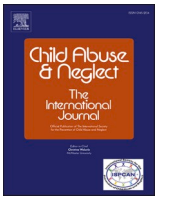
Child Abuse & Neglect 127 (2022) 105585

Contents lists available at ScienceDirect

Child Abuse & Neglect

journal homepage: www.elsevier.com/locate/chiabuneg



The expected and the unexpected in recovery and development after abuse and neglect: The role of early foster carer commitment on young children's symptoms of attachment disorders and mental health problems over time

Fiona Turner [a,*], Enrico Venturini [b], Gary Kainth [a], Karen Crawford [a], Rory O'Connor [a], Matteo Balestrieri [b], Sara MacDonald [a], Helen Minnis [a]

[a] Institute of Health & Wellbeing, University of Glasgow, Glasgow, UK
[b] University of Udine, Udine, Italy

ARTICLE INFO

Keywords:
Foster care
Commitment
Abuse
Neglect
Attachment disorders
Mental health

ABSTRACT

Background: Whilst we know that foster care is better than institutional care for abused and neglected children, we know less about the specific qualities of foster care that are important for their development and recovery from maltreatment effects.
Objective: This is the first study to investigate the effects of foster carer commitment on symptoms of Attachment Disorders (AD) and mental health problems in young children post-maltreatment.
Participants & setting: 144 children, age 0–5, recently accommodated into foster care as part of an ongoing Randomised Controlled Trial.
Methods: Children were assessed using the Disturbances of Attachment Interview and the Strengths and Difficulties Questionnaire, then followed up 15 months and 2.5 years thereafter. Commitment of the foster carer was measured by 'This Is My Baby' interview. Multiple regression was used to analyse the data.
Results: Higher initial foster carer commitment, measured shortly after entry to care, was associated with a reduction in Reactive Attachment Disorder symptoms 15 months after placement, with a modest (non-significant) association persisting 2.5 years later. Initial commitment was not associated with symptoms of Disinhibited Social Engagement Disorder at any follow-up time point, nor with symptoms of mental health problems at 15 months. However, higher initial commitment was unexpectedly associated with higher mental health symptom scores at 2.5 years post-accommodation.
Conclusions: This study highlights the complex and non-linear development of children in committed foster care, underscoring the need to examine multiple time-points and to consider symptoms of Attachment Disorders separately from those of other mental health problems.

* Corresponding author at: Academic CAMHS, Institute of Health and Wellbeing, College of Medical, Veterinary & Life Sciences, University of Glasgow, 1 Horselethill Road, Glasgow G12 9LX, Scotland, UK.

E-mail addresses: Fiona.turner@glasgow.ac.uk (F. Turner), Gary.kainth@glasgow.ac.uk (G. Kainth), Karen.crawford@glasgow.ac.uk (K. Crawford), Rory.oconnor@glasgow.ac.uk (R. O'Connor), Sara.macdonald@glasgow.ac.uk (S. MacDonald), Helen.Minnis@glasgow.ac.uk (H. Minnis).

https://doi.org/10.1016/j.chiabu.2022.105585
Received 12 November 2021; Received in revised form 24 February 2022; Accepted 2 March 2022
Available online 10 March 2022

1. Introduction

Children who have suffered abuse and neglect have varied maltreatment histories, care pathways and placement outcomes. Common amongst the diversity, however, is that most children requiring substitute care in the UK will be placed in foster care - at least whilst difficult decisions are made about their future. Comparatively, we know more about maltreatment effects than we do about how to promote children's development post-maltreatment; for example, impacts on the developing brain (Teicher, Samson, Anderson, & Ohashi, 2016), alterations of physiology (Young-Southward, Svelnys, Gajwani, Bosquet Enlow, & Minnis, 2019) and negative health consequences across the lifespan (Hughes et al., 2017).

Even within foster care, there is the potential for children to be faced with new traumas and impacts on mental health, including those associated with foster care placement moves and repeated disruption of attachments (Engler, Sarpong, Van Horne, Greeley, & Keefe, 2022; Font, Sattler, & Gershoff, 2018; Hillen & Gafson, 2015). There is a lack of attention given to what foster carers can do to buffer against the effects of these detrimental experiences in order to promote recovery and resilience (Lang et al., 2020; Meetoo, Cameron, Clark, & Jackson, 2020; Steenbakkers, Van Der Steen, & Grietens, 2018).

The lack of a positive psychology focus – the scientific study of what makes people thrive (Cherry, 2021) – is particularly problematic when we consider the huge shifts from institutional care to foster care over the twentieth century (Dozier, Zeanah, Wallin, & Shauffer, 2012; Petrowski, Cappa, & Gross, 2017), coupled with a known variability in foster care quality (Meakings & Selwyn, 2016). Whilst it has been well established that foster care is better for young children's outcomes than institutionalized care (Smyke, Zeanah, Fox, Nelson, & Guthrie, 2010; Wade, Fox, Zeanah, & Nelson, 2018), less is understood about what constitutes 'good quality' caregiving when the research lens is focused on foster care specifically, and even less when it is further narrowed onto infants.

What we do know is that infancy is unique because it is the most changeable and receptive period of human development, during which time the quality of the child-caregiver relationship is the foundation to socioemotional development. Young children are entirely dependent on, and mindful of, the adult who is attending to them in the present moment, whereas older children can maintain attachments to their biological parents, even with infrequent contact (Smyke & Breidenstine, 2018; Zeanah, Gunnar, McCall, Kreppner, & Fox, 2011; Zeanah & Humphreys, 2018; Zeanah, Shauffer, & Dozier, 2011). It therefore follows that abuse, neglect and disruption of attachments in early childhood have the most detrimental effects, but there is also opportunity for positive development in foster care (Tarren-Sweeney, 2014). This is particularly true if placements are early (Wade et al., 2018) and stable (Rock, Michelson, Thomson, & Day, 2015; Rubin, O'Reilly, Luan, & Localio, 2007). Around half of children who have suffered maltreatment go on to show improving or resilient psychosocial functioning during childhood and adolescence (Haslam & Taylor, 2022).

Foster care for young children must be developmentally informed (Zeanah et al., 2011b) and draw on what we know about the central importance of the primary caregiver for infant mental health (Chinitz, Guzman, Amstutz, Kohchi, & Alkon, 2017). Recommendations exist for meeting young children's needs in foster care (Dozier, Zeanah, & Bernard, 2013; Zeanah et al., 2011b), and research is emerging about the complexity of the maltreatment-related mental health problems that carers are faced with (Minnis et al., 2013; Tarren-Sweeney, 2008). Yet, a 'theory to practice' gap prevails; the needs of the youngest children in care still often go overlooked (Chinitz et al., 2017).

Although it is accepted that enhanced caregiving in foster care mitigates against the abuse and neglect that has gone before (Wade, Zeanah, & Fox, 2019), terminology varies when describing the ingredients of this endeavor; e.g., "nurturing placements" "loving care" and "attachment relationships." Mary Dozier - a psychologist/researcher with an expertise in foster care of young children - argues that it is more specifically the *commitment* of the foster carer that has been found to be particularly important for the child, defined as the caregiver's *motivation to invest in an enduring relationship* with the child, regardless of how long the placement lasts (Dozier & Lindhiem, 2006). The central question asked in Dozier's measure of commitment ("This is my baby" interview) (Bates & Dozier, 2005, p7) is: "Is the [carer] emotionally invested in this child and in being his or her parent? Or, is the [carer] indifferent to whether s/he continues to parent the child?" (Dozier, Grasso, Lindhiem, & Lewis, 2007).

Optimum commitment has been associated with fewer reported behavioural problems in children (Lindhiem & Dozier, 2007) and with carer's expressions of delight in the relationship, which may be one way in which commitment is communicated to the child (Bernard & Dozier, 2011). These positive effects predict the stability of the relationship, with higher levels of commitment being associated with a greater likelihood of a long-term placement or adoption (Dozier & Lindhiem, 2006).

In comparison with group-based care, foster care has been found to elicit better commitment (Lo et al., 2015). Yet, whilst commitment is relatively stable in biological parents, it has been found to be more variable in foster care; some carers regard foster children as their own (commitment) whilst others express more of an indifference regarding the relationship (Bernard & Dozier, 2011). Predictors of commitment level include the age at which the child is placed (younger age of the child predicts higher commitment) and the number of children that the carer has previously looked after (lower numbers predict higher commitment) (Dozier & Lindhiem, 2006).

