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Linking UK-Based Longitudinal Population Studies to Administrative Data on Children's Social Care: A Scoping Review

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Abstract

This scoping review explores the use of longitudinal population data linked to administrative data to further our understanding of the characteristics and outcomes of children involved in children's social care (CSC) services within the UK. We searched eight electronic databases (Web of Science, SSCI, APA PsychInfo, Pubmed, Embase, Scopus, CINAHL Ultimate, ASSIA) to identify relevant UK publications between 1 January 2000 and 22 July 2025. Despite the UK's longstanding investment into longitudinal population studies, published studies have been limited to four populations that have been linked to CSC records. Around a third of the published studies (6/16) relied on a single local authority-based population (*Avon Longitudinal Study of Parents and Children*). The publications demonstrated links between parental and early childhood characteristics and subsequent involvement in CSC. Few publications examined longer-term outcomes, the wider family and the effectiveness of interventions. Data linkage has the potential to improve our understanding across services, including health, education, justice and welfare systems, for children involved with social care services. Upcoming work using electronic data such as the *Born in Bradford's Better Start* study show promise in producing more integrated insights. Importantly, while this review focuses on the UK, the lessons learned and the value of linking longitudinal population-based studies and administrative data are highly relevant in international contexts where similar data assets exist. The review highlights the opportunities of data linkage to improve our understanding of the circumstances and experiences of young people and their families who are involved in the social care system.

Key words

longitudinal cohort, data linkage, administrative data, child welfare, social work, United Kingdom

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Introduction

In the UK, children involved in early help or children's social care (CSC) services have experience of early childhood adversity [1]. However, involvement with CSC may also arise because of health and developmental needs, even in the absence of abuse or neglect. These services differ across the four UK nations (England, Northern Ireland, Scotland and Wales) but share common underlying principles regarding early intervention and child protection. Evidence consistently shows that early adversity in this population has a detrimental long-lasting impact on children's development, health, education, employment, relationships and wellbeing [2–8]. What remains less clear is the extent to which these outcomes are affected by early life adversities prior to involvement with CSC or by subsequent life experiences, although we note that some children are involved with CSC from birth. Early intervention programmes may be particularly important for providing timely support and addressing emerging needs before they escalate. However, it can be difficult to assess the impact of services or other interventions using traditional study designs such as randomised controlled trials, due to ethical and logistical constraints, and their generally low level of acceptability within the social care sector [9].

To understand how early adversities influence long-term outcomes, comprehensive analyses of data spanning from birth to adulthood are needed. Longitudinal population-based studies (LPS) are best placed to capture this information, as they involve following and collecting data repeatedly over time about the same cohort of individuals and their family circumstances [10]. The population-representative design enhances generalisability, and these data are valuable for informing evidence-based policies and interventions [11]. However, despite their strengths, LPS also face several limitations, including incomplete initial participation, risk of attrition, high costs and time investment. They can be slow to produce results, and participation can be burdensome for participants. Notably, it can be difficult to include infants and young children with instability in their home or caregiver arrangements, largely due to the difficulties in identifying, recruiting and retaining them [12–14]. Indeed, there is very little information collected by LPS specifically concerning involved with and experience of children's social care in the UK [15].

There is growing recognition of the need for a more in-depth, holistic understanding of children whose rights are not being met, a term informed by lived experience work and preferred over deficit-based labels such as “social vulnerability” because it emphasises unmet needs [16], particularly regarding the timing of adversities and how these influence later outcomes. A recent UK Delphi study emphasised the urgent need for a birth longitudinal population study focusing on intergenerational transmission of disadvantage to inform early intervention strategies [17]. Linkage between LPS and administrative data also provides an accurate source of information. Without linkage, studies often have to rely on retrospective recall which can introduce bias and underrepresent the scale of the problem [18–20], especially when accounts come from a single source with a partial and/or biased understanding of the child's experience [21]. Another valuable approach, used in the Millennium Cohort Study,

incorporated teenager's self-reports when their mothers had experience of out-of-home care, offering valuable insights into the young person's own perspective [22].

Alongside this, there is a vast amount of administrative data related to children involved with CSC. Administrative data are detailed information that have been collected for monitoring, financial, educational or clinical management purposes and because of this, they have the potential to mitigate some of the shortcomings of traditional LPS [23]. Such data are more time- and cost-effective, often cover the entire population, and allow for greater inclusion of underserved populations through their nationwide coverage [24]. Linkage across sectors, such as social care, health, criminal justice and education, can provide a holistic view of the child's journey and enable long-term follow-up with reduced attrition [3, 25].

Nonetheless, administrative data are not without their limitations. As they are primarily collected for operational rather than research purposes, data held in electronic format on readily accessible database infrastructures often lack detail in key areas - such as early childhood experiences, detailed family characteristics, and the nature or extent of support services received. For example, administrative data available within the Children in Need census for England (a national dataset collected annually, containing information about all children who are referred to local authority children's social care services) lacks important information on service provision [26]. Although some datasets capture a wide range of formal service interactions (e.g., service contacts and clinical diagnoses), other elements of informal help are not always readily captured [27].

Administrative datasets are also limited in that they do not include any self-report information such as lived experience, behaviours, aspirations, psycho-social functioning or factors that shape children's decision-making and risk taking – meaning that those with CSC experience have no direct voice within routine records. Although the ideal would combine full and accurate information from both professional/service with self-reported data from those with lived experiences, achieving such a dataset in practice is challenging.

It is also important to note that administrative data only captures those who are known to services (formally assessed as “in need” or those “looked after”), often publicly funded services, and so these data may underestimate the true number of children in need, i.e., the wider group of children who may require help but who have not come to the attention of services. Issues regarding data quality, including completeness and errors are also common [28]. Importantly, linkage processes can introduce bias, as some populations are harder to link across administrative datasets. For example, individuals whose names are not given in English may be less likely to be successfully linked across records [29]. These challenges can result in the underrepresentation of particular populations in linked datasets, reducing inclusion. While administrative data can provide a more comprehensive understanding of children who are in contact with services and their families, datasets are not designed for nuanced individual-level analyses in the same way that purpose-designed LPS are.

