# Disentangling the effect of out-of-home care on child mental health

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**Abstract**

Background: Children in out-of-home care are consistently found to have poor mental health compared to children in the general population. However, UK research has so far failed to disentangle the impact of the care system on children’s mental health outcomes from the effects of the adverse circumstances that led to their admission to care. Objective: This research investigated the association between care placement and the presence of child mental health problems after controlling for children’s pre-care experiences. It also identified factors associated with mental health problems among children in care. Participants and Setting: The sample comprised three groups of children involved with child welfare services due to maltreatment, including children in out-of-home care (n=122), reunified children (n=82) and those who had never been in care (n=159). Methods: The mental health of the children in the three groups was compared, using information collected from their parents/foster carers and social workers. Results: The odds of a child in out-of-home care having a mental health problem were not significantly higher than those of a child who had never been in care (AOR=1.24; *p*=0.462). However, the odds of a child in out-of-home care having reactive attachment disorder (RAD) were significantly higher than those of a child who had never been in care (AOR=1.92; *p*=0.032). Conclusions: These findings make an important contribution to international debates about whether placing children in care is beneficial or detrimental to their wellbeing, and highlight a range of inter-linking factors associated with the mental health of children in out-of-home care.

**Keywords:** child mental health; child outcomes; child abuse and neglect; out-of-home care

1. **Introduction**

Elevated rates of mental health problems are consistently found among children in out-of-home care (hereinafter referred to as “care”). Previous research has found the prevalence of mental health problems to be far higher among children and young people in care than among those in the general population, a finding that has been replicated in a number of high-income countries (Ford et al., 2007; Goemans et al., 2016; Meltzer et al., 2003; Millward et al., 2006; Viner & Taylor, 2005; Vinnerljung & Sallnäs, 2008). Rates of post-traumatic stress, hyperkinetic and conduct disorders have been found to be particularly high among children in care, in comparison with other children (Ford et al., 2007; Meltzer et al., 2003). This evidence of poor mental health among children in care relative to children in the general population has led to concern that the care system is contributing to these poor mental health outcomes. However, studies that compare outcomes for children who enter care with outcomes for those for the general population have often been subject to selection bias, as children who enter care tend to have experienced greater levels of adversity than children in the general population, a key difference being that those in care are more likely to have experienced maltreatment and, indeed, many are placed in care precisely for this reason (Department for Education, 2017; U.S. Department of Health and Human Services, 2017). There is considerable evidence that childhood maltreatment is a risk factor for mental health problems in both childhood and adulthood (Arseneault et al., 2011; Chapman et al., 2007; Malinosky-Rummell & Hansen, 1993; Nanni et al., 2012; Norman et al., 2012), therefore experience of abuse or neglect may be a confounding factor. As a result, many previous studies have been unable to disentangle the impact of the care system on children’s mental health outcomes from the effects of the adverse circumstances that led to their admission to care.

The question of how far the care system can compensate for children’s prior disadvantages and improve their mental wellbeing is critical for child welfare policy and practice. Several studies in the USA have addressed the problem of selection bias by comparing the mental health of children in care with that of other child welfare-involved children, who are likely to have backgrounds and maltreatment histories similar to those of children in care (Berger et al., 2009; Conn et al., 2015; Doyle, 2013; Fantuzzo & Perlman, 2007; Harden & Whittaker, 2011; Mennen et al., 2010). The majority of these studies have also adjusted statistically for differences in child characteristics and adverse experiences observed between sample groups. The findings of these studies have been inconsistent, with care placement being found to predict emotional and behavioural problems in some studies but not in others. A recent meta-analysis of studies which compared developmental outcomes for children in care to those for ‘at risk’ children living at home found similar rates of emotional and behavioural problems between the two groups, but noted that the studies reviewed did not always adjust for observed differences between groups (Goemans et al., 2016).

Differences in child protection policies adopted in the USA and the UK have previously been highlighted, including differences in the usage of care (Gilbert, 2012; Gilbert et al., 2012), which warrants the investigation of outcomes of care in the UK specifically. However, very few studies in the UK have investigated the relationship between placement in care and child mental health by comparing children who have been placed in care with other child welfare-involved children who have not been placed in care (Colton & Heath, 1994; Gibbons et al., 1995), and there have been calls for more research of this kind (Forrester et al., 2009). Alternative approaches to examining this relationship have been adopted in single group follow-up studies which have examined the mental health trajectories of children in care (Schofield & Beek, 2005; Sempik et al., 2008), and in studies which have compared the mental health of children in care to that of children adopted from care (Biehal et al., 2010; Sinclair et al., 2005) or reunified (Biehal et al., 2015). These studies from the UK, together with a recent follow-up study conducted in Australia (Tarren-Sweeney, 2017), indicate that some children may make good progress in care and show improvements in their mental health, but others may experience deterioration. Furthermore, certain aspects of children’s care experiences appear to be associated with their positive mental health outcomes, including younger age at entry to care, placement stability and positive relationships with carers (Beck, 2006; Biehal et al., 2010; Rubin et al., 2007; Sinclair et al., 2005; Stanley, 2007; Tarren-Sweeney, 2008).

