CHILDREN ENTERING CARE: WHAT ARE THEY LIKE AND HOW DO THEY CONTRIBUTE TO FOSTER CARE RELATIONSHIPS?

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Summary

Background

Children who enter foster care are known to show high rates of problems across a number of different areas, including their mental health, relationships and development, with difficulties often continuing into adulthood. There are indications that some of these baseline characteristics have an effect on a child's outcome from foster care, but this evidence is limited due to an overwhelming reliance on administrative data for the analysis of potential links. In order to explore this more fully, face-to-face assessments with these children need to be conducted. There are known difficulties, including choosing reliable informants for the child, and deciding when is the best time to perform assessments. In this study, the aim was to explore some of the relevant issues while assessing, in the primary research question, how different child characteristics were associated with the quality of the relationship that the child had with their carer.

Method

Seventy children aged between 6 and 60 months were examined between one and two months after they entered foster care. They were assessed as regards their mental health, language, cognition and relationships, and the results were compared with normative population data whenever possible (research question 1). The data were also explored to investigate to what extent the children had overlapping problems across the areas studied (research question 2). There is a lack of research on the mental health of very young children in care, and so a control group of 40 children aged 12-24 months were recruited from the general population, against whom they could be compared. This sample was age- and gender-matched with 20 children aged 12-24 months in the foster care sample (research question 3).

It was possible to access the birth records of 38 of the sample with a view to assess whether the children had shown signs of being 'at risk' at birth (research question 4).

The quality of the relationship between the child and their carer was assessed using a structured observation, the Parent-Infant Relationship Global Assessment Scale (PIRGAS). Regression analyses were conducted to analyse how the child characteristics of age,

gender, mental wellbeing, cognition and language were associated with PIRGAS score (research question 5). In addition, the carer's levels of commitment and experience were explored as potential contributors to the quality of this relationship (research question 6). The reliability of foster carers was assessed by investigating whether their level of worry related to the degree of problem that the child had. The child's level of engagement in the cognitive assessment was measured and compared with the score they attained in the assessment, while the change in scores over time was also calculated (research question 7).

Results

Research question 1. The results showed that, in line with previous research in the area, children who enter foster care are likely to be experiencing more problems with mental health, language, cognition and relationships than children in the general population, already at the time of entering care. Research questions 2 and 3. There was some indication that this difference between them and the general population may not be very pronounced in children under the age of 2. Children over the age of 30 months, on the other hand, were likely to have complex and overlapping problems.

Research question 4. An examination of routine birth data showed that children who later came into foster care were already different from the general population at birth in having lower mean birth weight and higher likelihood of prenatal exposure to drugs.

Research question 5. An examination of the primary research question showed that the child characteristics of age, gender, mental wellbeing, cognition and language together predicted 17% of the variance in the quality of the relationship between the child and their foster carer as measured by the PIRGAS. Some additional analyses revealed that mental wellbeing appeared to be the single most influential of the child characteristics. Research question 6. A complex interplay between the child's wellbeing, carer commitment and relationship quality was also revealed with associations between all the factors.

Research question 7. In some instances, the carers did not appear to be the most reliable informants for children in their care, sometimes reporting a lack of worry even when the child showed concerning symptoms or behaviours, as observed by the research team.

There was a strong association between how engaged a child was in the task and how they performed on the task, and this has implications for how meaningful the score is as a predictor of ability.

It was also possible to follow up a small number of the sample a year later. It was found that the cognitive percentile scores achieved when a child first entered care were not significantly different to those that they achieved a year later, suggesting that, despite the concerns about the validity of the assessments, these measures can be useful for predicting later performance. A much more mixed picture for language was found, in that scores achieved when a child first entered care showed little relationship to how the child performed a year later.

Discussion

Overall, the results lend support to the notion of the importance of early intervention, with children over the age of 2 showing a greater number of problems as well as more complex problems than those under the age of 2. Mental wellbeing in the child, as measured by the presence of positive prosocial behaviours, showed associations with the quality of the relationship with the carer, as well as with the commitment of the carer. Carers did not report being worried about the youngest children who were not displaying these prosocial behaviours; thus it may be that foster carers are underestimating their importance, or are reluctant to report on such behaviours.

The observations made over so many assessments and the work carried out to explore potential issues with the assessments guide recommendations for future work in this area. It is clear that there is a need to repeat measures to assess change, and to conduct holistic assessments, so that findings might be clinically interpreted in a meaningful way.

Despite difficulties in assessing children who enter foster care, the findings underscore the importance of early assessment. The study findings confirmed that this is a vulnerable group, with very complex needs. Even though all children are likely to be negatively affected by the disruption that is entailed in entering foster care, only a thorough assessment will be able to identify which children also have underlying problems that will require support and intervention *in addition to* the safe and nurturing foster care that they all require.

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Preface

Children in foster care lead complex lives. Thinking about this from the child's perspective was the stimulus for this thesis and is vividly portrayed in this vignette based on a real child welfare case.

Audrey[1]

Audrey (age 10) lives with her foster mother (Ms. Gomez) and four other non-kin foster children. Audrey was removed from her mother's care when she was 8 years old and placed in a temporary foster home. The primary reason for her removal was neglect. A year ago, at age 9, she entered Ms. Gomez's care. Audrey has weekly phone contact, and spends every other weekend, with her biological mother. She has no contact with her biological father. Nor does she have contact with her five biological siblings, who live in various foster homes throughout the county. When asked who she considers part of her family, Audrey identified her biological mother, her five biological siblings, Ms. Gomez, and her four foster siblings.

Audrey reported that even though she is the newest member of Ms. Gomez's home, she feels welcomed and comfortable. At the same time, Audrey hopes and expects to live with her biological mother and siblings in the future. When asked if she thinks things would be different if she returned to live with her biological mother, Audrey replied, 'Yes, because my daddy won't be there anymore and won't be mean to my mom.' She also said, 'I will never complain again about my daddy or anyone else, and then I won't have to worry about the social worker taking me away.'

Audrey sees her social worker approximately once per week and seems to have some definite opinions about her social worker's strengths and weaknesses. On the one hand, her social worker is 'helpful because she picks me up and drives me places and makes sure I get to see my mom.' On the other hand, her social worker 'never explains stuff to me like why judges do the stuff they do and when I get to go back home to my mom.'

Audrey identified the court as being in charge of placement decisions. She is angry about the role of judges in her life: 'I hate judges because they made me leave my mom's house

[1] Vignette based on real child welfare case. The names have been changed, and certain elements have been omitted to safeguard confidentiality. In: Fox, A., Frasch, K. & Berrick, J. D. (2000). **Listening to Children in Foster Care: An Empirically Based Curriculum**. Berkeley, CA: *Child Welfare Research Center*.

and never said how come.' At the conclusion of our interview, Audrey said, 'It's really hard to be a foster child because it's scary when you don't know what's going to happen.'

Stories like Audrey's are very common in the Western world and there is much concern about the potentially detrimental effects of a lack of stability in these children's lives. With 20 news stories (BBC news) about foster care in only the first three months of 2014, it is clearly a topical issue. To focus on Scotland, the country in which this study is set, on 19th February 2014, the Children and Young People (Scotland) Bill was passed, which aimed to make provision with regard to the rights of children and young people. This Act saw an increase in the level of childcare support which foster carers of 2-year-olds receive as well as an increase in the age limit up to which the local authority has to support care leavers, rising from 18 to age 25. With the Scottish government providing an additional £5m a year until 2020 to provide this increased support, this recent legislation highlights the perceived importance of the additional needs of these children.

The broad aim of the study discussed in this thesis is to assess what children are like when they first enter a period of foster care and how certain child characteristics are associated with the quality of the relationship they have with their foster carer. Because the great majority of previous studies have used administrative data to explore these questions, I was keen to assess young children under the age of 5 using a thorough face-to-face assessment procedure.

Before proceeding to the study itself, there follows a discussion of what the care system is, what is already known about children in care both in childhood and later into adulthood, what is already known about how child characteristics are associated with outcomes for these children, as well as some of the known considerations to be taken into account when assessing these children.

Acknowledgements

Most importantly I would like to thank all the families who took part in this study, without whom this piece of work would not have been possible.

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Finally my thanks go to my friends and family, who never stopped encouraging me along the way, and in particular, to my mum who truly inspired me to follow a career path in psychology. And last of all, Ryan deserves a very special thank-you, not just for his continued support, but also for the numerous cups of tea and back rubs without which, this thesis really would not have been possible!

Author’s declaration

I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Signature _____

Printed name _____

1. Introduction

1.1. What is the care system?

Child protection denotes the Government-run services which are designed to protect children and young people. There are a number of different reasons why children may need protected. The most common reason is that the child's parent or guardian is unable to care for the child, has been maltreating him/her, or that the child has committed an offence. The most significant piece of legislation which informs child protection in Scotland, the country in which this study was conducted, is the Children (Scotland) Act 1989. This act is important as it clearly defines parental responsibility and legislates support from local authorities and protection of children who may be suffering or are likely to suffer significant harm. Most Western countries have similar systems but the focus in this study will be on the Scottish system in order to illustrate how a child can move through it.

Defining *parental responsibility* altered the emphasis within statutory childcare from a focus on parental rights to a focus on parental responsibility. It pinpointed something which parents have and, short of adoption, do not lose. The Act defines responsibility as 'all the rights, duties, powers, responsibilities and authority which by law a parent of a child has in relation to the child and his property'. The Children Act aimed to protect children from harm. This Act details that when making a decision regarding the upbringing of a child, the child's welfare would be the court's primary concern. The courts are also required to complete timetables in respect of how to deal with each case in a timely way as well as to complete a checklist concerning the child's circumstances.

A further theme of the Act is to encourage cooperation between those responsible for children and statutory or voluntary agencies. Local authorities have a duty to safeguard children and provide families with additional services to help meet a child's needs. Children may be placed on a Child Protection Register when there are concerns about their safety or concerns about how they are being looked after. If a child is named on such a register, then professionals (for example, teachers and doctors) are expected to work with local authorities to monitor the ongoing situation and safety of the child. Local authorities also have a duty to provide accommodation for certain children. An authority looking after a child can maintain them in the care of a parent or another member of their family, place them in children's homes, or make other appropriate arrangements by placing them in an

appropriate foster home. There are UK-wide policies and local authority policies: for example, in Glasgow (the city in which this study was set) it is policy that all looked-after children under the age of 8 are placed in foster homes rather than children's homes.

The Government publishes yearly statistics regarding children in foster care in Scotland. Over 16,000 children were being looked after by local authorities in Scotland on 31st July 2013 (1.87% from a population of approximately 854,000 children). This number has been steadily increasing for years; however, the most recent statistics (August 2012-July 2013) show the number decreasing for the first time since 2001. The change in number of looked after and accommodated children in Scotland over the last five years is illustrated below (Figure 1.)

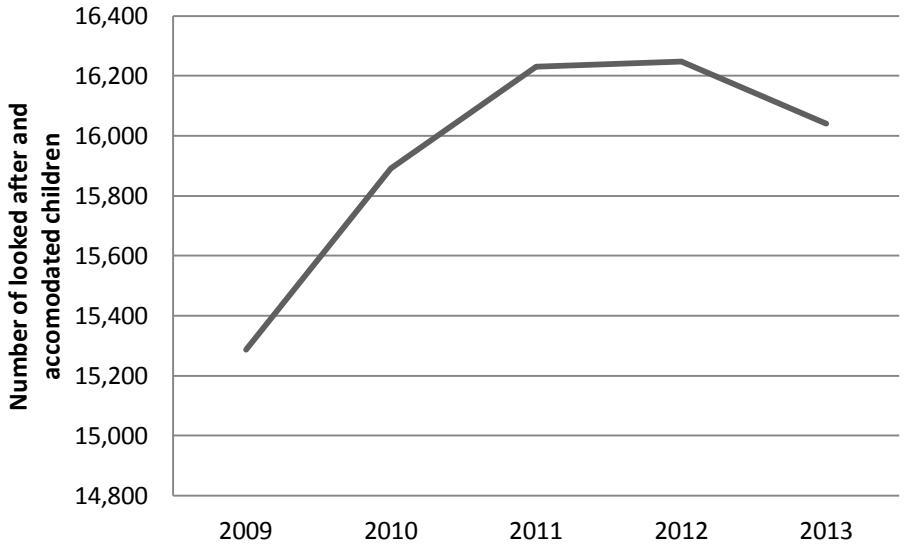


Figure 1. Number of looked after and accommodated children in Scotland over the last five years.

A total of 4,470 children entered care in Scotland between 1st August 2012 and 31st July 2013, 16% of whom were aged less than 1, 23% aged 1-4, 31% aged 5-11, 29% aged 12-15 and 1% aged 16-17. There has been an increase in how long children spend in foster care, with the number of children looked after for more than three years having increased by 56% since 2006. There have also been increasing numbers of younger children being placed on the child protection register, with 55% of the children on the register being under 5 years of age. The proportion of children on child protection registers varies considerably

across different areas of Scotland, with a rate of 4.6% per 1,000 children in Glasgow, compared with the Scottish average of 2.9% (Government, 2014).

In Scotland and the rest of the UK, child protection services are run by local authorities. Government control is not universally in place, though, and every country in the world has different laws with respect to safeguarding children. In addition, legislative changes in the UK have led to substantial modifications to the ways in which children are protected over time. With this in mind, the focus of the literature review in this thesis will relate to research conducted in the UK and to findings published after the influential 1989 Children Act. While important research has been conducted in this field worldwide (including looking at the effects of large institutions), it was concluded that these findings were not really relevant to the study of children in foster care in the UK, and that therefore the research focus should be on studies of children in situations more similar to those of children taking part in the current study. In addition, it was felt beneficial to be able to look in depth at the studies which had been conducted which was only possible by placing limits on the search criteria. While the profiles of children in care have been studied worldwide, it was important to place the current sample within their UK context.

The literature was systematically searched and reported in three different chapters in this thesis (1.2.1; 1.2.2 & 1.2.3). The searches were conducted at the start of the thesis and the strategies are all detailed in appendices. In August 2014, three months prior to submission, the literature was again searched, using the terms 'child' and 'foster care'[2]. While it was not possible to include the large quantity of relevant articles which were identified at this update stage, the research deemed as very important has been included as and where appropriate.

1.2. Review of the literature

1.2.1. What are children in care like?

Considering the differences between the care systems in different countries and the historical and legal influences in the past, it was important to investigate what was known about children going through the care system in the UK in order to provide a context for

[2] This search was completed on the 14.8.14, using Psychinfo, Psycharticles and Psychology and Behavioral Sciences Collection. This search produced 380 articles. The full texts of 41 were read and information from 12 was incorporated into the thesis.

the current study. The literature was systematically searched, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, for articles published since the influential 1989 Children (Scotland) Act, which looked at a sample of children in care and reported on an aspect of their functioning. The databases searched were; Medline; Psycharticles; Psychology and behavioural sciences collection; and psychinfo. They were searched on 4.4.13, and updated on 14.8.14. The full search criteria are outlined in Appendix A. Forty-one articles were identified that met the criteria, covering various aspects of a child's functioning. These were grouped under four different factor categories: health and disability; mental health and behaviour; language and cognition; and resilience. Details of each of the 41 articles are tabulated below, including potential sources of recruitment bias (Table 1).

Table 1. *Tabulated results from literature search: What are children in care like?*

Reference	Sample				Data source				Child characteristic			
	Size	Age range (years)	Gender (% male)	Recruitment	Child	Parent / caregiver	professional	Case file/ health data	Mental Health/ behaviour	Health / disability	Language/ cognition	Resilience factors
Bailey et al. (2002)	96	0-16+	54%	Total population				✓	✓	✓	✓	✓
Berridge et al. (2003)	257	13-18	65%	Random sample (no attrition)				✓	✓	✓	✓	
Blower et al. (2004)	48	7-17	60%	79% recruitment	✓			✓	✓			✓
Callaghan et al. (2004)	45	4-17	56%	90% recruitment	✓	✓	✓	✓	✓			
Colver et al. (2002)	211	0-19	61%	Total sample				✓	✓	✓		
Cousins et al. (2010)	165	10-15	52%	64% recruitment			✓	✓	✓			
Dimigen et al. (1999)	60	5-12	49%	79% recruitment		✓			✓			
Fleming et al. (2005)	25	11-18	48%	Total random sample				✓	✓	✓		✓
Ford et al. (2007)	11,881	5-17	57%	72-100% recruitment	✓	✓	✓		✓		✓	
Goodman et al. (2004)	1,028	5-17	54%	78% recruitment	✓	✓	✓		✓			
Goodman and Goodman (2012)	1,391	5-16	57%	57% recruitment		✓	✓		✓			
Greig et al. (2008)	34	4-9	66%	63% recruitment	✓						✓	
Griffiths (2012)	852	7-11	57%	65%/90%	✓						✓	
Hadfield and Preece (2008)	106	0-18	52%	Total sample				✓		✓		
Harkess-Murphy et al. (2013)	102	11-17	53%	60% of area recruitment	✓				✓			
Heath et al. (1989)	107	8-14	53%	78% recruitment	✓	✓	✓		✓		✓	
Hill and Thompson (2003)	49	6m-15 years	55%	Total sample				✓	✓	✓	✓	
Hillen et al. (2012)	43	0-6	67%	No access to high profile cases. 74% recruitment	✓	✓	✓	✓	✓		✓	
Honey et al. (2011)	150	11-15	43%	93% recruitment	✓	✓	✓					✓
Jacklin et al. (2006)	59	15-16	39%	56% recruitment				✓			✓	
Jackson et al, (2010)	16	11-14	100%	Total population	✓						✓	✓
Jee et al. (2005)	559	1-14	50%	Total sample				✓		✓		

Reference	Sample				Data source				Child characteristic			
	Size	Age range (years)	Gender (% male)	Recruitment	Child	Parent / caregiver	professional	Case file/ health data	Mental Health / behaviour	Health / disability	Language/ cognition	Protective factors
McCann et al. (1996)	134	13-17	51%	66% recruitment	✓	✓			✓			
McClung and Gayle (2010)	1,407	11+	63%	Total purposeful sample	✓			✓			✓	
McCool and Stevens (2011)	30	11-17	50%	Self selected sample			✓				✓	
Millward et al. (2006)	207	4-16	53%	82% recruitment		✓	✓		✓			
Minnis and Del Priori (2001)	305	0-18	55%	88% recruitment	✓	✓	✓		✓			
Minnis et al. (2006a)	182	5-16	59%	42% recruitment	✓	✓			✓			
Minnis et al. (2006b)	34	4-9	63%	63% recruitment	✓						✓	
Mount et al. (2004)	50	10-18	46%	Self selected sample	✓	✓			✓			
Nicholas et al. (2003)	177	6-19	65%	Total sample			✓	✓	✓			
Rees (2013)	193	7-15	52%	94% recruitment	✓	✓	✓		✓		✓	✓
Robinson (2000)	80	13-16	53%	Total sample	✓							✓
Roy et al. (2000)	38	4-8	63%	86% recruitment	✓	✓	✓		✓		✓	
Roy et al. (2004)	38	4-8	63%	86% recruitment	✓	✓	✓		✓			
Roy and Rutter (2006)	38	4-8	63%	86% recruitment	✓	✓	✓				✓	
Rushton et al. (2000)	61	5-9	-	73% recruitment		✓	✓		✓			
Schofield and Beek (2005)	58	4-11	45%	Total purposive sample	✓	✓	✓		✓			
Stanley et al. (2005)	80	5-16	55%	100% of purposive sample				✓	✓		✓	
Taggart et al. (2007)	165	10-15	55%	64% recruitment			✓	✓	✓			
Teggart and Menary (2005)	64	4-16	59%	73-97% recruitment across different respondents	✓	✓	✓		✓			

The table above illustrates the studies which were identified when searching the literature for research looking at a sample of children in care and reporting on an aspect of their functioning. Studies examining looked-after and accommodated children almost always involve a sample where the number and distribution (for example, all children in care of a certain age in an area) is known. It is, therefore, also known what percentage of this total population is recruited. If there are low levels of recruitment, it is possible that the results are not reflective of the total sample (for example, carers of children with lots of difficulties may be keener to take part in research or alternatively may be less likely to be involved due to the extra burden which the research may place on the family). Studies with large sample sizes are also less vulnerable to bias because children who differ from the majority of the sample have less of an effect on overall findings, unlike small samples where an outlier can have a dramatic effect on the overall average. The way the data are collected may also introduce bias, and in large routine data studies the quality may vary a great deal depending on how it is recorded. Children's functioning can be reported on in a variety of ways: case files may be examined, staff or carers looking after the children may be asked or the children may be directly assessed themselves.

Combining data from various informants reduces potential bias. With this in mind, the results of studies with higher levels of recruitment and multiple informants will be discussed in more detail.

Health/disability

The health of children in care has most commonly been assessed using case records. In the UK there is statutory legislation that requires every child who enters care to receive a medical check, so this is often a very good source of information for this sample. Bailey et al (2002) looked at the data of a total sample of 96 children in care (aged 0-16+) and found that none of them had 'poor health', while Fleming et al (2005) found 92% (aged 11-18) in good health with 52% doing regular exercise. Stanley et al (2005) examined a purposeful sample of 80 case files (aged 5-16) and found their overall health 'good'. These findings are, however, in contrast to a number of other studies. Colver et al (2002) found that children in care (aged 0-19) had a greater than average number of health problems, with 9 out of 211 (4%) missing immunisations and 72 of 211 (34%) with physical health problems. Hill & Watkins (2003) also looked at immunisation records in relation to when children came into care (aged 6 months-15 years), finding 15 from a sample of 49 (31%)

were not fully immunised. Berridge et al (2003) looked at a random sample of case records for 257 adolescents in out of home care. They found that 17% had special needs or health problems reported as a major problem, while Jee et al (2005) found that 31% of 559 children in care (aged 1-15) had visited the emergency department of a hospital or an urgent care centre in the last 12 months. Hadfield and Preece (2008) examined the body mass index (BMI) of 106 children from their statutory health assessment (aged 0-18). They found that children in care are more likely to be overweight and obese than norms, with 35% having a BMI increase once in care. As these studies all involved auditing case files or health records, they were all able to include total samples, without losing potential participants during recruitment. There are also disadvantages to using data such as these for research studies, given that they are likely to have come from a variety of sources. Unless those collecting data have the same understanding when they enter, discuss or retrieve data, false conclusions can be easily drawn (DiLeonardi and Yuan, 2000). Using case files to look at total samples of children can give a very clear indication of what health issues may be affecting the specific sample of children. None of these studies, however, compared children in care with children in the general population, and we have no knowledge of what health problems would be affecting a demographically similar sample of children who were living with their birth parent(s). Overall, it seems that there is evidence to suggest that children in care in the UK are at an increased risk of having health problems, but without matched control groups it is difficult to know the extent of any additional risk or whether any risk predated or were a consequence of care.

Mental health and behaviour

Children who come into care for a period of time are likely to have suffered some degree of psychological and/or physical trauma or maltreatment. They have often been living in dangerous settings, or been cared for by people with mental health problems or specific health needs. Children coming into care are always subject to a change of routine and lifestyle and to seeing less of their closest family. It is therefore understandable that these children may be at additional risk of having or developing mental health problems. Mental health issues will vary depending on the age of the child and will be exhibited in different ways: for example, young children may show disrupted sleep or eating patterns whereas teenagers may show more changes in their mood or behaviour.

A number of studies have aimed to assess the mental health of children in care. Some studies have examined administrative data to investigate what we know about the mental health of these children. Fleming et al (2005) found 44% (aged 11-18) had 'poor mental health', with over 50% receiving involvement from a child and adolescent mental health service (CAMHS), while Bailey et al (2002) found 16% (aged 0-16+) had poor emotional and behavioural development. Some researchers have looked at data from health records to see how many children have emotional or behavioural problems noted there; Colver et al (2002) reported 44%, Hill & Watkins (2003) found 92%, while Berridge et al (2003) documented 53% of their sample as having emotional/personal problems and 44% as having behavioural problems. These very differing prevalence rates illustrate the potential problems that can arise using administrative data. Although true variability in results are likely, the degree of diversity here seems to be more a reflection of differing criteria for defining mental health problems in administrative datasets. Stanley et al (2005) examined very detailed social service case files of 80 children aged 5-16 in care finding 39% had difficulties with peers; 29% had poor concentration, 34% had severe tantrums and 33% were displaying sexualised behaviour. Nicholas et al (2003) examined 177 case files (aged 6-19) and found that 64% of the children were known to CAMHS outpatient teams with 27% in contact with CAMHS at the time. While being cautious about conclusions based solely on administrative data, it does seem clear that these children are at greatly increased risk of mental health problems as recorded on their case files. Despite the lack of control groups in these studies, it seems clear that 64% of children being in contact with a mental health team is higher than would be expected in the general population. Overall, while it is clear that a large proportion of these children have some sort of emotional or behavioural problem, it is not clear how different this proportion is to the general population and these studies do not tell us what the true prevalence is.

A number of studies assessed a sample of children in care on various measures of mental health by asking their caregivers or staff to complete questionnaires. Heath et al (1989) used Rutter's behavioural questionnaire with parents and teachers of a sample of 49 children aged 8-14, finding 43% had scores indicating behavioural or emotional problems, while Hillen et al (2012) assessed 43 children aged 0-5 and found 23% had emotional problems and 42% had behavioural problems using the Social Emotional version of the Ages and Stages Questionnaire (ASQ-SE) and the Preschool Age Psychiatric Assessment (PAPA). Harkess-Murphy et al (2013) investigated whether young people in care aged

11-17 were likely to engage in self-harm by asking the young people themselves. They found 31% of the sample (n=102) had had thoughts about self-harm or had harmed themselves and 3.9% had reported self-harm with suicidal intent.

Reactive Attachment Disorder (RAD) is a severe disorder of social functioning which is thought to be caused by maltreatment in early childhood. Millward et al (2006) and Minnis et al (2006a) both assessed the presence of RAD in a looked-after sample and a control sample. Both studies found that children in care were significantly more likely to have RAD than their peers.

Some studies assessed a sample of children in care and compared them with the general population. Rushton et al (2000) found 54-58% of children in care (aged 5-9) had a likely disorder compared with 8-15% of the general population when assessed using the Parental Account of Child Symptoms (PACS), while Dimigen et al (1999), using the Devereux scales of mental disorders, found 30% of their 5- to 12-year-old sample had severe attention difficulties, 26% had autistic-like detachment, 16% had anxiety disorders and up to 38% had very elevated levels of conduct disorders. McCann et al (1996) found that 53% of looked-after adolescents aged 13-17 were high scorers on the Achenbach child behavioural checklist as compared with 12% in a control group matched for age and gender; this included 23% diagnosed as having major depressive disorder compared with 4% of the controls.

The majority of studies in this field have used the Strengths and Difficulties Questionnaire (SDQ), which is a short behavioural screening questionnaire used in large studies across the world. It has different versions which can be used with children aged 3-16, and can involve asking the child, the parent/carer or teacher about the child across five different domains; emotional symptoms; conduct problems, hyperactivity/inattention; peer relationship problems and prosocial behaviour. Thirteen studies were identified which used the SDQ for the assessment of mental health in children in care in the UK since 1989. All the studies showed children in care having an elevated risk of problems in each of the problem domains. Millward et al (2006) found 53% (aged 4-16) had mental health problems compared with 13% of the control group; Rees (2013) reported 33-47% as being in the abnormal ranges (aged 7-15) while Minnis et al (2006a) reported 21-55% in the abnormal range (aged 5-16).

Goodman, who developed the SDQ, and his collaborators have been involved in a very large study using the SDQ and the Development and Wellbeing Assessment (DAWBA) with looked-after and accommodated children within a population study of over 10,000 children aged 5-17. Ford et al (2007) described findings from 1453 looked-after and accommodated children within the sample and found 46.4% of the accommodated children as having a likely psychiatric diagnosis compared with 8.5% in the general population sample. The data from this large study using the well-evidenced SDQ and with over 70% recruitment is unlikely to be subject to major biases, providing very clear evidence that children in care have elevated scores across all domains of this screening questionnaire.

Language and cognition

A number of studies have looked at the language or cognitive abilities of children in care. Some research has looked at school grades as a measure of academic achievement. Jacklin et al (2006) found poor grade attainment compared with national norms, while Bailey et al (2002) found that 14% of children in care had poor educational attainment. McClung and Gayle (2010) examined the census data for SCQF (Scottish Credit and Qualifications Framework) level awards of school children in Scotland and found that children in care did less well academically than their peers. They looked at a total purposeful sample of 1,407 children over the age of 11 years old and found that both the type and length of placement had an effect on what grades the children received, with children looked after at home or in residential care performing less well than children in foster care and with children who became looked after when they were younger outperforming older children. McClung and Gayle show that these children are less likely to do well academically but acknowledge the various factors which can affect the differences they found within their sample: for example, there are factors which affect the type of placement which a child receives, and it may be that these factors are also having an effect on the child's academic achievement as opposed to their being a direct result of the type of placement.

A few studies have examined the language and cognitive difficulties which these children may have by examining administrative data. Berridge et al (2003) examined case records of 257 adolescents and found that 27% of them had education problems reported as a major problem while Colver et al (2002) examined notes from a medical assessment carried out with 211 children in care and found that 25 (11.8%) had developmental

problems with statement[3] and 53 (25%) had developmental problems without statement. Stanley et al (2005) looked at a purposeful sample of children's case files for 80 children (aged 5-16) in care with the aim of collecting data on the needs of those looked after both within the authority and out of area, and those in residential and foster care. They found that 55% of these were identified as having special education needs with nearly a third having had a history of exclusions and nearly a half being referred to an educational psychologist and 40% being referred to a clinical psychologist. This study also depicted 46% as doing well at school. These studies all have the benefit of representing total samples and therefore are likely to be representative of the difficulties which children in care are likely to have, but again lack a normative sample with which to compare the results.

A very small number of researchers have recruited a sample of children in care and directly assessed their abilities using various measures. Rees (2013) assessed 192 children aged 7-15 years using the British Ability Scales (Elliott, 1983), finding that the looked-after children performed less well compared with general population norms, while Hillen et al (2012) assessed children using the Mullen Scales of Early Learning (Mullen, 1995) and found 11.6% had global delay, 11.6% had expressive language problems and 9.3% had expressive language difficulties.

McCool & Stevens (2011) aimed to identify the speech, language and communication needs of children in residential care. They assessed 30 children, aged 11- to 17-years-old, on the Children's Communication Checklist (Bishop, 2003) which is a general screen for communication disorder, and found 19 of the 30 had the presence of speech, language or communication impairments of clinical significance, while Minnis et al (2006b) found that children in foster care (n=33) had poorer coherence of narrative than a matched control group (n=37), but found no difference between groups on verbal comprehension, information or sentence length.

A few researchers have used much larger samples to assess literacy in looked-after and accommodated children. Griffiths (2012) assessed 852 children, aged 7-11, on their

[3]In England and Wales a statement is used to describe all of a child's special educational needs and the special help a child should receive. The local authority will usually make a statement if they decide that all the special help a child needs cannot be provided from within the school's resources (Department of Education website – education.gov.uk).

reading ability, using the Neale Analysis of Reading Ability (Neale, 1999), finding that 42% of children returned standardised scores of less than 90 compared with a national figure of 23%. Furthermore they classified only 14% as 'very good readers' compared with an average figure of 23%.

Ford et al (2007) conducted large-scale research (described earlier) comparing 1453 children in care with 10,428 children who were living in private households. They found 34% of children in care had literacy or numeracy problems compared with 10% of those living in private households. Furthermore they found 11% of the children in care had a mental age (based on teacher report) 60% or less of their chronological age compared with 1.3% of those living in private households. The large sample, the use of a control group and the fact that the study was nested within a large general population sample, provide good evidence that looked-after and accommodated children are more likely to have literacy or numeracy problems compared with their peers.

At times, researchers have also compared children in care to other clinical or 'deviant' groups. Heath et al (1989) assessed 49 children in foster care and 58 children from families who were receiving social work help. While they found no significant difference between the groups on their reading, vocabulary or mathematics skills, they found both groups were performing below average, with 91% obtaining a below average standardised score for one or more of the three measures of attainment used (Suffolk Reading Test, British Picture Vocabulary Scale and a National Foundation for Educational Research basic mathematics test).

Overall, there are compelling indications that looked-after and accommodated children may be more likely to show cognitive and language impairments than their peers. Large studies, both looking at school attainment and case records have consistently shown high levels of difficulty within this group. However, while some of the studies assessed these children on a number of factors, for example, finding high rates of literacy and mental health problems within a looked-after sample, these studies have not fully explored the extent of overlapping problems – is it the same children showing difficulties in these different areas?

Some studies have looked at the differences between different types of accommodation which the child has received, and the type of accommodation does seem to have an effect. The results found by Heath et al (1989), showing no difference between the in-care group and the group of children from families receiving social work help, are very interesting. They found that although these children were not different from each other, they were poorer than average. This suggests that is it not the in-care status which is important but the characteristics of the birth family which the child is from. Roy et al (2004), however, found differences between foster care groups and those in residential care. These findings pose interesting questions about the causes of the child's difficulties and the role that placement may have on certain factors.

Resilience factors

A number of studies have tried to assess resilience or protective factors that children in care may have. Researchers have aimed to assess a variety of traits, for example, self-esteem and self-perception or ability to form relationships with people.

Honey et al (2011) found that looked-after and accommodated children report more positive self-perceptions that other children, but lower career aspirations, while Robinson (2000) found that children in care showed high scores on the Rosenberg Self-esteem Scale (Rosenberg, 1965). Fleming et al (2005) looked at a random sample of 25 case files, finding 52% of the children had self-esteem or self-image issues, and Bailey et al (2002) looked at case records of 96 children and found 10% had poor personal identity, 20% had poor family relationships, 16% had poor social relationships, 6% had poor social presentation and 1% had poor self-care.

Jackson et al (2010) performed a very small but nevertheless interesting study comparing looked-after and accommodated children (LAAC, n=4) with their non-looked-after peers and found that the children in care showed fewer strengths and fewer resources, thus increasing their vulnerability. Jackson et al also assessed the children's self-perceptions which included asking the children themselves to pick their most positive attributes ('the best thing about me is…'). This study showed that all four LAAC children provided statements relating to other people, for example, 'I make people laugh' or 'I am helpful'. This was in contrast to their non-LAAC peers (n=12) who instead gave statements in relation to themselves, for example,' I can run fast' or [the best thing about me is] 'my

drawing'. These subtle differences may be signs of important underlying issues for these children.

Roy et al (2004) compared attachment relationships of 19 primary school aged children who had been institutionalised with 19 primary school aged children in foster families and found that one fifth of the children in residential homes had a marked lack of selective attachment relationships with their caregivers, whereas none of the children in foster families showed this difficulty. The children in both groups had been placed before the age of 1 with only small between group differences prior to entering care.

While there are only a few studies looking at protective factors of these children, they constitute an important area of research, as factors such as self-esteem and ability to form new relationships with caregivers can prove crucial in helping children develop in other areas of functioning, for example, their mental health and language skills.

Summary

Overall, a number of studies have been identified that aimed to investigate the functioning of a group of children looked after in the UK. While the search was systematic, it is unlikely to be an exhaustive summary of all the research conducted in the area, due to a high volume of articles being published in the 'grey literature' and the non-specific search terms required to identify relevant articles also producing a large number of non-relevant articles. It was identified that a child's functioning was being assessed in a variety of different ways with a variety of different samples. Overall, it appears that children in care have poorer levels of functioning across various domains; in particular, the evidence strongly suggests that children in care are at an increased risk of having mental health problems. While the ages of the children in the different studies varied considerably, there were very few studies including infants under the age of 5, with almost none including children under the age of 2 in any assessment. With so many very young children coming into care, this would appear to be an under-represented group in need of further research. Further research is also required to investigate whether these children have overlapping problems. In addition, the majority of the studies in this area assess a total sample of children in care. This often includes children who have just come into care as well as children who have had both turbulent and more stable journeys through care. Knowing that children are at increased risk of having problems if they are in care does not answer an

important question as to whether they already have these problems when they enter care or whether their experience of care has led to these difficulties. In order to answer this question, studies would need to assess children when they first enter care and very few do this. Assessing children upon entry to care would provide valuable information on the child's functioning before it is modified by their experience of going through care. While there have been some very important and thorough studies in this area, it is clear that there is still additional research required.

Pre-care early life health

The literature was also searched to identify any research that had looked at the birth records of children in foster care, to identify whether they were showing signs of increased risk when they were born. There were no studies identified from the UK, therefore the search was widened to investigate the literature worldwide. Simkiss et al (2013) conducted a systematic review of the literature on the risk factors associated with children entering care. They found that there are numerous factors present when the child was born which are associated with a child entering care, for example, socio-economic status, maternal age at birth and single parenthood. What was of particular interest, however, was whether there were any characteristics of the *child* at birth which were associated with entry to care. Needell and Barth (1998) used administrative data in the USA to compare the birth records of 26, 460 maltreated infants who had entered foster care with a random sample of 68,401 other infants who were born within the same time frame. They found that those infants in care were more than twice as likely to be born with low birth weight and twice as likely to have been born with a birth abnormality.

O'Donnell et al (2009) conducted a retrospective cohort study to link health and child protection databases for children in Australia. They found that children with neonatal withdrawal syndrome at birth, caused by maternal drug use during pregnancy, were at greater risk of entering foster care. Brownell et al (2011) investigated the predictive validity of a newborn screen for identifying risk of out of home placement in Canada. Datasets were combined for 40,886 children to examine screening data on biological, psychological and social risk with data on children entering care. The screen included items such as low birth weight, complications during pregnancy and lack of prenatal care. They found that 18.4% of the samples were not screened, and that those not screened were twice as likely to enter care as compared with those who had been screened, illustrating the

difficulty in engaging with vulnerable families. In addition, they found that those children screening at risk were 15 times more likely to enter care than those deemed not at risk.

Overall, it seems that there are risk factors for these children that are evident at birth. This is a complex issue, however, with a large degree of overlap between maternal risk factors, for example drug use, and low socio-economic status. While there have been large studies examining this in Australia and America, it appears there is limited research in this field in the UK. With such cultural variations, it would be interesting to investigate whether children entering foster care in the UK would also be showing signs of increased risk when they were born.

Scotland provides an ideal setting for investigating such issues. Administrative data are routinely collected in Scotland, including: antenatal care records; hospital delivery records; statutory birth registration; stillbirth records; neonatal care records; childhood vaccination records; child health review records; GP consultation records; prescription records; hospital admission records; A&E attendance records; cancer registrations and death records. These data are held by the Information Services Division (ISD) on behalf of the health service. Individual records can be linked together to build a picture of someone's health over time, to assist in planning and monitoring of services as well as for research purposes.

1.2.2. Outcomes of children who leave care

It was also of interest to identify longitudinal or follow-up studies that had been conducted in the UK which aimed to follow up children from foster care into adulthood. The search criteria are detailed in Appendix B. The databases searched were; Medline; PsycARTICLES; Psychology and behavioural sciences collection; and psycINFO. They were searched on 19.12.13, and updated on 14.8.14. When searching UK literature since the 1989 Children (Scotland) Act, five studies were identified which reported original data on an outcome factor for children who have experienced out of home care.

Pritchard et al (2000) conducted a follow-up study of both looked-after and accommodated children and children who had been excluded from school. The main focus of their study was to compare these two groups, but only the findings from the looked-after sample are discussed here. The sample included police records of 814 16- to 24-year-olds (54% male)

who had been in care when they were adolescents (aged 11-15). They examined criminality, murder and the cost of crime for this group from England.

Their results showed that 36% of this sample had criminal convictions, which included 44% of the males and 26% of the females in the sample. More than 80% had committed their first crime by the age of 18 years. Forty-eight per cent of those who had a criminal conviction were classed as violent offenders, with 18% being described as core offenders, having had more than 6 convictions. This study also estimated the cost of crime to the criminal justice system within this sample to be £7.8million.

The study also examined place of residence for this former looked-after sample, finding 7% as having 'no fixed abode' – i.e., being homeless – and 10% currently serving a sentence. They found 28% of the males and 20% of the females had convictions for possession of drugs while 3% of the males and 2% of the females had convictions for dealing. Pritchard et al also examined convictions for sexual offences, finding 7% of the males within the sample to have been convicted for sexual offences, including 4% against children and 5% against adults (with 2% against both). Pritchard et al (2000) clearly show the increased risk that these children face, with a third going on to receive criminal convictions.

The second study of interest identified by the search was conducted by Dixon (2007). The author describes early career outcomes of young people leaving care in seven different English local authorities, which represent a broad geographical spread. Dixon describes findings from baseline interviews which were conducted with 106 young people approximately two months after leaving care, and then follow-up interviews which were conducted 10-12 months later to assess how they were progressing (n=101). The results showed that 44% were considered by practitioners to have mental health, emotional or behavioural difficulties, while 17% were considered to have a sensory, physical or learning impairment. Dixon found that between baseline and follow-up, 15% of the sample had improved outcomes, 31% remained good, 20% deteriorated while 34% remained poor. The author detailed rates of education and employment uptake, showing 27% in full time education and 4% in full time employment while 43% were unemployed and 1% was in custody.

Both these studies described capture only a subsection of those children and young people in care, however, missing out those who entered and left care in their early life. Children coming into care in adolescence may do so for very different reasons – and may have very different outcomes – from those coming into care as infants.

The third study of interest was conducted by Viner and Taylor (2005). This study involved a follow-up study from a whole population birth cohort from 1970, which included all the children born between 5th and 11th April 1970 in the UK, totalling 15,567 infants. Due to attrition over time, the current sample of interest was 11,261 after 30 years. The authors do acknowledge that loss to follow-up was highest in disadvantaged groups. Of this 30-year sample, 646 (4.4%) had been in care, with data for 343 (3.6%). The study looked at a number of different factors, some of which are tabulated below (Table 2).

Table 2. *Outcomes from care compared with general population in Viner & Taylor (2005)*

	Males %		**Females %**	
	In care	**Not in care**	**In care**	**Not in care**
Had been homeless	12*	6	18*	7
Currently unemployed	11*	4	2	2
Receiving income in lowest quartile of net annual earnings for gender	27	25	31	24
Left school without qualifications	40*	29	35*	25
Permanently expelled/excluded from school	7*	2	4*	1
Convicted in court	41*	23	9*	4
Victim of violent sexual assault	10	11	5	4
High score on Malaise Inventory (depression)	20*	13	29*	19
Mental health history (seen specialist)	25*	17	37	33
General health 'fair' or 'poor'	22*	15	21*	15
Used illegal drugs in the past year	34*	26	15	13
Seen doctor because of an accident	69	66	36	39
Pregnancy before the age of 18 years	-	-	3	3

*Where the in-care sample showed a significantly different rate to those not in care.