Thus, bringing together LPS and administrative data can capitalise on their respective strengths and alleviate

some of their limitations. Key advantages of linking LPS and administrative data, compared to relying on unlinked longitudinal studies alone, include: i) inclusion of additional data; ii) potential for data triangulation (i.e. self-reported data through to objective administrative records); iii) a means to – at least in part – address attrition bias by supplementing missing survey responses with routine data; iv) the potential inclusion of children who are in need but who may not feature in the care record; v) the ability to capture critical early life experiences, including prenatal and early childhood exposures, even when these predate enrolment to the cohort study; vi) reduced missing data and bias, both by supplementing data across sources and the opportunity for improved missing data handling; vii) the capacity to track long-term trajectories from childhood into adulthood, and across multiple domains such as health, education, and social care; viii) more accurate measurement of outcomes of interest e.g., developmental difficulties, behavioural difficulties as opposed to screening information in administrative records; ix) granular, event-level information such as diagnoses and socioeconomic status; and, to some extent, x) cost-efficiency for follow-up compared to repeated primary data collection [30]. Within CSC research, such linkages provide a unique opportunity to further our holistic understanding of the child's pathways through services, their family and social circumstances, and their outcomes.

In this review, we provide examples of UK publications that go beyond the use of standalone LPS by leveraging linkages with CSC administrative records. We summarise key findings from this growing body of work and identify critical gaps in the evidence base that warrant further investigation.

Methods

The publications included in this review were identified as part of a wider scoping review examining use of administrative data for research in the context of CSC [3]. A scoping review approach was considered appropriate because the aim was to map the breadth of the literature and identify gaps for future research. The scoping review was informed by best practice developed by Arksey & O'Malley (2005) [31], updated and refined by Joanna Briggs Institute standards (<https://jbi.global/scoping-review-network/resources>).

Inclusion and Exclusion Criteria

We included published quantitative research using UK administrative data capturing children involved with CSC. This included datasets held by local authorities, central government or other organisations/agencies responsible for delivering or monitoring children's interventions. Publications were also included if they referred to children with a history of, or current involvement in, social care, regardless of whether the primary focus was on the child, parent, family, or other aspects of the child's life. For the purposes of this review, studies were classified as longitudinal where they used data from an established longitudinal population study that followed participants over time and linked to administrative data relating to children's social care.

We included primary quantitative research published in peer-reviewed journals or identified through grey literature.

The focus was on children's interventions or prevention services, encompassing a broad range of services important for children at risk of adverse outcomes. This included early help programmes (e.g., Sure Start, Family Nurse Partnership) specifically among children with CSC involvement, public family law proceedings (administrative records of court proceedings, e.g., Children and Family Court Advisory and Support Service) and children's statutory social care (children in need (England and Northern Ireland), receiving care and support (Wales), those with a child protection plan/register,¹ children looked after).

We did not include publications focused on children involved with private law proceedings as these children are not routinely involved with CSC. Only publications using data relating to children involved with statutory CSC services in any of the four UK nations – England, Northern Ireland, Scotland, and Wales – were eligible, given our focus on children within UK statutory services. Cross-national studies would have been eligible where data from at least one UK nation formed part of the sample, although no such studies were identified. To reflect the availability of administrative records, only publications from 2000 onwards were included. Lastly, the review considered publications of any design to capture a comprehensive evidence base.

Sources and Search Strategy

On 5 March 2024 GAB searched eight online databases (Web of Science, Social Sciences Citation Index (SSCI), American Psychological Association (APA) PsychInfo, Pubmed, Embase, Scopus, Cumulated Index in Nursing and Allied Health Literature (CINAHL) Ultimate, Applied Social Sciences Index and Abstracts (ASSIA)) for publications published between 1st January 2000 and 31st December 2023. To ensure our findings were current, we ran a second search (on 22nd July 2025) for publications between 1st January 2024 – 22 July 2025. We used the search strings available in Supplementary Appendix 1. References were imported into EndNote, a reference management software. We also carried out an additional grey literature searches using the websites of relevant organisations such as the Department for Education, Nuffield Foundation and Social Care Online.² The search functions on these websites were limited, and it was therefore not possible to use Boolean searches. Instead, separate searches related to “looked after children”, “children in need”, “child protection plan”, “Special Educational Needs [SEN]” and “disabilities” were conducted. Children looked after are those in the care of the local authority, children subject to a protection plan refers to children for whom there are concerns about significant harm and require a coordinated plan of support, and children in need are those assessed as requiring additional support as a result of risks to their health or development. All three groups of children receive support from statutory children's social care services, with the type and intensity of support varying. Special education needs and disability were included because these are children with additional support needs who may be eligible for statutory social care services. Where there

¹ Terminology differs across the UK. In England, children are subject to child protection plans, whereas in Wales, Scotland and Northern Ireland children are placed the child protection register.

² Prior to its closure in March 2024, its last update was in early 2023.

was no search function, the resources and research pages were manually reviewed.

Study Selection

All identified titles and abstracts were independently screened by two authors (GAB and LJG). Discrepancies were resolved by discussion; a third reviewer was not required. As part of a wider scoping review, we removed 929 duplicates and identified screened a total of 1,043 unique publications using administrative CSC data. Of these, 91 publications met the inclusion criteria, with 36 sourced through reference list searches. An additional 50 publications were identified from the grey literature search. The wider team were consulted and provided one additional publication, resulting in a total of 142 publications [3]. Among these, 8 publications involved LPS linked to administrative data.

In September 2025, the wider, expanded project identified an additional publication, which led us to two more publications from the same cohort study (identified via the cohort website). A further two LPS were identified through preliminary work conducted by a co-author, resulting in four additional publications. Although we identified several publications which focused on children and their families involved in children's social care using administrative data alone, we only found one additional publication which linked LPS to administrative data when later re-running the search terms.

