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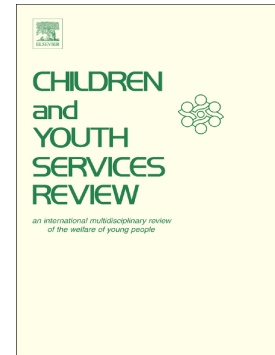
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Abstract

Loss of sibling relationships is a common experience across international jurisdictions for children entering public care. This is the case despite statutory guidance that emphasizes the need to place siblings together when in their best interests, and increasingly robust evidence of the protective nature of sibling relationships when children face adversity. Research on the experiences and outcomes of siblings in care has thus far focused predominantly on placement and contact patterns, particularly of siblings in care concurrently. This study extends this research by comprehensively mapping sibling networks both within and outside the care system and measuring sibling estrangement (living apart and lack of contact) over time. Drawing on administrative and case file data within the Children's Hearings System in Scotland, the circumstances of 204 children and young people from 50 sibling networks were examined longitudinally. The study found very high rates of sibling estrangement with seven in 10 relationships between a child in out-of-home care and a sibling classified as estranged and half of all siblings classified as strangers (siblings having never lived together and no record of any communication or meetings between the child and sibling). Moreover, sibling estrangement increased significantly as children moved through the care system. We argue that continued effort is needed to improve the accuracy with which aspects of sibling relationships of children in care are recorded and measured in order to assess the longer-term impact of state interventions on children's lives and the capacity of child welfare agencies to meet policy goals.

Key terms: sibling placements, sibling contact, family estrangement, permanence, sibling reunions

Highlights

- High levels of sibling estrangement were found with seven in 10 relationships between a child in out-of-home care and a sibling being classified as estranged and as many as five in 10 siblings being classified as strangers.
- Estrangement from siblings increased as children moved through the care system towards permanence.
- More systematic recording is needed of children's sibling relationships, their experiences of estrangement and more transparent recording of professional decision-making in order to understand the impact of statutory interventions on family ties.
- We propose the use of the concept of co-residence and the categories of *primary* and *secondary estrangement* to capture children's experiences of sibling relationships in future research.

1 Introduction

The majority of children who enter public care following abuse or neglect have siblings, some of whom will also be in public care. Recent international evidence indicates that between 87% and 92% of children in out-of-home care or adopted from care have at least one biological sibling (McDowall, 2015; Meakings, Coffey and Shelton, 2017). Sibling groups can be larger in vulnerable families than in the general population (Ashley and Roth, 2015) and this has been associated with increased risk of maltreatment (Witte, Fegert and Walper, 2018).

In this paper, we focus primarily on literature developed within a USA and UK context given the similarities between the systems of public care and permanence in these countries. Statutory guidance in the UK and USA emphasizes the importance of placing siblings together wherever practicable and in the best interests of children and where this is not possible the promotion of contact between siblings living apart

(Department for Education, 2015; Scottish Government, 2011; Fostering Connections to Success and Increasing Adoptions Act 2008). This aligns with children's right to family life, as set out in Article 8 of the European Convention for the Protection of Human Rights and Fundamental Freedoms and Article 16 of the United Nations Convention on the Rights of the Child.

Children in care typically emphasize the importance of their sibling relationships (Morgan, 2009; Wojciak, McWey and Helfrich, 2013). While there is some evidence that, in a small proportion of cases, children who have experienced abusive or neglectful environments can present a risk to siblings (Linares, 2006), cumulative evidence indicates that positive sibling relationships can aid resilience when children face adversity and can mitigate trauma (Gamble, Yu and Kuehn, 2011; Gass, Jenkins and Dunn, 2007; Wojciak, McWey and Waid, 2018). Studies of sibling placements report associations between sibling co-location and positive outcomes such as closeness to the caregiver (Hegar and Rosenthal, 2011) better mental health (Tarren-Sweeney and Hazell, 2005; Wojciak, McWey and Helfrich, 2013) and placement stability (Waid, Kothari, Bank, and McBeath, 2016). Benefits of sibling contact reported by children and carers include improved family relationships, reassuring a child of a sibling's welfare and the promotion of identity and belonging (Neil, Beek and Ward 2013; Neil, Cossar, Lorgelly, Young and Jones, 2011).

Despite widespread commitment within UK and US policies to the principle of maintaining sibling relationships and research evidence supporting this principle, sibling relationships continue to be particularly vulnerable when children come into care (Ashley and Roth 2015; McDowall 2015; Webster, Lee, Dawson, Magruder, Exel, Cuccaro-Alamin, ... Cotto, 2018). In this paper we make a case for more precise measurement of children's experiences of sibling estrangement in order to understand

the impact of statutory decisions on family relationships and, ultimately, children's wellbeing.

2 Background literature on sibling placement and contact patterns

Research attention began to be paid to sibling relationships of children in care in earnest from around the 1990s (Kosonen, 1996; Staff and Fein, 1992; Thorpe and Swart, 1992; Wedge and Mantle, 1991). The focus of these studies has primarily been on patterns of sibling placements and sibling contact arrangements of biologically related siblings.

2.1 Sibling placement patterns

A range of sources of data has been used to determine sibling placement patterns, including administrative data, surveys of child welfare professionals and, in one case, a freedom of information request. Some studies report data that align with Hegar and Rosenthal's (2011) categories of sibling placement type, that is, 'together', 'splintered' and 'split'. Together placements are ones where the child is living with all biological siblings, splintered placements are where the child is living with at least one, but not all biological siblings and split placements are where the child is living with no biological siblings. Some other studies collapse these three categories into two, reporting whether siblings in care are placed with none or some siblings, or whether sibling groups are intact or not intact. Given the various definitions of a sibling and different samples and methodologies that have been used, it is perhaps unsurprising that different studies give different results.

Studies conducted in the last decade have reported that between 17 and 37% of sample children experienced being placed apart from all siblings (split placements) (Albert and King, 2008; Ashley and Roth 2015; McDowall 2015; Webster, et al, 2018) and

between 33% and 74% were separated from at least one sibling (split and splintered placements) (Albert and King, 2008; McDowall 2015; Ofsted, 2012; Webster, et al, 2018; Wojciak, McWey and Helfrich, 2013; Woods and Henderson, 2018). Higher rates of separation were reported by studies sampling older children (Wojciak, McWey and Helfrich, 2013) and infants (Woods and Henderson, 2018), collecting data directly from children (McDowall, 2015; Ofsted, 2012) and where analyses included siblings both within and outside care (Woods and Henderson, 2018). Lower rates were reported by studies relying solely on administrative data (Albert and King, 2008; Webster, et al, 2018).

