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Ethnic Disproportionality in the Child Welfare System: A Welsh Linked Administrative Data Study for 2011–2020

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Abstract

Children's chances of contact with the child welfare system at different stages vary significantly by their ethnicity. This study goes beyond recent UK studies on the scale of ethnic differences in children in care or on protection plans by improving data completeness through data linkage, considering the ethnic patterns in the wider population of children in need or receiving care and support, and reporting trends over time. We contribute to the literature on ethnic disproportionality in the child welfare system by reporting the patterns in Wales from 2011 to 2020. The trend of ethnic disproportionality was distinct from the changes in the absolute number of children in the child social welfare system by ethnicity. Over the ten-year period, Mixed-heritage children were the most overrepresented and Asian children the most underrepresented, with fluctuations in the level of overrepresentation between 1.1 and 1.5 and underrepresentation between 0.5 and 0.7. The level of representation for Black children fluctuated considerably between 0.8 and 1.2 over the years. The overall level of ethnic disproportionality in Wales increased from 2011 to 2016 and then decreased from 2017 to 2020. Ethnic disproportionality appeared more pronounced amongst girls and in age groups zero to four and sixteen to seventeen.

Keywords: administrative data linkage, children in need, children receiving care and support, child welfare, ethnic disproportionality

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Introduction

A longstanding concern in the field of child welfare is that children of ethnic minorities are overrepresented in the child welfare system compared to the overall child population, a phenomenon commonly referred to as racial/ethnic disproportionality. This pattern of intervention is troubling whether it results from ethnic bias in the child welfare system or the systematic socio-economic disadvantages suffered by ethnic minority families. Either of these explanations would reflect ethnic inequality that needs to be addressed. In the USA, the overrepresentation of Black children in the welfare system has been widely documented (Hines *et al.*, 2004; Cross, 2008; Dettlaff, 2021), leading to interventions designed to tackle this issue (Miller and Ward, 2023). However, research on ethnic disproportionality in the UK is still scarce and is mostly on England (Owen and Statham, 2009; Bywaters *et al.*, 2019, 2017; Webb *et al.*, 2020). There is some research on ethnicity in the Welsh family justice system (North *et al.*, 2022) and the relatively small group of children looked after or on protection plans (Bywaters *et al.*, 2020), rather than the wider population of all children in need (CIN) and receiving social care support. This wider population is not insignificant. A study of administrative data in England (Jay *et al.*, 2022) estimated that 42 per cent of children were classed as 'in need' at some point before their 18th birthday. To date, the evidence base on the level, pattern, and trend of ethnic disproportionality in the wider child welfare system in the UK is unsystematic and of poor quality. This study uses data on Wales to build a comprehensive picture of this little-known population.

In Wales, care and support from social services is provided to children with a range of needs. The primary reasons for receiving care and support in 2022 were abuse and neglect (51 per cent), family dysfunction (16 per cent), disability (16 per cent) and the family being in acute stress (12 per cent) and 278.9 children per 10,000 had a care and support plan (Welsh Government, 2023a)—that is, one in every thirty-six children. The main law defining this activity is the Social Services and Well-being (Wales) Act 2014, although some elements of the Children Act 1989 still pertain, especially those relating to protecting children at risk of significant harm. Important sub-groups of children receiving care and support (CRCS) are those on the child protection register who are identified as at risk and those who are 'looked after', that is, in out-of-home care.

Amongst several administrative data sources that include information about the needs of children and the social care support they receive, only two data sources include information about all CRCS (Lee *et al.*, 2022). The first covers from April 2008 to March 2016 and is named the CIN Census. Following the introduction of the Social Services and Well-being (Wales) Act 2014 In April 2016, the data collection was renamed as the CRCS Census. This change in the legal framework modified the legal definition for service eligibility, and the CIN and CRCS Censuses potentially capture slightly different groups of children, with children who receive preventative services under Section 15 of the Social Services and Well-being (Wales) Act 2014 not included in the CRCS census, whereas they were in the CIN census (Lee *et al.*, 2022).

