WHY SOCIAL WORK NEEDS TO EMBRACE DATA LINKAGE RESEARCH

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ABSTRACT

Purpose

Linked data can provide unique insights into both the need for social care services and the outcomes of intervention. Crucially, these insights will be based on much more representative coverage of the population of people receiving social care than is achieved by surveys and they are not subject to the reporting bias that can arise in relation to stigmatised services.

Design/methodology/approach

The opportunities are expanding for linking together routine administrative data from different public services, e.g. health care, social care, education and criminal justice. These linked data can be used for research in trusted research environments which are very secure and where no researcher can identify individuals. Work is rapidly developing using children's social care data.

Findings

Much of the data linkage research using children's social care data is being conducted by data scientists and medical researchers without knowledge of the sector, and very few social care or social work specialists who have that knowledge are involved in these studies.

Originality/value

This viewpoint piece argues the need for social care and social work research to embrace data linkage. What is needed is an integration of methods expertise in linked data and substantive knowledge of children's social care work. The arguments are illustrated with reference to some recent research in Wales.

WHAT IS DATA LINKAGE RESEARCH?

Data linkage has been defined as 'the bringing together from two or more different sources, data that relate to the same individual, family, place or event' (Boyle and Emery, 2017: 1). This can include the linking together of administrative datasets – that is, routine quantitative data created when people interact with public services. The concept of data linkage dates back to Dunn (1946), who proposed the creation of a 'book of life' for each individual from birth to death, incorporating key health and social events, which could be used in health service planning and to confirm the accuracy of data across sources. With the exponential growth of routinely collected administrative data from across different policy areas, the potential of this data to provide powerful insights into complex societal issues is beginning to be realised.

Whilst the origins of data linkage were in health, there is now the opportunity across the UK to add to this 'book of life' using information from the annual children looked after (CLA) (Allnatt et al., 2022; Allnatt et al., 2023; Soraghan and Raab, 2023) and children receiving care and support (CRCS)/children in need (CIN) censuses (Emmott et al., 2019; Lee et al., 2022); education (Jay et al., 2019; Welsh Government, 2023); family court data (Bedston et al., 2020; Johnson et al., 2020); health (Mc Grath-Lone et al., 2021); and contextual information about the areas in which people live. These recent UK developments build on strong data linkage precedents from the USA and Australia (Soneson et al., 2023) and especially rich register data in Nordic countries (Vinnerljung et al., 2005; Vinnerljung et al., 2006).

Researchers can use this rich picture to gain powerful insights and to identify where change is needed in policy and/or practice to improve the outcomes of those receiving support from children's social services. In the context of children's services, using routinely collected individual-level data provides a mechanism for monitoring changes over time or in response to particular interventions, and for identifying disparity. Recent published examples, based on data from England or Wales, that are pertinent to children's social care include:

- *Immunisation status of children receiving care and support in Wales: a national data linkage study* (Bailey et al., 2023), a study that combined the CRCS census with the National Community Child Health Database, which holds vaccination records for all children in Wales registered for NHS care.
- *Adversity profiles of children receiving care and support from social services: A latent-class analysis of school-aged children in Wales* (Anthony et al., 2023), a study that compared the CRCS census with the Wales Electronic Cohort for Children (WECC), which has records for approximately one million children born in Wales between 1990 and 2012.
- *Education, children's social care and offending* (Ministry of Justice and Department of Education, 2022) and *Policy Briefing: Care experience, ethnicity and justice systems involvement* (Hunter, 2023), which are based on the MoJ-DfE dataset. This brought together the National Pupil Database [England] and offending data from the Police National Computer.
- *The education of children in care and children in need: Who falls behind and when?* (Sinclair et al., 2020), which linked the SSDA903/CLA and CIN returns with attendance and attainment data from the National Pupil Dataset [England].
- *Care leaver's transitions into the labour market in England* (Harrison et al., 2023), which linked the Longitudinal Educational Outcomes (LEO) dataset with the National Pupil Dataset [England] – this includes the CLA and CIN datasets, Individualised Learner Records and the Higher Education Statistics Agency dataset.
- *Association of childhood out-of-home care status with all-cause mortality up to 42-years later: Office of National Statistics Longitudinal Study* (Murray et al., 2020), a study that linked the ONS Longitudinal Study (which includes a care status variable) to ONS Mortality Data.

