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Title Page

Towards full integration of quantitative and qualitative methods in case study research: insights from investigating child welfare inequalities

Authors:

Dr Will Mason University of Sheffield

(Corresponding author w.j.mason@sheffield.ac.uk)

Sheffield Methods Institute, University of Sheffield)

Professor Kate Morris University of Sheffield

Calum Webb University of Sheffield

Professor Brigid Daniels University of Stirling

Professor Brid Featherstone University of Huddersfield

Professor Paul Bywaters Coventry University

Dr Nughmana Mirza University of Stirling

Jade Hooper University of Stirling

Dr Geraldine Brady Coventry University

Dr Lisa Bunting Queens University, Belfast

Professor Jonathon Scourfield Cardiff University

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Abstract

Delineation of the full integration of quantitative and qualitative methods throughout all stages of multisite mixed methods case study projects remains a gap in the methodological literature. This article offers advances to the field of mixed methods by detailing the application and integration of mixed methods throughout all stages of one such project; a study of child welfare inequalities. By offering a critical discussion of site selection and the management of confirmatory, expansionary and discordant data, this article contributes to the limited body of mixed methods exemplars specific to this field. We propose that our mixed methods approach provided distinctive insights into a complex social problem, offering expanded understandings of the relationship between poverty, child abuse and neglect.

Key words: mixed methods, integration, case studies, child welfare, inequality

Introduction

This article seeks to extend the published literature on mixed methods case studies by outlining and critically evaluating the integration of quantitative and qualitative methods throughout all stages of a multisite mixed methods case study project. Our study examined the relationship between area level deprivation and UK rates of care and child protection interventions. In this article we briefly set out the study as a whole, before focusing on the case study component (work stream B), describing the mixed methods adopted and summarizing the key findings. Specifically, this article hopes to contribute to the field of mixed methods research in three ways: (i) by offering an empirical contribution to the still limited literature on mixed methods site selection in multisite case study projects; (ii) by outlining a specific adaptation of framework analysis, for the integration of quantitative and qualitative data; and (iii) by offering a critical account of the management of confirmatory, expansionary and discordant data throughout data collection and analysis. We conclude by examining the methodological lessons emerging from the study and their implications for future research in this complex field.

The Child Welfare Inequalities Project

The Child Welfare Inequalities Project (funded by the Nuffield Foundation) aimed to detail the relationship between deprivation and inequalities in formal child welfare interventions. Specifically, these were the decision that a child should be the subject of a Child Protection Plan (CPP) or enter the care system, known as becoming a looked-after-child (LAC). CPPs are formal multi-agency plans, designed in response to concerns about a child who is identified as suffering, or likely to suffer, significant harm (NSPCC, 2017). Children become ‘looked after’ when they have been moved

from the care of their parents/guardians to the care of the Local Authority (LA); the administrative body responsible for public services and facilities in a particular geographical area. These UK statutory interventions are led by local children's social work teams based in LAs. Children can become looked after either voluntarily or as the result of a court order. Child welfare inequality is defined as occurring:

> …when children and/or their parents face unequal chances, experiences or outcomes of involvement with child welfare services that are systematically associated with structural social disadvantage and are unjust and avoidable (Bywaters, 2015)

The relationship between poverty and child abuse and neglect is becoming increasingly established within social work research (Cancian, Slack & Yang, 2013; Fein & Lee, 2003; Lefebvre et al., 2017; Raissian & Bullinger, 2016). This is evidenced by the emerging body of publications that recognize explicitly the role of material and community level factors in child maltreatment rates and types of service response (Carter & Myers, 2007; McCallum & Cheng, 2016; Pelton, 2015; Yang, 2015). However, to date most of this work has been located in North America (Bywaters et al., 2016; Mikton & Butchart, 2009) and, as a consequence, comparatively little is known about the relationship between poverty and child abuse and neglect elsewhere (Dyson, 2008; Cooper & Stewart, 2013; Stoltenborgh et al., 2015). As such, The Child Welfare Inequalities Project contributed to a very limited body of work exploring this relationship in the UK (Bywaters et al., 2016).

The Child Welfare Inequalities Project had two work streams and followed a multiphase design. Multiphase research involves the sequential aligning of quantitative and qualitative studies, in order for each new approach to build on the

former, “to address a central program objective” (Creswell & Plano Clark, 2011, p.100). In this instance work stream A (a quantitative study of child welfare intervention rates) informed work stream B (mixed methods case studies of social work decision making). The rationale for this approach was that, having quantified and established the existence of a relationship between deprivation and child welfare intervention rates, subsequent case studies could explore and explain potential causes, at the level of social work practice (Creswell & Plano Clark, 2011). Both streams worked in sequence to address the common program objective: understanding the role of deprivation in the production of unequal child welfare intervention rates.

The quantitative stream (work stream A) brought together existing data on indicators of deprivation and intervention rates for a representative sample of over 10% of all children on CPPs or being-looked-after across the UK. Our sample included 100% of children in Wales and Northern Ireland, 50% of children in Scotland and a representative 12% of children in England. These different national sampling frames were designed to ensure that there were sufficient numbers of children in each country, to allow for meaningful comparison and statistical analysis (Bywaters et al., 2017a, p.3). Analysis revealed a strong social gradient in rates of intervention across all UK nations, with each step increase in deprivation accompanied by an increase in children’s chances of being in state care or on a CPP (Bywaters et al., 2017a).

The second work stream (work stream B) took the form of mixed methods case studies and constitutes the focus of this article. Six case studies were developed in different LAs on the basis of theoretical replication (Yin, 2014). These case studies sought to examine: (a) the processes by which social work decisions were made; (b)

the factors that might influence decision making; and, (c) the extent to which family's socioeconomic circumstances factored in decision making, where there were child protection concerns. At the time of research, no comparable studies had been conducted in the UK on this topic. This article details these case studies and the integration of mixed methods in site selection, data collection and analysis.

Integration in mixed methods case studies

The integration of qualitative and quantitative concepts, methods and data has a long history in social research (Maxwell, 2016). However, the past four decades have seen a substantial growth in the application and discussion of integration in mixed methods research, particularly within the fields of health studies, sociology and social psychology (Bryman, 2006; 2007; Creswell, 2010; Gilbert, 2006; Greene et al, 1989; Guetterman, Fetters & Creswell, 2015; Leech & Onwuegbuzie, 2009; Tashakkori & Teddlie, 2010). O'Cathain et al. (2010, p.1) assert that integration, understood as "the interaction or conversion between the qualitative and quantitative components of a study", can yield unique insights, or 'meta inferences', unavailable to quantitative or qualitative studies undertaken independently. Castro et al. (2010) have also argued that integrated mixed methods offer procedures to study factually complex constructs in ways that facilitate more nuanced and deeper analyses than single methods studies.