Two key gaps in the research literature on the mental health of children in care remain. Little is known about how the mental health of children in care compares to that of children with similar backgrounds and histories who have not been in care, or about what factors promote good mental health for children in care. This article addresses these gaps and reports findings from research conducted in England that sought to reduce the selection bias inherent in studies of on the mental health of children in care. This work formed part of a broader research study comparing the histories of, and outcomes for, children in care and those receiving in-home support ([Anonymous], in press). The first aim of the work presented in this paper was to investigate the association between care placement and the presence of child mental health problems, after controlling for children’s characteristics and pre-care experiences. The second aim was to identify factors associated with the presence of mental health problems among children in care.

**2. Method**

*2.1. Design*

This paper reports findings from an observational study comparing the mental health of three groups of children involved with child welfare services in England due to abuse or neglect: children in care; children who have returned home from care; and children who have been the subject of a child protection plan (CPP) but have never been placed in care. A CPP is an agreed multi-agency plan which aims to support a child to remain at home and address ongoing risks of significant harm due to abuse or neglect. Children who are the subject of a CPP could be considered to be the closest comparators to children admitted to care due to abuse or neglect, in terms of their family backgrounds and exposure to maltreatment ([Anonymous], in press).

The study linked together administrative child welfare data to primary data from a survey of social workers and interviews with children’s caregivers. The administrative data and data from the social worker survey together provided a comprehensive account of children’s histories and current circumstances, while data from the caregiver interviews provided data on their current health and development, including their mental health.

This was a case study conducted in a single urban local authority in England with an ethnically diverse population, with the largest minority group being of South Asian origin.

Ethical approval was given by the Research Ethics Committee of the Department of [Anonymous] at the [Anonymous].

*2.2. Procedure*

The procedure for the sample selection and data collection is illustrated in Figure 1. Anonymised administrative child welfare data was obtained from the participating local authority for all children born from 1st September 2005 to 31st August 2012, who, by August 2014, had been placed in care and/or had been the subject of at least one CPP due to abuse or neglect (N=1,801). Children who were deceased (N=4) and those who had left care under a permanence arrangement (adoption, a special guardianship order or a residence order; N=402) were removed from the dataset, as following outcomes for children who had left care was beyond the scope of this study. Based on expected recruitment rates, the researchers selected all of the children who were currently in care, all of those who had returned home from care, and a one-in-three random sample of the children who had never been in care (776 children in total). Recruitment packs were sent by the local authority on behalf of the research team to the current or last known caregivers of these 776 children, informing them of the research and giving parents an opportunity to opt-out of the study. Recruitment packs were returned undelivered in 23 cases and the parents of 26 children opted-out. After a three-week opt-out period, the researchers approached the caregivers of the remaining 727 children to invite them to take part in an interview.

Interviews were achieved with current caregivers of 390 children. Where children were in care, their foster carers were interviewed (as all of these children were living in foster care), and where they were living at home, their birth parents (or in 29 cases, other relative carers) were interviewed. Interviews were conducted face-to-face in caregivers’ homes by the survey company [Anonymous]. Informed consent was obtained from caregivers prior to interviews commencing. The response rate was 50.3% of all 776 children in the sampling frame. The caregivers of the remaining children could not be interviewed, mainly due to contact details being inaccurate or refusal to participate (25.5% and 8.4% of the sampling frame, respectively). Interrogation of the administrative data revealed that the children whose caregivers were interviewed did not differ from the children whose caregivers were not interviewed, in relation to children’s ages at first involvement with child welfare services or the number of times they had been involved.

The current or most recent social workers of the 390 children in the study sample were contacted via email and asked to complete an online survey regarding the child(ren) with whom they were working or had previously worked. The social workers of 209 (53.6%) children completed the survey. Where social workers were unavailable or did not respond to the survey, the survey was completed via case file analysis undertaken by other social workers at the local authority, with training and support provided by the research team.

**Figure 1**

Procedure for sample selection and data collection

[INSERT FIGURE 1 HERE]

*2.3. Sample*

Caregivers were asked for their permission to link their interview data to the administrative data and social worker survey data; the caregivers of 363 children consented to this linkage. The analysis of child mental health outcomes presented in this paper focuses on these 363 children whose caregiver consented to the data linkage. This sample comprised three groups of children, defined by their exposure to care on the date when their caregiver was interviewed: 122 children who were currently living in care (the *Currently in care* group); 82 who had resided in care but had since returned home (the *Reunified* group); and 159 who had been the subject of a CPP but had never been placed in care (the *Never in care* group)*.*

*2.4. Measures*

All variables and data sources used in the analyses presented in this article are detailed in Table 1. Outcome measures comprised two validated measures of child mental health problems, which were administered with children’s current caregivers during the interviews. These included the Strengths and Difficulties Questionnaire (SDQ), a 25-item rating scale widely used to screen for common child mental health problems (Goodman, 1997), and the Relationship Problems Questionnaire (RPQ), a 10-item rating scale for reactive attachment disorder (RAD), a disorder of social functioning associated with abuse and neglect (Minnis et al., 2007; Minnis et al., 2013). Children with SDQ total difficulties scores of 16 or more (if aged two to four years) or 17 or more (if aged five years and over) were identified as being likely to have mental health problem, while children with total RPQ scores of seven or more were identified as being likely to have reactive attachment disorder, in line with scoring guidelines for these measures (Minnis et al., 2013; YouthinMind, 2015). Binary outcome measures were derived from SDQ total difficulties scores and total RPQ scores accordingly, to indicate whether or not a child was likely to have a mental health problem and/or reactive attachment disorder. Total RPQ scores could not be calculated in 12 cases due to data being missing for too many items. The cases with missing RPQ data did not differ significantly to cases with complete RPQ data in respect of any of the case characteristics observed.

