intervention is effective compared to foster care as normal, a control group is required.

Table 2: papers to be reviewed

Studies included in the review

Greeno, E.J., Lee, B.R., Uretsky, M.C., Moore, J.E., Barth, R.P., and Shaw, T.V. (2016). Effects of a Foster Parent Training Intervention on Child Behaviour, Caregiver Stress, and Parenting Style. *Journal of Child and Family Studies*, 25, 1991-2000. DOI: 10.1007/s10826-015-0357-6

Price, J.M., Roesch, S., and Burce, C.M. (2019). The effects of the KEEP foster parent training intervention on child externalizing and internalizing problems. *Developmental Child Welfare*, 1(1), 5-21. DOI: 10.1177/2516103218812092

Price, J.M., Roesch, S.C., and Walsh, N.E. (2012). Effectiveness of the KEEP foster parent intervention during an implementation trial. *Children and Youth Services Review*, 34, 2487-2494. DOI: 10.1016/j.chilyouth.2012.09.010

Price, J.M., Roesch, S., Walsh, N.E., and Landsverk, J. (2015). Effects of the KEEP Foster Parent Intervention on Child and Sibling Behaviour Problems and Parental Stress During a Randomized Implementation Trial. *Prevention Science*, 16, 685-695. DOI: 10.1007/s11121-0140053209

Leathers, S.J., Spielfogel, J.E., McMeel, L.S., and Atkins, M.S. (2011). Use of a parent management training intervention with urban foster parents: A pilot study. *Children and Youth Services Review*, 33, 1270-1279. DOI: 10.1016/j.chilyouth.2011.02.022

Chamberlain, P., Price, J., Leve, L.D., Laurent, H., Landsverk, J.A., and Reid, J.B. (2008). Prevention of Behaviour Problems for Children in Foster Care: Outcomes and Mediation Effects. *Prevention Science*, 9, 17-27. DOI: 10.1007/s11121-007-0080-7

The studies in the current review used one of two measures of child behaviour; the Parent Daily Report (PDR), or the Child Behaviour Checklist (CBCL). The PDR is a 34 item checklist which is administered over the phone; it requires parents to only recall the last 24 hours of behaviour, and each question requires a yes or no answer. However, no frequencies are collected through this measure, only whether the behaviour occurred over the

last 24 hours or not (Oregon Social Learning Centre). The other measure used is the Child Behaviour Checklist (CBCL). This checklist is completed by parents, and comprises of two overarching sections, internalising and externalising, which is then broken down into eight subsections (anxious/depressed, depressed, somatic complaints, social problems, thought problems, attention problems, rule-breaking behaviour, and aggressive behaviour), with responses being given by parents regarding the last six months of child behaviour (Achenbach, 2001).

Weight of Evidence (WoE)

The current study used Gough's (2007) Weight of Evidence (WoE) framework to critically appraise the six studies included in the review. There are three waves of appraisal (WoE A, WoE B and WoE C), followed by an overall weighting (WoE D). Weight of Evidence A is related to the quality of the study. For the purpose of this review, Gersten et al's (2005) checklist was used. This checklist was chosen as all the studies included comprised of an intervention group and a control group, meaning all studies could be appraised using the same checklist. In order to be considered an acceptable quality study, the research must meet at least 9 of the essential criteria, and one desirable. High quality research meets at least 9 essential criteria and 4 or more desirable. If research does not meet the criteria needed to be considered high or of acceptable quality it is considered to be low quality. The completed checklist for each of the studies is included in Appendix C. Weight of Evidence B relates to the design aspects of each study that are relevant to the review question; these criteria are detailed in Appendix D. In

order for a study to be considered of acceptable quality, a medium WoE B score must be achieved (this is detailed in Table 3). Weight of Evidence C is related to the relevance of the topic studied in the research compared to the literature review question; Appendix E outlines the criteria and ratings for all selected studies. Finally Weight of Evidence D is calculated by finding the mean scores of WoE A, B and C, and can be seen in table 3.