By linking population-based CIN/CRCS administrative records to the Office for National Statistics (ONS) 2011 Census Wales (CENW) data, our method captured and improved the completeness of information on ethnicity for children in the welfare system. Our analyses described the level of ethnic disproportionality for the wider group CIN/CRCS in the decade 2011–2020. Ethnic disproportionality provides compelling insights in its own right and also informs further questions and interventions about improving social equity in child welfare (Wulczyn, 2023). Our research has advanced the current literature in several important ways. First, we have improved data completeness/quality of CIN/CRCS by data linkage. Secondly, we have examined the wider group of CIN/CRCS, which has received less attention in earlier research. Thirdly, this is the first study in the UK to describe the trend of ethnic disproportionality over a ten-year period.

Background

Ethnic disproportionality in child welfare interventions

The term ethnic disproportionality is defined as 'differences in the percentage of children of a certain racial or ethnic group in the country as compared to the percentage of the children of the same group in the child welfare system' (Hill, 2006). When the proportion of one ethnic group in the child welfare population is proportionately larger (or smaller) than the proportion of the same ethnic group in the general child population, this ethnic group is overrepresented (or underrepresented). It has long been established in North American research that Black children are overrepresented at every level of the child welfare system, and that Hispanic and Asian children tend to be underrepresented (Hines *et al.*, 2004; Cross, 2008; King *et al.*, 2017; Lee *et al.*, 2016; Dettlaff, 2021). Ethnic disparities that occur in both entries into the child welfare system and exits from the system can produce ethnic

disproportionality. There continue to be debates regarding whether disproportionality is the result of racial biases, either implicit or explicit in different systems, or because of other confounding factors, such as poverty (Barth *et al.*, 2022), or whether there is in fact racial disparity once observed risks and harms are considered (Drake *et al.*, 2023).

Whilst there is an extensive literature on racial disproportionality from the USA and Canada, only a few studies have approached its trend over time. Wulczyn and Lery (2007) examined the trend in "entry" disparity using data from 1,034 US counties between 2000 and 2005 and found that entry disparity decreased for infants in rural areas, whilst disparity increased for teens in urban areas. Kim *et al.* (2011) analysed data from the child welfare system for fifty-eight counties in California from 2005 to 2008 and found that the overrepresentation of African American children has increased in terms of substantiated allegations and entries. Drake *et al.* (2023) analysed the National Child Abuse and Neglect Data System and Census data in the USA and found that the percentages of Black children substantiated or removed into foster care following investigation was slightly higher than White children from 2007 to 2011, but the trend has reversed from 2011 to 2017. On the other hand, slightly higher percentages of Hispanic children were substantiated and placed in foster care compared to White children. For Canada, Antwi-Boasiako *et al.* (2020) analysed the Ontario Incidence Study of Reported Child Abuse and Neglect and found that the incidence of investigations involving White families almost doubled between 1998 and 2003, but for Black families the incidence increased almost fourfold during the same period.

Ethnicity in child welfare interventions in the UK

Some research using child welfare administrative data in the UK is beginning to focus on ethnicity. Most previous studies (Bywaters *et al.*, 2020; North *et al.*, 2022) and official statistics (DfE, 2022; Welsh Government, 2023a) covering children in contact with the child welfare system have employed five broad ethnic categories: White, Mixed heritage, Asian, Black, Other. Similar to England, the Welsh Government collect data for 'CIN' (2011–2016) and 'CRCS' (2017–2020) through an annual census, for eighteen prescribed ethnic categories (Welsh Government, 2023b). However, the numbers in the eighteen categories tend to be too small to be used in either official statistics or research studies, hence the five broader ethnicity categories: (i) White (Gypsy or Irish Traveller, Roma, English, Welsh, Scottish, Northern Irish or British), (ii) Mixed heritage (White and Black Caribbean, White and Black African, White and Asian, Any other mixed-heritage background/multiple ethnic background), (iii) Asian (Indian, Pakistani, Bangladeshi, Chinese, Any other Asian background), (iv) Black (Caribbean, African,

Any other Black background) and (v) Other (Arab, Any other ethnic group).