A range of other measures were collected during the caregiver interviews. Demographic information was captured including the child’s age, sex and ethnicity and the caregiver’s sex, cohabitation status and highest education level. Child health was measured using questions adapted from the Warwick Child Health and Morbidity Profile (WCHMP) (Spencer & Coe, 1996). Caregiver mental health was measured using the 12-item General Health Questionnaire (GHQ-12), with higher scores indicating the presence of minor psychiatric disorder (Goldberg et al., 1997). The caregiver’s parenting behaviour was measured using two subscales from the Child Rearing Questionnaire (CRQ) (Sanson, 1995) – ‘parental warmth’ and ‘inductive reasoning’ – and questions taken from the ‘parenting activities’ module used in the Millennium Cohort Study (Hansen et al., 2010).Foster carers were asked an additional set of questions measuring levels of ‘family integration’, ‘family exclusion’ and ‘child rejection’ (Sinclair et al., 2005), and ‘foster carer commitment’, which was measured using two questions adapted from the This Is My Baby interview (Bates & Dozier, 1998).

Measures of children’s experiences of maltreatment were included in the social worker survey. The type(s) and severity of abuse or neglect ever to have been experienced by each child, according to social workers, was measured using the Modified Maltreatment Classification System (MMCS) (English & the LONGSCAN Investigators, 1997). The severity of each type of maltreatment experienced by the child (physical, sexual or emotional abuse or neglect) was rated on a scale from 1 to 5, with 5 being the highest severity level. Variables were derived for the total number of types of maltreatment ever experienced by the child, and whether or not the child had ever experienced higher severity maltreatment (defined as levels 3-5). Data were also gathered from social workers/case files on whether or not there had ever been professional concerns about specific family problems such as domestic violence or parental substance misuse. A ‘cumulative risk’ variable was derived by summing the total number of types of maltreatment ever experienced by the child and the total number of family problems that had ever been of concern.

The administrative data provided details of child welfare histories, including the dates of, and reasons for, referrals to child welfare services and interventions received including CPPs and care placements.

**Table 1**

Variables and data sources

|  |  |  |
| --- | --- | --- |
| Variable | Categories or unit | Data source |
| *Child mental health* |  |  |
| Child likely to have a mental health problem | Yes/No | Caregiver interview |
| Child likely to have reactive attachment disorder | Yes/No | Caregiver interview |
| *Child characteristics* |  |  |
| Child’s age at caregiver interview | Months | Caregiver interview |
| Child’s sex | Male/Female | Caregiver interview |
| Child’s ethnicity | White/Asian/Mixed/Black/Other/Unknown | Caregiver interview |
| Child has a physical disability/illness | Yes/No | Caregiver interview |
| Child has a learning disability/developmental delay | Yes/No | Caregiver interview |
| *Caregiver characteristics* |  |  |
| Caregiver’s sex | Male/Female | Caregiver interview |
| Caregiver’s highest education level | Higher education/Further education/GCSE or O-level/Other  | Caregiver interview |
| Caregiver lives with a partner | Yes/No | Caregiver interview |
| Caregiver’s mental health | Score | Caregiver interview |
| *Parenting* |  |  |
| Parental warmth | Score | Caregiver interview |
| Inductive reasoning | Score | Caregiver interview |
| Parenting activities | Score | Caregiver interview |
| *Fostering* |  |  |
| Family integration | Score | Caregiver interview (foster carers only) |
| Family exclusion | Score | Caregiver interview (foster carers only) |
| Child rejection | Score | Caregiver interview (foster carers only) |
| Foster carer commitment | Score | Caregiver interview (foster carers only) |
| *Child maltreatment* |  |  |
| Child has experienced maltreatment | Yes/No | Social worker survey/case file analysis |
| Child has experienced physical abuse | Yes/No | Social worker survey/case file analysis |
| Child has experienced sexual abuse | Yes/No | Social worker survey/case file analysis |
| Child has experienced emotional abuse | Yes/No | Social worker survey/case file analysis |
| Child has experienced neglect | Yes/No | Social worker survey/case file analysis |
| Number of maltreatment types child has experienced | Number | Social worker survey/case file analysis |
| Child has experienced higher severity maltreatment (levels 3-5) | Yes/No | Social worker survey/case file analysis |
| Child was maltreated aged 0-18 months | Yes/No | Social worker survey/case file analysis |
| *Family problems* |  |  |
| Concerns about parental physical disability/illness | Yes/No | Social worker survey/case file analysis |
| Concerns about parental learning disability | Yes/No | Social worker survey/case file analysis |
| Concerns about parental mental health problems | Yes/No | Social worker survey/case file analysis |
| Concerns about parental alcohol misuse | Yes/No | Social worker survey/case file analysis |
| Concerns about parental drug misuse | Yes/No | Social worker survey/case file analysis |
| Concerns about parental conflict | Yes/No | Social worker survey/case file analysis |
| Concerns about domestic violence | Yes/No | Social worker survey/case file analysis |
| Concerns about parental offending | Yes/No | Social worker survey/case file analysis |
| Mother was under 21 years when child was born | Yes/No | Social worker survey/case file analysis |
| *Cumulative risk* |  |  |
| Total number of maltreatment types and family problems | Number | Social worker survey/case file analysis |
| *Child welfare history* |  |  |
| Number of times child referred | Number | Administrative data |
| Child age at first referral | Months | Administrative data |
| Child age at first intervention (CPP or care entry) | Months | Administrative data |
| Child age at first entry to care | Months | Administrative data |
| Number of care episodes | Number | Administrative data |
| Number of care placements | Number | Administrative data |
| Total time spent in care | Months | Administrative data |
| Time since child entered care | Months | Administrative data |
| Whether the child was in kinship care or non-kinship care | Kinship care/Non-kinship care | Administrative data |
| Whether a permanence plan had been achieved | Yes/No | Social worker survey/case file analysis |