Table 3: Weight of Evidence D

Authors	WoE A	WoE B	WoE C	WoE D
Greeno et al., (2016)	3 High	2.7 High	2.75 High	2.8 High
Price et al., (2019)	3 High	2.7 High	2.5 High	2.7 High
Price et al., (2012)	1 Low	2 Medium	3 High	2 medium
Price et al., (2015)	3 High	2.7 High	2.75 High	2.8 High
Leathers et al., (2011)	3 High	3 High	2.25 Medium	2.75 high
Chamberlain et al., (2008)	3 High	2.7 high	2.75 High	2.8 High

Note. 0 - 1 = low, 1.1 - 2 = medium, 2.1 - 3 = high

Participants

Although each of the studies measured the impact of the KEEP intervention on child behaviour, it was the foster and kinship carers that were considered the participants in the studies. The total number of participants from all the studies included in this review was 1670. All studies except that conducted by Price, Roesch and Walsh (2012), studied a control group and an

intervention group concurrently. Price, Roesch and Walsh (2012) used the control group from Chamberlain et al., (2008) in order to compare their findings from an intervention group to a control. Leathers et al.'s (2011) study comprised smallest sample, with just 31 participants. In contrast, Chamberlain et al. (2008) study comprised of 700 participants. All the studies included in the review provided data on the demographics of their participants. Interestingly the most represented demographic in the intervention group of all the studies was non-white (either Hispanic or Black/African American); this is in contrast to the population of the US, where White/Caucasian is the largest ethnic group, followed by Hispanic and Black/African respectively (United States Census Bureau, 2021). Only the control groups of Chamberlain et al. (2008) and Greeno et al. (2016) had more Caucasian participants than any other ethnicity. This suggests that the evidence for the intervention may not be generalisable to the whole US population, as some ethnicities (Black/African American or Hispanic) have been over represented within this sample.

All but one of the studies (Price, Roesch, & Walsh, 2012) reported attrition rates; this lack of attrition reporting led to this study receiving a low WoE A rating. Leathers et al. (2011) reported only losing one participant between pre and post-test. Greeno et al. (2012) reported 78% of participants in the intervention group, and 77% of participants in the control group were able to be contacted at post-test. They found that there were no demographic variables that were statistically significant between those who could and could not be contacted. Both the Price, Roesch and Burce (2019) study, and the Price, Roesch, Walsh and Landsverk (2015) study lost 31 participants

from the intervention and control groups. Reasons for participant drop out included the participants no longer being interested, being in poor health, or the focus child had left the home (and no suitable alternative child remained in the home). Chamberlain et al. (2008) study reported a completion rate of 81%, with 564 out of 700 participants providing pre and post-test data. They reported that parents who used more positive reinforcement at baseline assessments were less likely to complete the study.

Study design

Of the six studies being included in the review, four used randomised control trials in order to divide their participants between the intervention and control groups (Chamberlain et al., 2008; Leathers et al., 2011; Price, Roesch, & Burce, 2019; Price et al., 2015). The exception to this was Greeno et al.'s (2016) study, which used a quasi-experimental design. This was due to the different recruitment processes for control groups and experimental groups. It still comprised of a control and experimental group, and made direct comparisons between the results of the two; quasi-experimental designs are an effective alternative to using randomised control trials (Hudson, Fielding & Ramsay, 2019), as they allow for pre and post intervention comparisons to be made, without requiring randomisation of groups. The effective use of quasi-experimental design (allowing pre and post intervention comparisons between the control and intervention groups, without randomising or manipulating groups themselves) contributed to the high WoE A score that was given to the study. Price et al., (2012), who, as previously mentioned,

used the control group of a previous study, so all participants were automatically included in the intervention group.

Measures of child behaviour

Four of the studies used the Parent Daily Report to measure child behaviour (Chamberlain et al., 2008; Greeno et al., 2016; Price, Roesch & Walsh, 2012; Price et al., 2015;). The PDR is used by the KEEP intervention group facilitators, and is uploaded to their online fidelity system (KEEP). Using this as a measure of the success of the intervention therefore seems like an appropriate choice. However, the measure was developed by the Oregon Social Learning Centre, which is the same centre as the KEEP intervention was developed in. There is also limited availability of data regarding the validity and reliability of this measure, and therefore the Cronbach's alpha of individual studies is the best representation of validity that is available. This should be taken into account when considering whether this is the best tool to use for this measuring these outcomes. The remaining two studies used the Child Behaviour Checklist (CBCL). The CBCL is one component of the ASEBA (Achenbach System of Empirically Based Assessment) (APA). This assessment tool has been reported to have high validity and reliability by the APA, which is based on the strength of the data from a wide range of cultures and when administered in different languages. This checklist is longer than the PDR, but focuses on more components of behaviour over a longer period of time. It should be considered however, that the CBCL is recommended for children aged 6 to 18; the studies included in this review that used the CBCL reported on the behaviours of children who may have been younger than 6,

and this should be considered when interpreting the results. Both these scales measure the child's behaviour directly, and therefore contributed to the high WoE scores of 5 of the 6 studies; as previously mentioned, Price et al. (2012) did not meet 2 of the 10 essential criteria, and therefore received a low WoE A and D rating, however, their measures did appear to measure what they were intended to.