Some existing literature has explored the different ethnic representation in the child welfare system in England. In 1989, Bebbington and Miles compared the family background of 2,500 children admitted to care to data from the General Household Survey. They found that single-ethnicity minority children were not overrepresented amongst the children entering care, but a child of Mixed heritage was 2.5 times as likely to enter care as a White child. Owen & Statham (2009) analysed the CIN Census, children on the child protection register and children looked after data in 2004–2006, and the 2001 population Census in England. They found children of mixed-heritage ethnic background to be overrepresented in all three categories, with on average respectively 1.50, 1.65 and 2.35 times their proportion in the general population. Asian children were underrepresented in each category with, respectively, 0.62, 0.33 and 0.46. However, although Black children were 2.86 times overrepresented amongst CIN and 3.17 times overrepresented amongst children who are looked after, they were underrepresented on the child protection register with 0.87 times their proportion in the general population.

More recently, a series of quantitative UK studies by Bywaters and colleagues on this topic have compared the rates of minority ethnic children in the welfare statistics (per 10,000 of ethnic group) with those for White children. Using children data on child protection plans (CP) or looked after (CLA) in thirteen local authorities (LAs) in the English West Midlands region in 2012 and the 2011 Census, Bywaters *et al.* (2017) found the highest intervention rates for Mixed-heritage children and the lowest for Asian children, for both CP and CLA, with similar intervention rates for Black, White and Other-Ethnicity children. Using CP and CLA data in 2015 in eighteen English local authorities and the 2011 Census, Bywaters *et al.* (2019) found intervention rates highest for Mixed-heritage children and lowest for Asian children, across both CP and CLA. Intervention rates for Black children were similar to White children for CP, and larger than White children for CLA. Further extending this line of work to other nations of the UK, Bywaters *et al.* (2020) found that in Wales, the 2015 CLA rate was highest for Mixed-heritage children and lowest for Asian children, with intervention rates for Black higher than those for White and Other-Ethnicity children.

As a separate nation within the UK, Wales has full devolved responsibility for children's social care policy and delivery, but there is very limited research on ethnic inequality in the Welsh child welfare system. Amongst the few studies that have investigated this topic, Bywaters *et al.* (2020) focused on children looked after and children on protection register in a given year, and North *et al.* (2022) examined ethnicity in the family justice system. We still know little about ethnic disproportionality

in the wider group of children who receive care and support from social services in Wales. In this study, we report ethnic disproportionality for CIN/CRCS over a ten-year period. We explore the level of over- or underrepresentation for different ethnic groups in the Welsh child welfare system compared to their percentages in the population.

Research questions, data and methods

We addressed the following research questions:

- What are the numbers of CIN and CRCS in Wales by ethnicity over the past decade?
- Does the trend of numbers of children in CIN/CRCS by ethnicity reflect the change in ethnic minority populations in Wales during the same period? Or is the representation in CIN/CRCS changing at different rates for different ethnic groups?
- Do the patterns and trends of ethnic disproportionality vary by gender and age group?

Data

The analyses required information on both the number of children in the welfare system by ethnicity and the number of children in the total population by ethnicity. The Welsh Government collects information on all CRCS in the annual CIN Census (2010–1016) and CRCS Census (2017–2020), which covers approximately 80 per cent of the total number of records reported by the Welsh Government (Lee *et al.*, 2022). This is because Welsh local authorities do not report all open cases over twelve months but only cases continuously open between 1st January and 31st March in a return year.