This study has particular strengths, namely the ability to compare the previously looked-after sample with the general population and to include children with the full range of types of care history. The authors also conducted controlled analyses for childhood social class, mother's education status, and adult's social class to segregate the effects of being in care from those of children and adults with socio-economic disadvantage. They do, however, suffer from a high rate of drop-out, with those in care being more than twice as likely to be lost to follow-up. With such differences in drop-out between samples, it is

likely that there are reasons behind these differences which could not be captured in the data and which may have introduced systematic bias. In addition, the full study is reliant on the informants' own self-report, which is likely to be subject to bias, in particular when people are asked about sensitive issues.

Dregan and Gulliford (2012) provide data for the fourth paper of interest which comes from the same 1970 birth cohort's 30-year follow-up. In this paper the authors evaluated the associations of various experiences of care with emotional and behavioural traits at age 30 years. The authors found that both longer and multiple placements were associated with more extensive adult emotional and behavioural difficulties and those who experienced residential care were at increased risk of adult criminal conviction and depression. This study also found multiple placements were associated with low self-efficacy in adulthood and those entering care after the age of ten were at increased risk of adult criminal convictions and smoking.

Bullock and Gaehl (2012) provide the fifth and final paper of interest. They chart offending and mortality rates over a 25- to 30-year period using UK criminal records and the death index. They were interested in comparing 2 groups of children who were admitted to care in England and Wales in 1980: those who stayed in care for more than 2 years and those who stayed for less than six weeks. The sample included 152 (56% male) adults who had experienced long-term care and 149 (52% male) who left care quickly. Overall, they found that all the children experienced an increased risk of offending and premature death, with 25% of all males having spent time in prison department custody (e.g. young offenders institutions, detention centres or prison). When looking at the groups individually, they found that 35% of those in long-term care (52% of the males and 13% of the females) were convicted of an offence after leaving care, with 11% being persistent offenders. When they examined the outcomes of those who had only had a short stay in care, they found 18% had a conviction (or 27% of males, 8% of females), with 7% being persistent offenders (or 12% of males, 1% of females). The authors argue that the difference between the short and long stay groups highlights the vulnerability of those who stay in care for a long time, but were unable to distinguish the pre-existing factors that may have also played an important role.

Bullock and Gaehl also examined how reasons for entry to care were associated with criminal convictions after leaving care. Some of these findings are tabulated below (Table 3).

Table 3. *Criminal convictions after leaving care in Bullock & Gaehl (2012)*

Reasons for entry to care	**Number**	**Criminal convictions after leaving care**
Voluntary agreement	24	38 %
Neglect	58	21%
Moral danger	8	13%
Beyond control	15	20%
Irregular school attendance	11	64%
Delinquency	28	68%
Matrimonial reasons	6	33%
Long-term family placement	2	0%

These results show that the highest rates of criminal convictions come from children and young people who enter care due to irregular school attendance and delinquency.

This study also examined the mortality rates of the groups, finding by follow-up when the sample would be aged 25-42, that seven out of 92 (7.6%) long-stay boys had died, but none of the girls, while four (5.1%) of the short-stay boys had died and again none of the girls. This is in comparison to a rate of just under 5% in the general population if age, social class and changes in mortality rate are taken into account. The authors concluded that there was no evidence from this study that being in care per se reduced or increased the risk of offending.

Overall, these five studies provide compelling evidence that there are associations between experiencing out-of-home care during childhood and negative outcomes in adulthood. These studies look at official statistics or come from birth cohort studies, which are an excellent way of examining true differences between groups. While these studies acknowledge the problems which can arise, for example relying on self-report or not adequately accounting for other causes of disadvantage, some of the statistics here cannot be ignored. Findings show rates of 44% unemployment, 18% homelessness and 36% having criminal convictions. This clearly shows that this is an at-risk group, with issues continuing into adulthood. Since Pritchard et al (2000) estimated the costs of crime being £7.8 million in a sample of 814 adults who had experienced care, it is clear that the 16,041 children in care in Scotland need a lot of additional support.

1.2.3. Child characteristics and outcomes

With a wealth of research showing that children in foster care are at increased risk of experiencing difficulties in different areas, it was of particular interest to investigate how child characteristics were associated with placement outcome. There appear to be certain characteristics that make a child more likely to suffer abuse. Sobsey et al (1997) found that boys were more likely to be abused than girls, and children with disabilities compared with those without were also at higher risk. Findings such as these led to the question whether child characteristics such as these continued to influence the parent–child relationship and placement outcome once the child was in care. The literature was systematically searched for studies worldwide, not only examining their main findings in this area but also the way they collected their data. It was of interest to know how many studies had actually had contact with the children and made thorough assessments of the children's health, disability and behaviour when determining how these impacted on placement outcome. These results are published elsewhere[4] (Pritchett et al, 2013). The search is detailed in Appendix C, the results tabulated in Appendix D and published paper included in Appendix E.

Age

The main child characteristic that was investigated as a potential contributor to placement outcome was child age. Many studies looked at what age the child was when they entered care and how this affected placement. Slightly more than 15% showed no effect of age on placement outcome, while the remaining papers did find that age impacted on placement. Of the papers reporting an effect, about three quarters showed more positive results for younger children, for example, Kemp et al (2000) showed that younger children were more likely to achieve permanence, while Rosenthal et al (1988) showed that younger age of placement predicted an intact placement. The remaining quarter showed a more positive result for older children, e.g. Cooper et al (1987) showed that younger children spent longer times than older children in transitional placements, resulting in greater disruptions. Seven studies were identified with sample sizes of greater than 10,000 children that report on the effect of age on placement outcome. Because these are based on administrative datasets in which age is an easy variable to check, they have highly representative samples unlikely to be vulnerable to bias. Of these seven, three found little or no effect once other factors were controlled for. The remaining four did find effects. Snowden et al (2008) found children placed under 5 years old were more likely to be adopted, Yampolskaya et al

[4] Permission has been sought to repeat findings here (Elsevier License Number: 3351351236308).

(2007) found that younger children had a slower exit from care, and Yampolskaya et al (2011) found that older children were more likely to re-enter out-of-home care, while Hayward et al (2007) reported that those who came into care in middle childhood were less likely to reunify than infants, with a further decrease for older adolescents. Although there was mixed evidence on the effect of age, about half of the studies found that children who come into care earlier have more positive placement outcomes than those coming into care at an older age.

Gender

The majority of papers that looked at child characteristics that might have an effect on their placement investigated gender as a potential contributor. Over 70% of these found no effect of gender on placement outcomes, for example, to predict successful reunification or multiple placements. Of those that did find an effect, the results varied, with approximately two thirds showing more positive outcomes for girls in care (e.g. Snowden et al. (2008) and Rosenthal et al. (1988)) while the remaining third showed more positive results for boys in care (e.g. Farmer et al. (2009) and Fernandez (1999)). Six studies were identified with sample sizes of greater than 10,000 children that reported on the effect of gender on placement outcome. These are unlikely to be vulnerable to bias, as they are based on datasets in which gender is an easy variable to complete, providing a representative sample. Four of these studies reported non-significant findings (e.g. Hayward and DePanfilis (2007) and Courtney et al. (1997)) while two of the large studies reported an effect of gender. Yampolskaya et al (2007) found that boys had a delayed exit from care while Snowden et al (2008) reported that girls are more likely to be adopted than boys. The effect sizes, however, were both very small. Overall, there did not seem to be a clear effect of gender which affects the child's outcome.

Physical health/disability

Some papers examined the effect of physical health, or any disability, on placement outcome. Approximately one third did not report any significant effect of health/disability on placement. Of the papers that did report an effect, less than a third reported an increased chance of a positive outcome if the child had a health problem or disability (e.g. Selwyn et al. (2006)). In contrast, more than two thirds of the studies showing an effect found an increased chance of a negative outcome if the child had a health problem or disability: For example, Courtney (1995) found that children with health problems were

more likely to re-enter care after reunification, while Eggertson (2008) found that major health problems led to more placements for children. Only a few studies assessed the health of the children by asking their caregiver, as opposed to looking at case notes. The study by Selwyn et al (2006) was based on interviews with adoptive parents; with an 80% opt-in rate. The authors found that following a decision for adoption, children with a physical disability or chronic health problems were more likely to achieve a successful adoption than those without such health issues. This study involved 130 children, of whom 4% had a moderate to marked physical disability. Glisson et al (2000) obtained data from both teachers and caregivers for child characteristics; however, when assessing disability their conclusions came from case files or staff members, and was coded as a single variable describing the number of disabling conditions the child was affected by. They found that children with disabilities were less likely to return home. Proctor et al (2011) conducted assessments with the children and interviews with the caregivers. They found that health problems did not predict placement stability in a sample of 285 children in out-of-home care. Although many studies did not find an effect of health or disability, it seems that where there is an effect, it is more likely to be negative, with health problems or disabilities being related to poorer outcomes for children in care.

Mental health

Many papers investigated whether the child's mental health or behaviour problems affected their placement. Just over 10% found no effect of mental health/behaviour issues; however, the remaining papers reported these as contributing to placement outcome. Of those reporting an effect, over 90% showed that the fact of a child having mental health or behaviour issues was detrimental to their placement outcome. For example, Dance and Rushton (2005), using the Parental Account of Children's Symptoms (PACS) with parents of 99 children, found that behaviour problems predicted placement disruption while Glisson et al (2000) showed that children with mental health problems had a lower probability of exiting care. Mental health was assessed using the Child Behaviour Checklist (CBCL) (Achenbach and Edelbrock, 1983) and the Teacher's Report Form (TRF) (Achenbach, 1991), which were completed by parents and teachers of 700 children, from a random sample of 750. Almost all the studies where the caregiver was asked about the child's mental health (for example, Landsverk et al. (1996); Newton et al. (2000); Dance and Rushton (2005)) showed clear detrimental effects of mental health problems in

the child on placement outcome. It seems that child mental health is a key characteristic which can influence what happens to a child when they enter care.

Education/cognition

Of the papers that examined whether education/cognition affected placement outcome, more than half found no effect. Of the small number that did find an effect, however, almost all found an increased chance of a negative outcome if the child had problems in education or cognition. For example, Jones (1998) found that having a learning disability or problems at school led to an increased risk of re-entering care. The data came from case files of 445 children who entered care, with the presence or absence of such problems coded by a professional when they first entered care. Only two papers directly assessed the cognitive ability of children. Kraus (1971), using the Wechsler Intelligence Scale for Children (WISC) (Wechsler, 1974) with 157 children entering care, found that IQ was not associated with placement success/failure. In contrast, Proctor et al (2011), assessing 285 children at least 5 months after entering care, found that lower score on the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) (Wechsler, 1967) Block Design task, but not language score, was related to an increased chance of placement instability. Although the majority of papers did not find an effect of education or cognition on placement outcome, those which did find an effect appear to show that if the child has problems in these areas, then unfortunately these are more likely to lead to negative placement outcomes than positive.

Data source

A further aim of the literature search was to look at data sources of the research conducted in this area. It was found that over half (n=40) of the 74 studies identified had based their findings purely on administrative or survey data. Of the authors of the 74 papers included in this review, only 5 appeared to have had contact with the children and young people to make an assessment of the characteristic which they were investigating. As the children involved in these studies were all in the care system, there was a potential to have robust data on these participants as information is routinely stored about each of them. There are a number of strengths to using administrative data to examine placement outcomes, in particular the ability to use large samples (outlined by DiLeonardi and Yuan (2000)). Authors, however, also acknowledged the problems. In particular, they noted the importance of having a common understanding of definitions. They acknowledged that

people need to be in agreement with regard to the meaning of terminology when they enter, discuss or retrieve data, or false conclusions can be easily drawn. Certain characteristics, for example mental health, have the potential for confusion over definitions. Where this was measured using administrative data, it was often just a yes/no regarding whether the child had mental health issues or not. While there are some characteristics with regard to which meeting the children is not necessary and administrative data are likely to be of good quality, for example age and gender, there are others where it would seem remiss not to make an assessment of the child, in particular regarding characteristics such as mental health.

James et al (2004) examined predictors of placement change based on case records of 580 children in foster care in San Diego. He found that over 70% of the placement changes were due to system- or policy-related decisions: for example, due to lack of funds, placement errors or the child moving to be with a sibling. James further identified that 8.1% of placement moves were due to issues relating to the foster family: for example, the family move or leave foster care as a profession. A further 2% were attributed to the birth family, including birth family conflict with the foster carer, or a required move to a confidential placement. Finally, James et al identified that 19.7% of placement moves were related to the child's behaviour, with the majority being on the foster carers' request due to problems that had arisen.

The literature search highlighted that child characteristics do appear to be important predictors of placement success when a child comes into care. The implications of this are vast and a clearer understanding of this area may provide valuable pointers as to how best we can tackle these issues and use resources where they are needed most. If we were able to identify that children with certain characteristics are more vulnerable to placement disruption, then we could focus our efforts when supporting these children in care. What is striking is that the majority of the research in this field has not involved contact with children. When assessing the importance of key child characteristics such as mental health, it is clear that, before conclusions are reached, these children need to be met and properly assessed in order to truly determine the associations between child characteristics and their experience of foster care.

1.3. Assessing children in foster care

The above findings warrant further investigation through more detailed assessments when children enter foster care. There is evidence that a child's *age, gender, mental health and development* could all be having an effect on their foster care placement, and therefore careful consideration is required when considering how best to assess these young children for some of these complex characteristics.

Carter et al (2009) identified a number of challenges relating to assessing young infants in care. These include contextual influences, child behaviour and problems finding reliable informants. These authors emphasise the importance of multiple informants and using both observation and parent report to record a child's needs. They also underscore the importance of considering ethnicity and culture when making an assessment of a child.

What are we assessing?

When assessing young and vulnerable children, it is important to think about what information can be accurately gleaned from the assessment process. Carter et al (2009) discuss the potential overlap between problems, and the issues which can arise around this. They suggest that knowledge of a child's developmental functioning may be necessary to interpret delays in social and emotional competencies, for example, a child may score as lacking self-control, but this could be a reflection of global developmental delay. Gillberg (2010) has also argued that children who have emotional or behavioural problems are likely to have overlapping problems across different areas of their health and development and that the sharing of various symptoms across disorders is actually the rule rather than the exception. Minnis (2013) recently described a new concept: maltreatment-associated psychiatric problems (MAPP) – a syndrome of overlapping complex neurodevelopmental problems in children who have experienced abuse or neglect in early life. She argues that the early life events these children face place them at an increased risk of developing problems and that the problems they have are likely to be complex and overlapping. With such a high likelihood of co-morbidity, it is difficult to disentangle how independent each problem is for a child. For example, a child's difficulty in forming relationships with others could be a result of a social difficulty, a mental health problem or a symptom of language delay. The true root of a problem can be difficult to identify when children are presenting with such complex and overlapping problems, which can cause difficulties when trying to identify the best treatment.

Tarren-Sweeney (2013) conducted an investigation in the complex needs of children in foster and kinship care, in a sample of 297 children aged 4-11. While he found that 35% of the children had clinical difficulties that could be understood as discrete mental disorders or co-morbidity, he also found an additional 20% of children displaying complex attachment- or trauma-related symptoms which he argued were not captured in current diagnostic systems.

While it seems important to interpret social and emotional problems in line with what is known about the child's cognitive development, it should be noted that cognitive ability may not be a stable characteristic in children who have recently come into care. O'Connor et al (2000) examined 'developmental catch-up' following adoption of Romanian orphans placed into UK homes. The authors found that the cognitive scores on the Denver Developmental Questionnaire (Frankenburg et al., 1987) of a sample (n=46) of children aged between 24 and 42 months placed in the UK had significantly increased when they were followed up at age 6 years. Over 90% of the children had impaired Denver scores when entering care, but only 18% were in this same impaired range when they were assessed at follow-up, clearly demonstrating developmental catch-up once the child was placed in a nurturing adoptive placement. It is worth speculating what this 'catch-up' might be caused by: is there true improvement in cognitive functioning- due to a better care environment - or were the baseline scores falsely reduced by an adjustment reaction resulting from coming into care? Nelson et al. (2007a) examined a sample of children from the Bucharest Early Intervention Project (BEIP- described in detail later) and found that children taken from institutions and placed in foster care before the age of 2 showed improvements in IQ, while Fox et al (2011) also looked at cognitive improvements within the BEIP and did not find significant differences between cognitive ability at 54 months and at 8 years of age. Nelson et al (2011) argued that their findings may suggest a sensitive period covering the first 2 years of life, within which intervention can exert a significant effect on cognitive development. The idea of a sensitive period should also be considered when exploring whether there is evidence of cognitive catch up within the sample as it may help describe a potentially complex pattern.

When should we be assessing?

Many mental health measures provide a 'snapshot' view of an individual's presentation within a particular timeframe. Some specify a limited, retrospective time period to

orientate the informant, for example the Child Behaviour Checklist (CBCL) for Ages 1½-5 (Achenbach and Rescorla, 2000), which asks the informant to consider whether items describe the child *'now or within the past 2 months'*. While mental health assessment relies on information about current emotions and functioning, a key consideration is how that presentation compares with how an individual *usually* presents or formerly presented. In assessing the mental health of a young child who has been accommodated recently, assessments may reflect an especially transitory picture, due to active processes of change. Furthermore, if relying on new caregivers to provide information, it may not be possible to gain a full perspective on the child's state over the whole specified period, or of how this fits with his usual presentation.

A recently-accommodated child has just been through a major life event (usually the loss of primary caregivers) and is subject to processes of adjustment, with associated emotional and behavioural sequelae, such as despair, crying and aggression (Miron et al., 2013). Mental health disturbance is to be expected following a major life event, and the presence of significant and enduring mental health difficulties may only emerge as part of a longer-term perspective on a child's emotional health and wellbeing. Best practice guidelines for Post-Traumatic Stress Disorder (Excellence, 2005) note that particularly traumatic events are likely to cause 'pervasive distress in almost anyone' and recommend *watchful waiting* in situations where symptoms are mild and have been present for less than four weeks following a traumatic event. However this may not be appropriate if the level of distress threatens to result in a placement disruption. In some cases, the child's experience is arguably comparable to a bereavement, following which mental health disturbance is extremely common and may be prolonged. Andel et al (2014) describe findings from a systematic review examining stress in young foster children, measured with salivary cortisol. They found evidence that neglect, early loss of caregiver and multiple placements can alter the hypothalamic-pituitary-adrenal (HPA) axis function, which controls stress, in children. They also acknowledge that foster children often do not present with overt signs of stress, which may make it difficult for foster carers, researchers and clinicians to identify the degree to which the child is affected.

In addition to the major life event of a placement move, accommodated children endure attachment disruption, a process which Bowlby (1980) proposed moves from protesting the separation from primary caregivers, to despairing and losing hope of reunion, and finally to

re-attaching to an available alternative caregiver. A variety of factors can impact on the speed and quality of this process, such as the child's age, previous experiences, and resiliencies, as well as the quality of alternative caregiving and any ongoing contact with original caregivers (Stovall and Dozier, 2000). Attachment relationships are the basis for the way a child copes with stress and regulates emotions, and are crucially linked to a child's mental health and wellbeing. As such, assessment during the early stages of accommodation may yield a 'snap-shot' picture of a child's mental health and functioning, even where a child has been securely attached and well-adjusted previously. Rowe et al (1984) conducted research asking foster carers to report prospectively on the number of problems which a child had had when they first entered care, and they found these related to the child's current level of functioning. This data suggests that early assessments capturing processes of adjustment may offer meaningful data about future functioning.

Stovall & Dozier (2000) investigated the development of attachment relationships of 10 children, aged 6 to 20 months, entering foster care. They followed the development of these children by use of attachment diaries, whereby carers reported how the children responded to daily stressful events, for example, falling and hurting themselves. They found that after two months, eight out of the ten children were showing a distinct pattern of attachment behaviour. This work emphasises that while it is important to allow time for the children to settle into a new placement, and to allow a new caregiver to acquaint themselves and familiarise themselves with the child's presentation, it is possible to gain meaningful data (at least about attachment behaviours) within the first few months of a foster placement. Gabler et al (2014), found that there was an increase in attachment security over the first 6 months of placement, as measured by the Q-sort with the carers of 48 children aged 1-6 years. By 6 months, however, the children in their sample were still showing lower levels of attachment security than a normative sample of children. This is in contrast to other studies in this area which have investigated attachment in children who have spent longer in foster care and found rates of secure attachments in foster samples comparable to low-risk samples (e.g. Smyke et al. (2010)). This work demonstrates that while attachment behaviours may be present early on, the development of a secure attachment takes place over time and therefore cannot be accurately measured when a child first enters foster care.

How should we be assessing?

Carter et al (2009) highlighted the importance of using multiple approaches to assess a child. A child's birth parent may be able to provide information about the child's former or usual presentation, but in the legally and emotionally fraught period following the child's accommodation, they may not be reliable informants. Also, there are often multiple challenges in the parents' own lives that may impact on the ability to provide an objective, valid assessment. Seeking information from multiple informants, preferably providing insight in to the child's presentation in different settings, may be a way to mitigate such informant issues.

Carter et al (2009) reported that there is still a reluctance to identify mental health problems in very young children. They suggest that parents and carers are sometimes unable to distinguish between normal misbehaviours and clinically concerning problem behaviours. This makes it difficult when trying to detect problems early. Achenbach and Rescorla (2000) found that 36% of parents who reported scores which were worrying on the CBCL also reported that they were not at all, or only a little, worried about the child. Carter et al (2009) speculated that parents of young children were less likely to spend time amongst their children's peers (e.g. at nursery) and so caregivers may be less likely to see other children the same age or hear from professionals regarding the child's behaviour. These authors also acknowledged that carers may under-report problems due to concerns that they will be blamed for the problems or accused of not attending to the issue appropriately. Alternatively, they may be reluctant to raise concerns about negative behaviour for fear that it will reflect badly on the child and their family. The authors describe differing ways of using informants to assess a child's problems. For example, parents may not be able to describe a child's particular issues, but they *can* describe changes that the family has had to make to accommodate the child. They may also be able to describe particular situations, for example family meals, which cause difficulty, and this can be used as a gauge of the child's impairment.

Klein et al (2014), questioned the assessment procedure for diagnosing Attention Deficit Hyperactivity Disorder (ADHD) within such vulnerable samples. He argued that children who have been maltreated are more likely to have other factors contributing to behavioural and attentional regulation difficulties which may overlap with or look like ADHD, for example language and learning problems, Post-Traumatic Stress Disorder (PTSD) and

attachment disorders. Klein argued that children in care need to be assessed in a different way as their behavioural trajectories change while going through the care system.

Overall, it is clear that there are issues which need to be considered when assessing young and vulnerable children shortly after they enter a period of care. Previous research in this field offers valuable advice which guides the methodology of the current study, namely the importance of a holistic assessment, the use of multiple informants, using questionnaire and observational data as well as allowing a settling in period to elapse prior to assessment.

1.4. Measuring placement outcomes

With children who experience foster care being at increased risk of a variety of problems both during childhood and into adulthood, there is a need to try and ensure that the child is in a positive placement as early as possible. While the child is in the care system, there are various outcomes which are considered positive: for example, being adopted may be a positive outcome for some children, and fewer placement moves may be the best outcome for others. What is best for the child will vary between families and depend on a wide range of circumstances. Proctor et al (2011) examined placement instability, as defined by a change in caregiver, as an outcome when looking at the role of the child's IQ, while Yampolskaya et al (2011), used re-entry to care as an outcome when looking at the effect of a child's age. When assessing outcome from care across a number of different studies, it is challenging to find a consistent optimal outcome. Rushton (2004) detailed such difficulties, arguing that devising varying and complex classification systems can lead to a lack of comparability of findings.

The best-known studies in this field come from the Bucharest Early Intervention Project (BEIP) which was a randomised controlled trial of foster care as an intervention for children aged between 6 and 31 months who had been abandoned at birth and placed in an institution for young children in Bucharest, Romania (Zeanah et al., 2003). The project included 136 children, of whom half were randomly allocated to be placed in foster care while the remaining half remained in an institution. At 54 months of age the children were followed up by the research team. The cognitive outcome of children who remained in the institution was markedly below that of the children taken out of the institution and placed into foster care (Nelson et al., 2007b). Children removed from institutions and placed in foster families were also less likely to have internalising disorders than children who

remained in institutions (Zeanah et al., 2009). Looking within the institutionalised group, they observed an association between prolonged exposure to institutionalised care with more socially indiscriminate behaviours, using the Stranger At The Door procedure with the children at 54 months of age (Gleason et al., 2014). Furthermore when the children were followed up at age 8, those who had been randomised to foster care as an intervention were still showing improvements in their speech. Differences were also seen within the institutionalised group, with longer time spent in institutionalised care being associated with more speech reticence and lower social engagement (Almas et al., 2014). By age 8, the children who had originally been placed in foster care had longer sentence repetition and written word identification as compared with the children who had been allocated to remain in the institution. Furthermore, they found that the children who had been placed in foster care by age one, were performing at the same level as a normative sample (Windsor et al., 2013).

The Bucharest Early Intervention Project has also revealed differences within foster care, comparing the outcomes of children placed in high-quality foster care involving carer training, with Government foster care without training. They found beneficial effects of the high-quality care on levels of ADHD and internalising disorders within the children (Tibu et al., 2014). This work showed that living within a stable, high-quality foster home is beneficial to children, both in the short and longer term. With the benefits of foster care over institutionalisation evident, it is clear that any outcome which results in children finding a more permanent place to live, as part of a stable family, should be considered as positive.

A child who forms a good relationship with their foster carer is less likely to have a disrupted placement (Leathers, 2006) with greater attachment security predicting lower rates of internalising disorders (McLaughlin et al., 2011). Attachment is the 'bond, tie, or enduring relationship between a young child and his mother' (Ainsworth et al., 1978). In 1952, John Bowlby was commissioned by the World Health Organisation to investigate the needs of homeless orphaned children being brought up in institutional care. He found 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). Sroufe (2005) argued that 'nothing can be assessed in infancy that is more important' [than

attachment] with a secure attachment between a child and their primary caregiver playing an important role in the child's normal development.

The quality of the relationship between the child and their foster carer is known to play a crucial role in attachment development (Ainsworth et al, 1978). Together with the knowledge that attachment has great influence over children's development in terms of self-reliance, emotion regulation, social perception and social competence (e.g. Sroufe (2005) and Suess et al. (1992)), it is clear that the relationship between child and foster carer has the potential to greatly impact on the positive development of a child in care.

The importance of this relationship is evident in the fact that interventions designed to help vulnerable families and to promote a healthy relationship between a child and their primary caregiver often have a grounding in attachment theory (for example, Circle of Security (Hoffman et al., 2006) Mellow Parenting (Puckering, 2004) and Attachment and Bio-behavioural Catch-up (Puckering et al., 2011b)) with improvements to the child/caregiver relationship having a positive impact on children's psychosocial functioning (Hoffman et al. (2006) and (Puckering et al., 2011a)).

Qualitative work has also been conducted which aimed to examine what is important to adolescents in foster care, with Christiansen et al (2013) finding that for young persons who had been in foster care for over 4 years, the foster families provided a secure environment and an experience of belonging to the family. Storer et al (2014) qualitatively explored what youths wanted from foster care; revealing desires for a sense of belonging, structure, guidance and consistency.

The relationship between foster carer and child is important in promoting placement stability as well as attachment (Dozier and Lindheim, 2006). Because an attachment relationship develops over time, it is not possible to assess attachment when a child is first placed into foster care. It is possible, however, to examine the quality of the relationship between the child and caregiver. Altenhofen et al (2013) investigated predictors of attachment security in 3-year-olds who had entered foster care before 6 months of age. They found that caregiver sensitivity, child responsiveness and child involvement, as measured using the Emotional Availability Scales (Biringen et al., 2000), predicted attachment on the Attachment Q-Set (Waters, 1995), while Joseph et al (2014) found that

attachment security was predicted by observed relationship quality between adolescents and their foster carers. Assessing the relationship between the child and their foster carer is therefore likely to predict the development of attachment as well as indicating any problems within the relationship which may lead to problems later on, for example placement breakdown. The importance of this relationship is supported by the UK government's Foster Carer Charter (2011) which states that local authorities and services must

> *'recognise in practice the importance of the child's relationship with his or her foster family as one that can make the biggest difference in the child's life'*

With the work of Stovall & Dozier (2000) showing that children entering foster care show distinctive attachment behaviour patterns within the first couple of months, it is clear that measuring the quality of the relationship between the child and their foster carer shortly after the child enters care can provide meaningful and important data which is likely to predict placement stability for these vulnerable children.

The Parent-Infant Relationship Global Assessment Scale (PIRGAS) was chosen to assess the child carer relationship. This measure involves video-recording the child and carer during both play and meal-time activities and then assessing the quality of an infant–carer relationship based on a continuum from 'well adapted' to 'grossly impaired'. The strength of using video data allows for the relationship to be assessed by an observer within the research team, as opposed to relying on caregiver report. In using the PIRGAS, there are three components of an infant–parent relationship to assess: behavioural quality of the interaction, affective tone and psychological involvement. It has been used with vulnerable samples: for example, Stover et el (2003) used it with preschool children who had witnessed severe domestic violence to show a positive association between the child's contact with their father and the quality of relationship they had with their mother. Lieberman et al (2005) also used the PIRGAS with a sample of children who had witnessed domestic violence and found that the child–mother relationship acted as an important mediator between maternal life stress and maternal psychopathology. Thomas and Guskin (2001) used the PIRGAS with a sample of 82 children aged 18-47 months who were known to have disruptive behaviour. Using the PIRGAS, they found that children with disordered relationships were 3.6 times more likely to have clinically significant

levels of internalising problems, while Boris et al (1998) found that children with attachment disorders were more likely to display significantly lower PIRGAS ratings than other children, all of whom had attended an infant behaviour clinic. Aoki et al (2002) assessed the predictive validity of the PIRGAS in a high-risk sample, including 53 mothers who were identified as high-risk during pregnancy. They found that the PIRGAS score at 20 months was predictive of the mothers' help and support in the Crowell Problem-Solving Procedure (Crowell et al., 1988) at 24 months. There is also normative data available using this measure: Skovgaard et al (2007) used PIRGAS with a random sample of 211 children (aged one and a half years) from a larger birth cohort study. They found 8.5% of this general population sample to have relationship disturbances, and found significant correlations between these disturbances and infant mental health problems. These studies all demonstrate the usefulness of this measure with a range of samples, including high-risk populations that may be experiencing a range of additional problems.

Ahamat and Minnis (2012) discuss some of the difficulties clinicians may have in classifying mental health difficulties in children. They stress the importance of observing the relationship between a child and their caregiver, and suggest the PIRGAS may be potentially useful tool for doing this.

There are difficulties in this area as there is no gold standard measure of relationship quality. While speculation can be made over the benefits of a good relationship, there is a lack of longitudinal research looking at the long term impacts of either a good or poor score on the PIRGAS. Furthermore, while there is a strong evidence base for the predictive validity of attachment, there is a lack of evidence looking at how the score on the PIRGAS relates to attachment quality and so care needs to be taken when interpreting the long term implications of any results from the PIRGAS.

While assessing how child characteristics would be associated with the child's relationship with their foster carer, it was clear that there would be a number of other factors which could also affect the quality of this relationship. While it is impossible to control for all these potential factors, as the two-way relationship between child and carer was of key interest and so it seemed important to consider the potential role of the caregiver. Characteristics of foster carers have been shown to have links with important factors relating to attachment relationships, namely carer commitment and carer experience. Foster

carer commitment is defined as the caregiver's investment in a lasting relationship with the child (Bates and Dozier, 1998), and commitment towards the child was key for the development of Bowlby's attachment theory (Bowlby, 1944, 1951). Commitment matters because humans are designed to depend on their parent at birth and so infants expect to have a committed caregiver (Dozier et al., 2013). Commitment has been shown by Dozier and Lindheim (2006) to predict the stability of the relationship between carer and child as well as being shown to increase emotional security and general wellbeing in the child in studies of long-term foster care compared with adoption (Triseliotis, 2002). Previous carer experience has also been negatively associated with carer commitment (Dozier and Lindheim, 2006), with placement breakdown (Minnis and Devine, 2001) and placement stability, with O'Neill et al (2012) finding that for each child a caregiver had previously cared for, a child was 4% less likely to achieve placement stability.

Carer commitment and experience were assessed using the 'This is my Baby' measure (Bates and Dozier, 1998). It was of interest to know how both the carer's experience and their level of commitment towards the child affected the quality of the relationship between the child and the carer, as it was predicted this could be an important confounding variable of the main research aim.

1.5. Research questions and study rationale

1.5.1. Rationale for the study

Children who experience a period of foster care are known to be at greater risk of experiencing difficulties both when they are in care (Ford et al., 2007) as well as into adulthood (Viner and Taylor, 2005). We know that early intervention can improve outcomes (Fox et al., 2011) and recovery from the effects of maltreatment is possible if children are provided with safe and nurturing care early, ideally in the first year of life (Dozier et al., 2008, Zeanah et al., 2001). Failure to do so puts children at risk of disrupted attachments and poor emotional wellbeing (Barber et al., 2001). Studies using administrative data have shown us that there are child characteristics which can affect a child's outcome from care; therefore it is important to investigate this further using direct and thorough assessment with the children and their foster carers. If we can understand what factors influence the relationship between a child and their foster carer, then we can help them receive the appropriate support early on in a placement to ensure that the child is

receiving the safe and nurturing care they require as soon as possible. Research in this area is often challenging due to the vulnerability of the sample, making the data from this group highly valuable. Very little research has been done with such a young sample of children shortly entering foster care, and so the importance of the data simply describing the sample should not be underestimated and form some of the key findings of this research.

1.5.2. Research aims

From the examination of the literature, it is clear that there are unanswered questions about the characteristics of young infants when they first enter foster care and how these characteristics influence the relationship these children have with their foster carers.

Overall aim

To investigate how child characteristics, when a child first enters care, are associated with the quality of relationship they have with their foster carer. This thesis will address the following specific research questions (numbered according to the order in which they appear in the thesis):

Primary research question

How are the child characteristics of age, gender, cognition, language and mental wellbeing associated with the child foster carer relationship as measured using the Parent-Infant Relationship Global Assessment Scale (PIRGAS)? (Research question 5)

Secondary research questions

1. What is the cognitive, language and mental health profile of children aged 6-60 months when they first enter foster care?
2. Do these children have several overlapping problems?
3. How does the mental health of the children in care aged 12-24 months compare with that of children in the general population?
4. Were these children showing increased risks when they were born, as shown on their birth records?

6. How does foster carer experience and commitment relate to the relationship the child has with their foster carer?

7. How important are measurement issues:

    a. Are foster carers reliable informants?

    b. Are children engaged in the tasks?

    c. How stable are the measures across time: are findings similar when the children first enter care compared with when followed up one year later?

1.5.3. Rationale for the sample

This study required the recruitment of a sample of young children entering a period of foster care. There is currently a randomised controlled trial (RCT) running in Glasgow on which I am employed as a research assistant. The RCT is assessing a mental health intervention aimed at improving placement permanency decisions for maltreated children. This trial aims to recruit all children aged between 6 and 60 months who enter a period of foster care due to child protection concerns. The trial requires all children to undergo a thorough assessment when they first enter care before they are randomly allocated to one of two services. My role, as research assistant, involves carrying out these assessments alongside my colleague, HH. This larger trial provides the optimal sample to address my research questions, utilising the data which is collected on these young children when they first enter foster care. The measures used for this trial involved assessing the children on almost all the key variables that I was interested in, as identified by my systematic review of the literature. Measures assessing physical health and resilience factors however were not part of the larger trial and therefore it was not possible to consider the impact of the child's health or resilience on the relationship they had with their carer.

2. Methods

The methods section will firstly describe the larger ongoing trial (the Best Services Trial? - BeST? Clinical Trials Identifier: NCT01485510) of which this study was a part. The published protocol for the trial is included in Appendix G (Pritchett et al., 2013a). Following will be a description of some feasibility work which was carried out to help guide the methods for the current study. The methodology for this study will then be described in detail, covering the design of the study, the participants involved, the measures and materials used, the procedure for the study and the analysis used for the results.

2.1. The Best Services Trial-BeST?

Study Design

This study is a randomised controlled trial comparing two services working with families with children who come into a period of foster care. Thorough assessments about the child's development and wellbeing are conducted when the child first enters care. The children and their families are then randomly allocated to one of the following two services.

Care as Usual – Family Assessment and Contact Service (FACS)

FACS comprises a team of social workers, which undertakes an assessment of the child and the family in order to make a decision about the child's future care. It examines family functioning and makes recommendations regarding placement outcomes for children. It is able to refer family members on to additional services (e.g. drug rehabilitation). Although FACS is an established service in Glasgow, it was previously a specialised team assessing only small numbers of children. As the delivery of early assessment services in Scotland was known to be highly heterogeneous, FACS offers a new level of consistency and therefore is considered to be 'enhanced services as usual'. Families can be randomised to FACS (as described above) and, in addition, any child whose parent or foster carer does not consent to participate in the research study therefore receives the service from FACS.

The Trial Intervention – Glasgow Infant and Family Team (GIFT)

GIFT is a structured intervention with the primary aim of making high-quality, timely decisions about the child's preferred permanent placement. The team is multidisciplinary, incorporating social workers, psychologists, a psychotherapist and a psychiatrist. Like FACS, GIFT makes an assessment of the child in the context of their relationships with their caregivers. Whilst both teams assess relationships with the birth parents, GIFT also

always assesses the relationships with foster carers. GIFT arrange referrals on to other services as described in FACS. GIFT also offers an intensive relationship focussed treatment to every birth family, which is anticipated to take between 6 and 9 months and has the therapeutic goal of rehabilitating the child back with their primary caregiver, when it is safe to do so. This treatment phase is aimed at improving the relationship between the child and their birth family and according to the outcome, GIFT recommends whether the children should return home or be adopted.

The children are then assessed again one year later, with the main outcome being their mental health. At baseline, the assessment is completed for all children with their foster carers. At follow-up, the assessment is completed with the child's primary caregiver at that time who may be the birth parent, the adoptive parent or the foster carer (the same or different from the foster carer at baseline). The procedure is outlined below (Figure 2).

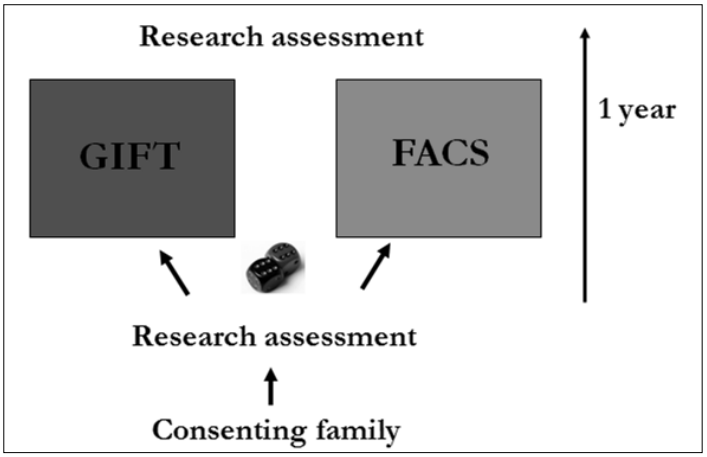


Figure 2. Procedure for randomised controlled trial

2.2. Feasibility period

Due to the scale and implications of this study, it was important to carry out preliminary work to answer two main questions: firstly, were the methods of recruitment to this study adequate? And secondly, was the chosen method of assessing mental health suitable? The feasibility period took place between December 2011 and May 2012 and any child who entered care due to maltreatment aged between 6 and 60 months during this period of time was eligible.

Forty-one children aged 6-60 months came into care and entered the study over the five-month period. They were assessed using three of the measures which were used in the main trial: the Infant Toddler Social Emotional Assessment (ITSEA), the Disturbances of Attachment Interview (DAI) and the Parent-Infant Relationship Global Assessment Scale (PIRGAS). These are outlined in full later.

The results of the feasibility period examined how many children of those entering care met study eligibility criteria as well as rates of participation. The assessment measures were examined by looking at how children scored on the key measures. If the ITSEA produced similar scores for all the children in the sample, then it might be that it was not detecting the potentially subtle differences between these children. It was therefore important to look at the range of scores which were obtained within this sample. Finally, the feasibility period aimed to identify any aspects of the procedure which were not working successfully, to assess whether the measures needed to be changed or amended or whether administration needed to be altered.

2.3. Main study

2.3.1. Participants

All parents (or recognised parental guardians) with a child aged between 6 and 60 months who came into a period of care due to child protection concerns were invited to take part in the study. Children were only excluded from the study if their primary caregiver was unavailable to take part in the intervention (such as long-term imprisonment, death, being uncontactable by services or research team for 3 months or more)[5]. One hundred and fourteen eligible children entered foster care between May 2012 and March 2014 (following the implementation period). Of these 114, the birth parents of 17 opted out of the study and the foster carers of 6 opted out. An additional 21 children were lost to the study, with the court deciding that they should be returned home to either birth parents or kinship carers prior to assessment. Over the time period, we obtained consent from over 75% of those asked who were eligible to take part in the study, and over 60% of all the children aged 6-60 months who entered foster care due to maltreatment over the recruitment period. This recruitment procedure is outlined below (Figure 3). The final sample was made up of the remaining 70 children, of whom 97% (n=68) attended the assessment with a female

[5] Children were also excluded from the main RCT if the child had severe developmental delay, which was identified following assessment, but were included in this current study.

primary caregiver. The foster carers had a range of experience, having been foster carers for between 0 and 34 years (mean 6.24 years) and having had a wide range in the number of children whom they had cared for, from it being their first, up to over 200 (mean 20.29).