Findings

Table 4 shows a summary of the findings of each of the studies, as well as the effect sizes, and the overall weight of evidence (WoE D) given to each study. Table 5 outlines the effect size descriptors to aid interpretation of the results.

Table 4 showing findings and effect sizes.

Author	Sample size	Key outcome measure	Significance (between pre and post-test)	Effect size (Cohen's d and descriptor)	WoE D
Greeno et al., 2016	113	PDR	P < 0.001	1.37 Large	2.8
Price, Roesch and Burce, 2019	310	CBCL	P < 0.75	Externalizing 0.005 small *	2.7
Price, Roesch and Walsh, 2012	181	PDR	P < 0.000	1.97 large	2
Price et al., 2015	335	PDR	P < 0.033	0.55 medium **	2.8
Leathers et al., 2011	31	CBCL	P < 0.05	0.7 medium	2.75
Chamberlain et al., 2008	700	PDR	P < 0.05	0.26 small	2.8

* converted from odds ratio

** difference between intervention group and control group

Table 5: effect size descriptors

Cohen's d	Descriptor
0.2	Small
0.5	Medium
0.8	Large

All the studies included in this review reported decreases in problem behaviours of the children, with only one study reporting findings that were not significant (Price et al., 2019). All of the studies that used the Parent Daily

Report as a measure of child behaviour reported significant differences between pre and post-test measures. Whilst the other two (Price et al., 2019 and Leathers et al., 2011) that used the CBCL found mixed results; only Leathers et al., (2011) reported a significant difference between pre and post intervention.

Greeno et al.'s, (2016) study reported significant results ($p < .001$) and was given a high WoE D rating, after receiving high scores for WoEs A, B and C. This study also reported a large effect size (Cohen's $d = 1.37$), which suggests that the KEEP intervention is an effective intervention for reducing challenging behaviours in children in foster or kinship care. This study used the PDR as the report method, which as discussed previously, was developed by the same centre that developed the KEEP intervention. Due to the high WoE D score, this study should be given a lot of weighting when considering whether the KEEP intervention is effective, however, the measure of child behaviours used, and the origins of this measure should be kept in mind. Price, Roesch and Walsh (2012) also reported significant reductions in problem behaviours following the KEEP intervention ($p < .000$), and similarly, was found to have a large effect size (Cohen's $d = 1.97$). Therefore, this study also suggests that the KEEP intervention is an effective way to reduce challenging behaviours in this population. However, this study was given a medium WoE D score, as effect sizes were not explicitly reported, and a single measure of child behaviour was used, which gave a low WoE A score. Therefore, this study should not be given as much weighting as the previously discussed study, due to the medium WoE D score, the lowest of all studies included in this review. This study also used

the PDR, which may have contributed to the large effect size, and therefore this should be accounted for.

Price et al., (2015) also used the PDR to measure child behaviour changes over the course of the intervention. They found a significant difference in child behaviour ($p < 0.033$). This study reported effect sizes as between group effects, rather than within; in order to find out the difference between groups, the difference in interventions was calculated (Cohen's $d = 0.55$). The medium effect size for the intervention group, along with the significant findings, suggests that the KEEP intervention is effective at reducing challenging behaviours in children in foster or kinship care. This study also received a high WoE D, meaning that this study should be given a lot of weighting when considering whether this intervention is effective or not. It should again be noted that the PDR was used, and therefore may have influenced the high effect sizes.

Chamberlain et al., (2008), like the aforementioned studies, used the PDR to report child behaviours. This study found a significant difference in behaviours pre and post test results ($p < 0.05$) in the KEEP intervention group, however it had a small effect size (Cohen's $d = 0.26$). This study received a high WoE D score, due to the high quality score for WoE A, and the relevance of the topic and method to the current review. Although the study reported a small effect size, which may highlight that the intervention is not as effective as the aforementioned studies would suggest, the high WoE D score suggests that this study should be given a lot of weighting when deciding whether the KEEP intervention is effective or not. An additional

consideration is that this is the oldest of the studies included in this review; it may be beneficial therefore, to bear in mind the implications the findings of this study may have had on the way the intervention is implemented, and that adaptations may have been made as a result of this study (which may explain the higher effect sizes of the more recent studies compared to this one).

