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Children in care in education: Who is entered for exams and who reaches critical thresholds of success at age 16?

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Being entered for exams and reaching key educational thresholds, for example 5 A* to C grades (including English and Mathematics) at GCSE, are important markers of participation and success in secondary education. However, little is known about the prevalence and make-up of children in care reaching these thresholds. Using secondary data analysis, we compared the proportions of children in care, children 'in need' and children in the general population who achieved four key thresholds, including exam entry and 5 A* to C grades, including English and Mathematics. We then focused on children in care and examined factors that predicted exam entry and achieving 5 A* to C grades, including English and Mathematics. Children receiving social care interventions were less likely than children in the general population to be entered for exams or to reach important educational thresholds. For children in care, several socio-demographic, care and educational factors predicted their likelihood of success. No children with an autistic spectrum disorder or who had ever been permanently excluded were recorded to have achieved 5 A* to C grades, including English and Mathematics. Children with poor attainment at Key Stage 2 were also at significant risk of not achieving this threshold. Practitioners and policymakers should consider the modifiable risk factors for poor educational performance and be aware of groups of children in care who are at significant risk of not achieving a minimum standard which could open doors for their future.

Keywords: children in care; education; GCSE; thresholds

Introduction

Children in care (also referred to as 'children looked after' in England) are children under the age of 18 who are provided support by the state, under the provisions of the Children Act 1989 and subsequent amendments. This provision should include safe and nurturing accommodation and welfare provision to meet their health, education and other developmental needs. As of 31 March 2018, there were just over 75,000 children in care in England, representing a rate of 64 per 10,000 children aged under 18 (DfE, 2019a). This is the highest the figure has been since the 1980s (Degli Esposti *et al.*, 2019).

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Decades of research have shown that overall, children in care lag behind their peers across a range of educational outcomes (see e.g. Schott, 1937; Wolkind & Rutter, 1973; Fanshel & Shinn, 1978; Goddard, 2000; Scherr, 2007; Stone, 2007; Trout *et al.*, 2008). Recent systematic reviews have shown that children and young people in care continue to perform below grade level and generally fare poorly across academic domains, including reading, writing, mathematics and science (Goemans *et al.*, 2016; Maclean *et al.*, 2016; O'Higgins et al., 2015). Young people in care are also more likely to be represented in special educational needs provision, have poor attendance and be excluded from school (Scherr, 2007; Sebba et al., 2015). In England, for example, [Sebba et al., 2015] found that young people in care performed well below their peers in the general population in Key Stage 4 exams (age 16). However, this was not consistent across all groups of children in care: those in longer-term care had better attainment at 16 and made greater progress in secondary school than young people in care for shorter periods of time or young people who were 'in need' at 16.

Research has explored the reasons why children in care are vulnerable to poor educational outcomes (see O'Higgins et al., 2017). The majority are in care because of abuse or neglect (DfE, 2019a); these experiences undermine cognitive development and have long-lasting effects throughout childhood and into adulthood (Goemans *et al.*, 2015; Pinto Pereira *et al.*, 2016). Many also have special educational needs, are separated from their birth family and experience adverse events while in care (e.g. placement instability, stigma and bullying) which may further exacerbate their development and impede their ability to thrive (Rao & Simkiss, 2007; Rock *et al.*, 2013; Mannay *et al.*, 2017). An increasing number of children in care are from refugee backgrounds and arrive in the UK without parents; for many, their experiences include war, separation from family and little English on arrival in the UK, complicating their integration into education systems (O'Higgins, 2019).

Some children in care do succeed in school and go on to do well across a range of measures and the life-course (Jackson *et al.*, 2005). These young people are more likely to have benefitted from significant adult support and to have demonstrated some ability to exert control over their educational experiences (Berridge, 2017). However, it is not clear why some children in care succeed in school, despite their experiences, and others do not. This article speaks to this question by investigating what characteristics of children and their care and educational experiences predict whether they participate and succeed in education at age 16.

The present study looked at whether young people in care reached key educational thresholds at age 16. These benchmarks are commonly used to predict later outcomes in the general population, such as Key Stage 5 provision type and attainment (e.g. A-levels, usually taken at age 18), higher education provision type (e.g. likelihood of attending what is often considered a higher-rated university, known as Russell Group universities), course type and completion, final attainment, employment rate and earnings (Smith & Naylor, 2001; Gayle *et al.*, 2002; Galindo-Rueda *et al.*, 2004; Yates & James, 2006; Mangan *et al.*, 2010; Chowdry *et al.*, 2013; Hayward *et al.*, 2014).