We accessed CIN and CRCS data through the Secure Anonymised Information Linkage (SAIL) Databank (Ford *et al.*, 2009; Lyons *et al.*, 2009; Jones *et al.*, 2019), which contains extensive anonymised health and administrative data on the Welsh population, accessible in anonymised form via a secure data sharing platform, underpinned by a proportionate Information Governance model. All data within the SAIL Databank are treated in accordance with the Data Protection Act 2018 and are compliant with the General Data Protection Regulation. Personal identifiable data were not used in this study.

We successfully reduced the missing data of the ethnicity variable in the CIN and CRCS data by linking records within the child welfare system to the 2011 Census data. The total number of records from 2011 to 2020 was 126,694 in CIN and 77180 in CRCS. Amongst them, the

number (or percentage) of records with missing ethnicity information before data linkage was 4946 for CIN (3.9 per cent) and 2116 for CRCS (2.7 per cent). After linkage to the 2011 CENW data this figure was reduced to 2503 (2.0 per cent) for CIN and 1380 (1.8 per cent) for CRCS. Data linkage improved the missingness of information on ethnicity by almost 50 per cent. Both before and after data linkage, the distribution of missing was relatively even across CIN and CRCS Census years.

We obtained ethnicity information for the child population from the 2011 Census of Population, and from estimates in three-year pooled Annual Population Survey (APS) data from 2013–2015 (for year 2014) to 2019–2021 (for year 2020). As CRCS data only differentiate between five broad ethnic categories, and more granular estimation based on APS gets more problematic for small sample size, we have reported disproportionality for five broad ethnic categories (White, Mixed heritage, Asian, Black, and Other) in the ten-year trend analysis. As the population data, and consequently ethnic disproportionality, is not available for years 2012 and 2013, we have also excluded 2012 and 2013 CIN data to make the patterns directly comparable. However, CIN results for 2011 and 2012 are available upon request.

Methods

Insofar as race/ethnicity is concerned, disproportionality and disparity are amongst the most widely used measures of Ethnic minority/White differences in relation to child protection systems contact (Tilbury and Thoburn, 2009). Disproportionality is calculated by dividing the percentage of (for example) Black children in a child welfare population by the percentage of Black children in the total population (see Equation 1). Any number below "1" reflects underrepresentation of children of that ethnic group in the child welfare system compared to the general population, whilst numbers higher than "1" reflect an overrepresentation of that ethnic group in child welfare system compared to the general child population.

Although some researchers are moving to disparity measures (Tilbury and Thoburn, 2009) to capture the ethnic differences in both child welfare intervention rates whilst taking account of ethnic differences in the social determinants of child welfare need (e.g. poverty), our study focused only on disproportionality, due to lack of data on the socio-economic statuses by ethnicity groups for all years. As such, the aim was not to dive deeper into the root causes of ethnic disproportionality, but rather to report the overall level of ethnic disproportionality in the child welfare system, as a spur for further questions and interventions.

$$Disproportionality_{Black} = \frac{Children\ \ in\ \ Need_{Black} \Big/ Children\ \ in\ \ Need_{Total}}{Child\ \ Population_{Black} \Big/ Child\ \ Population_{Total}} \quad (1)$$

Results

The trend of ethnic disproportionality in the child welfare system

The number of zero-to-seventeen-years-olds by ethnicity in the child welfare system in Wales is listed in Table 1 and shown in Figure 1. It should be noted that the more limited definition of children for whom data were collected, following the 2014 Act, can first be seen in 2017. However, comparing the numbers for CIN (2011–2016) and CRCS (2017–2020), it appeared that number of children in the social welfare system decreases for White children, but remains relatively stable for Mixed-heritage and Asian children whilst increasing for Black and Other children. It is thus questionable whether the varied changes in the raw number of CIN were driven by the changing ethnic composition of the general population, or the changing level of ethnic disproportionality following the change of legal framework, as they imply different policy implications for addressing ethnic inequality.