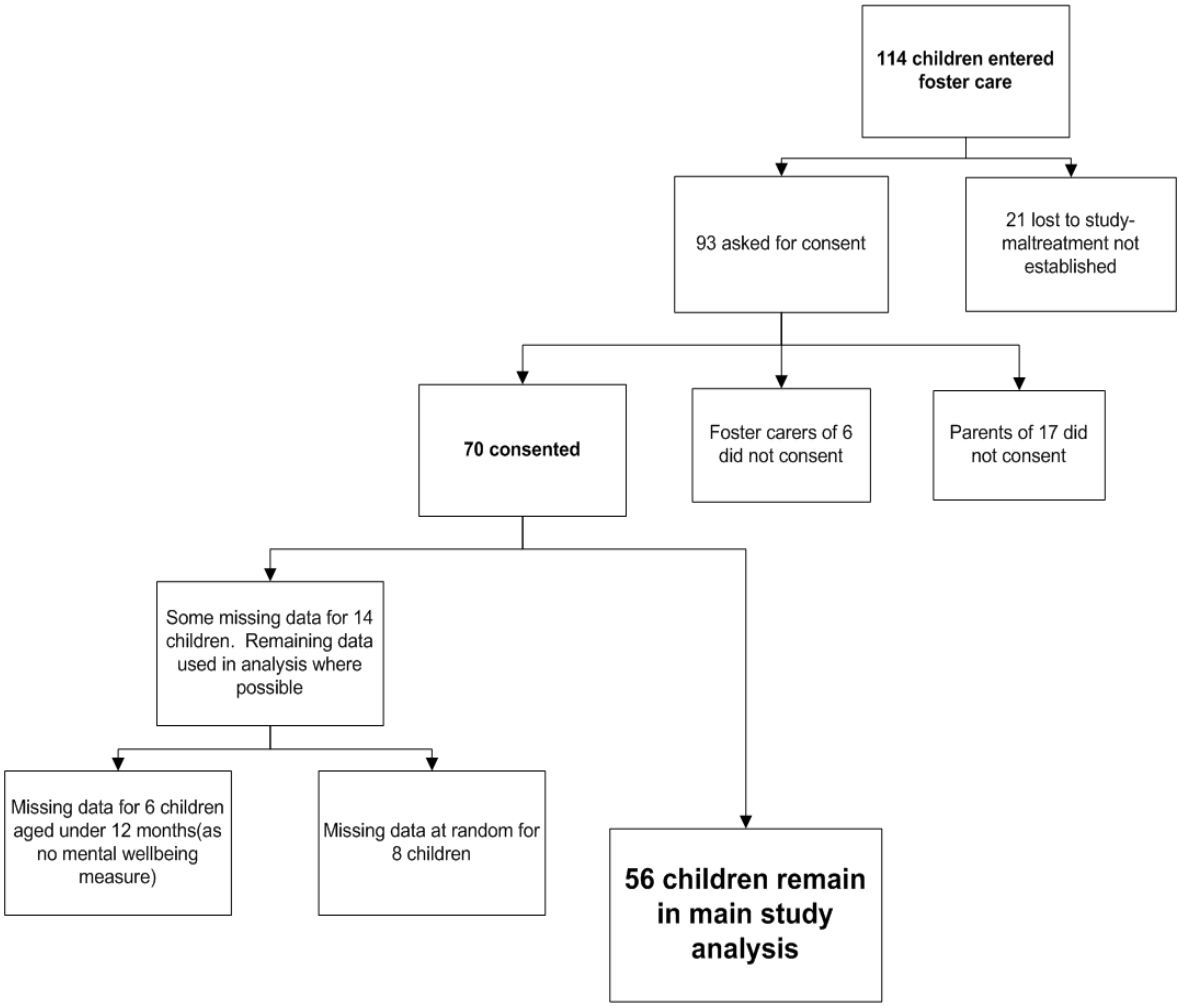


Figure 3. Recruitment flowchart for main study. May 2012-March 2014

2.3.2. Design

The data for this current study primarily come from the trial baseline assessment, when the child first entered care and before they received a service, therefore the random allocation to service team was not of interest in this current study and the data describe a cross-sectional examination of the children when they first enter care.

The study aimed to describe the characteristics of these young children entering care, before assessing how these characteristics were associated with the quality of the

relationship they had with their foster carer. The children were assessed on their early health, through birth records, their demographics, through their foster care records, as well as their developmental attainment and mental health, through face to face assessment.

This main question, assessing how child characteristics were associated with relationship quality with their foster carer, was a within-subjects design. The exposure variables were age of the child (in months), gender of the child (male/female), developmental stage (percentile score on the Bayley/WPPSI), language ability (percentile score on the Bayley/WPPSI) and mental wellbeing of the child (score on the ITSEA/SDQ). The outcome measure was an indication of the quality of the relationship between the child and the caregiver (score on the PIRGAS).

2.3.3. Measures and materials

Demographics

The child's age when they entered care, the child's gender and the child's ethnicity were all taken from their foster care records, held by the child's social worker. In addition, information relating to the reasons why the child entered care was also accessed through the case records. The postcode for the birth family from which the child had been removed was also recorded and used to calculate the level of area deprivation in which the family were living. This was done using the Scottish Index of Multiple Deprivation (SIMD, 2014), which is an area-based measure that identifies where the worst concentrations of deprivation are and how areas compare to each other. SIMD is calculated using data on income, employment, health, education, skills and training, housing, geographic access to services and levels of crime. Areas are ranked by postcode indicating where each area lies and then these can be sorted by vigintile, decile or quintile. SIMD quintile was used in this study, whereby every postcode is ranked 1 (most deprived) to 5 (least deprived), with a fifth of the addresses included in each quintile.

Early health

Early health was assessed by scrutinising the child's mother's maternity in-patient and day case dataset (SRM02). The SMR02 collects data every time a mother attends a medical appointment relating to their pregnancy and includes information on mother and baby characteristics. For this study the following variables were accessed: birth weight, gestational age, mother's age and evidence of drug use during pregnancy.

Measures of child development

Bayley Scales of Infant and Toddler Development (BSID-III)

The Bayley Scales are used to measure a range of aspects of a child's development (Bayley, 1993). They assess cognitive ability, language ability (receptive and expressive) and motor skills (fine and gross) of children aged 0- to 3-years-old by engaging them in developmental play tasks which take between 30 and 90 minutes to complete. In addition, caregivers can be asked to complete a social and emotional subtest and an adaptive behaviour questionnaire. Children can be compared with normative samples in each of the domains. In this study the Bayley Scales were used with children up to the age of 30 months and the children were only assessed on the cognitive and language components of the measures. There has been mixed evidence of the validity of the Scales, with the author demonstrating reliability and validity (Bayley, 1993) while other authors have shown that it underestimates developmental delay (Anderson et al., 2010).

Wechsler Preschool and Primary Scale of Intelligence (WPPSI 3rd edition)

The WPPSI is a scale of intelligence producing both a cognitive score (IQ) and scaled subscores (Wechsler, 1989). It can be used with children aged between 2 years 6 months and 7 years 3 months, with a version for children aged between 2 years 6 months and 3 years 11 months and another for children aged between 4 years and 7 years 3 months. The younger version comprises 5 subscales producing a verbal score, performance score and when combined a full scale IQ. In addition it produces a general language composite, which was used to describe the language ability of the children in the sample. The older version of the WPPSI comprises 14 subscales, of while 7 are required to calculate the full scale IQ for the child, while the others are supplementary. In this study, the 7 core subscales, plus an additional 2 producing the general language composite were used with the children. The WPPSI has been shown to be a good measure of general intelligence producing reliable and stable IQs (Kaufman, 1992). It was completed with every child aged 30 months and over in this study.

Parents' Evaluation of Developmental Status (PEDS)

The PEDS is a developmental screening test which can be used with caregivers of children aged 0-8 years old (Glascoe, 1997a). It contains 10 questions that take about five minutes to complete. The questionnaire consists of an open-ended question about the caregiver's

concerns followed by questions probing the different areas of the child's development where they may have concerns. The PEDS results in the children being classified as in one of three types of risk group: high, moderate, or low risk of developing problems (Glascoe, 2003). The PEDS has been shown to have moderate sensitivity (0.79) and specificity (0.80) in detecting developmental problems (Glascoe, 1997b). The PEDS was used with every child in the study.

Measures of mental health

Strengths and Difficulties Questionnaire (SDQ)

The Strengths and Difficulties Questionnaire (SDQ) is a 25-item screening questionnaire covering common mental health problems in children; it has been well validated against other screening instruments (Goodman and Scott, 1999) and against psychiatric diagnosis in 3- to 16-year-olds (Goodman et al., 2003). It has also been shown to be an effective screening tool for emotional and behavioural disorders in preschool children, with evidence that it functions effectively with 2-year-olds (unpublished personal communication, Angold, 2014). It covers 5 domains, with 5 questions for each of the following areas: emotional problems (anxiety and depression), conduct problems, hyperactivity, problems with peer relationships and prosocial behaviour (caring, helpful behaviour). In this study it was used to classify the children aged over 24 months.

Development and Wellbeing Assessment (DAWBA)

The DAWBA is a screening interview for psychiatric diagnoses. It takes around 50 minutes to complete (Goodman et al., 2000). It covers a wide range of disorders including emotional, behaviour and hyperactivity disorders. It can be used with caregivers of children between the ages of 2 and 17, and was used with every child over the age of 2 in this study. The DAWBA can be completed either using a paper format or, as in this study, using a computerised format. The child's caregiver is asked a number of closed questions, for example 'does he ever worry?', which, depending on the answer, may lead to a section being skipped or to further questions, for example, about how often the child worries. The DAWBA has been shown to be a valid measure of child psychopathology (Goodman et al., 2000), and has been used in nationwide surveys of child and adolescent mental health (Meltzer et al., 2000).

Infant Toddler Social Emotional Assessment (ITSEA)

The ITSEA is a 166-item questionnaire for completion by the primary caregivers (Carter and Briggs-Gowan, 2000). It can also be administered as a structured interview (and then takes 25-30 minutes to complete). It provides an assessment of the child's social and emotional development and any behavioural delays covering four domains: externalising, internalising, dysregulation and competence. It was developed for use with children aged between 12 and 36 months and has been shown to have acceptable test–retest and inter-rater reliability within this age group (Carter et al., 2003). It has also been previously used and shown to be an acceptable measure with children older than 36 months (Carter and Briggs-Gowan, 2002). It was used in the present study with every child aged 12-48 months, covering the age range for which there is normative data available.

Measures of attachment disorders

Disturbances of Attachment Interview (DAI)

The DAI is a 12 item semi-structured interview which is administered by clinicians to a child's caregiver (Smyke and Zeanah, 1999). It takes around 20 minutes to complete. The DAI is made up of 3 sections covering Reactive Attachment Disorder (RAD) disinhibited behaviours, RAD inhibited behaviours and secure base distortions (for example, excessive clinginess with their caregiver or worrying about their caregiver in a role-inappropriate manner). Responses to each of the 12 items are coded on a three-point scale: clearly demonstrates a behaviour, sometimes or somewhat demonstrates a behaviour, and rarely or never demonstrates a behaviour. The DAI scales have demonstrated strong internal validity for both types of RAD (Cronbach $\propto$ 0.83 and 0.80, respectively) and excellent inter-rater reliability (κ 0.88) (Smyke et al., 2002). It was used with every child over age 12 months in this study.

Waiting Room Observation (WRO)

The Waiting Room Observation is a structured observation of child behaviour with strangers in a new waiting room setting (McLaughlin et al., 2010). It has been shown to discriminate between children with RAD and those without (McLaughlin et al., 2010) as it identifies key relationship behaviours, for example, over-friendliness with strangers. It was used with every child over age 12 months in this study.

Measures of the child/carer relationship

Parent-Infant Relationship Global Assessment Scale (PIRGAS)

The PIRGAS is a scale developed to assess the quality of the relationship between a child and their caregiver (ZeroToThree, 2005). The relationship is observed and assessed by clinicians and rated 1-100 on a scale from 'dangerously impaired' to 'well-adapted'. In this study the infant–caregiver behaviour was observed during free play as well as a short mealtime video and was rated on the PIRGAS scale by psychiatric trainees who were specifically trained to do so. The PIRGAS score at 20 months has been shown to predict scores on the CBCL at 24 months (Aoki et al., 2002). PIRGAS was used with every child and foster carer in the study and was rated by trained coders who were not directly involved in the research assessment and therefore were blind to all the other measures in the study. Twenty-five videos were double-coded to assess inter-rater reliability, revealing an intra-class correlation coefficient of 0.848, indicating strong reliability between raters.

This is my baby (TIMB)

The TIMB is a semi-structured interview used to measure the commitment foster carers have to the children in their care (Bates and Dozier, 1998). It contains 10 questions covering 3 overlapping constructs of commitment, acceptance and belief in influence (i.e. the impact which the carer believes they are having on the child). It also asks questions relating to the level of experience which a foster carer has, e.g. the number of children they have cared for and how long they have been a foster carer. The TIMB has been shown to have good predictive validity for determining length of time in placement (Dozier and Lindheim, 2006), as well as good test–retest reliability (Lindheim and Dozier, 2007). This was completed with the foster carers of every child in the study.

The measures used across the age range of the sample are tabulated below (table 4).

Table 4. Assessment measures by age

		6-11 months	12-23 months	24-29 months	30-47 months	48 months+
Direct assessment with child	**BAYLEY**	✓	✓	✓		
	WPPSI				✓	✓
Foster carer report	**PEDS**	✓	✓	✓	✓	✓
	SDQ			✓	✓	✓
	DAWBA			✓	✓	✓
	ITSEA		✓	✓	✓	
	DAI		✓	✓	✓	✓
	TIMB	✓	✓	✓	✓	✓
Observational measures	**PIRGAS**	✓	✓	✓	✓	✓
	WRO		✓	✓	✓	✓

2.3.4. Procedure

Both the parent and foster carer of every child aged between 6 and 60 months who came into care due to child protection concerns in Glasgow was approached and asked to take part in the research study. A single organisation, Families for Children, place all children who come into the care system in Glasgow and they identified any children within the eligible age range (6-60 months). A designated member of staff within Families for Children then contacted the parent of the child to provide them with information about the study. Information was given to the parents in the form of a leaflet as well as a DVD. Parents were given at least 24 hours to consider the study before being asked to consent. They were asked to consent to taking part in the research study and, in addition, there was opt-out consent to routine data collection. Consent forms were read aloud to all parents when required, to overcome any literacy issues, which were likely to be high in such a high-risk population. In addition to consent from any one adult with parental rights of the child, consent was also obtained from the foster carer with whom the child had been placed. They were provided with an information leaflet and consent form (but not a DVD). Both the birth parent and foster carer had to consent in order for a child to be enrolled in the trial.

Following the child coming into care, a period of 4 weeks was allowed before an assessment took place, with the average time between entering care and assessment being 10.5 weeks (range 4-26 weeks). Families for Children would alert the research team once consent had been obtained and inform them of the date when the child had entered care. This four-week period was given to allow for the carer to get to know the child as well as to allow time for the child to 'settle in' to their new home.

After this settling-in period, the child and carer were invited to a research unit within the local children's hospital for an assessment. The assessment procedure is illustrated in the flowchart below (Figure 4). The assessment would be arranged over the phone, and if the carer agreed, then the research team would post out the ITSEA to be completed prior to the assessment. Crèche facilities for any other children were also provided where necessary. The child and carer were greeted at the building by a member of the administrative staff and shown into a waiting room where a researcher was already sitting quietly. The researcher completed the WRO while sitting in the waiting room. A few minutes were left to elapse before the second researcher would enter the room and greet the family. They were then taken to a room with a box of toys in it. They were asked to play normally, and the carer was told that this was to allow the research team to observe how the child played with them. Although there were different toys for different age groups, all boxes contained a book, a vehicle, a telephone, bubbles, a puzzle and a construction toy. This interaction was recorded through a one-way mirror and scored later using the PIRGAS. The child and carer would play for approximately 10 minutes to allow the child to feel comfortable in their new surroundings.

Following this, if the child was between 6 and 30 months, a researcher would conduct the Bayley with them. The carer remained present in this instance. If the child was between 30 and 60 months, the researcher would conduct the WPPSI with the child. For the WPPSI the carer does not need to be present, and so the carer would enter a different room with the second researcher. The carer would then be asked to complete the PEDS, TIMB, DAI, and then the SDQ and DAWBA (if the child was older than 2). For children under the age of 2 years, the Bayley would be completed first, and then the foster carers would be asked to complete the questionnaires while the child was looked after by another researcher. Upon completion of both the cognitive assessment and the questionnaires, the child and carer would be invited to stay for lunch and this would be recorded and scored later using

the PIRGAS. Lunch was provided for child and foster carer and contained sandwiches, yogurt, crisps, fruit and juice. At this stage, they were also given £20 for their participation in the study as well as any travel costs to attend the assessment. If at any time during the assessment the child became upset or very restless, then the carer would take the child home and the researcher would complete any remaining questionnaires over the phone or on a home visit. This happened in approximately 5% of the assessments.

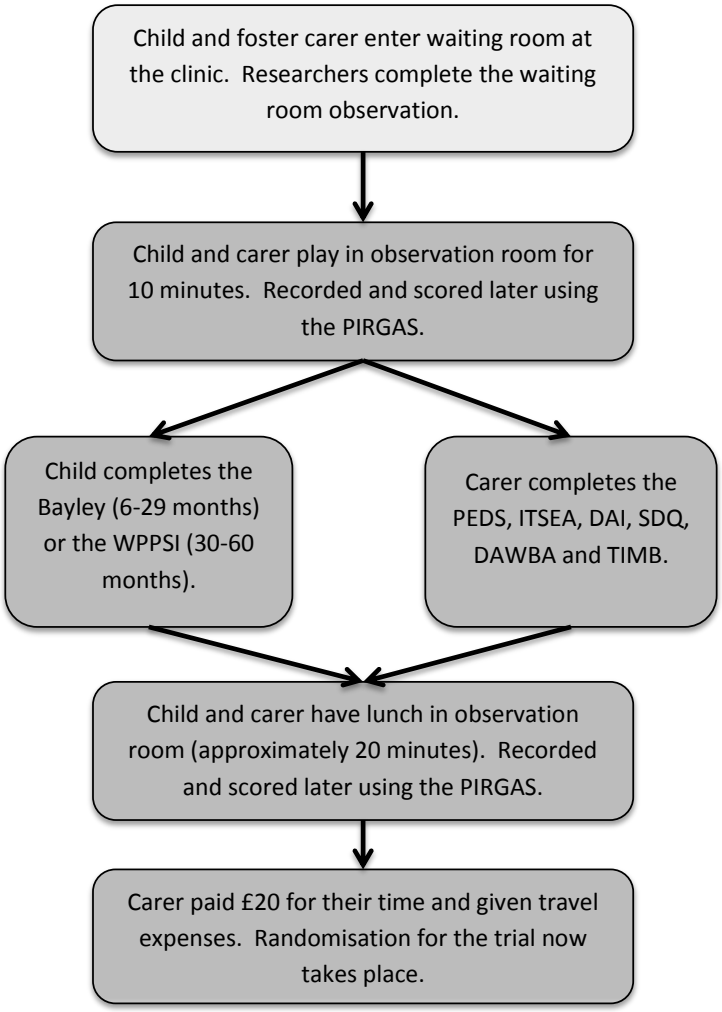


Figure 4. Assessment procedure flowchart

A year later this procedure was repeated. The child was invited into the research unit accompanied by their caregiver. This may be the same carer as at time one, or alternatively could be a birth parent, kinship carer or an alternative foster carer if the child had changed placement. While the follow-up assessments were not part of the main

analysis of this study, the results of the small number of children who had reached this stage are also discussed.

In addition, the SMR02 maternity record for the children was accessed. This was done through the Information Services Division (ISDScotland, 2014) where the data collected on every Scottish citizen is routinely stored. This was accessed following appropriate ethics approval, approval from the Caldicott Guardian who supports work to enable information sharing where it is appropriate to share, and advises on options for lawful and ethical processing of information. Finally approval was required from the local safe haven site that organised the data linkage. Following approval, it was possible to go on-site, where the SMR02 records for the children could be accessed and analysis could be conducted. The output created was then issued separately.

As the literature has revealed a gap in knowledge regarding what we know about the mental health of very young children (aged 12-24 months), we also sought to recruit data from children within this age range from the general population. These children were recruited through nurseries and local-council-run sessions aimed at parents with young children (for example bounce and rhyme). Parents were approached by a researcher (RP or WM – another member of the research team), and those who consented were asked to complete the ITSEA. They were given a small box of chocolates as a token of thanks. The only inclusion criterion was that the children were living with their birth parents. As the deadline for ceasing data collection approached, children were purposefully sampled in order to attain a group matched on age and gender to that of the in-care group.

2.3.5. Analysis

The characteristics of the children entering care were described in terms of the age, gender and ethnicity of the sample, the reason for entering care and the level of deprivation which the children were living in prior to entering foster care. The characteristics of the children were then assessed face to face when the child entered care. The group were then examined on how they scored on the assessment measures and, where possible, how these compared with those of the general population. After describing the data, they were investigated for overlap between the problems, investigating whether children with problems in one area were more likely to have problems in another area. The child's birth

records were also examined to identify whether children coming into care could have been identified as 'at risk' from their early birth data.

As there is little known about the mental health of very young children, differences between the 12- to 24-month-old sample and that of an age and gender matched sample from the general population were explored.

The main analysis used multiple regression to look at which child factors (age, gender, cognitive ability, language ability, and mental wellbeing) were associated with the quality of relationship which the child had with their carer.

Analyses were then conducted to assess the validity of the assessments. It was of interest to investigate whether the assessments were measuring what they were supposed to be measuring. Firstly an investigation was conducted into how reliable the foster carers were as informants, by comparing the level of worry which they had about the child and the degree of difficulty the child was having according to the questionnaire items. Also investigated was whether the child's engagement played an important role in how they scored in the cognitive tests by examining how engagement related to the child's score. There were a small number of children (n=25) for whom there were follow-up data available, when the assessment procedure was repeated a year later. These data are described in terms of the children's developmental level as well as looking at what within subjects changes had occurred over the year. Finally the data of one child is described in more detail, to provide a case study illustrating the complexities of these assessments and measures in these very vulnerable children.

2.3.6. Statistical considerations

Power calculations

Power calculations are often done to establish the sample size required to ensure that a study will detect an effect of a given size. Power analysis uses data from previous studies to make these predictions. This study was an exploratory study which is unlike anything which has been done before. It was therefore not possible to perform power calculations at the start of this study. Where suitable power calculations will be conducted to explore the likelihood that results may be due to a lack of statistical power. Once an effect size is

known, it is possible to calculate the required sample size at which point the effect would become significant. If that required sample size has been obtained then one can be confident that the result is not due to a lack of statistical power. It is also hoped that the results from this exploratory study will provide data to facilitate power calculations for future research in the field.

Multiple testing

Throughout the analysis it was desirable to conduct multiple comparisons and tests with the different assessment measures. As this research was exploratory, it could not be predicted with certainly which areas of a measure might be tapping into the key behaviours which might be important. It was preferable to compare how the sample was doing compared with the general population on *every* domain within a measure. It might be argued that corrections should be made for multiple testing in cases such as this. With multiple testing, one increases the chances of seeing a rare event and so corrections can be made to the significance threshold which is used. There are different methods of doing this, with the most common and conservative method being the Bonferroni correction, which involves dividing the p-value by the number of comparisons being made and thus making it harder to reach the level of significance. Many consider this method too conservative, however, (Field, 2009) and so opt for other methods, such as Holm's sequential Bonferroni correction, to adjust the p-values. This works by ranking the p-values for all the paired comparisons from 1 to n (in this case, 10) in ascending order of size and thus decreasing the order of significance (Holm, 1979). While there are different methods for correcting for multiple testing, it was decided, with consultation with a statistician (MM), not to correct for multiple testing within this thesis. While it is crucial to account for multiple testing when trying to confirm a hypothesis for a clinical trial, hypothesis testing within an exploratory study such as this makes corrections too conservative. Results should be interpreted with this in mind.

3. Results. Feasibility

Due to the scale and implications of this study, an implementation period took place between December 2011 and May 2012. The purpose of this feasibility period was to answer two main questions; firstly were the methods to this study adequate? And secondly, was the chosen method of assessing mental health suitable?

3.1. Recruitment

Forty-one children aged 6-60 months entered care over this five-month period. Two of these children were then discovered to be ineligible. One child was removed due to severe developmental delay, which was an a priori exclusion criterion for the study (see below). The measurements used during the assessment were not suitable for children under the developmental age of 6 months and the child was later found to be so delayed that the measures used by the assessment teams would also not be suitable, yet the level of delay was not evident at the time when consent was given for the child to participate in the study. Another child was removed from the study as the mother was unable to give informed consent. Due to the severity of her addiction problems, it was not possible to speak to her when she was not under the effects of drugs and therefore it was not possible or ethical to try to gain informed consent in this instance.

Of the 39 remaining children who were eligible, five were lost to the study. When a child enters care due to maltreatment, it is usually following the decision of a professional who has deemed the home environment unsuitable for the child at that time. If it was suspected that the child had been maltreated then our research team was alerted by Families for Children – the centralised social work service processing all care placements. Following a child entering care, a formal decision needs to be made as to whether the child should remain in care or should return home. At this point the parents can argue that their child should be returned and if the evidence is not clear that there are child protection concerns then the child may return home. Within these five months, five children returned home in situations like this, where the grounds for maltreatment were not clear, and so the child could not participate in the study. One further child could not participate due to legal complications: one of the child's birth parents opted into the study, while the other strongly opposed taking part. This caused tension within the legal framework and ultimately led to the court system refusing participation for this family. In addition, the birth parent of one child opted out of participation. The recruitment procedure is outlined below (Figure 5).

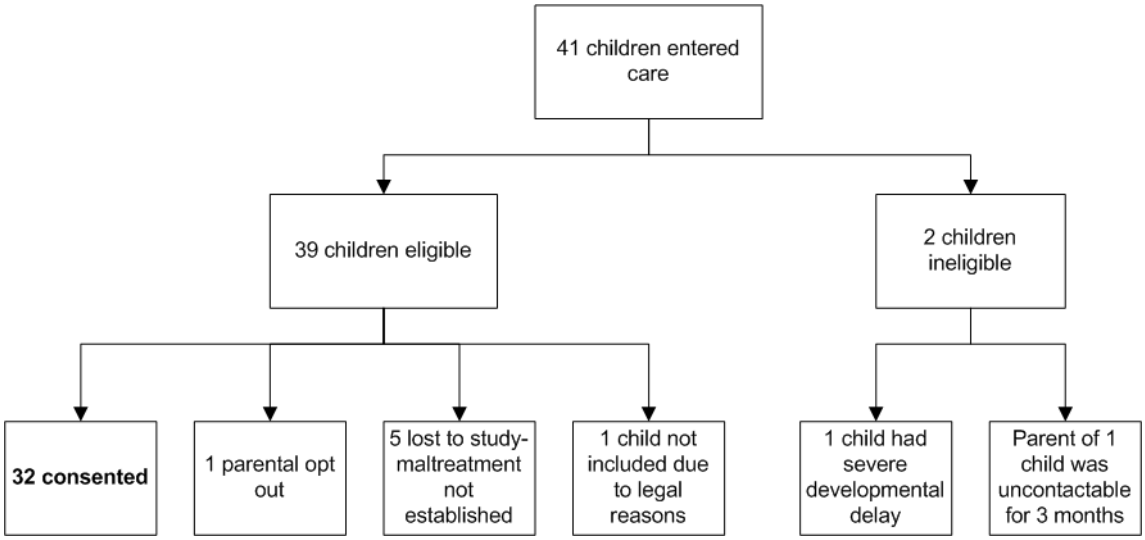


Figure 5. Flowchart of recruitment for the feasibility period. December 2011-May 2012

This initial recruitment left only 33 children eligible to be consented despite 41 entering care with 8 children, who despite initially appearing to be eligible for our study were not able to take part, two of whom had to be removed after randomisation. These helped in re-defining exclusion criteria to help us clarify which children would be eligible to take part or not.

The eligibility criteria became as follows: all parents (or recognised parental guardians) with a child aged between 6 and 60 months who come into a period of care due to child protection concerns are invited to take part in the study. Children are excluded from the study if:

1. they have a profound learning disability (as assessment outcome measures would not be appropriate), and/or
2. their primary caregiver is unavailable to take part in the intervention (for reasons such as long-term imprisonment, death, or being uncontactable by services or the research team for 3 months or more).

Of the 33 families who were asked to consent, one parent and no foster carers opted out of the study and the remaining 32 (97%) consented to take part. However despite this very

high opt-in rate, we were only consenting 78% of those children who initially came into care. These initial figures were very important in predicting the numbers of children which we would be likely to recruit for larger trials.

Valuable lessons were also learnt in relation to the complexities in recruiting this vulnerable sample. The period after a child has been removed is obviously very difficult for families. The families are likely to be living in difficult circumstances which have brought them to the point of having their child taken into care and then they have to deal with the additional stress and anxiety of the child actually being removed. During this time they are involved with a number of different legal processes, the majority of which involve compulsory involvement for the parents. It was important for the research team to ensure that the parents understood that taking part in the study was not compulsory and that they could opt out without affecting the care that they and their child would receive.

Informed consent was another thing which needed to be considered. We had to be certain that the parents really understood what was being asked of them. This was a particularly vulnerable sample, and so if the parent had learning difficulties or drug problems, for example, the research team had to be aware that there might be times when the parent would not be in a position to consent or might need additional support from an impartial advocate to ensure they fully understood the consent material.

Asking parents to consent to research shortly after their child has been removed is very rare. The difficulties encountered were captured qualitatively by another member of the research team (FTH). The work which was carried out aimed to explore the reasons why parents did consent to the study and how they felt about the information which they had been given. The outcome of this work illustrated the importance of having a highly trained individual involved in the consent, someone who would understand the legal processes and the situation the parent was in, as well as having the skills to make certain judgements regarding risk assessment for themselves as well as judgements around the parent's ability to consent. It was on this basis that a full-time social worker (JB/RB) was employed to work on the main study and this level of expertise proved crucial for ensuring that the parents were giving truly informed consent for the study.

3.2. Assessments

The assessments for the feasibility period were more basic than those used for the main study. Due to funding constraints, they involved only the key measures: the Infant Toddler Social Emotional Assessment (ITSEA), the Disturbances of Attachment Interview (DAI) and the Parent-Infant Relationship Global Assessment Scale (PIRGAS), described previously in the methods section. The ITSEA involves asking carers to rate how often certain statements refer to their child, for example, 'is often sad'. The carer can respond with one of three responses, 'not at all/rarely;' 'sometimes/somewhat true'; or 'very true/often'. It quickly became clear that foster carers had difficulty with these questions, often comparing them to other (also maltreated) children they had cared for rather than typically developing children, or making allowances for what had happened to the child: for example, carers responded with statements, such as '*No, he's not often sad, not like the other foster child I had, he is coping well with what he's going through'*. Answers like these prompted the research team to devise the following script in order to aid the foster carers in responding to the questionnaire more accurately;

'I'm going to be asking you questions about your child's behaviour and how he/she interacts with other people. It's really important that we get an idea of how your child is in comparison with other children of his/her age. So, as we go through the questions I'd like you to try and compare against children, for example, in your child's nursery or neighbourhood, rather than against other looked-after and accommodated children. It can also be difficult not to allow for what a child has been through. For example, we might ask if he/she is upset a lot of the time, and you don't feel they are, considering what they have been though, but it's important to think of whether they are upset more than most children their age.'

Piloting this questionnaire with these foster carers proved crucial in helping obtain questionnaire data which should be more readily comparable to the general population.

Whenever a questionnaire is used for the assessment of mental health, it would be expected that results would cover a wide range. If the ITSEA had produced similar scores for all the children in the sample, then one possibility would be that it might not be detecting subtle differences between the children. It was important to look at the range of scores which were obtained within the sample. The ITSEA produces a number of different scores,

including a total score for atypical behaviour and a total score for social relatedness. The atypical behaviour score is an average score of how many behaviours a child has that are unlike behaviours one would expect in a typically developing sample. This score ranges from 0 to 2, with a mean score of 0.27 in this sample (figure 6) with almost 40% having a score of 0 (no presence of atypical behaviours). The remaining 60% scored between 0.1 and 1.3, of which less than 20% were over 0.5. These subtle differences in score allow us to clearly see the severity of problems which a small minority of this sample are showing.

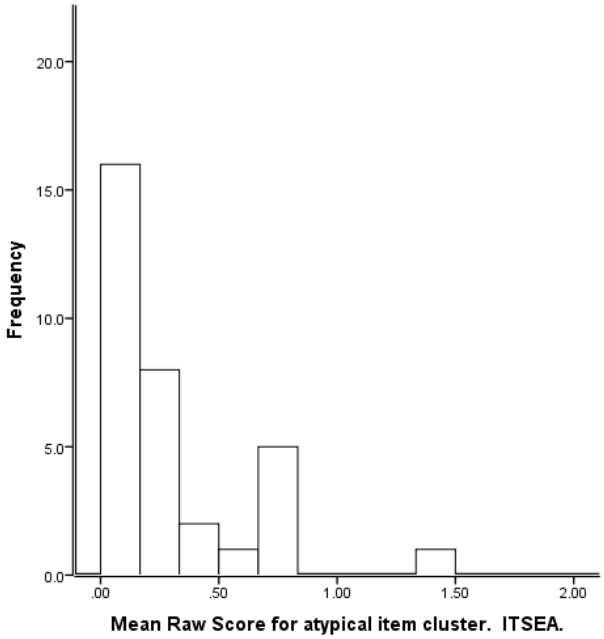


Figure 6. Range of scores on ITSEA atypical item cluster

Social relatedness provides an overall positive score, again scored 0-2, with 2 showing the presence of more positive behaviours. In this small sample the score ranged from 0.7 to 2 (Figure 7) with an average score of 1.6. In this sample 6% showed scores of less than 1, again allowing us to identify the small number of children with potentially severe difficulties in this area. Overall, it does seem that the ITSEA is able to differentiate between children in the sample, showing a wide range of scores in both positive and negative domains.

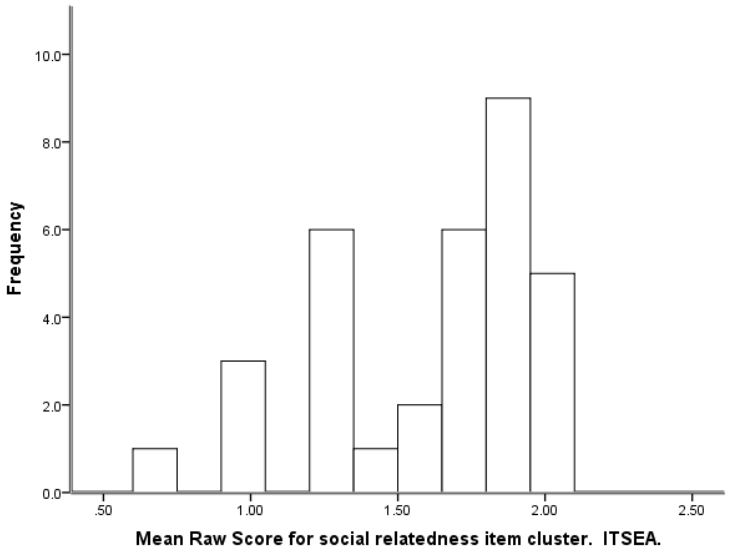


Figure 7. Range of scores on ITSEA social relatedness item cluster

The Disturbances of Attachment Interview (DAI) was also used with the foster carers of the children. This questionnaire aims to identify attachment disorder symptoms, which are associated with early adversity in childhood. It is expected that the children in the cohort would be at risk of developing attachment-related problems due to their early history. This questionnaire aims to assess whether these children have formed selective attachments within the early stages of entering care, by asking questions such as 'Does s/he have one special adult that s/he prefers?' Previous research has suggested that children would have formed new attachments within this period, learning that their foster carers are special people who are there to provide for them and meet their needs. Conducting the DAI with foster carers in the feasibility period allowed the assessment of whether these children would have developed a sense of security shortly after entering care. If some children were showing selective attachments by this stage, then differences in scores would be meaningful. All but 3 children had clearly formed selective attachments with their caregivers by this stage, demonstrating that, generally, the 'settling in' period was long enough for a meaningful measure to be taken. The range of scores obtained was also examined for this questionnaire. The DAI includes 12 questions, all of which can be scored 0, 1 or 2 with the higher score indicating more of a problem. The total score can therefore range from 0 to 24. Scores were found to range between 0 and 19 in the sample with an mean score of 8 (Figure 8). This range of scores demonstrates that children do differ in their attachment disorder symptoms and that this difference can be witnessed shortly after a child enters foster care.

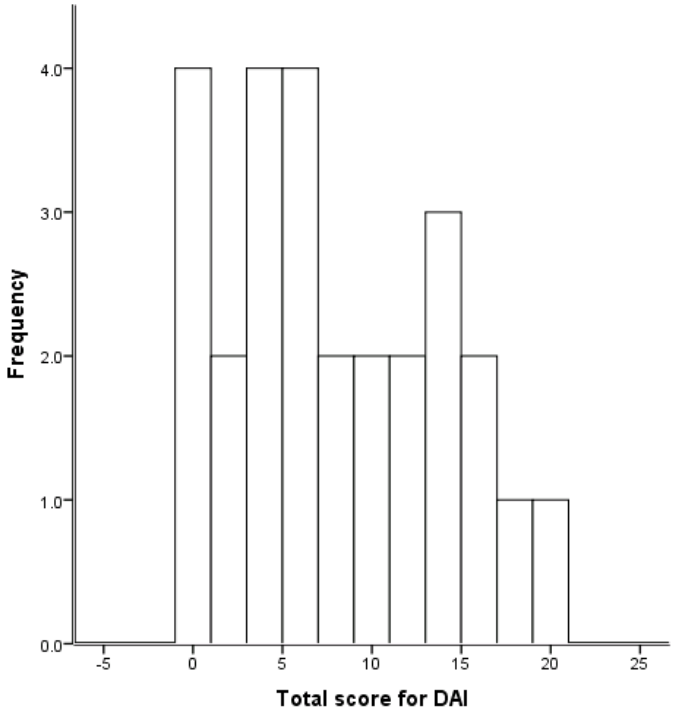


Figure 8. Range of scores on the Disturbances of Attachment Interview

In addition the child and carer were videoed, with the videos then being coded using the Parent-Infant Relationship Global Assessment Scale (PIRGAS). During the feasibility period these videos were taken in the child's foster home. A short video, between 5 and 10 minutes in length, was taken of both the child and the carer playing and of the child having a small meal. It was found that carers were happy to engage in this and all were happy to be filmed, thus making this a measure which could feasibly be used in this way. The researchers did however notice potentially confounding factors which hugely varied between the children[6]. For example, some carers left the children alone when they ate while others sat with them. While this is interesting in other ways, it does not allow for the quality of the relationship to be directly assessed. In terms of the play video, it was also found that the type of play varied dramatically, with some carers offering minimal interaction, leaving the child to play almost entirely independently while others were very hands-on, directly leading the play themselves. These differences created difficulties in using the PIRGAS in its present form, as it relied on interaction between the two relationship partners. In addition, some carers had to deal with mild distress from the child

[6] These factors were observed anecdotally by the researchers and so it was too late to collect any data systematically on how prevalent certain behaviours were.

during their play video, for example resulting from their suggesting a change of toy, whereas others did not. This resulted in the videos not always being comparable. The parent–child relationship during play time needs to be assessed differently compared with its assessment when the child is upset. A further consideration was the effect of the video camera. As these videos were taking place in the carer's house, they were filmed using a camera on a tripod. The children were able to watch the researcher assemble the camera and then have them in the room during the play and mealtime video. Although the procedure was consistent across the sample, carers often commented that the child was acting very differently because of the presence of the camera and/or researcher whereas other children appeared 'unfazed'. These videos were rated independently and the raters commented on the difficulties in using the PIRGAS due to the inconsistencies within the sample.

Again it was important to look at the range of scores which were obtained using the PIRGAS during the feasibility period. The PIRGAS produces a score from 0 to 100 which can be used to describe the relationship between the child and their carer. Scores in the assessments were found to range from 37 to 100, suggesting that there are differences present which can be captured using this measure.

All the observations made during the feasibility period resulted in a standardised procedure for filming the PIRGAS. For the assessments following this period, the child and carer were filmed in a university department room with in-built cameras. The researchers could watch from behind a two-way mirror and move the cameras from outwith the room. Families were also given a standard set of age-appropriate toys, including bubbles, a book, a telephone, a puzzle and a vehicle. The toys were selected so that they could either be used by the child themselves or with the carer in an interactional fashion. Due to the size of the room, the child and carer were always in shot and so even if the carer failed to interact directly with the child in play, other factors, such as eye contact, could be assessed. After playing, the child was always asked to help tidy up the toys, so there was an opportunity to observe limit-setting by the foster carer and there was the potential for mild distress to be induced for each child. The child and carer were given a standard lunch: sandwiches, crisps, yogurt, juice and fruit, served at a small table in the observation room so that they were always both present for this videotaped mealtime. The raters confirmed that the new consistent quality of these videos aided their ability to code these effectively.

The feasibility period provided an important opportunity for refining the measurements used in the study. It was also possible to identify potential areas of difficulty in order to make amendments prior to the main recruitment period.

3.3. Expertise

There were further personal benefits which were gained during this period. The research team gained experience in administering the measures, and in working with these vulnerable children. The team became more used to the questions which would be asked by families, allowing them to provide better developed and more consistent responses. All these benefits enabled the research team to grow in confidence, providing us with the experience to conduct these important assessments with these vulnerable children when they first came into care.

3.4. Conclusions

This study involved a feasibility period of 5 months to assess recruitment and ensure suitability of the main outcome measures. In terms of recruitment, despite finding that a considerable number of children became ineligible after entering care, the high levels of consent meant that recruitment levels were good. The findings provided sufficient information to plan for future recruitment, both in terms of time scales and funding opportunities. This period also allowed for the suitability of the outcome measures to be assessed. The observations made during the initial recruitment allowed for protocol changes to take place before the main stage of recruitment. Once a study has started, protocol changes should ideally be limited if not completely avoided. This emphasises the importance of a feasibility period which should reduce changes to the procedure being made once the main study has begun. Overall, these 5 months proved vital for the study ensuring that the assessments were suitable and that the research team were ready to embark upon the important task of the main stage assessments.

4. Results. Child characteristics

4.1. Background

There is a wealth of research showing that children in foster care are at increased risk of developing problems across a number of different domains. Despite the vast quantity of research in this area, there is considerably less known about children under the age of 5 years old, with almost no research being conducted with young infants under the age of 2. In addition, most studies in this area have looked at samples of children already within the care system, thus including children who have spent varying lengths of time in care. It was therefore of interest to describe a sample of children aged 6-60 months shortly after entering a period of foster care, in terms of their mental health and development. In particular, it was of interest to look more closely at the very young children within the sample, by comparing their mental health with that of a sample from the general population. Knowing that children who enter care at an earlier age have better outcomes, it seemed important to investigate whether these very young children were already showing higher levels of mental health problems than their peers. With Minnis (2013) recently conceptualising the increased risk that these children have of developing complex and overlapping problems due to their early maltreatment, the extent to which this was evident within the sample was also explored. Furthermore, studies in other countries have found evidence that children entering foster care may already be showing signs of increased risk at birth. To my knowledge, however, no similar research has been done in the UK. It was therefore of interest to examine the birth records of the 70 children in my sample, to identify any potential risk factors which they were displaying at birth. It was considered that, together, this would provide a good picture of what children are like when they enter a period of foster care in Glasgow.