Lower commitment is hypothesised to be linked to the emotional challenge of committing to a child who is likely to leave and repeated experiences of loss (Bernard & Dozier, 2011), often termed as emotional burnout or compassion fatigue (Hannah & Woolgar, 2018). This may explain why carers who have looked after the highest number of children over the years have been found to have the lowest commitment (Dozier & Lindhiem, 2006). Systemic factors, related to the design of child welfare systems, can also act as barriers to commitment that we are reminded to be mindful of (Zeanah & Humphreys, 2018). As is the case with attachment, however, infants are biologically prepared to expect a committed carer, regardless of circumstance or system (Bernard & Dozier, 2011). Foster care for young children therefore needs to remain resiliently rooted in a child-centred approach despite the multi-factorial influences that might make commitment difficult (Zeanah et al., 2011b).

A lack of commitment in a foster carer is particularly problematic when we consider the complexity of caring for young children

who have suffered abuse and/or neglect, leading to potential effects on the carer (e.g., secondary traumatic stress and emotional burnout; Whitt-Woosley, Sprang, & Eslinger, 2020) and on both the carer and child (e.g., placement breakdown; Eggerston, 2008). Mental health problems related to maltreatment are common (Lehmann, Havik, Havik, & Heiervang, 2013; Minnis, Everett, Pelosi, Dunn, & Knapp, 2006) and a recent systematic review found that children in foster care experience a broad range of mental health disorders, much higher than those in the general population (Engler et al., 2022). There is also a higher rate of neurodevelopmental problems in children who have been maltreated, such as autism and ADHD. These are highly heritable disorders that are not thought to be caused by maltreatment, although maltreatment may exacerbate symptoms enough to take them from a subclinical presentation to one that fits diagnostic criteria (Dinkler et al., 2017).

This complex interplay (Minnis, 2013) can require a degree of input that goes beyond the realm of 'normal parenting,' requiring training and intervention that can have positive effects on child outcomes (Dozier, 2019; Dozier et al., 2013; Valadez, Tottenham, Tabachnick, & Dozier, 2020). Dozier (2003) describes how an effective foster carer may have to act as a therapist, acquiring skills that go beyond naturally derived sensitive parenting to gently challenge a child to eventually accept nurture.

Caring for young children with Attachment Disorder (AD) symptoms, amongst the complexity of maltreatment effects, can be particularly challenging because they disturb multiple domains of social functioning (Guyon-Harris, Humphreys, Fox, Nelson, & Zeanah, 2019). AD symptoms describe a constellation of behaviours arising from the maltreatment in infancy, which equate to marked abnormalities under the umbrella of 'social relatedness' – distinct from attachment types (Minnis et al., 2009) and from other common emotional and behavioural problems in childhood (Minnis et al., 2007; Seim, Jozefiak, & Wichstrøm, 2022). Reactive Attachment Disorder (RAD) and Disinhibited Social Engagement Disorder (DSED) were classified as two discrete subtypes of AD from the findings of two seminal empirical studies of children in extremely deprived institutional contexts: The Bucharest Early Intervention Project (Smyke, Dumitrescu, & Zeanah, 2002; Zeanah, Humphreys, Fox, & Nelson, 2017) and The English and Romanian Adoptees Study (O'Connor, Bredenkamp, & Rutter, 1999; Sonuga-Barke et al., 2017). Since then, they have continued to show strong construct validity as distinct disorders (Gleason et al., 2011; Lehmann et al., 2020; Seim et al., 2022).

With RAD, the child displays disordered behaviour in terms of comfort-seeking from a caregiver (minimal comfort-seeking and minimal responsiveness to comfort) and at least two behaviours within the domain of social and emotional disturbances: minimal social/emotional responsiveness, limited positive affect and/or unexplained or sudden irritability/sadness/fearfulness (Lehmann et al., 2020; Minnis et al., 2013; Zeanah & Gleason, 2015). Whereas RAD can be described as an *absence* of attachment behaviour in terms of turning to a caregiver for help (and therefore particularly evident in situations where the child is distressed), DSED represents an *indiscriminate sociability* of the child, which manifests as socially inappropriate disinhibition and is most obvious in interactions with unfamiliar adults; that is, a lack of reticence around unfamiliar adults; being too physically or verbally close to such adults; not checking back with their caregiver in an unfamiliar setting; and/or willingness to go off with an unfamiliar adult. Children with two or more of these behaviours, who have experienced maltreatment, and where their behaviour is not limited to impulsivity (as might be seen in neurodevelopmental conditions, e.g., ADHD), meet the criteria for a diagnosis of DSED (Lehmann et al., 2020). Guyon-Harris et al. (2019) found that both RAD and DSED continued to affect social functioning at age 12; the everyday manifestations of which differed depending on whether symptoms of RAD or DSED were present.

Follow-up of children from the Bucharest Early Intervention Project, which was the first ever Randomised Controlled Trial of foster care as an alternative to institutional care, showed improvements in AD symptoms in foster care (Smyke et al., 2012) that were sustained through until adolescence (Guyon-Harris et al., 2019). RAD symptoms improved rapidly in foster care whilst DSED symptoms were more stable (Kennedy et al., 2017; Sonuga-Barke et al., 2017) with differences in children's symptom trajectories over time (Guyon-Harris, Humphreys, Fox, Nelson, & Zeanah, 2018; Minnis, 2018). Gleason et al. (2011) found that there was no association between foster care quality and DSED symptoms until later stages (age 42 monthes), whereas RAD was associated with foster care quality right from the start of their study, continuing to 30 months but not beyond.

Despite these intriguing findings regarding AD symptom trajectories in foster care, none of these studies have examined the specific role that foster carer commitment might play. An earlier study involving a smaller sample of this cohort of children found reductions in RAD after approximately one year in foster care, but also without any measure of commitment (Bruce et al., 2019).

Furthermore, no studies have looked at the potential effect of commitment specifically on ADs. Even although symptoms of AD can be inter-related and associated with other mental health problems and neurodevelopmental problems (Gleason et al., 2011; Kennedy et al., 2017; Kocovska et al., 2012; Minnis, 2013; Moran, McDonald, Jackson, Turnbull, & Minnis, 2017), ADs have shown construct validity in being distinct from other mental health problems (Gleason et al., 2011; Lehmann, Breivik, Heiervang, Havik, & Havik, 2016; O'Connor et al., 1999).

1.1. Aims

Dozier's findings on the positive impacts of commitment on behaviour has prompted us to question whether similar effects could be seen on AD symptoms as we predict that a high level of commitment is necessary to care for the complexity of maltreated young children's needs, and to enact some of the skills required to meet the most challenging of needs. Knowing that young children's recovery also takes time (possibly longer than Lindhiem & Dozier's 11-month follow-up), and implicates other mental health problems, we have therefore examined the impact of the carer's commitment in the first few months of foster placement (referred to hereon in as 'post-accommodation') on children over 2.5 years in relation to both AD symptoms and to emotional and behavioural symptoms of mental health problems. Since young children's needs are immediate and 'in the moment,' we argue that the foster carer's level of commitment early in placement could enable their recovery from both types of maltreatment effects, even if they do not remain with that carer. Specifically, we hypothesise that:

1) Commitment of the foster carer at Time 1 (approximately 2 months post-accommodation) is associated with fewer AD symptoms in the child at Time 3 (two and a half years post-accommodation).
2) Commitment of the foster carer at Time 1 (approximately 2 months post-accommodation) is associated with fewer emotional and behavioural symptoms of mental health problems in the child at Time 3 (two and a half years post-accommodation).

Our findings regarding these initial hypotheses also prompted further exploratory analyses, the aims of which we describe in the results Section 3.

2. Methods

2.1. Sample characteristics

2.1.1. Children

Our sample consisted of 144 children (56.3% male; 43.7% female) who had recently been placed in foster care due to suspected maltreatment and who took part in a Randomised Controlled Trial called 'BeST$^{?'}$ (Crawford et al., 2022). The trial aims to test an infant mental health approach, compared to social work 'services as usual,' with the main outcome measures being child mental health and time to permanent placement (Turner-Halliday et al., 2017). The parents of all children under age 5, coming into an episode of foster care in Glasgow, Scotland, were informed about the study and approximately 60% consented to their child being randomised to either arm of the trial and their child taking part in research assessments at three time points: Time 1 (T1): approximately 4–14 weeks post-accommodation (average for this dataset is 69.7 days); Time 2 (T2) approximately 15 months post-accommodation and Time 3 (T3): approximately 2.5 years post-accommodation. Ethical approval was obtained from the West of Scotland Research ethics committee.