Data Extraction

We extracted key information on exposures and findings, as well as the study period, datasets used and whether any data linkage was undertaken. A summary of each publication's findings was produced. The research team (GAB, KB and LJG) identified emerging themes to include in the review.

Results

There were sixteen publications that used combined LPS and administrative data to examine the children and their families who are involved in children's social care services (Table 1). Of these, the majority utilised the longitudinal birth study: *Avon Longitudinal Study of Parents and Children (ALSPAC)*, also known as Children of the 90s, linked to children's social care data [20, 32–36]. However, the publications differed in the administrative data to which ALSPAC was linked. With the exception of Teyhan *et al.*, which used children's social care records from the National Pupil Database, all other publications linked to local authority social care records. The ALSPAC data resource initially recruited pregnant women in the Southwest of England (Avon area), with an estimated due date between April 1991 and December 1992 [37]. Three publications used the *Edinburgh Study of Youth Transitions* and Crime data resource, a longitudinal study of pathways into and out of offending amongst a cohort of young people (recruited around 4,300 children aged 11.5–12.5 years in 1998) in Edinburgh [38–40]. A single publication specifically recruited children who may be at risk of child

maltreatment [41]. One publication did not report the data resource [42].

Of interest are two studies, the *Care Pathways and Outcomes LPS* ($n=3$ publications) in Northern Ireland and the *Permanently Progressing* ($n=3$ publications) in Scotland. Both studies recruited their population using administrative social care data (Social Services Client Administration and Retrieval Environment and Children Looked After Statistics, respectively), with surveys or interviews limited to subsamples who were contacted via the local authority or agencies [43–45].

Publications concerning children on the protection register ($n=6$) were similarly distributed to children looked after, including those involved in children's hearings ($n=7$). There was a limited number of publications focusing on children in need ($n=1$), or with varying levels of statutory care interventions ($n=2$, one included children in need and looked after, the second was adults with care-experience or referral to the children's hearing system). One publication focused on children at risk of harm. Except for four publications, evidence focused on experiences prior to teenage years. A single descriptive publication (policy brief) explored the proportion of adults who were in prison and care-experienced [39]. Publications' outcomes included rates of involvement with children's social care, parental risk factors, criminal justice involvement and education attainment. There was a noticeable lack of publications looking at child health.

Recruitment of Under-Served Populations

Linkage between the ALSPAC data and administrative children's social care data showed that questionnaire response rates were lower among mothers and their partners who had a child on the child protection register and/or a child who was looked after than the overall response rate [34, 36]. However, children with CSC involvement did not differ by sex, mean gestational age, mean birth weight or mean maternal age at delivery to those who were not involved with children's social care [35]. Mothers who responded to the survey were also significantly less likely to report contact with social workers, speculated reasons for misreporting included recall error, attribution bias, or social-desirability bias [20].

Nevertheless, wider studies such as *Understanding Society* demonstrate that despite small numbers, dynamic sampling over multiple waves can increase the total number of children in foster care captured in the study. The flow of individuals entering and leaving the sample over time results in a growing number of children with care-experience, particularly as children enter and leave care. Overall, there was only a slight underrepresentation of children in foster care compared with population estimates (0.15%–0.33% in the sample vs 0.44% in the population) [46].

Children's Involvement with Children's Social Care

Rates, Placement Types and Stability

Among children in the ALSPAC study, the most common needs at referral (for children in need) in the administrative data were child disability, abuse or neglect, and family in acute

Table 1: Studies linking LPS to administrative data

Author	Country	Year	Study period	Cohort	Dataset	Findings
Baldwin <i>et al.</i>	England (a single urban local authority)	2020	2007 – 2011	CIN ($n = 1086$) due to abuse or neglect children in need not due to abuse or neglect ($n = 10,246$)	Birth cohort study (not reported); Administrative data on children referred to child welfare services (CIN) (local authority); General Health Questionnaire (GHQ-28)	Several factors during the antenatal period are associated with being a child in need. Lower maternal education level, maternal age and maternal mental illness increase the risk of child maltreatment. Parental sociodemographic factors such as deprivation, social housing, paternal unemployment, ethnicity and receipt of welfare benefits were associated with increased risk of child maltreatment.
Cusworth <i>et al.</i>	Scotland (32 local authorities)	2019	Children looked after away from home during 2012 – 2013 (Phase 1)	CLA ($n = 643$) aged five or under Social worker survey ($n = 433$) Caregiver survey ($n = 166$)	Children Looked After Statistics (to identify <i>Permanently Progressing</i> cohort) linked to Pupil Census and school Attendance, Absence and Exclusion data. The children's social worker and caregiver were then contacted (via the local authority)	Half of children were under one years old when they became looked after. Abuse and neglect were the most common factors leading to the child being taken into care. Mental health problems among mothers and fathers were common, as was substance use. Nearly one fifth of young children were accommodated using emergency child protection measures, whereas older children had a compulsory supervision order or supervision requirement. The majority (72%) were in placements intended to be permanent.
Department for Education (Brown <i>et al.</i>)	England (10 local authorities)	2016	Not stated	Infants <1 years old who were identified as suffering or likely to suffer significant harm before their first birthday ($n = 57$); traced to third year ($n = 43$), fifth year ($n = 37$), eighth year ($n = 36$)	Children's social care files; NPD; Interviews; Strengths and Difficulties Questionnaire	By the time children reached the age of eight, over two thirds had experienced maltreatment, and eleven (31%) children continued to be neglected or abused. Circumstances deteriorated as the child grew older, including parental domestic abuse, maternal mental health, long-term poverty, poor housing, and poor physical health. Children were more likely to have special educational needs (69%).
McAra <i>et al.</i>	Scotland (Edinburgh)	2007	Sweep 4 and 5 (2001 – 2002)	Children aged 14.5 – 16.5 years old ($n = 59$) with a Children's Hearing disposal (outcome)	Edinburgh Study of Youth Transitions and Crime data; School, police, social work and Children's Hearings records	Children referred by police to hearings (regarding serious offences) were mostly given home supervision (51%), and only 1 in 10 were referred to secure care. Most children were referred to specialist services such as educational welfare or psychologist (56%) or the Youth Strategy Group (49%).
McAra <i>et al.</i>	Scotland (Edinburgh)	2010	Sweep 6 (2003)	Children aged 16.5 – 17.5 years old ($n = 3,531$ cohort members)	Edinburgh Study of Youth Transitions and Crime data; School, police, social work and Children's Hearings records	Children who self-reported serious offending at age 17 were mostly unknown to social workers or the Children's Hearing System (68%). First contact with either agency was usually between 11 – 15 years (19%).
McAra <i>et al.</i>	Scotland (Edinburgh)	2024	Sweep 8 (2019/2020)	Adults aged 33 years ($n = 4,257$ cohort members)	Edinburgh Study of Youth Transitions and Crime data; School, police, social work and Children's Hearings records	Individuals were more likely to have a prison sentence by age 34 if they had been referred to the Children's Hearing System for abuse or neglect (30% vs 3.7%) by age 13, or had a history of care-experience (45% vs 2%) than those with no conviction.