In this chapter the following research questions will be addressed;

1. What is the cognitive, language and mental health profile of children aged 6-60 months when they first enter foster care?
2. Do these children have several overlapping problems?
3. How does the mental health of the children in care aged 12-24 months compare with that of children in the general population?
4. Were these children showing increased risks when they were born, as shown on their birth records?

4.2. Method

In describing what these children are like, the sample is initially described in terms of their demographics. The age, gender and ethnicity distributions are detailed, as well as level of deprivation. SIMD quintile was used as a measure to describe the level of deprivation that the child was living in prior to entering foster care, ranging from 1, describing the highest level of deprivation, to 5, representing the lowest levels of deprivation.

Other researchers within the team (HH and JB) were working on a separate project, looking at the case records held by social work on the children within the larger study. They were keen to explore the journeys which children were taking through the care system. Despite their aims being different to this current project, their sample included 55 of the children in my sample. For these children they had collated information about the child's family and documented reasons why they were in care. Although this information was not available for the whole sample, it was also examined to help explore what we knew about some of these children prior to entering care.

Research Question 1. What is the cognitive, language and mental health profile of children aged 6-60 months when they first enter foster care?

The sample will be described in terms of how they scored in the assessment measures, in terms of their cognitive ability, language ability, relationship difficulties and mental health. Where the data are available, analysis using ANOVAs are conducted to test whether there are significant differences between the average scores of the sample and those in the general population.

Research Question 2. Do these children have several overlapping problems?

The extent to which these children had overlapping problems was also investigated. Initially carers' reports of concerns on the PEDS were examined, to see if there were correlations between the areas which the foster carers had concerns about. Whether the child's scores correlated across different areas was also explored. For this, the sample was split into 2 groups: one with children aged 12-29 months who were assessed using the Bayley, DAI and ITSEA, and those aged 30 months and above, who were assessed using the WPPSI, DAI and SDQ. Percentile was used to describe the child's cognitive and language ability for both the Bayley and the WPPSI. The child's score on each of the 4

domains (competence, externalising, internalising and dysregulation) of the ITSEA was used and all five domains (prosocial behaviour, hyperactivity/inattention, peer relationship problems, emotional symptoms and conduct problems) of the SDQ as well as the total score for both inhibited and disinhibited behaviours on the DAI.

It was also of interest to investigate whether those scoring in the bottom 15th percentile on cognition would be at risk of being in at-risk groups across different areas. The bottom 15th percentile was chosen as these children would be considered as below average and showing signs of cognitive impairment. Chi-square analysis or Fisher's exact test where there were more than 2 cells with an expected count of 5 were conducted. Cognitive ability was split into bottom 15th percentile or not, language ability was split the same way, children were either scored as having inhibited attachment symptoms or not, having disinhibited attachment symptoms or not, having a likely diagnosis on the DAWBA or not, and having 3 or more clinically significant behaviours on the ITSEA or not. Clinically significant behaviours were described as an 'infrequently occurring mental health related symptom or behaviour which would prompt further discussion with a clinician' (Carter and Briggs-Gowan, 2006). These clinically significant problems included hurting themselves on purpose, repeating the last words of sentences or being affectionate with strangers. The presence of three or more of these behaviours was rationalised as the symptoms would almost certainly be concerning to a clinician, and so the cut-off was chosen in the hope it would only include children who were experiencing mental health difficulties.

Research Questions 3. How does the mental health of the children in care aged 12-24 months compare with that of children in the general population?

Twenty of the sample, who were aged between 12 and 24 months were also included in additional analysis by recruiting a sample of 40 age- and gender-matched children from the general population. These children were recruited through nurseries and local-council-run sessions aimed at parents with young children. As it was important to recruit a truly normative sample from Glasgow, groups from a range of areas were targeted, including a bounce and rhyme session in the affluent West end of the city, a nursery in the city centre and a nursery in the more deprived East end of the city. This included children living in a range of levels of deprivation (as evidenced by the median SIMD of 3 within the sample). The age and gender distribution of the normative sample was monitored throughout

recruitment, with purposeful sampling used when recruiting the final few to ensure a sample which was closely matched on age and gender. The results compare the current sample with the general population sample on each domain of the ITSEA, and use t-tests to investigate the significance of any differences found, also described in Pritchett et al (2014a), included in Appendix H.

Research Question 4. Were these children showing increased risks when they were born, as shown on their birth records?

The child's name, age and address were used to access their community health index (CHI) number, which is the national unique number for any health communication related to a given patient. This number was then used to access the maternity record (SMR02) for the mother at the time of the birth of the child. Population data was accessed (ISDScotland, 2014) which described the sample characteristics from the SMR02 records in Glasgow (from April 2012 to March 2013) and it was therefore possible to compare the study findings with those from the general population of Glasgow. Due to difficulties in accessing this data, described later, it was only possible to access the data for 38 of the children within the sample. Samples were compared on birth weight, gestational age, mother's age and recorded drug misuse.

4.3. Results

Sample demographics

When assessed, the sample was aged between 8 and 62 months, with a mean age of 34 months. The sample included 41 males (59%) and 29 females (41%), with the mean age for the boys being 36 months while the girls was 31 months. Sixty-two (89%) of the children in the sample were white Scottish, 2 (3%) were other British, 3 (4%) were Pakistani and 3 (4%) African (2 Black African, 1 African other).

The median SIMD quintile for the birth parents of the sample was 1 (highest level of deprivation) with 87% of the families living in a postcode with SIMD 1, 7% living in a place with a SIMD of 2 and the remaining 6% living in a house with a SIMD of 3. None of the children in the sample came from homes with SIMD scores of 4 or 5, which represent the lowest levels of deprivation.

The case records of the 55 children of the sample, whose pre-care data were available from another ongoing piece of work, had been searched to identify the varying reasons why the children had come into care. They revealed that over 80% of the children in the sample were entering care for the first time, while 18% were on their second episode of foster care. The reasons for entering care and the child protection issues that preceded this, as noted on their case file, are documented below (Table 5).

Table 5. *Reasons for accommodation (n=55)*

	Main reason for accommodation (%)	Recorded on case file as ever present (%)
Parent mental health issues	1.8	24.6
Substance abuse	20.0	49.2
Physical abuse	10.9	18.0
Emotional abuse	3.6	39.3
Neglect	41.8	77.0
Parenting issues	12.7	95.1
Domestic violence	5.5	47.5
Risk to siblings	3.6	44.3
Parent learning difficulties	-	14.8
Risk of sexual abuse	-	13.1
Child's physical health problems	-	34.4

The table above shows that the majority of these children have experienced a number of different risks, which would classify as child protection concerns. Children had a range from between 1 to 8 of these concerns listed on their case files, with the children having on average 4.6 different concerns.

Research Question 1. What is the cognitive, language and mental health profile of children aged 6-60 months when they first enter foster care?

Foster carer concerns

The Parents' Evaluation of Developmental Status (PEDS) provides an overall picture of the concerns which foster carers have about the children in their care. Carers were asked whether they had concerns about the child in a certain area and asked to respond 'no', 'yes' or 'a little'. The results are tabulated below (Table 6).

Table 6. *Scores on the Parents' Evaluation of Developmental Status (PEDS)*

	No	A little	Yes
Concerns about how child talks and makes speech sounds	31 (44%)	18 (26%)	21 (30%)
Concerns about how child understands what you say	57 (81%)	5 (7%)	8 (11%)
Concerns about how child uses their hands and fingers	61 (87%)	6 (9%)	3 (4%)
Concerns about how child uses their arms and legs	51 (73%)	12 (17%)	7 (10%)
Concerns about how child behaves	33 (47%)	17 (24%)	20 (29%)
Concerns about how child gets along with others	45 (64%)	14 (20%)	11 (16%)
Concerns about how child is learning to do things	53 (76%)	15 (21%)	2 (3%)
Concerns about how child is learning preschool skills	53 (79%)	7 (10%)	7 (10%)

Development

All the children in the study were assessed using an age-appropriate measure of language and cognition. Children aged 6-29 months were assessed using the Bayley Scales of Development, while children aged 30 months and older were assessed using the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). The cognitive tests show that the children in this sample scoring significantly below the mean scores found in the general population in all aspects of these tests (Table 7), with 30 children (44%) scoring in the bottom 15th percentile of the population for cognition.

Table 7. *Developmental attainment compared with normative data*

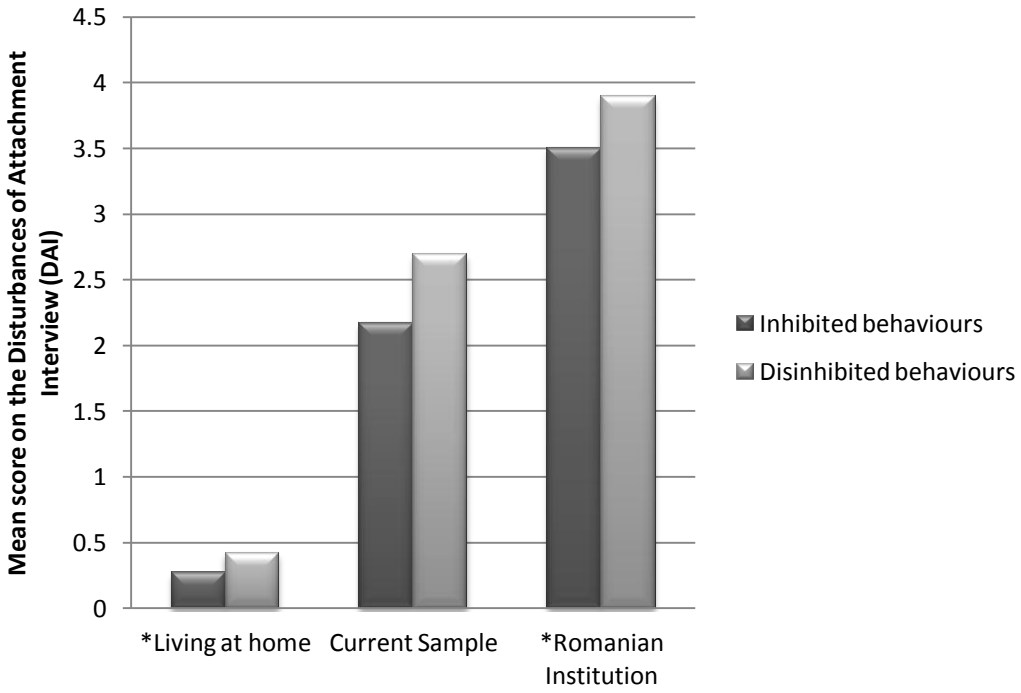
		Mean scores (SD)		T-Test
		***Normative sample**	**Current sample**	
Bayley 6-29 months (n=31)	Cognitive Score	103.62 (13.60)	84.50 (15.30)	t=7.22 df= 1250, ***p*<0.001**
	Language Score	101.92 (16.86)	86.80 (15.40)	t=4.72 df= 1250, ***p*<0.001**
WPPSI 30-47 months (n=22)	Verbal IQ	103.61 (14.32)	90.32 (14.75)	t= 4.19 df= 320, ***p*<0.001**
	Performance IQ	103.49 (14.94)	90.05 (15.44)	t= 4.06 df= 320, ***p*<0.001**
	Full Scale IQ	104.19 (14.36)	88.73 (14.73)	t= 4.87 df= 320, ***p*<0.001**
	General Language Composite	103.59 (14.42)	91.14 (14.27)	t= 3.91 df= 320, ***p*<0.001**
WPPSI over 48 months (n=16)	Verbal IQ	100.10 (13.44)	86.69 (17.16)	t= 3.89 df= 514, ***p*<0.001**
	Performance IQ	100.11 (14.42)	79.93 (18.86)	t= 5.29 df= 513, ***p*<0.001**
	Full Scale IQ	99.55 (13.28)	82.27 (15.91)	t= 4.94 df= 513, ***p*<0.001**
	General Language Composite	100.44 (13.93)	84.42 (14.67)	t= 3.93 df= 510, ***p*<0.001**

*Normative data from Assessment manuals.
WPPSI III administration and Scoring Manual, David Wechsler, 2003
Bayley Scales of Infant and Toddler Developmental Third Edition, Nancy Bayley, 2010

Relationships difficulties

Children were assessed using a structured observation (Waiting room observation – WRO) when they first entered the assessment clinic. The WRO captures the presence or absence of certain reciprocal behaviours both between the child and their caregiver and the child and a researcher (who is a stranger to the child). There are no normative data available for this measure, in children as young as in this current sample. However, McLaughlin et al (2010) reported normative data for children aged 5-8 years. The sample showed differences to what might be expected in a normative sample, for example, McLaughlin et al reported that 16% of their sample invited eye contact with the stranger, which is considerably lower than the 59% in the current sample. In addition, lower levels of shy behaviour were seen than might have been expected. McLaughlin reported that they would expect over 80% of children to demonstrate some degree of shyness towards the stranger, compared with less than half of the children in this sample who showed any sign of shy behaviour.

Caregivers with children over the age of 12 months (n=64) were also asked to complete the Disturbances of Attachment Interview (DAI). Scores were combined to identify the presence of inhibited and disinhibited behaviours. The scores obtained by the children in the current sample are illustrated below (Figure 9). They can be seen compared with a sample of children who had always lived at home and had never been institutionalised as well as a sample of children living in a Romanian institution.



*Data from Smyke, A. T., Dumitrescu, A. & Zeanah, C. H. (2002). Attachment disturbances in youngchildren. I: The continuum of caretaking casualty. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41(8), 972-982. (Smyke et al., 2002)

Figure 9. Scores on DAI compared with normative and institutionalised samples

The results of the DAI clearly show an elevated presence of both inhibited and disinhibited behaviours as compared with children who had never been institutionalised, but not at as high a level as for those children living in an institution.

Mental health

Overall mental health was measured using the ITSEA with foster carers of children aged 12-48 months (n=48) (Table 8).

Table 8. *Scores on the ITSEA compared with a normative sample*

	Mean scores (SD)		T-Test
	***Normative sample** (n=1235)	**Current sample** (n=48)	
Externalising behaviours	0.47 (0.28)	0.60 (0.43)	**t=3.08, df=1281, *p*<0.001**
Internalising behaviours	0.52 (0.22)	0.50 (0.31)	t= 0.61, df= 1281, *p*=0.55
Dysregulation	0.36 (0.25)	0.41 (0.29)	t= 1.35, df= 1281, *p*=0.18
Competence	1.38 (0.29)	1.14 (0.45)	**t= 5.50, df= 1281, *p*<0.01**
Maladaptive behaviours	0.11 (0.13)	0.16 (1.17)	**t= 2.58, df= 1281, *p*<0.01**
Social relatedness	1.71 (0.21)	1.53 (0.40)	**t= 5.90, df= 1281, *p*<0.01**
Atypical behaviours	0.32 (0.25)	0.32 (0.24)	t= 0.00, df= 1281, *p*=1.00

*Data from Carter, A. S., Briggs-Gowan, M. J., Jones, S. M. & Little, T. D. (2003). The infant-toddler social and emotional assessment (ITSEA): Factor structure, reliability, and validity. *Journal of Abnormal Child Psychology*, 31(5), 495-514 (Carter et al., 2003).

When compared with a normative sample, significantly higher levels of externalising and maladaptive behaviours were found in the current, in-care, sample as compared with a normative sample of the same age. In addition, there was significantly less positive behaviour, captured in the competency and social relatedness domains, in the current sample compared with a normative sample.

The mental health of the children in the sample aged over 2 (N=45) was further explored using the Strengths and difficulties questionnaire (SDQ). The results are tabulated below, firstly showing the proportions in the at risk groups (table 9) and then comparing mean scores for the whole sample (table 10) and then separated by gender (table 11), as compared with a normative sample.

Table 9. *SDQ scores by risk level for sample aged over 2 years (n=45). Population norms follow in brackets**.

	Normal	**Borderline**	**Abnormal**
Total difficulties	60.0% (85.5%)	11.1% (7.5%)	28.9% (7.2%)
Emotional symptoms	68.9% (88.0%)	13.3% (6.5%)	17.8% (5.5%)
Conduct problems	64.4% (82.4%)	4.4% (8.1%)	31.1% (9.5%)
Hyperactivity	51.1% (87.3%)	8.9% (5.3%)	40.0% (7.4%)
Peer problems	60.0% (82.3%)	8.9% (9.1%)	31.1% (8.6%)
Prosocial behaviours	68.9% (81.6%)	6.7% (9.5%)	24.4% (8.9%)

*Data from http://www.sdqinfo.org/UK3yearNorm.html

Table 10. *SDQ scores compared with normative sample*

	Mean scores (SD)		**T-Test**
	***Normative sample** (n=1353)	**Total Current sample** (n=45)	
Total difficulties	9.3 (5.6)	12.13 (8.1)	**t= 3.28, df= 1396, *p*<0.005**
Emotional symptoms	1.6 (1.6)	2.07 (2.3)	t= 1.92, df= 1396, *p*=0.06
Conduct problems	2.4 (2.0)	2.38 (2.8)	t= 0.07, df= 1396, *p*=0.95
Hyperactivity	3.8 (2.5)	5.20 (3.6)	**t= 3.63, df= 1396, *p*<0.001**
Peer problems	1.6 (1.6)	2.49 (2.5)	**t= 3.59, df= 1396, *p*<0.001**
Prosocial behaviours	7.8 (1.7)	6.69 (3.4)	**t= 4.12, df= 1396, *p*<0.001**
Impact	0.3 (1.1)	1.76 (2.6)	**t= 8.19, df= 1396, *p*<0.001**

*Data from http://www.sdqinfo.org/UK3yearNorm.html

Table 11. *SDQ scores by gender*

	Mean scores (SD)				**T-Test**	
	***Normative sample**		**Current sample**			
	Boys (n=698)	Girls (n=655)	Boys (n=29)	Girls (n=16)	Boys	Girls
Total difficulties	10	8.6	12	11.81	***p*<0.05**	***p*<0.05**
Emotional symptoms	1.6	1.6	1.69	2.75	*p*=0.77	***p*<0.01**
Conduct problems	2.6	2.1	2.66	1.88	*p*=0.88	*p*=0.65
Hyperactivity	4.1	3.4	5.07	5.44	***p*<0.05**	***p*<0.01**
Peer problems	1.7	1.5	2.90	1.75	***p*<0.001**	*p*=0.51
Prosocial behaviours	7.5	8.0	6.21	7.56	***p*<0.001**	*p*=0.32
Impact	0.4	0.2	2.17	1.00	***p*<0.001**	***p*<0.001**

*Data from http://www.sdqinfo.org/UK3yearNorm.html

The tables show that the children in the sample are showing consistently higher levels of problems than a normative sample of 3-year-old children, with significantly higher problems with hyperactivity, peer problems and prosocial behaviours. When separated by gender, there is a different pattern of results, with girls scoring significantly worse on emotional symptoms and hyperactivity than their female peers, while boys score significantly worse on peer problems, prosocial behaviours and hyperactivity. There was a highly significantly difference, when compared together and separated by gender, on the level of impact which the problems these children are experiencing has on their lives.

The Development and Wellbeing Assessment (DAWBA) was administered to the foster carers of every child over the age of 2. It was used with 45 children in our study, finding 46.7% as having a likely diagnosis in one of the areas measured. The four most common diagnoses were Post Traumatic Stress Disorder (7%); Oppositional Defiant Disorder (7%), Separation Anxiety (9%) and most commonly we found 35% of our sample as having an attachment disorder. Despite the DAWBA having been used in all the British nationwide surveys of child and adolescent mental health over the past decade, its use with children under the age of 5 is very much still in its infancy and so there is no normative data available for comparison, but it is clear that 46.7% of the children having a likely diagnosis is higher than would be expected in the general population.

Research Question 2. Do these children have several overlapping problems?

Initially, carers' reports of concerns on the PEDS were examined to see if there were correlations between the areas which the foster carers had concerns about. The results are tabulated below (Table 12).

Table 12. *Overlap between carer's concerns on the PEDS*

	Concerns about how child talks and makes speech sounds	Concerns about how child uses his/her hands and fingers to do things	Concerns about how child behaves	Concerns about how child gets along with others	Concerns about how child is learning to do things for him/herself
Concerns about how child talks and makes speech sounds		*r*=0.41 ***p*<0.01**	*r*=0.50 ***p*<0.01**	*r*=0.23 *p*=0.06	*r*=0.26 ***p*<0.05**
Concerns about how child uses his/her hands and fingers to do things	***Significant***		*r*=0.11 *p*=0.35	*r*=0.03 *p*=0.79	*r*=0.16 *p*=0.18
Concerns about how child behaves	***Significant***	NS		*r*=0.41 ***p*<0.01**	*r*=0.28 ***p*<0.05**
Concerns about how child gets along with others	NS	NS	***Significant***		*r*=0.24 *p*=0.05
Concerns about how child is learning to do things for him/herself	***Significant***	NS	***Significant***	NS	

The table above shows that there were significant correlations between carers concerns about different aspects of the child's functioning. Of particular note, if a carer is concerned about the child's speech, then this is associated with concerns about how the child is using his/her hands and fingers, how the child is behaving and how the child is learning to do things for him/herself. It can be seen here that if carers have concerns about the child in one area, then this concern can be associated with concerns in different areas of the child's development.

The cognitive, language and mental health scores of the 12 to 29 month old children (n=25) were then examined to explore potential correlations between the different factors. The results are tabulated below (table 13).

Table 13. *Correlations between child characteristics in children aged 12-29 months*

Infant domains	Correlation
Cognition-language	r= 0.30, n=25, p=0.08
Cognition-competence	r= 0.26, n=25, p=0.11
Cognition-internalising	r= -0.13, n=25, p=0.27
Cognition-externalising	r= -0.25, n=25, p=0.11
Cognition-dysregulation	r= -0.10, n=25, p=0.32
Cognition-inhibited behaviours	r= -0.28, n=24, p=0.09
Cognition-disinhibited behaviours	r= -0.17, n=24, p=0.21
Language-competence	r= 0.17, n=24, p=0.21
Language-internalising	r= -0.04, n=24, p=0.44
Language-externalising	r= 0.11, n=24, p=0.31
Language-dysregulation	r= 0.07, n=24, p=0.37
Language-inhibited behaviours	r= -0.22, n=24, p=0.16
Language-disinhibited behaviours	r= -0.06, n=24, p=0.39

The results show that there are no significant correlations between the factors in the children aged between 12-29 months.

When examining the cognitive, language and mental health scores of the over-30-month-old children (n=38), a number of significant correlations were found as tabulated below (Table 14).

Table 14. *Correlations between child characteristics in children aged 30 months+*

Infant domains	Correlation
Cognition-language	***r*= 0.89, n=37, *p*<0.001**
Cognition-prosocial behaviours	*r*= 0.23, n=36, *p*=0.09
Cognition-hyperactivity/inattention	***r*= -0.31, n=36, *p*<0.05**
Cognition-peer relationship problems	*r*= -0.16, n=36, *p*=0.17
Cognition-conduct problems	***r*= -0.36, n=36, *p*<0.05**
Cognition-emotional symptoms	*r*= -0.01, n=36, *p*=0.48
Cognition-inhibited behaviours	***r*= -0.34, n=37, *p*<0.05**
Cognition-disinhibited behaviours	*r*= -0.12, n=37, *p*=0.26
Language-prosocial behaviours	*r*= 0.24, n=37, *p*=0.08
Language-hyperactivity/ inattention	***r*= -0.39, n=37, *p*<0.01**
Language-peer relationship problems	*r*= -0.27, n=37, *p*=0.06
Language-conduct problems	***r*= -0.31, n=37, *p*<0.05**
Language-emotional symptoms	*r*= 0.05, n=37, *p*=0.38
Language-inhibited behaviours	***r*= -0.42, n=38, *p*<0.01**
Language-disinhibited behaviours	*r*= -0.16, n=38, *p*=0.16

These correlations show that as cognition improves, so does language, and as language and cognition scores increase, conduct problems, hyperactivity and inhibited behaviours decrease.

We therefore do not see evidence of overlapping problems in children under the age of 30 months, but we do see correlations in the older children, with a particularly strong correlation between cognition and language in the sample of children over the age of 30 months, with 78% of the variance explained.

It was also of interest to investigate whether those scoring in the bottom 15% percentile on cognition would have an increased chance of being in at-risk groups across different areas. Thirty children in the sample were found to be scoring in the bottom 15th percentile on cognition. Their risk of showing symptoms across other domains is tabulated below (Table 15).

Table 15. *Other problems experienced by children scoring in bottom 15th percentile in cognition (n=30)*

	Chi-Square
Bottom 15th Percentile in language	X^2 (1, N=67), =24.76, ***p*<0.001**
DAWBA diagnosis	X^2 (2, N=68), =1.37, *p*=0.51
Scoring on more than 3 items of clinical significance - ITSEA	X^2 (1, N=68), =0.01, *p*=0.93
Inhibited behaviours - DAI	X^2 (1, N=67), =9.30, ***p*<0.01**
Disinhibited behaviours - DAI	X^2 (1, N=62), =1.77, *p*=0.18

We can see that children scoring in the bottom 15th percentile for cognition are also significantly more likely to be in the group scoring in the bottom 15th percentile in language and more likely to be in the group displaying inhibited attachment disorder behaviours.

Research Question 3. How does the mental health of the children in care aged 12-24 months compare with that of children in the general population?

The table below (Table 16) describes how 20 of the children within the sample (aged 12-24 months) compared with 40 age- and gender-matched control children from the general population.

Table 16. *Comparing in-care sample with general population sample on the ITSEA.*

ITSEA subscale	**In-care Sample (n=20) Mean (SD)**	**General population sample (n=40) Mean (SD)**	**T-Test** Where Levene's test was $p<0.05$ then equal variances were not assumed.
Negative subscales			
Activity/Impulsivity	0.95 (0.61)	0.66 (0.37)	t= 1.90, df= 26, p=0.07
Aggression/defiance	0.68 (0.53)	0.46 (0.29)	t= 1.70, df= 25, p=0.10
Peer aggression	0.31 (0.42)	0.09 (0.16)	t= 2.06, df= 17, p=0.06
Depression/withdrawal	0.27 (0.33)	0.08 (0.17)	**t=2.30, df=24, $p<0.05$**
General anxiety	0.2 (0.15)	0.15 (0.16)	t=1.24, df=57, p=0.22
Separation distress	0.74 (0.44)	0.73 (0.44)	t=0.10, df=58, p=0.92
Inhibition to novelty	0.56 (0.5)	0.75 (0.47)	t=1.40, df=56, p=0.16
Negative emotionality	0.81 (0.52)	0.45 (0.26)	**t=2.90, df=24, $p<0.05$**
Sleep	0.26 (0.38)	0.52 (0.51)	**t=2.20, df=49, $p<0.05$**
Eating	0.43 (0.52)	0.40 (0.27)	t=0.26, df=24, p=0.80
Sensory sensitivity	0.25 (0.33)	0.30 (0.27)	t=0.58, df=57, p=0.57
Positive subscales			
Compliance	1.08 (0.52)	1.2 (0.37)	t=1.33, df=58, p=0.190
Attention	0.93 (0.61)	1.23 (0.37)	**t=2.83, df=58, $p<0.05$**
Mastery motivation[7]	1.22 (0.54)	1.61 (0.36)	**t=2.98, df=28, $p<0.05$**
Imitation/play	1.25 (0.39)	1.52 (0.36)	**t=2.63, df=58, $p<0.05$**
Empathy	0.70 (0.57)	0.97 (0.54)	t=1.71, df=55, p=0.09
Prosocial peer relations	1.1 (0.55)	0.95 (0.48)	t=0.95, df=51, p=0.35

The table shows that the in-care sample was scoring significantly worse for depression, negative emotionality, attention, mastery motivation[5] and imitation than the general population. The in-care sample scored significantly better than the general population sample in problems related to sleep.

To check whether the non-significant results were due to a lack of statistical power, post hoc power analyses were conducted which revealed that on the basis of the mean, between-groups, comparison effect size observed in the present study (d = .38), an n of

[7] Mastery motivation is the inherent drive which leads young children to explore and master their environment. In the ITSEA it is captured by items such as 'shows pleasure when s/he succeeds', 'keeps trying even when something is hard', 'wants to do things for him/herself'.

approximately 49 would be needed to obtain statistical power at the recommended .80 level, suggesting that the results are not likely to be due to a lack of statistical power.

The ITSEA subscales can all be incorporated into four domains: externalising, internalising, dysregulation and competence. Each domain has an 'of concern' cut-off point, which provides a guide for clinicians to identify areas which warrant further investigation. Fifty per cent of the in-care sample scored within this range in at least one domain. In comparison, 23% of the normative sample scored within this 'of concern' range in at least one domain.

Research Question 4. Were these children showing increased risks when they were born, as shown on their birth records?

The table below (Table 17) describes the characteristics of the sample, where these data were available, and those from the general population based on their SMR02 maternity records.

Table 17. *Comparison of maternity records of sample with general population figures from Glasgow*

		Sample characteristics % (n=38)	**General population %**
Gestational Age	**Less than 24 weeks**	0	0.1
	24-27 weeks	2.6	0.3
	28-31 weeks	2.6	0.7
	32-36 weeks	18.4	6.1
	37-41 weeks	76.3	90.4
	42+ weeks	0	2.3
	Percentage of mothers aged over 30 years at birth	24.4	49.0
	Rate per 1000 where drug misuse is recorded	105	13
Birth weight (grams)	**Under 1500**	2.6	0.9
	1500-2499	26.3	5.5
	2500+	71.1	93.6

The table above shows that in a subsection of mothers within the sample (n=38), we see higher rates of children being born preterm than in the general population of Glasgow. Furthermore, we see higher rates of drug use in pregnancy, more babies born with a low birth weight and evidence that mothers in the sample are younger than average.

4.4. Discussion of results

Initially, the demographics of the sample were examined, showing that 59% were male and 41% female. This is reflective of higher rates of boys being on the child protection register in Scotland in general, with the latest findings (www.scotland.gov.uk) showing that 49% are boys, 46% are girls, with the remaining 5% being unborn children. In addition, it was found that the majority of the children in the sample had come from homes with high levels of deprivation. This too is reflective of the wider issue that socio-economic status is a risk factor for children entering foster care (Simkiss et al., 2013). It was also possible to look at the data which other members of the research team were collecting on the child's experiences prior to entering care. This revealed that for a subsection of the sample (n=55), children had experienced an average of 4.6 different child protection concerns prior to entering foster care, with the majority having neglect listed as the main reason for accommodation. These data revealed quite how negative the early experience of some of these children was.

The findings confirmed that the children are displaying high levels of problems. All the measures revealed that the children were performing at a lower level that their general population peers, alongside displaying more worrying symptoms and behaviours.

The results illustrated that children were scoring significantly worse than average on the cognitive and language aspects of the Bayley and the WPPSI. This is in line with the findings outlined in the literature identified prior to commencing this study: the overwhelming majority of studies, those looking at school attainment case records as well as those directly assessing the children, have consistently shown high levels of difficulty within this group (for example, (Rees, 2013, Bailey et al., 2002, Stanley et al., 2005) – tabulated previously) . The average score within the sample was often more than a standard deviation below the mean score, thus representing a marked delay. The finding that 44% are scoring in the bottom 15th percentile of the population suggests that a large proportion of the children in the sample will require additional support for learning, with extra support needed as they progress through the education system.

High rates of inhibited and disinhibited behaviours were also found, as evidenced on the DAI and the WRO. It seems that the children in the sample were likely to be showing signs of attachment disorders such as overfriendliness with strangers, lack of selective

attachments and minimal comfort-seeking behaviour. Millward et al (2006) and Minnis et al (2006a) both found that children in care were significantly more likely to have RAD than their peers; the high rates found in this current study are therefore in line with these previous findings. A comparison of the rates of symptoms which were evident in the sample with both a normative sample and an institutionalised sample produced interesting results: much higher rates of symptoms were found in the sample than in a sample of children who had always lived with their birth parents, and in fact results showed levels much closer to those of institutionalised children. This could be considered surprising, as institutionalised children are considered to be at the highest risk of developing attachment difficulties as they often do not have a primary caregiver with whom they can form an attachment. In contrast, the children within the sample have all been living in a birth family and then a foster family. The Bucharest Early Intervention Studies have provided a wealth of research showing the benefits of foster care over institutionalised care (Zeanah et al., 2005) and so we might expect lower rates of attachment-disordered behaviours within the sample when compared with the behaviour of children in institutions. However, it seems that disruption to the child's caregiving experience causes the child to display symptoms of attachment disorders very similar to those shown in institutionalised children, at least shortly after entering care. These children have all suffered from maltreatment prior to being removed from their family home, and therefore it is impossible to tell to what extent the presence of these behaviours is due to early maltreatment and how much is due to the disruptions the child experiences when they suffer from changes to their primary caregiver. It is likely that for the institutionalised children, their attachment disorder symptoms will remain present should they remain in an institution: what is not clear from this study is whether the same is true for children entering foster care. Will these behaviours disappear once the child has had time to settle into a new foster family? The previous research finding that children in foster care are more likely to have attachment disorders than family-reared peers goes some way to suggest that the behaviours observed as highly prevalent in the sample when children enter foster care are capturing symptoms which may be indicative of the high rates of attachment disorders found within foster care samples. Gleason et al (2011) reviewed the evidence for the validity of attachment disorders and reviewed evidence from the Bucharest Early Intervention Project (Smyke et al., 2012) which found that there were significant reductions in signs of emotionally withdrawn behaviours, characteristic of inhibited reactive attachment disorder (I-RAD) once children were moved from an institution into foster care. They suggest that I-RAD

diminishes or disappears once the child is placed in a caregiving environment and emphasise the importance of an attachment to a primary caregiver. What is not clear is whether this is something which the children in this study are consistently getting. The nature of foster care in Scotland is that children are often placed in temporary homes, with foster carers who may not be committed to the child's long-term care. With this in mind, we may not see the same reduction in these behaviours if they are reliant on a strong bond between the child and their caregiver. This is something which clearly needs further investigation using longitudinal data. Being able to identify children who are at risk of developing attachment disorders as early as possible would allow intervention to commence quickly, most likely in supporting the development of a secure relationship between a child and their foster carer (Becker-Weidman, 2006).

When mental health difficulties within the sample are assessed, the findings are in line with a wealth of research which has already been conducted in this field. Thirteen studies were identified in the introduction which used the SDQ to assess the mental health of children in care in the UK since 1989. Of the 13 studies found, all showed children in care having an elevated risk of having problems in each of the problem domains. The results showed 17-40% of the sample as scoring in the abnormal range, which is comparable to the rates found in other similar studies; Rees (2013) reported 33-47% as being in the abnormal ranges while Minnis et al (2006a) reported 21-55% in this abnormal range. The findings from both the ITSEA and SDQ thus add even more evidence of the vulnerability of this group to having mental health symptoms.

Gender differences within the sample were found, which are reflective of the gender differences which might be expected in the general population; for example, Muris et al. (2003) found girls to have higher emotional symptom scores and prosocial behaviours but lower levels of disruptive behaviours than boys on the SDQ, and these are all trends found in this sample. Overall, when the scores for boys and girls are combined, it was found that they were doing significantly worse on total difficulties, hyperactivity, peer problems and prosocial behaviours; however, when separated by gender it was found that it was only the boys who were doing significantly worse on peer problems and prosocial behaviours than a normative sample, with girls showing similar scores to their peers. Boys in the general population as well as in foster care have been shown to have higher rates of both internalising and externalising problems than girls (Stein et al., 1996) and so this may just

be a further reflection of these differences. Girls are less likely to show these problem behaviours in general and so it may be that the effect of foster care does not have as dramatic an effect on their behaviour as it does for boys, when compared with the general population.

Both the boys and girls within the sample were scoring significantly higher than the general population in terms of the impact of any mental health problems which they had. This is captured in the SDQ by asking carers to reflect on the influence which the problems have on the child's life. The level of impact was considerably higher for the boys than for the girls, but it is clear that these very young children are already exhibiting problem symptoms which are negatively impacting upon their lives.

Ford et al (2007) described findings from 1453 looked-after and accommodated children aged 5-17 in a sample of over 10,000 children and found 46.4% of the accommodated children as having a likely diagnosis on the Development and Wellbeing Assessment (DAWBA), which is almost identical to the current finding of 46.7%. It appears that despite the sample covering a younger age group, the same high prevalence rates for likely psychiatric diagnoses are found, confirming the additional support which these children and their foster carers will require.

After it was identified that the sample was showing high levels of problems, the extent to which the children were displaying overlapping problems was then explored. Minnis (2013) argued that the early life events these children face place them at an increased risk of developing problems and that the problems they have are likely to be complex and overlapping. Evidence of overlapping problems within children aged over 30 months was found, but not in those children under 30 months. This split by age group was used because the assessment measures were different for these children, and so the difference identified may be partly due to the differing measures. For example, it may be that the measures used with the younger children are not accurately identifying problem behaviours. The low attainment levels found in the ITSEA and Bayley, however, suggest that these measures are identifying children with problems. A systematic review of the literature in this field was conducted (Pritchett et al., 2013b) and found that younger children are more likely to have positive outcomes from foster care. It is possible, that this is due to the fact that these children are less likely to be already suffering from these complex and

overlapping problems which were found in older children. It may be that with increasing age, problems in one area start to affect other domains as the child develops. This finding lends support to the idea of need for early intervention: it may be that helping a child with a problem in one area could help prevent the child developing such complex and overlapping problems.

When the children aged 12-24 months in the sample were compared with an age- and gender-matched control sample, it was found that the sample subjects were showing higher levels of problems in some areas than their peers in the general population. The findings are, however, arguably not as different as has been seen in studies with older children. For example, Ford et al (2007) found that those in foster care were about 5 times more likely to have a psychiatric diagnosis than the general population, whereas in this sample of infants, it was found that the children were only twice as likely to be showing clinically concerning scores as their peer group. The finding that the children in care have fewer sleep problems than the general population is also intriguing. Is this a real sign of fewer sleep problems? Or is it in fact a reflection of the early neglect which many of the children have experienced? It may be that the children go to bed when they are told and do not get up until the morning because they have learnt that crying does not help them, or, worse, that getting up leads to punishment. Sleep problems are common in children, and the rarity of them in the foster care sample may in fact just be further indication of the complexities relating to the difficulties they experience.

The SIMD of the two samples was different, with a median SIMD of 1 for the in-care sample and 3 for the general population sample, showing that the children in foster care were from more deprived backgrounds than the general population sample. The mental health differences found in the samples may instead be a result of deprivation rather than in-care status. This difference, however, is a true reflection of the fact that children in foster care are likely to have experienced higher levels of deprivation in early life and the median SIMD of 3 (scored 1-5) for the general population sample accurately represents the general population in terms of deprivation. It was therefore decided not to control statistically for SIMD because this is less a confounder than potentially a true explanatory variable. In addition, it should be acknowledged that there may be bias in the normative sample. These children were recruited through nurseries and local sessions designed for young children. There is likely to be bias in terms of the parents who agree to fill in a

questionnaire under these circumstances. Firstly, not all children aged 12-24 attend nursery or 'bounce and rhyme' sessions, so sampling was already being done from a select group of children; secondly, not all the parents took part, just any parents who offered to complete the questionnaire; and finally, the last few children were purposefully sampled to ensure an age- and gender-matched sample. So, while this sample is taken from the general population, it cannot with such potential sources of bias be described as representative of the general population, and so results should be interpreted with this in mind.

Overall, comparing some of the sample with an age- and gender-matched sample from the same city showed that although the subjects in the foster care sample were doing worse than the general population, the difference was not as stark as is seen in other studies. As the sample is younger than in the great majority of research in this area, this result is likely to be caused by this age difference; however, it should also be noted that Glasgow is a city with high levels of poverty, drug use and deprivation and the general population sample may therefore also be displaying higher levels of problems that one might expect. This could be another reason why we did not find such large differences between the samples. Our group (Pritchett et al., 2014b) conducted a large epidemiological study, looking at the mental health of 6- to 8-year-old children in Glasgow, and found that despite these high levels of deprivation, the children still had SDQ scores in line with UK norms, and thus it seems unlikely that children aged 12-24 months in the general population in Glasgow would be doing considerably worse than those in the rest of the UK. It seems more likely that the differences between the mental health of children in care and those in the general population are not as extreme in children aged 12-24 months. When comparing the rates of probable diagnosis found in the DAWBA, however, similar results from other studies with children in care were found. The DAWBA was only used with children over the age of 2, and so the results provide yet more evidence for the importance of early intervention, offering support to children and families as early as possible.

Where the data were available, the maternity records for the sample were compared with that of the population of Glasgow. It was found that the sample had higher levels of preterm and low birth weight babies. Furthermore, it was found that 4 of the mothers in the sample had drug use during pregnancy noted on their case files, which worked out at a rate of over 10%, in comparison to the rate of 13 per 1000 (1.3%) in the rest of Glasgow.

It was not possible to explore the significance of these differences, or whether they are just a result of chance, due to the limited data which were available. In particular, findings from such a small sample should not be over-interpreted, although there was no systematic reason, and so hopefully no bias, in which files were possible to access. The missing data came from difficulties linking the child's CHI number to the birth mother's CHI number. The findings are in line with other studies in the area, for example Needell and Barth (1998) found that children entering foster care were more likely to have been born with low birth weight, while O'Donnell et al. (2009) found high rates of drug use during pregnancy in their sample. Future analysis should involve comparing the data to a matched control group, so the differences can be more fully explored. The findings, showing that there is some evidence that the children are showing signs of being 'at risk' at birth, go some way to suggest that future research in this area would be worthwhile. The ability to extract population data from the same city as that of my sample makes the data even more useful, as it allows for a more accurate comparison between samples.

Despite the strengths of conducting this research in Scotland, where a large amount of data are routinely stored, for research amongst other things, conducting research in this area was very difficult. Ethical permission was obtained to access these data when ethical approval for the main study was underway, as it had been from the outset the researchers' aim to include such data. Following this, however, approval had to be sought from the Caldicott Guardian, which took approximately 3 months to obtain. Following this, CHI numbers for the children in the study had to be obtained. CHI numbers act as a unique indicator for each child, and were necessary for us to be able to link the child in the study to their routine data. This process was difficult. Initially the child's social work care records were examined, but it was found that although they aimed to collect these data, they were in fact almost never obtained. An attempt was then made to obtain this information through the child's GP, but this posed problems in ensuring they knew we had the appropriate permissions to access the data. Finally, the children in the study were linked to their CHI numbers through our local ISD safe haven team. This process took over 3 months. It was then possible to make an application to the ISD safe haven team to access the requested data. This application took 2 months to be approved. Following this approval, the research dataset had to be sent to the ISD team. The team would then link the existing participant data with the routine data requested, after which it would be possible to access the linked dataset in a secure location elsewhere. This was to ensure that

the research team did not actually receive a copy of this highly confidential data. With different software and highly sensitive information being passed back and forth, this process took a further 2 weeks before they were able to do this linkage. At this stage, further problems were encountered: it was discovered that the child's CHI number was not always recorded on the maternity record, and so this method only allowed access to the data for 38 of the 70 children in the sample. It took a further 2 weeks before it was possible to able to access the data. This unfortunately was, by then, just weeks prior to my thesis submission date, despite my starting the process almost a year previously, and so it was not possible to explore this data fully.