Leathers et al., (2011) used the Child Behaviour Checklist (CBCL) to assess child behaviour before and after the KEEP intervention. This study found a significant difference in behaviour for the children following the intervention ($p < 0.05$). However, this study used an adapted version of the KEEP intervention, and included additional supports for foster and kinship parents, such as more advice for academic support for the children, videos demonstrating parenting techniques, and having unmatched home visits (Leathers et al., 2011). The study had a medium effect size (Cohen's $d = 0.7$), and a high Weight of Evidence D. This study should be given a lot of weighting, due to the WoE D score. The medium effect size suggests that the intervention may be effective. It may also be interesting to note that this study used the CBCL, rather than the PDR; some of the difference in effect size between the previously discussed studies and the current study may be explained by the use of a different measure- one that was not developed by the same centre. Price, Roesch, and Burce (2019) also used the Child Behaviour Checklist (CBCL) to measure behaviour outcomes for child behaviour of children in foster care. They reported effect sizes for both internalising and externalising behaviours; for the purpose of this review, only the externalising behaviour data will be looked at. This study found no

significant reduction in externalizing behaviours when pre intervention scores were compared to post intervention scores ($p < 0.75$). In addition to this, the effect size reported was low (Cohen's $d = 0.005$). This study was given a high WoE D rating, meaning it should be given a lot of weighting when considering the effectiveness of the KEEP intervention. Through synthesising the results of the studies, and taking into account the methodology of the studies, it would appear that using the PDR produces the most significant results when assessing the effectiveness of the KEEP intervention. However, as previously discussed, this measure was created by the same centre that created the KEEP intervention, and it may be that the intervention is matched neatly to the PDR. Whilst this is not a negative in itself, the difference in findings, effect size, and WoE D scores when an alternative measurement tool is used (the CBCL), suggest that the intervention may not be as effective as those studies might suggest. Overall, 5 of the 6 studies included in the review received a high WoE D score; of these, only one study (namely Greeno et al., 2016) reported a large effect size when using the PDR. This suggests that the KEEP intervention may not be as effective as the research would suggest, given that the other 4 studies with high WoE D scores reported either medium or small effect sizes for the study, regardless of the report measures used.

Conclusions and recommendations

This review aimed to investigate the effectiveness of the KEEP intervention at reducing child externalising behaviours. Six studies were included in this review, with five out of six being rated as high quality, and one (Price et al., 2012) was ranked as low quality for WoE D. Five out of the six studies followed the KEEP intervention, Leathers et al., (2011) made some adjustments, one regarding the topics covered (academic support), and two regarding how the intervention was delivered (video recordings and stand-alone home visits). Again, five of the six studies found significant differences in child externalising behaviours following the KEEP intervention, with Price, Roesch, and Burce (2019) being the only study to find no significant difference in externalising behaviours after the intervention and between the intervention and control group.

Overall, it appears that the KEEP intervention is effective in reducing externalising behaviours. However, all the studies included in the review were carried out in the US. The KEEP intervention was developed in the US, meaning the populations used in the studies were appropriate for the intervention. That being said, it is unclear from this review as to whether the KEEP intervention would be as effective if it was used on a population from outside the US. It is important to note that of the 6 studies included in this review, 4 were carried out by the same research group, and all of these studies used the PDR as their measure of child behaviour. The samples in the studies reviewed were also over representative of the Black/African American community compared to the overall population of the US. Further

research using a different sample may provide useful information regarding the effectiveness of the intervention for participants of other ethnic backgrounds. Moreover, further research should be carried out in countries outside of the US, in order to test its effectiveness for participants who do not live in the US. Roberts, Glynn and Waterman, (2016) investigated the effectiveness of the KEEP intervention in a UK population, however this study was excluded from this review (see Appendix B). The intervention was implemented in the same way that it would be in the US, and used the PDR and the Strengths and Difficulties Questionnaire to collect data on child behaviours. Future research conducted in other countries, such as that by Roberts, Glynn and Waterman (2016) would provide more information on the extent to which the intervention can be effective for similar populations living in countries other than the United States. The results of the studies included in the review should be taken with caution, and care should be taken when considering whether the effects of the KEEP intervention can be generalised to those in the wider US population. As the participants from these studies make up very specific child-caregiver relationships, it may be more beneficial to consider whether this intervention is effective only for those in these foster/kinship carer relationships.

As previously mentioned, Leathers et al., (2011) made three adaptations to the KEEP intervention; they were providing more guidance to parents about how to support the children in their care with school work, providing video guidance on how to carry out parenting techniques, and providing families with stand-alone home visits. Although this study found a significant difference in child externalising behaviours in the intervention group between

pre and post intervention measures, the significance was lower than that found in studies that used the KEEP intervention as it was originally designed. This would suggest that the KEEP intervention is most effective when the original design is followed.