Continued

Table 1: Continued

Author	Country	Year	Study period	Cohort	Dataset	Findings
McSherry et al.	Northern Ireland (5 Health and Social Care Trusts)	2010	Children looked after 31 March 2000	CLA ($n = 374$) under five years old on 31 March 2000	SOSCARE data (to identify the Care Pathways and Outcomes Study cohort) The children's families were then contacted (via the Health and Social Care Trusts)	During the study period, there was an increase in children being adopted (0 to 38%), and a decrease in children living in non-relative foster care (61 to 22%). More than half (54%) of children were less than one year old when they first entered care. Very high proportions of these children were on the adoption (70%) and residence order (67%) pathways. Asthma was more common among children who were in non-relative foster care (35%) than other placements. A report summary: it contains some of the information obtained in the articles, we report new findings. Children living with birth parents and those adopted experienced high levels of placement stability. A higher proportion of children who had been adopted did better in a vocabulary test compared to those subject to a residence order. Most children were receiving some additional supports at school. Only a small number of children had no form of contact with their birth family.
McSherry et al.	Northern Ireland (5 Health and Social Care Trusts)	2015	Children looked after 31 March 2000	CLA ($n = 374$) under five years old on 31 March 2000	SOSCARE data (to identify the Care Pathways and Outcomes Study cohort) The children's families were then contacted (via the Health and Social Care Trusts)	Placement type did not differ depending on the child's attachment, self-concept, behaviour or parental/carer stress.
McSherry et al.	Northern Ireland (5 Health and Social Care Trusts)	2016	Children looked after 31 March 2000	CLA ($n = 374$) under five years old on 31 March 2000	SOSCARE data (to identify the Care Pathways and Outcomes Study cohort) The children's families were then contacted (via the Health and Social Care Trusts)	162 children were placed on the CPR, most commonly for: physical injury, sexual abuse, emotional abuse, or neglect. Mothers had lower educational levels, were more likely to have been sexually abused (23.8% vs 3.4%) and in local authority care (14.3% vs 2.1%) and had psychiatric illness (12.3% vs 4%). Similar patterns were observed for fathers.
Sidebotham & Golding	England (in and around the city of Bristol)	2001	January 1991 – December 1998	Mothers ($n = 13,995$) Children ($n = 14,138$)	ALSPAC; CPR data	Deprivation, including unemployment, council housing, overcrowding and car ownership were associated with risk of being placed on the CPR.
Sidebotham et al.	England (in and around the city of Bristol)	2002	January 1991 – December 1998	Mothers ($n = 4,893$) Children ($n = 14,256$) on CPR ($n = 115$) by sixth birthday	ALSPAC; CPR data	Nearly one tenth of children (8.7%) had been registered in the four weeks of birth. Parents of children placed on the CPR were more likely to express concerns about speech, behaviour or general development compared to those not placed on the CPR (0.8% vs 0.3%). Frequent tantrums were also reported (1.1% vs 0.4%).
Sidebotham & Heron	England (in and around the city of Bristol)	2003	January 1991 – December 1998	Mothers ($n = 14,893$) Children ($n = 14,256$) on CPR ($n = 115$) by sixth birthday	ALSPAC; CPR data	

Continued

Table 1: Continued

Author	Country	Year	Study period	Cohort	Dataset	Findings
Sidebotham & Heron	England (in and around the city of Bristol)	2006	January 1991 – December 1998	Mothers ($n = 14,893$) Children ($n = 14,256$) on CPR ($n = 115$) by sixth birthday	ALSPAC and CPR data (local authority)	A small proportion (2.1%) of children in the ALSPAC study were placed on the child protection register by their sixth birthday. Of these 44% were placed on the CPR. Young parents had higher risk of being investigated, and those with history of childhood abuse.
Teyhan et al.	England (in and around the city of Bristol)	2019	Born between 1991 – 1992 CLA 1998 – 2003	CIN ($n = 148$) CLA ($n = 76$) Comparison group: ever looked after in ALSPAC area ($n = 713$) Ever looked after in England ($n = 43,938$)	NPD and ALSPAC	Those with CLA ($n = 49$) or CIN ($n = 64$) status during Key Stage 4 had low GCSE attainment. Fewer than 15% passed 5 or more 'good' GCSEs compared to >50% of their peers. Children with social care experience were more likely to have SEN and absence rates. Patterns were similar for 'ever CLA' ($n = 76$), whilst ever CIN ($n = 148$) tended to perform better than those who were in need during Key Stage 4. There was a high proportion of CLA and CIN with SEN or disabilities, however, this did not explain the low average attainment.
Whincup et al.	Scotland (32 local authorities)	2024	Children looked after away from home during 2012 – 2013, followed-up by July 2022 (Phase 2)	CLA ($n = 1836$) Social worker survey ($n = 481$ in phase 2) Caregivers survey ($n = 98$) Interviews ($n = 34$) with caregivers	Children Looked After Statistics (to identify <i>Permanently Progressing</i> cohort) linked to Pupil Census and school Attendance, Absence and Exclusion data. The children's social worker and caregiver were then contacted (via the local authority)	Most children were living in homes intended to provide permanence. The average time to permanence was 32 months, but this varied by type of permanence. Two thirds (64%) of children had two or more placements, with 10% having five or more. Younger children were more likely to be adopted, and children aged four years and over were more likely to be living with a birth parent. Children who experienced more severe maltreatment were less likely to be living with parents.
Zhang et al.	England (City of Bristol)	2020	Children born between April 1991 – December 1992	All children ($n = 13,988$) alive at the age of one Mothers ($n = 14,541$)	ALSPAC and CPR	Children whose mothers had social work contact had worse emotional and behavioural problems within the first seven years of life than those without.