For young people in care specifically, research on participation in higher education in England has shown that care leavers who have higher attainment at age 16 are more

likely to attend and thrive while at university (Harrison, 2017). International research has shown that educational status is associated with other outcomes in adulthood. For example, in Okpych and Courtney (2014), qualification type predicted earnings and employment at age 25, such that degree holders did better than people who had a lower-level qualification like a GED (General Educational Development test). Longitudinal analyses from Sweden have also shown that educational outcomes at age 16 predicted poorer mental health outcomes at age 30 in care-experienced adults (Forsman *et al.*, 2016).

This article builds on this evidence by addressing two questions. First, we ask what proportion of children in care are entered for exams and reach key educational thresholds at age 16, and compare these figures with those for children with a 'child in need' plan. This is a larger group of children who receive less intensive statutory support from children's services in the community. We also compare rates for children in the general population who are neither in care nor 'in need'. Second, we selected a sample of children who were in care longer-term (12 months or more) at age 16 to examine the factors that predict whether they were entered for exams at age 16 and whether they achieved 5 A* to C grades, including English and Mathematics.

Methods

Sample

The study used national data about the educational attainment of all children in England registered on the National Pupil Database (NPD), for the cohort who were eligible for General Certificates of Secondary Education (GCSEs) (examinations at age 16 years) in 2013 (n = 642,805). An anonymised identifier enabled us to link this to local authority data on children looked after (CLA) and their experiences of care, from the Children Looked After Dataset (CLAD; also known as SSDA903). The 2013 CLAD contained data for 7,852 children who spent at least 24 hours in care between 1 April 2012 and 31 March 2013. Further details of the sample are available in the report of the larger study from which the current article is drawn (Sebba et al., 2015).

Our primary analysis compares four groups, each of which is a subset of the full cohort:

- CLA-LT: the subset of young people (n = 4,847) who had relatively longer-term care experience, being looked after continuously for at least the 12-month period up to 31 March 2013.
- CLA-ST: the subset of young people (n = 1,387) who had relatively shorter-term care experience, being looked after at some point during the 12-month period up to 31 March 2013, but for less than 12 months continuously.
- CIN: all those children 'in need' who were not CLA but were entitled to a service from the local authority on 31 March 2013 because of an assessment concluding that it was necessary to promote or safeguard their health or welfare (e.g. due to child protection concerns or disability) (n = 13,599).

- Not 'in need' or looked after: the remainder of young people, who were classed neither as CLA nor as CIN in the 2012–2013 cohort year, but whose data appeared in the NPD (n = 622,970).

Our second analysis focused on the CLA-LT group.

We acknowledge that our sample excludes young people who were only in care or 'in need' when they were younger and not at age 16, and that these young people may have different experiences and outcomes from those in the present study.

Measures

Outcome variables. The NPD contains numerous variables pertaining to the end of four 'key stages' (KS) of schooling. Our focus here is on the examinations taken at the end of KS4 (at age 16), including GCSEs and equivalent qualifications. In 2013, possible grades ranged from A* to G. In this study, we used dichotomous variables to capture whether the young person had achieved a particular 'threshold' (coded as 1 for 'yes' and 0 for 'no'). We tested four threshold measures as our outcomes:

- Whether the young person was enrolled for at least 1 GCSE or equivalent exam (outcome 1).
- Whether the young person achieved at least 5 GCSE or equivalent exams at grades A* to G (outcome 2).
- Whether the young person achieved at least 5 GCSE or equivalent exams at grades A* to C (outcome 3).
- Whether the young person achieved at least 5 GCSE or equivalent exams at grades A* to C, including English and Mathematics (outcome 4).

We used all four outcome variables to answer the first research question. In the second part of our article we focused on outcome 1 and outcome 4 to examine the relationship between key predictors and educational thresholds of participation and success.

Outcome 1 (exam entry) identifies the most vulnerable children who are not entered for national exams, because they are unable or refuse to, or because they are not entered by schools. Not sitting any exams at age 16 is likely to put young people at significant risk of poor outcomes in the future. Achieving 5 GCSEs at grades A* to C, including English and Mathematics (outcome 4), was a standard benchmark of achievement for pupils taking national exams in England at age 16 (pre-2017 GCSE reforms; see e.g. DfE, 2017b, 2018). It is considered a standard requirement for certain jobs (e.g. training as a social worker or working in early years education) and is used as a benchmark for success in school. Achieving 5 GCSEs at grades A* to C (regardless of subject) (outcome 2) was the benchmark for success prior to 2009 and since then has been considered a minimum standard of educational achievement. We also included the lowest threshold benchmark (outcome 3) to capture the broadest possible group of young people obtaining GCSEs (or equivalent) at any grade.