*2.5. Data analysis*

To investigate the association between care placement and the presence of child mental health problems (the first aim), it was necessary to identify potential confounding factors – those associated with both the exposure variable (exposure to care) and the outcome variable (presence of child mental health problems) – in accordance with guidelines on assessing cause and effect relationships using observational data in child welfare research (Foster & McCombs-Thornton, 2013). First, associations between exposure to care and observed factors were examined, using the Chi-Square test for categorical factors and the Kruskal–Wallis test for ordinal and ratio factors. Descriptive data are presented as n (%) or median (IQR). Second, associations between observed factors and child mental health problems were tested using univariate logistic regression models. Logistic regression is a commonly used statistical technique to adjust for confounding factors when investigating outcomes in social work research (Foster & McCombs-Thornton, 2013; Nash & Bowen, 2002).

 Factors that were significantly associated with both the exposure and outcome variables (at the 95% confidence level) were identified as confounders. These factors were then entered as covariates into a multivariate logistic regression model, to determine the adjusted effect of exposure to care on the presence of child mental health problems.

To identify factors associated with the presence of child mental health problems among children in care (the second aim), associations between observed factors and the presence of child mental health problems were tested using univariate logistic regression. This analysis was performed with data for children in the *Currently in care* group only. Variables that were significantly associated with child mental health problems (at the 95% confidence level) were then entered as factors in a multivariate logistic regression model, to determine the adjusted effects of factors entered on the presence of child mental health problems.

Data analyses were run with the derived binary SDQ measure as the outcome variable then repeated with the binary RPQ measure as the outcome variable. Analysis was conducted using IBM SPSS Statistics 24 and regression and collinearity diagnostics were run to check for model fit and multicollinearity.

**3. Results**

Of the 363 children in the sample, 52.3% were male, 66.1% were of White ethnicity and 33.6% were known to have a disability and/or illness. The median total time spent in care (by the time of the caregiver interviews) was 42 months for the children in the *Currently in care* group and 10.5 months for the *Reunified* group. The *Currently in care* group had been living in their current care placement for a median of 24 months, while the children who had been reunified had spent a median of five months in their last placement. The children in the *Never in care* group had been the subject of a CPP for a median total duration of 12 months.

*3.1. Investigating the association between care placement and the presence of child mental health problems*

*3.1.1. Associations* *between exposure to care and observed factors*

Table 2 shows the statistically significant associations between exposure to care and observed factors. Further analyses (not shown) identified where statistically significant differences existed between groups. Children in care differed in many important ways compared to both groups of children living at home. Compared to children in both the *Reunified* and *Never in care* groups, the *Currently in care* group were significantly older at the time of the caregiver interviews and included a significantly higher proportion of White children and children with a learning disability/developmental delay. The current caregivers of the *Currently in care* group were significantly more highly educated, significantly more likely to be living with a partner, and showed significantly lower levels of parental warmth compared to the caregivers of the children in other two groups.