While it can be appreciated that some of the delays could have been avoided, caused, for example, by my not always being sure where to go next and how to proceed with the process, it is fair to say that the experience would be typical of someone trying to access such data for the first time. The Scottish system of routinely collecting data on the whole Scottish population has great strength, with the capacity for world-class research at its fingertips, but there are barriers in place that make it very challenging. Hopf et al (2014) recently conducted a systematic review on the views of health care professionals to linkage of routinely collected healthcare data. They found that views were generally positive with reported trust in the systems. They did, however, also acknowledge some barriers, including costs and issues with data governance as well as technical issues. Jutte et al (2011) described the importance of administrative record linking as a tool for public health research and described the benefits of comprehensive follow-up, continuous data collection, objective measures and relatively low expense. They argued that data linkage was likely to play an increasingly important role in public health research. Scotland could be at the forefront of these advances, with a huge amount of data being routinely collected on the whole population of the country. For this to work, however, all those involved in these related fields will need to work together to ensure that barriers do not prevent this important work being carried out.

5. Results. Child/foster carer relationships

5.1. Background

A systematic review was conducted which provided evidence that there are child characteristics which may be having an effect on placement outcomes for children in care (Pritchett et al., 2013b). The literature showed that age, gender, cognition, language and mental health may all be playing a part. However, it was noted that the majority of this research had been done using administrative data, as opposed to direct assessment with children in care. As an attempt to address this, face-to-face assessments were conducted on a sample of children in foster care and how these characteristics may be associated with the quality of the relationship which the children have with their foster carer was investigated.

It was also considered that there are qualities of the foster carer which will likely have an effect on this relationship. Previous carer experience has been negatively associated with carer commitment (Dozier and Lindheim, 2006), placement breakdown (Minnis and Devine, 2001) and placement stability (O'Neill et al., 2012) and so it was also of interest to investigate whether the level of commitment and experience which a foster carer had related to the quality of the relationship between the child and the caregiver, as measured using the PIRGAS.

In this chapter, the following research questions are addressed:

5. How are child characteristics, when a child first enters care, associated with the quality of relationship they have their foster carer?
6. How does foster carer experience and commitment relate to the relationship the child has with their foster carer?

5.2. Method

In describing the association with relationship quality, as measured using the PIRGAS, the range of scores obtained on the PIRGAS measure are firstly described and then correlations are made with the length of time which the child has spent in foster care prior to assessment. This is to ensure that the PIRGAS is capturing something more than just how well the child knew their foster carer.

Research question 5. How are child characteristics, when a child first enters care, associated with the quality of relationship they have their foster carer?

Multiple regression was chosen to investigate this question. Multiple regression allows the prediction of scores on one variable on the basis of scores on several other variables. It was desirable to investigate how different child characteristics might be associated with the quality of the relationship they may have with their carer. The score on the PIRGAS assesses relationship quality and provides a score of 1-100, which makes it suitable for multiple regression as the criterion variable must be measured using a ratio or interval scale. When planning to investigate how child characteristics are associated with PIRGAS score, there are important things to consider. Multiple regression requires a large number of observations. There is great controversy in the literature regarding the sample size needed, with Brace et al. (2009) providing the rule of thumb that at least 10 times as many participants as predictor variables are needed, Khamis et al (2010) argue that the minimum sample size required for multiple regression is 20 plus 5 times the number of predictor variables, while Tabacknick and Fidell (2001) suggest that N should equal the greater of the following: either the number of predictors times 8, plus 50; or the number of predictors plus 104. Green (1991) published a review of the literature on how to calculate the required sample size for regression analyses and noted the limitations of such rules of thumb and suggesting that they sometimes yield sample sizes that are larger than required.

Missing data provides additional problems for multiple regression. By default, cases are excluded listwise. This means that if a person has a missing value for any variable, then they are excluded from the whole analysis. There are other options for dealing with missing data. Cases can also be excluded on a pairwise basis, which means that if a participant has a score missing for a particular variable, then their data are only excluded from the calculations involving the variable for which that have no score. However, this is not recommended as a good option by Field (2009), as you can end up with meaningless scores (e.g. R^2 either negative or greater than 1.0). Another option would be to replace missing data with an average score for the variable; however this is likely to suppress the true value of the standard deviation and standard error. Although this is not a serious consideration for large samples with a small amount of missing data, this can lead to serious problems when the sample is small or the quantity of missing data is large. There *are* also more sophisticated methods of dealing with missing data where you can replace missing values with estimates far better than the mean (Field, 2009). Imputation is the

process of replacing missing data with substituted values which can reduce the risk of introducing bias into the sample. If the cases are not missing completely at random, then listwise deletion will introduce bias because the sub-sample of cases with complete data will not be representative of the original sample. However if the data is missing completely at random then listwise deletion should not introduce bias. Although 70 children took part in the study, only 56 were included in the main analysis. Six of these children were excluded as they were aged under 12 months and there was no mental wellbeing measure for this age group. This means that the results of this analysis will not represent this age group. The remaining eight however appeared to be missing at random, not being included as they were missing data on at least one of the key measures. These eight will therefore be compared to the 56 children included in the analysis to explore whether there were differences between those included and those not. This will give an indication as to whether the missing data is at random or not. If there are no differences between the two groups of children on their cognitive ability, language ability or mental wellbeing, then it is likely that the missing data is at random and therefore cases can be excluded listwise, which given the relatively modest sample size, is the safest option.

Overall, what is clear is that multiple regression benefits from a larger ratio of predictor variables to participants, thus it is important to minimise the number of predictor variables where possible. The aim was to investigate the contribution of five different child characteristics related to outcome: age, gender, mental health, language and cognition. After removing cases with missing data the final sample eligible for this analysis was 56. Although a modest sample size, it does appear to be sufficient to allow this analysis. Recommendations by Khamis et al (2010) suggest a sample size of 45 to be sufficient while Brace et al (2009) would suggest a sample size of at least 50.

The children were assessed in different ways depending on their age, which posed a problem for this analysis. Age in months for the sample was entered with ease, and a nominal predictor variable is legitimate if it is dichotomous, therefore male/female could be entered into the regression. For language and cognition, the children were assessed with either the WPPSI or the Bayley. Both of these measures provide a percentile score as to where the child would be relative to the rest of the population and is scored 1-99. These measures were combined to provide a percentile for both language and cognitive score. Mental health was a trickier measure to combine. The best validated measure used in the

assessment for mental health was the SDQ, and this was therefore chosen as the most meaningful representation for all children over the age of 24 months. There was no measure of mental health for the children aged 6-12 months and so they were not included (thus constituting some of the previously mentioned missing data). For children aged 12-23 months, the ITSEA was used to describe their mental health. A study from the Bucharest Intervention studies (Gleason et al., 2011) found the ITSEA competence scale to have a significant association with indiscriminately social/disinhibited attachment disorder and so this influenced the decision to choose this scale as the measure to describe the mental wellbeing for the children. The SDQ also has an equivalent subscale, looking at positive mental health behaviours, the prosocial scale. The ITSEA competence scale is measure 0-2, while the SDQ prosocial scale is measured 0-10. The scores the children in the sample received were converted to percentiles, by multiplying the ITSEA score by 50 and the SDQ scores by 10, thereby giving every child a score from 0-100 on their mental wellbeing. There are obvious limitations to this method, as scores on different measures should ideally not be combined since they are not measuring exactly the same thing. However, this was felt to be the best way to assess the contribution of mental health to PIRGAS score within this exploratory study.

There are various regression methods which can be used (described in Brace et al (2009)). The standard method is known as the enter method, and in this method each predictor is assessed on what variance it explains in the model. Secondly, there are hierarchical or sequential methods in which the variables are entered into the model in a particular order. This can only be used when there is strong reason to believe, from previous research for example, that one variable is likely to be more important that another and so is not suitable for this exploratory research. Thirdly, there are stepwise methods, in which the variables are entered into the model in an order determined by the strength of the correlation rather than by theoretical rationale. Stepwise methods are, however, considered unwise, with Field (2009) recommending that they are best avoided, as these techniques are so heavily influenced by random variation in the data they seldom give replicable results if the model is retested. The enter method is considered the safest method to use, particularly with limited sample sizes, because minor variations in the data due to sampling errors can have a large effect on the order in which variables are entered and therefore the likelihood that they are kept in the model. It was therefore decided to primarily use the standard enter method to conduct the multiple regression, using stepwise regression for exploratory

purposes only, in the hope of understanding how these factors related to each other as thoroughly as possible.

Prior to conducting a multiple regression, it was important, firstly, to investigate whether the model fits the observed data well or whether instead it is being influenced by a small number of cases, and, secondly, to see if the model can be generalised to other samples. The process which was worked through is outlined in Field (2009).

Firstly, an investigation was carried out into how accurate the regression model was. This was firstly done by looking for outliers and residuals. An outlier is a case that substantially differs from the overall trend of the data and therefore can have a dramatic effect on the model. The differences between the actual scores obtained and the scores predicted are known as residuals, with a good model having small residuals. We would expect 95% of cases to have standardised residuals within ±2, with approximately 5% outside of these limits. In the sample of 56, there were 3 cases (5.36%) lying outside these limits, therefore the sample appeared to conform to what would be expected for a fairly accurate model. There were also no cases with a standardised residual greater than 3, so none which raise concerns. In addition, there was an investigation into whether certain cases were having a large effect on the model: for example, would removing one case dramatically change the model? One method of doing this investigation is with Cook's distance, which measures the overall influence of a case on the model, with values greater than 1 giving cause for concern. The highest Cook's value within my sample is 0.154, so this does not appear to be a problem.

Secondly, it was important to investigate whether the model could be generalised to other samples, so that it could be assumed that any findings would be true for a wider population. For a regression model to generalise, it is necessary to make sure that underlying assumptions have been met, again as outlined in Field (2009):

Variable types: the variables are all measured at the interval level, except gender; this is acceptable as gender is dichotomous;
Non-zero variance: the predictors all have some variation in value;
No perfect multicollinearity: the independent variables do not correlate too highly with each other, with none having correlations >0.9. In addition, there are no variance inflation

factors (VIF) greater than 10 or below 0.2, therefore no multicollinearity in the sample could be assumed;

Predictors are uncorrelated with 'external variables': there are no known variables which have not been included in the regression model but which correlate with the predictors and influence the outcome variable;

Homoscedasticity: scatter plots show that the residuals at each level of the predictors have similar levels of variance;

Independent errors: for any two observations, the residual terms are uncorrelated, as tested by the Durbin-Watson test, where a value of 2 means the residuals are uncorrelated; Our Durbin-Watson is 2.091 which gave no cause for concern.

Normally distributed errors: the residuals in the model are random, showing normally distributed variables with a mean of 0;

Independence: all the values of the outcome variable are independent;

Linearity: the mean value of the outcome variable for each increment of the predictor lies along a straight line.

Overall, the assumptions for conducting multiple regression with this sample were met: it could be seen that the model was a good fit for the data and should be generalisable to other samples.

Research Question 6. How does foster carer experience and commitment relate to the relationship the child has with their foster carer?

Foster carer experience and commitment were measured using the TIMB, which is an interview conducted between the researcher and foster carer. Experience was captured by the question, 'how long have you been a foster carer?' and was described in months and years. Commitment scores ranged from 1 to 5, and were scored by the administrator based on the foster carer's answers to questions relating to how much they would miss the child if they had to leave, any desire they had to raise the child as well as what they wished for them in the future. Definitions to help guide the researcher are provided in the coding manual (Bates and Dozier, 1998). Commitment would be scored highly if the foster mother provided evidence of a strong emotional investment in the child. Their answers would reflect a strong attachment to the child, in that the foster carer considered the child as their own, and part of the family, even if they knew the child might return home at a later time. Moderate commitment was considered to be reflected by some investment in the

child, but not to the same degree as a carer with high commitment: for example, they may care for the child but also may be trying to limit any psychological bond, and/or they may report they would miss the child, but say so in a merely matter-of-fact way. Commitment would be considered low if the carer provided no evidence of an emotional investment in the child, with little evidence that the child would be missed and instead viewed as only one of many children passing through the home. Correlations were then conducted between both experience and level of commitment and score on the PIRGAS.

5.3. Results

The main outcome measure was the PIRGAS score. The PIRGAS can be scored between 1 and 100 and scores within the sample ranged between 44 and 100 (mean 82), including scores in the disturbed (n=5), distressed (n=4), significantly perturbed (n=2), perturbed (n=8), adapted (n=33) and well adapted (n=13) score ranges. Knowing that the children had been with their foster carers between 4 and 26 weeks at times of assessment, correlations were conducted between PIRGAS score and time in foster home and no correlation found (r= 0.171, n=65, p=0.174); therefore PIRGAS score was not purely a reflection of how well the child knew the foster carer.

It was of interest to explore whether the 8 children with missing data were different to the 56 children with complete data as it could be possible that children with more problems were more likely to have missing data than others. There were however no significant differences between the groups on cognition (t(60)=1.26, p=0.21), language (t(60)=0.83, P=0.41) or mental wellbeing (t(62)=1.13, p=0.26). This suggested that removing these eight children from the main analysis should not introduce bias and that the results should be representative of the sample of these children.

Research Question 5. How are child characteristics, when a child first enters care, associated with the quality of relationship they have their foster carer?

Using multiple regression, age, gender, language, cognition and mental wellbeing were assessed for their relative associations with PIRGAS score. Using the enter method, a significant model emerged: F (5, 50) = 3.26, p<0.05. The model explains 17% of the variance (Adjusted R^2=0.17). Table 18 below gives information for the independent

variables entered into the model. It can be seen that individually none of the variables predict the score on the outcome variable.

Table 18. *Multiple regression using enter method*

Variable	***B***	***SE B***	***β***	***Sig.***
(Constant)	64.09	5.04	-	0.00
Age	0.22	0.12	.24	0.08
Gender	5.60	3.53	.20	0.12
Cognition	0.05	0.11	.09	0.62
Language	0.01	0.11	.02	0.94
Mental wellbeing	0.10	0.06	.24	0.09

A univariate model for each variable was then explored, looking at the individual associations between each of the five factors with PIRGAS score. There were significant positive correlations between age (r=0.33, n=56, p<0.05), and mental wellbeing (r=0.39, n=56, p<0.01) and PIRGAS score, with PIRGAS score increasing as age and mental wellbeing increased. There was no evidence of correlation between cognition (r=0.22, n=56, p=0.11) or language (r=0.23, n=56, p=0.09*)* with PIRGAS score. It was also found that there was a significant difference between girls and boys on their PIRGAS score, with the average score for boys being 79, compared with 87 for the girls ($t(54) = 2.36$, $p< 0.05$). These results led to a re-run of the multiple regression using only the three significant factors, in order to investigate the strength of this as a model. Using the enter method, a highly significant model emerged; $F(3,52) = 5.36$, p<0.01. The model explains 19% of the variance (Adjusted R^2=0.19). The results are tabulated below (Table 19).

Table 19. *Multiple regression model using 3 factors.*

Variable	***B***	***SE B***	***β***	***Sig.***
(Constant)	64.65	4.92	-	0.00
Age	0.23	0.12	.25	0.06
Mental wellbeing	0.11	0.56	.27	**<0.05**
Gender	5.76	3.47	.21	0.10

These results show that together these factors produce a significant model for predicting PIRGAS score, with mental wellbeing appearing to exert the greatest influence over the outcome variable (p<0.05).

The results showing a relationship between age and PIRGAS score warranted further investigation. It was of interest to explore whether the association showing that older children had higher PIRGAS scores was merely a measurement issue, with the behaviours

scored as positive on the PIRGAS being more easily recognised in older children. This was investigated by examining the standard deviation around the scores given for children across different age groups. If the behaviours were easier to identify in older children, then we would expect to see a larger standard deviation around scores as the children get older, as the presence or absence of such behaviours would be easier to spot. In contrast one might explain the lower PIRGAS score in younger children to be due to a difficulty in identifying the relevant behaviours and so to have a lower standard deviation across the scores. This, however, was not the case, with roughly equivalent standard deviations across the age ranges (15.08 for 12-23 months, 18.87 for 24-35 months, 15.16 for 36-47 months and 7.42 for children aged over 48 months), suggesting that the increase in PIRGAS score as children aged was a real reflection of better relationship quality in older children.

Despite the controversy surrounding stepwise regression, this was also completed because of the exploratory nature of this piece of work. The model works by entering and removing predictors, in a stepwise manner, until there is no justifiable reason to enter or remove more.

Using the stepwise method, a significant model emerged, $F(1,54)= 9.48$, $p<0.01$. The model explained 13.4% of the variance (Adjusted $R^2=0.13$). The model only included mental wellbeing as a predictor ($\beta = 0.39$, $p<0.01$) with age, gender, language and cognition all being excluded. Stepwise methods should always be used with caution, particularly so with such modest samples, but this exploratory analysis does suggest that mental wellbeing may play a larger role that the other child characteristics when predicting the quality of relationship which a child has with their caregiver, as measured with the PIRGAS.

Overall, the model was found to have a good fit, which should be meaningful with different populations. When combining the child characteristics of age, gender, language, cognition and mental wellbeing together a significant model which predicted 17% of the variance in PIRGAS score was found. Exploratory analysis suggested that mental wellbeing was likely to be the most important of the child characteristics with it being the only variable included when stepwise analysis was used.

Following these findings, the association between mental wellbeing and PIRGAS score was investigated further. As an alternative to examining mental wellbeing on a continuous score, it was also possible to look at it differently; by comparing those children who would be identified as showing concerning mental wellbeing scores and those who would not, as this result may be more clinically useful. There was no evidence of a significant difference in PIRGAS score when comparing those who scored in the normal vs abnormal range for total difficulties on the SDQ (t=-.29, df= 36, p=0.78), but there was a significant difference found when comparing the PIRGAS score of those children who scored as normal vs abnormal in prosocial behaviours on the SDQ (t= 2.4, df= 38, $\mathbf{p<0.05}$), with children in the normal range having significantly higher PIRGAS scores (mean=86) than those scoring in the abnormal range (mean = 74).

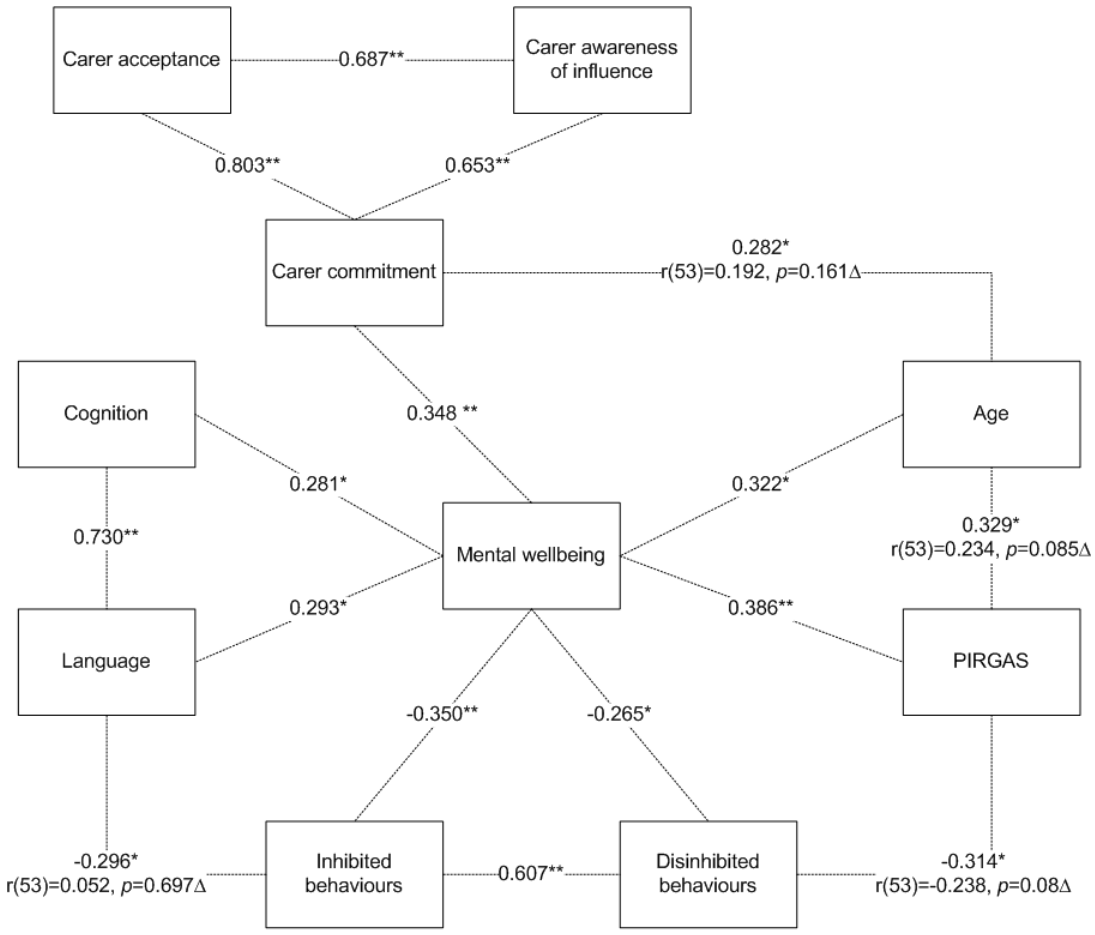
Research Question 6. How does foster carer experience and commitment relate to the relationship the child has with their foster carer?

A correlation between the carer's level of experience and PIGRAS score was not found (r= 0.06, n=65, p=0.32), however there was evidence of a significant correlation between the level of commitment which a carer has for the child and PIRGAS score (r= 0.21, N=65, p<0.05), with the PIRGAS score increasing as the level of commitment which a carer has for the child increases.

Overall, the findings suggest that there may be associations with both child and foster carer characteristics and the quality of the relationship between them, with both the child's mental wellbeing and the carer's commitment showing signs of a relationship with PIRGAS score. It was thus also of interest to investigate whether there was a relationship between these two variables, and so a potential correlation between the child's mental wellbeing and the carer's level of commitment to that child was investigated and found to show a moderate correlation, (r= 0. 37, N=64, p<0.001), with 14% of the variance explained. As the child's mental wellbeing score increased, so does the carer's level of commitment towards that child.

A partial correlation between PIRGAS score and carer commitment was then conducted, while controlling for mental wellbeing. This showed that there was no longer a significant correlation between PIRGAS score and carer commitment (r= 0.05, N=65, p=0.35), and thus the effect described previously was largely mediated by the child's mental wellbeing.

The finding that mental wellbeing appeared to have important associations with a number of different factors led to the exploration of potential correlations among all the different factors and to see what extent they remained significant when mental wellbeing was controlled for. The correlations between the different measures are illustrated below (for 56 children included in the main analysis – Figure 10).



**Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
ΔBecomes non-significant partial correlation when controlling for mental wellbeing

Figure 10. Correlations between child characteristics

The above diagram illustrates that there is a complex picture emerging. While there is evidence for a number of correlations between different characteristics, it can also be seen that a number of them (language/inhibited behaviours; PIRGAS/disinhibited behaviours; age/PIRGAS; age/carer commitment) appear to be mediated by mental wellbeing, with the correlations not remaining significant once it is controlled for.

5.4. Discussion of results

The results revealed a model which used the child characteristics of age, gender, mental wellbeing, language and cognition to explain 17% of the variance in the quality of the relationship which the child had with their foster carer as measured on the PIRGAS. Additional exploratory analysis suggested that mental wellbeing was the child characteristic which was having the largest influence on PIRGAS score, with those scoring in the normal range for prosocial behaviours having significantly higher PIRGAS scores than those scoring in the abnormal range. A systematic review of the literature in this field (Pritchett et al., 2013b) found that there was evidence that a child's mental health may be having an effect on the child's outcome from care. Dance and Rushton (2005) found that behaviour problems predicted placement disruption while Glisson et al (2000) found that children with mental health problems had a lower probability of exiting care. The systematic review concluded that the majority of research in this field found evidence for a negative effect of mental health, but overall the literature was restricted by its heavy reliance on administrative data to explore this complex issue. The field of research has now been added to, with findings that bring support to the importance of a child's mental wellbeing in their foster placements with the use of detailed face-to-face assessments bringing additional strength to the argument.

The results showed that there was no significant difference in PIRGAS score when comparing the groups in terms of those scoring in the abnormal range for problem mental health behaviours and those not. Instead there *was* evidence of a significant difference in PIRGAS score when comparing the groups in terms of those scoring in the abnormal range for prosocial mental wellbeing behaviours and those not. Prosocial mental wellbeing behaviours were captured by items such as the child's ability to share with others and being helpful if someone else is hurt. These are behaviours which generally children need to be taught, usually by their primary caregivers. With these children all being at such high risk, having experienced maltreatment prior to entering care, it is possible that they have not had the opportunity to learn such behaviours from their parents. With the findings showing the association between the presence of these behaviours and the quality of the relationship which they have with their carer, it seems imperative that these children are given the opportunity to learn these important prosocial skills, with the understanding that they and their foster carers may need considerable additional support for them to do so.

The literature search also examined the evidence for an effect of age, gender and cognition on a child's placement outcome from care. The systematic review found evidence that children entering care at a younger age were more likely to have better outcomes than older children, with three quarters of the studies finding an effect in this direction: for example, Kemp and Bodonyi (2000) found younger children were more likely to achieve permanence while Rosenthal et al (1988) found that younger age of placement predicted an intact placement. The remaining quarter of the studies, however, found more positive results for older children, for example, with Cooper et al (1987) showing that younger children spent longer in transitional placements resulting in greater disruptions than older children. The results revealed a moderate positive correlation between age and PIRGAS score, but this did not remain significant once mental wellbeing was controlled for, suggesting that the link between age and relationship quality is not a direct link, but rather affected by the fact that older children were found to be displaying higher levels of mental wellbeing than younger children. An investigation of the literature in this area shows that the vast majority of research in this field has included children over a much larger age range than this current study: for example, in the aforementioned studies Kemp and Bodonyi (2000) included children aged 0-18 years, Rosenthal et al (1988) described a sample of children aged 3-16 years, while Cooper et al (1987) included children aged 2- to 14-years-old. It may be that the effects of age are not evident when the sample is all comparably young, as in the current sample of children under the age of 5, or it may be that other studies have not fully considered the effects of other factors, including mental wellbeing in their analysis. With the literature review revealing a heavy reliance on administrative data for research in this field, it seems unlikely that they could be accurately capturing and considering the potential impact that a child's mental wellbeing may be having as a confounder to other factors.

In terms of gender, the systematic review found that over 70% of studies showed no effect of gender on placement outcome for children in foster care. In the larger studies identified, including over 10,000 children, 2 found significant effects of gender. Yampolskaya et al (2007) found that boys had a delayed exit from care, while Snowden et al (2008) found that girls were more likely to be adopted. The effect sizes in these studies were, however, both very small. The results of the current study revealed that girls had significantly higher PIRGAS scores when assessments were made of the quality of the relationship they had with their foster carers, although when added into the regression model this was not a

significant predictor. This seems in line with previous research in the area, that there may be a slight bias towards girls achieving better outcomes in foster care, but it does not appear to be a clear link.

When considering cognition, the literature review found that in over half of the studies identified, there was no effect of education or cognition on outcomes from care. In the studies which did find an effect, however, almost all revealed that children doing poorly in school were more likely to have a negative outcome from care. Jones et al (1998) found that having a learning disability or problems at school led to an increased chance of entering care, while Kraus (1971) directly assessed the children's IQ with a cognitive assessment (WISC) and found that IQ had no effect on placement success or failure. The systematic review looked at cognition, language and education problems together. However, it could be predicted that these capture a number of different things: for example, problems at school may be just as likely to be a reflection of behaviour and mental health problems as a problem with learning. The current findings are in line with those of Kraus (1971), which established that if the child's intelligence is directly assessed, then this outcome does not have an association with their placement. With children in foster care being at high risk of having problems in cognition, as evidenced by the current findings, it is interesting to find that the level of problem a child has does not appear to influence the quality of the relationship they have with their foster carer. A child with a high level of problems appears to be as likely to be able to form a good relationship with their foster carer as children with fewer problems.

Despite a sample of 70 children in this study, the analysis was restricted by only including 56 in the final analysis due to missing data. While some analysis was conducted to explore whether there were differences between those missing data and those not, it is possible that excluding these children from the main analysis introduced bias, as it is not possible to explore all the factors which may have led to children having missing data. Therefore a characteristic which all these children shared, which led them to have missing data, may not be fully represented in these results. As the missing data was across all the different measures, this is unlikely to be a problem within this sample, but imputation should be used to replace missing data with substituted values if there are concerns that the data is not missing at random.

The systematic review finding evidence that child characteristics were associated with a child's outcome from care provided the rationale for this current study. While previous research had relied heavily on administrative data, the present aim was to explore the issue more thoroughly using face to face assessments. The results were in line with previous findings, providing strong evidence of the importance of mental wellbeing, with less clear evidence on the effect of age and gender. Furthermore, in line with previous findings, when you directly assess the child's cognitive ability, this does not appear to be associated with the success of the foster placement. Overall, the findings suggest that children with better mental wellbeing, those who display more positive social behaviours and interactions are also more likely to have better relationships with their foster carers. With the importance of a good relationship between a child and their foster carer undeniable (Ainsworth et al., 1978), it is clear that any step towards understanding potential issues which stand in the way of this relationship are positive, particularly when there may be skills which can be taught to children, such as prosocial (caring, helpful) behaviours. While correlation does not imply causality, it is evident that there is an association between the child's mental wellbeing and the relationship they have with their foster carer. By identifying certain child characteristics which may be associated with problems in the child foster carer relationship, it may also be possible to identify which children and foster carers may require additional support.

The second research question which was investigated in this chapter was concerned with the carer characteristics. It was found that the carer's level of experience did not relate to PIRGAS score, but the carer's level of commitment did, with an increase in PIRGAS score as the level of commitment increased. However, this effect disappeared when mental wellbeing was included in the model. Therefore it appears that it is not commitment itself that is associated with PIRGAS score, but rather that mental wellbeing is associated with both carer commitment and PIRGAS score. Previous research has shown higher rates of placement breakdown in families with more experienced carers (Minnis and Devine, 2001) and so one might have expected lower PIRGAS scores in more experienced carers, which was not found. This could be due to the differing measures, with the PIRGAS used as a cross-sectional measure as opposed to a longitudinal placement outcome. Additionally it could be a reflection of changes in the system or the type of carers employed. With over a decade of time passing since the Minnis and Devine study, it is possible that social work services are becoming more attuned to the importance of commitment from the foster carer,

and so this may affect those taking up the role of foster carer or the training they receive. Improvements may have also occurred in terms of matching children to foster carers: for example, previously it may have been that children with more problems were given to more experienced carers, whereas now they may be matched more specifically on need. This, however, is purely speculative and would require further insight into how services may have changed over the years. The results may indicate a positive step, however, showing that regardless of how committed they are to the child they are still able to form a good relationship with them. This has important implications when considering the different types of foster care offered in Scotland: for example, there are temporary foster carers as well as short- and long-term carers. Ideally, what is best for the child would be to have a good relationship with their foster carer regardless of which type of carer they were placed with, including those carers who perhaps know that the child is not in their care for long. The findings go some way to support this, instead finding that it is mental wellbeing which is associated with both carer commitment and the quality of the relationship they have.

While this can only be speculative, the carer's commitment to the child and the relationship between the child and their caregiver are new constructs, which have only emerged since the child entered the foster care placement. In contrast, the child will have brought with them their personality, behaviour and characteristics. It therefore seems more likely that the child's mental wellbeing is having an effect on the carer's level of commitment and the quality of the relationship they have made in the first few months of placement. This cross-sectional analysis cannot establish this for certain, as a negative relationship with the caregiver could have a detrimental effect on the child's mental wellbeing.

In complex relationships such as this, it would be useful to test whether factors are acting as mediators or moderators. Mediators would be factors which act as the mechanism underlying an observed relationship between two variables, while moderators would represent a third factor which change how another two variables interact with each other. Path analysis is a statistical technique associated with multiple regression which can be used to test the strength and direction of the relationships between several variables and to identify mediating and moderating variables. It is however recommended that the data is collected longitudinally as the mediator and independent variables should precede the

dependent variable. This makes it less meaningful in a cross-sectional study such as this as we cannot see how the measures change over time (Wright, 1934). While it was not suitable to use path analysis in this current study, it is a technique which should be used for future work in this area. The current findings clearly warrant further investigation in order to gain a greater understanding into some of the important factors which play a role in the development of a good relationship between a child and their foster carer.

6. Results. Assessments

6.1. Background

There is already an acknowledgement in the literature that there are difficulties to address when assessing children in foster care. There are considerations around *what* it is actually possible to measure, *when* assessments should be conducted as well as *how* these assessments need be conducted, with findings stressing the importance of using multiple approaches to assessments and allowing time for the child to settle into his or her new home. This research helped guide the methodology of the current study, for example, suggesting use of both observation as well as foster carer report, and allowing a month to elapse prior to the assessment of the child.

There were however other considerations identified in the literature, which were not possible to account for in the design of the study. Instead, it was important to examine some of these factors within this sample to investigate what role or affect they may have had on the data we collected during these assessments. Firstly, it was acknowledged that there were concerns, in the literature, that foster carers may not be reliable informants for these children: Carter identified that carers may be unable to distinguish between normal and abnormal behaviour (Carter and Briggs-Gowan, 2006). With this in mind it was deemed important to investigate whether carers were appropriately worried about the child in their care.

In addition it was acknowledged that these assessments may be difficult and stressful for these children, in particular if they had not yet formed a strong attachment with their new foster carer: being separated from the carer in the context of a fragile attachment relationship may cause an undue amount of stress for the child and so it was desirable to address whether this may affect how the child performed in the tasks they were being asked to do.

O'Connor reported developmental catch up in a sample of Romanian orphans once they were placed in a stable family (O'Connor et al., 2000). Cognition is meant to be a stable measure across time, however with the literature describing cognitive catch up within samples that had experienced significant adversity, it was of interest to investigate whether there was any evidence of this occurring in the small sample of children with 1 year follow-up data.

In this chapter, the following research questions were addressed;

7. How important are measurement issues;
    a. Are foster carers reliable informants?
    b. Are children sufficiently engaged in the tasks?
    c. How stable are the measures across time: are findings similar when the children first enter care compared with when followed up one year later?

6.2. Method

Research Question 7A. Are foster carers reliable informants?

The foster carers were asked to identify any concerns or worries that they had about the children in different areas of their mental health and development. These data came from the PEDS, in which the foster carers were asked if they had concerns about different aspects of the child's development and the carers could respond 'no', 'a little' or 'a lot'. In addition, the level of foster carer worry was also captured in the ITSEA, where foster carers were asked how worried they were about the children's language as well as how worried they were about the children's emotions, behaviour or relationships. Foster carers were asked to respond: 'not at all worried', 'a little worried', 'worried' or 'very worried'. To investigate how reliable the foster carers were at identifying concerns about language, a potential correlation was investigated between the level of worry the carer had about the child's language (as assessed by the ITSEA) and the child's language percentile on either the Bayley or the WPPSI. Correlations were conducted between the concerns the foster carer reported in terms of how the child was learning to do new things (as assessed with the PEDS) with the child's cognitive percentile on either the Bayley or the WPPSI. This was based on the assumption that a child with poorer cognitive ability would be more likely to be showing delays in their ability to learn new things. For children aged 12-29 months, correlations were also investigated between the child's score on the different domains on the ITSEA (dysregulation, internalising, externalising and competence) and the carer's reported worry about the child's behaviours, emotions or relationships, as also measured on the ITSEA. For children aged over 30 months, correlations were investigated between the child's score on the different domains of the SDQ (emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviours) and the carer's reported worry about the child's behaviours, emotions and

relationships. Correlations were all conducted using Spearman's non-parametric test as the data recording the level of carer worry was ordinal.

It was also of interest to investigate to what extent carers were concerned about the children who were showing the lowest and most worrying scores on the cognitive, language and mental health assessments. Due to cells having an expected count of less than 5, an exact significance test was selected for Pearson's chi-square which was used to compare the level of worry which the carers had about children scoring in the lowest 15th percentile and those in the top 85th percentile on both cognition and language, thus distinguishing those who would be considered by professionals as significantly delayed and those who would not.

It was also investigated whether, for the children who were showing results which would concern a clinician, there would be a relationship between the child's mental health and the carer's worry. The ITSEA looks for the presence of particular symptoms which are termed 'items of clinical significance', i.e. those which would prompt a clinician to investigate further. It was decided that children who were scoring on three of more of these clinically relevant symptoms would likely be considered as concerning for a clinician, thus it was of interest to investigate whether carers would be more worried about these children than those scoring on less than three of these items. This was done using chi-square analysis. Finally, it was of interest to explore whether carers reported concern about children who were identified as having a likely diagnosis on the DAWBA or not. Due to cells having an expected count of less than five, an exact significance test was selected for Pearson's chi-square for each analysis.

Research Question 7B. Are children sufficiently engaged in the tasks?

The Bayley Scales ask the administrator to rate how easy it was to engage the child in the tasks, reporting 'no difficulty' in engagement, 'some difficulty' or 'a lot of difficulty'. After recruitment had started, the usefulness of this measure became evident, and it was decided to complete it with the children who were being assessed with the WPPSI as well. Due to this delay, the data were only available for 56 children. The children were rated on their level of engagement throughout the cognitive assessments and then a potential correlation was investigated between the level of engagement and the percentile score which the child achieved on the task.

Research Question 7C. How stable are the measures across time?

As part of the larger RCT, the assessments being conducted which are described in this thesis were then repeated one year later. Twenty-five of the sample of 70 had reached this stage and therefore had data available from two cognitive assessments. When the children first entered care, 10 were assessed with the Bayley and 15 with the WPPSI; a year later, three were assessed with the Bayley and 22 were assessed using the WPPSI. Both tests provide a percentile rank, (<1 to >99) as to their place in the population. As improvement is expected in all children over time as they continue to develop, the child's percentile is used as a measure of change, to see whether the children improve at the same rate at which one would expect children in the general population to improve over time. Paired samples t-tests were conducted on both the cognitive and language percentiles, to investigate whether there was a significant change in scores over the year.

Prior to conducting the analysis, the assumption of normally distributed difference scores was examined; as the skew and kurtosis levels were estimated at 0.3 and 0.9 respectively which is less than the maximum allowable values for a t-test (i.e. skew<2.0 and kurtosis<9.0; (Posten, 1984)), the assumption was considered satisfied. Homogeneity of variance was also measured using the Pitman- Morgan test, which found a non-significant difference in the degree of variance (t=0.07, df=22, p=1.06) between the time points. The assumptions, therefore, were suitably met to allow the use of a parametric, paired samples t-test to be used.

6.3. Results

Research Question 7A. Are foster carers reliable informants?

The correlations between the child's score on a measure and the associated level of concern which the carer has about that aspect of the child's functioning is tabulated below (table 20).

Table 20. *Correlations between child's score and carer's level of concern*

Child's area of functioning	**Correlation with carer's level of concern**
Language ability (Bayley or WPPSI)	r_s= ***-0.27,*** **N=68,** p**<0.05**
Cognitive ability (Bayley or WPPSI)	r_s**=-0.31, N=68,** p**<0.05**
ITSEA-Dysregulation	r_s**=0.51, N=25,** p**<0.01**
ITSEA-Externalising	r_s**=0.57, N=25,** p**<0.01**
ITSEA-Internalising	r_s=0.24, N=25, p=0.25
ITSEA-Competence	r_s=-0.04, N=25, p=0.85
SDQ-Conduct problems	r_s**=0.34, N=38,** p**<0.05**
SDQ-Hyperactivity/inattention	r_s**=0.40, N=38,** p**<0.05**
SDQ-Peer relationship problems	r_s**=0.56, N=38,** p**<0.01**
SDQ-Emotional symptoms	r_s=0.28, N=38, p=0.09
SDQ-Prosocial behaviour	r_s**=-0.47, N=38,** p**<0.01**

The table above shows that there were weak to moderate negative correlations between the carer's level of worry and the child's language ability; cognitive ability and prosocial behaviours. The negative correlations indicate that as the child's ability increased, the level of concern decreased. There were also significant moderate to strong positive correlations between the carer's level of worry and the child's score on dysregulation, externalising, conduct problems, hyperactivity and peer relationship problems. The positive correlations indicate that as the level of problem which a child had increased, the level of worry also increased.

In terms of cognition, it was found that 30 children in the sample were scoring in the bottom 15th percentile. Of these 30 children, the carers of 19 (63%) of them reported not being at all worried about how the child was learning to do things for him- or herself. There was no significant relationship between carer worry about those scoring above or below the 15th percentile on cognition X^2 (2, N=70) =7.07, exact p= 0.13.

In terms of language, 23 of the children in the sample scored in the bottom 15th percentile. Of these 23 children, the carers of 4 (17.4%) reported that they were not at all worried about how the child was making speech sounds. There was a relationship between carer worry and those children scoring above or below the 15th percentile on language X^2 (2,

N=68) =13.06, exact p= 0.006. It can be seen that although there are relationships between a child's score and the carer's level of worry, there are still a number of children who are showing scores worrying to the researcher for whom the carers are not reporting concerns.

Twelve children in the sample (aged 12-48 months) were found to be scoring on more than 3 of the ITSEA items of clinical significance. Of these, the foster carers of 2 (17%) reported not being at all worried about the child's behaviour, emotions or relationships. There was a significant relationship between carer worry and those scoring on more than 3 items of clinical significance on the ITSEA, X^2 (1, N=48) =4.77, exact p< 0.05.

Carers of 45 children completed the DAWBA, and of these 45 children, 21 scored as having a likely psychiatric diagnosis. Of the 21 children, carers of three (14%) reported that they were not at all worried about the child's behaviour, emotions or relationships. There was a significant relationship between carer worry and those children identified as having a likely disorder on the DAWBA: X^2 (9, N=70) =18.95, exact p= 0.041.