It is difficult to determine patterns across jurisdictions and trends over time. Figures from Ofsted (2012) in England have shown a slight year on year drop in the overall proportion of children reporting separation from siblings in care, yet the figure remains very high. In 2011, 73% of children in care in England who had one or more siblings also in care were separated from them, while in 2009 the figure was 76%. The large-scale administrative data available through the California Child Welfare Indicators Project (http://cssr.berkeley.edu/ucb_childwelfare/default.aspx) suggests that there has been little change over time with 49% of children in care living with all of their siblings in January 2018 and 49.5% doing so in January 2008, just before the Fostering Connections to Success and Increasing Adoptions Act of 2008 was signed into law in the US (Webster, et al, 2018).

At the point that the study was designed, there were no recent studies of sibling placement patterns that followed children longitudinally though earlier research had indicated the value of such designs in highlighting changes in sibling placement status over time (Albert and King, 2008; Leathers, 2005; Wulczyn and Zimmerman, 2005). Leathers (2005) reported that while 46% of children in out-of-home care were

separated from all siblings at the point of data collection, only 14% had been continuously separated from all siblings while in care. Wulczyn and Zimmerman's (2005) longitudinal data of sibling groups who entered care together showed a decline over time in the proportion of sibling groups that remained intact. At the same time, half of the sibling groups that were completely separated on entry to care were intact after four years. Of the siblings who entered care at different time points, the proportion placed with a sibling increased over time though remained low at around 38% after three years.

2.2 Patterns of face-to-face sibling contact

There are no comprehensive national statistics in the UK or USA on sibling contact when children enter out-of-home care or move into permanent placements. A study of youth in out-of-home care in the USA reported that around 72% had monthly direct contact with siblings and around 30% had no contact with siblings (Wojciak, McWey and Helfrich, 2013). In the UK, a survey of young people in residential and foster care reported that just over half had contact with a sibling at least once a month (Morgan, 2009) and two studies of sibling contact following adoption from care reported rates of direct contact at around 25% (Meakings et al, 2017; Neil, Beek and Ward 2013). Variations in rates may be related to differences in type of care, age of children or other factors.

Studies seeking children's views typically report that children are seeking more direct contact with siblings rather than less (A National Voice 2006; Morgan, 2009; Wojciak, McWey and Helfrich, 2013), though this may vary by placement type and age (Selwyn, Magnus and Stuijzand, 2018). Despite children's desire for more contact, the frequency of contact tends to diminish over time (Neil et al, 2013; Morgan 2009). Neil et al's (2013) study is important as it is one of the few longitudinal studies of contact

between children adopted from care and birth family members. It does not, however, report sibling contact levels pre and post-adoption. It is, therefore, difficult to determine the true scale of loss of sibling connections as children move through and beyond the care system.

2.3 Factors associated with separation and loss of contact

A number of factors have been associated with sibling placement arrangements. Studies have reported that placements together were more likely where siblings were similar in age (Albert and King, 2008; Wulczyn and Zimmerman, 2005) and adolescents and very young children were most at risk of separation from all of their siblings (Shlonsky, Webster and Needell, 2003). Recent research in Scotland found that almost all babies placed into care at birth were separated from their siblings (Woods and Henderson, 2018). Large sibling group size both decreases the likelihood of being placed with *all* siblings and increases the likelihood of being placed with *some* siblings (Shlonsky, et al, 2003) and timing of entry to care can affect whether siblings are placed together or apart (Shlonsky, et al, 2003; Wulczyn and Zimmerman, 2005).

Rates of co-placement have been shown to vary by placement type. The evidence suggests that sibling group integrity is most likely to be achieved in kinship care and least likely in residential care (Ashley and Roth 2015; McDowall 2015). Some gender differences have been noted, boys being more likely to be separated from all siblings than girls (Morgan 2009). Child behavioural difficulties can also influence placement (Leathers, 2005). These factors are likely to interact in complex ways.

Much less is known about factors that influence sibling contact patterns but adoption, particularly adoption by non-kin, has been associated with less frequent direct contact with birth relatives (Selwyn, Sturgess, Quinton and Baxter, 2006). The important role

of foster carers as ‘gatekeepers’ of contact has been highlighted (James, Monn, Palinkas and Leslie, 2008). In the case of both placement and contact decisions there are important gaps in knowledge regarding the constraints imposed by lack of resources. Official statistics reveal a shortage of foster carers able to accommodate sibling groups (Care Inspectorate, 2017) and inadequate numbers of potential adopters of siblings (Scotland’s Adoption Register, 2018).

2.4 Focus of this study, research questions and measures

From previous research it is evident that, for a significant minority of children in out-of-home care, sibling co-placement and contact are not part of their experience. The true scale of loss of sibling relationships is difficult to determine, however, as most studies are limited to measuring placement or contact patterns of those aged under 18 years and siblings concurrently within the care system. Another major limitation of much previous work is its cross-sectional nature.

In an attempt to better capture children’s sibling relationship experiences over time this study adopts a broader definition of sibling, to include both child and young adult siblings and those within and outside the care system. The analysis remains limited to biological siblings as reliable data on non-biological siblings were unavailable.

Importantly, the study builds a longitudinal picture analysing time series data on the sibling relationships of a cohort of 50 index children from the point that they entered out-of-home care to their permanent placement away from home and beyond this.

The research questions addressed through the study were:

1. What proportion of index children were in together, split or splintered sibling placements at the point of:
 - a. entry to out-of-home care;

- b. the start of legal permanence proceedings?
2. What proportion of siblings were estranged at:
 - a. entry to out-of-home care,
 - b. the start of legal permanence proceedings?
3. What proportion of siblings were strangers?

While evidence suggests that sibling co-location can fluctuate (Leathers, 2005), it appears that contact between separated siblings tends to decrease over time (Neil et al, 2013; Morgan 2009). The study, therefore, also sets out to test the hypothesis that overall levels of estrangement increase over time as children move through the care system towards permanence.