The Parent Daily Report (PDR) was used by four of the studies in this review to measure child behaviours. These studies all found significant reductions in problem behaviours following the KEEP intervention. This would suggest that this checklist is an accurate measure of what the intervention targets. Greeno et al., (2016) reported high Cronbach's alpha scores at both baseline assessment and post intervention assessment (0.82 and 0.85 respectively), with similar reporting from Price et al., (2015) scoring 0.84 at baseline, and 0.86 at post-test, and Chamberlain et al., (2008) with scores of 0.84 at baseline assessment, and 0.83 at post-intervention assessment. The PDR only requires parents to recall the child's behaviour over the last 24 hours, and respond with yes or no, however the CBCL requires parents to recall behaviours over the last 6 months, meaning the responses may be less accurate. This suggests that future studies exploring the effectiveness of the KEEP intervention could continue to use the PDR as a measure of child behaviours. However, it is again important to note that this measure was developed by the same centre as the KEEP intervention was developed, and therefore it would seem that the measure fits the intervention; when the CBCL was used, the effects of the intervention were not as great, and this should be taken into account when deciding which measurement to use. It may be useful for future research to use more than one measure of child

behaviour, in order to see whether the measure used has an impact on the efficacy of the intervention.

Finally, all the studies included in this review used only one measure of child behaviour, meaning none of them scored full marks on the Gersten et al., (2005) checklist for WoE A. In order for future research to be considered higher quality than the existing research, multiple measures of child behaviour should be used.

The use of KEEP intervention should be considered carefully by UK Educational Psychologists. The effects seem to be beneficial from the studies included in this review, however as previously discussed, the research discussed has not been carried out on a similar UK population, and the efficacy of the intervention may have been influenced by the measure of child behaviours used by the researchers. Therefore the use of the KEEP intervention may not be one which UK EPs may recommend, however there are elements within the intervention, such as regular contact with a trained professional (a facilitator in the case of KEEP), and how parents can support with success in school, that may be useful for UK EPs to promote to foster and kinship carers they are working with.

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Appendices

Appendix A- mapping the field

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Appendix A- Mapping the field

No.	Authors	Design	Location	Participant no.	Parent ethnicity	Relationship of parent to child	Age of child	Report measure	Findings
1	Greeno, Lee, Uretsky, Moore, Barth and Shaw (2016)	Quasi-experimental	USA	113	Intervention Black/African American 51% White/Caucasian 32% Hispanic 3% More than one race 14% Comparison Black/African American 44% White/Caucasian 54% Hispanic 0% More than one race 2%	Intervention Relative/kinship provider 35% Licensed state foster provider 65% Comparison Relative/kinship provider 31% Licensed state foster provider 69%	4-12	PDR	Following the KEEP intervention, both foster and kinship caregivers reported significantly less child behaviour problems at post-test compared to pre-test.
2	Price, Roesch and Burce (2019)	RCT	USA	310	African American 24% Asian/Pacific Islander 0% Caucasian 32% Hispanic 41% Native American 1% Mixed Ethnicity 2%	Kinship caregiver 45% Non-kinship caregiver 55%	5-12	CBCL	No significant difference was seen in externalising behaviours following the KEEP intervention between intervention and control groups.

No.	Authors	Design	Location	Participant no.	Parent ethnicity	Relationship of parent to child	Age of child	Report measure	Findings
3	Price, Roesch and Walsh (2012)	RCT	USA	181	African American 27% Asian/Pacific Islander 4% Caucasian 21% Latino 41% Native American 1% Mixed ethnicity 6%	Intervention: Kinship caregiver 32% Non-kinship caregiver 66% Control: Kinship caregiver 36% Non-kinship caregiver 64%	5-12	PDR	The KEEP intervention was found to be effective at reducing a range of initial behaviour difficulties in children aged 5 to 12.
4	Price, Roesch, Walsh and Landsverk (2015)	RCT	USA	335	African American 24% Asian/Pacific Islander 0% Caucasian 33% Hispanic 40% Native American 1% Mixed ethnicity 2%	Kinship caregiver 45% Non-kinship caregiver 55%	5-12	PDR	Following the KEEP intervention, the behaviour problems of focus children (and other children in the home) had decreased.
5	Leathers, Spielfogel, McMeel and Atkins (2011)	RCT	USA	31	African American 96% White/Caucasian 0.31% Other 3.69%	Foster parents	4-12	CBCL	Random effect regression was used to analyse children's scores on the CBCL; this found that behaviour problems in the KEEP treatment group were significantly lower following the intervention, compared to the control group.