Recent mixed methods research literature has explored the typologies of mixed methods designs (Leech and Onwuegbuzie, 2009), the purposes of integrating quantitative and qualitative methods (Creswell and Plano Clark, 2011) and the practical and philosophical challenges of doing so (Bryman, 2007; Creswell, 2010; 2015; Greene et al, 1989; Yin, 2006). Indeed, there are several ways to combine

quantitative and qualitative research and to represent mixed methods data (Bryman, 2012). However, whilst it is generally agreed that “meaningful integration allows researchers to realize the true benefits of mixed methods… integration [is still] not well developed or practiced” (Guetterman, Fetters and Creswell, 2015, p.561).

Yin (2006) has proposed a framework of five procedures to aid the process of integration in mixed methods studies. He argued that the more two or more methods are integrated into each stage of the research process (from the formulation of research questions to the dissemination of research findings) the stronger the claim to genuinely mixed methods. The approach undertaken by researchers can hereby play a crucial role in the successes of mixed methods integration. For example, Luck et al. (2006) have argued that the contextually bounded nature of practice based case studies present an ideal context for the integration of mixed methods. In their comparative study of hip fracture outcomes across four hospitals Vallis and Tierney (1999) argued that case studies facilitated the integration of qualitative and quantitative methods, offering different views and enabling the interpretation of complex and interrelated phenomena. Fetters, Curry and Creswell (2013) have also recognized case studies as an advanced framework for the integration of mixed methods (*see also* Yin, 2014). Comparative case studies are cited as an extension of this framework that can be formulated in various ways (Crabtree et al., 2005; Fetters, Curry & Creswell, 2013; Harris et al., 2016).

Despite acknowledgement that case studies offer an appropriate framework for mixed methods integration, research methods rarely take center stage within exemplar case study publications (Crabtree et al., 2005; Harris et al., 2016). For example, Harris et al. (2016) reported on the application of comparative case studies to evaluate a multi-level suicide prevention intervention, but offered only an overview

of how qualitative and quantitative data were integrated. This was despite the application of an innovative longitudinal approach, combining interviews, focus groups, observations and questionnaires. Sharpe et al. (2012) have also acknowledged that the literature on mixed methods case studies can lack detail, offering little in terms of guidance for other researchers interested in the application of similar approaches. They argue that "few [case study] authors have described the specifics of their sampling strategies" (Sharpe et al., 2012, p.48). Where site selection is detailed in multi-site case study publications, there is an observed tendency to focus on theoretical sampling approaches and recruitment practices, rather than the application of mixed methods strategies for site selection itself (Schadewaldt et al., 2016; Simpson et al., 2016).

The case studies

The case studies were located within six LAs in two of the UK nations (England [n=4] and Scotland [n=2]). Resources restricted the capacity of the team to host case studies in all four UK nations, and the two nations (England and Scotland) were selected because they represented the greatest volume of child welfare activity and the largest child populations within the four UK nations. Case study fieldwork took place within LA Children's Services teams and focused on practice responses to carefully selected and geographically located case study sites. The size of LAs in England and Scotland is such that each encompasses multiple Children's Services teams, servicing different geographic regions within the LA. As such, the selection of a distinct geographic case study site with a corresponding Children's Services team was necessary within each of the chosen LAs (*we discuss this further below*).

Host LAs were selected on the basis of theoretical replication (Yin, 2014). This approach is grounded in the logic that repeating studies, in different conditions, can allow results to be tested. Hence, with theoretical replication, multiple case studies are selected with the anticipation of contrasting results, for reasons that can be used to test and develop theoretical models.

Selecting the Local Authorities

Before selecting the case study sites, it was necessary to identify the host LAs within which case study sites would be selected. Therefore, two layers of selection were involved: (i) determining host LAs and (ii) selecting geographic sites for each of the case studies. First, host LAs were selected according the following criteria:

- The LA had featured in the quantitative work stream (work stream A) and so was already the subject of detailed quantitative analysis of intervention rates
- LAs contrasted in terms of their average levels of deprivation, offering a basis for theoretical replication

Deprivation scores were calculated for all of the LAs in England and Scotland using a large area deprivation measure, published by the Department for Communities and Local Government (Smith et al., 2015). We developed a UK-wide Indices of Multiple Deprivation (IMD) to account for the different measures and weightings used within the four UK nations' IMD (Payne & Abel., 2012). Large area deprivation measures enable researchers to summarize the level of deprivation across LAs, based on the scores of smaller areas contained within them (Lower-Layer Super Output Areas in England and Data Zones in Scotland – *see Table 1*). As all smaller areas within given LAs are used to create the average score, this produces "a measure of the whole area covering both deprived and non-deprived areas" (Smith et al., 2015,

p.26). The measure is also population weighted to account for the fact that small area population sizes can vary.

Population weighted averages were used to rank English and Scottish LAs according to deprivation. LAs positioned within the top third of the overall UK IMD ranking were deemed ‘high deprivation’ whereas LAs positioned within the bottom third of the overall ranking were deemed ‘low deprivation’. Two ‘high deprivation’ LAs were selected in England, the remaining four LAs selected in England and Scotland were deemed ‘low deprivation’.

Selecting the case study sites

The second layer of selection involved identifying the case study sites. Case study sites were each embedded within host LAs. These sites formed the basis of comparative analysis across the host LAs and were selected according to their geographical size, population size and level of deprivation. For each of the four English LAs a site comprising three clustered census geographies (Medium Layer Super Output Areas) with the same or closely similar deprivation scores was selected. Census mapping tools were used by the researchers to visually explore the geographic spread of similarly deprived MSOAs. This allowed researchers to identify and discard output areas that were similarly deprived, but geographically disparate. Within each of the four English LAs a case study site, ranked amongst the 20% most deprived areas nationally, with an overall population of approximately 22,000 household residents was selected. To reach a comparable population, four Intermediate Zones (IZs) were combined to form the Scottish sites.

To correct for heterogeneity of variance, mean population weighted UK-wide IMD scores were compared for all sites using a bias adjusted ANOVA (Moder,

2010). These tests found no statistically significant difference between the mean IMD scores of the different sites (Welch's F = .123, p = .357, Brown-Forsythe's F = 1.311, p = .283). For additional robustness we used a nonparametric comparison of medians which also concluded a non-significant difference between the median IMD scores of each site (Kruskal-Wallis' Chi-squared = 2.875, df=4, p=.579; Gibbons, 1993). This ensured confidence in comparability of the data generated by fieldwork focused on the primary sites.

Once selected, semi-structured interviews with senior children's services managers gathered narrative information about the sites. In particular, these interviews assessed the extent to which the sites reflected recognized geographies of social work practice. Though there were minor variations in the coherence of sites, managers in all six host LAs were able to describe distinct characteristics, including the extent and nature of social work demand within the sites.

The following section outlines the mixed case study methods, including desk-based data gathering and fieldwork.