The average age of entry to care was 2 years and 4 months, with the youngest child being a few weeks old and the eldest being 5. The age of children when they were assessed at baseline (T1) was on average 31.3 months (SD 17.4); at T2 45.2 months (SD 17.9); at T3 62.4 months (SD 17.6). The vast majority of the children were white (81.8%), with the others being Black or Black British (4.9%), Asian or Asian British (5.6%), Chinese or other ethnic group (0.7%), Mixed (2.1%). For 7 children (4.9%) the ethnicity was not recorded. Prior to entering foster care, 86.1% of our sample came from the most deprived areas of Glasgow, as measured by Scottish Index of Multiple Deprivation (SIMD) versions 2012 and 2016 (Public Health Scotland, 2022) 59.7% of the sample came into care as solo children whereas 40.3% had siblings also in care.

2.1.2. Placements in foster care

Most of the children were placed in care from their parental home (77.6%), others came into care from hospital (15%), kinship care (6.8%), and one child (0.7%) from a charity for women who have experienced domestic violence and their children. 52.1% of children were in their first foster care placement at time 1 assessment, whereas 34.7% were on their second placement, 11.8% on a third, 0.7% on a fourth and 0.7% on a fifth placement. Between time 1 and time 3 assessment, 34% of children had remained with the same foster carer. The majority had moved to either a different foster carer, a kinship carer, back home to parents or onto an adoptive placement: 36.1% had moved placement once, 6.9% twice and 3.5% thrice.

2.1.3. Maltreatment

Reasons for being placed in foster care (from social work case records) included neglect, domestic violence, parental substance abuse, physical abuse, emotional abuse, sexual abuse, parental mental health problems, an inadequate home environment or the family not engaging with social work. Each child had at least one reason for entering care (13.2%); 50% had two reasons and 36.8% had three or more. We have therefore not broken down the percentages in each maltreatment category due to the same child usually spanning more than one maltreatment category (as we have shown before in this cohort: Glass, Gajwani, & Turner-Halliday, 2016) however the most common reasons for entering care were neglect, domestic violence, substance abuse (including alcohol) and physical abuse. 56.3% of children entered care on a supervision (compulsory court) order and the rest due to a voluntary order.

2.1.4. Foster carers

There was a wide range of fostering experience amongst the sample. 18.3% of foster carers had been foster caring for less than a year, 16.9% for 1–3 years, 18.3% for 3–6 years, 16.9% for 6–10 years, 14.8% for 10–15 years and 14.8% for over 15 years. 14.4% had cared for 1–2 children, 15.1% 3–4 children, 23% 5–9 children, 19.4% 10–20 children and 28.1% had cared for more than 20 children over time. The majority of carers (73%) had at least one biological or adoptive child living with them at the time of the study and most were fostering other children (86.6%) in addition to the child in our sample.

2.2. Inclusion/exclusion criteria

The target population for this study includes all 311 children participating in BeST$^{?}$ until end of July 2019. The inclusion/exclusion criteria for the overall trial were all children between the ages of 0 and 5 years coming into an episode of foster care in Glasgow, Scotland. The only exclusion criterion for the overall trial was that the parents were unable to potentially engage in a parenting capacity assessment for reason of death or long-term imprisonment. The only additional exclusion criteria for this specific study were incompletion of the measure of commitment at T1, not being in a foster placement at baseline and substantial missing data (Fig. 1).

The final sample for this study was 144 children. This cohort was found to be very similar to the overall sample of 311 children;

56.3% male in our cohort compared to 53% male in the 311, and with an average age of 31.3 months (SD 17.4) at T1 assessment compared to 28.08 months (SD 18.72) in the overall sample. The children were also largely representative of the general population of looked after children in Glasgow. In 2020, 54% of looked after children under the age of 5 were male (compared to 56.3% in this study) and 9% came from minority ethnic groups (compared to 13% in this study) (Scottish Government, 2020).

For the purpose of further analyses (aims outlined in the results Section 3), we also examined a sub-sample of children from the overall cohort who had stayed with the same foster carer from T1 assessment onwards *(N = 49)*. The descriptive statistics were similar in age, gender and SIMD to the overall cohort (Supplementary Table 1); therefore, we do not present separate demographics for this group.

2.3. Measures

2.3.1. Commitment

The 'This is My Baby' interview (Bates & Dozier, 2005, p3) is a semi-structured interview used to measure foster carer commitment at T1, which is one of the three scales included in the measure. The interview consists of 9 standardised questions, which tap into the key component of commitment – a willingness for enduring emotional investment – with questions like "what do you want for the child in the future?" and "how much would you miss the child if he/she had to leave?" Prior research has provided evidence of the measure's predictive validity and test—retest reliability (Bernard & Dozier, 2011; Dozier & Lindhiem, 2006; Lindhiem & Dozier, 2007) and good interrater reliability has been established for this measure in prior studies (e.g., Bick, Dozier, Bernard, Grasso, & Simons, 2013).

After training, in which all raters achieved good reliability, the recorded interviews were reviewed and rated by the interviewing researcher as soon as possible after the interview took place. In addition, 20% of interviews are chosen at random to be rated by a second rater. The second rating was compared to the original rating, and where scores differed by more than 1 point for each of the 3 subsections of the instrument, both raters conferred and came to agreement on the scores. Where there was continuing disagreement, there was a rating conference.

2.3.2. SDQ

The Strengths and Difficulties Questionnaire (SDQ) is a brief emotional and behavioural screening questionnaire for assessing children and young people's mental health. This was completed by foster carers at each of the three assessment times. The SDQ has 25 items which comprise 5 scales of 5 items each. The scales include 1) emotional symptoms, 2) conduct problems, 3) hyperactivity/inattention, 4) peer relationships, 5) prosocial behaviour. The scoring gives a number for each subscale, plus an overall Total Difficulties Score (that does not include prosocial scale). The measure has been shown to have good validity and reliability (Goodman, 2001).

2.3.3. DAI

The Disturbances Of Attachment Interview designed by the Bucharest Early Intervention group (DAI) (Smyke et al., 2002; Smyke & Zeanah, 1999) was administered to the primary caregiver at the three assessment points to identify behavioural symptoms of clinically disturbed or disordered attachment in children. It includes 12 items, each of which is explored through a series of probes. Items 1 to 5 of the interview assess signs of RAD with scores ranging from 0 to 10. Items 1, 6, 7 and 8 assess signs of DSED with scores ranging from 0 to 8. Although few instruments explore RAD and DSED in exact accordance with current DSM 5 criteria, previous studies have shown that the DAI has strong validity and reliability, and it has identified RAD and DSED symptoms in noninstitutionalized maltreated

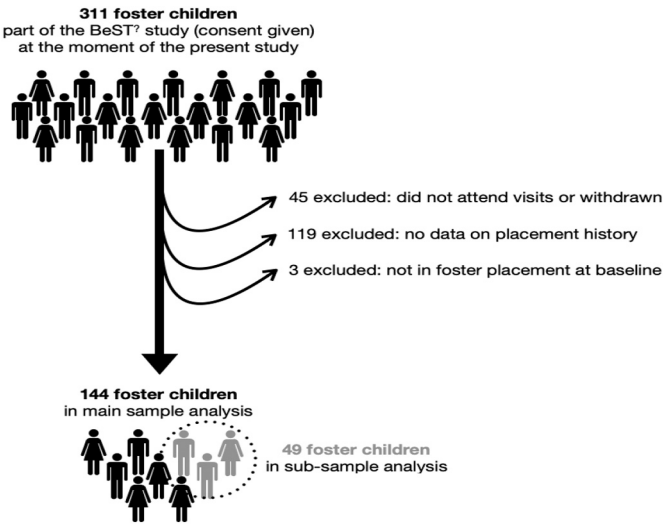


Fig. 1. Sample after inclusion/exclusion criteria applied.

preschool foster children (Lehmann et al., 2020).