Predictor variables. We selected predictor variables for our second research question, to examine the relationship between key factors relating the characteristics and

experiences of our CLA-LT group to their educational outcomes at the end of KS4. These variables had been shown in earlier analyses to relate to educational attainment for young people in care (Luke et al., 2015). Where relevant, we note whether these are drawn from the end of Key Stage 1 (KS1, when children are 7 years old), Key Stage 2 (KS2, 11 years old) or Key Stage 4 (KS4, 16 years old):

- Sex: coded as 1 = 'female' and 2 = 'male'; there are no other options in the NPD.
- Ethnicity: coded as 0 = 'White British or Irish' and 1 = 'Minority ethnicity'; no individual ethnicity categories predicted attainment for children in care in the previous analyses (Luke et al (2015)).
- Special educational needs (SEN) at point of highest need: coded as a series of dummy variables—'autistic spectrum disorder', 'behavioural, emotional or social need', 'moderate learning disability', 'severe, profound or multiple learning difficulties', 'any other SEN'.
- Measures of early family context: eligibility for free school meals (FSM; 0 for 'no' and 1 for 'yes') as a proxy measure for family poverty, Income Deprivation Affecting Children Index (IDACI; scored from 0 to 1), with higher scores representing greater neighbourhood deprivation, and language spoken at home (coded 0 for English and 1 for 'other'). Each of these measures was drawn from the data provided at the end of KS1, before 74% of our sample of CLA-LT had entered care.
- Disability, if recorded as the primary reason for entry to care (coded 0 for 'no' and 1 for 'yes').
- Socio-emotional difficulties, as measured by the Total Difficulties score on the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001); all available annual scores on this measure were standardised across the cohort, and a mean of these standardised scores was used as predictor.
- Attainment at the end of KS2: a composite measure, using the mean of the available data from KS2 tests in English, Mathematics and Science.
- Measures of school attendance in secondary school: unauthorised absences as a proportion of total possible school sessions across Years 7 to 11 (dummy coded to reflect the distribution of scores: 0 = '0%', 1 = '0 to 2%', 2 = '>2 to 4%', 3 = '>4 to 6%', 4 = '>6 to 8%', 5 = '>8 to 10%', 6 = 'over 10%'), total sessions missed due to fixed-term exclusions and child ever permanently excluded (coded 0 for 'no' and 1 for 'yes'), across Years 7 to 11.
- Change of school in Year 10 or 11, the crucial final exam years (coded 0 for 'no' and 1 for 'yes').
- Type of school attended at the end of KS4 (coded 0 for 'mainstream' and 1 for 'non-mainstream, including independent, special schools, pupil referral units, alternative provision, secure provision and Further Education colleges).
- Stability in care, as measured by the total length of time (in days) the young person had ever spent in care, and the number of (non-respite) placement changes they had experienced after the end of KS2.
- Details of the current placement (at the end of KS4): length of placement (in days), type of placement (coded 0 for 'foster or kinship care' and 1 for 'residential or other placement'), placement outside of the young person's own local authority (coded 0

for 'no' and 1 for 'yes') and language spoken at home (coded 0 for English and 1 for 'other').

Missing data

Five variables had missing data. Unauthorised absences were missing in 4% of cases, FSM eligibility and IDACI at the end of KS1 were both missing in 8% of cases, the composite KS2 attainment score in 9% of cases and the mean standardised SDQ score was missing in 11% of cases. Previous analyses we carried out suggested data were missing at random (Luke et al., 2015), so methods such as listwise or pairwise deletion might produce biased estimates (Enders, 2010). Instead, we used a full information maximum likelihood (FIML) approach embedded in Mplus version 7.3. FIML uses all the available information for parameter estimation (Enders, 2010; Muthén & Muthén, 2017).

Analytical approach

To answer our first research question, we used descriptive statistics and chi-square tests to compare the prevalence of our four outcome variables across our four groups (CLA-LT, CLA-ST, CIN and not 'in need' or looked after).

To answer our second research question, we focused on the CLA-LT group only and examined the predictors of outcome 1 (exam entry) and outcome 4 (achieving at least 5 A* to C grades at GCSE, including English and Mathematics). We selected these as the outcomes of most interest, since they identify the most vulnerable learners and those who realise the highest achievement. To explore which factors could significantly predict these outcomes, we used binary logistic regressions to predict the probability of each outcome occurring given known values of a set of predictor variables. For the first logistic regression (outcome 1), we used the sample of all children in care for 12 months or more (n = 4,847). For the second regression (outcome 4), we selected only those young people in care for 12 months or more who were entered for exams (n = 4,356).

Classification tables for the final model of each outcome using optimal cut-off points (as determined by receiver operating characteristic curve analysis) indicated the models' ability to accurately determine group membership (yes vs. no) on outcomes. For outcome 1 (using a cut-off point of 0.90), the model predicted exam entry with 85.0% accuracy and non-entry with 80.1% accuracy. For outcome 2 (using a cut-off point of 0.10), the model predicted achievement of 5 A* to C grades, including English and Mathematics with 91.9% accuracy and non-achievement with 85.0% accuracy.

Prior to running the models, we tested that the data met the assumptions of logistic regression; the full details of these analyses are available in the online Supplementary Material.