The case study methods

The methodology adopted for the case studies integrated mixed methods and data sets, capturing data from the macro level of national trends in children's services expenditure down to the micro level of interactions between social workers practicing in the case study sites. Data gathering can best be described as occurring within two interconnected (and sometimes simultaneous) parts: the mining of existing data sets and the gathering of primary data through fieldwork. Both demanded developed knowledge of quantitative and qualitative approaches, but fundamentally, as a team, we needed to build a language and framework that allowed us to work across these

strands (*see* O'Cathain, Murphy & Nicholl, 2008). As Creswell et al. (2011, p.12) have noted, successful mixed methods research 'requires that the team transcend distinct methodological and epistemological differences'. The research teams for the case studies in each country were transdisciplinary consisting of researchers with expertise in the analysis of large scale data sets (n=2), researchers with expertise in examining social work practice (n=1) and ethnographic researchers (n=1) (Rosenfield, 1992). As such, in each country, a team of four researchers collaborated to conduct the case studies. This design required continual cross fertilization across the strands, in part to interrogate the validity or feasibility of emerging findings and in part to expand the learning by extended analysis. To achieve this, regular 'points of interface' were built into the project design (Morse & Niehaus, 2009). Here the team would meet over two days to report emergent findings and discuss issues of integration and fit between both qualitative and quantitative data and countries. Examples of this design are evident in the following stages:

a) Gathering contextual data for the sites

In order to understand the complex interplay between poverty, deprivation, locality and intervention rates we gathered the same data sets in each site using the same tools.

Contextual data about the case study sites were gathered by desk based research. Site level demographies were collated from 2011 Census data using the Office for National Statistics (ONS) Neighborhood Statistics function. Map viewing tools within the ONS website also produced a plotting of the case study boundaries, using LSOA and MSOA geographies. These boundaries were later written onto more detailed

aerial views of the case study sites using the Google My Maps function. In Scotland, site level demographics were collated using the Standard Outputs function of the Scotland Census website for the 2011 Scottish Census. Digital boundaries for 2001 data zones and intermediate zones were obtained via the UK Data Service Census, Boundary Data Selector and plotted on to Google My Maps function as above.

Relevant data were collated for the English sites including public health statistics, central government inspection reports, and annual reports from the LA local safeguarding children's boards. Details of child protection and care demand and expenditure for the LA were also gathered from:

- The Child in Need Census;
- Looked After Children statistics;
- Children's Social Work Workforce statistics; and
- LA and School Expenditure statistics (all published by the Department for Education).

Where possible these data were gathered over a five-year period (2010 – 2015). Alongside this, the routinely collected child protection data gathered for work stream A were also collated and analyzed. The analysis of these data formed an important backdrop for the fieldwork within the sites, detailing the extent of social work involvement. For example, it was possible to ascertain that the chances of being referred to children's services in high deprivation LAs far exceeded the chances of referral in low deprivation LAs.

Attempts were made to obtain similar data for Scotland. This was possible for Child Protection and Looked After Children statistics, but proved difficult for statistics taken from The Child in Need Census and specific LAC expenditure data in England.

Where possible, LAs were approached in attempts to obtain data from them directly. This enabled the collection of LA level contact and referral data for the period 2013/14 - 2015/16. Children's Social Work Workforce statics were taken from the 2015 Census data and the 2015 National Records for Scotland. Site level data such as LAC and CP registration data were taken from annual reports. Expenditure data for Scotland is available via the Local Government Finance returns for Children's and Families services. However, specific expenditure on LAC was not available as in England, meaning a similar analysis could not be undertaken in Scotland.

Once these contextual data were gathered, semi structured telephone interviews were carried out with key local informants (including various LA Children's Services Managers). These interviews aimed to capture an overview of the service structure and history, generating preliminary data about social work within the case study sites. Respondents were invited to reflect on the case study sites in terms of the levels and types of perceived need (deprivation/characteristics of families/risks and harms) and issues of supply (staffing structures/workload issues/resourcing/patterns of child welfare intervention). Respondents were also asked about decision making processes and how, if at all, they felt deprivation informed child welfare decision making. These data revealed professional narratives about the sites, offering glimpses into how they were positioned and understood by the social workers practicing within respective host LAs.

b) The immersion fieldwork

Fieldwork activities in the four English and two Scottish host LAs were conducted by one (full time) English and one (part time) Scottish researcher, respectively, with additional input from senior researchers. Case study sites were visited by the

researchers and explored on foot or by car. Substantive fieldwork took place within Duty and Assessment Teams in periods of up to five days for each of the case study sites (these social work teams deal with all initial enquires and investigations into children's well-being). Fieldwork included:

- Participant observation of social work practice (duty systems/care management systems/team meetings/allocation meetings/strategy meetings/initial child protection conferences/legal planning meetings)
- Informal interviews and group discussions
- Researcher led mapping of decision making structures
- Focus groups

Researchers were located within the offices of Duty and Assessment Teams, observing the daily rhythms of social work practice. This included the receipt and 'screening' of referrals, discussions between social workers and managers about case work, team meetings and some case work with families. As overt observers, researchers were able to take contemporaneous field notes, during long periods of watching social workers and talking to them about what they were doing, thinking and saying (Delmont, 2007). Fieldnotes were then expanded upon nightly with further details added in order to capture the nuances of observed social work practice, without losing recall. Particular attention to detail was devoted to fieldwork 'episodes' that related to social work decision making (Emerson, Fretz & Shaw, 2011). This focus allowed the researchers to 'direct their gaze' towards the accrual of descriptions that addressed the research questions (Mason, 2002).

Throughout the blocks of fieldwork researchers also convened data gathering exercises with respondents, sampled purposefully according to their membership of the Duty and Assessment teams (Patton, 1990). Visual maps of social work decision

making structures within each of the case study sites were generated with groups of up to six practitioners and team managers. These maps were co-constructed on large flip chart paper with memos detailing each stage in the process described. Decision making flowcharts were then used as visual prompts in subsequent conversational interviews and group discussions throughout the fieldwork, generating important insights into the similarities and differences between LA practices.

15 focus groups captured decision making narratives across the host LAs. Focus groups each included a purposive sample of between four and six Duty and Assessment social workers. This range was subject to the availability of social workers throughout fieldwork. Indeed, the nature of social work practice, including respondents' often spontaneous casework demands, routinely complicated attempts to systematically control focus group sizes. Focus groups were based on a single standardized vignette designed to prompt discussion around decision making practices, the influence (or non-influence) of poverty and rationales for interventions. The vignette had two parts, and was developed using available data to present a typical case example, including: the most likely child age, gender, ethnicity, family circumstances, household type and abuse type. Part one presented a description of a family experiencing economic hardship, with initial concerns about how well they were coping with a small child. Part two, depicted an escalation of risk, where potential harm to the child became apparent. Following part one respondents were invited to consider the following structured questions:

1. What are the critical factors for you in deciding your own preferred response?
2. What would be the most likely outcome in your team from this initial set of enquires?