We defined *sibling estrangement* as a lack of both co-location and direct contact. Lack of co-location was recorded where a child and sibling did not share the same postal address. Lack of direct contact included an absence of face-to-face meetings and/or direct communication between the child and a sibling.

The category of *stranger sibling* was identified as an important aspect of a child's experience of sibling relationships in the early stages of data collection for this study and can be differentiated from estranged relationships. Siblings were classified as *strangers* where they had never lived together and there was no record of any communication or meetings between the child and sibling. These siblings appeared in reports peripherally or, more commonly, were not present at all in the index child's file and instead appeared in the case file of another sibling of the index child. Information recorded by professionals indicated that in some cases siblings were not even aware of each other's existence. Where there was evidence of siblings having knowledge of each other, either because they were or had been co-resident or they were or had been

in contact these were classified as *familiar* siblings. Some familiar sibling relationships later became estranged but were not strangers.

3 Study design

3.1 Data collection and analysis

The study reported here was undertaken in Scotland, where statutory intervention to protect children at risk is organised through the Children's Hearings System. Concerns regarding a child's welfare, safety or behaviour are dealt with by Children's Hearings, in which volunteer Children's Panel Members are the decision-makers. Children's Hearings have the power to make Compulsory Supervision Orders (CSOs). These specify where the child is to reside, their level of contact with parents or others, and, if necessary, restrictions on the disclosure of the child's whereabouts. A CSO must be reviewed by a Children's Hearing at least every 12 months, and is not intended to be a permanent measure.

In Scotland, legal permanence for children in care is secured by Permanence Orders or Adoption Orders made by the courts. It is a requirement that a Children's Hearing prepares a report to provide advice to the court (known as the Advice Hearing) when an application for a Permanence Order or an Adoption Order is being made (or is intended) for a child on a CSO. An adoption agency must make an adoption application to the court within 28 days of receipt of the report of the Advice Hearing; there are no such timescales for Permanence Orders (Norrie, 2013).

3.2 Data sources

Previous research has indicated that analyses of administrative data alone may underestimate rates of sibling separation, therefore for this study an analysis of

administrative data was supplemented with an analysis of case files. All data used in this study were held by the Scottish Children's Reporter Administration (SCRA), which administers Children's Hearings. SCRA's national Case Management System (CMS) was the source of administrative data and case files held in SCRA's offices throughout Scotland provided detailed information on the children's histories in care. The case files comprise of reports from social work, education, police and health sources as well as all statutory documentation.

3.3 Sampling strategy

The sample of children included in this study was drawn from a previously identified cohort of 200 children, who were the subjects of an earlier study of permanence-planning and decision-making for children in care in Scotland (Henderson, Hanson, Kurlus, Hunt and Laing, 2015). The larger cohort constituted children who were subject to Supervision Requirements (now known as CSOs), moved into out-of-home care and went on to have Permanence Orders or Adoption Orders made by Sheriff Courts between 1st April 2013 and 31st March 2014. Out-of-home care included kinship arrangements, non-relative foster care and residential care. From this cohort, 50 unrelated children were randomly selected for inclusion in this study. Children were eligible for inclusion if they had at least one biological sibling and were aged under 16 years at point of data collection. These are referred to throughout the paper as the 'index' children. Biological siblings were identified by a combination of extraction of data from CMS and scrutiny of reports held in the index children's case files. Only biological siblings were included in this study as information on non-biological siblings was inconsistently recorded in CMS and case files. Where an index child's biological sibling was also recorded in CMS, this child's case file was also read.

3.4 Data extraction

Information was collected regarding the index child's pathway through the care system recording the date on which the child was first placed under a statutory order, first entered to out-of-home care, when the Advice Hearing was held and up to the point of data collection. Where recorded in case files and statutory documentation, at each of these points, data were extracted relating to both the index child and their biological siblings. This included data on size of biological sibling groups, types of sibling relationship (full, maternal-half, paternal-half), sibling placement type (together, splintered or split) and frequency and types of contact between the index child and each sibling. Data were also collected on children's and siblings' characteristics, types of legal orders, and grounds of referral. These data were collected in late 2015. Further details on the sample and data extraction are available in AUTHORS (2017). Ethical approval for the study was granted by the first author's employing institution.

3.5 Characteristics of the sample

The mean age of index children when they first entered out-of-home care (T1) was 21.86 months (s.d. 30.46). The age profile of children at T1 is set out in table one. At the point of the Advice Hearing (T2), the mean age of index children was 61.49 months (s.d. 47.65). The mean time from entry to out-of-home care to Advice Hearing was 38.82 months (s.d. 32.43).

Table one: Age profile of index children when first entering out-of-home care

Age range (months)	Number of index children	Percentage of sample
0-12	27	54
13-24	6	12
25-36	9	18
37-[max age]	8	16

Focusing on biological siblings in care concurrently, sibling group size within the sample ranged from two to five, when children first entered out-of-home care (T1)

with 17% in a sibling group of four or more. At T2, sibling group size ranged from two to seven, with 19% in a sibling group of four or more. Previous studies of siblings in care have reported that between 15% (Albert and King, 2008) and 26% (Ashley and Roth, 2015) of children in care concurrently belong to sibling groups of four or more, suggesting that the sample of children in this study is similar to previous studies.

The size of biological sibling groups increased when all siblings, regardless of care status, were taken into account. In total, 154 biological siblings were identified by T3. These comprised 52 full siblings, 81 maternal half siblings and 21 paternal half siblings.. The size of sibling groups, including the index child, ranged from two to nine children with a mean sibling group size of 4.08 (s.d. 1.77). Forty per cent of index children were in a sibling group of four or more. In the largest families, siblings were born over a 12 to 15 year period. Eight of the siblings had been born after the index child's Advice Hearing. The large size of these sibling constellations is important, given that age and gender diversity within a sibling group can increase the risk of separate placements (Albert and King, 2008; Morgan 2009; Shlonsky, Webster and Needell, 2003).

3.6 Approach to analysis

Sibling numbers and residence and contact patterns with siblings were examined at two key decision-making points in the child's journey within the Hearings System, when the index child was first accommodated (T1) and when the Advice Hearing was held to provide a report to the court on a Permanence or Adoption Order application (T2). T1 ranged from the years 2002 to 2013 and T2 from 2011 to 2013. Data on all siblings by the point of data collection (T3) were also analysed. Together, these data build a picture of children's experiences of siblinghood over time.