Whilst processes vary across trusted research environments (TREs), which are highly secure computing environments containing de-identified administrative data (ADR UK, 2023b), each operates under the Five Safes Framework: **safe data, safe projects, safe people, safe settings and safe outputs.**

We explain the process with reference to Wales, because it is the context we work in and has some data linkage advantages over other UK nations, such as almost full coverage of primary care and residential linkage fields. Within the Secure Anonymised Information Linkage (SAIL) Databank, hosted at Swansea University and containing around three billion records for the population of Wales, data are treated in a manner that protects individuals' identities. Personal identifiers such as names and addresses are removed, and an anonymised linking field (ALF) is created by a trusted third party to facilitate linkage (Lyons et al., 2009; Ford et al., 2009). Dates of birth are converted into week of birth whilst postcodes are replaced by the Lower level Super Output Area (LSOA) code that the area falls into. The LSOA code enables the individual-level data to be linked to area-level data such as data regarding the relative deprivation of small neighbourhoods across each UK nation (Welsh Government, 2019). The Child Welfare Inequalities Project has utilised this to make comparisons across the four UK nations (Bywaters et al., 2020) whilst the Born into Care Project has explored the relationship between deprivation, entry into care and local authority spending on preventative services in England and Wales (Doebler et al., 2022: 2023).

All project proposals need to be approved by data owners and the SAIL Information Governance Review Panel to ensure that they will deliver clear public benefits, whilst researchers need to demonstrate that they have been trained and authorised to use the data safely. Access to TREs are subject to strict controls, and all outputs are checked by two members of the SAIL team, to guard against accidental statistical disclosure. The strict data governance processes can represent challenges for those wishing to utilise children's social care data since it is necessary to complete training to become an accredited researcher and to have the appropriate skills to prepare and analyse the data. However, these are necessary given the vulnerabilities of the children that the data relates to. Having safeguards in place reduces the risk that individuals could be identified.

COMPARING QUANTITATIVE RESEARCH DESIGNS

As conducting primary data collection (e.g., cohort studies or surveys of service users) becomes increasingly problematic due to high costs and low response rates or attrition, the use of individual-level administrative data by researchers is becoming more attractive. Given that only around 1% of children are looked after across the UK (Scottish Government, 2023), having access to national-level data means that the samples are more representative and far larger than can be achieved using traditional methods, facilitating population-level and sub-group analysis. It is also possible to create comparison groups amongst those who have not received social services support or engaged in specific interventions. Further, linking together data from across multiple policy areas can significantly improve the reliability and accuracy of information that forms part of the 'book of life' as data sources can be cross-checked against one another.

Given the vulnerabilities associated with requiring social services support, using linked data has the distinct advantage that it is does not require the individual to make sensitive and potentially re-traumatising disclosures. Different forms of bias can be avoided, particularly stigma and difficulties in recalling past events. Unlike many cohort studies which take a snapshot reflecting a particular time,

data collections such as the CLA census span the financial year, capturing when there are changes in placements and/or legal status for each child at an episode level. This means that it is possible to track a child's life over time, including into adulthood, allowing changes to be assessed and their journeys understood. When combined with other datasets, a rich picture can be compiled of the individual's life including, for example, details of their achievements and attainment in school, and contact with primary and secondary health care services (e.g., doctor's appointments, emergency department attendances, hospital admissions and out-patient appointments). In this way, trajectories can be mapped and any gaps between cohorts with respect to education, health and other outcomes can be addressed.

CURRENT EXAMPLES USING WELSH DATA

Relative to health care data, the use of linked children's social care data in Wales is still in its infancy, however there are currently several pieces of research that have the potential to inform policy and practice. For example, the work by Anthony et al. (2023), which identified typologies of child and household adversity experienced by children receiving care and support, found that deprivation was strongly related to both individual adversities and specific clusters of adversities, with deprivation being relevant not just to child protection cases, but also to this wider cohort. Going beyond the co-occurrence of domestic abuse, substance abuse and parental mental ill health, their study further demonstrated the role played by complex family circumstances and different typologies of adversity, supporting the need for better joint working between child and adult social services, and health. In this way, the experience and expertise of practitioners can be pooled, and interventions delivered with a greater focus on child welfare.

