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Doctorate in Clinical Psychology Thesis

**Psychological correlates of mental health outcomes in looked
after preschool children**

Harriet Hockaday

Word count: 25, 690

Doctorate in Clinical Psychology
The University of Edinburgh
2018

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Name: Harriet Hockaday

Title of Work: Psychological correlates of mental health outcomes in looked after preschool children

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Date 04/05/2017

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Dedication:

I would like to dedicate this thesis to my parents, whose unfaltering love and support has made all of this possible. Thank you for encouraging me through the many challenges it took to get to this stage, and for always helping me to believe that I would get there in the end. Your belief in me has allowed me to believe in myself, and I am very grateful for this.

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Research Portfolio Abstract:

Background: Children who enter foster care usually do so because of maltreatment by their birth families. Early adversity such as this is associated with many negative outcomes, including disturbances of attachment and mental health in childhood and throughout the lifespan. Young children (under 5) are particularly at risk due to maltreatment rates being highest in this age range, and because of the vital brain development that occurs during this time. Improving the quality of existing relationships for young children is the most cost effective way to improve mental health outcomes. It is important that research investigates which relational and psychological variables that exist within the foster carer-child relationship may be protective against developing negative mental health outcomes, so as to inform carer training and future interventions for this vulnerable group.

Aims: The aims of this research project were twofold. The first aim was to systematically review the existing literature on links between foster carer psychological variables (such as commitment to their foster child), and/or child psychological variables (such as their attachment style), and the mental health outcomes of children in foster care. The second aim was to investigate whether foster carer acceptance, commitment, awareness of influence and reflective functioning (RF) predict the mental health outcomes of Scottish pre-school aged children who are looked after in foster care.

Method: A systematic review of the existing literature was undertaken to address the first aim. The search strategy resulted in 12 quantitative studies that investigated links between child or carer psychological variables and child mental health outcomes. An empirical study of 179 pre-school aged children in foster care in Scotland was carried out to address the second aim. Participants were taking part in a wider RCT of a novel intervention to improve outcomes and permanency decisions for children in foster care. Foster carer acceptance, commitment, and awareness of influence was assessed using the This Is My Baby Interview, and scores of RF were coded

from the transcripts of this interview using a computer-based algorithm. Child mental health information was gathered using the Infant Toddler Social Emotional Assessment. Data was gathered at 2 time points; baseline assessments occurred around 4 weeks after entry to care, and follow-up assessments were carried out a year later.

Results: The systematic review found good evidence that foster child attachment security is linked to more positive mental health outcomes. It also found some evidence suggesting that foster carer psychological variables such as commitment and quality of caregiving also relate to child mental health outcomes, but this research is in its infancy and it is therefore difficult to draw firm conclusions around this. The results of the empirical study showed that carer commitment and awareness of influence predict child competence at baseline, and RF predicts internalising and externalising problems at follow up. No predictive relationships were found between carer variables and child mental health over time.

Conclusion: The results from both studies suggest that carer psychological variables such as commitment to their foster child may relate to child mental health development. These results have implications in terms of foster carer training, and for intervention development for this vulnerable population. This research is however in its infancy, and the results suggest a complex picture with regard to carer psychological variables and child mental health. Large-scale high quality longitudinal research is needed to provide a clear understanding of these relationships.

Title: What psychological variables influence mental health outcomes in young children (0-6) who are placed in foster care? – A systematic review.

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Abstract:

Background: *Children in foster care usually enter care due to abuse and neglect. They face increased risk of attachment and mental health difficulties in childhood and throughout the lifespan. The risks are highest for those entering care in the pre-school period, when key brain development is occurring. Current services are arguably not meeting the needs of these complex children, and we do not know enough about the psychological/relational variables that may offer them protection from adverse outcomes.*

Objectives: *To systematically review existing literature of studies where a relationship has been found between foster carer psychological variables (such as their commitment to the child) and / or the foster child (e.g. their attachment style) and the foster child's mental health outcomes.*

Data sources: *PsycINFO, Embase, Epub Ahead of Print, In-Process & Other Non-Indexed Citations, & Ovid Medline(R).*

Study eligibility criteria: *The literature search was limited to studies written in the English language. There was no limitation on publication year. An article was included if: 1) the study related to children who were looked after in foster or kinship care, 2) the subjects were aged 0-6 years, 3) there was a child mental health outcome variable, 4) there was a psychological variable of interest relating to these mental health outcomes, and 5) the study reported novel quantitative research in a peer reviewed journal.*

Participants: *Pre-school aged children who were looked after in foster care*

Quality rating: The Crowe Critical Appraisal Tool (CCAT) was used to assess the quality of included studies. The quality of reviewed studies ranged from moderate to good.

Results: Good evidence was found of a relationship between foster child attachment and mental health outcomes, which fits with general population findings. Some evidence was also found relating to carer variables and their link to child mental health. Of the carer variables, the best evidence was found for increased foster carer commitment, and positive child mental health.

Limitations: The variety of measures and study designs utilised by the studies reviewed meant that a meta-analysis was not possible, and it was difficult to compare the results of the studies to one another. Almost all of the studies relied solely on carer report of child mental health outcomes, which can be problematic given the potential for inaccuracy with these measurements.

Conclusions and implications of key findings: Attachment in foster children relates to their mental health development in a similar way as it does in biological dyads. There are also variables relating to the carer, such as their investment and sensitivity to the child that relate to the child's mental health. These findings have implications in terms of future service/intervention development (a joint mental health and attachment focus is likely to be helpful), and in terms of carer training and foster child placement according to their own needs and the characteristics of the foster carer.

Systematic review registration number: CRD42017060168

Keywords:

Foster care, maltreatment, pre-school, commitment, attachment, mental health

Declaration of Interest:

The authors have no conflict of interest to report.

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(Written according to the author guidelines of Children and Youth Services Review)

What psychological variables influence mental health outcomes in young children (0-6) who are placed in foster care? – A systematic review.

1. Introduction

Background:

As of July 2016, there were 15,317 looked after children in Scotland, with over 5000 of them being looked after by the local authority in foster care (The Scottish Government – Children’s Social Work Statistics Scotland, 2015-16). Young children in the UK usually enter foster care due to abuse or neglect in the birth family (National Audit Office / Department of Education Children in Care Report, 2014-15). This means that a child growing up in foster care has usually encountered serious adversity in their young life. This trauma is then compounded by the separation from the only family and home the child has known when they are accommodated into foster care. The distress caused by separation from our attachment figures in infancy has been widely understood since the seminal works of John Bowlby (Bowlby, 1969). Bowlby’s attachment theory explains how a child’s relationship with their primary caregiver acts as a blueprint for future relationships, so that a child who is safe and well cared for can go on to expect security in other close relationships across their lifespan. This positive first relationship therefore forms the basis of a stable attachment style that characterises the child’s style of relating to other people. A child who is abused or neglected however, can become fearful of their caregiver, and is at increased risk of developing disorganised attachment (Carlson et al., 1989).

In biological families, attachment trauma has a direct effect on infant brain development, and on mental health in infancy and adulthood (Schoore, 2001), meaning that children who are maltreated are not only at risk of failing to develop secure attachments, but

also of the negative mental health implications of this. Recent research has suggested that infant attachment may act as a moderator of detrimental outcomes such as externalising problems and relationship quality, with secure attachment acting to diffuse these risks in later childhood (Boldt, Kochanska & Jonas., 2016). This may help to explain how attachment security acts as a mechanism through which a child can develop positive relational outcomes in later life. Children in foster care face challenges to the development of their attachment system both through adverse experiences in the birth family, and through systemic experiences whilst they are in the care of the local authority, such as having multiple placement moves between foster carers. This can have a significant emotional impact even into adulthood (Unrau, Seita & Putney, 2008).

Mental Health of children in foster care:

Young children in foster care are some of the most vulnerable in our society, and face on-going inequality in terms of their physical and mental health development. A large scale study in the UK found that among school age children in foster care, rates of any childhood mental disorder was 43%, compared with 8% of peers living with their families (Meltzer et al., 2003). The findings of this study are supported by other research from the UK (e.g. Richardson & Lelliott, 2003) and from other countries (e.g. Australia; Tarren-Sweeney & Hazell, 2006; and USA; Oswald, Heil & Goldbeck, 2009). The risk of developing poor mental health is significant for all maltreated children raised in out of home care, whether they are raised by kin or unknown carers (Tarren-Sweeney, 2008), but the risks are even greater for those raised in foster care (Holtan et al., 2004). Infants and young children who enter foster care are of increased concern because they are at a vital stage of development in terms of their cognitive functioning, mental health and attachment formation (Melmed, 2011) (pathways associated with sensory information, language, and higher

cognitive functioning have all peaked by age 5 – see Center on the Developing Child, Harvard University). Children under 5 have disproportionately high rates of maltreatment compared to older children, which can have lifetime effects in terms of physical and mental health outcomes (Osofsky & Lieberman, 2011). Infants and young children tend to stay in care for long periods after removal from their birth families. In Scotland, the majority (37%) of children remain in care for 1 to 3 years, with 34% remaining in care for more than 3 years (The Scottish Government – Children’s Social Work Statistics Scotland, 2015-16). This means that the adults with whom looked after children are able to form strong relationships at this vital age are not often the people who they will live with in later childhood. This is especially true in the UK foster system, where it is not commonplace for foster carers to be dually registered as potential adopters, which means that even when a permanency decision is eventually made for the child, it is likely to result in yet another placement move, which has further implications in terms of the child’s attachment and mental health development (e.g. James et al., 2004).

Mental health of pre-schoolers:

The definition of mental ill health in this population is a difficult one, as giving psychiatric diagnoses to children so young is arguably unhelpful and inaccurate, as it fails to capture the psychological formulation behind the difficulties that young children may face in terms of their mood and behaviour. There are however patterns of behaviour that can be detected in early childhood that are associated with psychopathology in later life, such as hyperactivity (Smith et al., 2016), yet problems related to mental health functioning in this population often go undetected, possibly due to the difficulties in assessing mental health in very young children (Lyons-Ruth et al., 2017). Research into mental health in pre-schoolers often focuses on internalising and externalising problems. Internalising problems are

characterised by internal distress, such as depression/withdrawal, anxiety, and separation distress, whereas externalising problems relate to an external demonstration of distress, such as through aggression/defiance or activity/impulsivity. For pre-schoolers in the general population, mental health problems occur for around 10%, with an equal split between internalising and externalising problems (3.7% each), with 3.3% presenting with comorbid internalising and externalising problem behaviours (Lavigne et al., 1996). For pre-schoolers in foster care, these numbers are much higher, with an estimate of 25-40% of these children having mental health difficulties, with a trend towards externalising rather than internalising problems (see Leslie et al., 2005). It is likely that a number of psychological factors may be contributing to these differences, such as disorganised attachment (e.g. Vasileva & Petermann, 2016), increased exposure to interpersonal trauma (see Pecora et al., 2009) and parenting practices (e.g. Sourander et al., 2016).

Services for looked-after children:

Despite the increased mental health burden for children in foster care, many young children unfortunately do not receive adequate support in their early years. Although children in foster care face increased mental health symptomology and have increased need for good quality services, children who have experienced long term foster care access child and adolescent mental health services (CAMHS) considerably less than we would expect (Minnis & Del Priori, 2001), and do not appear to benefit from outpatient mental health services that they do access (Bellamy, Gopalan & Traube, 2010). Children in foster care face far higher levels of both mental and physical health problems from infancy (Silver & Dicker, 2007) to adolescence (Woods, Farineau & McWey, 2012) and into adulthood (Zlotnick, Tam & Soman, 2012). Research should therefore continue to investigate the factors may help improve mental health outcomes for these most vulnerable young people,

given that our traditional services may not be providing them with what they need, and that their early adversity continues to place them at risk throughout the lifespan.

Psychological correlates of mental health outcomes:

Despite the high levels of adversity faced by young foster children, research has shown that children who are placed in positive, supportive foster homes can go on to form secure attachments to their carers in the same way and to the same degree that non-maltreated infants can with their birth parents (Jacobsen et al., 2013). Research has shown that difficult attachment relationships in infancy can have negative implications in terms of both short and long term mental health outcomes (Schoore, 2001), possibly due to the negative internal working models that children can develop in the absence of a secure relationship with their primary caregiver. A positive foster care relationship can provide an opportunity for children to develop a secure attachment to a supportive caregiver, which should therefore be protective in terms of the child's mental health development. To date however, research in this field has not provided clear and strong evidence about which psychological variables may help facilitate the development of a secure attachment relationship between foster children and their carers, or what psychological variables may be protective in terms of their mental health more widely. It has been argued that providing nurturing care, often in the face of child behavioural signals that would not usually elicit a caring response is key to improving outcomes for foster children (Dozier et al., 2002), so it would follow that there are aspects of the caregiving relationship that can be altered through intervention to improve outcomes for young children in foster care. Research has shown that good quality early intervention is of paramount importance for young children in foster care, as it can help to improve mental health outcomes (e.g. reducing externalizing symptoms – see Linares et al., 2006) and prevent negative later life experiences such as

antisocial behaviour (Pears, Kim & Fisher, 2016), and it is arguable that good quality foster care could and should be an intervention in its own right to help children to overcome their early adversity and develop positive mental wellbeing. This is especially important given the poor longer-term outcomes in terms of physical and mental health functioning that are associated with time spent in foster care (e.g. increased risk behaviour – Gramkowski et al., 2009, and impaired psychosocial adjustment – Buehler et al., 2000).

In order to better understand and address the mental health inequalities faced by this population, there has been considerable research into non-psychological correlates of mental health outcomes and service use in children in foster care, for example a greater number of separate foster placements (Rubin et al., 2004), placement away from the local community (Vis et al., 2016), increasing age, and male gender predicting increased mental health service use (Leslie et al., 2000). There has been less research however into the psychological variables that may be playing a part in the development of poor or indeed positive mental health for looked after children, although some links have been found between psychological foster carer variables and foster child attachment style (e.g. carer attachment state of mind - Dozier et al., 2001). Associations between child psychological variables such as attachment with developmental and mental health outcomes have been found in biological dyads (e.g. Alhusen, Hayat & Gross, 2013; Erickson, Sroufe, & Egeland, 1985; Fearon et al., 2010), with greater attachment security being associated with more positive mental health outcomes. Parenting variables such as caregiving quality and parent's RF ability have also been found to relate to the mental health development of preschool children in biological dyads (e.g. Goelman et al., 2014; Smaling et al., 2016). It is important for research to demonstrate how similar (or not) relationships between these variables are in non-related foster dyads, as it would help inform positive foster placements

for the most vulnerable children, which would allow them the best possible chance to have as similar as possible supports and opportunities as their non-accommodated peers. It is also important from a societal perspective, as foster care carries huge costs in terms of service use and later health and socioeconomic outcomes (Minnis et al., 2004; Pecora et al., 2006), and the most cost effective way to improve mental health outcomes for very young children is to help improve the quality of existing relationships (Tanaka et al., 2010). To place a child in local authority care, rather than to improve existing relationships for example, costs £29,000 to £33,000 per year (National Audit Office / Department of Education Children in Care Report, 2014-15). A greater understanding of the relevant interpersonal and psychological factors that are having an impact on the mental health of children in foster care could lead to future interventions being better informed, efficacious and cost effective. It would also be important in terms of foster carer recruitment and training – it can be hard for carers to demonstrate unwavering commitment to their foster children within a system where they could be removed from their care quickly and without warning, yet carers who can demonstrate high levels of commitment also show more delight in their child (Bernard & Dozier, 2011), which could arguably be protective in terms of child self esteem and mental health outcomes. As carers are with their foster children for the largest proportion of their child's time, they arguably have the largest potential capacity to help their children develop positive mental health outcomes. If carers had a clear idea of what psychological variables may be helpful to their foster children, and were trained to implement these, this could lead to positive clinical implications for these vulnerable children and for society as a whole.

Objective of this review:

The objective of this paper is to systematically review existing literature of

experimental studies where a link has been found between psychological variables relating to the foster carer (such as their commitment to the child) and / or the foster child (for example their attachment style) and the child's mental health outcomes (such as internalizing/externalizing behaviour). This review focused on pre-school aged children (0-6), who were in foster or kinship care. All papers containing novel quantitative research were included (both therapeutic intervention and non-intervention studies), regardless of research methodology/study design.

2. Methods

Protocol and registration:

A protocol for this review is registered with PROSPERO (registration number CRD42017060168), and can be accessed at <https://www.crd.york.ac.uk/PROSPERO/>.

2.1 Search strategy

A systematic search was carried out through searches of the electronic databases PsycINFO, Embase, Epub Ahead of Print, In-Process & Other Non-Indexed Citations, & Ovid Medline(R). The final search was conducted on the 17th January 2017.

1. Search terms included in first step (to screen for age):	"infant" or "preschool" or "pre-school" or "nursery" or "child"
	↓
2. Search terms included in second step (to search for mental health outcomes):	"emotion*" or "mental health" or "learn*" or "psychological distress" or "conduct" or "sleep" or "hyperactiv*" or "impulsive*" or "internali*" or "externali*" or "psychological disorder" or "psychiatric disorder"
	↓
3. Search terms included in third step (to screen for foster care status):	"looked after" or "accommodated" or "foster*" or "local authority care"
	↓

4. These 3 searches were combined with an AND, to search for papers describing studies of the target population



5. Searches were then made based on child psychological variables

"attachment" or "social function*" or "interpersonal"



6. Searches were then made based on the carer psychological variables

"attachment" or "reflective functioning" or "mentali*" or "accept*" or "commit*" or "awareness of influence".



7. Search 5 and 6 were combined with an "OR" command, to search for papers that explored either a child or carer psychological variable(s)



8. Searches 4 (defining the population) and 7 (defining the psychological variables) were then combined with an AND command, to search for papers that examined psychological variables in the target population



The results of the search strategy were then de-duplicated in Ovid.

Once the results of these searches were de-duplicated, they were then screened by title, to exclude any clearly irrelevant papers. The remaining papers were then screened by abstract. Finally, full texts of all remaining studies were extracted and read in full, leading to the exclusion of several more studies based on non-adherence to the inclusion criteria (for example, one paper described an adolescent population but this was not clear from the abstract). Once the final papers had been identified, it was noted that the psychological predictor in several of the papers was carer sensitivity, and that this had not been included in the search. The search was then re-run, using the same search terms for child population and mental health, but using solely 'sensitiv*' as a psychological variable search term. These results were then screened by abstract, and one additional text was found (Saro et al., 2009). In order to reduce the possibility of potentially relevant articles not

being identified in the database searches conducted, bibliographies of all included studies were also searched to check whether there were any other relevant articles that had not been identified by the initial search.

2.2 Inclusion criteria

The literature search included studies of child subjects written in the English language. There was no limitation on publication year for the main search, although all the studies that were eventually screened for review were published in the last 15 years. An article was included if it met the following criteria: 1) the study related to children who were looked after in foster or kinship care (i.e. were not residing with biological or adoptive parents), 2) the subjects were of preschool age (0-6 years), 3) there was a child mental health outcome variable, 4) there was a psychological variable of interest relating to these mental health outcomes, and 5) the study reported novel quantitative research in a peer reviewed journal.

2.3 Quality assessment

After fully reviewing the full texts of included studies, one researcher (HH) evaluated the risk of bias and quality of all the included studies using the Crowe Critical Appraisal Tool (CCAT – Crowe & Shepherd, 2011 – see appendixes). This tool assesses quality on the following domains; preliminaries, introduction, design, sampling, data collection, ethical matters, results, and discussion. Each section is scored out of 5, giving an overall total score out of 40. Papers were read twice before ratings were awarded, and the scores given were based on the information provided within the paper. A second researcher

(FT-H) also individually rated 75% of the studies using the CCAT. Inter-rater reliability within 2 points on the CCAT was 62%. HH and FT-H met to fully discuss any areas of discrepancy, in order to determine final quality ratings for the included studies. The researchers had set up a system where a third researcher with expertise in this field would meet with HH and FT-H to discuss and assess any areas of discrepancy, but this was not required due to consensus being reached for all studies.

2.4. Data extraction

PRISMA guidelines were used as a framework for this review (Moher, Liverati, Tezlaff, Altman & Group, 2009). Information was extracted from the included papers regarding study population, country, study design, sample size, measures used, mental health and psychological variables studied, follow-up period and key findings.

3. Results

3.1 Outcome of literature search:

2398 potentially relevant studies were found by the initial search of PsycINFO, Embase, Epub & Ovid Medline(R). 3 additional articles were found by hand-searching the reference lists of included studies and relevant reviews identified in the search, of which 2 were later excluded when the full texts were examined. De-duplication of these results left 1917 unique articles, plus 175 from the later “sensitive” search. The initial title screen led to the exclusion of 1064 papers, and a further 945 were then screened out by abstract. After these screens were complete, 83 papers remained for full text review. Of these full texts that were screened for eligibility, 16 were excluded due to the population being outside the age range, 4 were excluded due to there being no psychological variables in the analysis, 19 were excluded due to a lack of mental health focus, 2 were excluded due to a lack of a foster care sample, and a further 30 were excluded due to the studies not being original quantitative research published in a peer review journal (see Fig. 1). This screening left 12 studies to be included in the final review (see Table 1).