Respondents were then handed part two and asked to reflect on two further questions:

3. From your experience what would be the likely outcome?

4. What would be the critical factors influencing the outcome?

These structured questions were developed to support comparative analyses of social work responses and proved significant in our conclusion that practice differences could not explain unequal rates of child welfare intervention. Following the vignette activity researchers worked through a short semi-structured focus group schedule. Topics for questioning included: characteristics of the case study sites, decision making rationales, and demand and supply characteristics.

Table 1 sets out an overview of the minimum data collected for each of the six participating LAs (some sites yielded more data than others, depending on team structures and the accessibility of respondents):

INSERT TABLE 1

Analysis

We adapted a framework approach to the integration and analysis of our mixed methods case study data (Ritchie & Spencer, 1994). Qualitative data were analyzed using a combined pre-set and inductive coding technique (Boyatzis, 1998). We built a coding frame - derived from our research questions - encompassing codes relating to poverty, demand, supply and intervention characteristics (*see appendix*). Though the frame was fundamentally structured by our research questions we also built flexibility into the coding process, enabling unanticipated codes to emerge through

inductive coding. Practically, field notes, interview and focus group transcripts were reviewed line for line and coded using a basic thematic approach.

Quantitative case study researchers collated all of the relevant child welfare intervention data (rates of contact/referral and intervention) alongside analyzing expenditure data for the Children's Services. Administrative data were used to analyze spending patterns, with outturns of children's and young peoples' services expenditure grouped by category of service, adjusted to 2015-16 prices, and denominated per child. Trends were analyzed using latent growth models (LGM). In this way, researchers could identify statistically significant differences in changes in expenditure over time, identified by varying fitted intercepts (spending at 2010-11), slopes, and polynomials (rates of change over time), based on external characteristics such as IMD rank (Webb & Bywaters, 2018).

Coded interview, focus group and observational data, alongside quantitative intervention data on rates, contact, referral and expenditure were then organized into a framework, with the relevant data uploaded onto an integrated matrix display (Greene, 2008; O'Cathain et al., 2010). Framework analysis adopts a case and theme based approach, allowing large quantities of complex data to be managed through a process of summarization and synthesis. "It's defining feature is the matrix output: rows (cases), columns (codes) and 'cells' of summarized data, providing a structure into which the researcher can systematically reduce the data, in order to analyze it by case and by code" (Gale et al., 2013, p.1472). For illustrative purposes Figure 1 shows a section of the matrix output.

INSERT FIGURE 1

In order to accommodate and integrate our mixed methods data we applied two adaptations to the conventional framework approach (Ritchie and Spencer, 1994).

Where, in framework analysis, each 'case' conventionally represents an interviewee, we built our matrix so that each 'case' represented a research site, with each 'cell' capturing data from sites embedded within the host LA (see Figure 1).

We constructed our matrix using Microsoft Excel Online. As Harris et al. (2016) have acknowledged, using Microsoft Office Software, instead of bespoke computer assisted analysis software (CAQDAS) allows for greater flexibility in the application of framework analysis. This was particularly important given our adaptations (*see also* Mason, Mirza & Webb, 2018). Hyperlinks were added to each cell directing researchers to linked 'code documents'. Code documents were constructed systematically and integrated all relevant data under each code. This allowed each cell to accommodate both quantitative data (in the form of descriptive statistics) and qualitative data (in the form of extracts from documents/field notes and interview and focus group transcripts). Integrating data in this way was important because it enabled cross method comparisons and analyses (Greene, 2008). Indeed, both quantitative and qualitative data were relevant to most codes. For example, the 'Supply 1 (S1)' code incorporated descriptive site level data (such as changes in the share of expenditure that different services received, staffing levels, caseload data and rates of child welfare intervention) alongside oral data about team structures and caseloads.

Figure 2 illustrates the kind of data that were incorporated into code documents linked to a given cell in the matrix. The figure gives an example of some of the data included in the S1 Code document associated with the case study site embedded

within one high deprivation LA (LA1). The left hand side shows a series of graphs visualising changes over time in the share of local authority expenditure that each major category of children's services receives, panelled by deprivation tertile (Webb & Bywaters, 2018). Highlighted in the graphs is a bolded black line that visualises the data associated with the LA so it can be seen relative to the average trend across LAs (the bolded, coloured lines), and the variation in trends across all other local authorities (the opaque grey lines). For example, here, we can see that LA1 had a lower than average share of spending on services for Looked After Children, a steeper increase over time in their share of spending associated with safeguarding services, and a decline in the share of spending on preventative & family support services (*for an outline of what these categories include, see Webb & Bywaters, 2018)*. The lower right hand side displays two confirmatory quotations from semi-structured interviews conducted within the corresponding case study site. Both relate to concerns regarding the impact of changing priorities in service funding for front line social work practice, particularly in terms of rising caseloads. The text located at the base of the figure displays the meta inference gained from integrating quantitative and qualitative strands. Teddlie and Tashakkori (2009, p.152) define meta inferences as conclusions "generated through an integration of the inferences that have been obtained from the results of the QUAL and QUAN strands of an MM study".

INSERT FIGURE 2

Integrated code documents facilitated the production of triangulated code summaries. As well as a practical way to reduce data, code summaries allow all members of the research team to engage with the data during analysis, without necessarily reading all of the descriptive statistics and transcripts (Gale et al., 2013).

Situating the matrix output within a shared and secure university system also allowed researchers to simultaneously access and upload code documents and summaries to the matrix. This revealed live progress that prompted ongoing dialogue about analysis and emergent findings (Mason, Mirza & Webb, 2018).

Our analysis produced a series of outputs. According to Yin's (2014) account of multiple-case study procedure, individual case reports were produced for each LA. Reports were structured around the key themes identified for theoretical replication, with particular attention paid to issues of demand and supply in child and family social work. The details of each individual case report were then collated into an overarching cross-case report indicating the extent of replication across the case studies.

These case studies generated rich data concerned with poverty and interventions, with outputs that had direct relevance for policy and practice (Bywaters et al., 2017b; Morris et al., 2018). The following section provides an integrated account of some pertinent case study findings alongside points of learning derived from our approach to site selection and the management of confirmatory, expansionary and discordant data.

Findings and discussion

Site selection in comparative case study research

Our comparative focus warranted a rigorous selection process. Though we recognized that all neighborhoods are unique and therefore impossible to compare on a strictly 'like with like' basis, it was important to reach a point of optimal confidence in the comparability of case study sites. Sharp et al. (2012) have recognized that there are few studies detailing the rigorous application of mixed

methods approaches to the process of case study site selection, or the benefits yielded by such methods. Our mixed methods sampling process generated a confident base from which to explore the unequal child welfare intervention rates observed in the quantitative data. Confidence in the statistical comparability of case study sites meant that the data produced by standardized research tools - such as the focus group vignette – could be used to 'read across' the data sets, enabling new conclusions to be reached about the relationship between social work practice and patterns of child welfare intervention.