Ethical approval

Approval to obtain the anonymised data and to use them for the specified purposes was granted by the English government's Department for Education (as data

controllers). Ethical approval for this secondary analysis was obtained from the Department for Education at the University of Oxford.

Results

Group comparison

Figure 1 shows the prevalence of children in care for 12 months or more (CLA-LT), reaching four key thresholds. To put this finding into perspective, the figure also presents prevalence rates for other groups of children for each outcome. Chi-square tests showed a significant difference between groups in the prevalence of each outcome, *ps* < 0.001. There were different patterns for each outcome, though the larger group of young people who were neither 'in need' nor in care were significantly more likely than any other group to achieve each outcome. The children in care for 12 months or less (CLA-ST) and children with a child 'in need' plan (CIN) were both less likely to be entered for any exams (outcome 1) than the other groups, but were not different from each other. The CLA-ST were the group least likely to achieve 5 A* to C grades, whether or not this included English and Mathematics; CLA-LT and CIN did not differ from each other on these two outcomes (outcome 2 and 3). All groups differed significantly in their likelihood of achieving 5 A* to G grades in their exams (outcome 4).

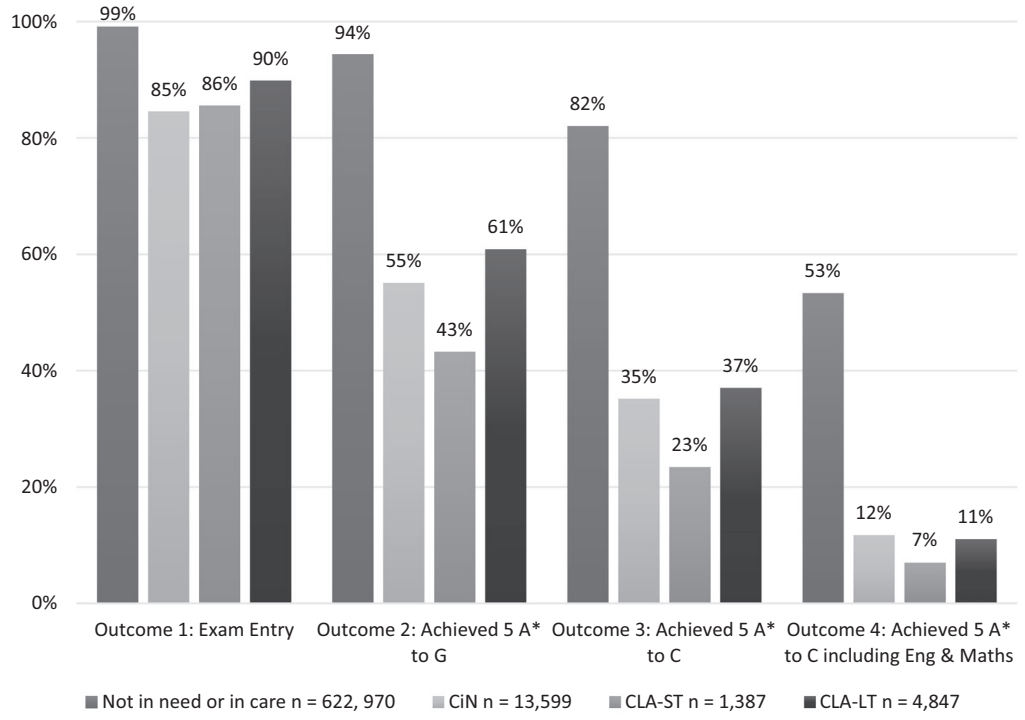

Figure 1. Proportion of each group achieving educational thresholds.

What factors predict whether CLA-LT are entered for KS4 exams and whether they reach 5 A* to C grades, including English and Mathematics?

We show the descriptive statistics for the sample of children used in this analysis in Table 1.

The results of the logistic regression for outcomes 1 and 2 are shown in Table 2. We present both beta values (with their standard error) and odds ratios (with confidence intervals). *p*-Levels (shown with an asterisk) indicate whether an individual predictor is a significant predictor of the outcome, after controlling for all other variables in the model. The odds ratio represents the change in odds associated with a change of one unit in the predictor. Values greater than 1 show that an increase of