Trained interviewers probed the respondent to acquire enough information on the child's behaviour so that during the coding phase they could rate each item with "0" if the symptom was not present, "1" if there was some evidence for the symptom and "2" if the symptom was clearly present. After training, in which all raters achieved good reliability, interrater reliability of interview ratings was assessed on a randomly selected subset of 20% of the rated items. If discrepancies in scoring were greater than 20% (i.e., greater than 1.5 for the sum scores of DAI), these were reassessed during dedicated meetings and a conference score rate was then agreed.

2.3.4. Placement disruptions

Participants' foster care placements were counted before the first assessment took place and in the period between T1 and T3 to investigate whether placement disruption confounded the associations being measured. From entry in care to T1, there were 235 placement disruptions (nearly 1.6 per child); between T1 and T3, there were 96 placements disruptions.

2.4. Data availability

The entire cohort attended T1, but not all measures were completed as some children were too young for specific measures to be valid (e.g., SDQ is only valid from age 2 years). There were additional missing data at follow-up if participants did not attend a specific research appointment or had dropped out of the study. Missing data appeared to be missing at random since the 144 participants with full data were demographically similar to the full sample, however there may be unknown differences that we have been unable to account for.

2.5. Procedure and data analysis

A formal data access was approved by social work colleagues and anonymised information was extracted. Placement data was obtained from social work (CareFirst database) and the researchers were blind to the service the child was randomised to.

The interviews were administered in a research unit within the local children's hospital or, occasionally, by phone. All of the interviews were audio-recorded for rating.

Analyses were conducted in SPSS, Version 24.0. Because the distributions were skewed, non-parametric Spearman's rank-order correlations were used to explore the strength of the associations between predictors, outcome variables and demographic information. These preliminary analyses were used to select variables for multiple regression analysis. No transformation of variables was necessary as regression assumptions were met.

Multiple regression analyses were performed to investigate how baseline was associated with study outcomes. After univariate models examining the relationship between variables of interest, forward stepwise selection was performed, adding age, sex and other potential confounders into the model. Co-variates were considered for inclusion in multiple regression only if related (at p-value of <0.15) to both the predictor and the outcome variable and only if measured at or prior to baseline to ensure they could not have affected the baseline commitment score (supplementary Table 2). At each step the variables were added to the model one by one and β-coefficients, p-values and adjusted R^2 were considered, in order to arrive at the most informative (best fit) model. Regression analysis was also performed in the sub sample of children ($n = 49$) that remained with the same foster carer during the study.

3. Results

3.1. Hypothesis 1: commitment and AD symptoms

Our first hypothesis was that *the commitment of the foster carer at Time 1 (approximately 2 months post-accommodation) would be associated with fewer RAD or DSED symptoms in the child at Time 3 (two and a half years post-accommodation)*. Contrary to our hypothesis, Table 1 shows that commitment at T1 was not associated with RAD or DSED at T3. There was a modest association (non-significant) between commitment at T1 and RAD at T3 *($\beta = 0.248$; $p = 0.064$):* when age of entry in care was taken into account - 16% of the variance in RAD score was explained by commitment (*adjusted $R^2 = 0.161$*) (Table 2).

Table 1
Commitment at T1 and RAD/DSED symptoms (DAI measure) at T3

	Unadjusted regression coefficient	P (95% CI) Unadjusted analysis	Adjusted regression coefficient	P (95% CI) Adjusted analysis
Commitment at time 1 and RAD symptoms at Time 3	0.91	0.386 (−0.180; 0.46)	0.248[a]	0.064 (−0.024; 0.792)
Commitment at time 1 and DSED symptoms at Time 3	0.037	0.726 (−0.367; 0.525)	0.155[b]	0.237 (−0.226; 0.894)

[a] Adjusted for conduct problems (SDQ) at Time 1 and age at entry to care.
[b] Adjusted for age at entry into care.

3.2. Hypothesis 2: commitment and emotional/behavioural symptoms

Our second hypothesis was that the commitment of the foster carer at time 1 (approximately 2 months post-accommodation) would be associated with fewer emotional and behavioural symptoms of mental health problems in the child at Time 3 (two and a half years post-accommodation). The association, however, contradicted our hypothesis; that is, higher commitment at T1 was associated with higher (rather than lower) emotional and behavioural symptoms in the child at T3. Whilst the simple linear regression was statistically significant ($\beta = 0.201$; $p = 0.47$), multiple regression analysis showed that there was a modest association (not reaching statistical significance) when Care Order was taken into account ($\beta = 0.171$; $p = 0.094$). When age of entry in care was taken into account, −4.5% of the variance in RAD score was explained by commitment (adjusted $R^2 = 0.045$).

3.3. Additional exploratory analyses

Due to the surprising results, which contradicted hypothesis 2, we conducted a second analysis looking at what happens to the child's AD and emotional/behavioural symptoms over the course of the two and a half years of the study (i.e., the dependent variables at T1, T2 and T3).

We also wondered whether there could be a difference in the relationship between the variables with the children who had stayed with the same carer over the two and a half years, due to the potential of this subsample having less disruptions of attachment than children who have moved placement (including moving to a permanent placement or returned to birth parents). Our main questions were:

1) What is the association between commitment and RAD, DSED and SDQ scores at T1, T2 and T3?
2) Is there a significant association between commitment and RAD, DSED and SDQ scores at T1 and T2?
3) Does commitment have a stronger or weaker association with RAD, DSED and/or SDQ scores in children who remain with the same carer over the 2.5 years? (analysis of this subsample of children).

3.4. Questions 1–2: what happens over time?

Graph 1 shows the β scores (rates of change) of 9 different univariate regression analyses that consider commitment at T1 and the three dependent variables (mental health, DAI – RAD and DAI – DSED) across the three timepoints.

3.5. Commitment at T1 and RAD/DSED at T1–3

Commitment at T1 was significantly associated with both RAD ($\beta = \mathbf{-0.294}$, $p = \mathbf{0.001}$) and DSED symptoms ($\beta = \mathbf{-0.188}$, $p = \mathbf{0.042}$) at T1. At T2, commitment at T1 was associated with RAD ($\beta = \mathbf{-0.190}$, $p = \mathbf{0.035}$) and DSED ($\beta = -0.152$, $p = 0.092$), although the association with DSED did not reach statistical significance. By T3 (as already reported) there was no statistically significant association between T1 commitment and either RAD ($\beta = 0.248$, $p = 0.064$) or DSED ($\beta = 0.155$, $p = 0.237$).

3.6. Commitment at T1 and emotional/behavioural symptoms T1-T3

The association between commitment at T1 and SDQ was not significant at either T1 ($\beta = -0.132$, $p = 0.228$) or T2 ($\beta = 0.024$, $p = 0.812$). However, as already reported, there was a significant association between commitment at T1 and higher emotional/behavioural symptom scores at T3 via simple linear regression ($\beta = 0.201$, $p = 0.47$) but which became modest (non-significant) via multiple regression ($\beta = 0.171$, $p = 0.094$).

3.7. Question 3: subsample of children who stayed with the same carer over the 2.5 years

We conducted the same analyses for the subsample of 49 children who remained with the same carer over the entire 2.5 years and the findings were broadly similar (see supplementary Graph 2).

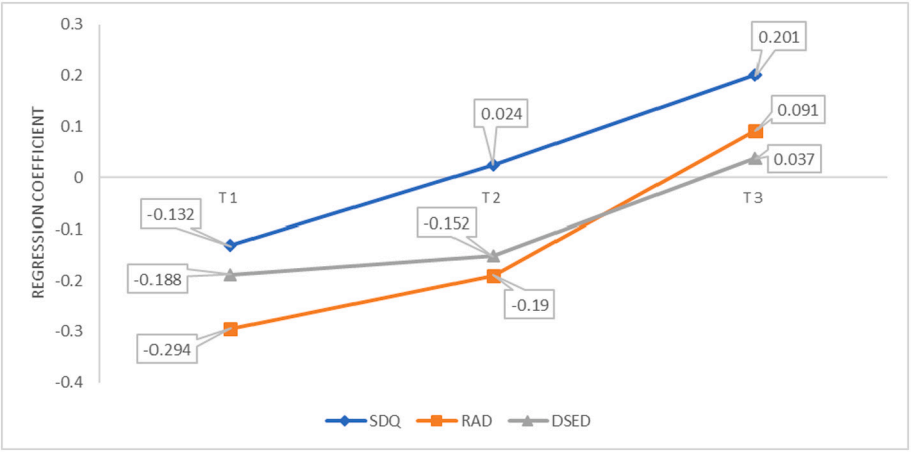
4. Discussion

The findings of this study indicate that higher commitment of the foster carer early into a child's initial placement (approximately 2

Table 2
Commitment at T1 and emotional/behavioural symptoms (SDQ measure) at T3.