**Table 2**

Observed factors by exposure to care (factors shown if *p*<0.05) (n=363)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Observed factor |  | Currently in care (n=122) |  | Reunified (n=82) |  | Never in care (n=159) | *p* |
|  | Mdn (IQR) | n (%) |  | Mdn (IQR) | n (%) |  | Mdn (IQR) | n (%) |
| *Child characteristics* |  |  |  |  |  |  |  |  |  |  |
| Child age at caregiver interview (months) |  | 90.0 (35) |  |  | 74.0 (43) |  |  | 79.0 (28) |  | 0.002 |
| Child ethnicity (n=354ͣ) |  |  |  |  |  |  |  |  |  | <0.001 |
| White |  |  | 84 (70.6) |  |  | 51 (67.1) |  |  | 105 (66.0) |  |
| Asian |  |  | 8 (6.7) |  |  | 17 (22.4) |  |  | 38 (23.9) |  |
| Mixed |  |  | 27 (22.7) |  |  | 8 (10.5) |  |  | 16 (10.1) |  |
| Child has a physical disability/illness |  |  | 31 (25.4) |  |  | 16 (19.5) |  |  | 17 (10.7) | 0.005 |
| Child has a learning disability/developmental delay |  |  | 42 (34.4) |  |  | 17 (20.7) |  |  | 23 (14.5) | <0.001 |
| *Caregiver characteristics* |  |  |  |  |  |  |  |  |  |  |
| Caregiver’s highest qualification level (n=310ᵇ) |  |  |  |  |  |  |  |  |  | <0.001 |
| Higher education |  |  | 33 (29.5) |  |  | 6 (8.0) |  |  | 15 (12.2) |  |
| Further education |  |  | 27 (24.1) |  |  | 16 (21.3) |  |  | 19 (15.4) |  |
| GCSE or O-level |  |  | 48 (42.9) |  |  | 38 (50.7) |  |  | 62 (50.4) |  |
| Other qualification |  |  | 4 (3.6) |  |  | 15 (20.0) |  |  | 27 (22.0) |  |
| Caregiver lives with a partner |  |  | 88 (72.1) |  |  | 29 (35.4) |  |  | 83 (52.2) | <0.001 |
| *Parenting* |  |  |  |  |  |  |  |  |  |  |
| Parental warmth score |  | 4.5 (1) |  |  | 4.8 (1) |  |  | 4.8 (1) |  | 0.023 |
| *Child maltreatment* |  |  |  |  |  |  |  |  |  |  |
| Child has experienced maltreatment |  |  | 112 (91.8) |  |  | 66 (80.5) |  |  | 128 (80.5) | 0.020 |
| Child has experienced physical abuse |  |  | 48 (39.3) |  |  | 38 (46.3) |  |  | 45 (28.3) | 0.014 |
| Child has experienced emotional abuse |  |  | 91 (74.6) |  |  | 39 (47.6) |  |  | 99 (62.3) | <0.001 |
| Child has experienced neglect |  |  | 103 (84.4) |  |  | 52 (63.4) |  |  | 96 (60.4) | <0.001 |
| Number of maltreatment types child has experienced |  | 2.0 (2) |  |  | 2.0 (2) |  |  | 2.0 (1) |  | 0.001 |
| Child has experienced higher severity maltreatment (levels 3-5) |  |  | 104 (85.2) |  |  | 54 (65.9) |  |  | 92 (57.9) | <0.001 |
| *Family problems* |  |  |  |  |  |  |  |  |  |  |
| Concerns about parental physical disability/illness |  |  | 36 (29.5) |  |  | 11 (13.4) |  |  | 23 (14.5) | 0.002 |
| Concerns about parental drug misuse |  |  | 68 (55.7) |  |  | 29 (35.4) |  |  | 53 (33.3) | <0.001 |
| Concerns about parental alcohol misuse |  |  | 72 (59.0) |  |  | 28 (34.1) |  |  | 56 (35.2) | <0.001 |
| Concerns about parental offending |  |  | 41 (33.6) |  |  | 13 (15.9) |  |  | 33 (20.8) | 0.006 |
| *Cumulative risk* |  |  |  |  |  |  |  |  |  |  |
| Total number of maltreatment types and family problems |  | 6.0 (4) |  |  | 4.0 (3) |  |  | 5.0 (3) |  | <0.001 |
| *Child welfare history* |  |  |  |  |  |  |  |  |  |  |
| Child age at first referral (months) |  | 5.0 (24) |  |  | 4.5 (19) |  |  | 19.0 (37) |  | <0.001 |
| Child age at first CPP or care entry (months) |  | 22.0 (43) |  |  | 13.0 (33) |  |  | 30.0 (42) |  | 0.002 |

*Note.* Associations between exposure to care and the remaining observed factors were not statistically significant; aspects of children’s care histories were not included in this analysis as not all children had been in care.

ᵃSix children of Black ethnicity, one of ‘other’ ethnicity and two of ‘unknown’ ethnicity were excluded from the Chi-Square tests due to cell counts being too low.

ᵇCaregiver’s highest qualification level was unknown or refused in 53 cases.

*3.1.2. Effect of exposure to care on child mental health problems*

Of the children in the *Currently in care* group, 50 (41.0%) were found to have mental health problems (according to the binary SDQ measure), compared to 21 (25.6%) of the *Reunified* group and 39 (24.5%) of the *Never in care* group. The results of the univariate logistic regression models showed the odds of a mental health problem being present were significantly higher for children in the *Currently in care* group compared to those in the *Never in care* group (OR=2.14; 95% CI=1.28, 3.56).