Table 1. Descriptive statistics for CLA-LT only

	%	Mean (SD)
Male (vs. female)	55.8	
Minority ethnic (vs. White British or Irish)	26.5	
SEN: Autistic spectrum disorder (vs. none)	3.8	
SEN: Behavioural, emotional and social (vs. none)	38.3	
SEN: Moderate learning disability (vs. none)	13.8	
SEN: Severe or multiple learning difficulties (vs. none)	4.6	
SEN: Any other SEN (vs. none)	12.5	
Eligible for free school meals at end of KS1 (vs. not eligible)	50.7	
Local deprivation index at end of KS1		0.33 (0.20)
Home language not English at end of KS1 (vs. home language is English at KS1)	12.1	
Entered care because of disability (vs. other reasons)	6.4	
Mean of standardised SDQ scores		0.21 (6.84)
Composite KS2 attainment score		3.86 (0.86)
Unauthorised absences as a proportion of total possible sessions across Years 7 to 11		
No absences	23.1	
Absence 0 to 2%	43.8	
Absence >2 to 4%	9.0	
Absence >4 to 6%	4.8	
Absence >6 to 8%	3.4	
Absence >8 to 10%	2.3	
Absence over 10%	9.6	
Total sessions missed for fixed-term exclusions across Years 7 to 11		11.84 (22.09)
Ever permanently excluded (vs. never permanently excluded)	3.3	
Changed school in Year 10 or 11 (vs. no change of school in Year 10 or 11)	11.3	
Non-mainstream school at end of KS4 (vs. mainstream school)		
Total time in care excluding respite (months)		72.64 (47.42)
Number of placement changes after end of KS2		3.07 (4.42)
Length of current placement (months)		37.25 (38.05)
Current placement residential/other care (vs. foster/kinship care)	32.3	
Current placement outside home local authority (vs. home LA)	43.5	
Home language not English at current placement (KS4)	24.5	

one unit in the predictor is associated with increased odds of the outcome occurring. Values below 1 show that as the predictor increases by one unit, the odds of the outcome occurring decrease.

We summarise these findings here and discuss their significance in the next section.

Nearly a third of our independent variables predicted both outcomes, highlighting groups of educationally vulnerable children and important risk factors for poor outcomes. In particular, children who were White British or Irish, children who were in non-mainstream school, children who changed school in Years 10 or 11, or young people who were not in foster or kinship care (e.g. residential care) were less likely to be entered for exams and less likely to achieve 5 A* to C grades (or more), including English and Mathematics. Critically, while having SEN recorded as autistic spectrum disorder ($n = 96$) decreased the odds of being entered for exams, none of these children achieved 5 A* to C grades, including English and Mathematics. This was also the case for children with severe or multiple learning difficulties ($n = 67$), but is perhaps less surprising if these children are unable to read or write, for example. Moreover, higher achievement at the end of KS 2 (possible range 2.5–8) predicted a greater likelihood of reaching either threshold. For example, for each additional point at KS2, children were 37.17 times more likely to achieve 5 A* to C grades, including English and Mathematics.

Where children were in care for a reason other than their disability, or where they lived in a home where English was not the first language at KS1 (age 7) or KS4 (age 16), children were more likely to be entered for exams at 16. However, where they were entered for exams, these factors did not predict whether children reached the attainment threshold.

In contrast, a number of independent variables did not predict the likelihood of being entered for exams, but did predict whether children reached 5 A* to C grades, including English and Mathematics. Boys, children with a moderate learning disability, children living in more deprived areas at age 7, children with higher SDQ scores and children with experience of fixed-term exclusions were less likely to achieve this threshold. Moreover, being permanently excluded did not predict whether children were entered for exams, but no child who had ever been permanently excluded ($n = 138$) achieved 5 A* to C grades, including English and Mathematics.

In terms of attendance, young people who missed over 10% of possible sessions in school were less than half as likely as those with no absences to be entered for any exams, and less than a quarter as likely to achieve 5 A* to C grades, including English and Mathematics, compared to children with no unauthorised absences. Moreover, those who missed 4–6% of possible sessions were around one-eighth as likely to achieve 5 A* to C grades, including English and Mathematics, compared to their peers who had no unauthorised absences. In general, low levels ($\leq$2%) of absence did not strongly relate to outcomes.

A number of variables were not associated with either outcome: whether children had SEN of behavioural, emotional or social need or classified as 'other', FSM receipt and index of neighbourhood deprivation recorded at age 7, length of time in care and length of time in current placement, as well as whether placement was out of authority.

Table 2. Logistic regression models for outcomes 1 and 2 (CLA-LT only)