There is much pressure in the UK to attribute unequal rates of child welfare intervention to local leadership or local practices (NAO & DfE, 2016). Yet, our case studies identified only very minor variations in social work practice. This is despite sampling a range of high and low deprivation LAs with corresponding child welfare intervention rates. For example, of the 15 focus groups completed, all but one concluded that the case (presented in the vignette) warranted a Child Protection Plan. Respondents across the host LAs also routinely ignored or sidelined references to family poverty, justifying their assessment in terms of the risk presented to the child. The following extracts, taken from case studies in both high and low deprivation LAs are illustrative:

> Social Worker (Low deprivation LA): I can see this, even with a relatively short assessment, this going toward child protection... The domestic violence that is coming out and the alcohol misuse, these are factors that don't happen overnight, so we can look back and say that for as long as Zoe and Elliott have been in a relationship, there has been an element of alcohol misuse or they haven't coped very well and they have used alcohol as a coping mechanism, and that has led to violence.

…

> Social Worker 1 (High deprivation LA): Yeah, I think they would get registered and be subject to a CPP on the grounds of neglect…There have been more missed health appointments. Zoe seems to have a lack of understanding of the concerns and she's not able to sustain the changes. The home conditions also seem to be having an impact on Toby so I think you would get a plan on that.
>
> Social Worker 2 (High deprivation LA): And we're seeing a build-up of poor home conditions, neglect, alcohol misuse, domestic violence so there is really a big concern there.

Controversially, these data suggest that local practice, in fact, has only a weak relationship with unequal intervention rates, indicating that in order to understand child welfare inequalities systemic factors need to be taken into account. This conclusion could not have been reached without robust basis from which to compare case study sites.

Managing 'fit' and discordance in mixed methods research

Justifications for mixed methods research tend to argue that such studies produce knowledge that is unavailable to researchers using singular methods. Mixed methods studies are also praised for offering heightened confidence in research findings (O'Cathain et al., 2007). Advances in the confidence of mixed methods findings are generally arrived at through assessments of 'fit', regarding the

coherence of quantitative and qualitative data, which can be confirmatory, expansionary or discordant (Fetters, Curry & Creswell, 2013).

Our mixed methods case studies produced both confirmatory and expansionary data. For example, in one high deprivation LA, analysis of the conversion rates from referral (into the child protection system) to assessment and assessment outcome indicated that, though a high number of families were assessed, a relatively low proportion of those families received an outcome warranting further child protection involvement. These findings were confirmed by interview data with the team manager servicing the case study site. She explained how concerted efforts were being made to “filter things through to Early Help” and out of the child protection system.

Contemporaneous analysis of demand and supply data aided the expansion of those findings. These data revealed how the LA had received substantial funding cuts at a time of increased demand (measured as CPPs and LAC per 10,000 children), alongside a fall in the number of social workers per 10,000 children, indicating a rise in caseloads. At the time of the research, workload in this LA was described by the Safeguarding Group Manager as being at its “busiest ever” with “pressure on SWs greater than ever”. The intensification of workload and its impact on social workers’, was evidenced further by stints of participant observation. The following fieldnote episode, gathered in the child and family social work office is illustrative:

> *Extremely busy office. Lots of bustle following the team meeting - social workers all jumped straight onto their phones or began to discuss cases. One of the social workers described this hour (of picking up on work following team meetings) as a “crescendo of madness”. In the corner of my eye I could see a*

social worker shouting at a client down the phone. Others reflected on the challenges of practicing with high caseloads. One social worker commented on 'overwhelming levels of work', feeling like he needed to make life changing judgments at the same time as sinking. "You need the head space to properly distil the evidence you've got, but this is not available".

Combined these quantitative and qualitative data depicted a child protection system that was experiencing rising demand at a time of diminishing resources, managed through the filtering of case work out of the child protection system and into allied Early Help services. These findings are mirrored by similar studies of demand and provision in English child protection systems (Hood et al., 2016).

Our case studies also produced discordant and contradictory data, allowing us to explore inter-method discrepancies by cross referencing practice narratives with demand and supply characteristics (O'Cathain et al., 2010). For example, despite varying levels of deprivation across the six host LAs, we captured very similar narratives about issues of resourcing and the impacts for social work practice. None of our respondents reported an adequate level of resourcing, despite their location within more or less deprived LAs. Resourcing issues were universally framed in terms of the Coalition government's (2010 – 2015) radical program of spending cuts, "rooted in a political commitment to reduce aggressively the UK's budget deficit" (Lowndes & Gardner, 2016, p.359). As such, our qualitative data suggested that government cuts had effected frontline LA Children's Services similarly, across the nation.

However, these findings were complicated by further analysis of English LA expenditure, which revealed that cuts to children's services had been much more

severe in areas with high overall deprivation. For example, Bywaters, Webb and Sparks (2017) reported 21% cuts to children's services expenditure in high deprivation LAs compared with 7% cuts to children's services expenditure in low deprivation LAs, for the period between 2010 and 2015. Contradicting our qualitative data, these analyses revealed the unequally distributed nature of austerity cuts, despite the production of similar austerity narratives across the nation. This is another controversial finding that contrasts the dominant English narrative that children's services have been protected from austerity cuts (Webb & Bywaters, 2018).

Our findings indicate the considerable value of adopting a mixed methods approach within this complex field. Analyzing the case study data revealed a surprising lack of poverty awareness and anti-poverty planning in child and family social work. Some staff felt overwhelmed by the level of need they saw in families, others prioritized focusing on 'risk', reinforcing limited attention to family or neighborhood conditions. The concurrence of these data across the host LAs suggests that practice alone cannot explain the unequal rates in child welfare intervention observed. Indeed, further analysis of quantitative data suggest that systemic factors, such as patterns of expenditure, need to be interrogated, if child welfare inequalities are to be understood and addressed. Mixed methods sampling and the management of confirmatory, expansionary and discordant data enabled our team to reach meta inferences about UK child protection systems that could not have been reached without an integrated mixed methods design and process. However, this approach is not for the faint hearted. Researchers have had to spend time learning new skills, having ongoing conversations with other team members to confirm rigor and moving across sites to ensure comparability. This experience reinforces the value of mixed

methods training and the value of being able to draw upon multiple areas of expertise (Creswell et al., 2014).

Contribution to the field of mixed methods

This article has presented a detailed overview of mixed methods integration in a study of social work decision making, related to child welfare inequalities (Bywaters et al., 2015). We have found that case studies offered an appropriate framework for the exploration and analysis of this complex social problem (Fetters, Curry & Creswell, 2013; Yin, 2014). Delineation of the full integration of quantitative and qualitative methods throughout all stages of multisite mixed methods case study projects remains a gap in the methodological literature. By detailing the application and integration of mixed methods throughout our research process we have elucidated some of the ways that quantitative and qualitative data can be brought together, adding rigor to multisite, comparative case study research.