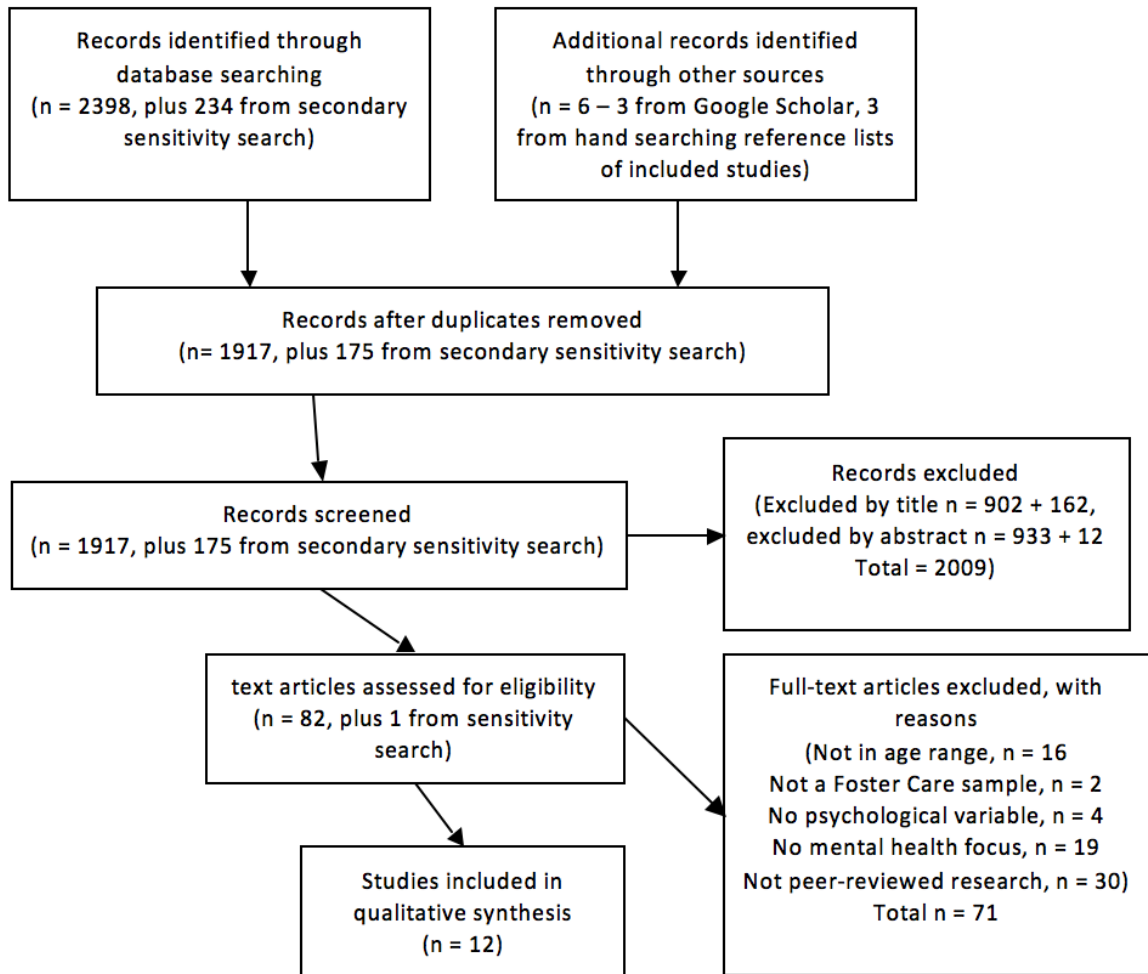


Fig 1. Flowchart of systematic literature review using PRISMA

Author Year	Location (Country)	Sample Size	Population	Study design	Psychological variable (child)	Psychological variable (carer)	Mental health outcome	Follow up	Psychological variable Measures	Mental health measures
Ackerman & Dozier, 2005	US	39	FCh at age 2 years and then 5 years	Longitudinal	N/A	FCr investment & state of mind regarding attachment	FCh self-acceptance	3 years	TIMB SAT	Projective Puppet Interview
Bovenschen et al., 2016	Germany	49	FCh aged 3-8 years	Cross-sectional	Attachment style	FCr sensitivity	Negative affectivity	N/A	Attachment Q Set, ASCT, video-coded interaction	CBQ
Dubois-Comtois et al., 2015	Canada	83	FCh aged 1-7 years	Cross-sectional	N/A	Quality of FCr Interaction, FCr commitment	FCh internalising and externalising problems	N/A	TIMB, Parent-Child Interaction Scale,	CBCL
Gabler et al., 2014	Germany	48	FCh aged 1-6 years	Longitudinal	Attachment style	FCr stress, FCr sensitivity	FCh internalising problems	6 months	Attachment Q Set, PSI,	CBCL
Gleason et al., 2013	Romania	60	Previously institutionalised FCh aged 0.5-2.5 years	RCT	Attachment disorganisation	Caregiving quality	FCh Indiscriminate Behaviours,	30 & 42 months	SSP, Observational record of the caregiving environment	Stranger at the Door, Bayley
Harden et al., 2015	US	47	Preschool aged FCh (mean age 5 years)	Cross-sectional	N/A	Carer acceptance/emotional support	Child behaviour	N/A	HOME,	CBCL, structured tasks to assess FCh compliance & internalisation
Hillen & Gafson, 2015	UK	43	FCh aged 0-6 years	Cross-sectional	N/A	Child-carer alienation	Mental health disorders	N/A	PIR-GAS	PAPA, ASQ:SE,
McLaughlin et al., 2012	Romania	136	Previously institutionalised FCh aged 0.5-2.5 years	RCT	Attachment style	N/A	FCh internalising problems	54 months	SSP	PAPA
Oosterman & Schuengel, 2008	The Netherlands	61	FCh aged 2-7 years	Cross-sectional	Attachment style	FCr	FCh externalising problems	N/A	Attachment Q Set, semi-structured free play	DAI, CBCL,
Pasalich et al., 2016	USA	210	FCh aged 0.5-2 years	RCT	Intervention targeting child attachment	Intervention targeting carer sensitivity	FCh externalising problem behaviour	6 months post interventic	TAS-45	BITSEA, CBCL
Salo et al., 2009	Finland	14 FC, 7 bio	Drug exposed infants	Cross-sectional	N/A	Emotional availability and parental self-efficacy	FC social-emotional development	N/A	Video-coded free play, EA scales, SEPTI-TS	Bayley

Lindheim & Dozier, 2007	US	102	FCh 0-1.5 years	Longitudinal	Foster carer commitment	Child problem behaviours	11 months TIMB	CBCL
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Table 1: List of included studies with summary

Key: FC –foster care; FCh – children in foster care; FCr – foster carer(s); RCT – randomised controlled trial; SAT – Separation Anxiety Test (Main, Kaplan & Cassidy, 1985); SSP – Strange Situation Procedure (Ainsworth & Bell, 1970); TIMB – This is My Baby (Bates & Dozier, 1998); PAPA – Preschool Age Psychiatric Assessment (Egger, Ascher & Angold, 1999); DAI – Disturbances of Attachment Interview (Smyke & Zeanah, 1999), CBQ – Children’s behaviour Questionnaire (Putnam & Rothbart, 2006); CBCL – Child Behaviour Checklist (Achenbach & Rescorla, 2000); CAPI – The Child Abuse Potential Inventory (Milner, 1990); AQS – Attachment Q Set (Waters, 1995), ABC – Attachment & Biobehavioural Catchup (Dozier, Dozier & Manni, 2002); PSI/SF; Parenting Stress Index Short Form (Abidin, 1995); ASCT – Attachment Story Completion Task (Bretherton et al., 1990); ASQ:SE – (Ages & Stages Questionnaire: Social-Emotional (Squires, Brickler & Twolmby, 2003); PIR-GAS – The Parent-Infant Relationship Global Assessment Scale (Skovgaard et al., 2005); BITSEA – Brief Infant Toddler Social Emotional Assessment (Briggs-Gowan & Carter, 2002); TAS-45 - Toddler Attachment Sort-45 (Kirkland, Bimler, Drawneek, McKim, & Scholmerich, 2004); Stranger at the Door (Gleason et al., 2011); EA Scales – Emotional Availability Scales (Biringen et al., 1998); SEPTI-TS - The Self-Efficacy for Parenting Tasks Index–Toddler Scale (Caleman & Karraker, 2003), Bayley - Bayley Scales of Infant and Toddler Development, Third Edition (Bayley-III; Bayley, 2006), HOME – Home observation for the measurement of the environment (Caldwell & Bradley, 1984).

Study	Preliminaries	Introduction	Design	Sampling	Data collection	Ethical Matters	Results	Discussion	R1 total	R2 total	Consensus total score
Ackerman & Dozier, 2005	4	5	4.5	4.5	4.5	3	4	4.5	*34	29	34
Bovenschen et al., 2016	4	4.5	3.5	4	4	2	4	5	*31	35	33
Dubois-Comtois et al., 2015	4	5	3	4	4	3.5	4	5	*32.5	40	34.5
Gabler et al., 2014	5	5	4	3.5	4.5	2	4.5	4.5	33	34	33
Gleason et al., 2013	5	4.5	4.5	4.5	4	3	4.5	4.5	34.5	34	34.5
Harden et al., 2015	4	5	3	4	4	2	3.5	4.5	30	32	30
Hillen & Gafson, 2015	4.5	5	4	4	3.5	3.5	4	5	33	N/A	33
McLaughlin et al., 2012	5	5	4	5	3.5	3	5	5	35	N/A	35
Oosterman & Schuengel, 2008	4.5	5	3	3	4	3	4	4.5	31	N/A	31
Pasalich et al., 2016	4.5	4.5	4.5	4.5	4.5	4	4.5	4	35	N/A	35
Salo et al., 2009	4	5	3.5	4	4	3	3.5	4	31	32	31
Lindheim & Dozier, 2007	5	5	4	4	4	4	5	4	35	37	36

Table 2: Quality criteria ratings of included studies using the Crowe Critical Appraisal Tool (a copy of the tool and its scoring can be found on page 155 of the appendixes)

* Papers that had ratings of more than a 2-point discrepancy (indicated with an asterix), were discussed between R1 and R2 to reach consensus. In 1 of the 3 cases, the discrepancy could be accounted for by the fact that ethical information had not been noted by R2 (it followed the main body of the text), leading to a lower rating overall. There were no cases in which consensus could not be easily reached by discussion of the points of discrepancy. Only one paper had more than a 5 point discrepancy in quality score between R1 and R2.

Author Year	Main findings
Ackerman & Dozier, 2005	FCr who were more accepting had FCh who developed more positive self-representations, <i>partial r</i> (39) = .40, $p < .05$. FCr acceptance was also associated with FCh coping in separations, r (39) = .40, $p < .05$.
Bovenschen et al., 2016	Significant correlational relationship found between FCr emotional support & FCh negative affectivity, r (45) = -.37, $p < .05$, but not between FCr respect for autonomy and FCh negative affectivity. 17% of variance in child attachment security predicted by child negative affectivity.
Dubois-Comtois et al., 2015	Higher quality interactions between FCr & FCh were associated with fewer internalising, $\beta = -.29$, $p < .01$, and externalising problems in FCh, $\beta = -.26$, $p < .05$. FCr commitment was also associated negatively with FCh internalising, $r = -.52$, $p = .005$, and externalising, $r = -.46$, $p = .015$.
Gabler et al., 2014	FCh internalising & externalising problems positively correlated with FCr stress at baseline, $r = .50$, $p < .001$ (internalising), $r = .61$, $p < .001$ (externalising), and internalising at follow up, $r = .57$, $p < .001$. No significant associations were found between child's attachment security and behavior problems at either time points ($r = .02$ – $.23$).
Gleason et al., 2013	Caregiving quality at baseline and 30 & 43 month follow up was associated with indiscriminate behaviour, $\beta = -2.6$, $p < .04$. FCh attachment disorganisation also contributed to indiscriminate behaviour, $\beta = 0.50$, $p < .01$
Harden et al., 2015	Trend for a correlation between carer acceptance and child's likelihood to comply with their standards, $r = -.278$, $p < .10$, relationship found to be significant in regression analyses, $\beta = -.338$, $p < .05$, with acceptance accounting for 15% of the variance in children's compliance levels. Child internalization of carer's standards modestly contributed to externalising problems, $\beta = -0.38$, $p < .05$.
Hillen & Gafson, 2015	Child-carer alienation significantly associated with mental health disorders, Relative Risk 1.78, 95% CI (1.12, 2.86), $p = .02$. Strong correlation between the number of risk factors (e.g. multiple placement moves, multiple types of maltreatment) and the number of comorbid mental health difficulties per child, $r = .67$, $p < .001$.
McLaughlin et al., 2012	Greater attachment security predicts fewer internalising disorders in previously institutionalised foster children, $\beta = -0.49$, $p < .001$.
Oosterman & Schuengel, 2008	Correlation found between FCr sensitivity & teacher rated externalising problems, $r = -.35$, $p < .05$. Regression analyses with child attachment as a predictor yielded significant associations both for externalising, $R^2 = .32$, $F(3,56) = 8.77$, $p < .001$, and internalising, $R^2 = .36$, $F(3,56) = 10.36$, $p < .001$.
Pasalich et al., 2016	Attachment security at baseline was negatively associated with externalising problems at 6 month follow up, $r = -.20$, $p < .01$. There was no main effect for the study parenting intervention.
Salo et al., 2009	High perceived carer self-efficacy accounted for significant variance in child scores on the Bayley Socio-Emotional scale, $\beta = .50$, $\beta < .01$.
Lindheim & Dozier, 2007	Carer commitment predicted child behaviour problems at T1, $r = -.45$, $p < .01$, but not T2, $r = -.43$, $p > .05$. Commitment and behaviour problems remained stable over time. Child behaviour at T1 predicted carer commitment at T2, $r = -.43$, $p < .05$.

Table 3: Main findings of included studies

3.2 Quality of included studies:

Overall, the studies included were of a fair to good standard. For the 75% of the papers that were double rated, the 2 rater's scores were within 2 marks of each other for 75% of these papers. The remaining 25% of papers were discussed and a consensus was reached. Overall, the studies included showed strength in their introduction and discussion sections. The area of the CCAT that showed the most discrepancy was that of ethical issues, with some papers (e.g. Lindheim & Dozier, 2007, and Pasalich et al., 2006) giving a relatively full account of their abidance of ethical principles (such as taking informed consent, explicitly noting sources of funding and of favourable opinion from an independent ethical committee), whilst others (such as Bovenschen et al., 2016, Gabler et al., 2014, and Harden et al., 2015) gave very limited attention to these matters. Whilst all areas of the CCAT were considered to be of importance whilst determining the quality of each paper under review, the areas that were decided to be the most important were those related to the research process itself, rather than the more stylistic elements associated with the write up. Particular importance was assigned to research design (e.g. descriptive/observational vs. experimental, and the suitability of that design), sampling (e.g. did the study recruit enough participants to answer their research questions), data collection (e.g. were the measures used valid, reliable and appropriate), and the interpretation of results / consideration of practical usefulness of the study. A full breakdown of quality assessment can be seen in Table 2.

3.3 Summary of Main findings (see Table 3):

3.3.1 Overall Population.

The population identified in this review were children in foster care, aged from birth to 8 years. The total N of all studies combined was 899 (including 7 children from the Salo et al. (2009) study who were living with biological parents). 4 studies were conducted in the US, 1 in Canada, 5 in Western Europe and 2 in Eastern Europe. Despite not screening out studies of children in kinship care, none of the final 12 studies had a solely kinship care population (for all studies the majority of children were in non-kin foster placements). Gender information was provided by 10 of the 12 included studies, and across these, 54% of participants were male and 46% were female. The mean age of participants was reported in 10 studies, and the weighted mean age across the sample of those studies (n= 831) was 30.5 months. Only 5 of the included studies included information regarding the participants' ethnicity, and across these, 56% of participants were Black (including African American and Black British), 24% were White (including European American and White British), 8% were of Mixed Heritage, and 12% were from Other Ethnic Backgrounds. 6 of the included studies included demographic information about the foster carers (overall n=368). These carers had an overall mean age of 44, and tended to be female, married or in a relationship, and had completed high school.

3.3.2 Overall findings.

Overall, all of the studies reviewed were of moderate or high quality (the lowest score on the CCAT was 30/40). The majority of measures used answered the research questions well. There was considerable variety however in terms of measures used and research design across the papers, which made a meta-analysis of the results impossible. A specific data extraction form was not used due to the variety of research designs and measures, yet it was possible to extract the information required to help answer the research question from all of the

studies. Although the number of RCTs and large longitudinal studies identified was relatively small, and there are some discrepancies in the findings, there does seem to be some evidence that both child and carer variables have some relationship to child mental health outcomes.

3.3.2. What child psychological variables are associated with mental health outcomes in looked after pre-schoolers?

The only child psychological variable that was discovered by the search strategy was child attachment. This was looked at both in terms of attachment security (n=5) and attachment disorganisation (n=1). Child attachment was discussed in all 3 RCTs identified by the search, as well as 1 longitudinal study, and 2 cross-sectional studies. All 3 RCTs were rated highly on the CCAT for quality (see table 1 for detail), and 2 of the 3 had the largest sample size of any of the papers identified for review (McLaughlin et al., 2012 & Pasalich et al., 2016). The population for the McLaughlin et al. (2012) study was 136 previously institutionalised Romanian foster children aged 6-30 months, who were taking part in the Bucharest Early Intervention Project (BEIP – Nelson et al., 2007). This study found that greater child attachment security as scored from behaviour on the Strange Situation Procedure (SSP; Ainsworth & Bell, 1970) predicted the lower rates of internalising problems identified by the carer-report Preschool Age Psychiatric Assessment (PAPA; Egger, Ascher & Angold, 1999) at a 54 month follow up. This study had a rigorous methodology, and used well-validated measures, meaning that it is likely that this is a valid and clinically useful finding. This study was also ethically sound, although cited another paper to describe most of the ethical implications, which made this more difficult to determine and led to a slightly decreased ethics score on the CCAT. It may also have less external validity for researchers and clinicians in countries that do not use mass

institutionalisation in the form of orphanages, as this represents a level of social and emotional deprivation that would not be the norm for children in foster care in most developed countries. This could limit the clinical utility of this study, regardless of the strength and rigor of its methodology.

The Gleason et al. (2013) study also utilised data from the BEIP, although reported on different variables. It therefore is subject to the same strengths regarding methodology and weaknesses regarding generalizability as the McLaughlin (2012) study. This study had a sample size of 60 young (6-31 months) Romanian children, 29 previously institutionalised and now in foster care and 31 remaining in an institution. This study looked at indiscriminate behaviour during the Stranger at the Door Procedure (SDP), e.g. leaving with a stranger who comes to the door of the child's home. Indiscriminate behaviour is a key component of both disorganised attachment and disinhibited social engagement disorder (DSED), characterised by a lack of fear of unknown adults. This diagnosis is only given in the context of child maltreatment, and was previously categorised under the broader umbrella of reactive attachment disorder (RAD) (see Minnis et al., 2006), which now describes an inhibited relational style that may develop in the context of maltreatment. Both disinhibited social engagement disorder and reactive attachment disorder can be controversial diagnoses, due to their tendency to improve when a child is placed into a supportive environment. The Gleason study however focussed on a characteristic associated with DSED, rather than studying the possible diagnosis in itself. This does mean however that the paper did not utilise a standardised measure of a specific mental health outcome (such as depressive symptomology), which arguably makes the findings less useful in terms of the specific research questions of this review. In this study, foster children's disorganised attachment (as coded from

the SSP) and care giving quality at 30 and 42 months both contributed significantly to the child's behaviour in the SDP, with less disorganisation and higher quality caregiving being associated with less indiscriminate child behaviour across the whole sample. The effect size for attachment disorganisation on leaving behaviour in the SDP was small to medium at 0.47. These results would suggest that child attachment also has an effect on indiscriminate behaviours as well as the effect on internalizing problems found in the McLaughlin (2012) study, and that the carer psychological variables of caregiving quality also plays a role in the development of mental health difficulties in this population.

The other RCT in this review was the Pasalich et al. study (2016), which reported on data from 210 children aged 10-24 months in the US foster care system. This study was an evaluation of an intervention that was designed to target foster carer sensitivity and child attachment, whose main outcome was foster child externalising behaviour 6 months after the intervention was complete. This study found that attachment security at baseline was negatively associated with externalising problems at 6 month follow up (with a small effect size of 0.29), but showed no main effect for the intervention. This may suggest that the psychological variables associated with the child are more important than those associated with their carers in terms of their mental health development. This study did not however report data on whether or not the intervention had been successful in increasing carer sensitivity, so it is impossible to glean whether or not this would have been an important variable in the foster child's mental health development. This study used the Child Behaviour Checklist (CBCL; Achenbach & Rescorla, 2000) to assess externalising symptoms, which is valid and reliable for this population, and the Toddler Attachment Sort-45 (TAS-45; Kirkland, Bimler, Drawneek, McKim, & Scholmerich, 2004) to assess attachment security, which is a relatively new

measure, and whilst it has some evidence of validity and reliability, it would arguably have been more robust to use the SSP to assess the child's attachment style. Overall however, all three of the RCTs were high quality, clinically useful studies.

The link between foster child attachment and mental health was also examined in one longitudinal study (Gabler et al., 2014), although this was a minor focus of the paper (the main findings will be discussed under carer psychological variables). This study presented data on 48 German foster children aged 1-6 years. It examined child attachment style using the Attachment Q-Set, and found no significant relationships between child attachment style and behavioural problems. This finding is contrary to the results of the aforementioned RCTs. This could be partially due to the fact that attachment was assessed at time of placement, when the children had not had time to form a stable attachment to their caregiver, however attachment was also measured at 6 month follow up and still had no significant relationship to child behavioural problems. This study however only had an N of 48,, and child attachment was a minor focus. It also did not use the SSP, although the Attachment Q-Set has been found to be well validated against the SSP in a large-scale meta-analysis (van Ijzendoorn et al., 2004), so this in itself does not suggest lower study quality.

Two cross-sectional studies also examined the links between foster child attachment and mental health. Bovenschen et al. (2016) found that attachment security was predicted by the child's negative affectivity ($R^2 = .43$, $F_{3,27} = 6.79$, with 17% of the variance in attachment security being predicted by child negative affectivity), which adds to evidence of the link between child attachment and mental health outcomes in this population that was found in the RCTs (although the direction of this relationship was opposite to our main research question surrounding the psychological variables that influence mental health outcomes). The

other cross-sectional study by Oosterman & Schuengel (2008, n=61) had a sample age range that was slightly outwith the target population for this review, but was included as the mean age of participants was 57 months. This study, like the Pasalich (2016) study, found a link between child attachment style (on the Attachment Q Set (AQS; Waters, 1995) and both externalising and internalising problems (both teacher and carer report). This finding is contrary to that of the Gabler (2014) study which used the same methodology to assess attachment (where no link was found between attachment style and internalising or externalising problems), but is in line with the finding of the McLaughlin et al. (2012) paper that suggests that child attachment is linked to internalising problems. As the McLaughlin et al. (2012) study had a larger sample size, more robust design and rated higher for quality on the CCAT, and as the Oosterman & Schuengel (2008), Bovenschen (2016) and Pasalich (2016) papers found a relationship between foster child attachment and mental health difficulties, it is likely that the relationship does exist but was not detected in the Gabler (2014) paper. Overall, given the evidence in the literature identified by the search, it would be safe to assume that attachment in pre-school aged foster children is related to both internalising and externalising problem behaviours, and that both attachment security and disorganisation are important in terms of mental health outcomes.

3.3.3. What foster carer psychological variables are associated with mental health outcomes in looked after pre-schoolers?

The carer variables that were investigated by the included studies were carer investment/commitment, sensitivity, stress, self-efficacy, acceptance, child-carer alienation, and caregiving quality. The variable supported by the strongest evidence was carer commitment,

which was linked to reduced behaviour problems and increased positive adjustment.

The search strategy identified 3 longitudinal studies. The highest quality of these studies was the Lindheim & Dozier (2007) paper, which examined foster carer commitment and child behaviour problems in a sample of 102 preschool aged child and foster carer dyads in the US. Children were aged 0-20 months at baseline, and were followed up after 11 months. The This is My Baby interview (TIMB; Bates & Dozier, 1998) and CBCL were used at both time points; carer commitment as ascertained by the TIMB interview (which was designed for the foster care population) predicted child behaviour problems (on the CBCL) at baseline, but not at follow up. Both carer commitment and child behavioural problems remained stable over time, and child behaviour at baseline predicted carer commitment at follow up, suggesting that a child with fewer behavioural problems encountered more commitment from their carer a year later. This paper used measures that were valid and reliable for this specific population, had a large sample size and was methodologically sound. The findings suggest that certain carer psychological variables have a significant relationship with child mental health outcomes, and that highly committed carers may have foster children with fewer behavioural problems. This study was however unable to determine the direction of this relationship, so it is impossible to say whether carers find it easier to commit to less behaviourally challenging children, or if high levels of commitment lead to a reduction in child behavioural problems over time. This makes the findings less clinically useful, as it does not provide enough evidence upon which to design an intervention that had child behavioural problems as a target for change. It is also difficult to ascertain why the relationship between commitment and mental health outcomes that was found at baseline was not significant at follow up; the authors discussed the possibility that child behaviour may have a greater impact on carer commitment in the earlier stages of

placement, but this assumption has not been tested so remains unclear. Further research would be needed to provide a comprehensive understanding of these findings.

The highest quality rated cross-sectional study by Dubois-Comtois et al., (2015) which reported data on 83 Canadian foster children aged 1-7 years also investigated carer commitment. This study found that carer commitment as assessed by the TIMB interview was associated with positive adjustment in foster children. This finding is in line with the Lindheim and Dozier (2007) paper, and provides further evidence of a link between a carer's level of commitment to the foster child and that child's mental health outcomes, and could indicate that these relationships exist within various cultural contexts as they were carried out in different countries with differing foster care systems. It would be beneficial to see more research being carried out using the TIMB interview outside the US/Canadian systems to further investigate this. In addition to the aforementioned findings regarding carer commitment, the Dubois-Comtois et al. (2015) study also found that higher quality interactions (as coded from the Parent-Child Interaction Scale) between foster carers and foster children were associated with fewer internalising and externalising problems (CBCL) in the foster children. This is a helpful finding as it does not rely solely on carer report, but on both observational study and carer report of behaviour problems. This would limit the level of bias that could be expected if the quality of interaction variable was self-reported. The Gleason (2013) study (discussed previously) also had a focus on caregiving quality, and found evidence suggesting quality of caregiving was negatively associated with children's indiscriminate behaviour. These results would suggest that caregiving quality is related to a variety different mental health outcomes.

In addition to child attachment, the aforementioned study by Gabler et al. (2014) also examined the link between foster carer stress and sensitivity and child mental health.

Carer stress but not sensitivity was positively correlated with foster child internalising and externalising problems on the CBCL at baseline and at 6 month follow up, suggesting a significant relationship between levels of carer's stress and child's mental health difficulties (cross lagged panel analyses, a type of structural equation modelling that focuses on the interactions between variables across 2 or more time points indicated that lower parental stress and supportive presence may help diminish child internalising problems over time). The cross-sectional Oosterman & Schuengel (2008) study also focussed on carer sensitivity, and found a link between video rated carer sensitivity and teacher rated externalising problems on the CBCL. No associations were found however between sensitivity and carer reported child behavioural problems on the CBCL. It is arguable that teachers in this circumstance could be more reliable informants, as they do not have the same reporting pressures as carers may (such as potentially feeling the need to indicate that the child is coping well in their care and thus underscoring their problems on the questionnaires), but this was not examined in this paper.