	Outcome 1: Exam entry (n = 4,847)		Outcome 2: 5 A* to C grades, including English and Mathematics (n = 4,356)	
	B (SE)	Odds ratio (95% CI)	B (SE)	Odds ratio (95% CI)
Male (vs. female)	−0.05 (0.14)	0.95 (0.72–1.25)	−0.71*** (0.14)	0.49 (0.38–0.65)
Minority ethnic (vs. White British or Irish)	0.50** (0.17)	1.65 (1.19–2.30)	0.70*** (0.18)	2.02 (1.41–2.89)
SEN: Autistic spectrum disorder (vs. none)	−1.69*** (0.28)	0.19 (0.11–0.32)	–	–
SEN: Behavioural, emotional and social (vs. none)	−0.24 (0.22)	0.79 (0.51–1.21)	−0.02 (0.16)	0.98 (0.72–1.35)
SEN: Moderate learning disability (vs. none)	0.14 (0.28)	1.14 (0.66–1.99)	−2.56*** (0.69)	0.08 (0.02–0.30)
SEN: Severe or multiple learning difficulties (vs. none)	−2.73*** (0.30)	0.07 (0.04–0.12)	–	–
SEN: Any other SEN (vs. none)	−0.13 (0.29)	0.88 (0.50–1.54)	−0.17 (0.20)	0.84 (0.57–1.25)
Eligible for free school meals at end of KS1 (vs. not eligible)	−0.04 (0.15)	0.96 (0.71–1.30)	0.28 (0.15)	1.33 (0.98–1.79)
Local deprivation index at end of KS1	0.42 (0.39)	1.52 (0.70–3.28)	−0.85* (0.42)	0.43 (0.19–0.98)
Home language not English at end of KS1 (vs. home language is English at KS1)	0.79*** (0.22)	2.20 (1.43–3.38)	−0.26 (0.27)	0.77 (0.46–1.29)
Entered care because of disability (vs. other reasons)	−1.60*** (0.19)	0.20 (0.14–0.29)	0.54 (0.51)	1.72 (0.63–4.65)
Mean of standardised SDQ scores	−0.01 (0.01)	0.99 (0.97–1.01)	−0.06*** (0.01)	0.95 (0.92–0.97)
Composite KS2 attainment score (data from at least one KS2 test or teacher assessment)	0.44*** (0.10)	1.55 (1.27–1.89)	3.62*** (0.20)	37.17 (25.18–54.93)
Unauthorised absences as a proportion of total possible sessions across Years 7 to 11 (vs. none)				
Absence 0 to 2%	0.01 (0.18)	1.02 (0.72–1.43)	−0.18 (0.15)	0.84 (0.62–1.13)
Absence >2 to 4%	0.07 (0.28)	1.08 (0.62–1.88)	−0.62 (0.33)	0.54 (0.28–1.03)
Absence >4 to 6%	0.16 (0.36)	1.17 (0.58–2.36)	−2.01*** (0.53)	0.13 (0.05–0.38)
Absence >6 to 8%	−0.68 (0.36)	0.51 (0.25–1.02)	−0.79 (0.61)	0.46 (0.14–1.49)
Absence >8 to 10%	−0.34 (0.41)	0.72 (0.32–1.58)	−0.91 (0.77	0.40 (0.09–1.83)
Absence over 10%	−0.85*** (0.23)	0.43 (0.27–0.68)	−1.50*** (0.41)	0.22 (0.10–0.50)
Total sessions missed for fixed-term exclusions across Years 7 to 11	0.00 (0.00)	1.00 (1.00–1.01)	−0.03*** (0.01)	0.97 (0.95–0.99)
Ever permanently excluded (vs. never permanently excluded)	−0.30 (0.27)	0.74 (0.43–1.27)	–	–
Changed school in Year 10 or 11 (vs. no change of school in Year 10 or 11)	−1.01*** (0.20)	0.36 (0.24–0.54)	−1.08*** (0.34)	0.34 (0.17–0.67)

Table 2. (Continued)

	Outcome 1: Exam entry (n = 4,847)		Outcome 2: 5 A* to C grades, including English and Mathematics (n = 4,356)	
	B (SE)	Odds ratio (95% CI)	B (SE)	Odds ratio (95% CI)
Non-mainstream school at end of KS4 (vs. mainstream school)	−1.66*** (0.22)	0.19 (0.12–0.29)	−2.33*** (0.38)	0.10 (0.05–0.21)
Total time in care excluding respite	0.00 (0.00)	1.00 (1.00–1.00)	0.00 (0.00)	1.00 (1.00–1.00)
Number of placement changes after end of KS2	−0.04*** (0.01)	0.96 (0.94–0.98)	−0.10* (0.04)	0.90 (0.83–0.98)
Length of current placement	0.00 (0.00)	1.00 (1.00–1.00)	0.00 (0.00)	1.00 (1.00–1.01)
Current placement in residential or other care (vs. foster or kinship care)	−0.63*** (0.17)	0.53 (0.39–0.74)	−0.99*** (0.23)	0.37 (0.24–0.59)
Current placement outside of home local authority (vs. in home local authority)	−0.12 (0.13)	0.89 (0.69–1.16)	0.10 (0.14)	1.11 (0.84–1.46)
Home language not English at current placement	0.69*** (0.18)	2.00 (1.42–2.82)	0.07 (0.31)	1.07 (0.59–1.95)

*** $p < 0.001$
** $p < 0.01$
* $p < 0.05$

Discussion

Our first analysis showed that children who were receiving an intervention from children's social care at age 16 were significantly less likely to be entered for exams or to reach key attainment thresholds than children who were not in care or not 'in need' at the same age (Sebba et al., 2015). Importantly, only a small proportion of children receiving social care interventions achieved 5 A* to C grades at GCSE. Reaching this threshold predicts success in later educational milestones and employment prospects, as discussed in the Introduction. Therefore, our findings suggest that many young people in receipt of social care interventions in childhood are likely to be disadvantaged longer-term, whether because of their experience pre-care or in care. Many care-experienced people may return to education in adulthood and go on to find success (Harrison, 2017), but this analysis shows that much more needs to be done to support the education of children and young people while they are in care or in receipt of social care interventions.