To address research questions 1 to 3, descriptive statistics of frequencies of biological siblings and estrangements at each time point were produced and proportions calculated. Two distinct analyses were undertaken of sibling placement patterns for:

- a. **Concurrently accommodated siblings:** this category was restricted to biological sibling(s) who were in out-of-home care at the same time as the index child;
- b. **All siblings:** this expanded category included all biological siblings of the index child identified from records, including those who had experience of the care system and those who did not.

We also tested the hypothesis that sibling estrangement would increase as our target children moved through the care system, using inferential statistics. Two versions of this hypothesis were tested. H1 predicted an increase from entry into out-of-home care to the end point of the study, in the proportion of all siblings who were estranged. However, such an increase might result either from increased estrangement from existing siblings, or from the new estrangement of siblings who were born after the index child had already entered care. Therefore, we also tested a second hypothesis, that estrangement from siblings who were already born when index child entered out-of-home care would increase (H2).

4 Findings

4.1 Sibling placement patterns of index children when first accommodated and at the start of legal permanence proceedings.

Our first analysis set out to address research question one: what proportion of index children were in together, split or splintered sibling placements at the point of:

- a. entry to out-of-home care;
- b. the start of legal permanence proceedings?

Table 2 shows the proportions of index children in together, splintered and split sibling placements at T1, the point that the index child entered out-of-home care, and T2, at the start of legal permanence proceedings for the index child. The type of sibling placement at T2 was the anticipated permanent residence of the child and siblings at the time of the index child's Advice Hearing. Findings are reported for concurrently accommodated biological siblings and for all identified biological siblings. Data at T3 is not reported as there were few changes in placement type between T2 and T3.

Table 2: Number and percentage of index children experiencing together, splintered and split placement types at T1 and T2: concurrently accommodated siblings and all siblings

	T1 entry to care				T2 permanence proceedings			
	Accommodated siblings		All siblings		Accommodated siblings		All siblings	
Together placement	13	45%	6	13%	13	36%	5	10%
Splintered placement	7	24%	14	30%	9	25%	17	35%
Split placement	9	31%	26	57%	14	39%	27	55%
	29	100	46*	100	36	100	49*	100

* where $n < 50$ siblings had not been born to the index child at this time point.

At T1, the analysis of concurrently accommodated siblings included 29 index children and their 49 concurrently accommodated siblings and shows a spread across categories of sibling placement. Just under a third of index children (31%) were living apart from all of their concurrently accommodated siblings and more than half (55%) were living apart from at least one concurrently accommodated sibling. These figures are similar to those reported in previous studies. However, when the T1 analysis included all index children ($n=46$) and all siblings ($n=125$), the proportion of index children living apart from all of their siblings increased sharply from 31% to 57% and living apart from at least one sibling from 55% to 87%.

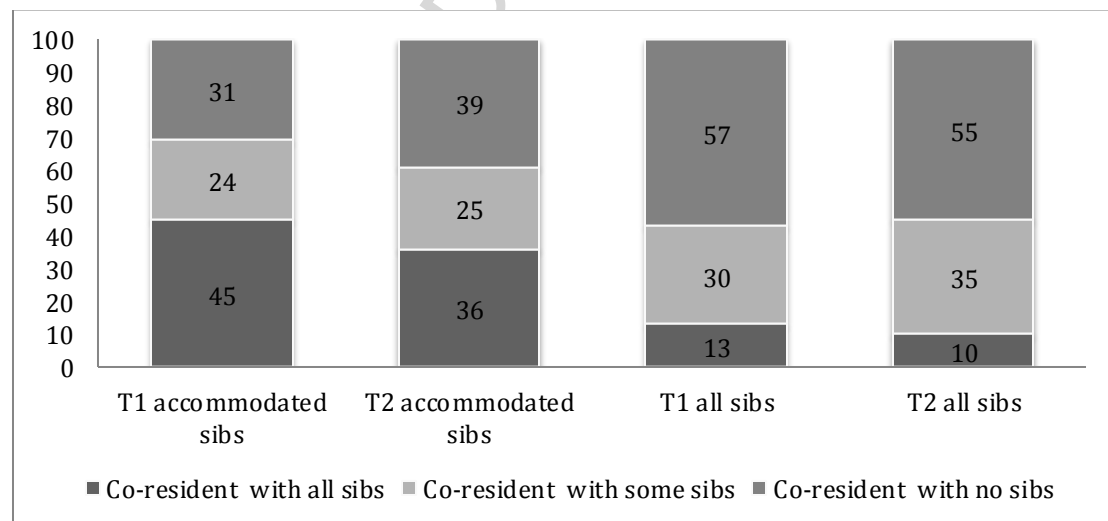
At T2, the analysis of anticipated sibling placement patterns of concurrently accommodated siblings included 36 index children and their 65 concurrently

accommodated siblings and again shows a spread across categories of residence.

Around two fifths of index children (39%) were expected to be living apart from all of their concurrently accommodated siblings and just over three fifths (64%) were expected to be living apart from at least one concurrently accommodated sibling. When the analysis included all index children with siblings (n=49) and all siblings (n=145) at T2, the proportion expected to be living apart from all siblings increases from 39% to 55% and living apart from at least one sibling from 64% to 90%. These figures are significantly higher than rates reported in previous studies.

The different patterns of sibling placement between groups and across time are represented in figure 1.

Figure 1: Proportions of index children living with all, some or none of their siblings at T1 (when index child enters out-of-home care) and T2 (at start of permanence proceedings).



4.2 Proportion of biological sibling relationships that were estranged when the index child was first accommodated and at the start of legal permanence proceedings.

Sibling placement patterns provide some insights into the challenges of maintaining sibling relationships when children enter out-of-home care. A fuller picture is provided when placement and contact data are combined. Research question 2, therefore, asked what proportion of siblings were estranged at:

1. entry to out-of-home care,
2. the start of legal permanence proceedings?