The results from the univariate analysis and the comparisons between groups (Table 2) led to the identification of six observed factors significantly associated with both exposure to care and the presence of child mental health problems. These factors were child ethnicity, child physical disability/illness, child learning disability/developmental delay, parental physical disability/illness, total number of maltreatment types and family problems, and parental warmth. These factors were entered into a multivariate logistic regression model together with exposure to care, to determine the adjusted effect of exposure to care on the presence of mental health problems. In this model, two factors remained significantly associated with the presence of child mental health problems: child learning disability/developmental delay and total number of maltreatment types and family problems. The odds of a mental health problem being present were higher for children in the *Currently in care* group compared to those in the *Never in care* group, but this association was no longer statistically significant (Table 3).

**Table 3**

Multivariate logistic regression; presence of child mental health problems (n=363)

|  |  |  |
| --- | --- | --- |
| Observed factor | AOR (95% CI) |  *p* |
| Exposure to care |  |   |
| Currently in care | 1.24 (0.70, 2.22) | 0.462 |
| Reunified | 1.02 (0.52, 1.96) | 0.957 |
| Never in care | 1.00 |  |
| Child ethnicityWhiteAsianMixed | 1.24 (0.61, 2.53)1.001.83 (0.74, 4.54) | 0.5540.192 |
| Child has a physical disability/illness | 1.35 (0.72, 2.54) | 0.352 |
| Child has a learning disability/developmental delay | 2.59 (1.46, 4.60) | 0.001 |
| Concerns about parental physical disability/illness | 1.15 (0.60, 2.20) | 0.682 |
| Total number of maltreatment types and family problems | 1.16 (1.03, 1.32) | 0.013 |

*Note.* Parental warmth score was excluded from the multivariate analysis due to the inclusion of this variable resulting in multicollinearity; AOR = Adjusted Odds Ratio; CI = Confidence Interval.

*3.1.3. Effect of exposure to care on reactive attachment disorder (RAD)*

Of cases with complete RPQ data (n=351), 45 (38.1%) of the children in the *Currently in care* group were found to have RAD (according to the binary RPQ measure), compared to 20 (24.4%) of the *Reunified* group and 28 (18.5%) of the *Never in care* group. The results of the univariate logistic regression models showed the odds of reactive attachment disorder being present were significantly higher for children in the *Currently in care* group, compared to those in the *Never in care* group (OR=2.71; 95% CI=1.56, 4.71).

The results from the univariate analysis and the comparisons between groups (Table 2) led to the identification of four factors significantly associated with both exposure to care and the presence of RAD. These factors were child physical disability/illness, child learning disability/developmental delay, total number of maltreatment types and family problems, and parental warmth. These factors were entered into a multivariate logistic regression model alongside exposure to care, to determine the adjusted effect of exposure to care on the presence of RAD. In this model, the odds of RAD being present were significantly higher for children in the *Currently in care* group, compared to those in the *Never in care* group (but not the *Reunified* group) (Table 4). Child learning disability/developmental delay remained significantly associated with the presence of RAD.

**Table 4**

Multivariate logistic regression; presence of RAD (n=351)

|  |  |  |
| --- | --- | --- |
| Observed factor | AOR (95% CI) |  *p* |
| Exposure to care |  |  |
| Currently in care | 1.92 (1.06, 3.49) | 0.032 |
| Reunified | 1.30 (0.66, 2.53) | 0.448 |
| Never in care | 1.00 |  |
| Child has a physical disability/illness | 1.17 (0.62, 2.23) | 0.626 |
| Child has a learning disability/developmental delay | 2.60 (1.46, 4.64) | 0.001 |
| Total number of maltreatment types and family problems | 1.09 (0.98, 1.22) | 0.124 |

*Note.* Parental warmth score was excluded from the multivariate analysis due to the inclusion of this variable resulting in multicollinearity; AOR = Adjusted Odds Ratio; CI = Confidence Interval.

*3.2. Identifying factors associated with the presence of mental health problems among children in care*

In this second part of the analysis, which relates to the second study aim, regression analyses were conducted using data collected on the *Currently in care* group only, to examine factors associated with the presence of mental health problems among children in care.

*3.2.1.* *Effects of observed factors on child mental health problems (Currently in care group)*

The univariate logistic regression models identified seven observed factors which were independently associated with the presence of child mental health problems. These factors were child sex, child learning disability/developmental delay, physical abuse, parental learning disability, total number of maltreatment types and family problems, family integration, and child rejection. Aspects of children’s care histories were not found to be significantly associated with the presence of child mental health problems.

Table 5 shows the findings from the multivariate logistic regression model. Three factors remained significantly associated with the presence of mental health problems: child learning disability or developmental delay, concerns about parental learning disability and lower family integration scores.

**Table 5**

Multivariate logistic regression: presence of mental health problems (n=122)

|  |  |  |
| --- | --- | --- |
| Observed factor | AOR (95% CI) |  *p* |
| Child is male | 2.20 (0.92, 5.25) | 0.076 |
| Child has a learning disability/developmental delay  | 3.12 (1.25, 7.78) | 0.015 |
| Child has been physically abused  | 1.57 (0.60, 4.15) | 0.360 |
| Concerns about parental learning disability  | 7.03 (2.04, 24.30) | 0.002 |
| Total number of maltreatment types and family problems | 1.04 (0.84, 1.29) | 0.708 |
| Family integration score | 0.62 (0.40, 0.96) | 0.030 |

*Note.* Child rejection score was excluded from the multivariate analysis due to collinearity between this factor and family integration score; AOR = Adjusted Odds Ratio; CI = Confidence Interval.