Cowley et al. (2023a, 2023b) have sought to understand care pathways and placement stability for infants less than one year of age in Wales, by linking the CLA census with the Welsh Indices of Multiple Deprivation (Welsh Government, 2019). Their work categorises the pathways into four types reflecting whether infants entered care under the voluntary agreement of parents or via care proceedings, changes in legal status and who they were placed with. Additionally, this work considered variations by local authority, the three Welsh Designated Family Judge (DFJ) areas and levels of deprivation along with whether there were differences on the basis of child demographics. Variation in family judge areas suggests variation in legal decision-making, with important implications for fair judicial practice and policy. Warner et al. (2024) has considered a range of parental risk factors and the likelihood of children entering care in Wales, linking a range of health datasets to the CRCS and CLA censuses along with the child's education records. This has allowed for comparison of the prevalence of risk factors in almost 300,000 households that include 3-17 year olds in order to calculate the odds of a child being taken into care. The study provided new evidence of gendered patterns of intervention, highlighting a need for policy and practice development to support greater equity, in social work and other public services. Both studies make a significant contribution to the ongoing policy debates about why there are high rates and/or numbers of CLA in Wales (Hodges and Bristow, 2019; Hodges and Scourfield, 2023).

WHAT DOES LINKED DATA NOT TELL US?

Whilst there are clear advantages associated with using individual-level linked administrative data, it is not a panacea. As with all secondary data, the data must be taken at face value as it is not possible to return to the data subject or data owner to ask for clarification about individual records. Since the data is not collected specifically for research purposes, there are also limitations associated with the range of questions asked and definitions used. Answers to some questions can be found by linking to other datasets. In addition, there are opportunities for data scientists to feedback to data owners to improve the quality and relevance of the data that they are collecting. However, information important to understanding the precursors to a child being taken into care or a child's experience of being looked after – such as information on the extent and type of social support provided and the quality of relationships – are typically not available in population-wide administrative data (Brownell and Jutte, 2013). As such, use of these data should be accompanied by qualitative work and/or surveys to provide in-depth insight into experiences; both researchers and practitioners have a responsibility to listen to the views of those with these lived experiences if we wish to improve both services and the children's outcomes (Office for Statistics Regulation, 2022).

Linkage of different datasets is dependent upon accurate information being provided about the child so that an ALF can be generated. This process is undertaken by Digital Health and Care Wales using a split-file process so that no sensitive person-level demographic data is held in SAIL. Whilst this ensures the anonymity of the records held, gaps and inaccuracies in the information provided by data owners (such as missing postcodes or dates of birth) can reduce the match rate i.e. the proportion of records that are able to be linked. This particularly affects older records and those relating to pre-school children where there are fewer opportunities to cross-reference identifiers against details held in other datasets. Until recently, this significantly affected the CLA data held within SAIL, limiting the extent to which researchers could link this to other datasets (Bailey et al., Forthcoming). For an overview of the potential different types of linkage error, see Harron et al. (2017).

The CRCS census collects a wealth of useful information not just about the child, but also about parental factors such as physical or mental health, substance misuse, learning difficulties and domestic abuse which can be utilised by researchers to study the impact of parental characteristics on social care outcomes (Warner et al., 2024). Whilst there is no one dataset which systematically collects equivalent information about the general population, this information can be ascertained by linking to additional datasets such as education and health data. Surveys and qualitative research with service users and their families can then complement findings from data linkage studies. For example, to explore the impact of social worker or family court decisions on parents, families, and the wider community.

WHAT HAS THIS RESEARCH GOT TO DO WITH SOCIAL WORKERS AND OTHER PROFESSIONALS?

As highlighted above, data scientists and epidemiologists are already working with linked social care data to understand why rates of CLA are increasing; to determine where to prioritise resources in order to safeguard those at risk; and to identify ways in which children with social workers can be supported to ensure that they achieve their full potential. However, for practitioners to be confident that they are doing the right thing and acting in the best interests of the child, they need to have a clear understanding of what works, for whom and for why. This rapidly expanding research area has the potential to provide this information but data scientists cannot and should not be working in isolation.