	Unadjusted regression coefficient	P (95% CI) Unadjusted analysis	Adjusted regression coefficient	P (95% CI) Adjusted analysis
Commitment at Time 1 and emotional/behavioural symptoms at Time 3	0.201	0.47 (0.022; 3.735)	0.171[a]	0.094 (−0.276; 3.478)

[a] Adjusted for Care Order at Time 1.



Graph 1. Effects of commitment (T1) on SDQ, RAD and DSED scores (T1, T2, T3)
*significant at 10% level; **significant at 5% level.

months post-accommodation: PA) was associated with lower symptoms of RAD and DSED at this same timepoint. The reduction of RAD symptoms was still associated with higher commitment 15 months PA, with a relationship still evident at 2.5 years PA (although not quite reaching statistical significance by that time.) These associations were found regardless of whether the children stayed with their initial carer or were placed elsewhere. DSED was not associated with higher commitment by either follow-up timepoint and there was a surprising deterioration found in mental health symptoms by 2.5 years PA amongst the children with the most committed carers. We suggest processes by which this might happen, firstly looking separately at RAD/DSED, then symptoms of mental health problems, and finally considering the overall findings in terms of future research:

4.1. Attachment disorder symptoms

At our first measurement time-point, approximately 2 months PA, there was a significant association between commitment and the child's AD symptoms; that is, the higher the commitment, the fewer symptoms of AD symptoms were reported. Although we cannot be certain about the direction of causality, it is possible that RAD and DSED may be very quickly affected by higher carer commitment. In the Bucharest Early Intervention Project (although not involving a measure of commitment) RAD diminished rapidly when children were placed in foster care (Smyke et al., 2012) and we have previously found reductions in RAD over the first year of foster care with this cohort (Bruce et al., 2019.) Foster carers involved in the assessment of the children in our study have also reported very quick improvements in the child-carer relationship early in placement (Pritchett et al., 2016). Until now, however, the role of commitment in recovery from ADs has not been examined.

By 15 months PA, symptoms of RAD were still significantly lower in children whose foster carers showed higher commitment, but there was no association with DSED. Comparison with other studies is difficult because they either measure commitment but not AD, or AD but not commitment. In this first category, our findings show similarity in recovery timescale to Lindhiem and Dozier (2007) who found that higher commitment led to a reduction in behavioural symptoms of mental health problems by 11 months PA. In the latter category, our findings, again, resonate with the pattern of rapid reduction in RAD symptoms over the first year, but a slower reduction in DSED, when children are removed from institutions and placed in foster care (Smyke et al., 2012). Gleason et al. (2011) found an association between higher quality foster care with RAD in the first few years, but no impact on DSED until later (42 months). Our findings are also potentially concordant with the studies showing the persistence of DSED compared to RAD (Kennedy et al., 2017; Sonuga-Barke et al., 2017), although longer follow-up is needed to isolate the role of commitment on sustained reductions of symptoms.

The RAD findings suggest that the carer's early commitment is important for the reduction of RAD in the first year after the child is accommodated. Given that a very similar pattern was seen in the subsample of children who stayed with their initial carer, this effect was seen regardless of whether the child stayed in the same foster care placement from T1-T3 and we did not find any effect of placement disruption, or number of placements, on the relationship between commitment and AD symptoms when we examined potential confounders. Previous literature posits that even temporary child-carer attachments enable a child to better attach in subsequent placements (Dozier, Bick, & Bernard, 2011; Quiroga & Hamilton-Giachritsis, 2016) and our findings suggest that children's temporary experiences of a committed caregiver can have similar lasting effects.

Although RAD is extremely rare in the general population, it is not rare in deprived populations (Minnis et al., 2013), nor is it rare in adolescents with mental health problems and criminal behaviour (Moran et al., 2017). Coupled with the persisting effects that we know it has on social functioning (Guyon-Harris et al., 2019), a reduction in RAD symptoms early in foster care might be crucial for the child's recovery and development in the longer term. Gleason et al. (2011) found that there was an association between quality of foster care and RAD symptoms beyond the timeline that we have measured (30 months) so it would be worthwhile for future research to

explore whether commitment early in placement has a similar sustainable effect on RAD.

Later in the child's journey, however, and contrary to our hypothesis, the higher commitment of their foster carer when first placed in care did not seem to have a statistically significant impact on DSED or RAD after 2.5 years (although there was a modest association found with RAD.) This differs from the studies showing sustained effects of foster care (generally) on AD symptoms over time but concurs again with studies on the persistence of DSED. It is intriguing that Gleason et al. (2011) found that the association between foster carer quality and DSED only became significant at their 42-month PA timepoint and leads us to suggest that future research requires a longer follow-up of the potential effects of early commitment, as have studies that compare foster care with institutional rearing.

4.2. Emotional and behavioural symptoms of mental health problems

Contrary to our second hypothesis, higher commitment, shortly after placement in care, was associated with poorer child mental health 2.5 years later. At no time point over the first 2.5 years in foster care did we find that higher commitment led to better mental health outcomes in the child, contradicting the findings of Lindhiem and Dozier (2007) who did not extend their follow-up beyond 11 months. They also used a different measure – the Child Behaviour Checklist (CBCL) and, although it measures similar domains of functioning to the SDQ (Goodman & Scott, 1999), SDQ has fewer items and it is possible that it is less sensitive to change. It is intriguing, however, that in our slightly larger sample, the positive changes in AD symptoms were not reflected in improvements in the aspects of mental health that are measured by the SDQ.

This counter-intuitive worsening in mental health symptom scores has led to much deliberation by caregivers and clinicians in our co-occurring qualitative work for the BeST? trial, and we now consider that it may not be as unexpected as we first thought in a 'real-life' context. One of the most commonly held hypotheses amongst these key groups is that children who experience higher commitment may at first appear to be coping but later go on to display signs of mental health problems via a process where they feel safe and comfortable enough to express difficult emotions with their carer. Previous research has shown that attributes, such as self-esteem, for example, can be particularly important for the disclosure of vulnerable emotions and distress through the gaining of trust in relationships (McCarthy, Wood, & Holmes, 2017).

Highly committed carers, too, may be better at noticing mental health problems in their children, leading to higher scores on the SDQ at the 2.5 time point, as suggested previously by Pritchett et al. (2016), however it should be noted that only 34% of the children were still with the same carer by this time point and so it was a different caregiver rating the child on the SDQ for two thirds of the sample. This represents challenges in the context of research on fostered children, in general, where placement moves are the norm and where a consistent reporter of functioning is not always possible.

Another hypothesis that we went on to test was that if a child moves from a carer that is highly committed to them onto another placement (whether still in foster care, home with parents, or adopted) the disruption may be more detrimental to their mental health 2.5 years later than if they moved from a less committed carer. However, our subsequent comparison of children who stayed with the same carer, versus children who moved, suggests that there is no real difference in the pattern of association; that is, children who stayed with the same highly committed carer, over the course of the study, still had worse emotional and behavioural symptoms 2.5 years later – although future research with larger samples of children remaining in stable placements would be needed to confirm this.

When the relationship between commitment and emotional/behavioural symptoms was explored further via multiple regression analysis, we found that it was partially explained by the way that a child was brought into care and the age at which the child was placed. There are many factors that lead to a care order being sought by social work, in comparison with a voluntary order, and our qualitative work with social workers suggests that the type of care order does not reflect the level or type of maltreatment that the child has experienced. What should be considered for future research, however, is what happens to the child on a care order *after* they have been accommodated, compared to those on a voluntary order; it may be that children's experiences in care under compulsory measures involve factors that have different effects on the relationship between carer commitment and the mental health of the child.

4.3. Strengths and limitations

Although there was sample attrition by T3, our study sample was representative of the overall sample and to the overall population of children coming into care. Our study is limited by the fact that we did not set out to examine trajectories in symptoms of AD and mental health problems over time, so these secondary analyses are exploratory. Because the BeST? trial is ongoing, we were also unable to adjust for the type of intervention the family had received, and our findings could potentially obscure intervention group differences. Once the trial is complete, we plan to conduct analyses that examine individual child trajectories for AD symptoms, mental health problems and individual care trajectories, taking intervention group into account.