*3.2.2.* *Effects of observed factors on RAD (Currently in care group)*

The analysis presented in sections 3.2.1 was repeated with reactive attachment disorder (RAD) as the outcome variable. The univariate logistic regression models identified ten observed factors were independently associated with the presence of reactive attachment disorder (RAD). These factors were child sex, child learning disability/developmental delay, parental learning disability, total number of maltreatment types and family problems, parenting activities score, caregiver GHQ score, child rejection score, family integration score, commitment score, and whether the child was in kinship care. Aspects of children’s care histories were not found to be significantly associated with the presence of RAD.

Table 6 shows the findings from the multivariate logistic regression model. Three factors remained significantly associated with the presence of RAD: being male, higher caregiver GHQ scores and higher child rejection scores.

**Table 6**

Multivariate logistic regression; presence of RAD (n=118)

|  |  |  |
| --- | --- | --- |
| Observed factor | AOR (95% CI) |  *p* |
| Child is male | 3.95 (1.41, 11.09) | 0.009 |
| Child has a learning disability/developmental delay | 2.8 (0.99, 7.89) | 0.052 |
| Concerns about parental learning disability | 1.95 (0.53, 7.18) | 0.313 |
| Total number of maltreatment types and family problems | 1.12 (0.89, 1.41) | 0.351 |
| Parenting activities score | 0.91 (0.82, 1.00) | 0.052 |
| Caregiver GHQ score | 1.33 (1.03, 1.72) | 0.032 |
| Child rejection score | 1.52 (1.13, 2.04) | 0.006 |
| Child is in non-kinship care | 2.60 (0.94, 7.20) | 0.065 |

*Note.* Family integration score and commitment score were excluded from the multivariate analysis due to collinearity between these factors and child rejection score; AOR = Adjusted Odds Ratio; CI = Confidence Interval.

**4. Discussion**

This research investigated the association between care placement and the presence of child mental health problems. It did so by comparing the mental health of children in care due to concerns about abuse or neglect and children not in care but with similar maltreatment histories, and statistically adjusting for key differences between groups. The prevalence of child mental health problems was found to be higher among maltreated children in care than among other children involved with child welfare services due to maltreatment, who had never been in care. The prevalence of reactive attachment disorder (RAD) was also found to be higher among maltreated children in care than those who had never been in care. The research identified several confounding factors associated both with children’s exposure to care and their mental health outcomes, including child ethnicity, child physical disability/illness, child learning disability/developmental delay, parental physical disability/illness, and the total number of maltreatment types and family problems a child had been exposed to. Previous research has identified lower rates of mental health problems among children of Asian background compared to children of other ethnic groups (Meltzer et al., 2000). Meanwhile, child developmental difficulties have previously been shown to predict child mental health problems among children in care (Tarren-Sweeney, 2008), and child and parental chronic illness have been linked to mental health problems among children in the general population (Hysing et al., 2007; Sieh et al., 2010). The finding that a greater number of maltreatment types and family problems independently predicted the presence of child mental health problems is consistent with previous research on the cumulative effects of maltreatment and other family stressors on child mental health (Cecil et al., 2017; Jaffee et al., 2007; Raviv et al., 2010). Once confounding factors had been accounted for in the analysis, the association between exposure to care and the presence of child mental health problems diminished, indicating that the higher prevalence of child mental health problems evident among the children in care was largely due to the influence of these other factors, rather than to placement in care. This is the first UK study to take account of a comprehensive range of confounding factors, and its findings are corroborated by a number of studies in other countries which have similarly concluded that out-of-home placement does not have a causal effect on child mental health problems once key differences between groups of child welfare-involved children have been accounted for (Berger et al., 2009; Goemans et al., 2016; Mennen et al., 2010). However, the association between exposure to care and the presence of RAD remained even after confounding factors had been adjusted for.

This work also aimed to identify factors associated with the presence of mental health problems among children in care. Three factors were found to increase the risk of mental health problems among these children: child learning disability/developmental delay, parental learning disability and lower family integration. A different set of factors increased the risk of RAD: being male, poorer caregiver mental health and higher child rejection. While child developmental difficulties have been shown to be associated with child mental health problems among children in care (Tarren-Sweeney, 2008), it has also been established that parental learning disabilities, usually in combination with other parent problems, can have a detrimental impact on parenting capacity and child mental health outcomes (Cleaver et al., 2011). The finding that males were at an increased risk of RAD among this group of young children reflects previous findings on the relationship between a child’s sex and the development of child mental health problems, with males being more likely to develop early onset disorders and females more likely to develop a disorder in adolescence (Costello et al., 2003; Rutter et al., 2003). The observed relationships between levels of family integration/child rejection and child mental health, and caregiver mental health and child mental health, are consistent with existing research highlighting the importance of positive relationships with caregivers in promoting good child mental health (Sinclair et al., 2005; Stanley, 2007). The associations between these caregiver factors and child mental health are likely to be bidirectional, however, as while a foster carer’s failure to integrate a child into their family and/or their poor mental health may well contribute to the development of child mental health problems, a child’s pre-existing mental health problems might also present challenges to a foster carer that affect their that ability to integrate the child into the family and/or to maintain good mental health. Research on the development of child-foster carer relationships has shown that child and foster carer characteristics can interact in complex ways, leading to ‘upward’ or ‘downward spirals’ for children in care (Biehal et al., 2010; Rushton et al., 2003; Schofield & Beek, 2005). Furthermore, living in non-kinship foster care was found to independently increase the risk of RAD, compared to kinship care, which supports a body of research that suggests placing children with kinship carers may promote better child well-being, despite children facing greater hardships in kinship care (Burns et al., 2004; Chamberlain et al., 2006; Holtan et al., 2005; Lawrence et al., 2006). Although individual types of maltreatment were not found to be associated with child mental health problems for the whole sample, physical abuse independently increased the risk of mental health problems among the children in care; a finding consistent with previous research (Cecil et al., 2017; Petrenko et al., 2012; Tarren-Sweeney, 2008).