Overall, it seems that a carer's report of worry does relate to the level of problem which a child is experiencing, but nevertheless there are still children (approximately 14-17%) who are showing clinically concerning results about whom their foster carers report not being at all worried.

Research Question 7B. Are children sufficiently engaged in the tasks?

There was a moderately large positive correlation between the child's level of engagement and their score on the cognitive measure (r_s=0.47, n=56, p<0.001), with 22% of the variance in cognitive score being explained by the child's engagement in the task.

Research Question 7C. How stable are the measures across time?

For the 25 children on whom longitudinal data were available, the results showed that the mean cognitive percentile of the sample when the children first entered care was 30.8 (SD=20.9) and was 33.5 (SD=21.5) a year later. The mean difference over the time period was an increase of 2.67 and a correlation between the scores at the two time points was found (r=0.59, n=23, p<0.01). A paired t-test showed that the difference over the time period was non-significant (t=0.68, df=23, P=0.5), with a very small effect size (d=0.14). Power analysis (using G* Power 3.1.7) suggested a sample size of 546 would be required

to find a significant effect at the 5% level. The similarities between the scores when the child first enters care and then again one year later are illustrated below (Figure 11).

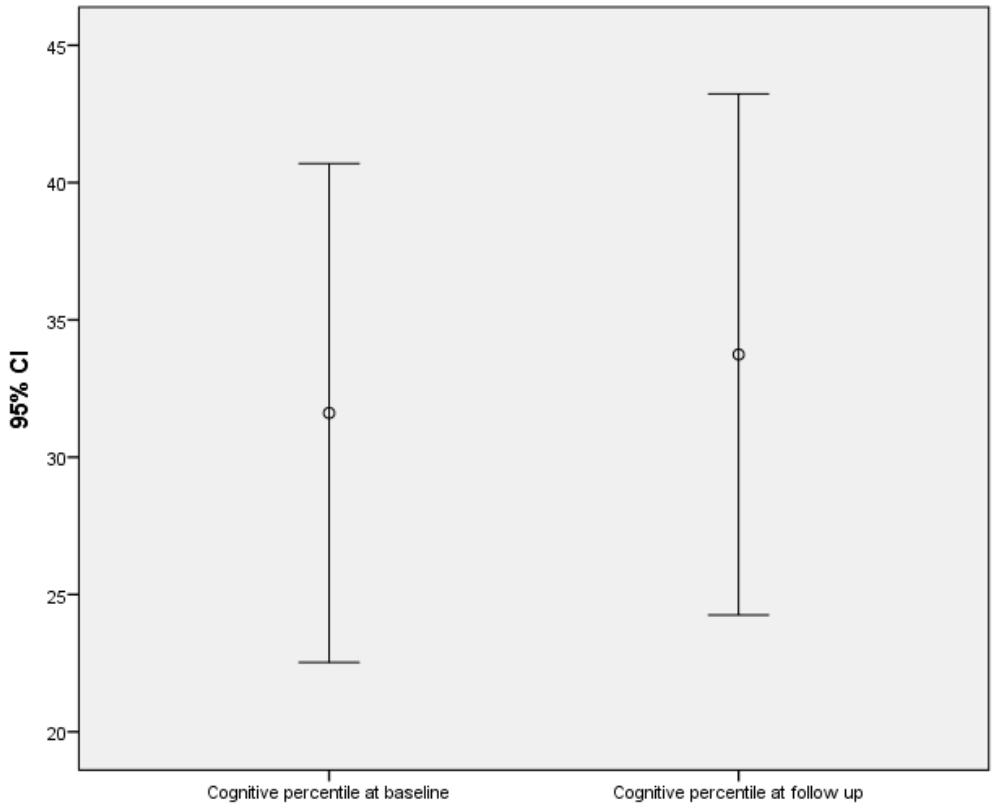


Figure 11. Cognitive percentile at baseline and follow-up one year later

In addition, it was of interest to investigate whether the children showed an increase in their language ability, relative to the expected level of development. The results showed that the mean language percentile of the sample when the children first entered care was 36.92 (SD=24.49) and was 34.8 (SD=24.78) a year later. The mean difference over the time period was decrease of 2.12. A paired t-test showed that the difference over the time period was non-significant (t= 0.30, df=24, P=0.76). As the scores across time are from the same children, we would expect to see correlations between the scores when the child enters care and their score a year later; this, however, was not found when looking at their scores on language. There appears to be no correlation over the time period, r=0.001, n=25, P=0.996 showing that there is no clear direction in the way the child's scores are changing over time. The graph below (Figure 12) demonstrates this, with the entry-to-care scores ranked in order from lowest to highest.

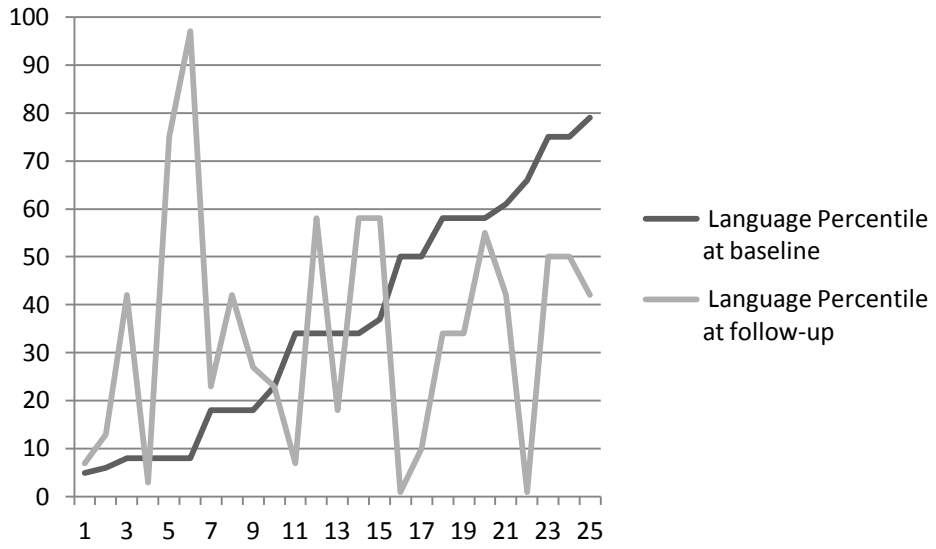


Figure 12. Language percentile ranked in order at baseline, with associated score at follow-up.

This graph shows that the scores at one year follow-up do not appear to relate to the level which the children were assessed at when they first entered foster care. The lack of correlation between the scores obtained at different time points was due to some children showing an increase in score (n=12) and some showing a decrease in score (n=13). It was therefore worth exploring what might cause these differences. When comparing the scores of those who improved in language with those who scored worse, there was no significant difference on cognitive ability (Bayley or WPPSI) or mental health (on the SDQ, ITSEA, DAI or DAWBA) between those showing an improvement in language over time compared with those showing a decrease in score over time. There was also no difference between the groups in terms of the quality of the relationship which they had with their foster carer (PIRGAS). In addition, there were no group differences in terms of age or gender which might have helped explain the differences. As it was important that the research team remain blind to the intervention group which they had been randomly allocated to receive a service from as part of the larger trial (GIFT or FACS), it was not possible to account for any potential effect which this may have been having on a child's outcome.

Case study

Finally, in order to illustrate the complexity of the presentation of children in our sample, the journey that one little boy took through our study and through both assessment

procedures is described. He was a child who was involved in the feasibility study, and so there is only limited assessment data available.

David[8] was born by forceps delivery at 39 weeks gestation weighing 2.685kg (9th percentile). He was put on the child protection register at birth, due to concerns over known violence from his father towards his mother. In addition, he was showing signs of drug withdrawal due to his mother's use of benzodiazepines during pregnancy. As part of the supervision arrangement, David was not allowed to see his father. However, there were at least two occasions when he did see him, and when he witnessed his father being abusive towards his mother. On the second occasion, due to the severity of the incident, David was taken into care.

David was showing significant signs of delay when he entered care at 13 months of age. He was unable to sit up, crawl or walk and unable to eat solid foods. His foster carers reported that he was miserable and cried all day. They reported that he was difficult to soothe and did not seek any contact with them. The intervention team observed how David responded to his carers leaving him alone and then returning. They confirmed that although he was upset when his carers left, his upset was not fully resolved by their return.

After one month in care he was assessed as part of our study. His scores on our assessments were in line with other reports. He scored highly on the Disturbances of Attachment Interview (DAI), which identifies symptoms of attachment disorders. These disorders are caused by early maltreatment, often from a failure to form a healthy relationship to a primary caregiver in early life. As a child gets older, they are likely to display difficulties in social situations and problems developing healthy relationships with others. David's high score showed his difficulties in forming a selective attachment towards his foster carers, which is a likely to be a result of his early maltreatment and a potential symptom of an underlying attachment disorder. In addition, he scored highly in a number of different areas in the ITSEA, showing concerning results in maladaptive behaviours, social relatedness, internalising problems and signs of dysregulation. Moreover, the relationship between child and foster carer was assessed using the PIRGAS, and resulted in a score showing a 'slightly perturbed' relationship – in this regard, it has been stated that 'relationships in this range of functioning are strained but still largely

[8]Name changed for anonymity

adequate and satisfying to the partners' (ZeroToThree, 2005). The findings were all in line with the difficulties which the foster carers had reported.

The following year David was assessed again by the intervention team. They reported that he had made progress in a number of different areas, including his fine and gross motor skills and his ability to problem-solve. They acknowledged that this progress had been slower than expected, despite the intensive intervention from his foster carers with support from the intervention team. A lack of progress was noted in his communication: now 27 months old, he was still not using any clear words. He was, however, showing clear and appropriate preference for his carers and was able to seek comfort and support from them effectively. He was receiving continued support from a speech and language therapist and was due to be referred for testing for any underlying genetic condition.

The research team also conducted an assessment with David when was 27 months old, repeating the measures which had been conducted when he first entered care. At this stage, we saw much lower (improved) scores in the DAI, consistent with the reports that David was now using his foster carers for support and had identified them as important attachment figures. In addition we saw a much higher (improved) score in the PIRGAS, now scoring as 'adapted – relationships in this range are functioning well, without evidence that the relationship is significantly stressful for either partner'. The ITSEA was also repeated but we did not see the same levels of progress from this questionnaire. David was still showing concerning scores in the following domains: maladaptive behaviours, internalising and externalising behaviours, dysregulation and competence. The changes in David's scores are tabulated below (Table 21).

Table 21. *Individual scores for case study child at baseline and follow-up*

	14 months	27 months
DAI Inhibited	6	2
DAI disinhibited	6	0
DAI indiscriminate	6	0
DAI Secure base distortions	1	2
ITSEA. Maladaptive	**Of concern**	**Of concern**
ITSEA. Social relatedness	**Of concern**	Not of concern
ITSEA. Atypical behaviours	Not of concern	Not of concern
ITSEA. Externalising	Not of concern	**Of concern**
ITSEA. Internalising	**Of concern**	**Of concern**
ITSEA. Dysregulation	**Of concern**	**Of concern**
ITSEA. Competence	Not of concern	**Of concern**
PIRGAS	65	86

David provides a useful case study to illustrate the complexities of the assessments being carried out. There was clear progress made in his ability to relate to adults as evidenced by the reports made by the intervention team as well as the improvement in scores which we saw, in both the DAI and the PIRGAS. If, however, the ITSEA had been the only measurement, one might assume that David was in fact doing worse between the two assessment times, as he was actually scoring within the 'of concern' threshold in more areas at the 2nd assessment. There could be a number of different reasons for this. These measures have normative scores available, to allow a child's score to be compared with that of the general population. As such, if a child is progressing slowly, then despite this progress, their scores may appear increasingly worrying as the child ages and falls further behind their peer group. For example, the competence domain in the ITSEA is based on behaviours such as putting toys away after playing, or paying attention for a long time. If a child is not able to do these things by the age when play with peers starts to become important, then the level of concern increases as the child ages. A more worrying score, therefore, may not reflect the child actually getting worse but, rather, indicate a lack of expected improvement over time and thus be a sign that they are falling further and further behind their peers. It is, however, also possible that David's behaviour *was* actually getting worse over time.

To further complicate matters, the development of some apparently negative behaviours might actually indicate overall improvement. By the second assessment, David was scoring in the concerning range for externalising problems. Behaviours scored here include temper tantrums, or being very loud, shouting or screaming a lot, which are developmentally more common at his age at the second assessment. When David first

entered care, he was reported as being miserable, crying all day, with no interest in his carers. With this in mind, showing oppositional behaviours may actually be a sign of progress, as they may be a reflection of David's development towards caring about and interacting with his foster carers.

The intervention team reported that David's language was very delayed by this stage, as he was still not using any words. With this in mind, it could be expected that a child's externalising behaviour would get worse – a child who cannot communicate with language is at increased likelihood of communicating in other ways, for example, in temper tantrums. Szczepaniak et al (2013), for example, found that in a sample of 30- to 60-month-old children referred to a clinic for disruptive behaviours, the children were 4 times more likely to be experiencing developmental delays than the general population. Furthermore, a child with a high level of difficulties is likely to cause stress and anxiety in a parent, which in turn can lead them to be more negative towards the child, causing a cycle of increasingly negative behaviour between the pair. David's foster carers reported difficulties in caring for him which led to significant changes being made within the foster family while he was in their care.

David was later found to have an inactivated gene, which medical specialists thought, along with his prenatal exposure to toxins, might have predisposed him to neurodevelopmental problems. They were unable to test the parents, however, which meant the interpretation of their findings had to be purely speculative in this case.

While one cannot be sure exactly what is behind the changes in David's score over time, what is clear is that there is a need to assess a child's functioning in a variety of different ways and at more than one time point. It is evident that David was showing overlapping problems which were developing over time in different ways. It would therefore be impossible for one measure to capture an accurate picture of his needs. Furthermore, it seems clear that assessing change in a child is more informative than simply assessing a child's scores as compared with normative data. Repeating measures over time is therefore likely to provide more useful data about how a child is progressing.

David was adopted in 2014.

6.4. Discussion of results

The results showed that there are some potential issues that need to be considered when assessing children entering foster care. The first research question aimed to investigate whether foster carers were reliable informants for the children in their care. It was found that although there were correlations between the carer's level of worry and the level of problem a child had in some domains this was not consistent. More specifically, although there were correlations between the carer's level of worry and the child's score on the majority of the problem domains on the ITSEA and the SDQ there was a lack of correlation between the carer's level of worry and the children's scores on the emotional problems domain of the SDQ and with the internalising domain on the ITSEA. We see evidence that carers are more worried about children with attention and behaviour difficulties than they are with children showing difficulties with their mood or anxieties. It may be that carers are less worried about these behaviours because they are expected in children who have just come into care. Carers are able to identify a child who is often sad or has many fears, but are not concerned as they may be confident that these behaviours will lesson over time, viewing them as a natural reaction to their situation. Alternatively, it is also possible that they may be less concerned about these behaviours as they may place less of a burden on the carer. An oppositional or hyperactive child may be harder for the carer to cope with than a child who is often upset and so this could lead them to be less concerned about those with emotional or internalising problems.

Furthermore although we found a correlation between level of worry and the prosocial domain on the SDQ, we did not find evidence of a correlation between the level of worry and the competence domain on the ITSEA, both of which measure positive mental health behaviours. This could be because carers are simply not as worried about a lack of prosocial behaviours in children aged less than 30 months as they are in older children. Alternatively it could be a reflection of the differing measures used, with the SDQ more accurately tapping into the key behaviours.

Overall it was identified that there were children showing worrying scores about which the carers were not reporting concerns. These findings are in line with the literature in this area, in particular with the findings of Achenbach et al (2000), who found that parents who reported scores which would worry a clinician on the CBCL often reported that they were not worried about the child.

There are possible reasons why a carer would be reluctant to talk about the problems which the children were having. Firstly, it would be expected that foster carers would be keen to have children in their care, as they have usually formed strong and positive relationships with the children, and also because caring for them is their job and a source of income. With this in mind, it is understandable that they may be keen to make a good impression on those assessing the children in their care. It is possible that carers feel that if outsiders think the children are not doing well in their care, then this will reflect badly on them as carers. This may endanger placement stability for a child with whom they have developed a bond as well as their ongoing employment. It should be noted that the opposite was also seen in the trial, however, with carers sometimes reporting problems that were not seen by the researchers, for example that the child 'never sat still', although the child happily sat still through a long cognitive assessment. It is also worth acknowledging that children may well behave differently in the clinic from how they do at home, as they are perhaps less likely to be oppositional with strangers, and also less likely to feel confident enough to speak and perform to the best of their abilities.

Secondly, it is possible that foster carers had little knowledge about typical behaviour and development in children. Most of the carers in the study had been foster carers for a number of years and so had had many children in their care. We know that children in care are more likely to have problems (Rees, 2013) than children in the general population, and so when asked about how the children currently in their care are compared with other children, carers are very likely to compare them with other children they have had in their care rather than with children from the general population. Despite many foster carers having children of their own (though they are likely to be older than the foster children in this study), they also may normalise otherwise rare behaviours if they have seen a large number of children with similar difficulties. This phenomenon, however, also has its strengths. When asked about specific behaviours, for example hyper-vigilant behaviours, carers with a lot of experience will be more highly attuned to the differences between this and, say, typical shyness.

Carter and Briggs-Gowan (2006) acknowledged that it is not uncommon for parents from the general population to report that they are not worried about their child, despite the child showing 'concern results' in tests/assessments. Many parents do not have a good understanding of normal development and therefore may not recognise symptoms as

concerning. The impact of stigma, blame, guilt and anxiety associated with raising a young child who has emotional and behavioural problems is also important, and this may be even more of a problem for foster carers.

Carers may also be reluctant to say negative things about a child that is not their own, perhaps feeling that it is not their place to do so. For example, the DAWBA (Goodman et al., 2000) involves asking carers not only about behaviours the child was exhibiting but the impact the behaviours had on the family. Carers in the study almost never described any behaviour the child engaged in as a burden. Sometimes the carers would describe extreme lengths they were going to in order to avoid the child getting upset, yet when asked directly about burden, reported that this caused no problems for the family as a whole. Some carers were concerned about the word 'burden', and wanted to demonstrate the ways in which they were helping the child to assimilate into the family. While it was commendable that they felt this way, it did not always give an accurate report on the severity of the child's problems.

Assessing the validity of the assessments and the reliability of foster carers as informants raises some difficulties. While there were discrepancies between carer report and researcher report, it is not always clear which one is correct and therefore differences cannot always be attributed to an unreliable informant. There has been an acknowledgement that foster carers may not have a clear idea of normal development in a child and may be biased by the previous children in their care. It should also be acknowledged that these same issues may be present for researchers, who have undoubtedly assessed a large number of children, and so error could be being introduced from both sides. Furthermore, differences between informants is not necessarily a case of one being right and the other wrong but rather the ability for different informants to pick up on different things. Kanne et al (2009) illustrated the differences evident when comparing parents and teachers reports of a child's autistic behaviours and emphasised the importance of the environmental context and the potential for differences between informants to be meaningful, supporting the idea of a multi informant approach.

The results further showed that the child's level of engagement with a cognitive task was related to how well the child performed on the task they were asked to complete (Bayley or WPPSI). These findings are in line with what might have been expected in this sample.

Cognitive assessments have basic requirements for administration. The child is required to engage with the task and concentrate on what they are being asked to do. Cognitive assessments require the child to be sufficiently relaxed, attentive and compliant for the assessment to be viewed as accurately measuring their full potential. Conducting cognitive assessments in the study demonstrated how difficult these basic requirements were to achieve. Children who have come into a period of care have often suffered greatly from early adverse experiences. The WPPSI requires the child to be alone with the researcher, therefore separating them from their foster carer with whom they have begun to form an attachment relationship. Being left with a stranger in a new place can increase anxiety levels – potentially more than would be expected for a child who was not in foster care. This separation could increase stress levels in the child, and, as mentioned previously, does not provide the ideal opportunity to assess ability. The opposite behaviour was, however, also witnessed in some children, who were far more content at the prospect of being left with a stranger than would be expected for children of the same age. These children's carers often reported that they 'would go with anyone' and had no sense of 'stranger danger'.

Andel et al (2014) highlighted the fact that children who have experienced adverse early experiences are more likely to have an altered Hypothalamic-Pituitary Axis (HPA) axis function. The HPA axis governs the way the body reacts to and modulates stress and it is most commonly measured using salivary cortisol, which was not possible in this current study. Taking part in these assessments is likely to be stressful for any child, but taken together with the child's prior negative life experiences and the potential difficulties they have with their ability to manage stress, it is likely that stress regulation could be playing an important role with regard to how a child copes with the procedure and performs in the tasks they are being asked to complete.

The test developers would likely encourage alternative administration for these assessments, recommending that the subsections be completed at different times. This, unfortunately, is not always suitable for this vulnerable population: the increased levels of stress these children appear to experience when being separated from their caregiver persuaded us to minimise the number of times the child had to come in for assessment. What would be interesting to investigate further, though, is the level of stress they are

experiencing and potential contributors and protective factors which have an influence on how a child is able to control their stress.

It was found that there was a strong link between the child's level of engagement in the task and the child's score. This cannot be explained purely by the children who find it easier to complete the tasks being more engaged, as these tests all work by becoming increasingly difficult until the child is no longer able to complete the task, and therefore all children will have been asked to do a number of things they were not able to do. It could be speculated that, instead, these children were not sufficiently engaged to be fully demonstrating their potential and thus the scores they achieved may not be an accurate reflection of the child's level of functioning. In clinical practice, the degree to which a child is engaged in the task should be carefully considered when interpreting the results.

When considering whether there were assessment issues which needed to be considered, it was also investigated whether there would be cognitive catch-up within the sample over a year. When the scores of 25 children over a year were compared, the results did not support evidence of a significant improvement for either cognition or language. This is in contrast to previous research in this area, with O'Connor et al (2000) finding that scores on developmental measures increased from measurements taken when the children first entered foster care. Their study included children aged between 24 and 42 months being followed up at age 6 years old, so it may be that not enough time has elapsed to see these improvements within our sample. Evidence in line with that is that we do see a trend towards the scores increasing, but overall there is not a significant difference within the sample. Nelson et al. (2007a) found improvements in IQ for children placed in foster care before the age of 2 in the Bucharest Early Intervention Project (BEIP). These differences were evident between the children entering care and 54 months of age. Nelson et al (2011) argued that their findings may suggest a sensitive period covering the first 2 years of life, within which intervention can exert a significant effect on cognitive development. As the sample was so small, it was not possible to look at this in detail, but as 68% (n=17) of the longitudinal sub-sample were over 24 months old when they first entered care, it is also possible that the majority had missed a potentially important sensitive period for cognitive catch-up and this may be another reason why there was no evidence of significant improvement. Fox et al (2011) looked at cognitive improvements within the BEIP and did not find significant differences between cognitive ability at 54 months and cognitive ability

at 8 years in the group of children allocated to foster care in their randomised trial, thus suggesting that these improvements may not in fact come to the children in the sample at a later stage. It is also of note that the mechanisms which underlie the improvement which these children experience upon entering foster care are not known. While it may be enough that the children are no longer experiencing maltreatment, it is more likely that these children need the support and stimulation of others to show cognitive improvement. While this is likely to occur in a foster placement, it may not always be the case. In particular, if the child is with a carer who is not committed to them, and sees them instead as just one of many children in their care, then they may not have the time or inclination to offer these children the additional support they may require. A home where the child is not being maltreated may in fact just not be enough for them.

The sample of 25 children included 10 children who were assessed on the Bayley when they first entered foster care and then the WPPSI a year later. Although the Bayley and WPPSI both measure the child's development, they are different measures. They both provide a percentile at which the child is performing relative the rest of the population, and so one might expect this to remain stable. However, if they are tapping into slightly different areas of a child's development, then one would expect differences across measures. This may be another reason why there was no evidence of significant differences over time.

Finding a correlation but not a difference between cognitive score over time goes some way to suggest that the assessments that were conducted when the children first entered care were meaningful, as the scores they attained when they first entered care were reflective of the scores they would achieve when assessed again a year later. The implications of this are important, as it suggests that cognitive assessments when a child first enters care may be able to identify children who are likely to need additional support for learning. The same cannot be said for language ability within the sample, however, with no clear pattern evident between the scores the children obtain when they first enter care and those they obtain a year later. Windsor et al (2011) described the language development which was evident in the Bucharest Early Intervention Project. They found age at placement played a significant role in predicting the child's language development, with those placed prior to age 15 months having scores typical of the general population by the time they were 30 months old. They found that those placed between 15 and 24

months showed dramatic improvement while those placed after 24 months showed the same level of severe language delay when they were followed up as the children who remained in the institution. Although there was no difference in age between those showing language improvement and those not, the findings detailed by Windsor et al (2011) go some way to suggest that children are likely to show hugely varying changes in their language development once they enter foster care which is in line with the current findings. It may be that age of placement needs to be considered when interpreting how meaningful an assessment of language is when a child first enters care, although it was not possible to differentiate this properly within this small sample. It is also important to acknowledge that the same problem as found in the assessment of cognition is present when 10 children were assessed on a different language measure a year later.

It is also worth considering the differences between the present sample and those described in other studies that have been mentioned. The majority of the previous research in this field focussed on children who had been institutionalised in group homes, as opposed to being removed from their birth home and placed immediately into foster care. It is possible that different patterns in children's development would emerge when the child enters foster care from an institution as opposed to from the child's birth family.

Overall, the aim was to address some of the issues regarding making assessments of these vulnerable children when they first enter fostered care. The results demonstrated that foster carers cannot be fully relied upon to alert professionals when they are concerned about children, as there were a number of children in this sample displaying clinically concerning scores about which the carers reported no concern. It was further confirmed that there were issues regarding how the children engage with the researchers which related to their performance in cognitive tasks. However, despite this, the scores the children obtained in these tasks when they entered care were reflective of how they performed a year later. Finally, the case study which was described demonstrated the complexities of these assessments and the need to take a thorough, longitudinal approach when interpreting any assessment findings.

7. Discussion

7.1. Summary of results

This thesis aimed to address how child characteristics are associated with the quality of the relationship children make with their foster carers upon entering care. It was found that in line with all previous research in the area, children in foster care are likely to be experiencing more problems with cognition, language, relationships and mental health than children in the general population. There was also some evidence that the difference between them and the general population may not be as large in children under the age of 2. In addition, children over the age of 30 months usually displayed complex and overlapping problems, but evidence of this was not found in the younger children. When comparing factors relating to their birth; it was found that a greater percentage of children in the sample were born preterm and with a low birth weight than in the general population of Glasgow, and high rates of maternal drug use during pregnancy were also found.

In relation to the main research question, it was most importantly found that the child characteristics of age, gender, mental wellbeing, cognition and language together predicted 17% of the variance in the quality of the relationship between the child and their foster carer. Some additional and speculative analyses revealed that mental wellbeing appeared to be the most influential of the child characteristics. A complex interplay between the child's wellbeing, carer commitment and relationship quality was also revealed, with significant associations between all the factors.

The validity of the assessments was then examined; carers were not always the most reliable informants for children in their care, sometimes reporting a lack of worry when the child had concerning symptoms or behaviours. A strong association between how engaged a child was in the task and how they performed on the task was also found, which has implications for how meaningful the score is as a predictor of ability.

It was possible to follow up a small number of the sample a year later. Results of this follow-up demonstrated that the cognitive percentile scores taken when a child first enters care are not significantly different from those that they achieved a year later, suggesting that these measures can be useful for predicting later performance. It was found that there was a much more mixed picture for language, however, with scores when a child first entered care showing no relationship to how they performed a year later.

Finally, a case study of a boy who took part in the study was reported, emphasising the complexities of the needs of children and the importance of holistic assessments that should be repeated to monitor change over time.

7.2. Implications

This thesis covered three main themes: (1) a description of the characteristics of the sample; (2) an investigation of how these characteristics were associated with the quality of the relationship that the children in the sample had with their carer; and (3) an analysis of the validity of the assessments that were being conducted. The implications of the individual findings will be considered before trying to consider the implications of the results of the thesis as a whole.

In terms of what the children are like when they enter care, it was confirmed that this is a vulnerable group, in need of additional support. In particular, the research supports the work of Gillberg (2010) and Minnis (2013) who have argued that these children are likely to have complex and overlapping problems. Woods et al (2013) discussed the importance of considering the complex interrelationships between physical health, mental health and behaviour for children in care. They found that those with a chronic illness had higher levels of internalising and externalising problems as well as greater levels of delinquency, with depression significantly mediating the effects of overall health on delinquency. While it was not possible to include physical health measurement in this thesis, it seems important to mention that physical health is likely to be another of the complex and overlapping problems these children face. For clinicians working with children who come into care, this needs to be the assumption, meaning that all children entering care need to be routinely assessed with this in mind. Lehmann et al (2014) have recently conducted work showing that the SDQ is an appropriate measure of screening foster children for mental health problems and suggest cut off scores for both the total difficulties and the impact scales of this measure. They acknowledge that developing cut off scores requires a careful balance between sensitivity and specificity. It is important to limit the number of children with problems who are missed by a screening questionnaire, while also considering the costs of extensive assessments for children without a disorder. They found that children scoring in the low range of total difficulties still have a prevalence of disorders of up to 29% and argue that all children scoring as false positives are still likely to be experiencing increased vulnerability. With this in mind they argue that in a sample

of children in foster care, cut-offs with higher sensitivity may be preferable, in spite of lower sensitivity.

Nelson et al (2011) argued that there may be a sensitive period covering the first 2 years of life, within which intervention can exert a significant effect on the children, and the results described here go some way to support this view. Although the entire sample showed significant mental health problems, when comparing the children under the age of 2 in the sample with an age- and gender-matched control group, there was no evidence of the same degree of difference that has been shown in other studies involving older children (e.g.Ford et al. (2007)). When comparing the percentage of children showing signs of having a likely diagnosis on the DAWBA, which was used with children over the age of 2 years, an almost identical rate was found as in other studies with children in care (Ford et al., 2007). Furthermore, although there was evidence that the children aged 30 months and over in the sample had overlapping problems, there was no evidence of this in the children aged under 30 months. In other words, it does not appear that these children are displaying quite the same level or complexity of problems as have been shown in other samples with older children. It was also expected that there would be evidence of cognitive catch-up, as the children had been removed from homes where there was maltreatment to foster homes where they would be expected to thrive. However, the majority of the children included in this analysis were aged over 2 years, and so it may be that they have missed this sensitive period in which an environment would allow them to thrive. If indeed there is a sensitive period in which intervention works best, then the importance of early intervention is unrefuted. The earlier these children can be assessed to accurately explore their needs, the better chance there is of being able to employ an intervention with the greatest chance of success.

It was also found that children within the sample were more likely to have been showing vulnerability from birth, with high rates of maternal drug misuse, an increased risk of being born prematurely, with a low birth weight and to a younger mother than the general population. It is important to emphasise that the majority of children who are born with these risk factors will not end up in foster care. It would not be appropriate to have a system in which young mothers with premature and low birth weight babies were automatically considered at risk for child protection concerns, but that they would perhaps need extra support, most importantly because they have just given birth to an especially

vulnerable baby. Babies who are born with low birth weight or prematurely are at increased risk of developing health problems and are often likely to be extremely vulnerable in the first stages of life (McCormick et al., 2011). It is therefore clear that these children and parents should receive additional support. Caring for an at-risk child may be very stressful for parents. When the parent receives additional support, it may also be worthwhile to consider how they are coping. Identifying what support the mother has may help a clinician identify a vulnerable mother, and lead in turn to her being offered the additional support she may require.

An investigation was carried out into how these characteristics were related to the quality of the relationship between the child and their foster carer and it was found that increased mental wellbeing was positively associated with a higher PIRGAS score.

A child's mental wellbeing is a very complex thing to understand and assess. It is so intertwined with other factors that it is very difficult to attribute cause and effect. Is the child's mental wellbeing affecting the relationship they have with their carer or the relationship with the carer affecting the child's mental wellbeing? Or is there a third factor affecting them both? Salas et al (2014) investigated some of the complexities related to a child's problem behaviour and found that there were a variety of predictors of behavioural problems in children in foster care. They used multiple linear regression analysis to reveal a model which explained 46% of the variance in behaviour problems. This model included impulsivity/attention deficit in the child, level of burden in the foster carers, rigid or authoritarian parental discipline and criticism/rejection by the foster parents. So, this study too found associations between child characteristics and foster carer relationships but while trying to answer a different question: how relationship qualities relate to behaviour. While it is important to remember that one cannot establish cause by these associations, a logical conclusion would be that these different factors are all affecting each other in different ways. If these factors are all working in a complex chain, then one would hope that making changes to one of these factors would have a knock-on effect on others. Ultimately there is consensus that what is best for these children is a stable home, and it seems that problems in a child's mental wellbeing may act as a barrier towards reaching this. While this would need to be addressed on a case-by-case basis, a thorough assessment of the child's needs, with awareness that this child and their caregiver are likely to need additional support, would possibly go some way in helping the child find a

permanent and stable home as quickly as possible. These findings are particularly important when considered in line with those of James et al (2004), who found that almost 20% of placement changes took place due to a child's behaviour problems, with the majority being on the foster carer's request.

The assessments were also considered in terms of their validity. Overall, it was found that carers could not always reliably report on a child's problems, that a child's engagement in the task was likely to affect their performance, and that although cognitive score when a child entered care related to their score a year later, language score did not. This work allowed for a considerable amount of time to think deeply about whether the assessments were valid. Conducting so many assessments allowed the research team the space and experience to observe behaviours and patterns which were evident and consider ways around potential problems in the procedure. The implications of the work on the validity of the assessments comes in the format of some recommendations for assessing vulnerable children shortly after they enter foster care.

Lessons learned – What can be assessed in children who are taken into care?

- Assess varying domains of a child's functioning and interpret findings as a whole.
- Do not make predictions pertaining to later language development of the child based on assessments made when the child first enters care.
- Be aware that a child's score on a cognitive measure when they first enter care may be a good predictor of how they will be performing a year later.
- Identify specific issues for that child at the time, for example problems with their mood, an understanding of which could help the stability of the placement.

Lessons learned – When can we assess these children?

- Consider the purpose of the assessment.

- Be aware that assessments at any time might best include consideration of the quality of current attachment relationships, thereby providing a context for understanding other assessment data.
- Be aware that when a child is stressed and attachment systems are activated, reactions to unfamiliar adults and settings may be marked. When the relationship with a primary caregiver is fairly new, it may not yet provide sufficient security and comfort to help the child regulate their emotions and cope with the testing experience.
- Be aware that many measures require retrospective ratings, so any delay to assessment should incorporate sufficient time (usually just a month or so) that the time window covered by the measures does not include the period allocated for adjustment and re-attachment.
- Be aware that although the data one may obtain initially may not be representative of the child's capabilities, repeating the assessment at a later date can show which of the child's problems are decreasing as the child settles into a stable and loving home, and which are perhaps in need of more specialised intervention.

Lessons learned – How should we assess these children?

- Include data from multiple informants.
- Use a variety of methods for collecting data, for example, observation and questionnaire data.
- Ideally, conduct observations of the child across different locations: in the clinic and in their home as well as in their school or nursery.

- Consider the environment in which the child was observed in any interpretation of findings: for example, wariness from the child in their foster placement could be indicating something different from wariness in the clinic.

The research in this field has rarely involved this kind of in-depth assessments of children in foster care, instead often relying on administrative data. Having conducted such a large number of assessments myself (together with my colleague HH), I have gained first-hand experience of the complex needs of these children and would emphasise to others the importance of making these thorough assessments. I feel strongly that if the needs of the children were more thoroughly assessed, using the recommendations I have reached through the experience of conducting this research, then a clearer picture of these children would quickly emerge, which in turn would help in offering them the best support.

When all aspects of the study are considered, the main conclusion is the importance of mental wellbeing. Despite these children being at high risk of having a number of different problems, mental wellbeing appears to play an important role in how different child and carer characteristics connect and relate to each other. More specifically, the findings show that an increase in prosocial behaviours may be the key to improving this important relationship between a child and their foster carer. Prosocial behaviours are generally taught to children at a young age, when they learn to share and care for others. Although the children in this study may not have had the opportunity to learn these important skills prior to entering care, these are skills which they should be able to learn once in care, if they are offered the correct support. It could be predicted that many foster carers are daunted by the important task which they are given to do: to look after someone else's child. The child is likely to be showing cognitive and language delays as well as problem behaviours. What seems important is that there be an emphasis on the importance of these prosocial skills. While an absence of prosocial behaviours may not seem as important as the presence of problem behaviours, the current findings show that these skills are important. There is evidence of an association between the presence of these behaviours and the quality of the relationship a child has with their carer. Foster carers can form good relationships with children of different ages, with boys and girls, with children with cognitive problems and children with language delay, but if the child is not able to display

kind and caring behaviours then this is likely to have a negative effect on the relationships which the child is able to form, and thus on their placement stability and therefore on their continued development and wellbeing. The only way these children can be accurately identified is through routine assessment. It has been confirmed that one cannot solely rely on foster carer reports, as they are likely to miss children who have a number of problems. In particular, carers do not report that they are worried about a lack of these positive prosocial behaviours in the younger children within the sample. It is important that the potential impact of these positive behaviours not be underestimated, and following additional supporting research it may be necessary to incorporate the importance of these behaviours into foster carer training.

I have used my experience to provide guidance on how assessments may be conducted in future. While I acknowledge that these are likely to be difficult, I would urge others to try. Assessors should think about what is making the assessment difficult and try to glean information about the children from every stage in the process. The information derived from a failed cognitive assessment or from a foster carer's initial impressions of a child, when they may think they do not know them well enough, are all valuable and all make up small pieces of a very complex puzzle. Finally, assessors should try and intervene as early as possible. I found evidence that children over the age of two are likely to have far more complex and overlapping problems than those younger than two. The earlier one can intervene, the better chance one has of helping the child find a safe and secure home as soon as possible. While many will understand the merits of supporting foster children in its own right, the evidence of the problems which these children may develop later in life and the associated costs which these children may accrue if they become involved in crime stresses that this really is an issue for society as a whole.

7.3. Limitations

When the results from the study are interpreted, there are considerable strengths and limitations which should be acknowledged. I shall first consider the limitations.

The limitations that need to be considered involve issues with regard to sampling, assessment methods, potential contributors and the outcome measurement used.

Although the recruitment for the study was from a total population, it was not possible to recruit the entire sample. With families opting out of the study, it is likely that the sample recruited were not representative of the total sample of children entering care due to maltreatment in Glasgow. For example, it may be that the parents or carers of children with more problems were less likely to take part, perhaps feeling so overwhelmed by caring for the child that they were unable to attend additional appointments. The modest size of the sample also has to be acknowledged; in particular, this is a limitation for the multiple regression. There is controversy around over what sample size is required to complete multiple regression, with some experts recommending that for two or three independent variables a sample size of 100 will suffice, but will need to increase to 300 or 400 as the number of independent variables increases to 9 or 10 (Nunally and Bernstein, 1978). It is clear that the sample did not reach these high levels, which may have left it underpowered. Following a multiple regression, it would be ideal to split the sample randomly in two and conduct the analysis with each half, to investigate the stability of the model in such cases. Unfortunately this was not possible with the modest sample size. In addition, the need to combine measures across the age range is not ideal. When looking at how child characteristics affected the relationship with the carer, scores on the ITSEA were combined with scores for the SDQ. Although this could not have been easily avoided in this instance, the finding should be interpreted with caution, as it is unlikely that these measures are tapping into exactly the same thing, despite efforts to choose a similar domain in each measure.

There are also limitations in terms of the assessments which need to be acknowledged. While the assessments took place in the child's foster placement during the feasibility period of the study, these were then moved to a clinic, as the clinic provided a strange environment for the child in order for the researchers to more accurately judge the child's wariness to new people and environments, as well as providing a standard and suitable environment for cognitive assessments. While the clinic provided some advantages, later assessments missed out on other useful information which was obtained from the home environment, as the child might behave quite differently in these different environments.

Despite the attempts to use a variety of methods for assessing the children, the majority of the data do still come from the reports of foster carers, who we know might not be the most reliable informants. Ideally, the assessments would include a more equal balance across

methods, in case it turns out that one method is less effective than others. In addition, there was no inclusion of any input from the birth parents which would have been very useful and interesting. When assessing a child, knowledge of their early life can provide very useful information which may aid diagnosis; for example, in cases of autism early indicators may be present in children as young as 12 months of age. Furthermore, involving birth parents may help disentangle how a child's behaviours change over time and which may be directly caused or affected by the process of coming into care.

The assessments all took place on one day, which has the potential for problems as the assessments are likely to be heavily affected by on-the-day factors; for example, if the child is particularly tired that day, then they are unlikely to perform as well as normal, or if the child has had a temper tantrum that morning, then the carer may be more likely to report negatively about the child. In particular, my finding that engagement related to child score on the cognitive assessment may be due to some of these factors, which can adversely affect how a child scores on a cognitive measure. Furthermore, the time taken between entering care and the assessment varied considerably, with some children having only been with their foster carer four weeks while others took up to 26 weeks. The effects of these issues are unknown but worth considering, and the data should be interpreted with these in mind.

The sample included children of different ethnic backgrounds. It was, however, unknown to the researchers whether the children had been born inside the UK, and if not, how long they had been living here. These differences may have had an effect on the measures, yet were not considered in analysis. For example, the cognitive tests have been developed for a UK population using the English language and so those children who had perhaps only recently come to the UK may have been at a disadvantage, being less familiar with the words which they were being asked to describe, for example.

There are a number of factors that could be having an effect on our measurements which were not accounted for. For example, there are other aspects of the child's health and development which may be playing a role in how a child is able to form a relationship with their caregiver, but were not captured in the assessments. There are, for example, child characteristics which have been shown to be associated with parenting stress in the general population, including infant temperament (McBride et al., 2002) and child's

health/disability (Raina et al., 2005). It could be speculated that if these characteristics relate to parental stress in the general population then they could affect the child/carer relationship for children in foster care. These represent just two of the many child characteristics which may be playing an important role in how the children are able to form relationships with their foster carers. Unfortunately, however, it is not possible to capture such breadth in a one-off assessment.