If possible, we also plan in this future research to obtain more detail about maltreatment history and parent characteristics because we were reliant in this study on social work case records, which usually indicate a main category of abuse but can often lack this level of detail. We have previously questioned, however, the usefulness of separating maltreatment into categories for research purposes when most children, who have experienced maltreatment that is severe enough to be placed in foster care in the UK, have been found to span multiple maltreatment types (Glass et al., 2016; Lacey & Minnis, 2020). In this current study, over a third of children had three or more maltreatment reasons for entering care. Other details about maltreatment, however, would be useful to capture, e.g., maltreatment frequency and intensity. Despite these limitations, this is the largest study of children in family foster care conducted with both symptoms of AD and mental health problems over 2.5 years of follow-up.

4.4. Future directions

We see a vital need to now consider what happens to commitment over time and how it impacts on this growing population of children. Given the norm of the child moving on from short-term carers, and between short-term carers, it would be important to examine the pattern across the different caregivers that the child experiences, as well as the potential changeability of commitment within the same carer. Research on child maltreatment in the context of foster care, in general, lacks prospective longitudinal examination of children's outcomes (Lang et al., 2020) and, in relation to mental health, follow-up is mostly with children who have moved from institutional care to foster care rather than from the birth family home. This study underscores how important it is to look beyond comparisons of foster care with other caring environments to consider, more specifically, what it is *within* the child-carer relationship that is of most importance to children's recoveries after abuse and neglect.

It is possible that mental health and DSED may improve further down the line after a child is accommodated with a foster carer with higher commitment and that there may be more sustainable effects on RAD, but a longer follow-up period would be needed to ascertain whether this is the case. It is likely that some aspects of child mental health do not generally improve, even in highly committed foster care, and that children need something else beyond what the foster carer can offer, such as input from focused child mental health services. There is a possibility that the more highly committed carers, who report symptoms of mental health problems and/or AD symptoms in their child, may go on to access more services and intervention than others, perhaps gaining therapeutic skills (e.g., of gentle challenge: Dozier, 2003) that could see children struggle before gradually improving.

The possibility that higher commitment may lead to children demonstrating more symptoms of mental health problems as they feel comfortable to do so (and perhaps as their disordered attachment improves) is crucial to now examine. As a first step, future qualitative work should be fruitful in providing a more in-depth understanding about the processes and timescales by which children may come to display their emotional distress more prominently within their foster care placement. We have previously used a qualitative case study approach that takes account of the views of other key people surrounding the child, e.g., social workers and mental health professionals (Glass et al., 2016; Turner-Halliday et al., 2017). It would seem pertinent to gain this wider view given the differences there could be in foster carer reports of mental health problems, but to also track potentially changing perceptions of the child's mental health over time from multi-informants. What happens to commitment levels over time, as carers notice distress in the child, would be interesting to incorporate into this work.

There may be merit in us thinking differently about children's recovery after maltreatment to consider that ‘things might get worse before they get better’ and that some aspects of progress may take many years. If so, this will be vitally important for foster carers to understand, since otherwise they may perceive a lack of mental health progress in the child as a lack of effect of their positive influence, which could lead to discouragement and lower commitment. This process may explain why previous studies have found that commitment is lowest amongst carers who have looked after the highest number of children (Dozier & Lindhiem, 2006). How such patterns relate to carer's experiencing emotional burnout/compassion fatigue is worth exploring, given that carers' deterioration in emotionally investing in children over the years may relate to a repeated lack of ‘seeing the child improve’ (because of the temporary nature of their involvement with the child) and not just to the emotional upheaval of children moving on from their care. It is also possible that carers who have cared for many children are seen as more experienced and are therefore allocated children with the most complex of needs, further contributing to potential burnout and with possible effects on commitment.

The association between commitment and ADs that was found only a few months into the placement, but our inability to establish the direction of effect at this timepoint reminds us that there is an overall need to understand the bi-directional nature of the child-carer relationship. In this study, we looked at the effect of the carer on the child, however the influence of child variables on how carers relate to children also needs examined. The finding relating to Care Order exemplifies that we should not just be taking the child's past into account. Factors such as being in foster care with or without siblings and the frequency of a child's contact with their birth parent/s, for example, would be interesting to examine within the context of foster carer commitment. Systemic factors that can act as drivers and barriers to committed relationships also need to be identified. It would be interesting to better understand, for example, how the timescales involved in legal decision-making processes about the child's future impact on placement timescales and the foster carer's level of commitment when timescales are uncertain.

It would also be intriguing to explore the ways in which different presentations of different ADs and mental health problems may affect how foster carers perceive and enact their role; for example, one type of AD may elicit more commitment from a foster carer than another, and different caring challenges associated with different symptoms may have different effects on the course of commitment over time. Overall, the complex results of this study remind us about the need for complimentary mixed-methods approaches when examining child abuse/neglect and the conditions that allow recovery and development (Glass et al., 2016; Kainth et al., 2022; Turner-Halliday et al., 2018).

5. Conclusions

This is the first study to look at whether the initial commitment of the foster carer has an impact on symptoms of AD and of mental health problems, in young, maltreated children, over time. We found that commitment had a significant effect on the reduction of RAD symptoms around fifteen months after exposure to higher commitment early in placement, but we did not find reductions of DSED symptoms over the course of the study. Contrary to our hypothesis, but akin with views from carers and professionals in our ongoing qualitative work, we found a significant reported deterioration in mental health symptoms in children whose foster carers showed higher commitment shortly after placement. This underscores how important it is to separate AD symptoms from other symptoms of mental health problems in investigations of maltreatment, and to isolate specific aspects of foster care quality, to better ascertain the

underlying mechanisms that may be operating beneath 'what we see' as researchers, caregivers and clinicians. Our findings also have implications for foster carer training and support, where carers should be made aware that high commitment - early in placement - may be the first vital step to recovery of the child's attachment functioning, no matter where a child goes in the future and regardless of whether they themselves see the effects during their time with the child or not.

Crucially, this study suggests that AD symptoms and symptoms of mental health problems have differential time-sensitive periods over which they are affected by the foster carer's early commitment. Whereas we already know that infant development and effects of maltreatment incur sensitive periods, this study – from a positive psychology lens - suggests that recovery and development from child abuse and neglect via foster carer commitment also incurs sensitive periods that are important to be aware of. These thought-provoking patterns in our cohort of children underscore the strong need to track children's progress over time at various points, viewing the effects of commitment on their development as dynamic rather than static and as digressive rather than linear.

Funding

This work was funded by National Institute of Health Research [grant number 12/211/54] and University of Glasgow Endowment scheme donation [grant number 246801-01].

Declaration of interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.chiabu.2022.105585.

References

Bates, B., & Dozier, M. (2005). "This Is My Baby" and Coding Manual. Unviersity of Delaware. Retrieved 01/10/2021 from http://www.abcintervention.org/wp-content/uploads/2017/11/This-is-My-Baby-Manual.pdf.

Bernard, K., & Dozier, M. (2011). This is my baby: Foster parents' feelings of commitment and displays of delight. *Infant Mental Health Journal, 32*(2), 251–262.

Bick, J., Dozier, M., Bernard, K., Grasso, D., & Simons, R. (2013). Foster mother-infant bonding: Associations between foster mothers' oxytocin production, electrophysiological brain activity, feelings of commitment, and caregiving quality. *Child Development, 84*(3), 826–840.

Bruce, M., Young, D., Turnbull, S., Rooksby, M., Chadwick, G., Oates, C., Nelson, R., Young-Southward, G., Haig, C., & Minnis, H. (2019). Reactive attachment disorder in maltreated young children in foster care. *Attachment & Human Development, 21*(2), 152–169.

Cherry, K. (2021). What is positive psychology?. Retrieved 02/09/21 from https://www.verywellmind.com/what-is-positive-psychology-2794902.

Chinitz, S., Guzman, H., Amstutz, E., Kohchi, J., & Alkon, M. (2017). Improving outcomes for babies and toddlers in child welfare: A model for infant mental health intervention and collaboration. *Child Abuse & Neglect, 70*, 190–198.

Crawford, K., Fitzpatick, B., McMahon, L., et al. (2022). The Best Services Trial (BeST?): A cluster randomised controlled trial comparing the clinical and cost-effectiveness of New Orleans Intervention Model with services as usual (SAU) for infants and young children Entering Care. *Trials, 23*, 122.