Foster carer state of mind regarding attachment was also found to be associated with child outcomes. This variable was investigated in 1 longitudinal study by Ackerman & Dozier (2005), which sampled 39 US foster children aged 2 years who were part of a larger longitudinal study. The subset of foster children were chosen as they were still with the same carer at follow up when they were 5 years old. This paper looked at foster carer state of mind regarding attachment, and found that carers who were more accepting (as assessed by the TIMB interview) had foster children who developed more positive self-representations (assessed by the Projective Puppet Interview). This relationship remained significant when covariates of child IQ and child behaviour problems were controlled for. The carer's level of

acceptance was also associated with their foster child's coping in separations in the SAT. Although this paper did not use a standard method of assessing mental health in the foster children (such as the CBCL or ITSEA), it does provide further evidence that the carer psychological variables that are investigated by the TIMB interview are linked to mental health correlates, such as the (positive or negative) way a child views themselves. The findings of this study would have been even more helpful if the authors had included a validated measure of self-esteem or mental health functioning as additional dependent variables to help give depth to their results. It is difficult to fully glean the relationship between carer acceptance and child mental health as the study lacked a validated measure of mental health.

The only UK based study, Hillen and Gafson (2015), (n=43) found that child-carer alienation had a significant relationship with mental health problems. This cross-sectional study aimed to recruit a representative sample of children entering care in London, so its results may be the most generalizable in the UK context. As it was the only study to examine child-carer alienation however, and it was not a large scale and/or longitudinal study, more research would be needed to provide an understanding of the importance of this variable with regard to child mental health outcome. It also used the PAPA rather than the CBCL to assess mental health, a measure that was only used by one other of the selected studies (McLaughlin et al., 2012) which looked at child rather than carer variables. It is therefore not possible to synthesise these findings with that of other papers, other than that it did find a link between a foster carer psychological variable and child mental health which is in line with findings of the studies that linked other carer psychological variables such as Gabler et al., 2014).

As well as the aforementioned findings regarding child attachment security, the Bovenschen et al. (2016) study also found a link between higher foster carer emotional support

of the child and lower child negative affectivity. No relationship was found between carer respect for child autonomy and child negative affectivity. This is interesting given the finding by Ackerman and Dozier (2005) that carer acceptance is linked to mental health outcomes, as the two concepts are similar in that they both involve respecting and accepting the child as s/he is. The differences could be due to the methodology however, as the Ackerman and Dozier (2005) paper used carer interview whereas the Bovenschen (2016) paper used video coding to achieve their ratings, and each method has its own pros and cons, making comparing the two problematic. Carer interview for example may be vulnerable to bias, with carers potentially reporting what they feel that they should, and video coding may also be vulnerable in a different way, with carers potentially behaving differently to how they usually would due to them being under observation. The Bovenschen (2016) paper was also insufficiently powered to detect small effects so a relationship of this nature could have been missed. The Oosterman and Schuengel (2008) paper gathered both teacher and carer report of child behavioural problems on the CBCL, and found a link between video rated carer sensitivity and teacher rated externalising problems, but no associations with the foster carer report. The combination of this mixed finding and the discrepancy in the findings noted between the Bovenschen (2016) and Ackerman and Dozier (2005) papers demonstrate that much more research is needed in this area before any definitive conclusions can be drawn regarding the predictive nature of carer emotional support and child mental health outcomes.

The two remaining studies had methodological weaknesses that make it difficult to use their findings to help answer the review question. The Salo et al. (2009) paper, whilst well written and relatively high quality, had a very small sample size of 20, with only 14 of those participants being in foster care. All the children in the study were all also exposed to

Buprenorphine (an opiate) in pregnancy, which may further limit the generalizability of the results, especially given that Buprenorphine is not a particularly popular drug outside the study's country of origin. Nonetheless, this study had an interesting finding that high perceived carer self-efficacy accounted for significant variance in child scores on the Bayley Social-Emotional subscale, so it is possible that carer confidence and self-efficacy has some effect on foster child social-emotional development. This finding would however need to be evidenced by larger, longitudinal studies of a general foster care population. Finally, the Harden et al. (2015) paper (n=47) was problematic in that it examined both foster carer psychological variables (carer responsivity and acceptance), and child behaviour scores on the CBCL, but did not provide detailed analysis of the relationship between the two. This study did however show that foster carers who displayed higher levels of acceptance had foster children who were more likely to comply with their standards (e.g. follow their instructions / rules), which is arguably linked to externalising problem behaviours, although the study also found no link between child compliance and externalising problems so this link is tenuous at best.

3.3.5 Outcome measures

In terms of psychological variables, the measured used were very varied, making clear comparison between studies difficult. Child attachment was measured by several measures including the SSP (gold standard for use in very young children), the Attachment Q Set, and the TAS-45. Carer psychological variables were measured by both interview/questionnaire (e.g. the TIMB, the PSI, and EA scales), and coded by interactions of free play/interaction (e.g. PIRGAS). Carer stress and emotional availability was coded from validated self-report scales, and caregiving quality was assessed via structured observation.

Carer commitment was assessed using the This is My Baby (TIMB) interview, and related to the amount a carer was invested to the child remaining in their care. Acceptance was also assessed using this measure, and related to how much the carer accepted the child as they are. In terms of mental health outcomes, again, a wide variety of measures were used, such as the CBCL, the BITSEA, the Bayley Scales, the DAI and the PAPA. Most studies focused on externalising and internalising problems. Overall, the majority of measures used were reliable and valid, and fit for purpose.

4. Discussion

This systematic review identified 12 unique research studies examining the links between child and carer psychological variables and the mental health outcomes of preschool children in foster care. The studies that were rated highest in terms of quality criteria all found links between psychological variables and child mental health outcomes. These psychological variables related both to the child (e.g. child attachment style was associated with internalising and externalising problems – McLaughlin et al., 2012 and Pasalich et al., 2016 respectively), and to the carer, with links being found between caregiving quality and carer commitment and child mental health (Gleason et al., 2013 and Dubois-Comtois et al., 2015). Of the 12 studies reviewed, 11 reported data directly linking a psychological variable with a mental health outcome, such as internalising or externalising problem behaviour. One study (Harden et al., 2015), only reported a link between a psychological variable (carer acceptance) and child compliance, which is arguably linked to but is not a direct measure of a child mental health outcome. The studies generally reported a link between child attachment style and mental

health outcome, which was largely to be expected given the link between these variables in children who are not in foster care (Alhusen, Hayat and Gross, 2013), although previous research had not examined if these relationships would be the same in non-biological dyads. Only the Gabler (2014) paper found no links between child attachment security and mental health outcome, and it is possible that a relationship was missed due to the relatively small sample size and subsequent insufficient power to detect small effects. There was also some consensus across the studies that there seems to be a relationship between carers who are committed, accepting, sensitive and have a good quality relationship with their foster child and a tendency to have foster children who have fewer mental health problems. On the whole however, studies did not report on the direction of these relationships, except for the Gabler (2014) paper, whose analysis suggested that lower parental stress and supportive presence may help diminish child internalising problems over time. Overall, there does appear to be sufficient evidence to assume that there are significant relationships between child and carer psychological variables and the mental health outcomes of pre-school children in foster care, although the evidence was stronger in terms of child attachment than it was for the carer predictors.

4.1 Clinical Implications.

Several of the studies found a link between child attachment style and mental health outcome. This is important as this finding replicates that of general population findings (Schore, 2011), and suggests the need for interventions with this extremely vulnerable group to have both a mental health and an attachment focus (although this finding does require more research as this review largely reported on associations rather than predictors). A dual

attachment and mental health focus could be helpful given that children in foster care may not be benefiting from mental health services as they are designed currently (Bellamy, Gopalan & Traube, 2010). Several of the studies also found links between carer psychological variables (such as commitment and acceptance of their foster child) and child mental health outcomes, mostly relating carer commitment and quality of child / carer interaction and their links to foster child mental health development. This could be important learning in terms of foster carer training, and in terms of matching the children with the highest levels of need with carers who display high levels of commitment and acceptance in order to help them to have the best chance of developing positive mental health outcomes. The results found however are likely to be bi-directional, and causation cannot be assumed. Further research is needed to ascertain the complexities of the relationship between carer commitment and child mental health outcomes. Further research in this field could help clarify the evidence base around foster care interventions, as outcomes from foster care training are mixed, with studies often having poor methodological quality (Kerr & Cossar, 2014), and with interventions in the US seeing more positive outcomes than those carried out in the UK (Everson-Hock et al., 2012). Even well informed and evidence based foster carer training interventions may struggle to make an impact on the mental health outcomes of looked after children (e.g. Minnis et al., 2001), so there would be benefits to developing the evidence base around which elements of the foster carer-child relationship would be most efficacious to target.

4.2 Limitations of the review:

As noted previously, the breadth of measures and study designs utilised by the studies reviewed meant that a meta-analysis was not possible, and it is difficult to compare the

results of the studies to one another. Whilst there was a relatively good number of studies under review overall, there were not a sufficient amount to fully answer the research question, as the studies did not all focus on the same psychological variables. This meant that drawing firm conclusions about the strength of associations between carer psychological variables and child mental health was very difficult, as a wide variety of variables were discovered in the search, and there was little overlap between studies focusing on the same predictor variables. This was to be expected, given that this area of research is still in its infancy, but it is arguable that this review does more to highlight where more research is needed, rather than providing definite answers to the research question, especially with regard to foster carer psychological variables. The evidence was however clearer and more consolidated with regard to the child psychological predictor (attachment) on mental health outcomes.

Also, almost all of the studies relied solely on carer report of child mental health outcomes, which can be problematic given the potential for bias with these measurements. Carers are under significant pressure to provide the best possible environment for the children in their care, and their livelihood depends on having children placed with them continuously. This could result in problems being under-reported, especially when the child has been placed with them for a long period (e.g. Pritchett et al., 2016). It could arguably also lead to problems being over-reported, as committed carers seek the best possible support and treatments for their foster children. The reliability of foster carers as informants on their child's behavioural problems has been extensively discussed by Tarren-Sweeney and colleagues (2004), who found problems with the reliability of carer report of internalising problems. This could have had implications for this review as it is impossible to ascertain if and where carers over or under reported problems, as only one study (Oosterman & Schuengel, 2008) used reports from

another source (and found differences in the results between foster carer and teacher report). A multi-informant approach may be the most helpful for future studies.

Another limitation of this review was that the studies selected had a wide geographical remit, and it is unclear whether or not culture and different foster care systems would have an influence on the results. Despite this, the search did not discover any papers from South America, Africa, Asia or Australasia, so it is possible that the results of this review may be less generalizable outwith Europe and North America. This could be particularly relevant in countries where there are increasing pressures on the foster care system, for example in South Africa, where rates of children coming into foster care are continually growing year after year, whilst rates of adoption remain low (Rochat et al., 2016). Different countries also have differing thresholds and time periods for removing children from maltreating homes, such as in Australia where children tend to remain in the family home with input from direct family support services for as long as possible, and the US, where they tend to be removed at the start of an investigation (see Barron, ND). This could have a differing impact on the relationships the child develops with their foster family, and with their birth parents. Also, 6 of the reviewed studies were cross-sectional in design, and therefore determining direction or long-term validity of the studies is difficult or even impossible.

4.3 Suggestions for future research:

This review highlights that foster carer psychological variables such as commitment to their foster child may well be associated with mental health outcomes in a group of children that have a high mental health service need (Meltzer et al., 2003), but many of the carer variables identified in this review were only examined by one or two studies. Future

research should further this knowledge, testing the relationships discovered here with large scale, high quality studies, using both high quality self-report measures, but also well validated observational measures to minimise risk of bias (e.g. to not rely solely on information provided by a single person regarding the child as the information they provide may not always be accurate and reliable). Future research should also examine the complex relationships between the psychological variables of the carer that may have an effect on child mental health outcomes yet were not captured by this review, such as the carer's own attachment style or RF ability. This work would help to inform carer training, placement matching, and provide insight into how the mental health inequalities faced by young children in foster care can be reduced. Future research should also continue to explore the links between child attachment and mental health that have been reported in this review.

A future review could examine the links between psychological variables and child attachment style (with attachment style as an outcome rather than a predictor). Several papers that would have been relevant to that question came up in the searches for this review, but were excluded as they lacked a mental health focus. Given the known relationship between child attachment and mental health outcomes in the general population (e.g. Alhusen, Hayat & Gross, 2013; De Wolff & van Ijzendoorn, 1997), this would add to the findings of this review to improve its clinical utility. Finally, this review only looked at research using a quantitative methodology, but there are likely to be high quality qualitative research studies examining the link between psychological variables and foster child mental health. A qualitative review in the same area would also add depth and utility to the findings presented here.

5. Conclusion

This review suggests that there are psychological predictors in terms of child attachment and the aspects of child-carer relationship (such as relationship quality and caregiver commitment) that play a role in the aetiology of mental health problems in pre-school children in foster care. This has implications in terms of intervention development and service delivery for this group. Interventions targeting the mental health of children in foster care should consider measuring (and working to improve) the child's attachment security, and mental health services should be attachment informed, and provide a safe place for the child-carer relationship to blossom. Finally, not all foster carers will have an awareness of their own potentially positive influence over the children in their care. This element, and the importance of acceptance, commitment and relationship quality should be built into carer training programs, so that carers are made more aware of the significantly positive impact their work with the child can have on that child's mental health development. Foster carers should also be given sufficient support when a child moves on from their care, so that they are able to maintain high levels of commitment and provide their best quality of care to the children they will look after in the future.

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Title: Do foster carer commitment, acceptance, awareness of influence and reflective functioning predict child mental health outcomes?

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Summary:

Background: Over 15,000 Scottish children are currently looked after in foster care, usually due to abuse or neglect in the biological family. Early adversity has been linked to poor mental health and social outcomes across the lifespan. Positive foster placements can help reduce some of the inequality that these children face regarding their mental health and attachment development. We do not know however what aspects of the foster care relationship might best help the children to achieve positive outcomes.

Method: Data from 179 children aged 0-60 months who were taking part in a wider RCT was used for this longitudinal study. The This Is My Baby Interview was used to assess foster carer's commitment, acceptance, awareness of influence and reflective functioning (RF), and relationships between these variables and child mental health outcomes from the ITSEA were assessed at 4 weeks after entry to care, and 1 year following the child's baseline assessment.

Results: Carer commitment and awareness of influence predicted child competence at baseline. The TIMB variables combined also predicted child dysregulation at baseline. RF predicted internalising and externalising at follow up. None of the carer variables predicted change over time on the ITSEA scales.

Conclusions: There are aspects of the foster carer-child relationship that are linked to the child's developing mental health. More longer-term longitudinal research is needed to ascertain whether these relationships endure over time.

Keywords: Child, Pre-school, Infant, Foster Care, Mental Health, Child Welfare,

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Do foster carer commitment, acceptance, awareness of influence and reflective functioning predict child mental health outcomes?

1. Introduction

Recent statistics from the Scottish Government (The Scottish Government (2016), show that whilst the number of looked after and accommodated children in Scotland has been falling since 2012, there are still 15,317 children who require care outside the family home, usually due to abuse or neglect. The total number of children who were in care or on the child protection register as of July 2016 was 18,040, (The Scottish Government, 2016) which equates to around 2% of the population of Scottish children. There has been a wealth of research demonstrating that children who encounter adversity early in life are at significant risk of developing mental health and social difficulties in adulthood (e.g. Lansford et al., 2002, Barrett et al., 2013). Of all those who suffer early adversity, children who are placed into foster care are arguably the most vulnerable, with one Scottish study finding that over 90% of children in the foster care system had suffered abuse or neglect, and 60% demonstrated signs of mental health difficulties (Minnis et al., 2006). Although children who have contact with social services are more likely to come from disadvantaged backgrounds (Henderson et al., 2015), the increased mental health risk exists above and beyond the disadvantages associated with poverty. A large-scale, UK based study that compared outcomes for looked after children to both non-deprived and deprived children living at home found that being looked after by the Local Authority was associated with nearly all types of

psychiatric disorder (Ford et al., 2007). In addition to increased psychopathology, this study also found that looked after children had more educational difficulties and neurodevelopmental disorders than their stay at home peers, regardless of level of deprivation.

The most recent data from the Scottish Government (July, 2016) also showed a trend of increasing length of episodes of care in Scotland, with the percentage of children remaining in care for longer than 5 years having almost doubled since 2008. Although a number of these children may be in long stay, permanent foster or kin placements, this number will also include many children for whom there is no permanency decision, and whose futures remain uncertain. Placement instability has been linked to increased mental health needs (Rubin et al., 2004) and decreased wellbeing (Rubin et al., 2007), so it is important that the right decisions are made for these vulnerable children as early as possible. It is also vital that research continues to improve understanding of what makes foster care helpful for children and young people, and which factors may detract from the positive impact that a loving and supportive placement should be able to provide.

1.1 Attachment and mental health:

As well as the detrimental effects on mental health, young children who are exposed to early adversity may also face impaired relationships and cognitive development. This was first noted by Bowlby in his 1951 studies of institutionalised children, who displayed impaired speech and language development, reduced developmental quotients, superficial relationships and behavioural problems (Bowlby,

1951). Recent research has provided support for Bowlby's early work; a functional MRI investigation by Bick and colleagues (2015) found that children growing up in an orphanage in Romania had diminished white matter integrity in several areas of the brain, including the corpus callosum and limbic circuitry. Diminished white matter is a reflection of lack of use, and is the result of dendritic pruning – a process of synapse elimination that occurs due to the environment that the child grows up in. An emotionally neglective environment can therefore result in diminished white matter integrity in the areas of the brain that are associated with emotional development. The participants in this study were taking part in the Bucharest Early Intervention Project (BEIP), a longitudinal and large-scale RCT of a foster care intervention for institutionalised children. The Bick et al. (2015) study also found that the early intervention of removal into specialist foster care promoted more normative white matter development. This highlights the importance of early intervention with children who have suffered early adversity, and how a caring and supportive foster placement can have a positive impact on a child who has previously been severely neglected. Bowlby's findings that early adversity is related to the development of superficial relationships has been supported by the recent review carried out by Zeanah and Gleason (2015), who found a relationship between adverse caregiving environments and the emergence of disinhibited social engagement disorder, which is characterised by a lack of 'stranger danger' and a violation of social boundaries. Whilst this research can help to provide an understanding of the links between attachment and mental health, it has mostly been carried out with a previously institutionalised, Romanian population, whose early experiences were arguably vastly different from that of a child in foster care in the UK.

This makes it difficult to interpret these results within a UK context. Whilst research is still demonstrating the importance and validity of Bowlby's findings from more than sixty years ago, the links between attachment and mental health in the foster care population are still not fully understood, nor what psychological variables may help protect these vulnerable children from developing life-long adverse outcomes. Supportive foster care can be a helpful factor for these children, yet the elements of the foster carer-child relationship are most important in terms of their mental health outcomes are still widely unknown.

From Bowlby's initial works, the field of attachment research was born. Mary Ainsworth first described how babies use their mothers as a safe base for exploration (Ainsworth, 1967). Children who grow up in the context of abuse and neglect often lack this "safe base", and thus their ability to explore and develop positive relationships with others becomes impaired. Ainsworth later developed the Strange Situation Procedure (SSP; Ainsworth & Bell, 1970), the now gold standard measurement tool for infant attachment style. In this procedure, an infant goes through a series of separations and reunions with his primary caregiver, and his behaviour upon reunion can be used to categorise the child as having a secure, avoidant or ambivalent attachment style.

Children who develop a secure attachment to their primary care giver in infancy have improved social competence at school age (Bohlin, Hagekull & Rydell, 2000), and better physical and mental health outcomes and cognitive functioning across childhood (Ranson & Urichuk, 2008) than their insecurely attached peers. Children who have been maltreated by their caregivers are more likely to develop an insecure (Baer & Martinez, 2006) or disorganised attachment style (which is characterised by fear of the

caregiver) than all other children, including those from high-risk families (Cyr et al., 2010). Attachment research can be problematic due to the variety of ways attachment can be assessed (e.g. the SSP, Attachment Q-Set [Waters, 1995] and Manchester Child Attachment Story Test [Green et al., 2000]), each which have their own pros and cons, and arguably limited clinical utility due to the time involved with training and assessment. Despite this however, a recent review and meta-analysis found rates of both insecure and disorganised attachment to be high in the preschool aged foster child population (40% and 22% respectively), and also found high rates of mental health problems in this population (Vasileva & Peterman, 2016). It would appear that, regardless of the potential methodological and conceptual difficulties around attachment research, a link exists between encountering early adversity, and/or being looked after in foster care, and adverse attachment and mental health outcomes. Disorganised attachment has been linked with various negative outcomes in later life, such as increased psychopathology (Carlson, 1998), dissociative behaviour, problematic stress management and externalising problem behaviour (van Ijzendoorn et al., 1999). Insecure attachment has also been linked to unfavourable outcomes such as externalising problems, but the relationship is stronger for disorganised attachment (Fearon et al., 2010). This could perhaps be explained by the strong links between disorganised attachment and early maltreatment (Carlson et al., 1989).

1.2 Cognitive development and maltreatment:

As well as the risks to secure attachment development, maltreated children also encounter increased risks in terms of abnormal brain development and cognitive

functioning. In the first two years of life, brain growth is at its most rapid, resulting in a brain that is around 80% of its eventual adult weight by the time a child is two years old (Lenroot & Giedd., 2006). It is also around this time that the brain structures that are responsible for learning, stress management and personality are laid down and made permanent (Huttenlocher, 1994). Traumatic experiences at this vital age can significantly impact on the areas of the developing brain that are directly linked to mental health outcomes, such as the ability to regulate stress and emotions and to relate to others. Despite this however, infancy is the most receptive period in terms of brain development, where a child's brain is able to lay down changes with regards to its cognitive, linguistic, neurological and social emotional development (Chinitz et al, 2017). This means that a change in a child's caregiving or environment, whether positive or negative, can allow for changes in terms of their brain development. This neural plasticity, or the ability of the central nervous system to adapt to changes in the environment (Sharma, Classen & Cohen, 2016) allows the child to develop in a way that best equips them to survive in their unique environment.

It has been argued that psychological disorders of childhood can be traced to deficits in this early brain development (Trevvarthen & Aitkin, 1994), and whilst the causal relationship between childhood abuse and neglect and psychological disorders can not be fully understood (carrying out an RCT in this domain for example would be impossible and unethical), findings from the literature suggest that maltreatment is linked to developmental alterations in interpersonal and biological regulatory capacities that in turn may influence the onset of psychopathology (Ford, 2017) . From a Vygotskian developmental psychology perspective, a child's cognitive development

depends upon their cultural and social environment during childhood, as they internalise the knowledge that they gain from their close adults (Vygotsky, 1980). A review based upon Vygotskian theory found that mother-child reminiscing about previous shared experiences may be related to child temperament, language skills, and developing self awareness and child attachment style (Fivush, Haden, & Reese, 2006), so the way in which parents share experiences with their child may link to several correlates of developing mental health. This links in with social learning theory (Bandura & Walters, 1977), which explains how children encode and imitate the behaviour of those around them, and repeat the behaviours that are reinforced with reward. A child who grows up in a frightening or neglectful environment with little opportunity for positive social interaction will therefore likely struggle in their interactions with others, and may develop internalising and/or externalising problems as a maladaptive coping strategy. Internalising problems are characterised by internalised distress, such as depression/withdrawal and anxiety, whereas externalising problems relate to an external manifestation of felt distress, such as through aggression/defiance. A child who is emotionally neglected, for example, may learn that when he is defiant, he receives more attention from his parent, so this behaviour is reinforced and is repeated. Early deprivation may have an even greater impact if it continues for longer than 6 months, or during sensitive periods of development in young childhood, due to dendritic pruning leading to the reduction in synthesis of neurotransmitters involved in emotion regulation (see Verhulst, 2017). These theories and findings help to explain why an abused or neglected child may take a while to acclimatise to a new more caring environment when entering foster care, and why children in foster care have significantly higher rates of

mental health problems than children in the general population (Richardson & Lelliott, 2003), despite having been removed from the abusive or neglectful environment. It could also help explain why some less helpful coping strategies such as overeating (e.g. Cox et al., 2016) may be more common in this population. Also, research in the general population has shown that white matter development is much slower than that of grey matter (Knickmeyer et al., 2008), and as the recent Bick et al. (2015) study found that supportive foster care influences white matter integrity, it may be that the links made within and outwith the limbic system as a result of positive care need time to grow, develop and be rehearsed in order for the child to learn about positive family bonds and to feel an increased sense self-worth.