stress, although the linked referral records were incomplete due to the ways in which the data had been curated over time by social services [36]. Of those linked to a record on the child protection register up until the age of 6, the most common reasons for registration were neglect and emotional abuse [34]. Incidence rates of child protection registration were highest in children aged one year old or younger, and remained relatively stable over the remaining period (6- and 8-year periods) [32, 34]. Rates of children on the child protection register were higher among males and children with an ethnic group 'non-White', in comparison to 'White' children, although this was not statistically significant [33].

Similar findings have been reported for children in care, whereby abuse and/or neglect were the most common reason for children being looked after [45]. Among children in care, age is a key characteristic in regard to placement type and legal status. In Scotland, half of children (51%) were under one year old when they first became looked after. For children under one year old, the most common placement type was with unrelated foster carers (54%), while there was greater use of kinship foster care with children aged one year or older. Very young children (under six weeks old) were more likely to be looked after on an emergency child protection measure (30%) compared to those aged three years or older (10%), while more older children had a supervision requirement/compulsory supervision order as their first legal status [45]. Over a five-year period (2000 – 2004), the type of placements being used in Northern Ireland has changed, although this may reflect changes in the age of child. The proportion of children (under five years old) being adopted (0 to 38%) and living with birth parents (14 to 27%) have increased, accounted for by the decrease in the proportion of children in non-relative foster care (61 to 22%) placements [47]. Placement type was also related to length of time in care. Nearly two thirds (61%) of children who were in care for less than one year returned to a birth parent compared to only 10% of those who had been in care for longer (3 to 4 years). Those who had been in care for longer were most likely to have a residence order (27%) [47].

Three publications explored children's experiences of placement instability. Placement instability remains a consistent issue with more than half (64%) of children looked after away from home having had two or more placements, with 10% having had five or more placements [48]. Placement with birth parents, kinship carers or being on an adoption pathway appears to offer greater stability than foster care [43, 45].

Characteristics of Children

Regarding the child's birth characteristics, low birthweight and unintended pregnancy were significantly associated with children who were investigated but subsequently not placed on the child protection register, and those subject to the child protection register compared to children with no children's social care services contact [32, 33]. Other early childhood differences (between children on the child protection register and those who were not) included fewer reported positive attributes (e.g. communicative, active, sociable), feeding difficulties during infancy and temper tantrums [33].

Reunification

Regarding reunification, two Scottish publications were identified (*Permanently Progressing*). In this context, permanence refers to a child's experience of stability and continuity through a long-term caregiving arrangement. This encompasses physical permanence (remaining with a committed, long-term care giver), legal permanence (a caregiver having legal responsibility for a child), and relational permanence (a secure and enduring emotional bond between the child and caregiver). Permanence can be achieved through several routes, including remaining with, or reunification to, birth parents, Permanence Orders (Scotland), or Special Guardianship Orders.

Age was a key factor in regard to decisions made to pursue permanence, with younger children more likely to have plans for permanence compared to older children [45, 48]. Boys (13%) were more likely than girls (10%) to be living in impermanent placements [48]. Ethnicity also impacted reunification, children recorded as 'White' (38%) were less likely to be living with parents compared to other ethnic groups (63%), however, 'White' children were more likely to be adopted than children from other ethnic groups (20% vs 10%) [48]. Other family factors which strongly influenced the social worker's decisions to reunify the child included evidence of improvement in problems, parent's motivation to have child returned and reduction in risk of abuse or neglect [45]. The majority of children (79%) were living in homes intended to provide permanence (living with parents, kinship care order, permanence order, adopted or on adoption pathway) at the time of follow-up (July 2022), a slight increase (by 9%) in the figures reported at the end of the initial phase (July 2016) [48].

Parental Characteristics, Health and Behaviours

By far the greatest volume of publications using both LPS and administrative data have focused on parental characteristics and their association with children's involvement in CSC services. Of these, there has been a tendency to focus on maternal risk factors. Publications have found that the following maternal characteristics are associated with a child's involvement with CSC: mothers who are younger, 'White' or 'Mixed' ethnic affiliation, unmarried/single motherhood, lower socioeconomic status, unemployment and lower levels of education. A smaller number of publications examined other factors associated with social work contact, including increased hospitalisation, history of sexual abuse, domestic abuse, maternal care-experience, poorer mental health, and women were more likely to have smoked or used alcohol or recreational drugs [20, 32, 34, 35, 42, 45].

In regard to general parental characteristics, low economic status - derived using indicators of paternal unemployment, overcrowding, car ownership, and housing tenure - has been shown to be strongly associated with both the child being investigated (but not placed on the child protection register) and subject to the child protection register [32]. Other comparable parental characteristics which have prompted investigation in the literature include younger parental age, and parents with low educational attainment and history of poor mental health. However, the absolute risk of the

child being placed on the child protection register remains relatively low among parents with these characteristics [32]. Protective factors, although under-explored, include maternal employment and social support [32].

Although an important source of information, publications exclusively focused on fathers are sparse because targeted recruitment and data collection in LPS is often focused on mothers. In addition, many studies combine maternal and paternal characteristics into broader measures of parental risk, making it difficult to distinguish the contribution of mothers' and fathers' experiences. Of the limited evidence available, similar characteristics to those for mothers have been identified as being associated with children's involvement with CSC, although less pronounced, including younger fathers, with a single status, and those who are unemployed, have lower educational attainment, have experience of drug and alcohol misuse and care-experience [34, 35, 45]. In contrast to mothers, fathers' own experience of poor childhood mental health and sexual abuse was not associated with the child being registered, however this may reflect small sample sizes [34, 35].