These findings also add to prior evidence from our work that being in care is not necessarily harmful. In Luke & O'Higgins 2018 we outlined the prevalence of risk factors across our four study samples which showed, for example, that SEN was overrepresented among children who had a social worker. These risk factors are likely to explain some of the achievement gaps between our study groups here. Moreover, children and young people who were looked after for 12 months or more had slightly better chances of achieving 5 A* to G grades than children 'in need' or children looked after for a shorter period of time (CLA-ST). We hypothesise that this finding reflects the significant practical support and oversight of education provided by carers, Virtual Schools, teachers and social workers among others to children who are in care for longer periods of time. This may enable them to do better than peers with similar prior adverse experiences who do not receive such support. However, this pattern of slightly better (or 'less worse') attainment is not the same for the higher attainment threshold, which includes English and Mathematics: children in care for 12 months or more had the same probability as children 'in need' of achieving this. This reflects significant difficulties of both groups, as well as the fact that children in care may not be receiving enough support to achieve as well as they might otherwise. Finally, the fact that children 'in need' and children in care short-term had similar outcomes might suggest that being in care long-term had some positive effect, provided it offers young people some stability. However, the design of our study means that our analysis cannot make any causal inference.

Question two examined the factors that predicted the likelihood of being entered for exams and of achieving 5 A* to C grades at GCSE, including English and Mathematics, for young people who were in care for 12 months or more at age 16.

We found that no children who had an autistic spectrum disorder or severe or multiple learning difficulties achieved the second threshold outcome: 5 A* to C grades at GCSE, including English and Mathematics. For children with severe learning difficulties, this particular attainment threshold is likely to be unrealistic. We found that only 1% of children (n = 13) with severe and multiple learning difficulties and who were *not 'in need' or in care* achieved this attainment threshold. In contrast, with the right support, some young people with an autistic spectrum disorder should be able

to achieve this threshold. Indeed, 24% (n = 1,197) of children with an autistic spectrum disorder who were *not* in receipt of a social care intervention at age 16 achieved the higher attainment threshold.

We also found that of the children in care who had ever been permanently excluded while in secondary school, none achieved 5 A* to C grades, including English and Mathematics. While this is likely to reflect significant difficulties, permanent exclusion should not be a bar to later attainment. However, we found that only 3% of children (n = 134) who had ever been permanently excluded and who were *not* in receipt of a social care intervention at age 16 had achieved this attainment threshold. Permanent exclusions are therefore a significant risk factor for later educational achievement for all young people. We suggest that practitioners and policymakers ensure that exclusions are a last resort, always in the best interests of the child, and that significant educational support is provided to children following an exclusion to ensure that permanent exclusions do not have a long-term impact on young people (Cole *et al.*, 2019). We note that the number of permanent exclusions for children in care have decreased significantly since 2013; this might be a result of government guidance which states that exclusions should be a very last resort for children who are in care (DfE, 2017a, 2020).

The finding that children with poor KS2 results are less likely to achieve 5 A* to C grades at GCSE is unsurprising (Sebba et al., 2015), but the effect size was particularly large and stark (OR = 37.17, 95% CI: 25.18–54.93). The size of this odds ratio signals the critical importance of early intervention to ensure that children do not fall behind at a young age. However, many of the looked after children in our sample were not in care at KS2. So, the burden of responsibility will fall on schools (and parents) to provide effective education to vulnerable young people early on. Despite government funding earmarked for vulnerable children or children with low attainment, school budgets have been cut and many children struggle to access support for special educational needs and mental health. Therefore, schools are likely to require additional resources to support primary school children effectively (Britton *et al.*, 2019; DfE, 2019c).