There were also likely factors that would not be considered clear-cut child characteristics such as, for example, the child's experience prior to entering care, in particular in terms of the type or degree of maltreatment which they experienced. Pears et al (2008) found that children presented with different problems dependent on the type of abuse which they had experienced, with cognitive delay more likely in children who had been neglected or suffered physical abuse, internalising problems more common in children who had experienced sexual or physical abuse, and externalising symptoms more common in children who had experienced a mixed history incorporating different types of abuse. Despite the fact that we had information about the main reported reason that a child had been accommodated, we did not include an analysis of these data, as we could not be sure about the reliability of this information. This reiterates the problem with using administrative or case study data, and suggests caution when including and interpreting such 'findings' in future research. A further contributor that was not included in the study was whether the child was still seeing their birth parent or not. Research has revealed inconsistent findings concerning the impact of ongoing contact on foster children's development. With some studies finding visits to be distressing and producing loyalty conflict (Fanshel and Shinn, 1978, Leathers, 2003), other studies suggest regular and consistent parental contact may have a positive effect on foster children's wellbeing as foster children with parental contact were found to exhibit fewer internalising and externalising problems (Cantos et al., 1997, McWey et al., 2010, McWey and Mullis, 2004). It could be speculated that these differences are likely to be caused by the differing relationships which these children will have with their birth parent(s). In particular, the attachment which the child has to their birth parent(s) is likely to have a huge effect on how the child is able to form new relationships. Furthermore, while there was a focus in this study on which child characteristics might have affected the relationship with the carer, there was no assessment of foster carer characteristics which were likely to be playing an important role in the relationship, with research suggesting that foster parents' self-efficacy,

felt competence and knowledge in how to deal with foster children's problematic behaviour leads to less placement disruption (Dando and Minty, 1987).

The main outcome measure was the PIRGAS. While the PIRGAS has been shown to be a valid and reliable measure, it has not been widely enough used for one to be certain of its predictive validity of important outcomes, in particular there is a lack of longitudinal data using the PIRGAS. While, intuitively, one can see the benefits of a good relationship between a child and their caregiver, with the limited research base the results should be interpreted with caution, to ensure the long term impacts are not over stated. It is clear that further work is required in this area, to explore how PIRGAS score relates to better established measures, for example attachment.

In addition, the PIRGAS involves rating the quality of the interaction between the child and the carer, but the members of the research team who were rating these came across some difficulties within the sample which were not accounted for within the PIRGAS manual. They noticed that there was sometimes a complete lack of interaction between the child and carer: during play and lunch there might be no verbal interaction whatsoever. This is a complex thing to assess, because if the child is not seeking interaction, then this actually represents a sensitive response from the carer. This lack of interaction could not be captured within the PIRGAS scoring and while the PIRGAS could still be used to measure the quality of the relationship, the coders felt that this was an interesting behaviour which was being missed.

7.4. Strengths

There are strengths in the procedures used in this PhD study, including aspects of the sample recruitment, the assessment tools used, the overall method, the efforts made to allow meaningful interpretation of the data as well as flexibility around aspects of the assessments.

The recruitment procedure for this study was thorough and inclusive due to the recruitment being done though a larger ongoing trial in Glasgow. As part of the trial, the parents of every child aged between 6 and 60 months who entered care due to maltreatment were asked to take part. This provided a total population from which to recruit. Considering the vulnerability of the sample, the achieved consent rate of over 60% was very good, resulting

in a reasonably sized sample to allow modestly powered analysis. Great strength also lies in the uniqueness of this sample. It is very unusual to approach parents who have just had children removed and ask them to consent to take part in research. The difficulties involved in this and the efforts required to ensure we were gaining truly informed consent are outlined elsewhere (Welch et al., In Preparation).

The assessment tools used were all well validated and had been shown to be reliable in a number of different studies. In addition, the assessments were thorough, covering a wide range of domains. Rarely have studies of this nature involved such in-depth assessments of a child's development and functioning. The data were also collected in a number of different ways: by asking the foster carer to directly report the presence or absence of symptoms; using semi-structured questionnaires whereby the foster carer is asked to report on behaviours and then a trained researcher makes decisions regarding the severity of the behaviours by asking more questions; by direct assessment of the children themselves; by direct observation of the children; and by accessing health data on the children included in their birth records as well as demographics including their age, gender and the degree of deprivation they were living in prior to entering care. The assessments gain further strength by the fact that coding for the main outcome variable, the PIRGAS, was completed by researchers not involved in conducting the main assessment, and who were therefore blind to the child's health and development aside from what they may have been able to observe. A further strength to the assessment procedure was the inclusion of data over time, as opposed to a snapshot of the child's wellbeing. It was also possible to access the child's early health data to provide data collected prior to the main assessment as well as data collected a year later for a small number of children.

Efforts were made to engage the foster carers in the research. The research group offered flexibility with the assessments, for example completing them at home if the child became distressed during the assessment. In addition, there was an option to post out one of the longer questionnaires (ITSEA) in order for them to complete it prior to attending the clinic, which is an option the majority accepted. This shortened the assessment, making it less burdensome for foster carers. Efforts were made to make the assessments as enjoyable as possible; carers were paid £20 for their time as well as provided with travel expenses and lunch for both them and their child. In addition, if the carer had another child they had to look after, they were offered crèche facilities for the other child while they attended the

assessment. It was felt that making the assessment as enjoyable as possible was crucial for the foster carers to engage with it. It was hoped that if they were happy and comfortable with the situation, then they would be more eager to chat about the child in their care. The order of the questionnaires was also carefully considered to allow the carers ample time to speak about the child while not resulting in an overly long assessment. For example, the assessment started with the PEDS, which asks very general questions about any worries which the carer may have about the child. This provides the carer with the space to offload any worries they have at the start, as opposed to perhaps not focussing on specific questions being asked because they feel there are bigger issues which they have not yet spoken about. All these efforts, together with the open and accepting way in which the researchers approached the assessments, helped to engage the carers with the questions and hopefully promoted a good relationship between the carer and the researcher, whereby the carers felt able to express any concerns which they had about the child in their care.

The data collected were also interpreted with careful consideration. Scores were compared with normative samples wherever possible and efforts made to find the closest possible match to the sample, in terms of age and location, ideally comparing the sample with Scottish infants. When assessing how child characteristics were associated with the quality of relationship between the child and their carer, it was carefully considered which other factors could play a substantial role in this relationship, and as the relationship is two-way, it seemed important to investigate aspects of the foster carer, which was done using the TIMB. This data provided a fuller picture of contributors to this relationship.

One of the greatest strengths of my study grew out of my realisation when I started conducting the assessments, that there were some potential underlying issues. Mainly I was concerned by the child's performance on the cognitive tests. Having conducted these in prior research studies, I was used to administering them and used to varying presentations to children. I was, however, struck by the lack of engagement in the tasks I saw in a number of children. The majority were unable to stay seated for the whole assessment and many needed regular breaks. In addition, they did not demonstrate the same drive to do well which we would expect to see with typically developing children during such assessments: children often did not appear to care about doing well and even said they did not know answers when, if asked again later, they did know. Of the children who did seem to care about how well they were doing on the test, many did not recover

well when they realised they had incorrectly answered a question, and began to disengage and try less hard on later questions, which also had an effect on their overall scores. It was this realisation that encouraged me to complete a structured observation to rate the child's engagement so I could investigate any impact this was having on the child's attainment in the task. A further observation which came from conducting these assessments related to the reliability of foster carers as informants. It quickly became clear that some foster carers were reluctant to talk about the problems which the children were having and often reported to the researchers that the child had abilities that the research team did not observe whilst the child was in the clinic. For example, carers would sometimes report that the child was saying a number of different words, yet they only vocalised minimally during a three-hour assessment, despite being left alone with the carer and observed through one-way mirrors. While this obviously may have been down to children behaving differently in the clinic from how they do at home, these observations provided me with enough incentive to wish to investigate this as part of my research. While the main aims of my thesis focussed around my assessments with children when they entered care, the additional data which aimed to assess the validity of these assessments added much strength to the thesis as a whole.

7.5. Next steps

Following on from this study, there are a number of unanswered questions and issues which warrant further investigation. Some evidence in support of the idea of a sensitive period in these children was found but this requires more research. Repeating this study with a larger sample would allow this to be explored, ensuring that there are adequate numbers of children represented in each age group. Following them up over a number of years and repeating the assessments would allow a fuller investigation of which children show the most improvement over time, thus helping to establish more firmly whether there is evidence of a sensitive period for which intervention is most effective. Conducting this study with a much larger sample and with longitudinal follow-ups would also help disentangle the complex relationships between the child and foster carer-related factors which are associated with each other and may provide some evidence towards the direction of causality within these factors. While it has not been possible to establish causality within this study, it marks out the next important step in the research process, as understanding the cause of a problem is one of the best ways to understand how to fix it.

There were no other studies identified which had been conducted in the UK and which looked at birth records for children who later came into foster care. In Scotland, where we have such strength in our routinely collected data, this seems like a missed opportunity. Information about the child's birth was found to be complex to investigate, with many barriers to cross, and so was it was not possible to look at the data to their full potential. In future, the sample should be compared with an age- and gender-matched control group, including for example four children of the same gender, born on the same day as each of the children in the foster care sample. This would provide much more conclusive evidence of any increased vulnerability these children were already showing at birth.

While the findings provide some evidence that there are child characteristics associated with relationship quality with their caregiver, longitudinal data looking at how child characteristics affect placement outcome would be very interesting, perhaps examining a potential relationship between child characteristics and placement breakdown.

The findings did not provide evidence of overlapping problems in the very youngest in the sample, but did provide strong evidence for this amongst the toddlers. Future research should aim to investigate the extent to which older children within the foster care population have overlapping problems, to investigate the possibility that this becomes a greater problem with age.

While there are a number of factors that were not included in this analysis, there is already evidence that health and disability are child characteristics which have an effect on outcome and so these would be the most obvious factors to investigate next in future research.

In addition, what I would find particularly interesting to include in future research is a measure of resilience. Sometimes when I was assessing these children, I would hear horrendous stories about what they had experienced, yet the child seemed to be doing remarkably well. It seems that there may be protective factors which help some of these children cope with their adverse experiences. A greater understanding of protective factors could help guide clinicians to put appropriate resources and supports in place for the children and their families.

While one of the main messages of this thesis is the importance of conducting thorough assessments with the children as they first come into care, it is important to be aware of the time and funding constraints that clinicians face. With this in mind, every effort should be made to develop tools for clinicians to use with children when they enter foster care. It poses a great challenge as the assessments need to be thorough yet easily administered in a time- and cost-effective manner. The development of such a procedure would bring great strength to the field both clinically and in research, yet it will require a great deal of consideration.

Finally, it was found that there were high rates of both inhibited and disinhibited attachment behaviours within the sample. Knowing that children in foster care are more likely to develop an attachment disorder, it would be interesting to investigate how early this can be predicted. The Disturbances of Attachment Interview identifies behaviours such as indiscriminate friendliness and lack of comfort seeking behaviour. While high rates of these behaviours were found in the children in the sample when they first entered foster care, it is difficult to know how meaningful these behaviours are in a sample of children who have just been taken into care. What is currently not clear is whether there are attachment behaviours that a child can present with when they first enter foster care and that are indicative of reactive attachment disorder.

8. Conclusions

This study has involved a unique opportunity to report on trends, problems and considerations that arise when trying to assess the functioning of a most vulnerable group of young children. The findings show that the children are at a high risk of having overlapping problems and should all be considered as potential cases with maltreatment-associated psychiatric problems (MAPP- Minnis, 2013). There is also evidence that there are child characteristics that are associated with the quality of the relationship between a child and their caregiver, with a significant model emerging using the child characteristics of age, gender, mental wellbeing, language and cognition in predicting PIRGAS score.

The study has involved conducting thorough assessments with the children one to two months after the child enters a period of care. While there are many strengths to this procedure, there are also issues which need to be acknowledged, most notably the fact that the children are likely to be at increased levels of stress during the assessment and that the child's carer may not be in the best position to give an accurate portrayal of the child's needs. In fact, there may not be any adult in a good position to do this. While it is important to continue assessing children when they first enter care, and important to do what we can to get an accurate picture of the child's needs, it is also important to interpret results with caution and consider whether the potential issues outlined in this thesis may be affecting each child on an individual basis.

Three decades ago, Rowe (1984) claimed: 'it is the foster parents' perceptions of the seriousness of the problem that are all important' (Rowe et al., 1984), but now it is clear that our view should change. Instead of entirely relying of the foster carers' view of the child's difficulties, it would now be recommended that the child receives a holistic assessment across various domains of functioning and that assessment may need to be repeated at a later stage, once the child has settled in placement. This would allow for a much more thorough investigation of the interplay between child and carer characteristics on placement outcome.

Coming into care is another major life event for a looked-after and accommodated child that, inevitably, comes after a period of adversity (often trauma and/or neglect) and loss. We *know* that the 'symptoms' associated with trauma and loss include disturbed mood, disturbances of attachment and developmental delays and we *know* that intervention would

need to include a nurturing placement. With this in mind, we need to strive to find a way to differentiate between those children coming into care, for whom a nurturing placement would be likely to promote secure attachments, mental health and wellbeing and those children with further underlying problems that will require additional support and intervention.

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Appendix A. Search method for literature. Section 1.2.1

Databases searched

Medline, psycARTICLES, Psychology and behavioural sciences collection and psycINFO.

Search terms used:

Child*

AND

Care *or* accommodated *or* looked after

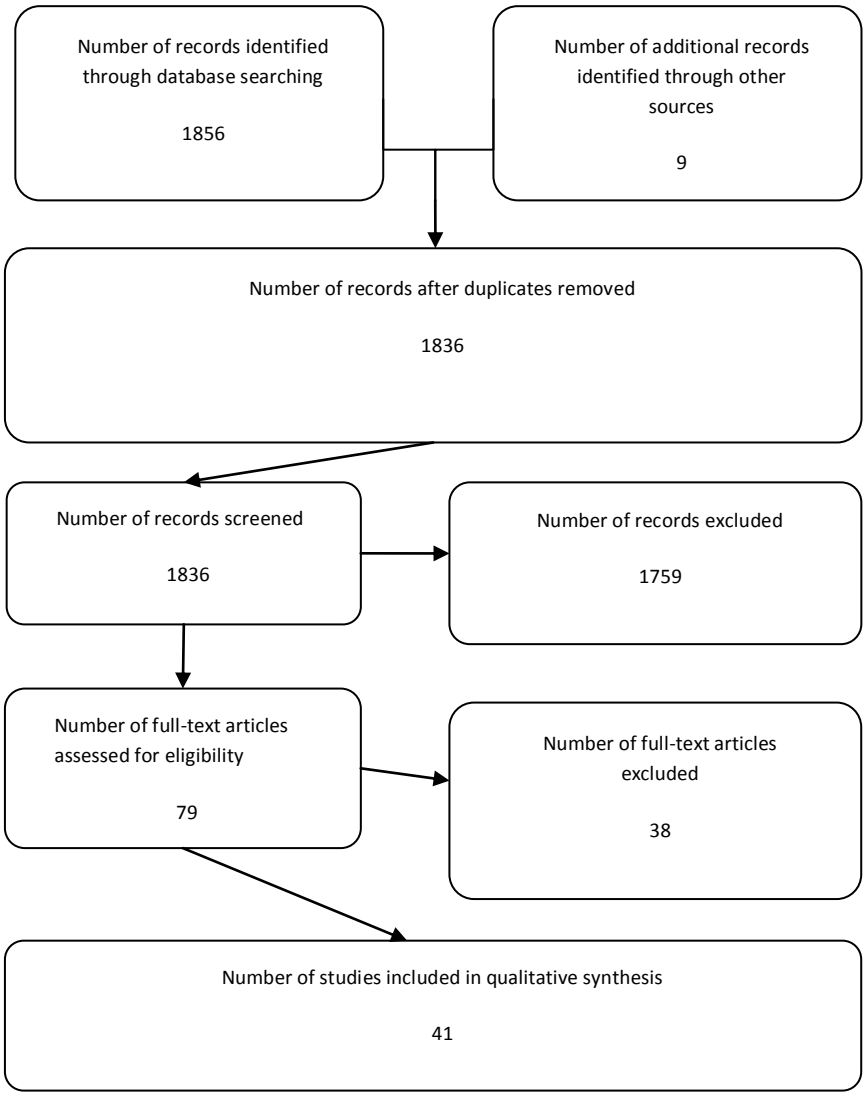
Limits

Children in care (sample under 18 years)

After Children (Scotland) Act (1989)

Sample living in care in the UK

Search completed on 4.4.13. Updated on 14.8.14.



Flow diagram of systematic review (section 1.2.1)

Appendix B. Search method for literature. Section 1.2.2

Databases searched

Medline, PsycARTICLES, Psychology and behavioural sciences collection and psycINFO.

Search terms used:

Child*

AND

Care *or* accommodated *or* looked after

AND

Outcome* *or* cause* *or* predict* *or* associate*

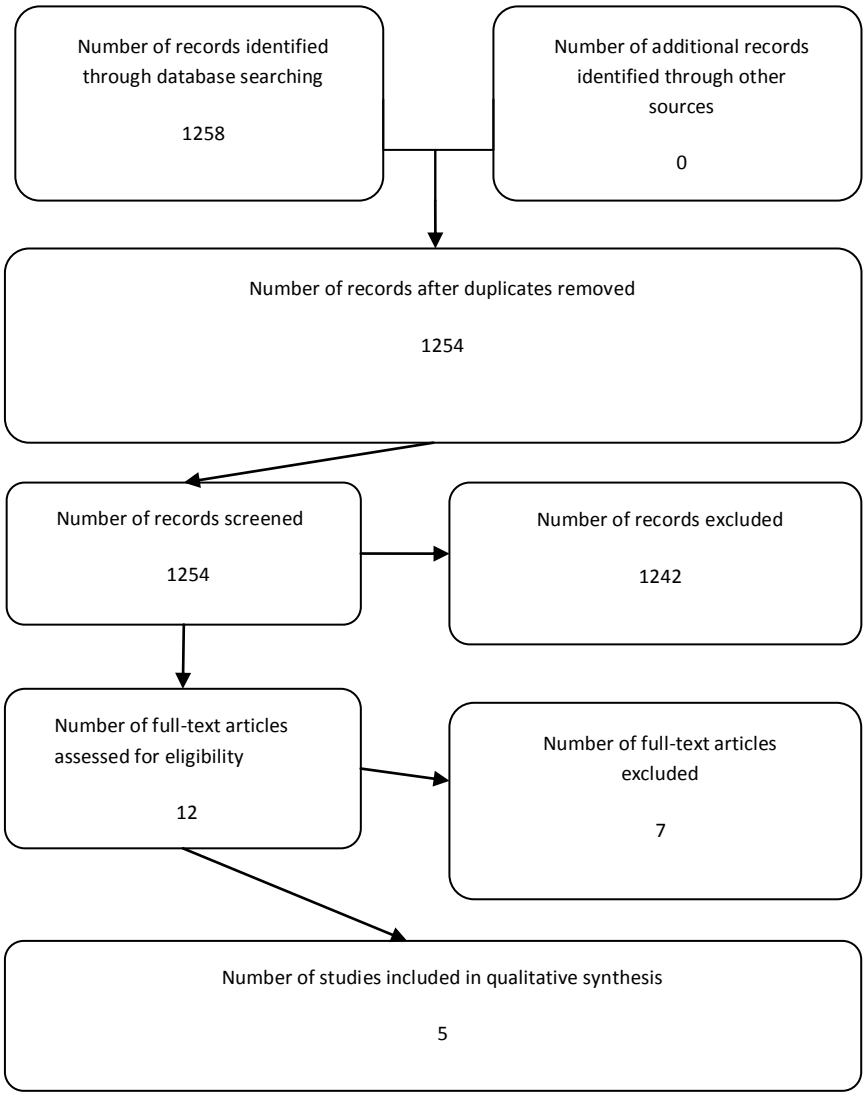
Limits

Children in care (were 'looked after' when they were children)

After Children (Scotland) Act (1989)

Sample living in care in the UK

Search completed on 19.12.13. Updated on 14.8.14.



Flow diagram of systematic review (section 1.2.2)

Appendix C. Search method for literature. Section 1.2.3

Databases searched

Web of science, PsycINFO, Medline, Cinahl, Assia, Social Services Abstracts.

Search terms used:

Adopt* or foster*

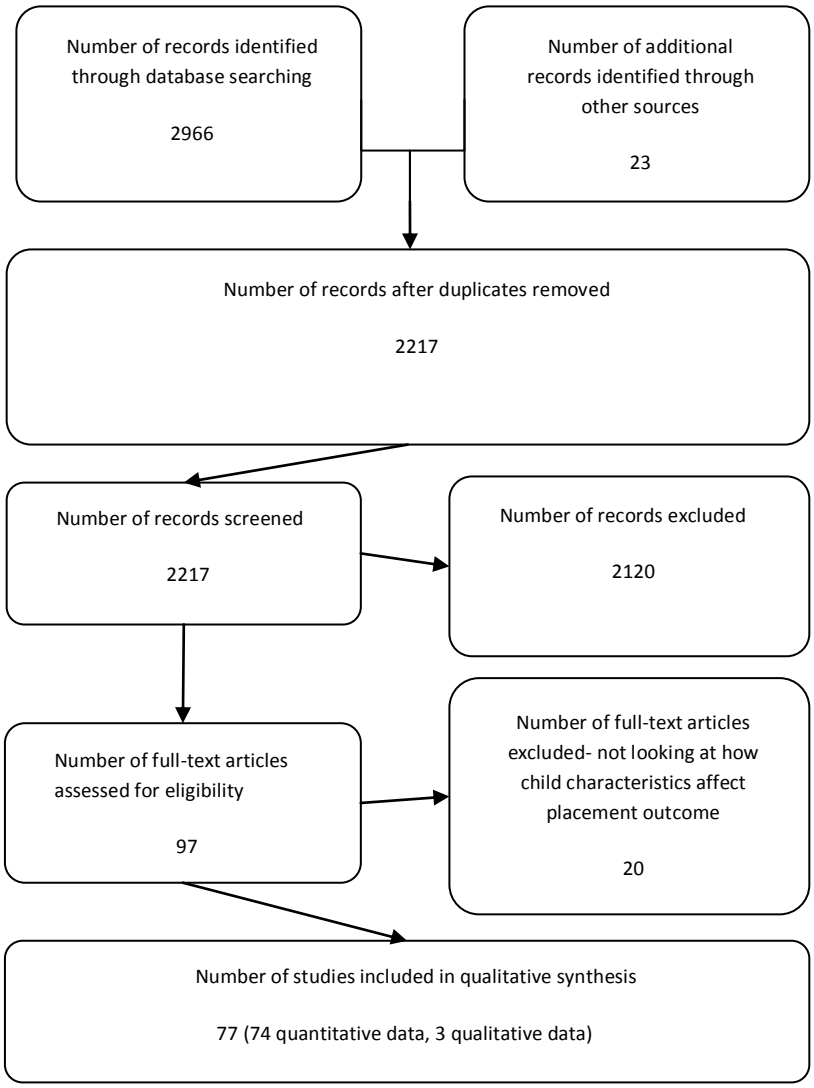
AND

Reunification or 'return and family' or rehabilitation or permanency

AND

Factor* or influence* or predict*

All searches were limited to journal articles published in English between 1971 and March 2012. References were excluded on the basis of title if they were not in the relevant subject area: children in care.



Flow diagram of systematic review (section 1.2.3)

Appendix D. Tabulated results from literature search. Section 1.2.3

Reference	Sample size	Data Source	Research Aim	Child Characteristic measured				
				Demographics	Health / Disability	Mental Health / Behaviour	Education / Cognition	Other
Akin (2011)	3351	Administrative data	Predictors of permanency outcomes	✓	✓	✓		
Albers et al. (1993)	404	Administrative data	Predictors of length of stay in care	✓				
Baker (2007)	596	Carer and staff postal questionnaires	Permanency outcomes for disabled children		✓			
Barber et al. (2001)	235	Case notes and social worker interviews	Placement movement after referral into care	✓		✓		
Barber and Delfabbro (2009)	235	Social worker questionnaires	Comparing profiles of neglected and abused children	✓				
Barth et al. (2008)	273	National survey data	Predictors of re-entry to care	✓		✓	✓	
Becker et al. (2007)	7807	Administrative data	Predictors of permanency planning	✓	✓	✓		✓
Chamberlain et al. (2006)	246	Carer telephone interviews	Predictors of foster care disruption	✓		✓		
Cheng (2010)	411	Child, caregiver, worker & teacher interviews	How child welfare worker engagement shapes outcomes	✓	✓	✓	✓	
Connell et al. (2006a)	6723	Administrative data	Characteristics of foster care outcomes	✓	✓	✓		
Connell et al. (2006b)	6723	Administrative data	Characteristics of placement changes	✓	✓	✓		
Cooper et al. (1987)	172	Administrative data	Placement history of abused and/or neglected children	✓		✓	✓	
Courtney (1994)	8,748	Administrative data	Factors affecting reunification with families	✓	✓			
Courtney (1995)	6831	Administrative data	Factors which affect re-entry to care	✓	✓			

Reference	Sample size	Data Source	Research Aim	Child Characteristic measured				
				Demographics	Health / Disability	Mental Health / Behaviour	Education / Cognition	Other
Courtney et al. (1997)	21484	Administrative data	Factors affecting returns home from, and re-entry to care	✓	✓			
Dance and Rushton (2005)	99	Case histories and adoptive parent interviews	Factors associated with outcomes of adoptive placements	✓		✓		✓
Delfabbro et al. (2002)	235	Administrative data verified in case worker interviews	Characteristics of children entering care	✓	✓	✓	✓	
Delfabbro et al. (2003)	235	Administrative data verified in case worker interviews	Predictors of reunification for children in care	✓	✓	✓		
Denby (2011)	1200	Carer postal questionnaires	Kinship caregivers' experiences permanency intent	✓	✓	✓	✓	
Doelling and Johnson (1990)	51	Carer, teacher and caseworker report	Contribution of temperament on placement success	✓				✓
Eggertsen (2008)	5015	Administrative data	Factors relating to out of home placements	✓	✓	✓		
Farmer et al. (2009)	1778	Caregiver interviews	Rates and predictors of movement back home and stability of reunifications	✓		✓		✓
Fernandez (1999)	201	Administrative data	Predictors of placement outcomes	✓		✓		
Fernandez and Lee (2011)	155	Case worker interviews	Factors associated with speed of reunification	✓				
Festinger (1996)	210	Administrative data and caseworker questionnaires	Factors associated with re-entering care	✓				✓
Frame et al. (2000)	88	Case records and worker focus groups	Factors predictive of re-entry into care	✓				
Frame (2002)	1357	Administrative data	Relationships between child and family characteristics, child abuse and placement outcomes.	✓	✓	✓		

Reference	Sample size	Data Source	Research Aim	Child Characteristic measured				
				Demographics	Health / Disability	Mental Health / Behaviour	Education / Cognition	Other
Fuller (2005)	240	Administrative data	Predictors of maltreatment recurrence when a child returns home	✓	✓	✓	✓	
Glisson et al. (2000)	700	Teacher and caregiver report	Factors that predict length of time spent in care	✓	✓	✓	✓	
Havlicek (2010)	474	Foster youth interviews	Patterns of movement through the child welfare system	✓				
Hayward and DePanfilis (2007)	743790	Administrative data	Factors predicting reunification	✓	✓	✓		
Helton (2011)	315	Administrative data	Biological relatedness and disability status as risk of placement disruption	✓	✓	✓		
Hines et al. (2007)	403	Administrative data	Factors associated with reunification	✓	✓			
James et al. (2004)	580	Administrative & survey data	Reasons for placement change	✓		✓		
Jones (1998)	445	Administrative data	Characteristics that prevent successful reunification	✓	✓	✓	✓	✓
Kalland and Sinkkonen (2001)	234	Administrative data and social worker questionnaires	Risk factors associated with placement disruption	✓	✓			
Kemp and Bodonyi (2000)	458	Administrative data	Length of stay and permanency outcomes	✓				
Kemp and Bodonyi (2002)	1366	Administrative data	Predictors of permanency	✓				
Kraus (1971)	157	Child assessments	Characteristics predicting placement outcome	✓			✓	
Landsverk et al. (1996)	669	Case files and carer interviews	Impact of Child functioning on probability of reunification	✓		✓		
Leathers, 2006	179	Case worker and carer interviews	Role of behaviour problems in placement disruption &outcomes			✓		

Reference	Sample size	Data Source	Research Aim	Child Characteristic measured				
				Demographics	Health / Disability	Mental Health / Behaviour	Education / Cognition	Other
Leathers et al, 2010	203	Case worker and carer interviews	Examining factors that affect permanency outcomes	✓				
McAuley et al, 2000	19	Teacher and carer questionnaires	Cross informant agreement, stability of adjustment and placement outcome.			✓		
McDonald et al. (2007)	25,000	Administrative data	Predictors of permanency	✓	✓	✓		
McSherry et al. (2010)	374	Administrative data	Young children's pathways through care	✓	✓	✓		
Miller et al. (2006)	16	Birth and foster carer interviews	Post reunification variables that relate to reunification failure	✓				
Newton et al. (2000)	415	Parent/carer interviews	Prospective examination of relationship between change in placement and problem behaviours.	✓		✓		
Palmer (1996)	184	Caseworker report	Placement experiences and placement stability	✓		✓		
Pardeck (1984)	4288	National Survey	Identifying causes of multiple placements	✓	✓	✓	✓	✓
Pine et al. (2009)	135	Parent interviews	Evaluation of a program for successful family reunification	✓				
Potter and Klein-Rothschild (2002)	125	Administrative data	Factors associated with permanent placements	✓	✓	✓		
Proctor et al. (2011)	285	Child assessment and caregiver interviews	Individual and environmental variables associated with caregiver stability and instability	✓	✓	✓	✓	
Romney et al. (2006)	277	Carer interview	Influence of disability on placement outcomes		✓	✓	✓	
Rosenberg and Robinson (2004)	105,071	Administrative data	Impact of developmental and health problems on child welfare outcomes	✓	✓		✓	
Rosenthal et al. (1988)	54	Social worker questionnaires	Predictors of special needs adoption disruption	✓	✓	✓	✓	
van Santen (2010)	9995	Administrative data	Factors influencing length of stay in foster carers	✓				

Reference	Sample size	Data Source	Research Aim	Child Characteristic measured				
				Demographics	Health / Disability	Mental Health / Behaviour	Education / Cognition	Other
Schmidt-Tieszen and McDonald (1998)	147	Administrative data	Predictors of long term foster care versus adoption	✓	✓	✓	✓	
Schwartz et al. (1994)	4,085	Administrative data	Child welfare placement trends	✓				
Selwyn et al. (2006)	130	Case files and adopter interviews	Outcomes of children following an adoption best interest decision.	✓	✓	✓	✓	
Shaw (2006)	6021	Administrative data	Re-entry to care after returning home	✓				
Sinclair and Wilson (2003)	472	Carer questionnaire	Predictors of placement success.			✓		✓
Smith et al. (2001)	90	unclear	Predictors of placement disruption	✓		✓		
Snowden et al. (2008)	60,000	Administrative data	Predictors of permanency	✓	✓	✓		
Stone and Stone (1983)	64	Administrative data	Incidence and causes of foster care breakdowns	✓	✓	✓	✓	✓
Strijker et al. (2005)	91	Foster carer report	Use of the Child Behaviour Checklist to create typologies that relate to foster care outcomes	✓		✓		
Strijker and Zandberg (2005)	136	Administrative data	Factors influencing long term foster care	✓		✓		
Strijker et al. (2008)	419	Administrative data	Placement history and outcomes	✓		✓		
Terling (1999)	1515	Administrative data	Efficacy of family reunification practices	✓				
Walsh and Walsh (1990)	51	Administrative data and caseworker ratings	Predicting maintenance of matched foster care placements.	✓				✓
Webster et al. (2000)	5557	Administrative data	Number of placement moves	✓				
Wells and Guo (1999)	2616	Administrative data	Characteristics of placement and timing	✓	✓			
Wulczyn et al. (2003)	20270	Administrative data	Placement stability and movement patterns	✓				

Reference	Sample size	Data Source	Research Aim	Child Characteristic measured				
				Demographics	Health / Disability	Mental Health / Behaviour	Education / Cognition	Other
Yampolskaya et al. (2007)	34503	Administrative data	Factors associated with undesired child welfare outcomes	✓	✓	✓		
Yampolskaya et al. (2011)	17695	Administrative data	Factors affecting re-entry to out of home care	✓	✓	✓		

Appendix E. Published paper. Systematic review described in 1.2.3

Pritchett, R., Gillberg, C., & Minnis, H. (2013). What do child characteristics contribute to outcomes from care: A PRISMA review. *Children and Youth Services Review, 35*(9), 1333-1341.

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What do child characteristics contribute to outcomes from care: A PRISMA review

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ABSTRACT

This article presents the findings from a systematic review of the literature regarding factors related to positive placement outcomes. Children in care are particularly vulnerable to problems with their emotional and behavioural development. It is important to know which factors affect whether children will have a positive placement outcome or not. Previous research has aimed to examine this, and has found that certain child characteristics can affect placement outcome. Reviews have not reported their search strategy in line with PRISMA guidelines, nor have they always reported the source of the data. This review was particularly interested in which studies had contact with the children or carers themselves, as opposed to a reliance on administrative data. There appear to be child characteristics that affect placement outcome, but findings need to be interpreted with caution due to a high volume of results from administrative data. Future research should aim to conduct full assessments with children when they come into care.

1. Introduction

American foster care statistics for 2010 have been recently published (Child Welfare Information Gateway, 2012), which detail that an estimated 408,425 children are in foster care with approximately 254,375 entering care each year. Of the estimated 254,114 children who exited foster care during 2010, the median amount of time spent in care was 13.5 months with about half (51%) exiting to be reunited with their parents or primary caregivers. Leve et al. (2012), when reviewing interventions to work with children in care, identified three key areas of risk and vulnerability for foster children. They reported that children in care are particularly vulnerable to problems with their emotional and behavioural development; brain and neurobiological development and their social relationships with their parents and peers. It is important to know which factors affect positive placement outcome, as this may provide valuable insight into how to best tackle these issues and use resources where they are needed most.

There are a range of possible predictors of a child's outcome from care, for example; reason for entering care; the physical or mental health of the birth parent; the skill or experience of the foster carer; the degree of support the family receives as well as influences of various services involved. While acknowledging the potential effect of these contributors, this review focuses on the potential influence of child characteristics because this seems to be a relatively neglected area.

There appear to be child characteristics that make a child more likely to suffer abuse. Sobsey, Randall, and Parrila (1997) found that boys were more likely to be abused than girls, and children with disabilities compared to those without were more likely to be abused. We wanted to know whether child characteristics such as these continued to influence the parent child relationship and placement outcome once the child was in care.

There have already been attempts at reviewing the literature in this area. Rosenthal (1993) examined the outcomes of adoption of children and barriers to placement, and reviewed the literature on both the adoption disruption and the child and family functioning in non disrupted families. The author concluded that younger age of the child, absence of behavioural problems, complete background information on the child, adoption by the foster carers and the child not having been sexually abused prior to placement all predicted a positive adoptive outcome for the child.

Wulczyn (2004) looked at trends in family reunification. This article described the legal framework of reunification, assessing what is known about the factors that influence successful reunification as well as examining the broader context of outcomes and implications of unsuccessful reunification. There was no systematic search of the literature but the author stated that a child's age and race were associated with likelihood of reunification with birth parents. Wulczyn also stated that infants and adolescents were less likely to be reunified than children in other age groups, and that African-American children were less likely to be reunified than children of other ethnic backgrounds.

Oosterman, Schuengel, Slot, Bullens, and Doreleijers (2007) conducted a review and meta-analysis regarding disruptions in foster

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care. They described the results of 26 studies, involving 20,640 children in foster families. The review examined risk and protective factors associated with placement breakdown and concluded that, amongst other factors, child characteristics were important in predicting placement breakdown. They concluded that older age at placement as well as behaviour problems showed significant small to moderate associations with placement breakdown. It was further suggested that mental disabilities and developmental problems show little association with placement breakdown. The authors reported other child characteristics having an effect on placement outcome, for example attachment behaviours, adjustment and resilience. However, they also noted that parental behaviour seemed to moderate the relationship between child behaviour and placement breakdown.

Kimberlin, Anthony, and Austin (2009) conducted a review examining the factors that result in re-entry to care. They found the child characteristics of health problems, mental health problems, behaviour problems, infant or pre-teen/teenage all to be risk factors that correlate to re-entry to care.

All of these reviews provide interesting results which support the idea that there are child characteristics that can affect placement outcome. What is missing for each of these reviews however is evidence of a systematic search of the literature, detailing exactly how many studies were included and why studies were removed from the review, as outlined in the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA guidelines, Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009). These guidelines help authors improve the reporting of systematic reviews by providing an evidence-based minimum set of items to report using a 27-item checklist and a four-phase flow diagram. In addition, although Kimberlin et al. go some way to doing this, none have truly assessed the source of the data in the research studies. They report on the findings of many studies examining the effects of child behaviour, child mental health etc. on the effect of placement outcome. What is not clear from any of these reviews is how these variables were measured. When children were assessed regarding mental health, we usually do not even get the information whether or not the children have been assessed face to face.

Unrau (2007) emphasised the importance of seeking the perspectives of foster children and reported on studies not including the children as data sources. Selwyn, Saunders, and Farmer (2010) further acknowledged that research consistently has shown that children feel they have little say in decisions about placements. It appears that children are not always included when it comes to placement outcome so it is important to examine whether children are included when examining how their individual characteristics affect outcome.

Children can have varying outcomes from care; they may return home, go to kinship care, be adopted, stay in foster care or move to another type of looked after accommodation. What is best for the child will vary between families and depend on a wide range of circumstances. When assessing outcome from care across a number of different studies, it is challenging to find a consistent optimal outcome. Rushton (2004) detailed such difficulties, arguing that devising varying and complex classification systems can lead to a lack of comparability of findings. We know that improving the quality of permanent placement decisions is beneficial to children (Zeanah et al., 2001) and so in this review, we simply view any placement outcome which resulted in a child finding a more permanent place to stay, for example, less placement moves, as a positive one.

The present systematic review aimed to include studies that have examined how child characteristics influence placement outcome. We examined the source of the data as well as summarising the main findings of various child characteristics. We wanted to know how many studies had actually had contact with the children and made thorough assessments of the child's health, disability and behaviour when determining how these impacted on placement outcome.

2. Method

A literature search of internet-based bibliographic databases was completed identifying research that had looked at what child factors influenced outcome of care placement. The search was carried out using the guidelines of PRISMA, which stands for Preferred Reporting Items for Systematic reviews and Meta-Analyses (Moher et al., 2009). The search was conducted using the following databases: (i) WEB OF SCIENCE, (ii) PsychInfo, (iii) MEDLINE, (iv) CINAHL, (v) ASSIA, and (vi) Social Services Abstracts. All searches were limited to journal articles published in English between 1971 and March 2012. References were excluded on the basis of title if they were not in the relevant subject area: children in care. Titles and abstracts were then checked by a single reviewer (RP) who sought advice regarding inclusion and exclusion from other authors in case of doubt. Articles had to report original data examining how a child characteristic affected any aspect of their outcome from care.

Search terms were tried and modified iteratively in order to find articles of interest. This was done in collaboration with a University librarian who had knowledge in the subject area. Once a relevant article had been identified, other relevant search terms were identified through mapping subject headings and examining keywords. Terms used in the final search were

1. Adopt* or foster*.
2. Reunification or "return and family" or rehabilitation or permanency.
3. Factor* or influence* or predict*.

These three searches were conducted individually and then combined (1 and 2 and 3) (see Fig. 1). Additional references were sought where appropriate using a secondary search of the reference lists from key papers. Experts in the field were consulted to ensure that we had not omitted any key papers. This was particularly important due to the search terms necessary in this subject area: these were commonly used words, out with the subject area, which led to a high volume of non relevant articles.

All the papers that were in the relevant subject area of children in care were then reviewed using a data extraction sheet (Appendix A) and key findings reviewed.

Many studies include ethnicity as a child characteristic. It was decided that we would not report these findings here, as ethnicity is so interlinked with social class that it would be impossible to differentiate which was being measured, for example, Strand (2011) examined the role of social class and ethnicity on educational attainment of children concluding that socioeconomic variables could be the cause of the attainment gaps between White British and Black African; Pakistani and Bangladeshi students.

3. Results

3.1. Tabulated results

The table below (Table 1) displays all the research studies which reported original quantitative data on how child characteristics can affect placement (N = 74).

3.2. Main findings

3.2.1. Age

The main child characteristic that was investigated as a potential contributor to placement outcome was child age. Many studies looked at what age the child was when they entered care and how this affected placement. Slightly more than 15% showed no effect of age on placement outcome, while the remaining papers did find that age impacted on placement. Of the papers reporting an effect, about three quarters showed more positive results for younger children, for example, Kemp and Bodonyi (2000) showed that younger

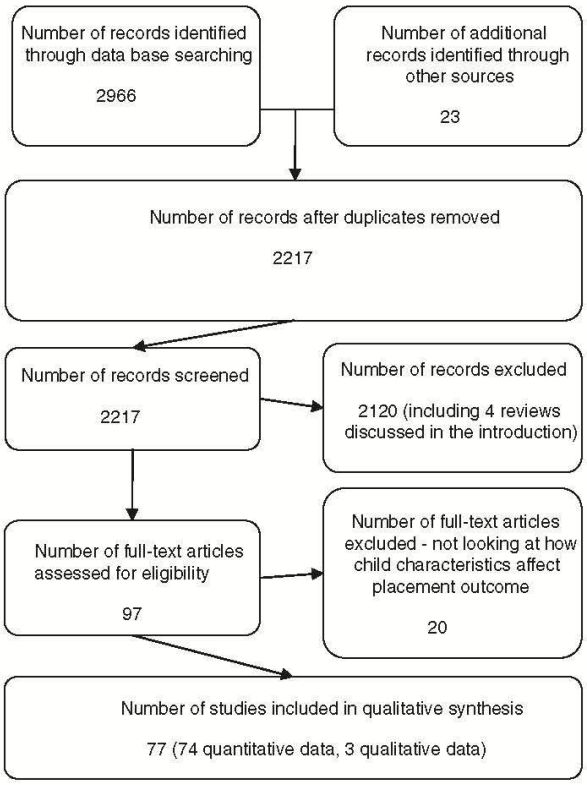

Fig. 1. Systematic review procedure.

children were more likely to achieve permanence, while Rosenthal, Schmidt, and Conner (1988) showed that younger age of placement predicted an intact placement. The remaining quarter showed a more positive result for older children, e.g. Cooper, Peterson, and Meier (1987) showed that younger children spent longer times in transitional placements resulting in longer disruptions than older children. There were seven studies included in this review with sample sizes of greater than 10,000 children that report on the effect of age on placement outcome. Because these are based on administrative datasets in which age is an easy variable to check, they have highly representative samples unlikely to be vulnerable to bias. Of those seven, three found little or no effect once other factors were controlled for. The remaining four did find effects. Snowden, Leon, and Sieracki (2008) found children placed under 5 years old were more likely to be adopted, Yampolskaya, Armstrong, and Vargo (2007) found that younger children had a slower exit from care, and Yampolskaya, Armstrong, and King-Miller (2011) found that older children were more likely to re-enter out of home care, while Hayward and DePanfilis (2007) reported that those in middle childhood were less likely to reunify than infants, with a further decrease for older adolescents. Although there was mixed evidence on the effect of age, about half of the studies found that children who come into care earlier have more positive placement outcomes than those coming into care at an older age.