When we further divided the percentages of children of each ethnicity in the child welfare system by their percentages in the general population, we found that Mixed-heritage children were consistently overrepresented in the child welfare system over the years, varying from 1.5 (2016–2017) to 1.1 (2019) times their proportion in the general population. Asian and Other children were consistently underrepresented from 0.5 to 0.7 times their proportion in the general population. The representation of Black children fluctuated between 0.8 (2014) and 1.2 (2011 and 2016) across the years. White children had a relatively stable level of representation across years that was about the same as their proportion in the general population.

The change of legal framework, first observed in the data in 2017, has brought different changes to the level of representation in the child welfare system for different ethnic groups. Comparing 2016 to 2017, representation in the child welfare system dropped substantially for Black children, whilst remaining similar for the other four ethnic groups. This pattern suggests that whether children receiving preventative services are included in the child welfare census may change the observed level of ethnic representation in the child welfare system dramatically, especially for Black children, who appear likely to be overrepresented in the preventative services.

In CIN 2011–2016, the level of representation remained relatively stable for White, Asian and Other children, whilst it increased for Black

Table 1. Number of children in the child welfare system by ethnicity and by year.

	Year	White	Mixed heritage	Asian	Black	Other	Total
CIN	2011	15,712	453	257	153	114	16,689
CIN	2014	16,253	504	267	131	128	17,283
CIN	2015	15,501	497	271	162	90	16,521
CIN	2016	14,833	488	286	169	110	15,886
CRCS	2017	13,714	481	279	181	110	14,765
CRCS	2018	14,064	436	265	195	130	15,090
CRCS	2019	14,258	477	286	191	157	15,369
CRCS	2020	14,273	510	333	210	183	15,509

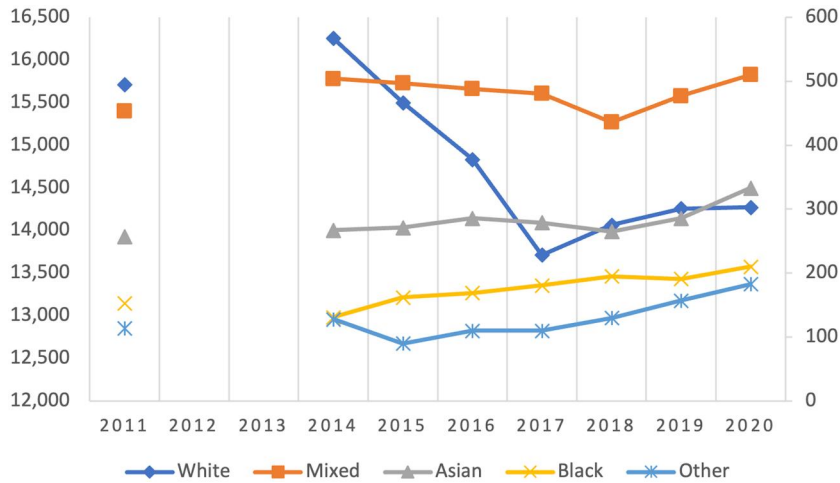

Figure 1. Number of children in the child welfare system by ethnicity and by year. Left axis for White children, right axis for Mixed heritage, Asian, Black, and Other categories.

and Mixed-heritage children, showing a pattern of increasing ethnic disproportionality. However, in CRCS 2017–2020, whilst the level of representation remained relatively stable for White children, the levels of both the overrepresentation of Mixed-heritage children and the underrepresentation of Black, Asian and Other children decreased, showing a pattern of decreasing ethnic disproportionality.