Specifically, this article has contributed to the field of mixed methods in three ways: (i) By detailing and critically reflecting a process of mixed methods site selection this article has extended the still limited literature on this topic for multisite case study projects (Sharp et al., 2012). (ii) By outlining our adaptation of framework analysis this article has exposed the potential of this analytical approach for the integration and synthesis of complex mixed methods data. (iii) By offering a detailed account of the management of confirmatory, expansionary and discordant data throughout our study, this article has contributed to the field of multisite mixed methods case study exemplars, offering valuable insights for researchers on the interpretation of complex mixed methods data (Guetterman and Mitchell, 2016; Harris et al., 2016; Vallis and Tierney, 1999).

Conclusion

By presenting a detailed account of the steps undertaken throughout our study this article has sought to extend published literature in the field of mixed methods case studies. Guetterman and Fetters (2018) have asserted that there is a continued need for guidance on the integration of mixed methods and case study designs. We hope that our discussion of site selection, analysis and the benefits of managing confirmatory, expansionary and discordant data offer guidance for other researchers, interested in the application of similar techniques. It is our contention that without the integration of mixed methods, albeit challenging, our case studies could not have produced sufficiently nuanced accounts of the drivers for unequal child welfare intervention rates. As our study demonstrates, for researchers interested in studying the intersections between professional practice and the structural influencers that bear upon it, mixed methods case studies offer a useful and productive framework.

Our study has been widely disseminated and used within the UK, helping to inform the policy agenda for senior service leaders. However, because its messages are uncomfortable it has also been the subject of critical attention. Having confidence in the design and in its integration of a range of data has enabled us to rigorously defend the findings and to be able to ask policy makers how they might begin to address the inequities of existing child welfare interventions.

References

Boyatzis, R. E. (1998) *Transforming qualitative information: thematic analysis and code development.* London: SAGE.

Bryman, A. (2006) Integrating quantitative and qualitative research: how is it done? *Qualitative Research,* 6(1), 97-113.

Bryman, A. (2007) Barriers to Integrating Quantitative and Qualitative Research. *Journal of Mixed Methods Research,* 1(1), 8-22.

Bryman, A. (2012) *Social Research Methods*. Oxford: OUP.

Bywaters, P. (2015) 'Inequalities in child welfare: towards a new policy, research and action agenda'. *British Journal of Social Work*, 45(1), 6-23.

Bywaters, P., Bready, G., Bunting, L., Daniel, B., Davidson, G., Elliott, M. … & Webb, C. (2017a) *Identifying and understanding inequalities in child welfare intervention rates: Briefing paper 2 – UK four country quantitative comparison*. Retrieved from http://www.coventry.ac.uk/Global/08%20New%20Research%20Section/16469-17%20CWIP%20-%20BRIEFING%202%20FINAL.pdf

Bywaters, P., Bready, G., Bunting, L., Daniel, B., Davidson, G., Elliott, M. … & Webb, C. (2017b) *Identifying and understanding inequalities in child welfare intervention rates: Briefing paper 3 – case study findings*. Retrieved from http://www.coventry.ac.uk/Global/08%20New%20Research%20Section/BP_CaseStudyFindings_0617.pdf

Bywaters, P., Bunting, L., Davidson, G., Hanratty,J. , Mason, W., McCartan, C. & Steils, N. (2016) The relationship between poverty, child abuse and neglect: an evidence review. York: Joseph Rowntree Foundation.

Bywaters, P., Brady, G., Sparks, T., Bos, E., Bunting, L., Daniel, B. … & Scourfield, J. (2015) Exploring inequities in child welfare and child protection services: explaining the 'inverse intervention law', *Children and Youth Services Review*. 57, 98-105.

Bywaters, P., Webb, C. & Sparks, T. (2017) Ofsted Judgements Do Reflect LA Deprivation and Expenditure, Community Care. Retrieved from http://www.communitycare.co.uk/2017/01/18/ofsted-ratings-reflect-local-authority-deprivation-spending/

Castro, G. F., Kellison, J., Boyd, S., & Kopak, A. (2010) A methodology for conducting integrative mixed methods research and data analysis. *Journal of Mixed Methods Research*, 4(4), 342-360.

Cancian, M., Slack, K., & Yang, M. (2013) 'The effect of family income on risk of child maltreatment'. *Social Service Review,* 87 (3), 417-137.

Carter, V., & Myers, M. (2007) 'Exploring the risks of substantiated physical neglect related to poverty and parental characteristics: a national sample'. *Children and Youth Services Review,* 29 (1), 110-121.

Cooper, K., & Stewart, K. (2013) Does money affect children's outcomes? A systematic review. York: Joseph Rowntree Foundation.

Crabtree, B.F., Miller, W.L., Tallia, A.F., Cohen, D.J., DiCicco-Bloom, B., McIlvain, H.E. … & McDaniel, R.R. (2005) 'Delivery of Clinical Preventive Services in Family Medicine Offices'. *Annals of Family Medicine*, 3(5), 430–5.

Creswell, J. (2010) Mapping the developing landscape of mixed methods research. In A. Tashakkori & C. Teddlie (Eds.) *SAGE Handbook of Mixed Methods in Social & Behavioral Science* (pp. 45-69). London: SAGE.

Creswell, J. (2015) *A concise introduction to mixed methods research*. London: Sage.

Creswell, J., Klassen, AC., Plano Clark, V., & Smith, KC. (2011) *Best practice for mixed methods research in health sciences*. National Institutes of Health, Office of Behavioral and Social Sciences Research, 2011.

Creswell, J., & Plano Clark, V. (2011) *Designing and conducting mixed methods research* (2nd ed). Thousand Oaks: Sage.

Delamont, S. (2007) *Ethnography and participant observation*. In. Seale, C., Gobo, G., Gubrium, J.F. and Silverman, D. (Eds). Qualitative Research Practice. London: Sage.

Dyson, C. (2008) Poverty and child maltreatment. NSPCC child protection research briefing. London: National Society for the Prevention of Cruelty to Children (NSPCC).

Emerson, R., Fretz, R., & Shaw, L. (2011). *Writing ethnographic fieldnotes.* London: The University of Chicago Press.

Fein, D., & Lee, W. (2003) 'The impacts of welfare reform on child maltreatment in Delaware'. *Children and Youth Services Review,* 25(1/2), 83–111.

Fetters, M., Curry, L., & Creswell, J. (2012) Achieving integration in mixed methods designs – principles and practices. *Health Services Research*, 48(6 Pt 2), 2134-2156.

Gibbons, J. D. (1993). *Nonparametric Measures of Association*. London: Sage.

Gilbert, T. (2006) Mixed methods and mixed methodologies. *Journal of Research in Nursing,* 11(3), 205 – 217.

Greene, J.C., Caracelli, V.J., & Graham, W.F. (1989) Towards a conceptual framework for mixed-method evaluation designs. *Education Evaluation and Policy Analysis*, 11(3), 255-274.

Guetterman, T. C., & Mitchell, N. (2016) The role of leadership and culture in creating meaningful assessment: A mixed methods case study. *Innovative Higher Education*, 41, 43-57.

Guetterman, T. C., & Fetters, M. (2018) Two methodological approaches to the integration of mixed methods case study designs: a systematic review. *American Behavioral Science*, 62(7), 900-918.