1.3 Protective factors:

Whilst a difficult early life places a child at increased risk of developing negative mental health outcomes, there is also evidence to suggest that entering a supportive foster or kin placement can offer protection to children in terms of their attachment and mental health outcomes. Research has shown that providing a nurturing and stable family environment can strengthen a child's resilience, and help to protect them from the adverse developmental outcomes that are associated with early maltreatment (Harden, 2004). In addition to this, positive foster placements can also lead to the development of secure attachments to foster carers from infancy to adolescence (Smyke et al., 2010; Joseph et al., 2014), and parenting interventions can also help in the development of secure attachments for maltreated children who stay at home with their parents rather than entering foster care (Cicchetti, Rogosch & Toth,

2006). Attachment theory is arguably a theory of risk and resilience in its own right, as traumatic attachment leads to negative internal representations in young children, and has both short and long term implications in terms of the child's developing mental health (, 2001). This has been discussed by Atwool (2006), who argues that the fields of attachment and resilience are complimentary, and strengthen each other when viewed as complimentary concepts.

Within mother-infant dyads, attachment security is strongly predicted by the mother's state of mind regarding attachment and her own views about her early attachment experiences (van Ijzendoorn, 1995). More recent research has shown that this relationship is similar in foster mother-child dyads (Dozier et al., 2001), suggesting that strong foster care placements can help children to develop similar positive attachment patterns to those that can be frequently observed in non-maltreating biological parent/child dyads. This is an interesting finding, and may suggest that the intergenerational patterns of attachment are seen in biological dyads (Fonagy, Steele & Steele, 1991) may also occur in foster dyads. This is not something that has been directly investigated in the literature, and would be an interesting field for future research. There is also evidence that other carer variables such as sensitivity are predictive in terms of the attachment of security of foster children (Ponciano, 2010), which demonstrates the importance of the relationship between child and carer in assisting the child to develop attachment security.

Recently there has also been a small amount of research demonstrating that the mental health of preschool children in foster care is directly linked to the security of their attachments (e.g. McLaughlin et al., 2012; Pasalich et al., 2016). Although this

research is quite limited and in its infancy, the findings do mirror those found in the living at home population of preschool children, for whom there is more high quality research available (e.g. a meta analysis by Madigan et al., [2003] who found insecure attachment is related to internalising problems), and tie in with findings that maternal mental health is related to child attachment security (Atkinson et al., 2000). There is also some evidence that placement in foster care over time shows positive effects on child mental health outcomes, with assessments in later childhood demonstrating more close rates of problem prevalence to control samples than earlier in the care journey (Fernandez, 2008).

Although research has begun to indicate that there are elements within the child-carer relationship that are protective in terms of mental health and secure attachment, this has not yet been fully explored in the literature. There has only been limited research into the psychosocial and interpersonal variables that may be predictive in terms of mental health development in older foster children, for example social support (Taussig, 2002), and even less in term of the pre-school population. A recent review of protective factors for resilience in maltreated children found supportive relationships to be consistently linked to resilience (Afifi & MacMillian, 2011), which suggests that there are elements of the carer-child relationship that could promote resilience and decrease the mental health burden in children in foster care. This review however did not focus solely on psychological resilience factors, and the literature relating to psychological predictors of positive mental health for young children in foster care is still an area that requires significant future work.

1.4 Foster carer-child relationship:

A tool that can be useful in assessing the foster carer-child relationship is the “This is My Baby” (TIMB) interview schedule (Bates & Dozier, 1998), which provides ratings regarding the carer’s acceptance of, commitment to and awareness of influence on the child in their care. A younger age of the child at time of placement and the fewer previous placements the carer has had have been found to be predictive of higher levels of commitment (Dozier & Lindhiem, 2006). This study also found high levels of commitment to be related to placement stability, which in itself is protective in terms of later behavioural problems (Rubin et al., 2007) and mental health service use (Rubin et al., 2004). Foster carers who have high levels of commitment to their foster child also show more delight when interacting with the child (Bernard and Dozier, 2011), which is likely to have a positive impact on the development of a secure attachment relationship. Despite these positive links being found between commitment and foster child outcomes, there is a paucity of research into the link that commitment may have with child mental health outcomes. A longitudinal study by Lindheim and Dozier (2007) found a relationship between carer commitment and child behaviour problems at baseline but not at 6 month follow up, suggesting that a relationship does exist, but more research is needed in order to fully understand it. A recent study of school age children also found a link between carer investment and foster child mental health (Koren-Karie & Markman-Gefen, 2016), but it is unclear if these relationships are the same and are enduring in a pre-school population. There is also evidence to suggest that related variables such as carer sensitivity are linked to child competence in biological pre-school dyads (Belsky & Fearon, 2010), but this has not been directly examined in the foster care literature.

There has also been very little research into the other TIMB variables of acceptance and commitment and child outcomes, and this is an area that requires significant future work to help improve outcomes for this vulnerable group.

Another foster carer variable that may play a part in child development is their reflective functioning ability (RF - see Fonagy et al., 1991), which can be defined as “the essential human capacity to understand behaviour in light of underlying mental states and intention” (Slade, 2005), or the parent’s ability to consider the child’s state of mind as well as their own. Fonagy et al.’s initial (1991) study found that maternal RF correlates with their child’s attachment security (as assessed using the SSP), and a later study by Fonagy and colleagues (1994) found that this relationship is especially significant in deprived mother-child dyads, with 100% of deprived mothers with high RF having securely attached children, compared to only 6% of deprived mothers with low RF. This finding could hold particular significance for the foster care population, as these children are more likely to come from disadvantaged backgrounds (Henderson et al., 2015). Unfortunately, the sample sizes for the deprived group in this early study were small (n=27), and to date this is the only study that has examined parental RF in the context of deprivation. This makes it difficult to draw firm conclusions regarding the relationship between deprivation and RF.

More recent research has found that low levels of RF can interrupt the affective communication between mother and child, and this interrupted communication is predictive of decreased attachment security (Kelly, Slade & Grienenberger, 2007). This finding was corroborated by a recent review that found consequences of parental RF to be related to child attachment security in early life (Ordway et al., 2014). Whilst

the links between RF and attachment are being established in the literature, there is less evidence about its links to mental health. In the adult population, recent studies have found no links between RF and depression (Taubner et al., 2011), psychotic symptomology (MacBeth et al., 2011), or PTSD symptomology (Schechter et al., 2007). All of these studies however had small sample sizes ($N < 45$), which affects the generalizability of these findings, and potentially allows for the possibility of type 2 errors. Interestingly, whilst the Schechter et al. (2007) study found no correlation between parental RF and PTSD symptomology, they did find that higher levels of RF were associated with balanced classification of maternal mental representations on the Working Model of the Child Interview (Zeanah, Benoit & Barton, 1995), suggesting that maternal RF may have positive implications in terms of their relationships with their child, even if it is not necessarily linked to their own mental health functioning. This is interesting in light of the known links between maternal and child mental health outcomes (Vostanis et al., 2006).

Outcomes for parents with low RF ability can be negative for both themselves and their children; one study found that mothers with low RF ability who attended a residential substance abuse treatment program were more likely to relapse on release, and their children were more likely to be taken into care (Pajulo et al., 2012). The link between low RF and negative family outcomes has led to the development of programs for vulnerable families that aim to improve biological parent's RF ability and their child's attachment and mental health functioning (see Murphy & Steele, 2013), and hopefully more helpful interventions will be developed with the widening of the evidence base in this area, especially in the field of foster care research. At present, RF is scored in a

variety of different ways, including from transcripts of the Adult Attachment Interview (AAI - Main & Goldwyn, 1985), which is a long procedure, with coding that requires extensive training. A recent review has described several valid ways in which to assess RF (see Katznelson, 2014 for more information), yet at present, there are no methods of assessing RF from an interview or measure that is specifically designed for a foster care population. It is possible that children in foster care are less likely to have received caregiving from a parent with high RF prior to being accommodated into care, and therefore interactions with a highly reflective foster parent may feel alien or even distressing to them. We assume that high RF will have a positive impact on foster children due to the links between high RF and attachment security in birth families (Ordway et al., 2014), but the picture may be more complex in children who have been removed from their family home. Developing a specific, targeted measure of RF in the context of the foster care relationship could help carers to speak openly about the elements of their relationship with their foster child that would not be relevant in biological dyads (e.g. their commitment to keeping that child in their care). It could also increase research in and understanding of foster carer RF, and its relationship with child outcomes.

1.5 Rationale for the current study:

There is a growing body of evidence to suggest that elements of the foster care relationship such as carer commitment may be protective in terms of foster child mental health outcomes, but less is known about the pre-school population. In addition, there have been no known longitudinal studies examining these relationships in the UK

context. As children in foster care are faced with much higher risks in terms of their attachment and mental health development than children in the general population, and these risks are particularly great for pre-school children, it is important that we gain an understanding of the relational aspects of the foster care relationship that may negate some of the mental health risks that these vulnerable children face in order to help carers to support their children to achieve the best possible outcomes in terms of their psychosocial functioning.

1.6 Aim of the present study:

This study aims to help provide a better understanding of the foster carer characteristics that might help to improve outcomes for these vulnerable children. The primary hypothesis is that higher levels of foster carer commitment, acceptance, awareness of influence and RF will be associated with decreased mental health symptomology.

The secondary research questions are:

- What is the relationship between foster carer commitment, awareness of influence, acceptance, and RF and the child's attachment style?
- What is the relationship between foster carer commitment, awareness of influence and acceptance of the child in their care, and their own RF ability?
- Is it possible to meaningfully code RF ability from the This Is My Baby interview?
- Does foster carer commitment, awareness of influence, acceptance, and RF predict change over time in mental health outcomes?

2. Method

2.1. Participants:

Participants were 179 children aged 6-60 months (mean age 28.5 months) who were taking part in the Best Services Trial (BeST²), an on-going RCT that recruits families with a child who has recently entered a period of foster care in Glasgow due to Child Protection Concerns (CPC). All eligible families were contacted by the BeST² recruitment coordinator (who was a qualified social worker) to invite them to take part in the trial. Consent was taken in the place that was most convenient to participants, for example at their home or local Social Services centre. Information about the trial was provided in both written and DVD format to help ensure consent would be well informed. There was no maximum time after a child was accommodated that families could participate; all efforts were made to contact families as soon as possible following accommodation, and families either consented, declined to consent, or were unavailable to consent and thus could not participate. Families were eligible if they had a child aged 6-60 months who had recently entered a period of foster care in Glasgow due to CPC. This age range was extended to 0-60 months after around 18 months of the trial being operational, so the sample includes some children who were under 6 months old at the time of accommodation (the mean age at accommodation was 28.5 months). This decision was made due to an increase in funding of the trial which allowed a greater scope for recruitment, and did not have an effect in terms of bias in the sampling, as all of the other inclusion criteria remained the same (previously, all

eligible families with a child ages 6 months to 6 years were approached, and this changed to all eligible families with a child aged 0 months to 6 years). Children were excluded if they had a prior diagnosis of profound learning disability, due to the nature of the main RCT intervention.

This study reports on data from the first 179 children in the wider RCT. Of these 179, 102 children were male and 74 were female (this is representative of the gender split of children in care in the UK – see Scottish Government data [2016] for more information). The main RCT collects data from several additional measures that were not utilised for this study. The measures used in the current study are described below.

2.2 Measures:

2.2.1. This is My Baby (TIMB - Bates & Dozier, 1997) – a semi-structured interview that is carried out by a researcher primarily with foster carers. There is also a slightly altered interview schedule that can be used with birth and adoptive parents. The interview has 8 questions about the child and the carer's relationship with the child (e.g. do you ever wish you could raise [child's name]?), and one question with 4 sub-questions regarding the carer's experience as a foster carer (e.g. how many foster children have you cared for in all?). The interview is audio recorded, and later scored by the researcher, who uses the TIMB scoring manual to guide the scoring of 3 domains; *Acceptance* (the carer's level of acceptance of the child as an individual), *Commitment* (the carer's level of commitment to that child) and *Awareness of Influence* (the carer's awareness of their own influence over the child). Scores on each of the 3 domains span from 0 (low) to 5

(high). Midpoint scores (such as 2.5) are also allowed. The validity and test-retest reliability of the TIMB has been established in several studies of the foster care population (Ackerman & Dozier, 2005; Dozier & Lindhiem, 2006; Lindhiem & Dozier, 2007). TIMB audio files were coded by several trained members of the original RCT study team (including HH), and each interview provided the three scores for acceptance, commitment and awareness of influence. .

For the purpose of this research project, the audio files were transcribed, and the written transcripts were coded for RF. This has not been done previously, so a secondary aim for this project was to assess the feasibility and validity of this method of gaining a meaningful score for foster carer's RF. 20 transcripts of the TIMB interview were coded by rater 1, and 20 by rater 2, with an overlap of 10 transcripts to assess inter-rater reliability. Rater 1 was a reliable coder of RF from the AAI, and Rater 2 is currently working towards reliability in this more commonly used method of assessing RF. The reliability correlations between rater 1 and rater 2 was 0.691 ($p < .001$). Rater 1's 20 transcripts were then analysed using Fertuck et al.'s (2011) computerised text analysis version of the RF assessment system, which identifies linguistic markers associated with high RF such as "know", "think" and "because" (this is described at length in the Fertuck et al. [2011] paper). The reliability correlation between rater 1 and the computerised analysis was good at 0.716 ($p < .001$), which allowed the remaining transcripts to be coded using this method. The reliability correlation was however slightly lower than is usually found between raters coding RF from the AAI, with previous studies reporting correlations between .81 and .94 (Bouchard et al., 2008).

2.2.2. *The Infant Toddler Social Emotional Assessment (ITSEA – Carter & Briggs-Gowan, 2005)* – a comprehensive questionnaire that is carried out with a foster carer or parent that provides information regarding the child’s social and emotional difficulties and competencies. Each question is scored as 0 (Not True/Rarely), 1 (Somewhat True/Sometimes) and 2 (Very True/Often). Scores are aggregated into 4 domains: Externalizing, Internalizing, Dysregulation and Competence. These four main domains are also divided into sub-domains. For example, Externalising is broken down into activity/impulsivity, aggression/defiance and peer aggression. Mean raw scores are easily calculated for each domain, as well as age and gender normed T scores, and specific areas of concern. The data provided by the ITSEA can also be interpreted by looking at the changes in mean score over time; the questions that make up each domain and sub-domain are aggregated and divided to give a mean score for that area of difficulty, and it is possible to take a child’s mean scores from 2 or more different time points to assess whether or not there have been any changes in their social and emotional functioning over time. The ITSEA has been found to have good validity, and also inter-rater and test-retest reliability (Carter et al., 2003). It has also previously been used to assess social and emotional development in a pre-school foster care population, with findings that foster children score higher for externalising and dysregulation and lower for competence behaviours than children living with their birth families (Jacobsen et al., 2003). The ITSEA was used to assess child mental health at baseline and follow up.

2.2.3. *The Strange Situation Procedure (SSP – Ainsworth & Bell, 1970)* – a behavioural measure of infant attachment that is largely to be considered the ‘gold standard’ measure of attachment in infants aged 12 to 18 months. The procedure is carried out in a laboratory or clinic setting, which requires good quality audio-visual recording equipment as scoring is later based on video footage of the procedure. The SSP consists of 8 time-sensitive episodes involving two distinct separations and reunions between the child and their parent/carer. There is also a stranger who is present at some stages of the procedure; at the first separation from the parent/carer, the stranger remains with the child, and at the second separation, the child is left entirely alone for 2 minutes, and it is the stranger who returns first before the parent/carer. The child’s attachment category is determined by their behaviour upon reunion with their parent/carer; their behaviour throughout the rest of the procedure is not taken into account in the scoring criteria. Scores based on four separate behaviours upon reunion; proximity seeking, contact maintenance, avoidance, and resistance. From these scores and from their overall behaviour at reunion, a child can then be classified as secure, insecure/avoidant, and insecure/ambivalent.

Extensive training must be undertaken and a reliability test passed before a researcher/clinician can code SSP videos accurately and reliably. Reliability is good amongst experienced coders (Ainsworth et al., 1978). There is further training and examination available to ensure reliable coding of disorganisation. The SSP has been shown to have strong external validity, as attachment style as determined by the SSP has been found to be associated with social and mental health outcomes in later life (e.g. van Ijzendoorn et al., 1999). It has been used extensively with the foster care

population (e.g. Dozier et al., 2003., Bovenschen et al., 2016., Jacobsen., 2015.) The SSP videos were rated by HH, who has passed the reliability test for secure/insecure classification following a training course led by Alan Sroufe and Betty Carlson at the University of Minnesota. The SSP was used to assess child attachment at T2.

2.2.4. The Strange Situation Procedure for Preschool Children (SSP-PS – Cassidy & Marvin, 1992) – a modified version of Ainsworth and Bell’s infant SSP that has been developed for use with preschool children by Cassidy and Marvin and the MacArthur Working Group (1992). This has extended the validity of the original gold standard measure to allow for assessment of attachment style in children up to 4 years of age. It is similar to the infant version in terms of assessment protocol. The preschool procedure differs from the infant procedure in ways that aim to replicate the levels of distress that the infant SSP causes younger children, namely in omitting the stranger, and lengthening the periods of separation. It is also scored differently to allow for the developmental changes that occur between the ages of 18 months and 4 years, such as the development of complex speech. As with the infant SSP, this measure has strong validity and reliability (Fairchild, 2006), and extensive training must be undertaken and a reliability test passed before a researcher/clinician can reliably code pre the SSP-PS. SSP-PS videos for this study were coded by an external researcher (Bill Whelan of the Virginia Child & Family Attachment Centre), who had passed the reliability test for coding this measure, as no members of the original study team had completed the required training to allow for reliable coding. This SSP procedure was also used to

assess child attachment security at T2, for children who were too old for the infant procedure.

2.3. Procedure:

Recruitment was carried out through a larger, on-going, randomised controlled trial which is assessing the impact of a new attachment based treatment on infant mental health as compared with enhanced treatment as usual (The Best Services Trial [BeST²]- see Pritchett et al., 2013). Children were brought into the Trial clinic by their foster carer when they had been in foster care for around 4 weeks to take part in a comprehensive baseline (T1) assessment of their social, mental and cognitive functioning (the main RCT also used other measures in the initial assessment but they were not relevant to this study and so are not described here). Children were then invited back for a follow up (T2) assessment 12 months later, and were brought by whomever they were placed with at that time (e.g. some had moved to a new carer or had been returned to birth parents).

BeST² employed a Social Services based recruitment coordinator, who carried out home visits to birth parents and foster carers to provide written, verbal and video based information about the trial. Parents/carers were asked to take 24 hours to consider participating in the trial, and foster carers would only be asked to bring their child into the clinic for assessment if written consent was provided by both the carer and a birth parent. Once consent had been obtained from both parties, the recruitment coordinator alerted the research team, who would then invite the foster carer and child in for assessment. The baseline assessment was carried out at least 4 weeks after the

child entered care. This was to allow time for the carer to gain an understanding of the child's strengths and difficulties, and for the child to begin to feel 'at home' and comfortable with the carer. This 4-week target could sometimes be delayed due to difficulties contacting the birth parents to obtain informed consent, or carer unavailability, but the research team aimed to meet with the child and foster carer as close to the 4-week mark as possible.

Assessments usually took place at a Children's Hospital in Glasgow, UK. Occasionally carers would be offered home visits if attending the clinic was difficult for them. At the baseline assessment, the child and carer would be invited to play for a while together, and this process was filmed for a measure that was not used in this study. One researcher would then remain with the child to carry out a cognitive assessment (again, this data was not used in the present study) whilst another researcher took the carer to a room nearby to carry out a battery of measures, including the TIMB, the ITSEA and other measures that were not relevant to this study. The carer and the child were then reunited to eat lunch together (this was provided by the study), which was also filmed for use in the same measure as the play episode. There were some differences in the battery of measures used determined on the children's age, but carer's completed the TIMB and ITSEA regardless of the children's age (this protocol was however altered around a year into the study, so that the ITSEA was only carried out with children in the intended age range). Foster carers had their travel expenses reimbursed, and were given £20 for their time. For the purposes of BeST[?], once the baseline assessment was complete, the child was randomly allocated to the new treatment condition or enhanced treatment as usual.

Once 11 months had elapsed from the baseline assessment, the recruitment coordinator would check Social Services records for the current whereabouts of the child. If they remained with the same carer, the research team would contact the carer and ask them to come in for a follow up assessment, as close as possible to a year after the baseline assessment. If the child had returned home to a birth parent, the research team would contact the parent and ask them to attend for the follow up appointment (home visits were also offered to birth parents at this stage). In cases where the child had moved to live with a new foster carer, the recruitment coordinator would approach the new carer to explain the study and to obtain informed consent before the research team would approach to invite the carer to attend for the assessment. At this follow up assessment, the procedure was largely identical to the baseline assessment, except for the addition of the SSP. When parents/carers arrived to the clinic, they would be invited straight into the playroom that was set up for the SSP, and the procedure would begin immediately. In cases where a home visit was required, it was not possible to carry out the SSP procedure. Following the SSP, the remainder of the assessment would follow the same procedure as for the baseline assessment. Unfortunately, the SSP was later dropped from the protocol due to the difficulties and costs involved in coding this measure.

All the data for the main trial and the current study is held at the Robertson Centre for Bio Statistics at Glasgow. The author liaised with the centre to withdraw a data extract with the necessary data for this study. This came in Microsoft Excel format, which was then imported into SPSS (Version 22), where it was organised and cleaned for analysis.

The results describe the assessments of 179 children at baseline and 115 at follow up. Some data was available at both time points for 108 children. As there is a limited existing evidence base around the links between TIMB variables and child mental health, it was not possible to predict likely effect sizes based on the existing literature. For this reason, we were conservative with our prediction of a small effect size of 0.2, with 80% power and an alpha level of 0.05. Calculations using G Power (Faul et al., 2007) suggest that data from 70 participants would be needed in order to carry out sufficiently powered multiple regression analyses to assess for relationships between the TIMB/RF variables and ITSEA outcomes. Data were tested for normality using the Shapiro-Wilk test. Correlation, ANOVA and multiple regression analyses were used to assess if carer acceptance, commitment and awareness of influence were associated with child's social and emotional functioning (as determined by the ITSEA) at baseline and at follow up. Correlation and multiple regression analyses were also used to investigate the relationship between the foster carer's level of RF (scored from their TIMB transcript) and the child's scores on the ITSEA at baseline and follow up. Regression analyses were bootstrapped (1000 samples), as the majority of the data was not normally distributed. An exploratory chi-squared analysis of possible relationships between the child's attachment category as defined by the SSP at follow up and the carer's TIMB and RF scores at both time points was also carried out. We also examined the relationship between carers TIMB and RF scores. Finally, we looked at children's social and emotional functioning over time in the context of their foster carer's scores from the TIMB at baseline.

3. Results

3.1. Sample Demographics:

The sample consisted of 179 foster children aged between 0-60 months ($M = 28.5$ months, $SD 17.3$). 102 children were male and 74 were female.

3.2. Recruitment rates, attrition, and demographic information:

Around 60% of families approached at baseline consented to take part in the main trial (this trial is on-going and the percentage of eligible families recruited is assessed monthly and fluctuates between 55-65%). By the time of the 1-year follow-up assessment (T2), 44 (25%) families were non-contactable or declined continued participation, and 115 (64%) attended for their T2 assessment. 20 (11%) were not yet eligible for T2 assessment (a year since baseline had not elapsed) at the time data collection ceased for this particular study.

3.3 Descriptive statistics for TIMB and ITSEA data at T1 and T2:

All mean TIMB scores at T1 and T2 were high; all were over the midpoint (3) on the TIMB scoring scale at both time points, although some carers' scores were low (a score of 1 or 2) even at follow up. The mean of all three variables increased from T1 to T2. A repeated measures ANOVA demonstrated that these differences were significant for all three variables, acceptance, $F(1,85) = 11.40$, $p = .001$, commitment, $F(1,85) = 37.19$, $p < .001$, and awareness of influence, $F(1,85) = 13.38$, $p < .001$.