In an attempt to fully reflect the experiences of estrangement of children in care, we moved away from broad categories that describe an index child's estrangement from some, all or no siblings. Such categories seemed inadequate to capture the scale of estrangement, particularly in large families. Instead, our analysis of the proportion of biological sibling relationships that were estranged at T1 and T2, focused on index child/sibling dyads. There were 126 dyadic relationships between an index child and a sibling at T1 and 144 dyadic relationships at T2.

Table 3 reports the proportions of dyadic relationships that were estranged, that is, the dyads that were living apart and having no direct contact. These figures are reported for both the concurrently accommodated group and all siblings.

Table 3: Number and percentage of sibling dyadic relationships that were estranged at T1 and T2 for both concurrently accommodated and all siblings.

	T1	T2
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	Number of index children with siblings	Number of siblings of index children	Number of estranged relationships	% of sibling relationships estranged	Number of index children with siblings	Number of siblings of index children	Number of estranged relationships	% of sibling relationships estranged
Concurrently accommodated children	29	49	4	8%	36	65	27**	42%
All children	46	126	72	57%	49	145*	96**	66%

*one sibling had died between T1 and T2 and was not included in the T2 analysis

**contact data were unavailable for one sibling dyad living apart at T2

At T1, when the index child was first accommodated, there were 49 sibling dyads in care concurrently. Of these 49 relationships, only 4 (8%) were estranged, that is the dyad was living apart and had no direct contact. At T2, the proportion of dyads living apart with no contact was substantially higher at 42%. In relation to all siblings, at T1, there were 126 dyads and 57% of these were estranged. At T2, of 144 dyads, 66% were estranged. The high number of estranged relationships amongst children concurrently in care is of particular concern. While an additional 16 children were born between T1 and T2, there were an additional 23 estrangements.

4.3 Proportion of siblings who were strangers

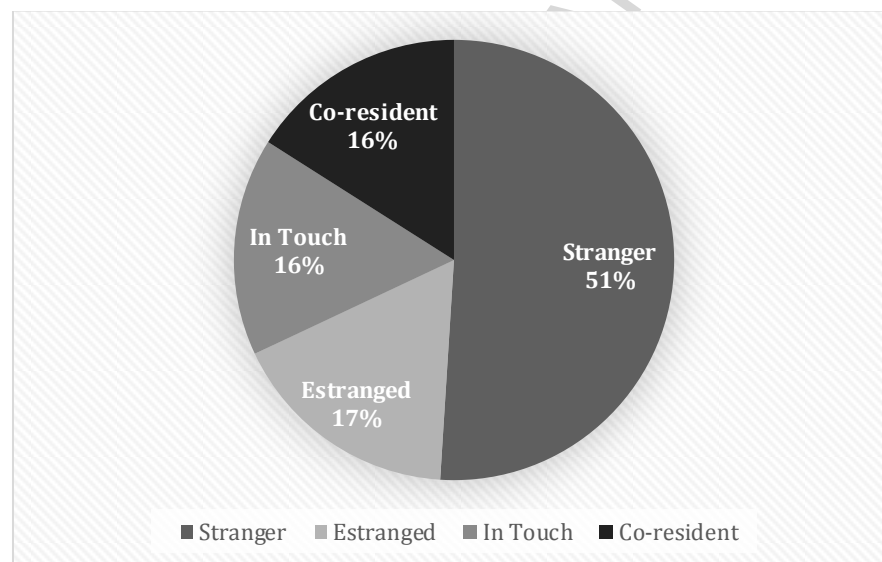
Within the group of estranged siblings there was a subgroup of stranger siblings.

Research question 3 asked what proportion of siblings were strangers?

This was measured at T3 in order to maximise the number of sibling dyads included in the analysis and as contact is known to reduce over time. By T3, there were 154 sibling dyads recorded, a further eight siblings having been born between the Advice Hearing and data collection.

The overall pattern of sibling dyad relationships experienced by children identified for permanence is shown in figure 2. This shows the very high levels of sibling estrangement experienced by this population of children and the challenges of maintaining, re-establishing or even perhaps initiating contact with siblings.

Figure 2: Nature of index child and sibling dyad relationships following permanence.



4.4 Changes in sibling estrangement over time

Finally, we tested the hypothesis that overall levels of estrangement increase over time as children move through the care system towards permanence. Our expectation was that estrangement from siblings increases as children move through the care system: from the point

at which the index child first entered out-of-home care (OOHC, henceforth T1), through to the point of their advice hearing (T2) and finally the point of data collection (T3). We tested two versions of this claim. The first (hypothesis 1, or H1) examined index children's estrangement from all siblings who were alive at each of the measured time points, thus giving an overall view of sibling estrangement over time. H1 stated that index children's estrangement from all siblings would increase significantly as the child proceeds through the care system.

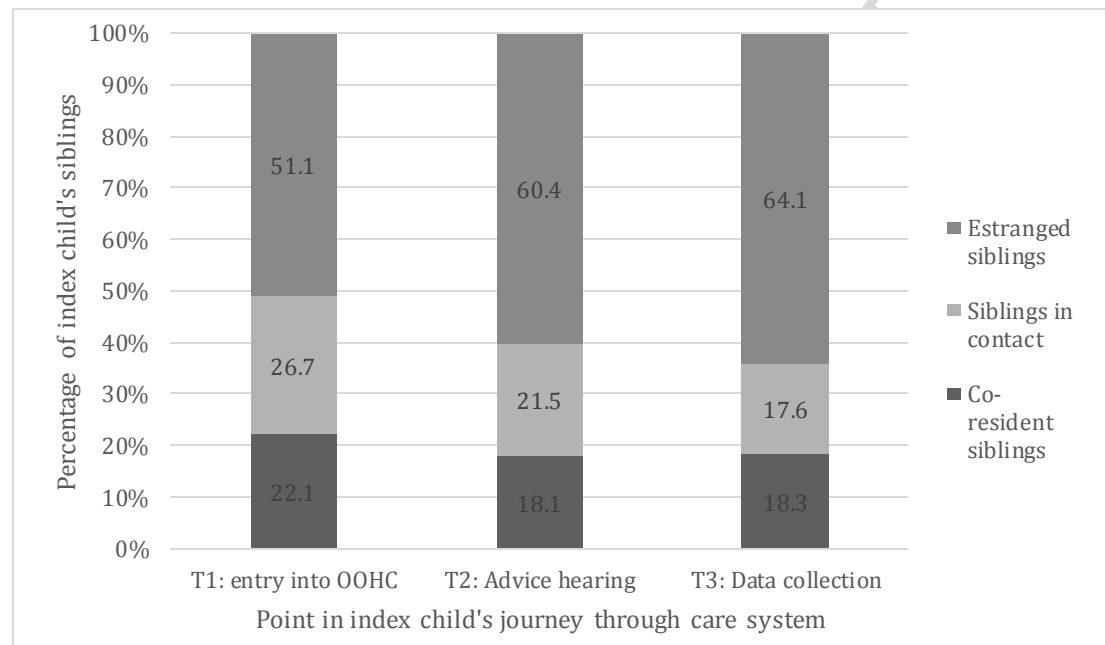
The second hypothesis (H2) focused on index children's estrangement from only those siblings who had already been born at the point at which the index child was first taken into care (i.e. T1). For this analysis, we excluded later-born siblings, as we wanted to assess the extent to which existing sibling relationships were maintained over time. H2 stated that index children's estrangement from existing siblings would increase significantly as the child proceeded through the care system.