The patterns were very different when we compared the ethnic trend in the child welfare system in terms of absolute numbers (Table 1 and Figure 1) and the level of representation (Figure 2). Whilst the number of White children on average decreased by about 1,000 from CIN (2011–2016) to CRCS (2017–2020), their representation relative to other ethnic groups has remained stable around 1. Overall, the number of Mixed-heritage and Asian children has remained relatively stable in 2011–2020. The level of overrepresentation for Mixed-heritage children has been

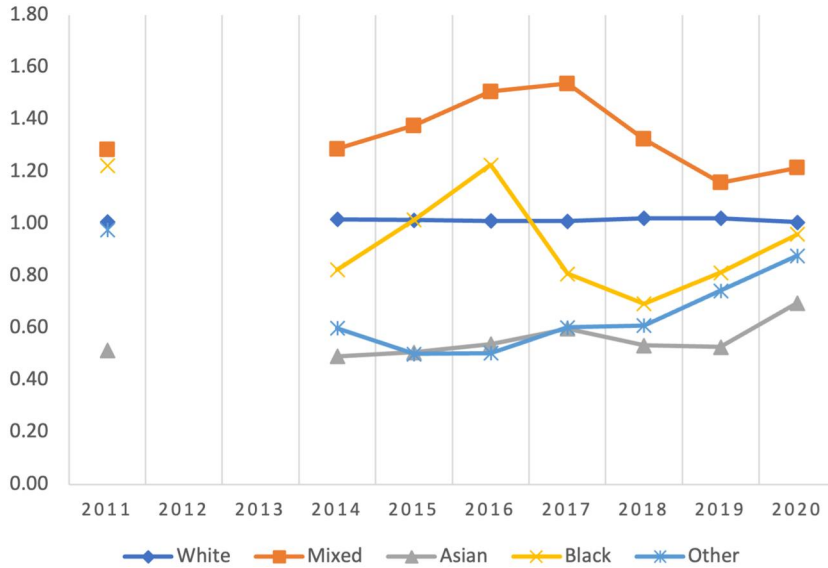

Figure 2. Ethnic disproportionality in the child welfare system by year.

rising for CIN (2011–2016) and decreasing for CRCS (2017–2020). By contrast, the level of underrepresentation for Asian children has been gradually decreasing in 2011–2020. Whilst the number of Black and Other children has been gradually increasing in 2011–2020, the level of representation for Black children has fluctuated around 1 for CIN (2011–2016) and the level of underrepresentation for Black children has decreased in CRCS (2017–2020). For Other children, their underrepresentation has remained relatively stable for CIN (2011–2016) and decreased dramatically in CRCS (2017–2020).

Trend breakdown by gender and age group

The overall patterns observed generally remained the same when we further disaggregated ethnic disproportionality by gender (Figure 3). Whilst both CIN and CRCS collected information under the heading 'gender', the CIN recorded the biological sex of the child, whilst the CRCS recorded the gender identity of the child at the time of the Census, and not their biological sex at birth (North *et al.*, 2022). For both girls and boys, Mixed-heritage children were consistently overrepresented, and Asian and Other children were consistently underrepresented in the child welfare system over the years. The representation of Black children fluctuated around 1 across the years and White children had a stable level of representation around 1. Comparing years 2016 to 2017, the