Mean TIMB scores at T1 and T2 can be seen in figure 1 below:

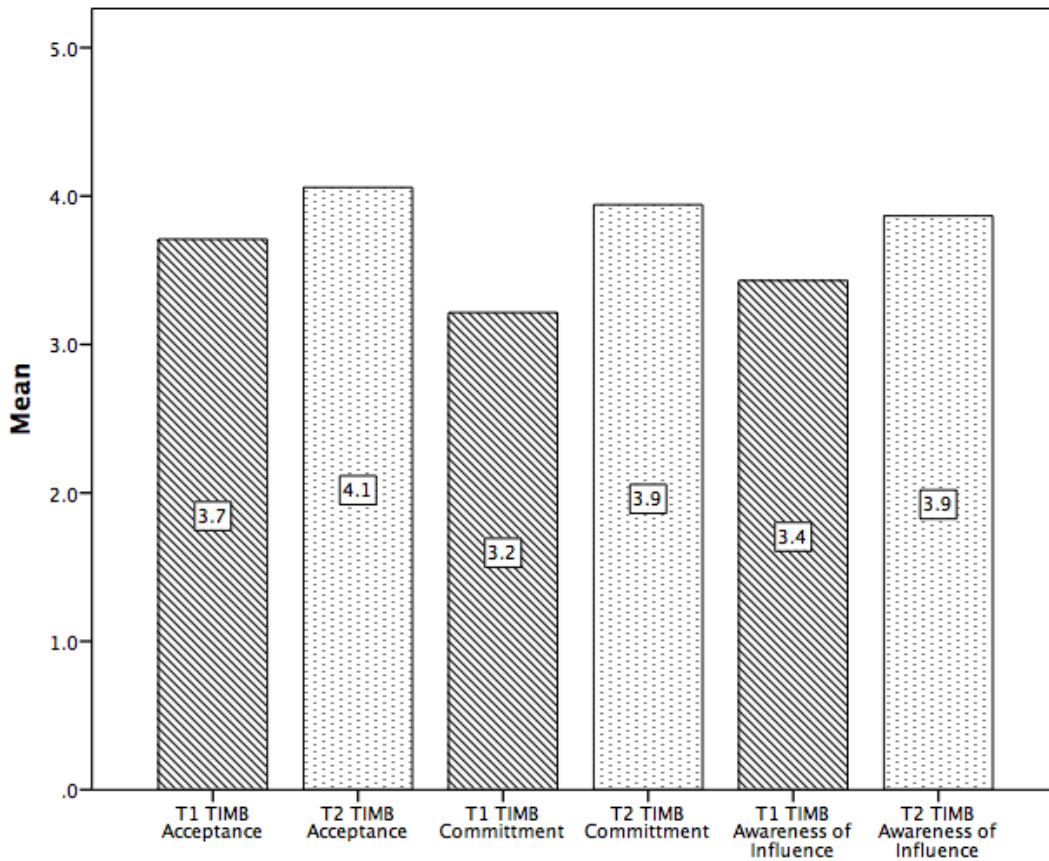


Figure 1 - Mean T1 (diagonal lines) and T2 (dots) scores for carer commitment, acceptance and awareness of influence

The child's mean raw scores (out of a possible maximum score of 2) from the ITSEA main domains of internalising, externalising, dysregulation and competence were used as mental health outcome variables in the analysis. At baseline and follow up, scores for externalising were higher than for the other problem areas (competence is expected to be high rather than low as it is not reverse scored). All three problem domains (internalising, externalising and dysregulation) increased over time. Competence also increased from T1 to T2 (see Table 1 below). In order to ascertain if these changes were significant, a repeated-measures MANOVA was carried out. This analysis demonstrated a significant positive effect of time on ITSEA scores $F(1,44) = 12.81, p =$

.001. A series of repeated measures ANOVAs were then carried out to investigate this further. These showed a significant increase over time for internalising, $F(1,28) = 4.94$, $p = .035$, dysregulation, $F(1,29) = 4.88$, $p = .035$ and competence, $F(1,29) = 5.56$, $p = .025$. Externalising did not significantly change over time, $F(1,30) = .014$, $p = .906$.

	Valid N	Mean	Minimum	Maximum	Standard Deviation
T1 ITSEA Externalising	98	.59	.00	1.61	.42
T2 ITSEA Externalising	49	.62	.08	1.49	.38
T1 ITSEA Internalising	97	.48	.00	1.11	.30
T2 ITSEA Internalising	46	.54	.09	1.10	.28
T1 ITSEA Dysregulation	98	.37	.00	1.08	.26
T2 ITSEA Dysregulation	46	.42	.03	1.16	.26
T1 ITSEA Competence	97	1.17	.11	1.88	.42
T2 ITSEA Competence	46	1.37	.61	1.84	.33

Table 1 - Descriptive statistics on ITSEA variables at T1 and T2 (T2 results shaded in grey)

There was a wide range in RF score at both time points. A repeated measures ANOVA showed that RF did not change over time, $F(1,31) = .031$, $p = .911$

	N	Minimum	Maximum	Mean	St Deviation
T1 RF score - computer coded	63	140	1330	403.56	236.233
T2 RF score - computer coded	53	120	1921	399.51	306.683
Valid N (listwise)	32				

Table 2 - Descriptive statistics for RF over time

3.4 Preliminary analyses of placement differences at T2:

Before the analysis for the main research question could take place, preliminary one-way repeated measures ANOVAs were carried out to ascertain if there were any differences in the TIMB and RF scores over time according to the child's placement (i.e.

if they were with the same carer as they were with at T1, or with a new carer/birth parent etc.). This difference was non-significant for acceptance, $F(1,84) = .089$, $p = .767$, commitment, $F(1,84) = .194$, $p = .661$, and awareness of influence, $F(1,84) = 2.62$, $p = .109$, and RF, $F(1,30) = .005$, $p = .943$. The T2 data was therefore then analysed as one whole group, rather than being split by placement type. As with the TIMB data, repeated measures ANOVAS were run to assess whether placement at T2 had a significant effect on ITSEA scores over time. There was no difference between children who were with the same carer and children who had moved placement (either to another carer or returned to parent) for externalising, $F(1,29) = .035$, $p = .853$, internalising, $F(1,27) = 3.45$, $p = .074$, dysregulation, $F(1,28) = 3.13$, $p = .088$, or competence, $F(1,28) = .058$, $p = .812$. Placement location was therefore not considered in further analyses, as it had no significant effects on the predictor or outcome variables.

3.5 Foster carer acceptance, commitment and awareness of influence at T1 and T2.

Data from the TIMB interview were tested for normality using the Shapiro-Wilk test and were found not to be normally distributed at either time point ($p < .05$). This was to be expected given the nature of the interview (we would not expect many trained foster carers to have very low scores on this measure) resulting in data that is positively skewed. Non-parametric correlation analyses (Spearman's) were therefore used to investigate relationships between the variables. Correlations were 2-tailed as this investigation was exploratory. TIMB data was available for 86 participants at both time points

Correlations between the TIMB variables at T1 and T2 can be seen in Table 1. Significant associations were found between all three variables at T1 and T2. Between time points, significant relationships were found between T1 commitment and T2 acceptance ($p = .03$) commitment ($p = .04$) and awareness of influence ($p = .02$), and T1 and T2 awareness of influence ($p = .02$)

		1	2	3	4	5	6
1. T1 TIMB Acceptance	Correlation Coefficient	1.000	.770**	.631**	.189	.136	.182
	Sig. (2-tailed)	.	.000	.000	.081	.212	.094
2. T1 TIMB Commitment	Correlation Coefficient	.770**	1.000	.608**	.230*	.239*	.259*
	Sig. (2-tailed)	.000	.	.000	.033	.027	.016
3. T1 TIMB Awareness of Influence	Correlation Coefficient	.631**	.608**	1.000	.091	.120	.257*
	Sig. (2-tailed)	.000	.000	.	.402	.271	.017
4. T2 TIMB Acceptance	Correlation Coefficient	.189	.230*	.091	1.000	.650**	.581**
	Sig. (2-tailed)	.081	.033	.402	.	.000	.000
5. T2 TIMB Commitment	Correlation Coefficient	.136	.239*	.120	.650**	1.000	.653**
	Sig. (2-tailed)	.212	.027	.271	.000	.	.000
6. T2 TIMB Awareness of Influence	Correlation Coefficient	.182	.259*	.257*	.581**	.653**	1.000
	Sig. (2-tailed)	.094	.016	.017	.000	.000	.

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

c. Listwise N = 86

Table 3: Spearmans correlations between TIMB variables at T1 and T2:

3.6. Child mental health at baseline and follow up:

These data were tested for normality using the Shapiro-Wilk test and were found not to be normally distributed at either time point ($p < .05$), with the exception of internalising at T2. Non-parametric correlation analyses were carried out to investigate the potential relationships between the different mental health outcomes from the ITSEA. These can be seen in Table 4 below:

		1	2	3	4	5	6	7	8
1. T1 ITSEA Externalising	Correlation Coefficient	1.000	.094	.475**	-.443*	.571**	.304	.323	-.134
	Sig. (2-tailed)	.	.626	.009	.016	.001	.109	.088	.487
2. T1 ITSEA Internalising	Correlation Coefficient	.094	1.000	.559**	-.145	.233	.627**	.482**	-.237
	Sig. (2-tailed)	.626	.	.002	.453	.223	.000	.008	.217
3. T1 ITSEA Dysregulation	Correlation Coefficient	.475**	.559**	1.000	-.278	.264	.466*	.566**	-.191
	Sig. (2-tailed)	.009	.002	.	.145	.166	.011	.001	.322
4. T1 ITSEA Competence	Correlation Coefficient	-.443*	-.145	-.278	1.000	-.272	-.253	-.288	.223
	Sig. (2-tailed)	.016	.453	.145	.	.153	.186	.130	.244
5. T2 ITSEA Externalising	Correlation Coefficient	.571**	.233	.264	-.272	1.000	.522**	.518**	-.597**
	Sig. (2-tailed)	.001	.223	.166	.153	.	.004	.004	.001
6. T2 ITSEA Internalising	Correlation Coefficient	.304	.627**	.466*	-.253	.522**	1.000	.749**	-.545**
	Sig. (2-tailed)	.109	.000	.011	.186	.004	.	.000	.002
7. T2 ITSEA Dysregulation	Correlation Coefficient	.323	.482**	.566**	-.288	.518**	.749**	1.000	-.522**
	Sig. (2-tailed)	.088	.008	.001	.130	.004	.000	.	.004
8. T2 ITSEA Competence	Correlation Coefficient	-.134	-.237	-.191	.223	-.597**	-.545**	-.522**	1.000
	Sig. (2-tailed)	.487	.217	.322	.244	.001	.002	.004	.

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

c. Listwise N = 29

Table 4 - Correlations between ITSEA outcomes at T1 and T2:

The ITSEA scale scores were highly correlated at T1 and T2. All the scale scores at T1 were also correlated with the same scale at T2, except the competence scale.

3.7 Main analyses - to test the hypothesis that higher levels of foster carer commitment, acceptance, awareness of influence and RF will be associated with decreased mental health symptomology:

3.7.1 Relationship between foster carer acceptance, commitment, and awareness of influence with child social and emotional functioning at baseline.

Non-parametric (Spearman's) correlations were carried out to assess the potential relationships between the TIMB variables and child mental health outcomes on the ITSEA at baseline. These can be seen in Table 5 below:

		T1 ITSEA Externalising	T1 ITSEA Internalising	T1 ITSEA Dysregulation	T1 ITSEA Competence
T1 TIMB Acceptance	Correlation Coefficient	-.095	.135	.197	.175
	Sig. (2-tailed)	.412	.245	.087	.130
T1 TIMB Commitment	Correlation Coefficient	-.112	.186	.242*	.237*
	Sig. (2-tailed)	.337	.108	.035	.040
T1 TIMB Awareness of Influence	Correlation Coefficient	-.066	.221	.289*	.012
	Sig. (2-tailed)	.571	.055	.011	.921

Correlation is significant at the 0.01 level (2-tailed).*

Correlation is significant at the 0.05 level (2-tailed).*

Listwise N = 76_c

Table 5 - Correlations between TIMB and ITSEA outcomes at baseline

No significant associations were found between carer's acceptance and the child's mental health at baseline. Carer commitment was positively correlated with both dysregulation and competence at baseline at the 0.05 level. Carer's awareness of influence was also positively correlated with dysregulation at baseline.

Multiple regression analyses were carried out to ascertain if any of the TIMB variables predicted ITSEA outcome at baseline. Tests for multicollinearity indicated that a very low level of multicollinearity was present ($VIF = 1.64$ for acceptance, 1.38 for commitment, and 2.31 for awareness of influence). All multiple regression analyses were bootstrapped (1000 samples) as the data was not normally distributed. None of the TIMB variables significantly predicted externalizing problem behaviours at T1, $R^2 = .026$, $F(3,73) = .393$, $p = .76$, or internalizing problem behaviours, $R^2 = .056$, $F(3,73) = 1.45$, $p = .234$. For dysregulation, the three predictors accounted for a significant amount of the variance at T1 (9.9%), $R^2 = .099$, $F(3,73) = 2.66$, $p = .05$, but none of the TIMB variables significantly predicted dysregulation at T1 on their own. Finally, the TIMB variables did significantly predict competence at T1, and together accounted for 14.4% of the variance in competence, $R^2 = .144$, $F(3,72) = 4.05$, $p = .01$. Both

commitment and awareness of influence contributed significantly to the model ($p=.020$ and $p=.017$ respectively) but acceptance did not ($p=.517$).

3.7.2 Relationship between foster carer acceptance, commitment, and awareness of influence with child social and emotional functioning at follow up.

Non-parametric (Spearman's) correlations were carried out to assess the potential correlations between the TIMB variables and child mental health outcomes on the ITSEA at follow up. These can be seen in Table 6 below:

		T2 ITSEA	T2 ITSEA	T2 ITSEA	T2 ITSEA
		Externalising	Internalising	Dysregulation	Competence
T2 TIMB Acceptance	Correlation Coefficient	-.168	.099	-.042	.139
	Sig. (2-tailed)	.264	.512	.783	.356
T2 TIMB Commitment	Correlation Coefficient	-.049	.203	.047	.151
	Sig. (2-tailed)	.745	.175	.759	.317
T2 TIMB Awareness of Influence	Correlation Coefficient	.097	.257	.057	-.017
	Sig. (2-tailed)	.520	.085	.709	.913

Correlation is significant at the 0.01 level (2-tailed).**

Correlation is significant at the 0.05 level (2-tailed).*

Listwise N = 46_c

Table 6 - Correlations between TIMB and ITSEA outcomes at follow up

No significant correlational relationships were found between the carer variables and child mental health outcomes at follow up (T2).

Multiple regression analyses were carried out to ascertain if any of the TIMB variables predicted ITSEA outcome at T2. As at T1, tests for multicollinearity indicated that a very low level of multicollinearity was present ($VIF = 1.96$ for acceptance, 1.48 for commitment, and 1.87 for awareness of influence). None of the three TIMB predictors was significant predictors of externalizing, $R^2 = .100$, $F(3,45) = 1.67$, $p = .187$,

internalising, $R^2 = .090$, $F(3,42) = 1.381$, $p = .262$, dysregulation, $R^2 = .100$, $F(3,42) = .563$, $p = .642$, or competence, $R^2 = .044$, $F(3,42) = .65$, $p = .587$ at T2.

3.7.3 Relationship between foster carer’s RF ability and child social and emotional functioning at baseline.

Non-parametric (Spearman’s) correlations were carried out to assess the potential correlations between the carer’s RF score and child mental health outcomes on the ITSEA at baseline. T1 TF was found to be related to externalising, but not the other ITSEA scales at T1 (see Table 7 below).

		T1 computer coded RF Score
T1 ITSEA 12-35 Months	Correlation Coefficient	.312*
Externalising Domain Raw Score	Sig. (2-tailed)	.041
	N	43
T1 ITSEA 12-35 Months	Correlation Coefficient	.221
Internalising Domain Raw Score	Sig. (2-tailed)	.154
	N	43
T1 ITSEA 12-35 Months	Correlation Coefficient	.203
Dysregulation Domain Raw Score	Sig. (2-tailed)	.192
	N	43
T1 ITSEA 12-35 Months	Correlation Coefficient	.064
Competence Domain Raw Score	Sig. (2-tailed)	.687
	N	42

Correlation is significant at the 0.01 level (2-tailed).**

Correlation is significant at the 0.05 level (2-tailed).*

Table 7 - Correlations between RF and ITSEA scores at baseline

Linear regression analyses were then carried out to ascertain whether T1 RF predicted ITSEA scores at T1. No significant predictive relationships were found between T1 RF

and T1 externalising, $R^2 = .028$, $F(1,41) = 1.182$, $p = .283$, internalising, $R^2 = .010$, $F(1,41) = 4.10$, $p = .525$, dysregulation, $R^2 = .143$, $F(1,41) = .852$, $p = .361$, or competence, $R^2 = .002$, $F(1,40) = .061$, $p = .805$.

3.7.4 Relationship between foster carer's RF ability and child social and emotional functioning at follow up:

Non-parametric (Spearman's) correlations were carried out to assess the potential correlations between the carer's RF score and child mental health outcomes on the ITSEA at follow up (T2). A relationship was found between T2 RF and T2 child internalising problems (see Table 8 below). No other significant correlational relationships were found at T2.

		T2 computer coded RF Score
T2 ITSEA 12-35 Months Externalising Domain Raw Score	Correlation Coefficient	.422
	Sig. (2-tailed)	.064
	N	20
T2 ITSEA 12-35 Months Internalising Domain Raw Score	Correlation Coefficient	.470*
	Sig. (2-tailed)	.042
	N	19
T2 ITSEA 12-35 Months Dysregulation Domain Raw Score	Correlation Coefficient	.414
	Sig. (2-tailed)	.078
	N	19
T2 ITSEA 12-35 Months Competence Domain Raw Score	Correlation Coefficient	-.170
	Sig. (2-tailed)	.486
	N	19

Correlation is significant at the 0.01 level (2-tailed).*

Correlation is significant at the 0.05 level (2-tailed).*

Table 8 - Correlations between RF and ITSEA scores at follow up

Linear regression analyses were then carried out to ascertain whether RF at T2 predicted ITSEA scores at T2. T2 RF predicted a significant amount of the variance in T2 externalising, $R^2 = .26$, $F(1,18) = 6.323$, $p = .022$, and T2 internalising problem behaviours, $R^2 = .331$, $F(1,17) = 8.42$, $p = .01$. No predictive relationships were found between T2 RF and dysregulation, $R^2 = .195$, $F(1,17) = 4.12$, $p = .058$, or competence, $R^2 = .122$, $F(1,17) = 2.37$, $p = .142$.

3.8. Secondary question 1 - What is the relationship between foster carer commitment, awareness of influence, acceptance, and RF and the child's attachment style?:

Child attachment style was assessed using the SSP at follow up. Data on attachment security were only available for a subset of children (N=40), as the main RCT stopped using this measure early on due to logistical and financial concerns re securing reliable coders. Overall, 62.5% of the sample were securely attached, compared to 37.5% who were insecurely attached. This is further broken down in figure 2 below:

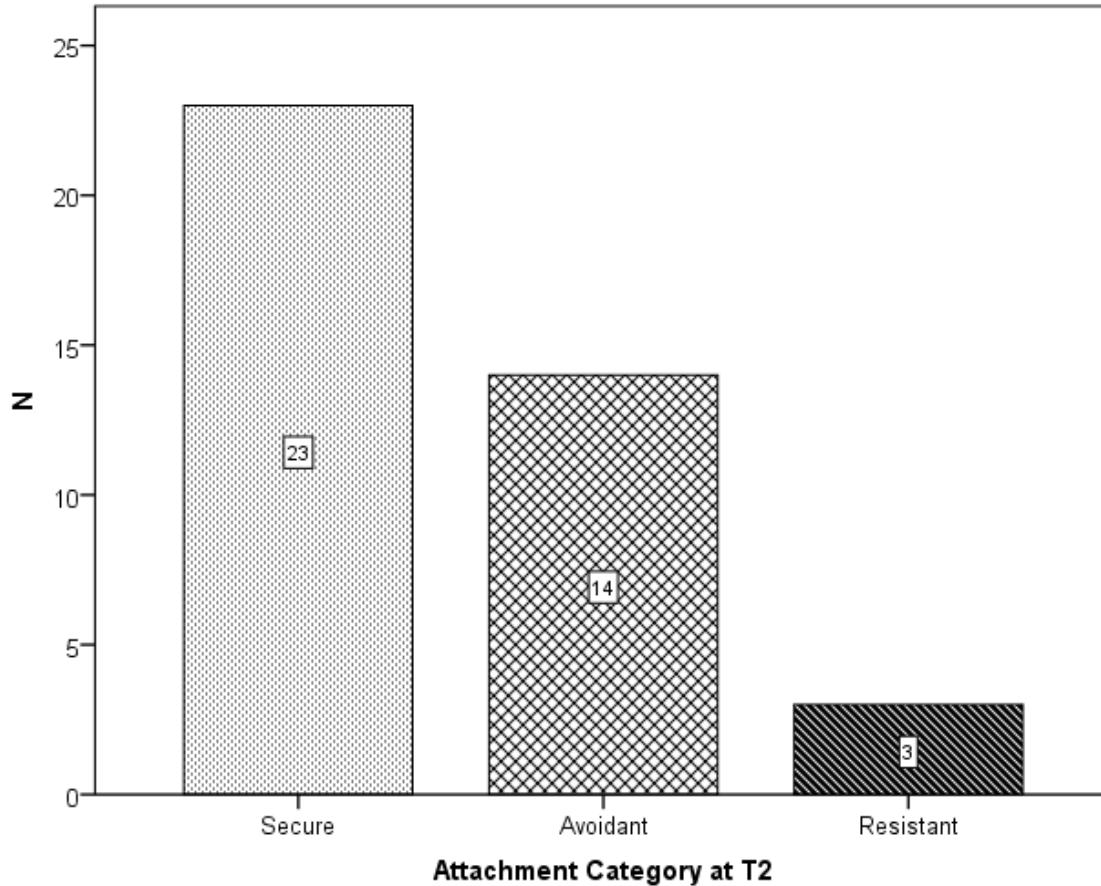


Figure 2 - Child attachment style at T2

Due to the small sample size available, children with an avoidant or resistant attachment style were amalgamated as 'insecure' for the remainder of the analyses. Chi-Square analysis was carried out to ascertain whether or not attachment outcomes were different between children who were with the same carer from T1 or who had moved, and no significant difference was found, $\chi^2 (1, N = 40) = 2.196, p > .05$.

The TIMB variables were recoded into low (scores of 1-2), medium (2.5-3.5) and high (4-5) to allow for categorical Chi-Squared analysis to be carried out to test for associations with security on the SSP. No relationships were found between T1 carer acceptance, $\chi^2 (1, N = 16) = .254, p = .500$, commitment $\chi^2 (1, N = 16) = .796, p = .672$

or awareness of influence, $\chi^2 (1, N = 16) = .062, p = .969$, and security of attachment at follow up. The small sample size available was due to not having baseline TIMB data for the first 20 children who entered the study, and these children unfortunately formed a large proportion of those who T2 SSP data was available for. In addition, no relationships were found between T2 carer acceptance, $\chi^2 (1, N = 25) = .187, p = .600$, commitment $\chi^2 (1, N = 25) = .172, p = .230$ or awareness of influence, $\chi^2 (1, N = 25) = .172, p = .209$, and security of attachment at follow up

In order to assess the potential relationships between carer RF and attachment security, RF was recoded into low (below the sample mean) and high (at or above the sample mean). Chi-squared analyses found no associations between T1 carer RF score and T2 child attachment security, $\chi^2 (1, N = 12) = .343, p = .500$, or between T2 carer RF score and T2 child attachment security, $\chi^2 (1, N = 12) = .010, p = .689$.

3.9 Secondary research question 2: What is the relationship between foster carer commitment, awareness of influence and acceptance of the child in their care, and their own RF ability?

Non-parametric correlation analyses (Spearman's) were used to investigate possible associations between RF and the TIMB variables. Correlations were 2-tailed as this investigation was exploratory. A relationship was found between T2 RF and T2 awareness of influence. No other relationships were found at either time point. This can be seen in Table 9 below:

		T1 RF score - computer coded	T2 RF score - computer coded
T1 TIMB Acceptance Score	Correlation Coefficient	.018	.185
	Sig. (2-tailed)	.888	.197
	N	63	50
T1 TIMB Commitment Score	Correlation Coefficient	-.050	.177
	Sig. (2-tailed)	.699	.220
	N	63	50
T1 TIMB Awareness of Influence Score	Correlation Coefficient	-.077	.098
	Sig. (2-tailed)	.547	.496
	N	63	50
T2 TIMB Acceptance Score	Correlation Coefficient	-.042	.211
	Sig. (2-tailed)	.773	.151
	N	49	48
T2 TIMB Commitment Score	Correlation Coefficient	-.171	.136
	Sig. (2-tailed)	.240	.356
	N	49	48
T2 TIMB Awareness of Influence Score	Correlation Coefficient	.033	.294*
	Sig. (2-tailed)	.819	.043
	N	49	48

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

c. Listwise N = 86

Table 9: Relationships between TIMB and RF predictor variables at T1 and T2

Bootstrapped (1000 samples) multiple regression analyses found that the TIMB variables at T1 did not predict RF at T1, $R^2 = .027$, $F(3,59) = .045$ $p = .435$, nor did T2 TIMB variables predict T2 RF, $R^2 = .078$, $F(3,44) = 1.239$, $p = .307$.