Taken together, the findings from this study demonstrate the many challenges children in care face in education and the risks that these pose for poor outcomes. The majority of our variables predicted at least one outcome; this suggests that providing effective educational support to young people in care, to increase their likelihood of reaching key educational thresholds, is likely to be complex. For example, while reducing school changes, absences and exclusions should go some way to helping young people, other experiences—such as placement instability and living in residential care—are also associated with lower attainment. In this analysis, being in a non-mainstream school also puts children at risk of poor outcomes. However, it is important to distinguish between different types of non-mainstream establishments, some of which offer an educational programme that is commensurate with children's needs (e.g. special schools), whereas others mainly cater to children with severe behavioural difficulties so that educational provision may not match need. The complex relationship between these factors emphasises the important task of all professionals supporting children in care: carers, teachers, social workers, Virtual Schools and other professionals. It also highlights the need for effective multi-agency work, as the responsibility for managing, planning and mitigating the impact of disruptions will be shared by all. A systemic or policy-level approach to addressing the poor

educational outcomes of children in care should also be considered. For example, the introduction of the Virtual Schools, the head of which is now a statutory role in English local authorities, has been a welcome change to address these challenges (see Sebba & Berridge, 2019).

Limitations

Our analyses have a number of limitations. First, the data used in this study date from 2013. We acknowledge the changes to education and social care policy that have taken place since (DfE, 2015, 2017b). However, we argue that the findings from this study remain valid for the current context, as trends in the attainment of children in care relative to their peers and predictors of attainment are broadly the same in 2019 (DfE, 2020). Moreover, the new GCSE grading system has similar benchmarks and thresholds of achievement (DfE, 2018). Second, our approach to data selection was retrospective, which excludes young people who were in care prior to and not during KS4 exams. This group may have different experiences of and outcomes from education (Berridge et al., 2020). Finally, the analysis is also limited to the variable(s) available in national datasets. In particular, the dataset we used does not include important pre-care factors, which are likely to explain the variance in outcomes (O'Higgins et al., 2017). This is common in research with children in care; however, this should be addressed in order to understand the contribution that care-related factors make in explaining educational outcomes.

Implications for research, practice and policy

The findings from this study suggest that children who receive interventions from children's services at KS4 exams are educationally vulnerable and therefore need significant support.

Our first analysis shows that children who are in care short-term (around KS4 exams) are less likely to be entered for exams or reach important attainment thresholds. Practitioners and policymakers should pay particular attention to these young people and provide intensive support as soon as they enter care. Service providers or schools should also consider ongoing support if these young people leave care around the time that exams take place. Children 'in need' also appear to be a particularly vulnerable group; however, we know little about their circumstances in this study, including reason for entry or the types of interventions they were receiving from children's services. More recent research has focused on examining the circumstances and outcomes of these children, however this continues to highlight that little is known about these young people, including what works to support their education and broader development (Berridge et al., 2020; DfE, 2019b; Sanders *et al.*, 2020). We argue that the Department for Education should consider funding the expansion of Virtual Schools to include support for children 'in need', as well as extending Pupil Premium Plus payments (currently £2,300 p.a. for children in care) in some form to children 'in need'. A recent in-depth study by the authors has examined the experiences and outcomes for children 'in need'; this study includes further recommendations based on its findings.

The findings from the second analysis point to groups of children in care who are particularly vulnerable to poor educational outcomes and who need significant support to catch up. In particular, children with an autistic spectrum disorder, who have ever been permanently excluded and those who have low KS2 scores require urgent support. While there has been more focus on children in care than children 'in need', there remains little robust evidence about interventions that work to boost attainment (Evans *et al.*, 2017; Sanders *et al.*, 2020). We argue that policy and research efforts should focus on the funding and implementation of interventions and evaluations to boost educational outcomes for children in care. Practitioners should work closely together across social work and education to better support children in care (Stokes *et al.*, 2021). The introduction of the Virtual Schools and wider policy recommendations around preventing exclusions for children in care has meant a significant reduction in exclusions in recent years. This is a welcome change which we hope will lead to better attainment for children in care.

Conclusion

Our analysis demonstrates the significant educational disadvantage of children in care and children 'in need' and points to the urgent support they require to close the entry and achievement gaps with their peers. Critically, practitioners and policymakers must pay attention to the needs of all children in receipt of social care (Berridge et al., 2019). Within the population of children in care, those with low KS2 attainment, children with an autistic spectrum disorder and those who have ever experienced permanent exclusion are at significant risk of poor outcomes at age 16. The analysis also highlighted a number of children's characteristics and modifiable risk factors which should inform the development of interventions for children in care. Effective and early educational support are also required to give children in care the best chance of succeeding later on. A multivariate analysis like the one we present highlights the variables that independently predict our outcomes; however, it is likely that many of these have common underlying drivers, reflecting the complex challenges young people in care face. A broad and systemic approach is likely necessary to address the issues this analysis raises.

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Conflict of interest

We declare no conflicts of interest.

Data availability statement

The data that support the findings of this study are available from the Department for Education for England and Wales. Restrictions apply to the availability of these data, which were used under license for this study. Details about the data are available at https://www.gov.uk/guidance/how-to-access-department-for-education-dfe-data-extracts and can be access with the permission of the Department for Education for England and Wales.

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Supplementary Material. Testing assumptions of logistic regression for question two in the paper.