Dinkler, L., Lundström, S., Gajwani, R., Lichtenstein, P., Gillberg, C., & Minnis, H. (2017). Maltreatment-associated neurodevelopmental disorders: A co-twin control analysis. *Journal of Child Psychology & Psychiatry, 58*, 691–701.

Dozier, M. (2003). Attachment-based treatment for vulnerable children. *Attachment and Human Development, 5*(3), 253–257.

Dozier, M. (2019). The attachment and biobehavioral catch-up (ABC Intervention). Developmental Psychologist. Retrieved on 02/7/2021 from http://www.apadivisions.org/division-7/publications/newsletters/developmental/2019/01/biobehavioral-intervention.

Dozier, M., Bick, J., & Bernard, K. (2011). Intervening with foster carers to enhance biobehavioral outcomes amongst infants and toddlers. *NIH Public Access, 31*(3), 17–22.

Dozier, M., Grasso, D., Lindhiem, O., & Lewis, E. (2007). Attachment theory in clinical work with children bridging the gap between research and practice. In D. Oppenheim, & D. Goldsmith (Eds.), *The role of caregiver commitment in foster care: Insights form the This Is My Baby Interview* (pp. 90–108). Guilford Press.

Dozier, M., & Lindhiem, O. (2006). This is my child: Differences among foster parents in commitment to their young children. *Child Maltreatment, 11*(4), 338–345.

Dozier, M., Zeanah, C. H., & Bernard, K. (2013). Infants and toddlers in foster care. *Child Development Perspectives, 7*(3), 166–171.

Dozier, M., Zeanah, C. H., Wallin, A. R., & Shauffer, C. (2012). Institutional care for young children: Review of literature and policy implications. *Social Issues and Policy Review, 6*(1), 1–25.

Eggerston, L. (2008). Primary factors related to multiple placements for children in out-of-home care. *Child Welfare, 87*(6), 71–90.

Engler, A. D., Sarpong, K. O., Van Horne, B. S., Greeley, C. S., & Keefe, R. J. (2022). A systematic review of mental health disorders of children in Foster Care. *Trauma, Violence, & Abuse, 23*(1), 255–264.

Font, S. A., Sattler, K. M., & Gershoff, E. T. (2018). Measurement and correlates of foster care placement moves. *Children and Youth Services Review, 91*, 248–258.

Glass, S., Gajwani, R., & Turner-Halliday, F. (2016). Does quantitative research in child maltreatment tell the whole story? The need for mixed-methods approaches to explore the effects of maltreatment in infancy. *The Scientific World Journal, 1869673*.

Gleason, M. M., Fox, N. A., Drury, S., Smyke, A., Egger, H. L., Nelson, C. S., & Zeanah, C. H. (2011). Validity of evidence-derived criteria for reactive attachment disorder: Indiscriminately social/disinhibited and emotionally withdrawn/inhibited types. *Journal of the American Academy of Child & Adolescent Psychiatry, 50*(3), 216–231.e213.

Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*(11), 1337–1345.

Goodman, R., & Scott, S. (1999). Comparing the strengths and difficulties questionnaire and the child behavior checklist: Is small beautiful? *Journal of Abnormal Child Psychology, 27*(1), 17–24.

Scottish Government. (2020). Statistical publications relating to children's social work in Scotland Children's social work statistics. Retrieved 30/06/21 from https://www.gov.scot/collections/childrens-social-work/.

Guyon-Harris, K. L., Humphreys, K. L., Fox, N. A., Nelson, C. A., & Zeanah, C. H. (2018). Course of disinhibited social engagement disorder from early childhood to early adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry, 57*(5), 329–335.e322.