The assumption of normality required for parametric tests was not met. For both hypotheses, the data were not normally distributed at any level of the IV, as assessed by a Shapiro-Wilk's test ($p < .001$). All were positively skewed, as assessed by visual inspection of Normal Q-Q plots. Therefore non-parametric tests were used.

H1, that overall sibling estrangement would increase during the index child's journey through the care system, was tested using a related-samples Wilcoxon test comparing proportion of all siblings estranged at T1 and T3, the earliest and latest time points in our data. Four index children were excluded from this analysis because they had no siblings at T1. Of the 46 index children included in the analysis, estrangement increased for 14, decreased for 4, and remained the same for 28. **The hypothesis was supported. There was a statistically significant median increase in estrangement from T1 (median 33.3% estranged) to T3 (median 66.7% estranged), $z = 2.234$, 1-tailed $p = .013$.** Two follow up Wilcoxon tests with a Bonferroni adjustment for multiple testing did not find a significant difference between T1 and T2 (1-tailed $p = .081$) or between T2 and T3 (1-tailed $p = .260$). Figure 3 displays, for the 46 index children included in the analysis,

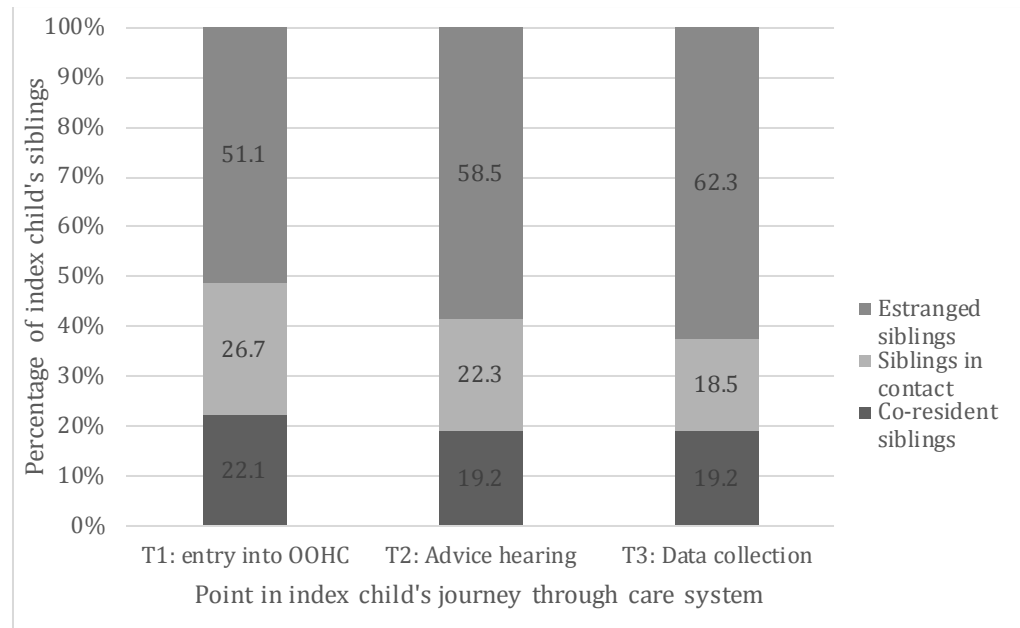
the proportion of all siblings at each time point who resided with the index child; were in contact with the index child but did not reside with them; and who were estranged from the index child. Figure 3 provides a visual representation of the modest but significant increase in overall sibling estrangement taking place from T1 to T3.

Figure 3. Index children's relationships with all siblings over journey through the care system



H2, that estrangement from only those siblings already born at T1 would increase during the journey through the care system, was tested using a related-samples Wilcoxon test comparing proportion of those siblings already born at T1, who were estranged at T1 and T3. Of the 46 index children included in the analysis, estrangement increased for 11, decreased for 2, and remained the same for 33. **The hypothesis was supported. There was a statistically significant median increase in estrangement from T1 (median 33.3% estranged) to T3 (median 58.3% estranged), $z = 1.733$, 1-tailed $p = .042$.** Two follow up Wilcoxon tests with a Bonferroni adjustment for multiple testing did not find a significant difference between T1 and T2 (1-tailed $p = .234$) or between T2 and T3 ($p = .144$). Figure 4 displays the proportion of the siblings born pre-T1 who resided with the index child; were in contact with the index child but did not reside with them; and who were estranged from the index child, at each time point. Figure 4 provides a visual representation of the modest but significant increase in estrangement of existing siblings taking place from T1 to T3.

Figure 4. Index children's relationships with only those siblings born before entry into out-of-home care, over journey through the care system



In summary, both hypotheses were supported. As the index children moved through the care system, they became estranged from a significantly larger proportion both of their siblings as a whole (H1), and also of those siblings who were already born when the index child entered care (H2). Figures 3 and 4 suggest that estrangement came about largely through the ceasing of contact arrangements between non-co-resident siblings. However, follow up tests were not able to establish the time periods at which estrangement was most likely to occur.