While these publications help our understanding of children's involvement in social care services, Sidebotham *et al.*, (2006) concluded that it remains difficult to establish whether these risk factors are causal, given that some of these factors may be strongly associated with each other. It is also possible that there is risk of referral bias, whereby socioeconomic status is the driving factor for children's social care involvement, rather than the risk or need of the service [32].

Children's Health and Disability

Although publications are limited in number ($n=4$), two publications have focused on children's emotional and mental health (using the Strengths and Difficulties questionnaire), rather than physical health. Emotional and behavioural problems are known to be more common among children on the protection register than those without children's social care involvement [20, 41]. Maternal experiences including teenage pregnancy, depression, job loss and financial difficulties are associated with the poorer wellbeing of all children, and to a greater extent those with maternal social work contact, suggesting that these children are particularly disadvantaged [20]. The severity of difficulties increased with age and persisted after children had been separated from their birth parents, suggesting that these difficulties are often enduring and may require support across childhood [41].

Regarding physical health, questionnaires completed by parents (at 4 weeks, and 6, 18, 24 and 30 months) showed that children on the protection register (before age 6) had increased hospital admissions (before the age of three) and developmental concerns (speech, behaviour or general development) compared to non-registered children [33].

Among children in care, one publication found that children's physical health (asthma) and behavioural problems had a significant influence on a child's care placement type, both being more common among non-relative foster care [47]. Other factors including the child's attachment and self-concept did not differ across placement types [44]. The number of reported cases ($n = 12/433$) of foetal anomaly conditions by

social workers were low [45]. However, by the end of phase 2, 14% of children had been diagnosed with one or more foetal anomalies, with a further 8% undergoing assessment [48].

Children's Educational Outcomes

Two publications have investigated the relationship between CSC and educational outcomes by linking LPS to the National Pupil Database (NPD, which contains social care information) [49], to enable analysis of longitudinal population data together with both education and social records [36, 41]. An additional publication used a similar approach, using the Pupil Census and Attendance, Absence and Exclusion data in Scotland [48].

Children in receipt of statutory CSC services are persistently absent from school, particularly children in need [36]. Children looked after are also more likely to be over-represented in exclusion statistics [48]. Poorer educational attainment at General Certificate of Secondary Education (GCSE, an academic qualification awarded upon completion of exams and assessments, taken by 15–16-year-olds) has been reported among children in need and children looked after compared to children in the general population. Fewer than 15% of children with social care involvement attained five or more 'standard pass' GCSEs (A* – C grade) compared to more than 50% of their peers [36]. Timing of CSC involvement had an impact on attainment: children tended to perform better if they were in need during Key Stage 4 (age 14–16) compared to earlier periods [36]. The 'attainment gap' between children involved with CSC, and those who were not, remained relatively stable when excluding those with SEN or disability, suggesting that these characteristics do not explain the association between CSC and low attainment [36]. Placement type and reason for support also impacted educational attainment: those in foster placements had better performance scores than those in residential placements [36]. Adjustment for age, sex, early life socioeconomic factors and Key Stage 4 characteristics, including receipt of free school meals, school mobility and neighbourhood deprivation (Income Deprivation Affecting Children Index, IDACI), attenuated the association between both child in need and looked after status and educational attainment (achievement of 5 or more A* – C GCSEs, including England and Maths). This suggests that these factors partially explain the poorer educational outcomes observed among children involved with children's social care [36].

Publications in England found higher proportions of SEN for children in need and children looked after [36, 41]. Controlling for school absence, deprivation and receipt of free school meals attenuated associations for children in need but had a smaller impact for children looked after [36]. Families who had no further involvement with children's social care tended to be those whose child had fewer or less profound difficulties [41]. This suggests that CSC can support recognition of additional needs and can help advocate that these are recognised through SEN support, or alternatively that children with SEN are at greater risk of needing CSC involvement [36].

Educational disadvantage extends beyond the child to a wider context. Children involved with CSC services are more likely to attend schools rated as less 'effective' under Ofsted's

previous four-tier grading system (outstanding, good, requires improvement or inadequate). Overall effectiveness reflects inspectors' judgements across multiple domains, including provisions, the standard of education (grades), the quality of education, behaviour and attitudes, personal development, leadership and management. Brown *et al.* found that only 54% of children involved with CSC attended schools rated 'Outstanding' or 'Good', compared to 81% of schools nationally. There was also evidence to suggest that schools lack sufficient knowledge to effectively support them and have limited access to child mental health services [41]. This is despite guidance recommending that looked after children or care leavers, wherever possible, be placed in high-quality educational settings that can meet their needs [50]. On a positive note, interviews and surveys with children, teachers and caregivers revealed that the child enjoyed learning at school, and that schools could be a safe haven and an important source of respite and support, and that some difficulties may be more pronounced at home [41, 48].

Criminal Justice Involvement Outcomes

Three publications, using the *Edinburgh Study of Youth Transitions and Crime* data (young people in the City of Edinburgh who were on average age 12 in the autumn of 1998), collated social work and care hearing records held by the Scottish Children's Reporters to explore youth crime and deterrents from offending. One publication provided insights into the legal order for children referred by police to the Children's Hearing System, on serious offences grounds. The Children's Hearing System is a care and justice system unique to Scotland for children and young people under the age of 18, which seeks to identify the most appropriate response to children's needs and circumstances as an alternative to court proceedings where possible. Children may be referred by the police, social work departments, schools, or other agencies where there are concerns around their care, protection or behaviour [51]. In this study, serious offending was defined as involvement in any of the following offences: theft from a motor vehicle; riding in a stolen motor vehicle; carrying an offensive weapon; housebreaking or attempted housebreaking; fire-raising; robbery; and involvement in six or more incidences of violence [Click or tap here to enter text.](#) [40].