This study had a number of strengths. First, the sample size was substantial, and greater than samples achieved in other UK studies comparing mental health outcomes for children in care with those for other welfare-involved children (Colton & Heath, 1994; Gibbons et al., 1995). Second, the comparison groups comprised child welfare-involved children who had been exposed to maltreatment and other adversities, rather than children in the general population. The use of two comparison groups enabled comparisons to be made between the mental health of children who had remained in care and that of children who had returned home from care, as well as children who had never been in care. Third, the influence of a range of factors on child mental health was explored and accounted for in the analysis using data from multiple sources; several of these factors related to children’s pre-care experiences, and this was the first British study to examine the relationship between child maltreatment and mental health using a validated measure of maltreatment type and severity. This study also had some limitations. First, this study was conducted in a single local authority due to the authors’ intentions to link data from this study to data from a cohort study in this area. This work would, therefore, need replicating in other areas to determine if the findings were generalizable. Second, this study focused on the mental health of young children, so future follow-up of these children would be necessary to determine their longer-term mental health outcomes. Third, while measures were taken to minimise the impact of selection bias in this study, this bias could not be fully controlled for and therefore causality could not be established. Selection bias could only be eradicated through the randomization of participants to groups, which would not be ethical in this context with children at risk of abuse and neglect. Finally, it is possible that the responses of foster carers and parents/relatives to the measures of child mental health were not equally accurate, which could have contributed to the higher rate of mental health problems identified among children in care. However, standardised measures were used in an effort to minimise any such response bias, and there is evidence to support the valid use of the SDQ with both parents and foster carers (Goodman & Goodman, 2012). Future research examining the impact of care on child mental health could include the administration of diagnostic interviews with children.

This study has a number of important implications for child welfare policy and practice. The high prevalence of mental health problems identified among maltreated children, both in and out of care, highlights the importance of assessment and monitoring of mental health problems among children known to have been exposed to abuse or neglect, which, according to previous research, can frequently go undiagnosed and untreated (Fargas-Malet & McSherry, 2017; Hurlburt et al., 2004). Furthermore, the especially high prevalence of mental health problems among the group in care warrants access to designated services and interventions for these children. The effects of a range of inter-linked risk factors on child mental health also indicates the importance of inter-agency working, including between children’s social care services and adult mental health and disability services. The finding that the effect of care on child mental health appears to diminish after taking into account key differences between the characteristics and histories of children with different exposures to care is important in light of the ongoing international debates as to whether placing children in care is beneficial or detrimental to their wellbeing, and whether the care system is to blame for poor mental health outcomes among children in care (for example, Biehal et al., 2015, on reunification). This work, in addition to several comparative studies conducted in the USA, suggests that it is not the care system *per se* that independently leads to poorer child mental health. Although it is of course the case that no child should be separated from their family without good reason, the findings of this case study suggest that policy approaches based on the view that care is, in itself, necessarily harmful to children appear to be unfounded (for example, Department for Education and Skills, 2006). This research also indicates that the higher prevalence of attachment problems found among children in care might in part be accounted for by their placement in care. Attachment problems typically develop at a very early age and are persistent in nature (Chisholm, 1998; O'Connor et al., 2000), so for many of the children in the study sample, the attachment problems identified may be an indicator of problems in parent-child relationships relating to the factors that propelled them into care. However, it is also possible that for some children, attachment problems may develop or worsen while they are in care, an issue which requires further investigation. Consequently, this finding highlights the importance of assessment, training and attachment-focused interventions for foster carers, such as interactive play therapy, which is recommended for treating RAD among children living in foster families (Booth & Jernberg, 2010; Stinehart et al., 2012). Furthermore, the associations identified in this research between levels of family integration and child mental health, and between foster carer mental health and child mental health, indicate a need for greater attention to the mental wellbeing of foster carers and the support they receive. Finally, substantial proportions of the children in care were found to have a physical disability/illness, learning disability or developmental delay, in addition to experiencing mental health problems, which in combination may present specific challenges to foster carers. The comorbidity of these factors necessitates liaison between health and social care services and the use of integrated care plans to address the complex needs of these children.

**Conflicts of interest**

None.

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