3.2.2. Gender

The majority of papers that looked at child characteristics that might have an effect on their placement investigated gender as a potential contributor. Over 70% of these found no effect of gender on placement outcomes, for example, to predict successful reunification or multiple placements. Of those that did find an effect, the results varied, with approximately two thirds showing more positive outcomes for girls in care (e.g. Rosenthal et al., 1988; Snowden et al., 2008) while the remaining third showed more positive results for boys in care (e.g. Farmer, Southerland, Mustillo, & Burns, 2009; Fernandez, 1999). There were six studies included in this review with sample sizes of greater than 10,000 children that reported on the effect of gender on placement outcome. These are unlikely to be vulnerable to bias, as they are based on datasets in which gender is an easy variable to complete, providing a representative sample. Four of these studies reported non-significant findings (for example, Courtney, Piliavin, & Entner Wright, 1997; Hayward & DePanfilis, 2007) while two of the large studies reported an effect of gender. Yampolskaya et al. (2007) found that boys had a delayed exit from care while Snowden et al. (2008) report that girls are more likely to be adopted than boys, the effect sizes however were both very weak. Overall there did not seem to be a clear effect of gender which affects the child's outcome.

3.2.3. Health/disability

Some papers examined whether the health, or any disability, of the child affected placement outcome. Approximately one third did not report any significant effect of health/disability on placement. Of the papers that did report an effect, less than a third reported an increased chance of a positive outcome if the child had a health problem or disability (e.g. Selwyn, Frazer, & Quinton, 2006). In contrast, more than two thirds of the studies showing an effect found an increased chance of a negative outcome if the child has a health problem or disability: For example, Courtney (1995) found that children with health problems were more likely to re-enter care after reunification, while Eggertsen (2008) found that major health problems led to more placements for children. Only a few studies assessed the health of the children by asking their caregiver. The study by Selwyn et al. (2006) was based on interviews with adoptive parents; with an 80% opt in rate. The authors found that following a decision for adoption, children with a physical disability or chronic health problems were more likely to achieve a successful adoption than those without such health issues. This study involved 130 children, of whom 4% had a moderate to marked physical disability. Glisson, Bailey, and Post (2000) obtained data from both teachers and caregivers for child characteristics, however when assessing disability their conclusions came from case files or staff members, and was coded as a single variable describing the number of disabling conditions the child was affected by. They found that children with disabilities are less likely to return home. Proctor et al. (2011) conducted child assessments and caregiver interviews. They found that health problems did not predict placement stability in a sample of 285 children in out-of-home care. Although many studies did not find an effect of health or disability, it seems that where there is an effect, it is more likely to be negative, with health problems or disabilities being related to poorer outcomes for children in care.

3.2.4. Mental health/behaviour

Many papers investigated whether the child's mental health or behaviour problems affected their placement. Just over 10% found no effect of mental health/behaviour issues; however the remaining papers reported these as contributing to placement outcome. Of those reporting an effect, over 90% showed that a child having mental health or behaviour issues was detrimental to their placement outcome, for example, Dance and Rushton (2005) found that behaviour problems predicted placement disruption using the Parental Account of Children's Symptoms (PACS) with parents of 99 children while Glisson et al. (2000) showed that children with mental health problems had a lower probability of exiting custody. Mental health was assessed using the Child Behaviour Checklist (CBCL) and the Teacher's Report Form (TRF), which were completed by parents and teachers of 700 children, from a random sample of 750. Almost all the studies

Table 1
Quantitative synthesis.

Reference	Sample size	Data source	Research Aim	Child Characteristic measured				
				Demographics	Health/ disability	Mental Health/ behaviour	Education/ cognition	Other
Akin (2011)	3351	Administrative data	Predictors of permanency outcomes	✓	✓	✓		
Albers, Reilly, and Rittner (1993)	404	Administrative data	Predictors of length of stay in care	✓				
Baker (2007)	596	Carer and staff postal questionnaires	Permanency outcomes for disabled children		✓			
Barber, Delfabbro, and Cooper, (2001)	235	Case notes and social worker interviews	Placement movement after referral into care	✓		✓		
Barber and Delfabbro (2009)	235	Social worker questionnaires	Comparing profiles of neglected and abused children	✓				
Barth, Weigensberg, Fisher, Fetrow, and Green (2008)	273	National survey data	Predictors of re-entry to care	✓		✓	✓	
Becker et al. (2007).	7807	Administrative data	Predictors of permanency planning	✓	✓	✓		✓
Chamberlain et al. (2006)	246	Carer telephone interviews	Predictors of foster care disruption	✓		✓		
Cheng (2010)	411	Child, caregiver, worker and teacher interviews	How child welfare worker engagement shapes outcomes	✓	✓	✓	✓	
Connell, Katz, Saunders, and Tebes (2006), Connell et al. (2006)	6723	Administrative data	Characteristics of foster care outcomes	✓	✓	✓		
Connell, Katz, et al. (2006); Connell, Vanderploeg, et al. (2006)	6723	Administrative data	Characteristics of placement changes	✓	✓	✓		
Cooper et al. (1987)	172	Administrative data	Placement history of abused and/or neglected children	✓		✓	✓	
Courtney (1994)	8748	Administrative data	Factors affecting reunification with families	✓	✓			
Courtney (1995)	6831	Administrative data	Factors which affect re-entry to care	✓	✓			
Courtney et al. (1997)	21,484	Administrative data	Factors affecting returns home from, and re-entry to care	✓	✓			
Dance and Rushton (2005)	99	Case histories and adoptive parent interviews	Factors associated with outcomes of adoptive placements	✓		✓		✓
Delfabbro, Barber, and Cooper (2002)	235	Administrative data verified in case worker interviews	Characteristics of children entering care	✓	✓	✓	✓	
Delfabbro, Barber, and Cooper (2003)	235	Administrative data verified in case worker interviews	Predictors of reunification for children in care	✓	✓	✓		
Denby (2011)	1200	Carer postal questionnaires	Kinship caregivers' experiences permanency intent	✓	✓	✓	✓	
Doelling and Johnson (1990)	51	Carer, teacher and caseworker report	Contribution of temperament on placement success	✓				✓
Eggertsen (2008)	5015	Administrative data	Factors relating to out of home placements	✓	✓	✓		
Farmer et al. (2009)	1778	Caregiver interviews	Rates and predictors of movement back home and stability of reunifications	✓		✓		✓
Fernandez (1999)	201	Administrative data	Predictors of placement outcomes	✓		✓		
Fernandez and Lee (2011)	155	Case worker interviews	Factors associated with speed of reunification	✓				
Festinger (1996)	210	Administrative data and caseworker questionnaires	Factors associated with re-entering care	✓				✓
Frame, Berrick, and Brodowski (2000)	88	Case records and worker focus groups	Factors predictive of re-entry into care	✓				
Frame (2002)	1357	Administrative data	Relationships between child and family characteristics, child abuse and placement outcomes.	✓	✓	✓		
Fuller (2005)	240	Administrative data	Predictors of maltreatment recurrence when a child returns home	✓	✓	✓	✓	
Glisson et al. (2000)	700	Teacher and caregiver report	Factors that predict length of time spent in care	✓	✓	✓	✓	
Havlicek (2010)	474	Foster youth interviews	Patterns of movement through the child welfare system	✓				
Hayward and DePanfilis (2007)	743,790	Administrative data	Factors predicting reunification	✓	✓	✓		
Helton (2011)	315	Administrative data	Biological relatedness and disability status as risk of placement disruption	✓	✓	✓		
Hines, Lee, Osterling, and Drabble (2007)	403	Administrative data	Factors associated with reunification	✓	✓			
James (2004)	580	Administrative and clinical survey data	Reasons for placement change	✓		✓		
Jones (1998)	445	Administrative data	Characteristics that prevent successful reunification	✓	✓	✓	✓	✓
Kalland and Sinkkonen (2001)	234	Administrative data and social worker questionnaires	Risk factors associated with placement disruption	✓	✓			
Kemp and Bodonyi (2000)	458	Administrative data	Length of stay and permanency outcomes	✓				
Kemp and Bodonyi (2002)	1366	Administrative data	Predictors of permanency	✓				

Kraus (1971)	157	Child assessments	Characteristics predicting placement outcome	✓			✓	
Landsverk et al. (1996)	669	Case files and carer interviews	Impact of Child functioning on probability of reunification	✓		✓		
Leathers (2006)	179	Case worker and carer interviews	Role of behaviour problems in placement disruption &outcomes	✓		✓		
Leathers, Falconnier, and Spielfogel (2010)	203	Case worker and carer interviews	Examining factors that affect permanency outcomes	✓		✓	✓	
McAuley and Trew (2000)	19	Teacher and carer questionnaires	Cross informant agreement, stability of adjustment and placement outcome.			✓		
McDonald, Poertner, and Jennings (2007)	25,000	Administrative data	Predictors of permanency	✓	✓	✓		
McSherry, Weatherall, Larkin, Malet, and Kelly (2010)	374	Administrative data	Young children's pathways through care	✓	✓	✓		
Miller, Fisher, Fetrow, and Jordan (2006)	16	Birth and foster carer interviews	Post reunification variables that relate to reunification failure	✓				
Newton et al. (2000)	415	Parent/carer interviews	Prospective examination of relationship between change in placement and problem behaviours.	✓		✓		
Palmer (1996)	184	Caseworker report	Placement experiences and placement stability	✓		✓		
Pardeck (1984)	4288	National Survey	Identifying causes of multiple placements	✓	✓	✓	✓	✓
Pine, Spath, Werrbach, Jenson, and Kerman (2009)	135	Parent interviews	Evaluation of a programme designed for successful family reunification	✓				
Potter and Klein-Rothschild (2002)	125	Administrative data	Factors associated with permanent placements	✓	✓	✓		
Proctor et al. (2011)	285	Child assessment and caregiver interviews	Individual and environmental variables associated with caregiver stability and instability	✓	✓	✓	✓	
Romney, Litrownik, Newton, and Lau (2006)	277	Carer interview	Influence of disability on placement outcomes		✓	✓	✓	
Rosenberg and Robinson (2004)	105,071	Administrative data	Impact of developmental and health problems on child welfare outcomes	✓	✓		✓	
Rosenthal et al. (1988)	54	Social worker questionnaires	Predictors of special needs adoption disruption	✓	✓	✓	✓	
Santen (2010)	9995	Administrative data	Factors influencing length of stay in foster carers	✓				
Schmidt-Tieszen and McDonald (1998)	147	Administrative data	Predictors of long term foster care versus adoption	✓	✓	✓	✓	
Schwartz, Ortega, Guo, and Fishman (1994)	4085	Administrative data	Child welfare placement trends	✓				
Selwyn et al. (2006)	130	Case files and adopter interviews	Outcomes of children following an adoption best interest decision.	✓	✓	✓	✓	
Shaw (2006)	6021	Administrative data	Re-entry to care after returning home	✓				
Sinclair and Wilson (2003)	472	Carer questionnaire	Predictors of placement success.			✓		✓
Smith, Stormshak, Chamberlain, and Bridges Whaley (2001)	90	Unclear	Predictors of placement disruption	✓		✓		
Snowden et al. (2008)	60,000	Administrative data	Predictors of permanency	✓	✓	✓		
Stone and Stone (1983)	64	Administrative data	Incidence and causes of foster care breakdowns	✓	✓	✓	✓	✓
Strijker, Zandberg, and Van DerMeulen (2005)	91	Foster carer report	Use of the Child Behaviour Checklist to create typologies that relate to foster care outcomes	✓		✓		
Strijker and Zandberg (2005)	136	Administrative data	Factors influencing long term foster care	✓		✓		
Strijker et al. (2008)	419	Administrative data	Placement history and outcomes	✓		✓		
Terling (1999)	1515	Administrative data	Efficacy of family reunification practices	✓				
Walsh and Walsh, 1990	51	Administrative data and caseworker ratings	Predicting maintenance of matched foster care placements.	✓				✓
Webster, Barth, and Needell (2000)	5557	Administrative data	Number of placement moves	✓				
Wells and Guo (1999)	2616	Administrative data	Characteristics of placement and timing	✓	✓			
Wulczyn, Kogan, and Harden (2003)	20,270	Administrative data	Placement stability and movement patterns	✓				
Yampolskaya et al. (2007)	34,503	Administrative data	Factors associated with undesired child welfare outcomes	✓	✓	✓		
Yampolskaya et al. (2011)	17,695	Administrative data	Factors affecting re-entry to out of home care	✓	✓	✓		

where the caregiver was asked about the child's mental health (for example, Dance & Rushton, 2005; Landsverk, Davis, Ganger, Newton, & Johnson, 1996; Newton, Litrownik, & Landsverk, 2000) showed clear detrimental effects of mental health problems on placement outcome. It seems that mental health is a key characteristic which can influence what happens to a child when they enter care.

3.2.5. Education/cognition

Of the papers that examined whether education/cognition affected placement outcome, more than half found no effect. Of the small number that did find an effect however, almost all found an increased chance of a negative outcome if the child had problems in education or cognition; for example, Jones (1998) found that having a learning disability or problems at school led to an increased chance of re-entering care. The data came from case files of 445 children who entered care, with the presence or absence of such problems coded by a professional when they first entered care. Only two papers directly assessed the cognitive ability of children. Kraus (1971) found that IQ as measured on the WISC (Wechsler Intelligence Scale for children) with 157 children had no effect on placement success/failure, however recently Proctor et al. (2011) found that lower score on the WPPSI (Wechsler Preschool and Primary Scale of Intelligence) block design task, but not language score, was related to an increased chance of placement instability in 285 children. As the majority of papers did not find an effect of education or cognition on placement outcome it is not clear what effect this has on placement outcome, however it does appear that if the child has problems in these areas, then unfortunately these are more likely to lead to negative placement outcomes than positive.

3.2.6. Other

Some studies examined factors other than those described above as potential child characteristics that may affect placement outcome. One finding which appeared significant was that of child attachment with Walsh and Walsh (1990) finding that caseworker ratings of a child's inability to attach to a caregiver predicted placement breakdown with a sample of 51 children and Strijker, Knorth, and Knot-Dickscheit (2008) showing that attachment disorders predicted a higher number of placements. A qualified professional made this assessment based on information in case files using DSM-IV criteria. In addition, substance abuse in children appeared to have an effect on placement outcome, with Jones (1998) showing that children with substance abuse problems were more likely to re-enter care while Becker, Jordan, and Larsen (2007) showed that they were less likely to successfully exit care. Although these other factors were only investigated in a small number of papers, it is clear that there may be other child characteristics which are having an effect on placement outcome.

3.3. Qualitative data

The literature search also revealed three papers that reported original qualitative data. Terling-Watt (2001), Brown and Bednar (2006), and Brown, Bednar, and Sigvaldason (2007) all conducted qualitative work where they asked professionals and foster carers about their perceptions of placement breakdown. Each study identified between 6 and 9 key concepts which were perceived factors in placement breakdown. These are detailed below (Table 2).

Sinclair and Wilson (2003) conducted a study combining both qualitative and quantitative methods to assess the factors which were important in placement success. They included children's social workers, foster carers and the children themselves to develop a model which would predict placement success. They identified three main predictors; the child's motivation, attractiveness and difficulty; the carers' warmth, persistence and ability to set limits, and the interaction between these two factors.

It is clear from this qualitative research that foster carers and staff working with these families regard child characteristics, for example, the child's health or their behaviour, as important influences on placement outcome.

Table 2
Qualitative synthesis. Child characteristics are in bold font.

	Terling-Watt	Brown and Bednar	Brown, Bednar and Sigvaldson
Contact with birth parents	✓		
Moving from unstructured to structured environment	✓		
Health of carer	✓	✓	
Service needs not being met/agency problems	✓	✓	
Special/complex needs of child	✓	✓	
Age of carer	✓		
Child is danger to family		✓	✓
Child not adapting		✓	✓
Child's conduct		✓	✓
Lack of community resources		✓	
Changed circumstances		✓	
Unsuccessful attempts to making placement work		✓	
Carer exhaustion			✓
Insufficient information			✓
Carer feeling taken for granted			✓

A further aim of this review was to look at data sources of the research conducted in this area. It was found that over half ($n = 40$) of the 74 quantitative studies had based their findings purely on administrative or survey data. Of the 77 papers included in this review, only 5 appeared to have contact with the children and young people to make an assessment of the characteristic which they were investigating.

4. Discussion

This review aimed to summarise studies that had examined how child characteristics influenced placement outcome. It found that numerous studies had investigated this and identified certain characteristics to have an effect; for example suggesting that older children, or those with mental health problems or disabilities can be particularly vulnerable to disrupted placements or multiple placements. Research on the influence of other factors, for example gender, was not as clearly identifiable as a risk factor for problems with placement. Our findings were similar to other reviews in the area (Kimberlin et al., 2009) which concluded that these same child characteristics could affect placement outcome and rates of re-entry to care after reunification.

It is useful to consider why certain characteristics may predict disrupted placements for children coming into care. Younger children may have experienced less prior adversity, or may settle into a new family more easily. They also may be easier to look after. Positive outcomes for these children may also be associated with more people being willing and committed to adopt these children. Children who have had time to accrue a greater number of difficulties, on the other hand, may be more difficult to look after and thus less likely to settle into a new family, or be adopted. The findings showing a lack of clear effect of gender was surprising. We know that boys tend to have higher levels of behavioural problems than girls in the general population, so it may be that the effect of abuse or neglect on girls increases the likelihood of them having behavioural problems to the same level of boys. These are areas of great interest which would require further research with more in depth child assessments.

Placement outcome can have a huge effect on children. Biehal (2009) compared the characteristics, outcomes and meanings of different placement outcomes and found that long term, stable foster care may be very positive for children, providing them with emotional security. They

found that children in long term foster placements may do as well as adopted children in terms of their emotional and social wellbeing as well as educational progress. Children who had disrupted placements however, were more likely to have emotional and behavioural difficulties. These findings emphasise the need to find stable placements for children as early as possible and highlight the need to fully understand the varying components which may influence outcome.

The review highlighted that a large amount of research in this area relies on administrative data. As the children involved in these studies were all children in the care system, this means that there was a potential to have robust data on these participants as information is routinely stored about each of them. There are a number of strengths to using administrative data to examine placement outcomes, in particular the ability to use large samples (outlined by DiLeonardi & Yuan, 2000). They, however, also acknowledged the problems; in particular they noted the importance of having common understanding of definitions. They acknowledge that people need to mean the same when they enter, discuss or retrieve data, or false conclusions can be easily drawn. Certain characteristics, for example, mental health, have the potential for confusion over definitions. Where this was measured using administrative data, it was often just a yes/no regarding whether the child had mental health issues or not. It is obvious how limited this dichotomous answer is and with what caution any results should be interpreted. This review was focussing on child characteristics which affected placement outcome yet highlighted that very few studies ($n = 5$) had actually had contact with the child. There are some characteristics where meeting the children is not necessary and where administrative data is likely to be of good quality, for example, age and gender, however there are others where it would seem remiss not to make an assessment of the child, in particular regarding characteristics such as mental health.

Previous research has shown that children's views are often not directly considered when making placement decisions about them, and this review adds to this, finding that they are generally also not directly involved when making judgements about how their characteristics are affecting outcome.

A limitation of our review is that the way child characteristics affect placement outcome is a very difficult area to conduct a thorough search on. Despite attempts to cover the literature through contacting other sources it is likely that some studies in this area will have been missed. It was impossible to use specific search terms to identify the papers of interest and thus there may be relevant studies in the "grey literature". However, we have no reason to believe the studies we found using administrative data would be misrepresented in our search, especially since such large scale studies are likely to be published in peer reviewed journals. A further limitation of our review is the categorisation of different aspects of a child's functioning into sections. Studies often included a number of different characteristics therefore we were forced to use personal judgement to categorise these accordingly. There is however inevitable overlap, for example — health problems causing cognitive difficulties, which could not be avoided.

This review highlighted the wealth of research in this field and identified the requirement for more in depth analysis. Future research should seek to address specific questions focusing on more homogeneous groupings and deal with the material in depth. It would also be interesting to explore the similarities or differences between studies utilising administrative data and those accessing informants directly. Child characteristics are of course only one source of potential influence on a child's outcome from care. Future research should aim to establish the relative importance of various contributors which affect this important outcome.

This review has highlighted that child characteristics do appear to be important predictors of placement success when a child comes into care. The implications of this are vast and a clearer understanding of this area may provide valuable pointers as to how best we can tackle these issues and use resources where they are needed most. If we were able to identify that children with certain characteristics are more vulnerable to placement disruption then we could focus our efforts when supporting these children in care. What is striking is that the majority of the research in this field has not involved contact with children. When assessing the importance of key child characteristics such as mental health, it is clear that before conclusions are reached, these children need to be met and properly assessed. Future research should aim to conduct full assessments with children when they come into care. This would allow for clearer conclusions as to how different child characteristics affect placement outcome and potentially provide the understanding required to provide effective interventions to improve these children's future development.

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Appendix A

Data extraction sheet

Questions are adapted from the Journal of the American Medical Association users' guide to the medical literature, Cochrane collaboration NHS CRD guidelines for systematic reviews.

RefMan ID:

Authors:

Title:

Source:

Child factors Y / N Outcome of placement Y / N

Stop here if either answer is No.

1. Study Characteristics
Aim/objectives of the study
Study design
Recruitment procedures used

2. Participant Characteristics
Sample size
Age
Gender
Ethnicity
Socio-economic status

3. Main Methods and Outcome Measures

Child factor (eg mental health, cognitive ability)

4. Main Findings

Summary of critical appraisal sheet (list strengths and potential confounders in the study):

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Appendix F. Published paper. Protocol described in 2.1

Pritchett, R., Fitzpatrick, B., Watson, N., Cotmore, R., Wilson, P., Bryce, G., ... & Minnis, H. (2013). A Feasibility Randomised Controlled Trial of the New Orleans Intervention for Infant Mental Health: A Study Protocol. *The Scientific World Journal*, *2013*.

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Clinical Study

A Feasibility Randomised Controlled Trial of the New Orleans Intervention for Infant Mental Health: A Study Protocol

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Child maltreatment is associated with life-long social, physical, and mental health problems. Intervening early to provide maltreated children with safe, nurturing care can improve outcomes. The need for prompt decisions about permanent placement (i.e., regarding adoption or return home) is internationally recognised. However, a recent Glasgow audit showed that many maltreated children "revolve" between birth families and foster carers. This paper describes the protocol of the first exploratory randomised controlled trial of a mental health intervention aimed at improving placement permanency decisions for maltreated children. This trial compares an infant's mental health intervention with the new enhanced service as usual for maltreated children entering care in Glasgow. As both are new services, the trial is being conducted from a position of equipoise. The outcome assessment covers various fields of a child's neurodevelopment to identify problems in any ESSENCE domain. The feasibility, reliability, and developmental appropriateness of all outcome measures are examined. Additionally, the potential for linkage with routinely collected data on health and social care and, in the future, education is explored. The results will inform a definitive randomised controlled trial that could potentially lead to long lasting benefits for the Scottish population and which may be applicable to other areas of the world. This trial is registered with ClinicalTrials.gov (NC01485510).

1. Background

Child maltreatment is known to be associated with significant problems in later life affecting both physical [1] and mental health [2–4]. Intervening early can improve outcomes when children's social and emotional development is at risk [5], and recovery from the effects of maltreatment is possible if children are provided with safe and nurturing care early, ideally in the first year of life [6–8]. Failure to do so puts children at risk of disrupted attachments and poor emotional well-being [9]. There is a growing international research and policy consensus on the need for prompt decisions about permanent placement (i.e., regarding adoption or return home) so that children can experience secure care as early as possible [9–14]. However, a recent audit of services in Glasgow revealed that children frequently "revolve" between maltreating birth parents and various temporary foster placements [10]. Moreover, there are no infant mental health services focusing on maltreated infants in Scotland.

There have been attempts to develop interventions to improve the mental health of maltreated infants [6, 7], but only one evaluated programme was identified, the Tulane Infant Team in New Orleans, Louisiana [8]. This is still in operation and aims to improve the permanency decision-making process using a comprehensive mental health intervention. Permanency decisions involve placing a child in the care of one family until the child reaches the age of independence. The Tulane Infant Team offers a tailored intervention to every family with a child coming into care. It assesses the quality of child's relationships and the degree of change over the course of the intervention. It makes considered recommendations to inform the legal system about the best placement outcome for each child. The aim of the Tulane Infant Team is to rehabilitate children back to their birth parents, and when this cannot be achieved safely or quickly enough, to free the children for adoption. An evaluation based on analysis of routine data was conducted four years prior to and four years after the introduction of this intervention to New Orleans [8]. This suggested that more children were adopted following its introduction; however, for those returned to birth families, there was a significant reduction in repeated maltreatment both for that child and subsequent siblings. The limitation of the study was a consecutive cohort design, and the lack of randomisation means that factors other than the intervention may be contributing to the positive effects.

Deciding which are the most appropriate outcome measures for this population is challenging. Gillberg [11] described the high levels of coexistence between symptoms of different disorders in early childhood, which he defined as ESSENCE (Early Symptomatic Syndromes Eliciting Neurodevelopmental Clinical Examinations). This demonstrates the need for a diverse and thorough assessment across the various fields described by Gillberg [11], including general development, language, social interrelatedness, mood, and behaviour.

The overall aim of this exploratory randomised controlled trial (RCT) is to evaluate the feasibility and to inform the design of a definitive RCT evaluating a Scottish adaptation of the New Orleans intervention for maltreated children. The specific research questions are as follows:

(1) what are the size and nature of any effects of the Glasgow version of the New Orleans model, the Glasgow Infant and Family Team (GIFT), on the mental health of maltreated preschool children?

(2) is a definitive multicentre RCT of GIFT feasible, acceptable, and necessary?

(3) what would be the required size of a definitive RCT of GIFT?

(4) what would be the optimal outcome measures for a definitive RCT of GIFT?

(5) what are the beliefs, attitudes, and experiences of those managing and delivering GIFT and an enhanced usual service, the Family Assessment and Contact Service (FACS)?

(6) is GIFT likely to be cost-effective in Glasgow and, if so, what design parameters are required for a definitive RCT?

2. Methods/Design

2.1. Study Design and Setting. This study is an RCT comparing two arms: GIFT (the intervention arm) and FACS (enhanced version of services as usual arm). Outcome measures from all participants are being collected one month after a child comes into care and then again one year later.

The study is set in the city of Glasgow, Scotland's largest and most ethnically diverse city with an estimated population of 588,470 of which almost 6% represent an ethnic minority (http://www.glasgow.gov.uk/index.aspx?articleid=3969). Children represent 16% of the Glasgow population; over one-third live in areas in the most deprived decile within Scotland, whilst only 3% live in areas in the least deprived decile within Scotland.

2.2. Participants. All parents (or recognised parental guardians) with a child aged between 6 and 60 months who come into a period of care due to child protection concerns are invited to take part in the study. Children are excluded from the study if

(1) they have a profound learning disability (as assessment outcome measures would not be appropriate),

(2) and/or their primary caregiver is unavailable to take part in the intervention (such as long-term imprisonment, death, or being uncontactable by services or research team for 3 months or more).

2.3. Recruitment and Randomisation. Recruitment is taking place over 17 months from December 2011 to April 2013. An estimated 153 eligible children are expected to enter care due to maltreatment during this period, that is, 9 children per month. Consent from parents and foster carers to be approached by the research team to discuss the study is obtained

by the social worker who gives the potential participants an information leaflet and a digital video disc explaining the study, its intent, and what participation would entail. Thereafter, informed consent from those agreeing to be contacted is obtained by the study's recruitment officer.

An anticipated consent rate of 65% will include approximately 100 families in the study, with 50 children in each trial arm (Figure 1). The families are randomly allocated to GIFT or FACS by the Robertson Centre for Biostatistics. Children from the same birth family, regardless of placement, are assigned the same study arm to reduce contamination (as birth parents are the primary target of the intervention). Randomisation is also stratified by child's age (<2 and ≥2 years). The trial arm allocation is concealed from the researchers who carry out the baseline and follow-up assessments, and the first research assessment is carried out prior to randomisation.

2.4. Care as Usual: Family Assessment and Contact Service (FACS). FACS comprises a team of social workers, which undertakes an assessment of the child and the family in order to make a decision about the child's future care. It examines family functioning and makes recommendations regarding placement outcomes for children. It is able to refer family members onto additional services (e.g., drug rehabilitation). Although FACS is an established service in Glasgow, it was previously a specialised team assessing only small numbers of children. As the delivery of early assessment services in Scotland was known to be highly heterogeneous, FACS will offer a new level of consistency and therefore is considered to be "enhanced services as usual". Any child whose parent or foster carer does not consent to participate in the research study will therefore receive the service from FACS.

2.5. The Trial Intervention: Glasgow Infant and Family Team (GIFT). GIFT is a structured intervention with the primary goal of rehabilitating the child back with their primary caregiver, when it is safe to do so. The team is multidisciplinary incorporating social workers, psychologists, a psychotherapist, and a psychiatrist. Like FACS, GIFT makes an assessment of the children in the context of their relationships with their caregivers. Whilst both teams assess relationships with the birth parents, GIFT also always assesses the relationships with foster carers. GIFT arranges referrals onto other services as described in FACS. GIFT also offers an intensive relationship focussed intervention to every birth family, which is anticipated to take between 6 and 9 months. This intervention is aimed at improving the relationship between the child and his/her birth family and according to the outcome, GIFT recommends whether the children should return home or be adopted. The intention is that all foster carers who care for children coming to the GIFT intervention should be jointly registered as potential adopters so that, if rehabilitation home is not feasible, the child does not have to experience another change of placement before achieving permanency. However, it is likely that this will take time to achieve and that not all carers will be dually registered within the recruitment period.

2.6. Outcome Measures. Baseline assessment based on the outcome measures is administered at a minimum of one month after the child is received into care. One month is allowed to let the carer get to know the child as well as to allow for the child to settle into the carer's home. Follow up assessment of the outcome measures is then repeated one year later. At baseline, the assessment is completed for all children with their foster carers. At follow up, the assessment is completed with the child's primary caregiver at that time who may be the birth parent, adoptive parent, or the foster carer—who may be the same or different from the foster carer at baseline.

2.7. Primary Outcome Measure. Infant mental health is measured using the Infant-Toddler Social and Emotional Assessment (ITSEA) [12, 13]. This 166-item questionnaire is well validated and is completed by the parent or carer [14]. It covers a wide range of social and emotional behaviours in infants, across four domains: externalising, internalising, dysregulation, and competence. It has been used successfully in previous interventions research with maltreated children showing medium to large effect sizes and good longitudinal stability [15].

2.8. Secondary Outcome Measures. A cognitive assessment of the child is undertaken. Children under 2.5 years are assessed with the Bayley Scales of Infant Development [16], while children 2.5 years and over are assessed using the Wechsler Preschool and Primary Scale of Intelligence (WPPSI IV) [17]. The parent or carer also completes the Parent Evaluation of Development Status (PEDS) [18] which assesses cognitive milestones including language, the Disturbances of Attachment Interview (DAI) [19] which identifies symptoms of attachment disorders, the Parent-Infant Relationship Global Assessment of Functioning (PIR-GAS) [20] which assesses global relationship functioning following observation of both play and meal time activities, and the Paediatric Quality of Life Inventory (PedsQL) [21] which assesses health-related quality of life. The Development and Well-being Assessment (DAWBA) [22] is completed by carers with a child aged two and above and is used to generate International Classification of Diseases (ICD) and Diagnostic and Statistical Manual of Mental Disorders (DSM) codes. The Waiting Room Observation (WRO) [23], a structured observation for symptoms of attachment disorders, is also completed by the researcher when the child and carer first arrive at the clinic. In addition, the Strange Situation Procedure (SSP) [24], the gold standard measure of infant/toddler attachment patterns, is completed at the follow-up time only.

In addition, the "This Is My Baby" (TIMB) [25] interview, which assesses the degree of commitment to the child by the foster carer is included as it may be investigated as a potential moderator between maltreatment and outcome.

In this exploratory trial, the feasibility, reliability, and developmental appropriateness of each measure will be examined in order to select the best measures for a definitive trial. In addition, the potential for linkage of data with routinely collected data on health and social care and, in the future, education and legal services will be explored.

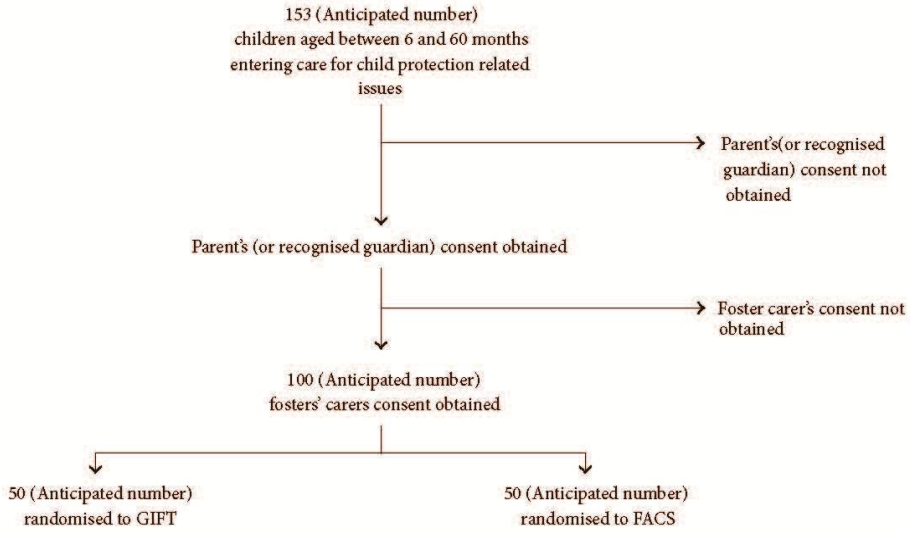

FIGURE 1: Anticipated number of eligible children recruited and randomised in the trial between December 2011 and April 2013.

2.9. Data and Statistical Analysis. The study will be analysed using the intention-to-treat analysis. To make preliminary assessment of the efficacy of GIFT, changes in scores on the ITSEA competence scale will be compared between the GIFT and FACS groups, adjusting for important baseline variables. To assess feasibility, the percentage consenting and the retention rate will be estimated: whether these are related to social circumstances or the type of intervention will be investigated using routine data where possible.

2.10. Treatment Fidelity. A fidelity monitoring model will be tailored to the specific needs of this complex intervention. This aims to capture five key components of fidelity [26] encompassing adherence to the prescribed intervention (staff supervision, training, and participant attendance), exposure (volume of trial intervention received per family), quality of delivery (monitoring assessment and treatment reports, focus group data), responsiveness of families (attendance and case studies), and program differentiation (identifying distinctive features and challenges). The purpose of the model is to ensure that the key components of the intervention are maintained throughout the study, to identify challenges and areas of improvement, and to generate data with which to compare evaluation results with the performance of the intervention.

2.11. Health Economics. An economic model will be built and populated with data from the trial to explore the potential cost-effectiveness of GIFT in comparison to FACS, using the ITSEA measure of child's mental health. Child's quality of life will also be measured within trial using the PedsQL for infants and toddlers. Measurement of quality of life is an important input for the economic component of this study and will enable assessment of any short-term change in quality of life for children between baseline and 1 year, and also between the trial arms. The model will be analysed probabilistically in order to characterize uncertainty in the model parameters and estimate confidence limits around the cost and effectiveness outcomes. The economic model will be used to help design the definitive trial proposal.

2.12. Qualitative Process Evaluation. Qualitative mapping and modelling work will accompany the exploratory trial in order to track the ways in which FACS and GIFT evolve and impact as services, capturing and exploring issues as they arise throughout the trial and feeding into service development. Qualitative work in the first part of the trial focuses on the implementation and delivery of services from the perspectives of social workers, foster carers, and the GIFT and FACS teams. The main data collection method for this purpose is focus group discussions, which will be repeated throughout the trial in order to track changes and developments over time. The trial consent process is also a focus in this first phase with data being collected from birth parents and foster carers who consent to the study, as well as the professionals responsible for the consent procedure. The second phase of the study, although still tracking the development of issues already gleaned in the first phase, will adopt case study methodology to focus more specifically on the impact of GIFT and FACS on a selection of children and families involved in the trial. This narrower focus will allow an in-depth investigation into the process of experience from the perspectives of the birth family, foster carers, social workers, and health professionals surrounding specific children enrolled in the trial. Case studies will be selected on the basis of a criterion matrix to allow exploration of the experience of receiving both services and different outcomes regarding permanency decisions. Key to this stage of the research is also the gathering of qualitative data from the Children's Hearing

System (a panel of specifically trained lay people who, in Scotland, are involved in most child's welfare decisions) in order to explore perspectives about the reports from the service and their impact on decision making.

The study was approved by the West of Scotland NHS Research Ethics Committee 5 and NHS Greater Glasgow and Clyde (Research and Development Committee). In addition, the research team attended Good Clinical Practice Training and also a study-specific session on obtaining informed consent from very vulnerable families. The protocol was registered before recruitment began on http://www.clinicaltrials.gov/.

3. Discussion

Both FACS and GIFT are new services and, during the mapping and modelling phase of this study, it was clear that opinion was divided as to which was likely to provide the best service for maltreated children. We are therefore in a position of equipoise.

The results from the study will provide us with the necessary findings in order to conduct a definitive RCT evaluating the New Orleans intervention for maltreated children. We aim to identify the feasibility of recruiting birth and foster families and the retention of these families to both the research and the interventions. We will assess not only the appropriateness of each measure but the assessments ability to capture problems in any ESSENCE domain. We will also explore the outcomes of the interventions. We will use fidelity monitoring to ascertain and optimise adherence to the GIFT model and to document the delivery of the control intervention. Health economic techniques will be used to assess the implications of such a model in terms of both the costs and outcomes, the results of which will feed into the development and design of a definitive RCT. In addition, we will explore qualitatively the perspectives of those implementing, delivering, and receiving the interventions as part of investigating the feasibility of implementing the model of intervention. In time, we will also examine the impact of the trial on the wider systems through routine data follow up.

Both GIFT and FACS aim to identify care arrangements which will ensure that the future care of any child who has experienced maltreatment is safe and nurturing. This could potentially lead to a long lasting benefit for the Scottish population as a whole, as well as a reduction in costs to society. Should the GIFT intervention be beneficial to infant's mental health and cost-effective in comparison to FACS, it would be important to consider whether a GIFT intervention could be of benefit in other areas of the UK to improve the life chances of maltreated children and address key policy goals such as improvement of school readiness and community safety.

3.1. Limitations. The GIFT team only has the capacity for a caseload of 50–60 children in one year. This limited capacity means that children removed from parents due to maltreatment but then placed in kinship care, being looked after by family members, are not included. This accounts for a large number of children who are removed from birth parents due to maltreatment. Children in kinship care may be included in future trials.

An additional limitation is that some children will change placement between baseline and follow up, meaning that there will be different respondents. If one intervention proves better at achieving permanent placements than the other, then the number of placement moves is likely to vary between the arms of the trial, thereby introducing bias. This creates a challenge in interpreting results, but the child's primary caregiver at the time is likely to be the best person to report on the child's health and development.

Children are allocated randomly into GIFT or FACS, and while birth siblings will all be allocated to the same intervention, this will not be possible for nonsiblings placed in the same foster care home. If both birth families and foster families were allocated to the same intervention then this would lead to significant clustering effects; that is, potentially large groups of children (e.g., a large birth sibship spread across several foster homes and all the associated foster sibships) could require randomisation together creating imbalances. Consequently, some foster carers may have children in their care going through both the GIFT and FACS assessments which has the potential to introduce contamination.

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Appendix G. Published paper. Results described in 4.3

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LETTER

Mental health of infants in foster care

It is now well established that children in foster care are at increased risks of experiencing mental health problems, for example, Ford *et al*[1] described findings from 1453 looked after and accommodated children in a sample of over 10 000 children aged 5–15 years and found that 46.4% of the accommodated children received a diagnosis compared with 8.5% of the general population. Our team[2] conducted a systematic review examining the way child characteristics affected child outcomes from care and found that, of the studies which found an effect of age on outcome, three-quarters found more positive outcomes, in terms of finding a permanent placement, for children who entered care at an earlier age. It was, therefore, of interest to see whether very young children were already showing higher levels of mental health problems than their peers.

We recruited 60 participants aged between 12 and 24 months. Twenty were children who had recently entered a period of foster care (50% male, mean age 18.8 months), while the remaining 40 were children from the general population matched for age and gender with the in-care sample (50% male, mean age 18.4 months). The children in the foster care sample had been in care for between 5 and 21 weeks, recruited through an ongoing randomised controlled trial (https://clinicaltrials.gov/ct2/show/NCT01485510?term=new+orleans&rank=1). Children from the general population were recruited through nurseries and local council-run sessions aimed at parents with young children (eg, 'Bounce and Rhyme').

All consenting parents and carers were asked to complete the Infant Toddler Social Emotional Assessment Scale: a 166-item questionnaire completed by the primary caregiver with acceptable test-retest and inter-rater reliability.[3] It provides an assessment of the child's social and emotional development and any behavioural delays. It covers four domains; externalising, internalising, dysregulation and competence. Each domain has an 'of-concern' cut-off point, which provides a guide for clinicians to identify areas which warrant further investigation. Fifty per cent of our in-care sample scored within this range in at least one domain. By comparison, 23% of the normative sample scored within this 'of-concern' range in at least one domain.

We can see that even these very young children in foster care are showing higher levels of problems compared with the general population, but they are, arguably, not as different from their peers as we see in studies with older children. Ford *et al*[1] found that those in foster care were about five times more likely to have a diagnosis than the general population, whereas our sample of infants are only twice as likely to be showing clinically concerning scores as their peer group.

While this study should be replicated, these young infants are not apparently suffering from the same levels of mental health problems as compared with their peers when entering care as seen in older fostered children—emphasising the importance of early intervention for maltreated children.

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Contributors The in-care sample data was collected by RP, the normative sample data was collected by WM. HM is the PI for the larger RCt which this is a part of, and together with CG they designed this study and supported data collection. All authors contributed to the write up.

Competing interests None.

Ethics approval West of Scotland NHS Research Ethics Committee five and NHS Greater Glasgow and Clyde (Research and Development Committee).

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