No.	Authors	Design	Location	Participant no.	Parent ethnicity	Relationship of parent to child	Age of child	Report measure	Findings
6	Chamberlain, Price, Leve, Laurent, Landsverk and Reid (2008)	RCT	USA	700	Intervention African American 27% Asian/Pacific Islander 4% Caucasian 21% Latino 41% Native American 1% Multi-ethnic 6% Control African American 24% Asian/Pacific Islander 2% Caucasian 34% Latino 33% Native American 1% Multi-ethnic 6%	Kinship 34% Non-relative 66%	5-12	PDR	Following the intervention, behaviour problems were found to have significantly reduced compared to the control group

Appendix B- Excluded Studies

Full reference	Reason for exclusion
<p>Buchanan, R., Chamberlain, P., Price, J.M., & Sprengelmeyer, P. (2013). Examining the equivalence of fidelity over two generations of KEEP implementation: a preliminary analysis. <i>Children and Youth Services Review</i>, 35, 188-193. DOI: 10.1016/j.chilyouth.2012.01.002</p>	<p>Criteria 4, 5 and 7. 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12. 7-the study comprised of an intervention group only.</p>
<p>Chamberlain, P., Roberts, R., Jones, H., Marsenich, L., Sosna, T., & Price, J.M. (2012). Three Collaborative Models for Scaling up Evidence-Based Practices. <i>Administration and Policy in Mental Health and Mental Health Services Research</i>, 39(4), 278-290. DOI:10.1007/s10488-011-0349-9</p>	<p>Criteria 1, 4, 5 and 7. 1-the paper looked at foster parent interventions other than KEEP. 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12. 7-the study comprised of an intervention group only.</p>
<p>Chamberlain, P., Wolf Feldman, S., Wulczyn, F., Saldana, L., & Forgatch, M. (2016). Implementation and evaluation of linked parenting models in a large urban welfare system. <i>Child Abuse and Neglect</i>, 53, 27-39. DOI: 10.1016/j.chiabu.2015.09.013</p>	<p>Criteria 1, 4, 5 and 7. 1-the paper looked at foster parent interventions other than KEEP. 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12. 7-the study comprised of an intervention group only.</p>
<p>Davidson-Arad, B., Englechin-Segal, D., & Wozner, Y. (2003). Short-term follow-ups of children at risk: comparison of the quality of life of children removed from home and children remaining at home. <i>Child Abuse and Neglect</i>, 27, 733-750. DOI: 10.1016/S0145-2134(03)00113-3.</p>	<p>Criteria 1, 2, 3, 4, 5, and 7 1-the paper looked at foster parent interventions other than KEEP. 2-the paper was not originally written in English. 3-the study was carried out outside the USA. 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12. 7-the study comprised of an intervention group only.</p>
<p>Goldhaber-Fiebert, J.D., Bailey, S.L., Hurlburt, M.S., Zhang, J.J., Snowden, L.R., Wulczyn, F., Landsverk, J., & Horwitz, S.M. (2012). Evaluation Child Welfare Policies with Decision Analytic Simulation Models. <i>Administration and Policy in Mental Health and Mental Health Services Research</i>, 39(6), 466-477. DOI: 10.1007/s10488-011-0370-z</p>	<p>Criteria 4, 5 and 7. 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12. 7-the study comprised of an intervention group only.</p>