Guetterman, T. C., Fetters, M., & Creswell, J. (2015) Integrating quantitative and qualitative results in health science mixed methods research through joint displays. *Annals of family medicine*, 13(6), 554 – 561.

Harris, F., Maxwell, M., O'Connor, R., Coyne, J., Arensman, E., Coffet, C. … & Hegerl, U. (2016). Exploring synergistic interactions and catalysis in complex interventions: longitudinal, mixed methods case studies of an optimised multi-level suicide prevention intervention in four European countries (Ospi-Europe). *BMC Public Health*, 16, 268.

Hood, R., Goldacre, A., Grant, R., & Jones, R. (2016) Exploring Demand and Provision in English Child Protection Services. *British Journal of Social Work,* 46(4), 923-941.

Leech, N., & Onwuegbuzie, A. (2009) A typology of mixed methods research designs. *Quality & Quantity,* 43(2), 265-275.

Lefebvre, R., Fallon, B., Van Wert, M., & Filippelli, J. (2017) Examining the Relationship between Economic Hardship and Child Maltreatment Using Data from the Ontario Incidence Study of Reported Child Abuse and Neglect-2013 (OIS-2013). *Behavioural Sciences,* 7(1), doi:10.3390/bs7010006.

Lowndes, V., & Gardner, A. (2016) Local governance under the Conservatives: super-austerity, devolution and the 'smarter state'. *Local Government Studies*, 42(3), 357-375.

Luck, L., Jackson, D., & Usher, K. (2006) Case study: a bridge across the paradigms. *Nursing Enquiry,* 2(13), 103-109.

McCallum, K., & Cheng, A. (2016) Community Factors in Differential Responses of Child Protective Services. *Public Health Nursing*, 33(2), 107 – 117.

Marmot Review Team. (2010) *Fair Society Healthy Lives: Strategic Review of Health Inequalities in England Post 2010.* London: Marmot Review.

Marmot, M. (2015) *The Health Gap*. London: Bloomsbury.

Mason, J. (2002) *Qualitative researching*. London: Sage.

Mason, J. (2006) *Six strategies for mixing methods and linking data in social science research.* Working Paper. Real Life Methods www.reallifemethods.ac.uk

Mason, W., Mirza, N., & Webb, C. (2018) 'Using the framework method to analyze mixed methods case studies' *Sage Research Methods Cases.* DOI: http://dx.doi.org/10.4135/9781526438683.

Maxwell, JA. (2016) Expanding the History and Range of Mixed Methods Research. *Journal of Mixed Methods Research,* 19(1), 12-27.

Mikton, C., & Butchart, A. (2009) 'Child Maltreatment Prevention: A Systematic Review of Reviews'. *Bulletin of the World Health Organization,* 87(5), 353–361.

Moder, K. (2010). "Alternatives to F-Test in One Way ANOVA in case of heterogeneity of variances (a simulation study)". *Psychological Test and Assessment Modeling,* 52(4), 343-353.

Morris, K., Mason, W., Bywaters, P., Daniel, B., Featherstone, B., Mirza N. … & Webb, C. (2018) Social work, deprivation and child welfare interventions. *Child & Family Social Work,* DOI: 10.1111/cfs.12423.

Morse, J.M., & Niehaus, L. (2009) *Mixed methods design: principles and procedures*. Walnut Creek, CA: Left Coast Press.

National Audit Office (NAO) & Department for Education (DfE) (2016) *Children in need of help or protection*. London. National Audit Office.

NSPCC (2017) *Child protection in England*. Retrieved from https://www.nspcc.org.uk/preventing-abuse/child-protection-system/england/referrals-investigations/

O'Cathain, A., Murphy, E., & Nicholl, J. (2007) Integration and Publications as Indicators of "Yield" From Mixed Methods Studies. *Journal of Mixed Methods Research,* 1(2), 147-163.

O'Cathain, A., Murphy, E., & Nicholl, J. (2010) Three techniques for integrating data in mixed methods studies. *BMJ*, 341, c4587.

ONS (2011) *Super Output Area (SOA).* Retrieved from http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/census/super-output-areas--soas-/index.html

Patton, M. (1990) Qualitative evaluation and research methods. Beverly Hills: SAGE.

Payne, R.A., & Abel, G.A. 2012. UK indices of multiple deprivation – a way to make comparisons across constituent countries easier. *Health Statistics Quarterly, 53, 1-16.*

Pelton, L. H. (2015) 'The continuing role of material factors in child maltreatment and placement'. *Child Abuse & Neglect*, 41, 30–39.

Raissian, K., & Bullinger, L. (2016) Money matters: does the minimum wage affect child maltreatment rates? *Children and Youth Service Review*, 72, 60-70.

Ritchie, J., & Spencer, L. (1994) Qualitative data analysis for applied policy research. In A. Bryman & R. Burgess (Eds.) *Analyzing qualitative data* (pp. 173-194) London: Taylor & Frances.

Rosenfield, P. (1992) The potential of transdisciplinary research for sustaining and extending linkages between the health and social sciences. *Social Science and Medicine*, 35(11), 1343-1357.

Schadewaldt, V., McInnes, E., Hiller, J.E., & Dardner, A. (2016) Experiences of nurse practitioners and medical practitioners working in collaborative practice models in primary healthcare in Australia – a multiple case study using mixed methods. *BMC Family Practice*, 17(99), 1-16.

Sharp, J., Mobley, C., Hammond, C., Withington, C., Drew, S., Stringfield, S., & Stipanovic, N. (2012) A mixed methods sampling methodology for a multisite case study. *Journal of Mixed Methods Research*, 6(1), 34-54.

Simpson, A., Hannigan, B., Coffey, M., Barlow, S., Cohen, R., Jones, A. … & Cartwright, M. (2016) Recovery-focused care planning and coordination in England and Wales: a cross-national mixed methods comparative case study. *BMC Psychiatry*, 16, 147.

Smith, T., Noble, M., Noble, S., Wright, G., McLennan, D., & Plunkett, E. (2015) *The English Indices of Deprivation 2015: Technical Report.* London: Department for Communities and Local Government.

SNS (2005) *Scottish Neighbourhood Statistics Guide.* [Online] Available at: www.sns.gov.uk Accessed: 07.03.17.

Stoltenborgh, M., Bakermans-Kranenburg, M. J., Alink, L. R. A., & IJzendoorn, M. H. (2015) 'The Prevalence of Child Maltreatment across the Globe: Review of a Series of Meta-Analyses'. *Child Abuse Review,* 24(1), 37–50.

Tashakkori, A., & Teddlie, C. (2010) SAGE Handbook of Mixed Methods in Social & Behavioural Science. London: SAGE.

Teddlie, C. and Tashakkori, A. (2009) Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences. London: SAGE.

Testa, M., Livingstone, J., & VanZile-Tamsen, C. (2011) Advancing the Study of Violence Against Women Using Mixed Methods: Integrating Qualitative Methods Into a Quantitative Research Program. *Violence Against Women,* 17(2), 236-250.