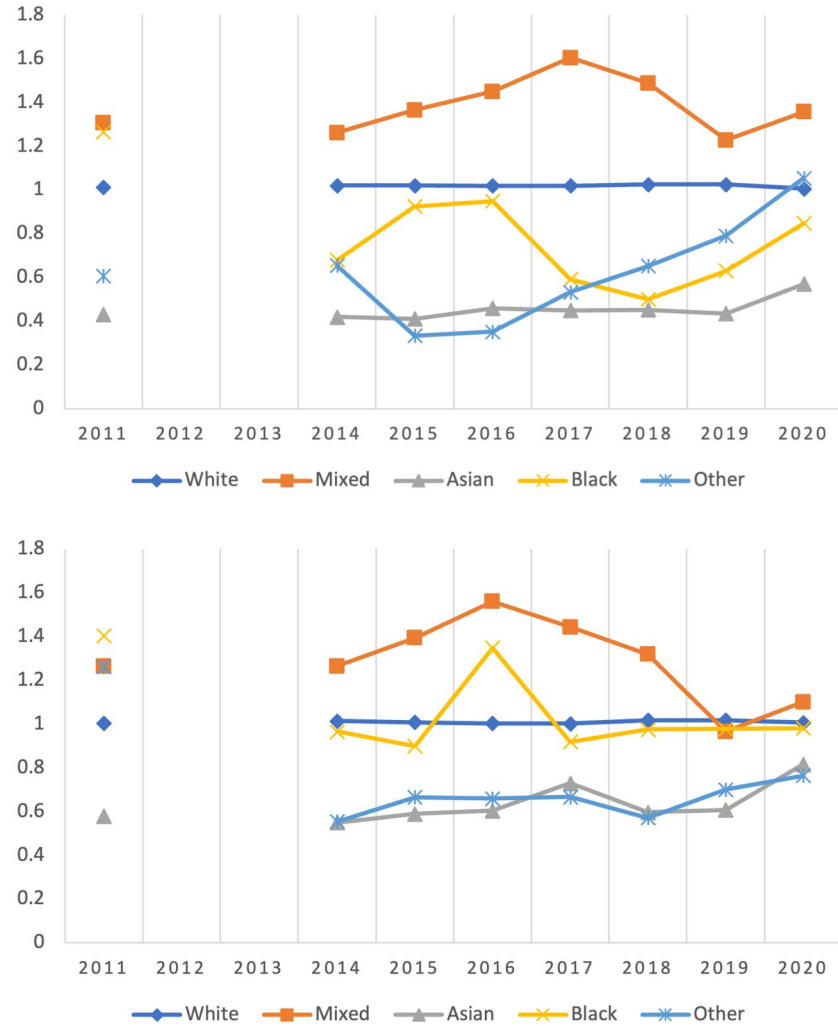

Figure 3. Ethnic disproportionality for girls (upper chart) and boys (lower chart) by year.

representation has only dropped substantially for Black girls and boys, whilst remaining similar or changing less substantially for the other four ethnic groups. For both girls and boys, the level of ethnic disproportionality showed increase in CIN 2011–2016 and decrease in CRCS 2017–2020.

When we focused on the differences between girls and boys, the overall level of ethnic disproportionality seemed larger for girls than for boys, as the former showed a relatively higher level of overrepresentation for Mixed-heritage children and higher level of underrepresentation

for Asian children across the years. Other-ethnicity and Black children showed a more precipitous increase in the level of representation in CRCS 2017–2020 for girls than for boys.

The overall patterns observed generally remained the same when we further disaggregated ethnic disproportionality by age groups, despite a few occasional exceptions (Figure 4). For all age groups, Mixed-heritage children were overrepresented in most years (except for ten-to-fifteen-year-olds in 2018, disproportionality = 0.99), and Asian and Other-ethnicity children were underrepresented in the child welfare system in most years (except for sixteen-to-seventeen-year-olds in 2020 for Asian children, disproportionality = 1.43, and sixteen- seventeen-year-olds in year 2014 for Other-ethnicity children, disproportionality = 1.91). The representation of Black children fluctuated around 1 over the years and White children had a stable level of representation. Comparing 2016 to 2017, the representation has only dropped substantially for Black children (all age groups), whilst remaining similar or changing less substantially for the other four ethnic groups. For zero-to-four, five-to-nine and sixteen-to-seventeen age groups, levels of ethnic disproportionality increased for CIN 2011–2016 and decreased for CRCS 2017–2020. For the ten-to-fifteen age group, the level of ethnic disproportionality remained relatively stable over the years.