Echoing the assertions of Atherton et al. (2015), it is crucial that the voice of front-line social work is represented if the evidence base underpinning practice is to be enhanced through linking children's social care data to data from other policy areas. This does not mean that every social worker needs to equip themselves with the skills to undertake data linkage and subsequent analysis. Rather, where social workers can make a significant contribution to research is by collaborating with those using these databases to ensure that they have a thorough understanding of the legal framework surrounding care and how this is reflected in the data collected, what it means to be a child within the system and the implications for carers. Crucially, practitioners are able to provide valuable insights into exactly what different variables mean and how the guidance issued to local authorities for completing the returns is understood in the context of local practice. This is critical where the absence or existence of data, and its exact meaning is not necessarily immediately apparent. By sharing expertise in these ways, there is an opportunity to contextualise research findings and ensure that recommendations are relevant.

More fundamentally, social workers are well placed to identify where there are gaps in the evidence base and to identify emerging trends. Being on the front line means that practitioners are the first to spot patterns in the issues of concern; they are able to draw on their experience to suggest what might work and, just as importantly, why a particular approach is unlikely to work in that set of circumstances. Such insights are invaluable for our use and interpretation of research findings and serve to remind everyone of how our collective efforts have the potential to make an enduring and positive impact on the lives of individual children and their families.

Members of third sector, local government, and users of data sources recently attended a multi-disciplinary workshop event supported by the Learned Society of Wales (Cowley, 2023)(Cowley, 2023)(Cowley, 2023). A number of research priority areas were identified that could be examined using administrative data. For example, enhancing our understanding not just of the role played by well-known risk factors such as substance misuse, parental mental illness and domestic abuse, but also social class (Morris et al., 2018) and other less-studied risk factors for care entry. It was felt that there needed to be a greater emphasis on multi-agency working and identifying the factors that contribute towards children having better outcomes. This includes comparisons of outcomes across programmes and services to identify good practice; and identifying the characteristics and factors

associated with stable placements, including a greater understanding around who is involved in supporting the child whether they be foster parents, different agencies or wider family members. The workshop members also discussed the opportunities for answering additional research questions if new data can be acquired, such as data about the "active offer" of advocacy services (NYAS, 2023), the When I am Ready Scheme (The Fostering Network, 2016), or data on foster carer characteristics.

Monitoring the short-, medium- and long-term outcomes of those who have been supported by children's social care enables key stakeholders to 'identify the population that requires support through early intervention and evaluating interventions to understand whether they are effective' (ADR UK, 2023a). If we are to achieve these objectives, we need to ensure that the right data is collected (Department for Education (UK), 2023; Welsh Parliament, 2023), can be accessed in a timely manner, and is utilised to refine practice and inform policy, service planning and commissioning. Data linkage provides a mechanism for doing this without placing further burdens on the workforce or the children and families that we support as well as providing a more holistic picture of the children's lives. When social care data are combined with other datasets, the resulting rich, holistic picture of family and individual circumstances can help in the development of tailored, earlier interventions.

To maximise the opportunities that arise from linking to data from other policy areas, social work values and sector knowledge have a key role to play in determining research priorities, identifying what questions can be tackled and how to interpret the results. Positive examples exist of the Nuffield Family Justice Data Partnership and the Children's Social Care Research and Development Centre (CASCADE) partnership. Both of these have combined domain expertise in child welfare with methodological expertise from epidemiology and data science. Social care and social work interests have an opportunity to link up with methodological expertise via such forums as the Children's Social Care Data User Group – see details below.

Additional Resources

- The Children's Social Care Data User Group (CSDUG) provides a forum for expertise between users and potential users (academic, practice and policy) and to provide opportunities for collaboration and joint-working between data teams , including users of comparable international data: https://cscdug.co.uk/
- The Children's Social Care Research and Development Centre (CASCADE) has developed webpages which signpost researchers to additional information about accessing Welsh children's social care data, providing details of current projects: https://cascadewales.org/data-linkage/

Acknowledgements

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