Around half of children who were brought to a children's hearing were discharged to home supervision (51%), placement with family/foster care (15%), voluntary social work measures (14%), secure care (10%), Young People's Centre/Placement in Close Support Unit (5%), and only 5% were detained in secure care [40]. A quarter of all children had regular individual social worker contact. Most children were referred to specialist services, the most common services being educational welfare or psychologist services (56%), or referral to the Youth Strategy Group (49%, a service aimed at tackling truancy and school exclusion). Children could be offered more than one type of service [40].

Amongst the same population, the authors found that it was difficult to predict from an early age who would become a persistent serious offender. A high proportion (68%) of children who self-reported offending at age 17 had not been previously known to social work services or the Children's Hearing System. Of those known to social services or the

children's hearing system, first contact was more common between ages 11 and 15 (19%) compared to 0 – 5 years old (5%) or 6 – 10 years (8%) [38]. Follow-up at 33 years old showed that a higher proportion of those who had been imprisoned had been referred to the children's hearing system for neglect or abuse (30% imprisoned vs 3.7% no conviction) by age 13 or had a history of care-experience (45% imprisoned vs 2% no conviction) [39].

Intergenerational Transmission

Only two publications briefly examined an association between parental history of childhood abuse and/or care-experience and their child's own investigation and registration. These two publications found that parents whose child was on the child protection register, or taken into care, were more likely to have experienced difficult childhoods or to have been care-experienced themselves. [32, 34] In both studies, parental experiences of childhood abuse and care-experience were ascertained through self-reported questionnaires rather than administrative data linkage. However, numbers were very low and only reached significance among fathers [32, 34]. A third study by Teyhan *et al.* (2019) reported that mothers of children with social care records also had very low educational attainment themselves.

Consent Models and Data Linkage in Longitudinal Population Studies

Consent rates for linkage to children's social care data are generally high but not complete, and additional research beyond this scoping review showed that alternative approaches, particularly opt-out models supported by infrastructure like the UK LLC and LPS, are being used to improve inclusion of under-served populations such as CSC [52]. However, high consent rates do not necessarily eliminate the possibility of selection bias. There is currently limited evidence in regard to whether children and families with CSC involvement are less likely to consent to data linkage. Evidence from wider linkage literature suggests that consent may vary according to participant characteristics [53], and broader work has highlighted the underrepresentation of under-served populations in LPS [14, 53]. This suggests that some children and families with CSC involvement may be underrepresented in opt-in linkage studies, although evidence is lacking and warrants further investigation.

In addition to issues relating to consent and inclusion, the use of linked data is influenced by the quality and coverage of the administrative datasets available. The poor quality and limited coverage of CSC data available within the National Pupil Database (Children in Need census post-2008 and CLA census post-2005; Teyhan *et al.*, 2019) means that these datasets are not well suited to studies such as *ALSPAC* and *Next Steps*, although they may be more appropriate for more recent studies such as the *Millennium Cohort Study* and the upcoming *Generation New Era*.

Discussion

This review highlights the value of linking UK-based LPS to administrative data to improve understanding of children

and families involved in children's social care services. Despite the UK's long-term investment into LPS, evidence specific to these at risk children remains sparse. Where linked data have been used, publications have mostly relied on England-based populations, notably *ALSPAC* (a single local authority LPS), while three publications used the *Edinburgh Study of Youth Transitions and Crime*. Follow-up was usually limited to early childhood, although one publication followed up into adulthood (age 33) to explore imprisonment. As a result, existing literature only provides a partial picture of these children's long-term trajectories, and evidence pertaining to the role of early life adversity and intervention remains fragmented.

Of the work to date, there has been a focus on early risk factors, predominantly childhood and maternal characteristics, and some initial findings related to the child's education and mental health outcomes. Educational attainment appears to be associated with placement stability, school environment, and support structures, but these relationships remain under-explored. Although important, these publications are constrained by limited follow-up time, contain insufficient information on interventions and services received, place little emphasis on resilience (i.e. the protective factors that enable children to achieve positive outcomes despite adversity), and under-represent the wider family (fathers and siblings).

We found significant gaps in the evidence base for children in care, including for minority groups and some specific outcomes, e.g., the child's physical health. Currently, little is known about the timing, effectiveness, duration and content of interventions making it difficult to know what kind of support works for whom, and under what conditions. In particular, little is known about how children are prevented from entering children's social care services [54].

Follow-up rates for children involved with CSC are very low, which represents a major limitation for LPS research. As Boyd, 2021 highlights, under-served populations, including children in care, are disproportionately missing from LPS and standard linkage approaches cannot fully address these challenges [14]. Long-term follow-up requires substantial dedicated resources, carefully designed engagement strategies, and coordinated effort between LPS teams, local authorities, the Department for Education, and devolved administrations. Successful inclusion of these groups is dependent on building trust and maintaining sustained contact, monitoring sample diversity and follow-up is necessary to ensure representativeness. Without this, the experiences of CSC populations will continue to remain underrepresented.

Strengths and Limitations

This review maps the current evidence base on linking LPS and administrative data in relation to CSC, highlighting both the potential to produce detailed, cross-sector insights into children's experiences and the limited extent to which this potential has been utilised. The findings are directly relevant to UK policy and practice, while offering insights internationally on the opportunities and challenges of LPS and administrative data linkage in children's social care research. As with any scoping review, the review has limitations. While appropriate for comprehensive mapping of the evidence, the review does

not assess the quality of the publications. Grey literature has not been subjected to quality appraisal through peer-review. However, it is important to look beyond academic journals, especially as a large proportion of the publications were identified as grey literature (in the main scoping review) [3]. Grey literature searches were also constrained by poor search functionality, which may have led to missed publications. The included publications varied in study design, data linkage approaches and outcome measures meaning that findings are more descriptive rather than comparative. Search terms were largely England orientated, because the study was partly shaped by ADR UK focus on English flagship datasets. This did mean that terminology and governance differences across the UK may have led to omissions in the other UK nations.