Full reference	Reason for exclusion
<p>Greeno, E.J., Uretsky, M.C., Lee, B.R., Moore, J.E., Barth, R.P., & Shaw, T.V. (2016). Replication of the KEEP foster and kinship parent training program for youth with externalising behaviours. DOI: 10.1016/j.childyouth.2015.12.003</p>	<p>Criteria 7 7-the study comprised of an intervention group only.</p>
<p>Hurlburt, M.S., Chamberlain, P., DeGarmo, D., Zhang, J., & Price, J.M. (2010). Advancing prediction of foster placement disruption using Brief Behavioural Screening. <i>Child Abuse and Neglect</i>, 34, 917-926. DOI: 10.1016/j.chiabu.2010.07.003</p>	<p>Criteria 1, 4 and 5 1-the paper looked at foster parent interventions other than KEEP. 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12.</p>
<p>Lopez, M., del Valle, J.F., Montserrat, C., & Bravo, A. (2012). Factors associated with family reunification for children in foster care. <i>Child and Family Social Work</i>, 18, 226-236. DOI: 10.1111/j.1365-2206.2012.00847.x</p>	<p>Criteria 1, 2, 3, 4, 5, and 7 1-the paper looked at foster parent interventions other than KEEP. 2-the paper was not originally written in English. 3-the study was carried out outside the USA. 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12.</p>
<p>McMillen, C.J., Narendorf, S.C., Robinson, D., Havlicek, J., Fedoravicius, N., Bertram, J., & McNelly, D. (2015). Developing and piloting of a treatment foster care program for older youth with psychiatric problems. <i>Child and Adolescent Psychiatry and Mental Health</i>, 9(1), 23-36. DOI: 10.1186/s13034-015-0057-4</p>	<p>7-the study comprised of an intervention group only. Criteria 1, 2, 3, 4, 5, and 7 1-the paper looked at foster parent interventions other than KEEP. 2-the paper was not originally written in English. 3-the study was carried out outside the USA. 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12.</p>
<p>Price, J.M., Chamberlain, P., Landsverk, J., & Reid, J. (2009). KEEP foster parent training intervention: model description and effectiveness. <i>Child and Family Social Work</i>, 14(2), 233-242. DOI: 10.1111/j.1365-2206.2009.00627.x</p>	<p>7-the study comprised of an intervention group only. Criteria 4, 5 and 7 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12.</p>
<p>Price, J.M., Chamberlain, P., Landsverk, J., Reid, J.B., Leve, L.D., & Laurent, H. (2008). Effects of a foster parent training intervention on placement changes of children in foster care. <i>Child Maltreatment</i>, 13(1), 64-75. DOI: 10.1177/1077559507310612.</p>	<p>7-the study comprised of an intervention group only.</p>
<p>Price, J.M., Chamberlain, P., Landsverk, J., Reid, J.B., Leve, L.D., & Laurent, H. (2008). Effects of a foster parent training intervention on placement changes of children in foster care. <i>Child Maltreatment</i>, 13(1), 64-75. DOI: 10.1177/1077559507310612.</p>	<p>Criteria 4 4-the study did not look at behaviour change in children.</p>

Full reference	Reason for exclusion
<p>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. <i>Adoption and Fostering</i>, 40(3), 247-263. DOI: 10.1177/0308575916657956</p>	<p>Criteria 7 7-the study comprised of an intervention group only.</p>
<p>Salisbury, M.R., Roos, L.E., Horn, S.R., Peake, S.J., & Fisher, P.A. (2022). The effectiveness of KEEP for families of children with developmental delays: integrating FIND video coaching into parent management training: Oregon model- a randomized trial. <i>Prevention Science</i>, 23, 1029-1040. DOI: 10.1007/s11121-022-0134-w</p>	<p>Criteria 7 7-the study comprised of an intervention group only.</p>
<p>Tarren-Sweeney (2020). A narrative review of mental and relational health interventions for children in family based out of home care. <i>Journal of Family Therapy</i>, 43, 376-391. DOI: 10.1111/1467-6427.12341</p>	<p>Criteria 4, 5 and 7 4-the study did not look at behaviour change in children. 5-the children in the study were not aged between 4 and 12. 7-the study comprised of an intervention group only.</p>
<p>Uretsky, M.C., Lee, B.R., Greeno, E.J., & Barth, R.P. (2017). Trajectory of externalising child behaviours in a KEEP replication. <i>Research on Social Work Practice</i>, 27(3), 283-290. DOI: 10.1177/1049731515576546</p>	<p>Criteria 7 7-the study comprised of an intervention group only.</p>

Appendix C- Weight of Evidence A Example Checklist

Coding protocol- Gersten, R., Fuchs, L.S., Compton, D., Coyne, M., Greenwood, C., and Innocenti, M.S. (2005). Quality Indicators for Group Experimental and Quasi-Experimental Research in Special Education. *Exceptional Children*, 71(2), 149-164. DOI: 10.1177/001440290507100202

Study- Greeno et al., (2016)

Essential Quality Indicators

Quality indicators for describing participants

1. Was sufficient evidence provided to determine/confirm whether the participants demonstrated the disabilities or difficulties presented?
YES
2. Were appropriate procedures used to increase the likelihood that relevant characteristics of participants in the sample were comparable across conditions?
YES
3. Was sufficient information given characterizing the interventionists or teachers provided? Did it indicate whether they were comparable across conditions?
YES

Quality indicators for implementation of the intervention and description of comparison conditions

1. Was the intervention clearly described and specified?
YES
2. Was the fidelity of implementation described and assessed?
YES
3. Was the nature of services provided in comparison conditions described?
YES

Quality indicators for outcome measures

1. Were multiple measures used to provide an appropriate balance between measures closely aligned with the intervention and measures of generalized performance?
YES
2. Were outcomes for capturing the intervention's effect measured at appropriate times?
YES