Vallis, J., & Tierney, A. (1999) Issues in case study analysis. *Nurse Researcher,* 7, 19-35.

Webb, C., & Bywaters, P. (2018) Austerity, rationing and inequity: trends in children's and young people's services expenditure in England between 2010 and 2015. *Local Government Studies.* doi.org/10.1080/03003930.2018.1430028.

Wilkinson, R., & Pickett, k. (2010) *The Spirit Level: Why Equality is Better for Everyone*. London: Penguin Books.

Woolley, C.M. (2009) Meeting the mixed methods challenge of integration in s sociological study of structure and agency. *Journal of Mixed Methods Research,* 3(1), 7-25.

Yang, M.Y. (2015) The effect of material hardship on child protective service involvement. *Child Abuse and Neglect*, 41, 113-125.

Yin, R. K. (2006) Mixed methods research: are methods genuinely integrated or merely parallel? *Research in Schools,* 13(1), 41-47.

Yin, R. K. (2014) *Case study research: design and methods.* London: SAGE.

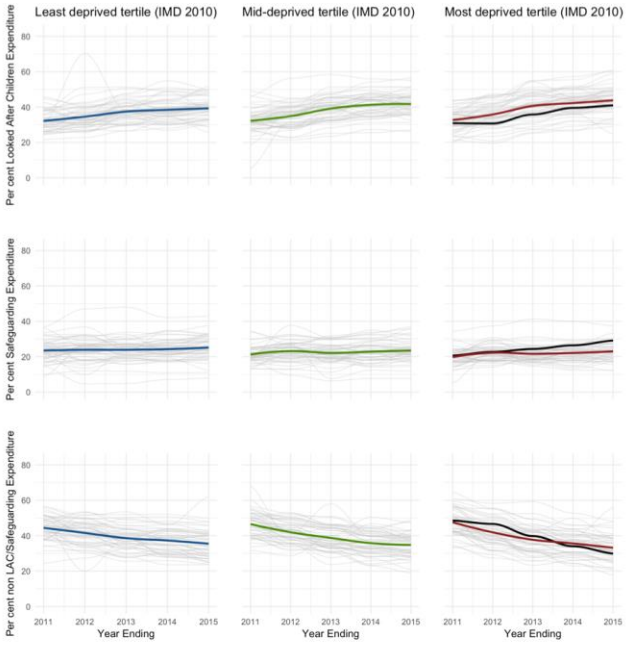
Table 1: minimum data collected per primary case study site

Method	**Source**
Semi-structured interviews (X8)	- Heads of Service - Group Managers - Team Managers - Social Workers - Early Help Leads
Focus Group (X 2)	Managers & Social Workers
Non-participant observation	Minimum of 5 days (40 hours) immersion in frontline duty teams
Family Case Narratives (X10)	CPP and LAC cases
Decision Making Flowcharts (X1)	Visual mapping of local decision making processes with practitioners and managers
Routinely Collected LA Child Protection Data	CIN, CPP and LAC rates
Web Research	Demand Data (Contacts / Referrals / CIN / CPP / LAC)
Web Research / Fieldwork	Supply (Expenditure / Caseloads / Workforce)
Web Research / Site Visits	Soft Data / Grey Literature

Figure 1: illustrative section of the data matrix

	P1 Code	P2 Code	P3 Code	P4 Code	P5 Code	P6 Code
LA1	Site	Site	Site	Site	Site	Site
LA2	Site	Site	Site	Site	Site	Site
LA3	Site	Site	Site	Site	Site	Site

Figure 2: illustrative example of quantitative and qualitative data taken from one 'S1' Code Document



	P1 Code	P2 Code	P3 Code	P4 Code	...	S1 Code
LA1	Site	Site	Site	Site		Site
LA2	Site	Site	Site	Site		Site
LA3	Site	Site	Site	Site		Site

"If things continue in the way that they are we will be in a position where we can't physically do what we need to be doing for children." – *Senior Social Worker*

"We'd have social workers coming to you saying 'can I have some more cases?', 'can I have this case?', 'can I have that case?', and now, you go to social workers and talk to them about having a new family and they just turn grey in front of you because they're thinking 'I haven't got the time, where will I fit that in?'" – *Social Work Team Manager*

Meta inference

By displaying quantitative and qualitative data side-by-side we were able to reach meta inferences about the relationship between macro level funding trends and practice level experiences of social work. The meta inference we reach here for example, is that patterns in expenditure are related to workload pressures. This enables us to ground experiential assessments of high caseloads within a resourcing context. We would not have been able to reach this conclusion without integrating qualitative and quantitative strands.

Appendix

The coding frame

Code	Description
Poverty 1 (P1)	**Poverty evident in discourse (unprovoked)** *Respondents independently and directly consider poverty (could be to do with circumstances, effects or support strategies, such as debt management)*
Poverty 2 (P2)	**Poverty not evident** *Respondents do not consider poverty where poverty is relevant (respondents might for example discuss poor home conditions without considering the resources needed to alter home conditions)*
Poverty 3 (P3)	**Practice narratives about poverty and deprivation** *General comments on poverty, deprivation and social work practice*
Poverty 4 (P4)	**Consequences of poverty as risk factor are not addressed** *Blaming narratives that do not feature consideration or understanding of families socio-economic circumstances*
Poverty 5 (P5)	**Discourses about affluent families** *Any discussion reflecting on social work with affluent families*
Demand 1 (D1)	**The social and material circumstances of families** *Data relating to the social and material circumstances of families (likely to be both quant and qual)*
Demand 2 (D2)	**Family and child profile(s)** *Descriptive data and social work narratives (to be complimented with data from forthcoming participative work with families)*
Demand 3 (D3)	**Community and cultural context (including practitioner perspectives)** *Descriptive 'soft data' and qualitative practitioner reflections on case study sites (to be complimented with data from forthcoming participative work with families)*
Supply 1 (S1)	**The 'intervention' service provision (SW staffing, caseload, structures)** *Descriptive site level data, fieldnotes and practitioner narratives about team structures, caseloads, managing demand caused by defunding of preventative services.*
Supply 2 (S2)	**The provision and position of early help**

	Resource mapping data and narratives about early help from social workers, family support workers and any other early help staff included in case studies
Intervention 1 (I1)	**The decision making process (local process, practices, rationales)** *Decision making flow charts, field notes and practice narratives about decision making practices/rationales. Capture vignette responses here also.*
Intervention 2 (I2)	**The pathway for families (take up rates, conversion rates)** *Throughput data alongside any fieldwork observations and practice narratives. Include probability pathways.*
Intervention 3 (I3)	**Family case summaries** *To be collected from social work practitioners*
Context 1 (C1)	**Socio-economic, political and professional context** *Any data supporting a contextual overview of case study sites and the social work teams that serve them*
LAC	**Looked After Children** *Any data concerning the factors that influence social work decisions to remove children from parental care.*