3.10 Secondary research question 3 - Is it possible to meaningfully code RF ability from the This Is My Baby interview?

The reliability correlations between rater 1 and rater 2 was 0.691 ($p < .001$), and between rater 1 and the computerised analysis was 0.716 ($p < .001$). As the correlation between the computerised analysis and rater 1's scores was good, the computerised analysis

was used to score all TIMB transcripts for RF. This will be discussed further in the discussion.

3.11. Secondary research question 4 - Does foster carer commitment, awareness of influence, acceptance, and RF predict change over time in mental health outcomes?

As there was no difference in ITSEA externalising over time, a bootstrapped (1000 samples) multiple regression was carried out to ascertain whether or not the 4 carer variables (acceptance, commitment, awareness and RF) at T1 predicted externalising problem behaviours at T2. The overall model was insignificant $R^2 = .018$, $F(4,12) = .055$, $p = .994$), as was the relationship between all 4 T1 predictor variables and T2 ITSEA externalising. As the other 3 ITSEA variables saw significant change from T1 to T2, change scores for these 3 variables were calculated by subtracting T2 ITSEA scores from T1 ITSEA scores. None of the TIMB variables or RF individually predicted change in internalising over time, nor did they when combined, $R^2 = .539$, $F(4,5) = .1462$, $p = .339$. The TIMB and RF variables also did not predict change in dysregulation, either separately or in a combined model, $R^2 = .528$, $F(4,5) = .050$, $p = .354$. Change in competence over time was also not predicted by the TIMB variables and RF, $R^2 = .093$, $F(4,5) = .128$, $p = .966$.

As the children in the study were taking part in an RCT investigating a new mental health promoting intervention for looked after children, the analyses for this section were re-run controlling for group allocation. This did not have a significant effect on any

findings. As the trial is on going, we will not provide further detail on this analysis here, so as to protect the integrity of the trial.

3.12. Relationship between attachment and mental health at follow up:

Exploratory bootstrapped linear regression analyses were carried out to see if attachment security at T2 predicted mental health outcomes at T2. The results were all non-significant – no relationship was found between attachment security and externalising, $R^2 = .034$, $F(1,28) = .999$, $p = .326$, internalising, $R^2 = .001$, $F(1,26) = .015$, $p = .902$, dysregulation, $R^2 = .001$, $F(1,26) = .039$, $p = .845$, or competence, $R^2 = .297$, $F(1,26) = 2.506$, $p = .125$.

4. Discussion:

4.1. The relationships between carer commitment, acceptance, awareness of influence and child mental health at baseline and follow-up:

Carer commitment, acceptance and awareness of influence were all relatively high, and increased significantly between baseline and follow up, demonstrating that time spent with the child is linked to an increase in these variables. This was to be expected, as at T1, the children had only been in their placements for around a month, whereas at T2 over a year had passed, allowing more time for strong relationships to develop between child and carer. Initial correlation analyses found relationships between carer commitment and child competence at baseline, and regression analyses found that there was a small effect for both commitment and awareness of influence on

competence at baseline. The finding that commitment related to competence was partially in line with previous research linking TIMB variables to child positive self-representations (Ackerman & Dozier, 2005), although the Ackerman and Dozier paper found links with acceptance rather than commitment (In the analyses for this study, acceptance was the only TIMB variable that was not a significant predictor of competence at baseline despite all three TIMB variables being highly correlated with each other at both time points). Although positive self-representations and competence are likely to be linked, they are not the same concept, which may explain the discrepancy in this finding. The link found between commitment and competence makes theoretical sense however - carers that are more committed have children who are more likely to exhibit positive imitation/play and empathic skills (e.g. Social Learning Theory – Bandura & Walters, 1977) and to feel free to explore and gain mastery of their surroundings (e.g. attachment theory – Ainsworth 1970), and thus score more highly on the competence domain of the ITSEA. Again however, the effects found here are small and would merit further investigation.

Links were also found between the TIMB variables and child dysregulation at T1. Foster carer commitment and awareness of influence were positively correlated with dysregulation at T1, and multiple regression analyses showed that the three predictors combined accounted for a significant amount of the variance at T1, but none of the three significantly predicted dysregulation on their own. The findings relating to dysregulation were contrary to expectation, as we expected commitment to be negatively related to problem scores for mental health, i.e. increased commitment leading to decreased dysregulation. Whilst previous research in the field has not

examined the links between carer commitment or awareness of influence with dysregulation, we do know that providing a nurturing and stable environment post maltreatment can increase a child's psychological resilience (Harden, 2004), so would expect committed caregiving to be protective in terms of a child's psychological development. It is worth noting however that the mean scores for dysregulation at both time points were the lowest of all the problem behaviours. This could be linked to a neglect presentation; dysregulation covers the areas of sleep, eating and negative emotionality, and if a child has not received enough food in the past, they may be less likely to reject food when it is offered to them, and if they have cried at night and not been attended to, they may learn to stay quiet throughout the night, thus scoring low for eating and sleeping problems. This reporting difficulty is possibly more relevant to younger children, as whilst behaviours such as over-eating could be viewed as problematic in an older child (and may be a more common problem in this population – see Cox et al., 2016), a toddler who has a large appetite and is not particular about food choices could potentially be viewed as having less problems by their carer. A lower score for dysregulation therefore may signal a greater degree of psychological distress in this population than a higher score. This links in with attachment theory (Ainsworth, 1970); when a child is not emotionally attended to, they can become avoidant or resistant of their parent's attention as a way of coping with inconsistent or absent care. These children may therefore be exhibiting avoidance when they do not cry out at night or try to seek reassurance.

Despite the relationships between carer TIMB variables and competence and dysregulation found at T1, no links were found between the TIMB variables and

internalising and externalising problems at T1. This was contrary to expectations given the previous findings that linked commitment to reduced child behaviour problems (Lindheim & Dozier, 2007; Koren-Karie & Markman-Gefen, 2016), although both of these studies were based on US samples, and the latter study's participants were school-age and in a group care setting. It could be that these relationships do not exist in the UK, pre-school foster care population, but it is equally likely that there were other factors at play that we could not control for as data were not available, such as type of maltreatment or number of placement moves, and we know from previous research that these variables relate to child mental health development (e.g. Rubin et al., 2004). We also did not have any information relating to the mental health functioning of the foster carers or the birth families, and as parental psychopathology is a known correlate of child psychiatric disorders (Vostanis et al., 2006), this is a factor that may well have played a role in the children's mental health presentation, at least at baseline when they had very recently been removed from parental care.

At T2, no significant relationships were found between any of the TIMB variables and any of the ITSEA mental health outcomes. Again, this was contrary to expectations given previous findings that placement in a stable foster home is protective in terms of longitudinal mental health outcomes (Fernandez, 2008). The Fernandez study however found that rates of mental health problems were closer to the national average in later childhood, and it could be that many of the positive effects of a supportive foster placement on mental health take more than a year to emerge. This assertion is supported by the fact that mental health problems of the sample were no better at T1 than they were at T2 overall (competence alone showed improvement). The

Bick et al. (2015) study that found more usual white matter development in children in foster rather than institutional care assessed children at age 8, and whilst a vast amount of brain development occurs in the first two years, white matter development is slower than that of grey matter in general population infants (Knickmeyer et al., 2008). It could be therefore that the areas of the developing brain that are most influenced by a supportive foster care placement (such as new links made within the limbic system) take a relatively long time to change, develop, and be rehearsed. meaning that the behavioural changes associated with these brain regions also take time to emerge. Further longitudinal MRI studies that assess mental health would be needed to assess this possibility.

It is also worth noting that although the children involved in the study were now in safe and supportive environments, many of them had encountered significant trauma in their early lives, at a time of vital brain development. Many children also still faced on-going stressors, such as contact with maltreating birth parents (or lack of contact, which poses its own challenges), placement moves, Children's Panel meetings, adjustments to new nurseries, schools and environments, and separation from siblings. As these factors could not be controlled for, it is impossible to know the effect these potential stressors may have been having on children's mental health over the first year of foster care. It is also possible that the relatively small sample size at follow up for whom mental health data were available may also have played a part in the lack of significant findings at this time point, although analyses were bootstrapped to limit the risk of type 2 errors occurring.

Whilst mental health has been a significant focus of this study, it would be remiss not to consider how difficult this term is to quantify in children so young, who are in a stage of rapid social and emotional development. In the literature, the term 'mental health' can be conceptualised in a number of ways, for example social competence, and internalising / externalising problems. The main study from which the data was extracted chose a very broad measure of infant mental health in the ITSEA in an attempt to address this, but it is still important to consider just how complicated a concept mental health is in this population. This is one of the reasons that we have reported findings from the subscales of the ITSEA in this paper, rather than attempting to provide an overall measure of 'mental health'.

4.2. Coding RF ability from the This Is My Baby interview:

This study aimed to assess whether or not RF could be successfully coded from transcripts of the TIMB. We were interested to see if a foster care specific coding pathway could be considered, that carried a far lesser time and training burden than other general population coding methods. The reliability correlation between rater 1 and rater 2 was 0.691 ($p < .001$), and between rater 1 and the computerised analysis (Fertuck et al., 2011) was 0.716 ($p < .001$). As the correlation between the computerised analysis and rater 1's scores was good, we were able to use the computerised analysis score all TIMB transcripts for RF. Both raters were trained in the coding of the AAI both for attachment style and RF, and felt that the TIMB interview was an acceptable alternative for RF scoring, as it has specific target questions that encourage reflection (e.g. "how do you think your relationship will effect the child in the future?"). This is promising, as

there is currently no means of coding RF from a measure that is specifically designed for foster carers (see Katznelson, 2014 for a review of current means of RF assessment). Future research should compare RF coding from the TIMB and AAI to validate this means of coding RF in the foster carer population.

4.3. Carer RF and child mental health at baseline and follow-up:

Carer RF was found to correlate with externalising child problem behaviour at baseline, with increased RF being associated with increased externalising problem behaviour. This finding was contrary in terms of its direction, as we expected to see increased RF being associated with decreased mental health problems, given its link with affective communication in biological dyads (Kelly, Slade & Grienenberger, 2007). The direct links between parental and/or foster carer RF and young children's psychiatric symptomology have not previously been investigated however, so these relationships were difficult to predict. No other correlations were found between RF and the ITSEA outcomes at baseline, and multiple regression analyses showed that RF also did not predict any ITSEA outcome at T1.

This picture was different at follow up; a significant correlational relationship was found between T2 RF and T2 internalising. Again, this relationship was in the opposite direction to what was expected, as increased RF was linked with increased internalising problems. The correlation with externalising found at T1 was not significant at T2. Despite this, multiple regression analyses found that T2 RF predicted both externalising and internalising problem behaviours at T2. Carers with higher levels of RF had children who had more internalising and externalising problems. This is

interesting considering the literature in the adult population that found no links between RF and psychiatric symptomology (e.g. Schechter et al., 2007), and the finding that high RF is associated with positive affective communication in biological dyads (Kelly, Slade & Grienenberger, 2007). It is possible that this finding reflects a reporting bias – a carer who is more reflective may be more able to notice and discuss the child’s difficulties than a carer who was less reflective, and therefore rate the child more highly (and arguably more accurately) on the ITSEA, rather than more reflective carers having children with more behavioural problems. It could also be however that there is something about highly reflective carers that makes them more likely to look after children with the highest levels of mental health need, but this assertion would need to be rigorously tested in future research. Another possible explanation for this finding is that a previously neglected child may struggle to tolerate some of the behaviours that we might associate with higher RF, such as open and thoughtful communication, due to this not being a way of interaction that they have had much experience in previously. A child who has been frightened of their birth parent, for example, may initially feel unsure and even frightened of a highly present, highly reflective caregiver. It may be that any potential benefits of caregiver RF take a longer time period to emerge, as the child acclimatises to an often very different style of caregiving.

4.4. Carer commitment, acceptance, awareness of influence, RF, and child attachment:

Overall, 63% of the children in the sample were securely attached at T2. This is close to Ainsworth et al.’s (1978) standard figure for security (66%), suggesting that a year of supportive foster care helps maltreated children to exhibit similar levels of

security as can be found in the general population. This is in line with Joseph et al.'s (2013) study that found rates of attachment security in previously maltreated foster children to be comparable to non-foster comparison families. This is a positive finding, especially in light of the increased risk that maltreatment has on attachment development (Baer & Martinez, 2006). Contrary to expectation, no significant relationships were found between the TIMB variables at either time point and the security of child attachment at T2. This could be at least partially due to the fact that few carers scored low on the TIMB variables (the data was positively skewed as was to be expected as we would hope that trained foster carers would score highly on this measure), and the majority of children were securely attached. As we only had SSP data available for 40 children, there was a smaller still pool of children who were insecurely attached (N=17). Also, very few carers scores in the 'low' range for any of the TIMB variables at either time point (between 0-5 for each variable), so the numbers for analysis here were very small, making a type 2 error likely. As this data is positively skewed, a very large subject pool would be needed to explore this relationship fully. The chi squared analysis also found no relationships between RF at either time point and child attachment. Again, this was contrary to expectation given the links found between RF and attachment security in previous research of biological dyads (Fonagy et al., 1991; Fonagy et al., 1994). It could be that the relationships between RF and attachment security that we see with biological parents and their children are not the same in foster care dyads, or at least that these relationships take longer than a year to emerge. At this stage however, these analyses were designed to be exploratory and secondary, and more reaffirm the need for future research than provide evidence that

there are no significant relationships between the variables. Additional exploratory analyses also found no relationships between attachment security and mental health outcomes at follow up, which is contrary to the findings of McLaughlin et al. (2012) and Pasalich et al. (2016). Again, the small sample size was potentially problematic here, but these results could suggest that attachment security is more susceptible to change over a short period of time than mental health functioning.

4.5. Foster carer commitment, awareness of influence and acceptance of the child in their care, and their RF ability:

The only significant relationship that was found between the TIMB variables and RF was with TIMB awareness of influence at T2. We expected a relationship here, as the main RF demand questions in the TIMB are the same as the ones that are mostly used to rate awareness of influence (e.g. “how do you think your relationship is affecting the child right now?”). It was contrary to expectation that no relationship was found between these two variables at T2, due to the similarity in the material that produces these scores. None of the TIMB variables predicted RF at either time point. This analysis was purely exploratory as the two measures have not been previously been compared in the literature. Previous research however has also failed to find links between RF and other psychological variables, such as depression (Taubner et al., 2011), so it is possible that these links do not exist. As awareness of influence and RF are conceptually similar however, a predictive relationship between these two variables would not have been unexpected, but this was not found in the analysis.

4.6. Foster carer commitment, awareness of influence, acceptance, RF, and change over time in mental health outcomes:

Contrary to initial expectations, but in line with findings that the TIMB variables did not relate to mental health outcomes at follow up, none of the TIMB variables significantly predicted change in mental health problems over time (see Table 6), nor predicted a significant proportion of the variance in change in problem behaviours over time when combined. Baseline RF also did not predict change over time in mental health problems, despite the findings that it did predict internalising and externalising problems at T2. The change over time analyses were problematic in that the problem areas identified by the ITSEA actually increased over time, rather than decreasing as expected, as previous studies have found behavioural problems to decrease in supportive foster care (Fernandez, 2008). It could be that children who are in their first nurturing placement finally feel more able to exhibit behaviours to get their needs met, such as demonstrating non-compliance or showing distress through crying etc., so that over a short period such as a year, these internalising and externalising behaviours actually increase before hopefully then decreasing over a longer period of time. As there were no positive changes in terms of problem behaviour, we then would no longer expect to see the TIMB or RF variables predicting these relationships. The TIMB and RF variables also did not predict change in competence over time, despite this variable increasing significantly from T1 to T2. This was contrary to what would be expected given the known links between sensitive caregiving and child competence in biological dyads (Belsky & Fearon, 2010), although this precise relationship was difficult to predict

as the link between child competence and caregiver psychological variables had not yet been examined in the literature prior to this study.

4.7. Strengths of study:

This study had several key strengths. Firstly, it drew data from the first randomised controlled trial of a mental health intervention for looked after children in the UK, which meant that this research could be carried out with a vulnerable and hard to recruit population without creating any additional burden for families or financial cost for the research team. It also meant that recruitment rates were higher than could usually be expected for a doctoral thesis project. R1 was previously employed on the main RCT, and had been responsible for much of the initial data collection. She did not however have any input into the design of the original RCT. Data was held by the Robertson Centre for Biostatistics, where any irregularities were checked for and corrected, making for a high level of data cleanliness and accuracy. Well-validated and reliable measures were used for assessing mental health, attachment (the SSP is the gold standard for this age group), and carer variables. Inter-rater and computer-rater reliability was carried out for the coding of RF from TIMB variables, and was found to be good (0.691 and 0.716 respectively). This has provided initial evidence that computer coding RF from the TIMB could be a useful research methodology, although this will need to be validated against the AAI in future studies. The study also held strength in terms of its clinical utility; the population studied is one of the most vulnerable in our society, and there are huge individual and societal costs of child maltreatment. Research in this area that helps us to understand what might help these children to

enjoy more positive mental health outcomes is vital, yet there is a paucity of high quality research in this field (particularly in the UK context). Many of the relationships investigated here (such as foster carer RF and child competence and dysregulation) had not yet been examined in the existing literature, so this study has paved the way for future research, and added to a fledgling evidence base for a topic of great societal importance.

4.8. Clinical implications:

This study found that there are some links between carer psychological variables with various child mental health outcomes at time of entry to care and a year after accommodation. Unfortunately however, this study did not find the evidence of as many links between carer variables and child mental health as were anticipated. This could have been in part due to the limitations discussed below, but also due to the number of potential confounding variables that could not be controlled for. Some of these variables are known from the literature (e.g. placement stability – e.g. Rubin et al., 2004), but the paucity of research in this area means that other unknown variables may have been adding to the picture here. The correlational links found between carer acceptance, commitment and dysregulation at baseline might suggest that these could be helpful targets of intervention if dysregulation is a child's core presenting problem. There was also useful learning in terms of the finding that the foster children in the sample were securely attached to a similar degree to the general population after a year of supportive foster care. It could be that changes in attachment style can come about more quickly than changes in mental health in this age group. This highlights the

importance of more long-term longitudinal studies in this area. Overall, this study demonstrates the complexity of the picture of the mental health of looked after children, as mental health problems did not significantly improve over a year of supportive foster care despite all families in the main study being offered extensive input from services. It may be helpful to provide foster carers with a realistic picture of what gains are likely within a year period with regards to mental health functioning, whilst also providing them with information about the psychological variables that may be linked to this. It may also be prudent to assess children's mental health at entry to care in order to provide a holistic and specialist intervention that targets specific problem areas, rather than focusing on mental health as a whole.

4.9. Limitations of study:

This study did have several limitations. Firstly, despite the overall sample size being large enough to detect small effects at 80% power (power calculations at the study planning stage using G power [Faul et al., 2007] suggested a minimum of 70 participants would be required), full data was not available at both time points for all 179 participants. This was particularly problematic in terms of the attachment analysis, where data was only available for 40 participants. It is possible therefore that expected relationships that were not found may exist, but were not detected due to the small sample size. Another limitation regarded the use of an existing dataset – although this presented significant advantages in terms of the amount and quality of data available, it did also restrict what measures were available for analysis. This was of particular importance with regard to the ITSEA; because of its relatively small age range (12-35

months), data was not collected for a number of children at both time points because they fell out-with this age range. It also meant that our main analyses examined raw scores at both time points, which does show change per child in terms of problem behaviour, but does not account for expected change by increasing age (for example, some areas would be expected to naturally increase or decrease with age, such as empathy and mastery/motivation). The ITSEA does provide T-scores that are linked to age related norms, but as this data is already transformed, the raw data was decided to be more robust for analysis. The original RCT study team consulted widely before selecting measures, and was aware of potential difficulties regarding the ITSEA, however decided that there was no better means of assessing mental health in this age group. We were also unfortunately unable to control for several possibly confounding variables such as foster carer and/or birth parent attachment style and mental health, maltreatment history and current level of contact with birth parents. These variables may have been playing a part in the picture presented here.

Also, all measures (except for the SSP) relied on carer-report, which can be problematic due to a potential underreporting of problems. An earlier study using an earlier version of this dataset found that carer's often noted no concerns overall despite the measures flagging areas of concern (Pritchett et al., 2016), so it is possible that this may have had an impact on the results presented here.

Also, as the data used in this study was from a larger RCT, no information was available regarding the mental health and/or attachment status of foster carers or birth families. This was because these variables were not of interest to or within the scope of the wider trial, but would have undoubtedly added interesting depth to the

analysis of this study, especially given what is known about the intergenerational transmission of attachment status (Fonagy, Steele & Steele, 1991).

4.10. Suggestions for future research:

Future research should further examine the links between aspects of the carer-child relationship (such as carer commitment and acceptance) and the security of the child's attachment. This work would need to be significantly large scale in order to detect any relationships, given the nature of the data. Future research should also consider other ways to measure child mental health other than carer report, for example also seeking teacher report, or using established measures for coding observations between child and carer, and assessing whether any links exist between carer relational variables and child mental health when the carer is not the sole source of information. Finally, whilst the longitudinal aspect of this study was arguably helpful in terms of understanding how carer variables such as commitment and acceptance, and child mental health outcomes may change in the short term, it would be really helpful if this picture was made clearer by larger scale longitudinal studies with a longer follow up. It would be interesting to see, for example, if carer commitment when a child first entered care was related to far longer term outcomes, such as internalising and externalising, placement stability and attachment outcomes over a 5 or even 10 year period.

5. Conclusion:

In conclusion, this study found some links between carer psychological variables and child mental health functioning at entry to care and a year later, but no

links between these variables and mental health changes over time. Carer commitment and awareness of influence had a small effect on competence at baseline, whereas carer RF had a small effect on internalising and externalising problems at follow up. These are clearly complex relationships, existing in a very complex population, and the foster care system should be set up in a way that encourages positive relationships to develop (e.g. encourages increased commitment and reflection). This is especially important given that newer carers show more commitment than do more experienced ones (Dozier & Lindheim, 2007), which could be at least in part due to the emotional toll of having previous foster children removed from their care. Carers should also be provided with information regarding the complexity of the mental health picture in the foster child population, and given significant support to help their foster children to overcome their early adversity.

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List of Appendixes:

Empirical Paper:

1. Ethical approval from the University of Edinburgh Research Ethics Committee
2. Thesis proposal / protocol
3. Infant Toddler Social Emotional Assessment (ITSEA) score summary page
4. This Is My Baby interview schedule (TIMB)
5. Consent form for the Best Services Trial
6. Information sheet for the Best Services Trial
7. Journal guidelines for Child Abuse and Neglect (empirical paper)

Systematic Review:

8. Crowe Clinical Appraisal Tool (quality assessment for systematic review)
9. Journal guidelines for Children and Youth Services Review (systematic review)
10. Overall thesis portfolio reference list

1. Ethical approval from the University of Edinburgh Research Ethics Committee



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Harriet Hockaday
Trainee Clinical Psychologist

24 November 2015

Dear Harriet,

Application for Level 1 Ethical Approval

Project Title: Does foster care commitment, acceptance, awareness of influence and reflective functioning predict child mental health outcomes?

Academic Supervisor: Matthias Schwannauer

Thank you for submitting the above research project for review by the Department of Clinical and Health Psychology Ethics Research Panel. I can confirm that the submission has been independently reviewed and was approved on the 4th November 2015.

Should there be any change to the research protocol it is important that you alert us to this as this may necessitate further review.

Yours sincerely,

Kirsty Gardner
Administrator
Clinical Psychology

2. Thesis proposal / protocol:

**D.CLIN. PSYCHOL.
UNIVERSITY OF EDINBURGH / NHS (SCOTLAND)
TRAINING PROGRAMME**



Front sheet / Title Page for Submitted Academic Work

TRAINEE NAME: Harriet Hockaday

TITLE OF SUBMISSION: Does foster carer commitment, acceptance, awareness of influence and RF predict child mental health outcomes?

COURSE SUBMITTED FOR:

Research proposal (R1)

Submitted in part fulfilment of the degree of doctorate in Clinical Psychology at the University of Edinburgh

Date Submitted:

Word Count: 5728 (minus references and question wording).



Doctorate in Clinical Psychology

Thesis Research Proposal (for Research 1 assessment).

This form should be completed and submitted as the assessment for Research 1. It will then be reviewed by a member of the academic team and will receive a grade and detailed feedback. The feedback will include an evaluation of the viability of the project and any recommendations. If there are significant concerns about viability, the project will be flagged to the research director and the research committee will decide whether the project can proceed in its current form.