Quality indicators for data analysis

1. 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?
YES
2. Did the research report include not only inferential statistics but also effect size calculations?
YES

Desirable quality indicators

1. 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%?
YES
2. 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?
NO
3. Were outcomes for capturing the interventions' effect measured beyond an immediate post-test?
YES
4. Was evidence of the criterion-related validity and construct validity of the measures provided?
NO
5. Did the research team assess not only surface features of fidelity implementation (e.g., number of minutes allocated to the intervention or teacher/interventionist following procedures specified) but also examine quality of implementation?
NO
6. Was any documentation of the nature of instruction or series provided in comparison conditions?
NO
7. Did the research report include actual audio or videotape excerpts that capture the nature of the intervention?
NO
8. Were the results presented in a clear coherent fashion?
YES

Appendix D- Weight of Evidence B

Criteria category	Criteria	Rationale
Participant allocation	<p>3. Random allocation of participants.</p> <p>2. No random allocation but participants in control and intervention groups recruited in different ways/ semi-random allocation (teams were allocated to condition).</p> <p>1. No random allocation and same recruitment methods used.</p>	<p>Risk of bias is reduced when participants are randomly assigned to each group. Different recruitment methods for participant groups may result in participants with more challenging behaviours in the KEEP intervention group, as they were referred to the intervention by a social worker, whereas participants in the control group were approached by the researchers via a database of kinship/foster carers, meaning the children may not have shown as many challenging behaviours.</p>
Timing of control group	<p>3. Control group is running in parallel to the intervention group.</p> <p>2. Control group information is from previously collected data.</p>	<p>A control group running alongside the intervention group allows more direct comparisons to be made, as the environment (political, social) is more similar.</p>
Time between end of intervention and post-test data collection	<p>1. No control group</p> <p>3. More than 2 months after the intervention finished.</p> <p>2. Less than 2 months after the intervention finished.</p> <p>1. Immediately after the intervention finished.</p>	<p>As this is a behaviour intervention, and one that the skills can be continued after the intervention time has finished, the intervention can be considered more effective if its effects have been seen and measured after a longer period of time.</p>

Criteria category	Greeno et al (2016)	Price et al (2018)	Price et al (2012)	Price et al (2015)	Leathers et al (2011)	Chamberlain et al (2008)
Participant allocation	2	3	3	3	3	3
Timing of control group	3	3	2	3	3	3
Time between the end of intervention and post-test data collection	3	2	1	2	3	2
WoE B rating	2.7	2.7	2	2.7	3	2.7

Appendix D- Weight of Evidence C

Criteria category	Criteria	Rationale
Intervention	<ol style="list-style-type: none"> 3. KEEP intervention with no adaptation 2. KEEP with some adaptations (explanation given for why). 1.KEEP with adaptations (no explanation) 	The focus of this study was to look at the effectiveness of KEEP intervention- any adaptations should have a rationale for why they were made.
Focus of the study	<ol style="list-style-type: none"> 3. The main focus of the study was the change in behaviour of the children. 2. The study looked at the change in behaviour of the children as well as other factors (e.g., parent stress). 1. Other factors were the main focus of the study, and child behaviour change was a secondary focus. 	The current study was looking at how effective KEEP is at reducing challenging/externalising child behaviours; if this was a main focus of the study it is likely to have been measured and considered well.
Measures of child behaviour	<ol style="list-style-type: none"> 3. Data was collected often (once a week) on child behaviour. 2. Data on child behaviours was collected at pre, during and post intervention points. 1. Data on child behaviour was only collected at pre and post intervention. 	Measuring at multiple points during the study allows for a greater idea of when the intervention becomes effective, and how this is seen.
Child behaviour at the start of the study	<ol style="list-style-type: none"> 3. The children had high levels of challenging behaviour (clearly reported). 2. Children showed some challenging behaviours at the start of the study (mentioned but not clear to what extent). 1. The behaviour of the children pre intervention was not stated. 	In order to see whether the intervention is effective in reducing externalising/challenging behaviours there should be clear pre-intervention measures of child behaviour; if a child does not show these behaviours pre-intervention then there is likely to be little difference post-intervention.

Criteria Category	Greeno et al (2016)	Price et al (2019)	Price et al (2012)	Price et al (2015)	Leathers et al (2011)	Chamberlain et al (2008)
Intervention	3	3	3	3	2	3
Focus of the study	2	3	3	2	2	2
Measures of child behaviour	3	1	3	3	2	3
Child behaviour at the start of the study	3	3	3	3	3	3
WoE C rating	2.75	2.5	3	2.75	2.25	2.75