Guyon-Harris, K. L., Humphreys, K. L., Fox, N. A., Nelson, C. A., & Zeanah, C. H. (2019). Signs of attachment disorders and social functioning among early adolescents with a history of institutional care. *Child Abuse & Neglect, 88*, 96–106.
Hannah, B., & Woolgar, M. (2018). Secondary trauma and compassion fatigue in foster carers. *Clinical Child Psychology and Psychiatry, 23*(4), 629–643.
Haslam, Z., & Taylor, E. P. (2022). The relationship between child neglect and adolescent interpersonal functioning: A systematic review. *Child Abuse & Neglect, 125*, Article 105510.
Hillen, T., & Gafson, L. (2015). Why good placements matter: Pre-placement and placement risk factors associated with mental health disorders in pre-school children in foster care. *Clinical Child Psychology and Psychiatry, 20*(3), 486–499.
Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *The Lancet Public Health, 2*(8), e356–e366.
Kainth, G., Turner, F., Crawford, K., Dundas, R., Watson, N., & Minnis, H. (2022). Protocol for the process evaluation of the BeST? Services trial. *Developmental Child Welfare* (in press).
Kennedy, M., Kreppner, J., Knights, N., Kumsta, R., Maughan, B., Golm, D., Hill, J., Rutter, M., Scholtz, W., & Sonuga-Barke, E. (2017). Adult disinhibited social engagement in adoptees exposed to extreme institutional deprivation: Examination of its clinical status and functional impact. *The British Journal of Psychiatry, 211*(5), 289–295.
Kocovska, E., Puckering, C., Follan, M., Smillie, M., Gorski, C., Barnes, J., Wilson, P., Young, D., Lidstone, E., Pritchett, R., Hockaday, H., & Minnis, H. (2012). Neurodevelopmental problems in maltreated children referred with indiscriminate friendliness. *Research in Developmental Disabilities, 33*, 1560–1565.
Lacey, R. E., & Minnis, H. (2020). Practitioner Review: Twenty years of research with adverse childhood experience scores – Advantages, disadvantages and applications to practice. *Journal of Child Psychology & Psychiatry, 61*, 116–130.
Lang, J., Kerr, D. M., Petri-Romão, P., McKee, T., Smith, H., Wilson, N., Zavrou, M., Shiels, P., & Minnis, H. (2020). The hallmarks of childhood abuse and neglect: A systematic review. *PLOS one, 15*(12), Article e0243639.
Lehmann, S., Breivik, K., Heiervang, E. R., Havik, T., & Havik, O. E. (2016). Reactive attachment disorder and disinhibited social engagement disorder in school-aged Foster children - A confirmatory approach to dimensional measures. *Journal of Abnormal Child Psychol, 44*, 445–457.
Lehmann, S., Havik, O. E., Havik, T., & Heiervang, E. R. (2013). Mental disorders in foster children: A study of prevalence, comorbidity and risk factors. *Child and Adolescent Psychiatry and Mental Health, 7*(1), 1–12.
Lehmann, S., Monette, S., Egger, H., Breivik, K., Young, D., Davidson, C., & Minnis, H. (2020). Development and examination of the reactive attachment disorder and disinhibited social engagement disorder assessment interview. *Assessment, 27*(4), 749–765.
Lindhiem, O., & Dozier, M. (2007). Caregiver commitment to foster children: The role of child behavior. *Child Abuse & Neglect, 31*, 361–374.
Lo, A., Roben, C. K., Maier, C., Fabian, K., Shauffer, C., & Dozier, M. (2015). "I want to be there when he graduates:" Foster parents show higher levels of commitment than group care providers. *Children and Youth Services Review, 51*, 95–100.
McCarthy, M. H., Wood, J. V., & Holmes, J. G. (2017). Dispositional pathways to trust: Self-esteem and agreeableness interact to predict trust and negative emotional disclosure. *Journal of Personality and Social Psychology, 113*(1), 95.
Meakings, S., & Selwyn, J. (2016). 'She was a foster mother who said she didn't give cuddles:' The adverse early foster care experiences of children who later struggle with adoptive family life. *Clinical Child Psychology and Psychiatry, 21*(4), 509–519.
Meetoo, V., Cameron, C., Clark, A., & Jackson, S. (2020). Complex 'everyday'lives meet multiple networks: The social and educational lives of young children in foster care and their foster carers. *Adoption & Fostering, 44*(1), 37–55.
Minnis, H. (2013a). *Maltreatment- associated psychiatric problems (MAPP) - An example of environmentally-triggered ESSENCE?* The Scientific World.
Minnis, H. (2018). What happens to disinhibited social engagement disorder over Time? *Journal of the American Academy of Child and Adolescent Psychiatry, 57*(5), 304–305.
Minnis, H., Everett, K., Pelosi, A., Dunn, J., & Knapp, M. (2006). Children in foster care: Mental health, service use and costs. *European Child & Adolescent Psychiatry, 15*, 63–70.
Minnis, H., Green, J., O'Connor, T., Liew, A., Glaser, D., Taylor, E.Sadiq, F. A., … (2009). An exploratory study of the association between reactive attachment disorder and attachment narratives in early school-age children. *Journal of Child Psychology and Psychiatry, 58*(8), 931–942.
Minnis, H., Macmillan, S., Prichett, R., Young, D., Wallace, B., Butcher, J.Gillberg, C., … (2013b). Prevalence of reactive attachment disorder in a deprived population. *The British Journal of Psychiatry, 202*, 342–346.
Minnis, H., Reekie, J., Young, D., O'Connor, T., Ronald, A., Gray, A., & Plomin, R. (2007). Genetic, environmental and gender influences on attachment disorder behaviours. *British Journal of Psychiatry, 190*, 490–495.
Moran, K., McDonald, J., Jackson, A., Turnbull, S., & Minnis, H. (2017). A study of attachment disorders in young offenders attending specialist services. *Child Abuse & Neglect, 65*, 77–87.
O'Connor, T., Bredenkamp, D., & Rutter, M. (1999). Attachment disturbances and disorders in children exposed to severe early deprivation. *Infant Mental Health Journal, 20*(1), 10–29.
Petrowski, N., Cappa, C., & Gross, P. (2017). Estimating the number of children in formal alternative care: Challenges and results. *Child Abuse & Neglect, 70*, 388–398.
Pritchett, R., Hockaday, H., Anderson, B., Davidson, C., Gillberg, C., & Minnis, H. (2016). Challenges of assessing maltreated children coming into foster care. *The Scientific World Journal*, (ID 5986835), 1–9.
Public Health Scotland (2022), Deprivation. Retrieved 07/03/2022 from https://www.isdscotland.org/products-and-services/gpd-support/deprivation/simd/.
Quiroga, M. G, & Hamilton-Giachritsis, C. (2016). Attachment atyles in children living in alternative care: A systematic review of the literature. *Child Youth Care Forum, 45*, 625–653.
Rock, S., Michelson, D., Thomson, S., & Day, C. (2015). Understanding foster placement instability for looked after children: A systematic review and narrative synthesis of quantitative and qualitative evidence. *British Journal of Social Work, 45*(1), 177–203.
Rubin, D. M., O'Reilly, A. L., Luan, X., & Localio, A. R. (2007). The impact of placement stability on behavioral well-being for children in foster care. *Pediatrics, 119*(2), 336–344.
Seim, A. R., Jozefiak, T., & Wichstrøm, L. (2022). Reactive attachment disorder and disinhibited social engagement disorder in adolescence: co-occurring psychopathology and psychosocial problems. *European Journal of Adolescent Psychiatry, 31*, 85–98.
Smyke, A. T., & Breidenstine, A. (2018). Foster care in early childhood. In C. H Zeanah (Ed.), *Handbook of Infant Mental Health* (pp. 500–515). New York: Guilford Press.
Smyke, A. T., Dumitrescu, A., & Zeanah, C. H. (2002). Attachment disturbances in young children. I: The continuum of caretaking casualty. *TheJournal of the American Academy of Child and Adolescent Psychiatry, 41*(8), 972–982.
Smyke, A. T., & Zeanah, C. H. (1999). Disturbances of attachment interview. Retrieved 01/06/20 from http://scholar.google.co.uk/scholar?q=disturbances+of+attachment+interview+&hl=en&as_sdt=0%2C5.
Smyke, A. T., Zeanah, C. H., Fox, N. A., Nelson, C. A., & Guthrie, D. (2010). Placement in foster care enhances quality of attachment among young institutionalized children. *Child Development, 81*(1), 212–223.
Smyke, A. T., Zeanah, C. H., Gleason, M. M., Drury, S. S., Fox, N. A., Nelson, C. A., & Guthrie, D. (2012). A randomzed controlled trial comparing foster care and institutional care for children with signs of reactive attachment disorder. *American Journal of Psychiatry, 169*(5), 508–514.
Sonuga-Barke, E. J., Kennedy, M., Kumsta, R., Knights, N., Golm, D., Rutter, M.Kreppner, J., … (2017). Child-to-adult neurodevelopmental and mental health trajectories after early life deprivation: The young adult follow-up of the longitudinal English and Romanian adoptees study. *The Lancet, 389*(10078), 1539–1548.
Steenbakkers, A., Van Der Steen, S., & Grietens, H. (2018). The needs of foster children and how to satisfy them: A systematic review of the literature. *Clinical Child and Family Psychology Review, 21*(1), 1–12.
Tarren-Sweeney, M. (2008). The mental health of children in out-of-home care. *Current Opinion in Psychiatry, 21*, 345–349.
Tarren-Sweeney, M. (2014). The clinical application of attachment theory and research: Introducing a series of clinical child psychology and psychiatry special sections. *Clinical Child Psychology and Psychiatry, 19*(3), 333–335.

Teicher, M. H., Samson, J. A., Anderson, C. M., & Ohashi, K. (2016). The effects of childhood maltreatment on brain structure, function and connectivity. *Nature Reviews Neuroscience, 17*(10), 652–666.
Turner-Halliday, F., Kainth, G., Young-Southward, G., Cotmore, R., Watson, N., McMahon, L., & Minnis, H. (2017). Clout or doubt? Perspectives on an infant mental health service for young children placed in foster care due to abuse and neglect. *Child Abuse & Neglect, 72*, 184–195.
Turner-Halliday, F., Welch, V., Bryce, G., Forde, M., Cotmore, R., Wilson, P.Minnis, H., … (2018). Partnership approaches to the evaluation of complex policy initiatives: Qualitative research as key to building effective relationships. *International Journal of Social Welfare, 27*(4), 381–387.
Valadez, E. A., Tottenham, N., Tabachnick, A. R., & Dozier, M. (2020). Early parenting intervention effects on brain responses to maternal cues among high-risk children. *American Journal of Psychiatry, 177*(9), 818–826.
Wade, M., Fox, N. A., Zeanah, C. H., & Nelson, C. A. (2018). Effect of foster care intervention on trajectories of general and specific psychopathology among children with histories of institutional rearing: A randomized clinical trial. *JAMA Psychiatry, 75*(11), 1137–1145.
Wade, M., Zeanah, C. H., & Fox, N. A. (2019). Stress sensitization among severely neglected children and protection by social enrichment. *Nature Communications, 10*(5771), 1–8.
Whitt-Woosley, A., Sprang, G., & Eslinger, J. (2020). Exploration of factors associated with secondary traumatic stress in foster parents. *Children and Youth Services Review*, 1–8.
Young-Southward, G., Svelnys, C., Gajwani, R., Bosquet Enlow, M., & Minnis, H. (2019). Child maltreatment, autonomic nervous system responsivity, and psychopathology: Current state of the literature and future directions. *Child Maltreatment*, 1–17, 1077559519848497.
Zeanah, C. H., & Gleason, M. M. (2015). Annual research review: Attachment disorders in early childhood–Clinical presentation, causes, correlates, and treatment. *Journal of Child Psychology and Psychiatry, 56*(3), 207–222.
Zeanah, C. H., Gunnar, M. R., McCall, R. B., Kreppner, J. M., & Fox, N. A. (2011a). Sensitive periods. *Monographs of the Society for Research in Child Development, 76*(4), 147–162.
Zeanah, C. H., & Humphreys, K. L. (2018). Child abuse and neglect. *Journal of the American Academy of Child & Adolescent Psychiatry, 57*(9), 637–644.
Zeanah, C. H., Humphreys, K. L., Fox, N. A., & Nelson, C. A. (2017). Alternatives for abandoned children: Insights from the Bucharest early intervention project. *Current Opinion in Psychology, 15*, 182–188.
Zeanah, C. H., Shauffer, C., & Dozier, M. (2011b). Foster care for young children: Why it must be developmentally informed. *Journal of the American Academy of Child & Adolescent Psychiatry, 50*(12), 1199–1201.

Further reading

Minnis, H., Gillberg, C., McConnachie, A., Fitzpatrick, A., McIntosh, E., Boyd, K., et al. (2016). The Best Services Trial (BeST?): Effectiveness and cost-effectiveness of the New Orleans Intervention Model for Infant Mental Health. *The Lancet*. D-15-06090R1.