Provisional Thesis Title: Does foster carer commitment, acceptance, awareness of influence and reflective functioning (RF) predict child mental health outcomes?

Exam number:

Allocated Thesis Project Supervisors

Clinical: Dr Helen Griffiths

Academic 1: Dr Matthias Schwannauer

Others involved as part of project team (if applicable): N/A

Proposed setting(s): Data will be gathered from the University of Glasgow in approximately one years' time.

(Where research will be carried out)

Anticipated Month & Year of Submission of Thesis: 1st May 2017

(Must be in final year for full time trainees. For flexible trainees, the month & year of submission will depend on their Individual Training and Development Plan. Trainees from 2011 intake onwards must submit in May, trainees who started in 2010 or earlier are advised to submit in May to reduce potential for HPC registration difficulties)

Please Note: Whilst this is not an ethics review process, where questions have some similarities to questions contained in the NHS IRAS Research Ethics form, the corresponding IRAS question numbers are given in parentheses. This is intended to facilitate completion of NHS ethics where such approval is needed.

Version (date): 12, 10/07/15

Introduction: Please provide a brief critical review of relevant literature, which should clearly demonstrate the rationale and scientific justification for the research. (Relevant to IRAS A12) (Guideline 1000 to 1500 words)

As of 31st July 2014, there were 15,580 children in Scotland who were looked after outside of the home, usually due to abuse or neglect (The Scottish Government). The number of children who were looked after or placed on the Child Protection Register was 17,634, which equates to 2% of the overall child population in Scotland. Research has shown that children who suffer from early adversity are significantly more likely develop problems in later life, such as anxiety, depression, social withdrawal (Lansford et al., 2002) and delinquency (Barrett et al., 2013). Children who are accommodated into foster care are at a significantly higher risk of having experienced considerable early adversity; one Central Scotland based study found that over 90% of children in foster care had suffered abuse or neglect, and 60% had evidence of mental health problems (Minnis et al., 2006). A large, UK wide study also found that children who are looked after by the Local Authority have a higher prevalence of psychiatric disorder than even the most socio-economically disadvantaged children living in private households (Ford et al., 2007). This study also found that entering the system at a later age, having more changes in placement in the last year and having lived less long in their current placement were strongly related to mental health.

Early adversity also has an impact on a child's relationships and cognitive development. In 1952, John Bowlby presented findings that institutionalised children were disadvantaged in a number of significant ways compared with children raised in families, including reduced developmental quotients, speech and language difficulties, behavioural problems and superficial relationships (Bowlby, 1952). Attachment theory would suggest that the emotional needs of these children were not being met, thus hindering their ability to develop secure attachments (the confidence that their needs would be met by a primary care giver). Ainsworth, a student of Bowlby's, put the theory on a research footing: her 1967 book '*Infancy in Uganda: infant care and the growth of love*' describes how babies use their mothers as a secure base for exploration and Ainsworth built upon these findings and other works on separation anxiety and children's fear of strangers (see Morgan & Ricciuti, 1969; Schaffer 1966) to develop a rigorous procedure for assessing attachment in infants. Ainsworth called this the Strange Situation Procedure (SSP; Ainsworth & Bell, 1970). The SSP categorises the child as having secure, avoidant or ambivalent attachment styles. A child can also be rated as having a disorganised attachment, which is characterised by fear of the parent (see Main et al., 1986).

Secure attachment has been linked to many positive outcomes, such as improved social competence (Bohlin, Hagekull & Rydell, 2000), improved cognitive functioning, mental and physical health (Ranson & Urichuk, 2008), and better health related self-care in adulthood (Ciechanowski et al., 2004). Conversely, attachment disorganisation has been linked with problems in later life, such as externalising problem behaviour, dissociative behaviour, problematic stress management (van Ijzendoorn et al., 1999) and psychopathology (Carlson, 1998). In addition to the negative outcomes first identified by Bowlby (1952), and the increased risk of mental health problems detailed above, children who have been maltreated are less secure and more disorganised than their peers, including those from high risk families (Cyr et al., 2010). This group of children therefore

carries significant psychological vulnerability, and it is vital that research examines what may help or hinder these children in the development of positive mental health and quality of life outcomes.

Fortunately, the attachment and mental health outcomes of these vulnerable children can be improved through secure and supportive placements, be they foster or kin based. Research has shown that placement into foster care allowed for the development of secure attachment to carers and prevented the onset of internalizing disorders such as anxiety and depression in previously institutionalised girls (McLaughlin et al., 2012). Parenting interventions can also help develop secure attachments in maltreated children who remain within the family unit (Cicchetti, Rogosch & Toth, 2006). A review by van Ijzendoorn (1995) found that within biological mother-infant dyads, the strongest predictor of infant attachment is the mother's state of mind regarding attachment – this relates to the way in which the mother processes her feelings and thoughts about her own early attachment experiences. This relationship has since been found to be similar in foster mother-child dyads (Dozier et al., 2001), suggesting that positive foster care relationships can aid in the developing of similar attachment patterns that we would expect to see in positive biological parent/child relationships.

In 1998, Bates and Dozier put forward an interview schedule and coding manual called “This is My Baby”, designed to elicit the extent to which the foster carer accepts their child as their own person, is committed to looking after them, and understands their influence upon the child's development. Levels of commitment have been found to differ between foster carers; there is a relationship between increasing number of previous placements and lower commitment to the current child, and a younger age at placement predicted higher commitment from foster carers (Dozier & Lindhiem, 2006). This study also found that commitment was related to placement stability, which is important considering that placement instability in foster care is associated with negative outcomes such as high mental health service use (Rubin et al., 2004) and behavioural problems (Rubin et al., 2007). Foster carer commitment has also been shown to predict levels of delight that carers show whilst interacting with their foster children (Bernard and Dozier, 2011), which may have significant positive impact on bonding in these dyads, and to help the child to feel safe and valued. Despite positive outcomes being found to be related to carer commitment as rated by the TIMB, there is a dearth of research in terms of foster carer acceptance of the child and awareness of their influence over them, and the relationship these variables may have with child outcomes. It is important that future research also accounts for these variables, as they may have a significant positive impact on quality of life for this vulnerable group.

Foster carer's RF ability (see Fonagy et al., 1991) may also play a role in their child's development. RF (RF) can be defined as “the essential human capacity to understand behavior in light of underlying mental states and intention” (Slade, 2005), and in terms of parenting, this would refer to the ability to hold the child's mental states in mind whilst interacting with them. Low levels of RF have been found to be associated with increased disruption in the mother-infant affective communication, which in turn was predictive of decreased attachment security (Kelly, Slade & Grienenberger, 2007).

RF has also been found to be a protective factor for survivors of trauma (D'Angelo, 2007), and a recent review has found RF to be predictive of child attachment security and later behavior (Ordway et al., 2014). Vulnerable children may be more likely to have birth parents with lower RF ability; one study found that mothers with low RF ability were more likely to relapse into substance abuse following a residential program, and that their children were more likely to be taken into foster care (Pajulo et al., 2012). Fortunately, there are programs being offered to vulnerable families which aim to improve parents reflective capacity, and the child's mental health and attachment (see Murphy & Steele, 2013), and future research into RF and its links with child outcomes will hopefully be able to inform more evidence based interventions in this field, in order to improve quality of life for vulnerable children and their families.

Because children in foster care are disadvantaged in a number of important ways, this study aims to examine foster carer characteristics that might help to protect these children, by assessing how they predict the child's mental health and attachment outcomes. The principle research question will be '*Does foster carer commitment, acceptance, awareness of influence and RF predict child mental health outcomes?*' Examining RF in conjunction with data gathered from the TIMB interview has never been attempted before, and will provide vital evidence about how carer variables can influence the mental health of the most vulnerable children. The literature on outcomes for children in foster care show that the child's age at placement has an effect on placement stability and child outcomes (e.g. Anke, 2007; Bates & Dozier, 2002; Kemp & Bodonyi, 2000). The child's age at accommodation will therefore be added into the analyses of the predictive effect of the TIMB variables and RF, in order to ensure that this potentially confounding variable is controlled for.

Research Questions / Objectives:

(Keep these focused and concise, with a maximum of five research questions).

2) What is the principal research question / objective? (IRAS A10)

Does foster carer commitment, acceptance, awareness of influence and RF predict child mental health outcomes?

3) What are the secondary research questions / objectives if applicable? (IRAS A11)

- What is the relationship between foster carer commitment, awareness of influence, acceptance, and RF and the child's attachment style?
- What is the relationship between foster carer commitment, awareness of influence and acceptance of the child in their care, and their own RF ability?
- Is it possible to meaningfully code RF ability from the This Is My Baby interview?
- Does foster carer commitment, awareness of influence, acceptance, and RF predict change over time in mental health outcomes?

Methodology

4) Please give a full summary of your design and methodology. It should be clear exactly what will happen at each stage of the project. (Relevant to IRAS A13)

Design

In order to answer the main research question, a cross-sectional quantitative design will be utilised as the focus will be exploratory, using multiple regression to examine predictive relationships at one data time point. Longitudinal data will however be used to answer the final secondary research question, as the emphasis will be on change between two time points.

Participants

Participants will be foster carers and foster children who were / are already participating in the BeST[?] Services Trial. The BeST[?] Services Trial is a Glasgow wide study into new interventions for maltreated children who are in foster care. Data is already available for most participants, but as the trial is ongoing, more participants will have been recruited by analysis stage. This study will also be adding an additional variable in RF, which was not collected as part of the main trial. Because the BeST[?] Services Trial is recruiting very vulnerable families, the study team have recruited a specialist Social Work based Recruitment Coordinator, to ensure that informed consent can be obtained from both foster carers and birth parents. There will be no additional burden to participants for taking part in this study

Ethics

The BeST[?] Services Trial has received a favourable ethical opinion from the West of Scotland Research Ethics Service (WoSRES) in 2010. A minor amendment will be applied for to add the trainee and her supervisors to the study team for the BeST[?] Services Trial, which will grant them ethical approval to use the data gathered by the main study. The University of Edinburgh's Psychology Research Ethics department will be informed about the study via the appropriate paperwork that they request be submitted.

Procedure

Much of the data that is required to address the research questions was previously collected by the trainee and her previous research team as part of a large, ongoing, Glasgow wide RCT of a new intervention for maltreated children who enter a period of foster care (the BeST[?] Services Trial). This study is collecting data on a variety of child outcome measures one month after they enter foster care due to maltreatment, and then again one year later (baseline and follow up), and will be continuing to recruit for the duration of this project. The study has not however looked at RF, and the research questions associated with this project are ones that would otherwise not be addressed, making this a novel and original piece of research.

As part of the BeST⁷ Services Trial, This Is My Baby interviews were carried out with 88 foster carers at baseline, and 75 at follow up (50 paired cases), and from this, scores for their commitment, acceptance and awareness of influence have been derived. We also have access to videotaped Strange Situation Procedures (SSP) carried out at follow up for 46 children. The tapes where the usual Ainsworth Infant methodology of the SSP was used will be coded by the trainee to ascertain the child's attachment style (N=15). 31 of the children in the original study were of preschool age, and were therefore subjected to the MacArthur Preschool methodology of the SSP; these tapes are currently being coded by an external researcher in the US due to the trainee not being trained in this coding scheme. Scores are likely to be completed in the next few months. We also have data on the children's mental health, as assessed by the Infant Toddler Social Emotional Assessment (ITSEA - Carter and Briggs-Gowan, 2005) for 81 children at baseline and 60 at follow up (59 paired cases). The Robertson Centre currently holds this and the TIMB score data for Bio Statistics in Glasgow; the trainee will request the relevant anonymised data to be extracted for analysis, in order to assess the relationship between child mental health and foster carer variables from the TIMB. This has been agreed with the PI of the BeST⁷ Services Trial. The analysis of these data will allow the trainee to write up a paper examining the links between carer commitment, awareness of influence and acceptance and child mental health and attachment, which will form the first part of her thesis (hereafter referred to as Paper 1).

The data that is currently available is summarised in the Table below:

Measure	N at Baseline (T1)	N at Follow-up (T2)	Paired cases (data at T1&T2)
This is My Baby (TIMB)*	88	75	50
Strange Situation Procedure (SSP) - Total		46	
SSP – Infant Coding Method**		15	
SSP – Pre-school Coding Method**		31	
ITSEA – Total N	106	60	59
ITSEA – N with norms available	81	38	26
Ps with both TIMB & Normed ITSEA data	61	30	

Recruitment to the main trial is on going, meaning that more will be available by the time we come to analysis (see section 8 for a detailed breakdown of expected participant numbers).

Foster carer's RF ability will be scored from their responses on the TIMB interview. Because an extensive training program is needed in order to be able to reliably code RF, this will be carried out by previously trained coders. Given the nature and content of the TIMB interview, it is our assumption that this will be possible, but as this has not been done before, this will be an area of investigation in its own right. If it is possible that meaningful scores for RF could be generated from the TIMB, then this would provide a much shorter and clinically useful method of coding RF than is currently available. The RF variable will then be entered into the regression analyses to see if it is predictive of the child's mental health outcome scores. This will complete the analysis for the main research question, and will be written up as a separate paper to be submitted for publication in an appropriate peer reviewed journal (Paper 2). If we find that RF accounts for a large amount of the variance in child mental health outcomes, mediation analyses will be employed to assess whether or not the relationships found in Paper 1 would still exist if RF were controlled for.

As the BeST⁷ Services Trial is still recruiting, we can expect that substantially more data from the TIMB and ITSEA will be available when it comes to analysis stage after the systematic review is complete. The study is currently assessing around 3 families a week. There will not be any more SSP data however as this has now been dropped from the protocol. The trainee will attend Yorkhill Hospital in Glasgow where the SSP videos are held in a secure filing cabinet on her study days to code the SSP videos. This is expected to take up approximately 5 study days. The TIMB voice recordings will be transcribed by the trainee, and these will be anonymised at the point of transcription. This is expected to take around 13 study days. The transcripts will then be passed onto the coders for RF scoring. Once all data is scored and anonymised, the trainee will be able to work on analysis and write up without needing to return to Yorkhill.

5) Please list the principal inclusion and exclusion criteria (IRAS A17-1 and A17-2)

All maltreated children aged between 6 and 60 months who entered a period of care between December 2012 and the present time are eligible for the BeST² Services Trial. The study has funding for a further three years. The only exclusion criterion is evidence of a profound learning disability. We will not be adding any additional exclusion criteria for this project.

6) How will data be collected?

If quantitative, list proposed measures and justify the use of these measures. If qualitative, explain how data will be collected giving reasonable detail. (Don't just say 'by interviews')

The majority of the data have already been collected quantitatively by the trainee and her previous colleagues, and collection is still ongoing by the BeST² Services Trial Study Team), using the following measures:

- **This Is My Baby** (Bates & Dozier, 1997) – a semi-structured interview that provides scores regarding a foster carer's commitment, acceptance and awareness of influence. The interview contains questions such as 'do you ever wish that you could raise the child', and 'how do you think your relationship with the child will effect them in the future'. Responses are tape-recorded and then coded according to the scoring manual to generate the three aforementioned scores. Scores on each of the 3 domains go from 0 (low) to 5 (high). This questionnaire also gathers some basic information about the current and past foster placements, such as 'how many foster/birth/adopted children do you have in your care at the moment', and 'how many foster children have you looked after in total'. This measure has good predictive validity; one study that used the measure had interrater reliability (calculated as a Spearman-Brown correlation) of .90.

- **The Infant Toddler Social Emotional Assessment** (Carter and Briggs-Gowan, 2005) – a comprehensive questionnaire that was carried out with foster carers to assess for social or emotional problems and competencies in their foster children. It provides a comprehensive profile of problems and competencies on 4 domains: 1) Externalizing, 2) Internalizing, 3) Dysregulation, 4) Competence. These domains are also split in to sub-domains of difficulty; for example, externalizing is broken down into activity/impulsivity, aggression/defiance and peer aggression. Once scored, it is possible to compare a child's scores to standardized norms for their age and gender, and cut offs are provided for scores that should generate clinical concern for each domain and sub-domain. This allows the scorer to assess how many areas of concern a child may have with regards to their mental health functioning. Changes over time in mean scores can also be examined, as each sub-domain carries its own mean score. The analysis for this project will use the ITSEA total mean score. The ITSEA has relatively good internal reliability (Cronbach's alphas of .60 to .69), and good test-retest reliability, and it has been well validated against the Child Behaviour Checklist (Achenbach et al., 1987) and the Parenting Stress Index (Abidin, 1990). See Briggs-Gowan and Carter (1998) for more information.

- **The Strange Situation Procedure** (Ainsworth and Bell, 1970) – The Strange Situation Procedure (SSP) is considered the 'Gold Standard' for measuring attachment in infants aged twelve to eighteen months. The procedure is carried out in a clinic setting, which requires being equipped with good quality audiovisual recording equipment, as scoring is based on video footage. The SSP consists of a series of separations and reunions between child and parent, and is composed of eight time-sensitive episodes. The infant's attachment category is determined by their behaviour upon reunion with the parent. Scores are derived from four separate behaviours: proximity seeking, contact maintenance, avoidance, and resistance, allowing classification of the child into secure, insecure/avoidant or insecure/ambivalent. Videos can further be coded for disorganisation, a fourth attachment category described by Main and colleagues (Main et al., 1986). Disorganisation is shown through behaviours that cannot be explained by anything but fear of the parent. For this study, children will be scored in terms of their overall attachment category according to Ainsworth and Bell's scoring criteria, and will then be clustered into secure vs insecure for analysis. The SSP has been shown to have strong external validity, as the differing attachment categories have been found to be associated with social and mental health outcomes later in life (e.g. van Ijzendoorn et al., 1999). It also has strong inter-rater reliability when ratings are carried out by experienced coders (Ainsworth & Bell, 1970), which explains the need for the rigorous training program (which the trainee has undertaken). The SSP has also been validated by comparing infants secure base behaviour in the clinic sitting to their home environment (e.g. Ainsworth et al., 1978).

- **The Strange Situation Procedure for Preschool children** (Cassidy & Marvin, 1992) – a modified version of the SSP that has been developed for use with preschoolers by Cassidy & Marvin and the MacArthur Working Group (1992). This work has significantly extended the usefulness of the SSP, allowing for the assessment of attachment relationships in children up to 4 years. In the modified procedure, no stranger is involved (the child is alone for both separations), and the 2nd separation is 6 minutes long (rather than 3 minutes in the infant SSP). This is intended to elicit the same level of stress in pre-schoolers as the Ainsworth SSP does in infants. For the purpose of this study, the SSP videos that we have where the Preschool method was used will be coded by trained coders in the US (this process is already underway). This method has been shown to have good construct validity; attachment classifications have been shown to be related to family antecedents (such as mothers with greater psychological adjustment) and child outcomes (such as social competence and compliance) in a way that is consistent with previous attachment research and theory (see NICHD Early Child Care Research Network, 2001, for more information).

Sample Size

7) What sample size is needed for the research and how did you determine this? For quantitative projects, outline the relevant Power calculations and the rationale for assuming given effect sizes. For qualitative projects, outline your reasoning for assuming that this sample size will be sufficient to address the study's aims. (IRAS A59 and A60)

As the literature in this field is relatively sparse, it is not possible to predict the likely effect size based on previous work. For this reason, it is important to be conservative the estimation of effect size; we will predict a small effect size of 0.2, with 80% power, and an alpha level of 0.05. This effect size would also be in line with the one previous study that found relationships between carer commitment and another carer outcome (carer displays of delight, see Bernard Dozier, 2011) with an effect size of 0.24. As younger age at placement has been found to be predictive of positive outcomes for children in foster care, this will be accounted for in the analysis, in addition to the 4 main predictor variables.

G power (Faul et al., 2007) calculations suggest that data from 70 participants would be needed in order to carry out sufficiently powered multiple regression analyses to assess for predictive relationships between the TIMB/RF variables and mental health outcomes.

8) Outline reasons for your confidence in being able to achieve a sample of at least this size. (e.g. by giving details of size of known available sample(s), percentage of this type of sample that typically participate in such studies, opinions of relevant individuals working in that area)

We currently have data baseline ITSEA and TIMB data for 61 participants, and follow up data for 30. As the study is still recruiting, and is assessing on average 3 families a week, we hope have sufficient numbers and therefore power to also carry out follow up analyses by the time we come to the data analysis stage. If this does not occur, we will still have sufficient power to carry out baseline data analysis, as only 9 more families need to be assessed to reach 70 participants. The BeST² Services Trial aims to recruit every child who enters a period of foster carer due to maltreatment in Glasgow. In order for the child to be enrolled in the study, informed consent is gathered from both a birth and a foster parent. The study is currently recruiting around 60% of all eligible families, so there should be significantly more ITSEA and TIMB data when data extraction and analysis takes place. Currently, around two families are being assessed for follow up each week, and around one family is being assessed at baseline each week. TIMBs will be carried out for all children, and ITSEAs for those who fall into the age group where there are norms available (roughly half the sample; previously ITSEAs have been gathered for all children but this protocol has currently changed). Therefore, the predicted numbers we would have for the write up of Paper 1 based on data extraction in December 2015 would be as follows:

Measure	N at Baseline (T1)	N at Follow-up (T2)	Paired cases (data at T1&T2)
This is My Baby (TIMB)*	118	119	94
Strange Situation Procedure (SSP) - Total		46	
SSP – Infant Coding Method**		15	
SSP – Pre-school Coding Method**		31	
ITSEA – Total N	128	82	59
ITSEA – N with norms available	92	60	26

Ps with both TIMB & Normed ITSEA data	72	52	
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The above numbers a conservative estimation, as assessment at baseline has very rarely dropped below one family a week, and is usually higher (around 2-3 families). If the follow up numbers are not sufficient to calculate sufficiently powered change analyses, it would also be possible to wait for up to 4 months to run these analyses in order to obtain sufficient data; the tasks of the project are flexible enough to allow for this (for example, the trainee could begin the literature search and write up for Paper 2 at an earlier stage, rather than analysing the data for Paper 1 at this time). The project will not be at risk if this does need to be delayed, and the data required for the main analyses will be gathered on time. This would be a decision taken by the trainee and her supervisors.

We have follow up TIMB and SSP data for 37 cases (the SSP was not carried out at baseline). Unfortunately, this number will not increase, as the SSP has been dropped from the original study protocol due to costs involved with scoring the data. We hope however that this number will at least provide a flavour of the relationships that may exist, and we hope to be able to carry out bootstrapping of the data, in order to allow us to come to more firm conclusions about any particular relationships.

Analysis

9) Please describe the methods of analysis (statistical or other appropriate methods, e.g. for qualitative research) by which the data will be evaluated to meet the study objectives. (IRAS A62)

The data will be analysed using SPSS software. Multiple linear regressions will be carried out to assess for the relationship between the TIMB variables and the mental health and attachment outcome measures.

The data to answer each research question will be analysed as follows:

4. *Is it possible to meaningfully code RF ability from the This Is My Baby interview?*

Hypothesis 4 – It is possible to meaningfully code RF ability from the This Is My Baby interview.

This question will be attended to first, as scores of RF will be needed for all of the other analyses. The coders will use their prior coding experience using the RF coding scheme for the Adult Attachment Interview (George, Kaplan & Main, 1985) to assess whether or not they have been able to meaningfully code RF ability from the TIMB interview. The TIMB interview uses questions that are similar to the RF demand question in the AAI, and the coders will assess whether or not the foster carers responded to the TIMB questions in sufficient detail in those questions to allow the coding of RF. Although this has not been attempted before in a research project, the similarity of the questions in the two interviews should hopefully make this process possible. The recommendation would then be to run a future study to validate this method, by comparing carer's RF scores from the TIMB to their RF scores as assessed by the AAI. The process of validation of this method will have been started by the analysis for question 3, and comparing the scores to those generated from the AAI would further strengthen this process.

1. *What is the relationship between foster carer commitment, awareness of influence, acceptance and RF, and the child's mental health?*

Hypothesis 1 - lower scores on all four of the predictor variables will be predictive of increased child mental health difficulties.

Multivariate multiple linear regression analyses will be carried out using the four predictor variables of commitment, awareness of influence, acceptance, RF plus age at accommodation to assess whether or not they predict children's mean mental health total problem score as identified by the ITSEA. If one of the predictor variables were found to

account for a much greater amount of the variance than the others, mediation analyses would be considered to further explore this.

2. *What is the relationship between foster carer commitment, awareness of influence, acceptance and RF, and the child's attachment style?*

Hypothesis 2 – High levels of foster carer commitment, acceptance, awareness of influence and RF will be associated with secure child attachment .