Harnessing Linkage Opportunities

Our review highlights the potential opportunity that linkage of LPS and administrative data has to offer. Relative to using longitudinal population data in isolation, such linkage has the potential to improve representativeness of under-served populations, to reduce recall bias by drawing on routinely collected records rather than self-reports, to help address missing information in one dataset by drawing on another, and to extend follow-up. However, the studies included in this review did not examine these advantages. Instead, they demonstrate how linked data enhances our understanding of the child's cross-sector interactions.

Looking ahead, further research will be facilitated by other ongoing data linkage activities. For example, the *Born in Bradford's Better Start* (BiBBS) birth cohort study exemplifies the potential of such linkage to inform early intervention. Focused on improving the health, wellbeing and development of children aged 0–3-year-olds, *BiBBS* links routinely collected health, education and social care records [55]. Although social care linkage consent is in place, but not yet implemented (personal communications), and recruitment concluded in July 2024, the study holds considerable promise for generating valuable insights once linkage is complete. Complementing this, the *Born and Bred in Network* (BaBi: www.babinetwork.co.uk/babi-sites), a collaboration of 13 NHS Trusts in England, aims to improve family health and wellbeing by linking mothers' and babies' health, education and social care data. As an electronic cohort (e-cohort), *BaBi* follows participants over time through administrative records rather than through in person follow-up. E-cohorts are not just a one-time sample source as you might see in an administrative data study. Midwives invite eligible participants during routine antenatal appointments, with verbal consent obtained and recorded in electronic patient records [56].

The data landscape however continues to evolve rapidly, enabling longitudinal data management teams to overcome challenges of data linkage, such as those related to legislation, permissions and data governance. Promisingly, a growing number of infrastructures are now focusing on harnessing the potential of LPS and administrative data linkage. Recognising the complementary strengths of combining these data, these efforts aim to create richer, more comprehensive datasets. This joined-up approach not only enhances data richness but also enables more holistic, cross-sector analysis - crucial for

understanding complex life-course processes and how services can best respond to the needs of children and their families in diverse contexts.

A leading example of this work is the UK Longitudinal Linkage Collaboration (UK LLC: <https://ukllc.ac.uk/>), a Trusted Research Environment providing a centralised national infrastructure for safely and securely linking LPS with administrative records. The UK LLC enhances study-collected data by linking participants' health, environmental and socioeconomic data [57]. To date, over 420,000 participants' records have been included in UK LLC from over 24 LPS, with negotiations under way to include additional LPS with an early years and education focus. As well as linkage, the UK LLC enables a pooled sample of participants, which improves statistical power for rare outcomes and for sub-group analysis. Through such initiatives, researchers gain access to robust, multidimensional data that can inform the evidence base for policymaking and service delivery. Inclusion of children's social care data is in scope for UK LLC and the team continue to negotiate for and ingest additional data sources that will enable broad research for public good, and that can inform policy making.

Other ongoing discussions in the UK are evolving around embedding longitudinal study data into whole-population data resources (such as the Education and Child Health Insights from Linked Data (ECHILD) - a resource covering children in England). This initiative would provide advantages over and above those realised through linkage of cohort members to their administrative data records. For example, such nesting of cohorts within wider population data would allow analyses of organisational/area-level risk factors derived from the whole-population data, enhancing our understanding of social determinants of health. For example, this would allow us to derive information on the characteristics of the schools that cohort members attend, based on data from individuals who attend the same school.

Conclusion

We highlight the emerging, but still limited use of linkages between LPS and administrative data in research on CSC in the UK. While combined use of these data sources holds the potential to transform and advance our knowledge of children and their families, the current evidence base remains small-scale. Across the included studies, findings consistently indicate that children involved with CSC are more likely to experience persistent disadvantage, including poorer educational outcomes, increased emotional and behavioural difficulties, and greater involvement with the criminal justice system, alongside emerging evidence on care trajectories such as placement stability and reunification. Interest in developing these linked approaches is driven by policy and practice needs, as well as the changing survey landscape. Greater use of linked data may improve our understanding of children's health and other outcomes, provisioning of services, and the evaluation of interventions. However, high attrition rates continue to pose a challenge that linkage alone cannot overcome, alongside variation in consent models, and the practical complexities of data linkage. Overall, these findings highlight the opportunities and current limitations in using

linked data to better understand children and families involved with CSC.

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Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict Of Interest

None to declare.

Contributors Statement

GB: Conceptualisation, design, data curation, analysis, interpretation, writing first and subsequent drafts and editing
KB: Conceptualisation, design, data curation, analysis, interpretation, review and editing

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Research Ethics Statement

Ethical approval was not required for the present study because the research does not involve human or non-human participants.

AI Disclosure Statement

The authors declare that no generative AI tools were used in the preparation of this manuscript.

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Abbreviations

LSPAC:	Avon Longitudinal Study of Parents and Children
CIN:	Children in Need
CLA:	Children Looked After
CPR:	Child Protection Register
GCSE:	General Certificate of Secondary Education
NPD:	National Pupil Database
SEN:	Special Educational Needs
SOSCARE:	Social Services Client Administration and Retrieval Environment



Appendix 1: Search Terms

Population	Data	Exposure	Country
Child* OR young* OR adolescen* OR juvenile* OR youth*	(Ministry of Justice OR Department for Education OR CAFCASS data OR Growing Up in England dataset OR Longitudinal Education Outcomes dataset OR ECHILD OR National Pupil Database OR Children in Need OR Children Receiving Care or Support OR Children Looked After OR Scottish Exchange of data OR SOS CARE OR The Edinburgh Child Protection Dataset OR local authorit* data) AND ("data link*" OR "administrative data")	looked after child* OR child* looked after OR child protection OR child welfare OR child abuse OR child neglect OR out of home care OR adopted child* OR childcare system OR left care OR transition* care OR child*-in care OR child* at risk OR child* in need OR children receiving care and support OR early interventions OR prevention program* OR support services OR special education needs OR disabilit*	United Kingdom OR UK OR Great Britain OR GB OR England OR Wales OR Scotland OR Northern Ireland OR NI