5 Discussion and implications for research, law, policy and practice

While methodological challenges make it difficult to compare evidence across time, it appears that little progress has been made in tackling the issue of sibling separation and estrangement over the last three decades despite steady research attention and statutory guidance. This study provides evidence of the persistence, in the UK, of high levels of separation of siblings in care and reductions of contact over time. Importantly, the study suggests that rates of sibling estrangement are sensitive to measurement effects and are likely to be higher than previously reported. Of particular note is the existence

of high numbers of stranger siblings within this population and the finding that estrangement increases over time despite, or perhaps even as a result of, state intervention in the lives of vulnerable families.

5.1 Methodological implications of the study: measuring and understanding sibling estrangement

The findings suggest a need for more precise measurement of sibling networks and estrangement in order to progress the research agenda and inform policy and practice development to improve the experiences and outcomes of children in public care. This requires attention to both methodological and conceptual issues.

There are four possible methodological explanations for the high rates of sibling estrangement found in this study compared with previous research. First, the combination of methods used in the current study to identify siblings, that is, the extraction of both administrative data and hand-searching of case files, may have been more effective in uncovering siblings and estrangement than single methods. Previous research appears to indicate that lower numbers of siblings are identified when administrative data alone is used. Second, the sampling frame, that is, children who ultimately moved to alternative permanent placements may account for differences. Third, the inclusion of both child and young adult siblings in the analysis may more accurately capture children's experience of sibling estrangement. Finally, our finding that estrangement increases over time demonstrates the importance of timing of data collection. For many sibling groups, estrangement is not a static measure, but rather a fluid and evolving one. Longitudinal designs may more accurately reflect children's relational experience.

Methodological rigour also relies heavily on easy access to high quality data. The extraction from case files of data on sibling placements and contact for this study was

highly time-consuming. Increased co-operation between academics and state agencies is necessary to improve the accuracy with which aspects of sibling relationships of children in public care are recorded and measured. It is more than a decade since the publication of Lery, Shaw, and Magruder's (2005) paper which suggested four methods (child, maternal, paternal and removal address) to identifying siblings within a single administrative system yet collection of data pertaining to siblings remains patchy. Alignment of administrative data systems within and across single agencies is now urgently needed in order to assess progress towards child welfare policy objectives. An increased investment in longitudinal data sets that provide more accurate data on children's experiences and outcomes of public care over the lifecourse is also needed. Some examples of such cooperation have developed in the USA (for example, University of California at Berkeley California Child Welfare Indicators Project, http://cssr.berkeley.edu/ucb_childwelfare) but, in the UK, there is currently no systematic collection of administrative data relating to sibling relationships of children in care. Such developments could also result in opportunities for data linkage across systems. There has been some recent investment in data linkage in the field of child welfare more generally in the UK (see Broadhurst, Robertson, Mason, Bowyer and Wilkinson, 2017).

5.2 Conceptual implications of the study: measuring and understanding sibling estrangement

Closely tied to methodological rigour and the accurate measurement of sibling experiences and outcomes is the issue of conceptual clarity. Much of the conceptual development that has taken place in research on siblings in public care has concerned measurement of placement type. Hegar and Rosenthal's (2011) taxonomy of together, split and splintered placements has made an important contribution in this regard and is increasingly adopted in outcomes research allowing comparison across studies. Our

study is intended to build on this body of work focusing on the conceptualisation of sibling relationships of children in public care.

We would suggest that in future research the taxonomy of together, split and splintered placements is reserved for the study of in-care populations of siblings. Where the sample includes both siblings in-care and not in-care, we would recommend that the concept of co-residence is used to capture sibling separations that fall outside of the control of the care system.

We acknowledge that co-residence says nothing about the quality of the relationship. Our study has, though, led to some new insights relating to the conceptualisation of family estrangement. Family estrangement has been defined as “a complete communication cut-off between relatives... maintained deliberately or intentionally by at least one person” (Conti, 2015, p. 28). Much of the family estrangement research has focused on intergenerational estrangement of a parent by an adult-child in a general population (Scharp and Hall, 2017). While the role of external stressors in family estrangement has been acknowledged, it has largely been conceptualized as a private family matter (Aglias, 2016). Scharp and Hall (2017) widen the definition of family estrangement to include children seeking distance from their parents through legal routes following abuse or neglect.

Some of the experiences within our sample of siblings fitted with current understandings of the concept of family estrangement while others did not. Implicit within current definitions is the assumption of an established relationship that is lost. This captures the experience of some in our sample but not others. While all of the siblings in our sample were biologically related, a large number had not had an opportunity to establish a level of intimacy typically associated with family

relationships. The sense of loss in such cases is more ambiguous (Boss, 2006) but may take on a deep significance for children even where no direct relationship has formed (Jones and Hackett 2010). There may be value in future research of sibling estrangement differentiating between 'primary estrangement' (occurring from birth) and 'secondary estrangement' (occurring after family life has been established).

Current conceptualisations of family estrangement also place emphasis on the role of agency in the loss of relationship. Typically in empirical research this is presented as a choice made by an adult-child to distance him or herself from a problematic family member, usually a parent. Again this description may reflect the experience of some in our sample but fits less well with the experiences of children in care whose sibling relationships were positive and whose relationship choices were significantly constrained by wider circumstances. The impact of lack of agency in relationships on child wellbeing would be a welcome addition to the research evidence.

5.3 Legal, policy and practice implications of the study

It is not within the remit of this study to comment on the appropriateness of the placements and contact arrangements experienced by our sample, as individual circumstances are complex. Instead, we wish to highlight the near ubiquity of loss of a sibling relationship experienced by children who enter care and are placed permanently away from home, despite legal, policy and practice expectations of maintaining sibling connections. While there may be room for strengthening of the law and policy in relation to the promotion of sibling relationships of children in care (see Jones and Jones 2018) much can be achieved through strengthening practice.

5.3.1 The importance of the relationship between welfare professionals and families

Welfare professionals who develop relationships with children and families have a key role to play in identifying and recording sibling connections in order to uphold children's right to family life. This is not straightforward in a child protection context. It must be achieved within an ethical framework that avoids unnecessary surveillance whilst at the same time recognizing the risk to sibling relationships presented by major transitions such as a move to out-of-home care or parental divorce or separation. A professional's ability to collate comprehensive information about a child's family network may also be impacted by the adversarial nature of care proceedings. Collaborative approaches such as family group conferencing may be helpful in this regard, where appropriate (Maluccio and Daly, 2000). Given that estrangement increases as children move through the care system, it will also be important to begin to gather information about sibling connections from family members as early in the care process as possible.