Due to the categorical nature of the attachment style data (the child will be described as having either a secure or an insecure attachment style), separate chi-squared tests will be run to assess the relationship between each of the three TIMB predictor variables (commitment, awareness of influence and acceptance), RF, and child attachment style. The three predictor variables will be converted from their continuous scale form (0-5) into categorical data (low, medium and high) to allow for these analyses to take place. Logistic regression analysis will not be possible due to the relatively small number of participants that SSP data is available for.

3. *What is the relationship between foster carer commitment, awareness of influence and acceptance of the child in their care, and their own RF ability?*

Hypothesis 3 – High scores on all three TIMB variables will predict high RF ability.

Linear regression will be carried out to assess whether or not a carer's level of RF ability can be predicted by their levels of commitment, awareness of influence and acceptance as rated by the TIMB.

4. Does foster carer commitment, awareness of influence, acceptance, and RF predict change over time in mental health outcomes?

Hypothesis 5 – The variables that have been shown to predict mental health scores at baseline will also predict positive change in mental health over time.

Children's total ITSEA problem mean score from follow up (one year after baseline data was collected) will be subtracted from their total problem mean score at baseline to provide a change score over time. The variables which have already found to be predictive of children's mean score on the ITSEA at baseline will be added into a multiple regression model, to assess whether they are predictive of the magnitude of change over time, e.g. are higher levels of commitment at baseline associated by greater decreases in mental health problems over time. If the analysis of this data finds no predictive effect for magnitude of change, then logistic regression analyses could be considered to illustrate whether or not change may be seen with a greater number of participants.

Project Management: TimeTable

10) Outline a timeTable for completion of key stages of the project. (E.g. ethics submission, start and end of data collection, data analysis, completion of systematic review).

TASK	TIMELINE
Thesis Proposal	April 2015 - July 2015
Prepare form for University ethics board	June 2015 - August 2015
BeST² Ethics Amendment	July 2015 - September 2015
Literature review for Paper 1	November 2015 - March 2016
Transcribing TIMB interviews	September 2015 – January 2016
Code SSPs	September 2015 - November 2015
Retrieve and organise data for Paper 1	November 2015 - December 2015
Analyse data for Paper 1	December 2015 - February 2016

Write up Paper 1	February 2016 - May 2016
Send P1 to supervisors for comment	May 2016
Literature review for Paper 2	May 2016 - August 2016
Scoring of RF	January 2016 - June 2016
Organise and analyse data for Paper 2	July 2016 - August 2016
Write up Paper 2	August 2016 - December 2016
Send P2 to supervisors for comment	December 2016
Make required changes to P1 & P2	January 2017 - April 2017
Submit Thesis and await changes / Viva	1st May 2017

TASK	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	
Thesis Proposal	Yellow																							
Prepare form for University ethics board	Grey	Blue																						
BEST Ethics Amendment		Blue	Blue																					
Literature review for Paper 1					Green	Green	Green	Green	Green	Green	Green													
Transcribing TIMB interviews				Red	Red	Red	Red	Red	Red	Red	Red													
Code SSPs				Red	Red	Red	Red	Red	Red	Red	Red													
Retrieve and organise data for Paper 1						Grey	Grey	Grey	Grey	Grey	Grey													
Analyse data for Paper 1							Orange	Orange	Orange	Orange	Orange													
Write up Paper 1																								
Send P1 to supervisors for comment																								
Literature review for Paper 2																								
Scoring of Reflective Functioning																								
Organise and analyse data for Paper 2																								
Write up Paper 2																								
Send P2 to supervisors for comment																								
Make required changes to P1 & P2																								
Submit Thesis and await changes / Viva																								

Management of Risks to Project

11) Please summarise the main potential risks to your study, the perceived likelihood of occurrence of these risks and any steps you will or have taken to reduce these risks. Outline how you will respond to identified risks if they should occur.

There are no likely potential risks to participants identified, and carer's did not face any adversity as a result of taking part in the main trial, and the researchers had set up appropriate systems in case of any adverse events.

Lack of data could be a significant risk for the change over time analysis, as we do not currently have enough data at follow up for meaningful analysis. We will however have sufficient data for all the main analyses; we are very close to the amount of data needed for these already, and as the main study is fully funded for the duration of this project, and has been consistently recruiting 60% of all children who come into foster care in Glasgow, there can be no foreseeable reason why these numbers would not be adequate. The only potential risk regarding data would be to the final research question regarding change over time, but this would have no effect on the main research question, which is based on the baseline data where there is little risk attached in terms of available data. It is also worth noting that the prediction for the effect size at 0.2 is also very conservative; if the effect size is in fact larger than this, then less participants would be needed to reach the desired 80% power level (for example, an effect size of 0.24, in line with the one previous study in the field would require only 60, rather than 70 participants).

Knowledge Exchange

12) How do you intend to report and disseminate the results of the study? (IRAS A51)

The study will be written up as two separate papers which will be submitted to an appropriate peer reviewed journal. Results of the study will be presented to the Trainee's previous research team, who

are kindly allowing her to utilise the data for this project. The trainee will also present the findings to the staff and other trainees on the Doctorate of Clinical Psychology course at the University of Edinburgh, and prepare a poster about the project as part of her doctoral training.

13) What are the anticipated benefits or implications for services of the project? (E.g. If this is an NHS based project, in what way(s) is the project intended to benefit the NHS?)

This project will help to build a greater evidence base around the role of foster care commitment, awareness of influence, acceptance and RF on child outcomes. This in turn could help to inform interventions to improve mental health and quality of life outcomes in some of the most vulnerable children in our society, and interventions that aim to support those who care for them. If carers are better equipped to provide care for their children that helps them to develop into securely attached, mentally well young people, then their future service use is likely to be reduced, which has positive implications regarding the reduced financial burden on mental health and social services in the future.

14) Are there any potential costs to this project?

Outline any potential financial costs to the project, including the justification for the costs (why are these necessary for the research project?) and how funding will be obtained for these costs (how will cost be met?). Please separate these into potential costs for the University and potential costs for your NHS Health board and note that you should ask your NHS Health board to meet stationery, printing, postage and travel costs.

No.

16) Any other information?

17) Confirmation of Supervisors' Approval

I confirm that both my academic and clinical supervisors have seen and approved this research proposal and have both completed the supervisors' appraisal forms below.

(Insert 'yes' below if true)

Methodological Review

Main Academic Thesis Supervisor's Appraisal of Project Risk

Supervisor's Name: Helen Griffiths

Do you consider that the project should proceed in broadly its current form?

(Delete as appropriate)

Yes

Please outline the reasons for your response. In particular, highlight any areas of risk to the completion of the project that have not been fully addressed within the proposal and any steps that could be taken to reduce risks:

Harriet has carefully thought through a number of research questions which allow her to take an innovative approach to analysing an existing data set. All relevant stakeholders have given their agreement to this new project.

The main research questions require a cross-sectional analysis which poses little risk in terms of available data. These are supplemented by a number of more exploratory secondary research questions which build a substantial and original thesis project.

NB Matthias Schwannauer also provides academic supervision and has met with Harriet recently to discuss/approve a late draft of this proposal. However, he is currently on a/l and unable to sign off.

Methodological Review

Clinical Thesis Supervisor's Appraisal of Project Risk

Supervisor's Name: Helen Griffiths

Position: NHS line-manager/clinical thesis supervisor

Do you consider that the project should proceed in broadly its current form?

(Delete as appropriate)

Yes

Please outline the reasons for your response. In particular, highlight any areas of risk to the completion of the project that have not been fully addressed within the proposal and any steps that could be taken to reduce risks:

See above comments

Given that Harriet has chosen to make use of an existing data set, this project has few implications for NHS resources. The project is viable, and has the potential to answer important questions about a population for which the service often struggles to provide adequate provision.

Date: 13/07/15

3. Infant Toddler Social Emotional Assessment (ITSEA) score summary pages



Parent Form Score Summary

Detach Score Summary before giving form to parent.

Child's name _____ Sex Boy Girl Age in months _____

Parent/Guardian's name _____

Scoring Directions
Record the mean raw score, then look up the cut scores in Table 2.2 in the Examiner's Manual.
For Problem Subscales: If the mean raw score is equal to or greater than the cut score, check the box in the *Of Concern* column. Look up percentile ranges in Tables A.1.a–d (girls) and B.1.a–d (boys).
For Competence Subscales: If the mean raw score is equal to or less than the cut score, check the box in the *Of Concern* column.

For Chronological Age, subtract Date of Birth from Date Completed. →

To Adjust for Prematurity, subtract Actual Date of Birth from Expected Date of Birth. →

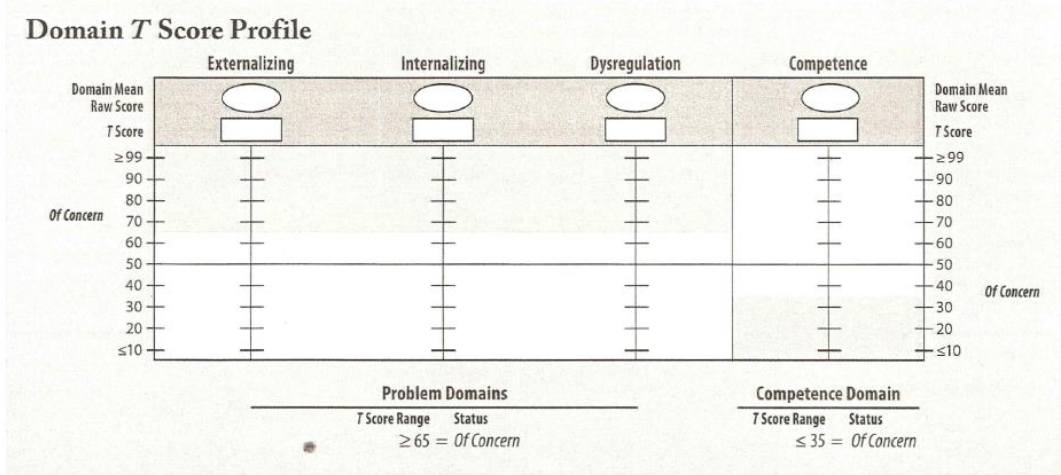
For Adjusted Age, subtract Adjustment for Prematurity from Chronological Age. →

	Year	Month	Day
Date Completed			
Date of Birth			
Chronological Age			
Expected Date of Birth			
Actual Date of Birth			
Adjustment for Prematurity			
Chronological Age			
Adjustment for Prematurity			
Adjusted Age			

Domain/Subscale	Mean Raw Score	Cut Score	<i>Of Concern</i>	Percentile Range	Comments
Externalizing	<input type="text"/>				
Activity/Impulsivity	<input type="text"/>				
Aggression/Defiance	<input type="text"/>				
Peer Aggression	<input type="text"/>				
Internalizing	<input type="text"/>				
Depression/Withdrawal	<input type="text"/>				
General Anxiety	<input type="text"/>				
Separation Distress	<input type="text"/>				
Inhibition to Novelty	<input type="text"/>				
Dysregulation	<input type="text"/>				
Negative Emotionality	<input type="text"/>				
Sleep	<input type="text"/>				
Eating	<input type="text"/>				
Sensory Sensitivity	<input type="text"/>				
Competence	<input type="text"/>		<i>Of Concern</i>		
Compliance	<input type="text"/>				
Attention	<input type="text"/>				
Mastery Motivation	<input type="text"/>				
Imitation/Play	<input type="text"/>				
Empathy	<input type="text"/>				
Prosocial Peer Relations	<input type="text"/>				
Maladaptive Item Cluster	<input type="text"/> >				
Social Relatedness Item Cluster	<input type="text"/> <				
Atypical Item Cluster	<input type="text"/> >				

Continued on next page.

Instructions: Record the domain mean raw scores in the ovals. Look up the corresponding *T* scores in Appendix A.2.a–d for girls and Appendix B.2.a–d for boys in the Examiner’s Manual. Record the *T* scores in the boxes and then plot them on the chart to create the domain *T* score profile. See chapter 3 of the Examiner’s Manual for interpretation guidelines.



See Appendix Tables A.2.a–d and B.2.a–d for domain percentile ranks.

	Externalizing	Internalizing	Dysregulation	Competence
Domain Percentile Ranks	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>



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4. This Is My Baby interview schedule (TIMB)

1. I would like to begin by asking you to describe (child's name). What is his/her personality like?
2. Do you ever wish you could raise (child's name)?
3. How much would you miss (child's name) if he/she had to leave?
4. How do you think your relationship with (child's name) is affecting him/her right now?
5. How do you think your relationship with (child's name) will affect him/her in the long-term?
6. What do you want for (child's name) right now?
7. What do you want for (child's name) in the future?
8. Is there anything about (child's name) or your relationship that we've not touched on that you'd like to tell me?
9. I'd like to end by asking a few basic questions about your experiences as a foster parent:
 - a. How long have you been a foster parent?
 - b. How many foster children have you cared for in all?
 - c. How many foster children do you currently have?
 - d. How many biological and/or adopted children are currently living in your home?

5. Information sheet for The Best Services Trial (BeST²)

An Invitation:

We would like to invite you to take part in a research project. Before deciding about taking part, it is important that you understand what we want to do and why. Please take the time to read the information. Discuss it with your social worker, or phone us on 0141 201 9239 if you have any questions. More information can also be found on the study website

http://www.bestserVICETrial.org.uk/best_services_trial/home.html

What is the study?

In Glasgow, health and social work currently offer two new services for children who enter foster care. These are the Family Assessment and Contact Service (FACS) or the Glasgow Infant and Family Team (GIFT). The BeST² Services Research Trial team is trying to find out which one works best for children's development.

Therefore, we are inviting all families to take part if they have a child aged between 6 months and 5 years when they enter an episode of foster care arranged by Glasgow social work services.

As we don't know which service is best and want to be as fair as possible, families will be chosen to receive FACS or GIFT by a computer which has no information about individual families - a bit like tossing a coin.

What will the two new services be like?

FACS and GIFT have different approaches and different teams, but both services will meet with families regularly and put them in touch with any services they might need.

Families will be asked to meet people who understand about relationships between parents and children, usually at least once a week for a few months. They will also have the chance to talk about their own problems.

Help will also be offered with other problems that might be making it difficult for your child to come home, sometimes by asking other services to help.

We think it is very important to find out whether the GIFT or the FACS service is better for children.

How will the researchers find out about the development of the child in your care?

Parents or carers will be asked about their child's development.

Children will be asked to complete some puzzles.

Video: We would like to make a videotape of your child during the research assessment. This lets us study the tape later to get a better understanding about how your child is developing.

How much of your time will this take?

This will involve three research assessments, the first around 3 months after the child came into care, the second about 1 year after entry into care and the third around 2.5 years after care entry. Each research assessment takes between 2 and 3 hours.



Your expenses:

All families will be given travel expenses and £20 for their time attending the research assessments.

Confidentiality:

All information will be stored according to the Data Protection Act and kept in strict confidence within the research and clinical team, except in the unlikely event of concerns about safety of the child or of others.

Do I have to take part?

You do not have to take part in the study and if you decide not to, this will not affect your right to receive a service. Anyone who decides not to take part will be offered the usual social services.

Why is the study important?

We hope that these two new services will help children's development when they are placed in foster care. This study will help us find out how best to support the children who enter care in Glasgow.



If you need independent advice about the study, please contact
Dr. Lucy Thompson
0141 201 9239

This study is lead by the University of Glasgow



Parent Participant Information Leaflet (version 4.1; 04.03.2014)

New Services for
Children in Foster Care

best
best services trial

Information for parents

6. Consent form for the The Best Services Trial (BeST²)

Parent Participant Consent Form (version 4.2; 14.04.2014)



Please make sure you understand everything about the project before you sign the consent form. If you have any questions, please contact **Dr. Helen Minnis** on **0141 201 9239**. More information can also be found on the study website http://www.bestserVICEStrial.org.uk/best_services_trial/home.html

Please initial EACH box

- ▶ I have read and understood the information sheet (version 4.1: 04.03.2014) and have had the chance to ask questions.
- ▶ I understand that I do not have to take part, that I am free to withdraw at any time without giving any reason, and without my child's medical care and legal rights being affected.
- ▶ I am happy to take part in the **BeST² Services Trial**
- ▶ I agree to the making of a video of my child's assessment

- ▶ I am happy for the research team to review data stored on me and my child in other parts of health or social services (e.g. GP records)
- ▶ I am happy for my GP to be informed about my family's involvement in the study
- ▶ I would like to be sent a summary of the study results

- ▶ I would be happy to be contacted for future research studies.

- ▶ I would be happy for my videos/data to be used for teaching and training purposes

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Name of participant

date

signature

Name of child

Relationship to child

this study is led by the University of Glasgow



7. Journal guidelines for Child Abuse and Neglect

CHILD ABUSE & NEGLECT

GUIDE FOR AUTHORS

Types of contributions

- 1. Research Article:** Child Abuse and Neglect publishes quantitative, qualitative, and mixed-method research. Particular focus will be placed on thorough and appropriate methods, strong data analysis and discussion of implications for the field.
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State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

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8. Crowe Clinical Appraisal Tool (quality assessment for systematic review)

Appraise research on the merits of the research design used, not against other research designs.

Category Item	Item descriptors [☑ Present; ☒ Absent; ■ Not applicable]	Description [Important information for each item]	Score [0-5]
1. Preliminaries			
Title	1. Includes study aims ☐ and design ☐		
Abstract (assess last)	1. Key information ☐ 2. Balanced ☐ and informative ☐		
Text (assess last)	1. Sufficient detail others could reproduce ☐ 2. Clear/concise writing ☐, table(s) ☐, diagram(s) ☐, figure(s) ☐		
Preliminaries [/5]			
2. Introduction			
Background	1. Summary of current knowledge ☐ 2. Specific problem(s) addressed ☐ and reason(s) for addressing ☐		
Objective	1. Primary objective(s), hypothesis(es), or aim(s) ☐ 2. Secondary question(s) ☐		
Is it worth continuing?			Introduction [/5]
3. Design			
Research design	1. Research design(s) chosen ☐ and why ☐ 2. Suitability of research design(s) ☐		
Intervention, Treatment, Exposure	1. Intervention(s)/treatment(s)/exposure(s) chosen ☐ and why ☐ 2. Precise details of the intervention(s)/treatment(s)/exposure(s) ☐ for each group ☐ 3. Intervention(s)/treatment(s)/exposure(s) valid ☐ and reliable ☐		
Outcome, Output, Predictor, Measure	1. Outcome(s)/output(s)/predictor(s)/measure(s) chosen ☐ and why ☐ 2. Clearly define outcome(s)/output(s)/predictor(s)/measure(s) ☐ 3. Outcome(s)/output(s)/predictor(s)/measure(s) valid ☐ and reliable ☐		
Bias, etc	1. Potential bias ☐, confounding variables ☐, effect modifiers ☐, interactions ☐ 2. Sequence generation ☐, group allocation ☐, group balance ☐, and by whom ☐ 3. Equivalent treatment of participants/cases/groups ☐		
Is it worth continuing?			Design [/5]
4. Sampling			
Sampling method	1. Sampling method(s) chosen ☐ and why ☐ 2. Suitability of sampling method ☐		
Sample size	1. Sample size ☐, how chosen ☐, and why ☐ 2. Suitability of sample size ☐		
Sampling protocol	1. Target/actual/sample population(s): description ☐ and suitability ☐ 2. Participants/cases/groups: inclusion ☐ and exclusion ☐ criteria 3. Recruitment of participants/cases/groups ☐		
Is it worth continuing?			Sampling [/5]
5. Data collection			
Collection method	1. Collection method(s) chosen ☐ and why ☐ 2. Suitability of collection method(s) ☐		
Collection protocol	1. Include date(s) ☐, location(s) ☐, setting(s) ☐, personnel ☐, materials ☐, processes ☐ 2. Method(s) to ensure/enhance quality of measurement/instrumentation ☐ 3. Manage non-participation ☐, withdrawal ☐, incomplete/lost data ☐		
Is it worth continuing?			Data collection [/5]
6. Ethical matters			
Participant ethics	1. Informed consent ☐, equity ☐ 2. Privacy ☐, confidentiality/anonymity ☐		
Researcher ethics	1. Ethical approval ☐, funding ☐, conflict(s) of interest ☐ 2. Subjectivities ☐, relationship(s) with participants/cases ☐		
Is it worth continuing?			Ethical matters [/5]
7. Results			
Analysis, Integration, Interpretation method	1. A.I.I. method(s) for primary outcome(s)/output(s)/predictor(s) chosen ☐ and why ☐ 2. Additional A.I.I. methods (e.g. subgroup analysis) chosen ☐ and why ☐ 3. Suitability of analysis/integration/interpretation method(s) ☐		
Essential analysis	1. Flow of participants/cases/groups through each stage of research ☐ 2. Demographic and other characteristics of participants/cases/groups ☐ 3. Analyse raw data ☐, response rate ☐, non-participation/withdrawal/incomplete/lost data ☐		
Outcome, Output, Predictor analysis	1. Summary of results ☐ and precision ☐ for each outcome/output/predictor/measure 2. Consideration of benefits/harms ☐, unexpected results ☐, problems/failures ☐ 3. Description of outlying data (e.g. diverse cases, adverse effects, minor themes) ☐		
Results [/5]			
8. Discussion			
Interpretation	1. Interpretation of results in the context of current evidence ☐ and objectives ☐ 2. Draw inferences consistent with the strength of the data ☐ 3. Consideration of alternative explanations for observed results ☐ 4. Account for bias ☐, confounding/effect modifiers/interactions/imprecision ☐		
Generalisation	1. Consideration of overall practical usefulness of the study ☐ 2. Description of generalisability (external validity) of the study ☐		
Concluding remarks	1. Highlight study's particular strengths ☐ 2. Suggest steps that may improve future results (e.g. limitations) ☐ 3. Suggest further studies ☐		
Discussion [/5]			
9. Total			
Total score	1. Add all scores for categories 1-8		
Total [/40]			

Crowe Critical Appraisal Tool (CCAT) Form (v1.4)

Reference

Reviewer

This form must be used in conjunction with the CCAT User Guide (v1.4); otherwise validity and reliability may be severely compromised.

Citation	
	Year

Research design (add if not listed)	
<input type="checkbox"/> Not research	Article Editorial Report Opinion Guideline Pamphlet ...
<input type="checkbox"/> Historical	...
<input type="checkbox"/> Qualitative	Narrative Phenomenology Ethnography Grounded theory Narrative case study ...
<input type="checkbox"/> Descriptive, Exploratory, Observational	A. Cross-sectional Longitudinal Retrospective Prospective Correlational Predictive ...
	B. Cohort Case-control Survey Developmental Normative Case study ...
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	<input type="checkbox"/> Quasi-experiment Post-test only Non-equivalent control group Counter balanced (<i>cross-over</i>) Multiple time series Separate sample pre-test post-test [no Control] [Control] ...
	<input type="checkbox"/> Single system One-shot experimental (<i>case study</i>) Simple time series One group pre-test/post-test Interactive Multiple baseline Within subjects (<i>Equivalent time, repeated measures, multiple treatment</i>) ...
<input type="checkbox"/> Mixed Methods	Action research Sequential Concurrent Transformative ...
<input type="checkbox"/> Synthesis	Systematic review Critical review Thematic synthesis Meta-ethnography Narrative synthesis ...
<input type="checkbox"/> Other	...

Variables and analysis		
Intervention(s), Treatment(s), Exposure(s)	Outcome(s), Output(s), Predictor(s), Measure(s)	Data analysis method(s)

Sampling					
Total size	Group 1	Group 2	Group 3	Group 4	Control
Population, sample, setting					

Data collection (add if not listed)	
Audit/Review	a) Primary Secondary ... b) Authoritative Partisan Antagonist ... c) Literature Systematic ...
Observation	a) Formal Informal ... b) Structured Semi-structured Unstructured ... c) One-on-one Group Multiple Self-administered ...
	a) Participant Non-participant ... b) Structured Semi-structured Unstructured ... c) Covert Candid ...
	a) Standardised Norm-ref Criterion-ref Ipsative ... b) Objective Subjective ... c) One-on-one Group Self-administered ...

Scores					
Preliminaries	Design	Data Collection	Results	Total [(/40)	
Introduction	Sampling	Ethical Matters	Discussion	Total [%]	

General notes					

Papers were read in full twice before ratings were awarded. Papers were screened and a score was provided for each item in turn, based on the information provided in the paper. This tool was chosen primarily as it covers all types of academic research, and places emphasis on areas that allowed the author to address the research questions, such as research design / measures utilised, sampling and interpretation of results.

9. Journal guidelines for Children and Youth Services Review (systematic review)

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INTRODUCTION

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The journal publishes full-length articles, current research and policy notes, and book reviews. There are no submission fees or page charges. Submissions will be reviewed by the editor, Duncan Lindsey.

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