5.3.2 The importance of transparency in decision-making

Very little is known about the professional and legal decision-making processes which result in sibling estrangement. In a recent Scottish study of contact between children in care and their birth relatives, Porter (2017) found high levels of agreement about contact between social workers and Children's Hearings but the rationale for such decisions was often not clear. Our study was also unable to identify, in most cases, a transparent rationale within written records for either sibling separation or reductions in contact. One concern we would raise is the possibility that reduction then cessation of contact between a child and birth relatives has become accepted as standard practice as a child approaches permanent placement rather than each case being led by individual need. There were some, albeit infrequent, inferences of this expectation in

case file records and the frequency within the data of cessation of contact also seems to suggest that this is the assumed outcome. This issue has also been raised in recent research with legal and welfare professionals in England (Monk and Macvarish, 2018). Transparency of decision-making is particularly important where there is scope for policy agendas to come into conflict, such as, the requirement to protect a child's right to family life and the need to secure permanence for a child without undue delay.

5.3.3 The importance of access to high quality research evidence for welfare professionals and legal decision-makers

It is essential that welfare and legal professionals have access to high quality research evidence on the purposes of contact between a child and sibling following permanence, the benefits of contact for children at various developmental stages and meeting the contact support needs of children and families. There is now a well-developed body of research in the UK and USA that can be drawn upon to understand contact following permanent placement which has followed individuals through childhood and into young adulthood (Farr, Grant- Marsney and Grotevant, 2014; Neil et al, 2013) and an evidence-base in relation to sibling contact is developing (Cossar and Neil, 2013; (James, Monn, Palinkas and Leslie, 2008; Wojciak, McWey and Helfrich, 2013). There are also now examples of promising therapeutic interventions to support young people and carers to manage sibling conflict and promote sibling warmth as children move through care and into permanence that should be more widely disseminated and used (Kothari, McBeath, Sorenson, Bank, Waid, Webb and Steele, 2017; Linares, Jimenez, Nesci, Pearson, Beller, Edwards, and Levin-Rector, 2015; Pavao, St John, Cannole, Fischer, Maluccio and Peining 2007).

5.4 Study limitations

A number of limitations of this study must be acknowledged. The use of two sources of data, that is, administrative data and case files, was designed to reduce the risk of under-reporting of sibling relationships. Despite our efforts it is likely that additional biological siblings may exist that were not recorded in either source (Lery, et al, 2005). The data sources used meant that the study was able to capture only biological siblings of children in public care. Previous research has shown that children's view of siblinghood goes beyond biological relationships and includes legal and social siblings, such as adopted siblings and foster siblings (Hegar and Rosenthal, 2011). The absence of data on these non-biological sibling relationships is, therefore, a further limitation of this study. Taking both of these issues into account, it is likely that the scale of sibling estrangement is even greater than that reported here.

Another issue that could affect the accuracy of the measurement of estrangement is the voluntary nature of most contact arrangements and so the potential for arrangements to vary from the written plan. While children were attending Children's Hearings, contact was often reported retrospectively alongside plans for future contact, providing more certainty about children's experiences of contact. As children moved on from the Children's Hearing System into permanent placements we cannot be certain that planned contact arrangements or cessation of contact were carried out. While this is acknowledged as a potential weakness of the data, it is unlikely to account for the increase in estrangement over time found in this study. There is more likelihood of planned contact not taking place than a recorded decision to cease contact not being implemented. There is also evidence that contact via social media may take place between some children without the knowledge of adults or professionals (MacDonald and McSherry, 2013). Given the ages of the children within the sample, this is again unlikely to affect results.

The sample of children is relatively small particularly those included in inferential statistical analyses, limiting the study's ability to uncover small effect sizes. In particular, our analyses were unable to reveal whether the increase in estrangement took place chiefly from the period between entry into care (T1) and the advice hearing (T2), or between the advice hearing (T2) and the point of data collection (T3). Future studies involving larger samples of looked after children should address the question of whether particular points in a child's journey through care are particularly risky with respect to maintenance of sibling relationships.

The sampling frame for the study was children who achieved permanence through legal orders. This has allowed us to examine the impact of permanence on sibling estrangement but further research is needed to measure and examine the circumstances of sibling estrangement in a broader sample of children entering out-of-home care.

6 Conclusion

The relationship-focused and longitudinal approach used in this analysis has led us to a new understanding of the scale and nature of sibling estrangement for children who enter care, particularly for those who move towards permanence.

Our findings highlight the size of the challenge faced by child welfare agencies delivering complex policy goals across a number of agendas such as child protection, child wellbeing and family support. The complexity or competing nature of some of these policy agendas may provide one explanation for the persistent nature of the problem of sibling estrangement despite the commitment of legal and welfare professionals to work in the best interests of children. Our study has not examined the

causes of estrangement nor has it focused on sibling relationship quality. These are important areas to pursue in future research. At the same time, continued effort is needed to improve the accuracy with which aspects of sibling relationships of children in public care are recorded and measured in order to assess the longer-term and multiple impacts of state interventions on children's lives. We suggest that a number of methodological advances are needed in studies of the experiences and outcomes of children in public care in order to shed new light on stubborn policy and practice challenges, such as sibling estrangement. We do not know the degree to which the experiences of sibling estrangement of children in public care differ from those of in the general population through, for example, divorce or family estrangement. We do know, however, that such estrangement causes distress to children and adults and requires legal, policy and practice remedies. There is much scope for future research to contribute to these child and family, legal and policy priorities.

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ACCEPTED MANUSCRIPT

Relative strangers: sibling estrangements experienced by children in out-of-home care and moving towards permanence

Highlights

- High levels of sibling estrangement were found with seven in 10 relationships between a child in out-of-home care and a sibling being classified as estranged and as many as five in 10 siblings being classified as strangers.
- Estrangement from siblings increased as children moved through the care system towards permanence.
- More systematic recording is needed of children's sibling relationships, their experiences of estrangement and more transparent recording of professional decision-making in order to understand the impact of statutory interventions on family ties.
- We propose the use of the concept of co-residence and the categories of *primary* and *secondary estrangement* to capture children's experiences of sibling relationships in future research.