When we focused on the differences across age groups, the overall level of ethnic disproportionality in CIN 2011–2016 seemed larger for zero-to-four and sixteen-to-seventeen age groups, whilst the level of ethnic disproportionality seemed similar across age groups after 2017. There was considerable within-ethnicity variation in the trend of representation across age groups. We observed a precipitous increase in CRCS 2018–2020 in overrepresentation for Black children only in five-to-nine-year-olds and sixteen-to-seventeen-year-olds and for Asian children only in sixteen-to-seventeen-year-olds. The increase of representation for Other-ethnicity children was only substantial for ten-to-fifteen-year-olds. Contrary to the general trend of declining overrepresentation in CRCS 2017–2020 for Mixed-heritage children, the level of representation has increased for ten-to-fifteen-year-old Mixed-heritage children.

Breakdown by fine-grained ethnicity categories and neighbourhood deprivation quintiles for 2011

In describing the ten-year trend of ethnic patterns in the child welfare system, data availability did not allow for an analysis of more fine-grained ethnic categories or ethnic disparity between children from families with similar socio-economic statuses. To provide some information on these two respects, we have presented the level of disproportionality for eighteen ethnic groups (Figure 5) and by neighbourhood deprivation

Figure 4. Ethnic disproportionality for age groups zero to four (upper left), five to nine (upper right), ten to fifteen (lower left), sixteen to seventeen (lower right) by year.

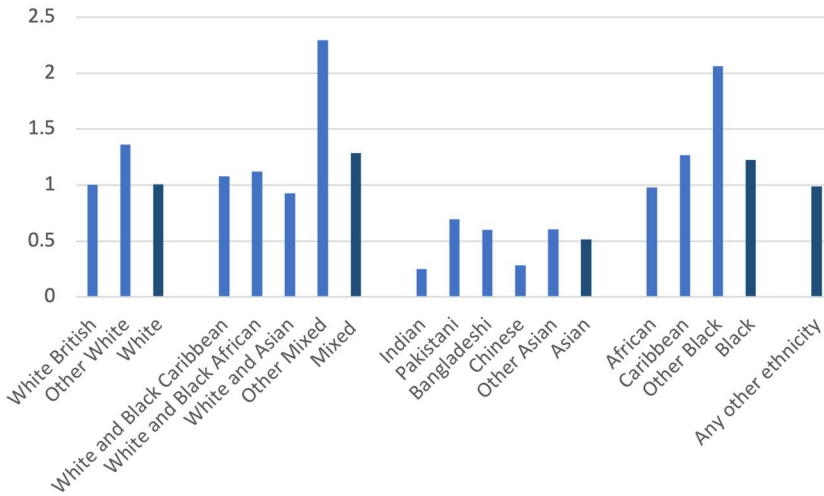

Figure 5. Ethnic disproportionality by fine-grained ethnicity, 2011.

quintiles (Figure 6) in CIN for 2011 only. Whilst the two additional analyses cannot show patterns of change over years, they still illustrate the potential level of heterogeneity in children's social care within broad ethnic groups.

The first analysis showed there was considerable variation even within broad ethnic categories, and the Other-ethnicity sub-categories within each broad group (e.g. Other White, Other Mixed heritage, Other Black) generally have the highest level of overrepresentation. This raises the importance to identify exactly which social groups are categorised in practice as 'Other' within each broad ethnic category, as they appeared to be more disadvantaged with a substantially higher level of representation in the children's social welfare system. The only category for which all sub-categories were underrepresented in children's welfare system was Asian. The significantly underrepresented (disproportionality <0.3) ethnic groups in children's welfare system were Indian and Chinese children. Whilst both CIN and 2011 Census differentiated between 'Irish', 'Gypsy and Irish traveller' and 'Other White', we could not report their disproportionality measures separately because both 'Irish' and 'Gypsy and Irish traveller' categories had below ten CIN counts in 2011 which were not permitted to report for data disclosure concerns. So, we combined them together with Other White and reported the aggregated level of disproportionality instead.

To explore the extent to which ethnic disproportionality in children's social care is due to the fact that ethnic minorities are more deprived, previous research (e.g. Bywaters *et al.*, 2020) has compared ethnic differences in intervention rates (calculated as CIN rates per 10,000 children)

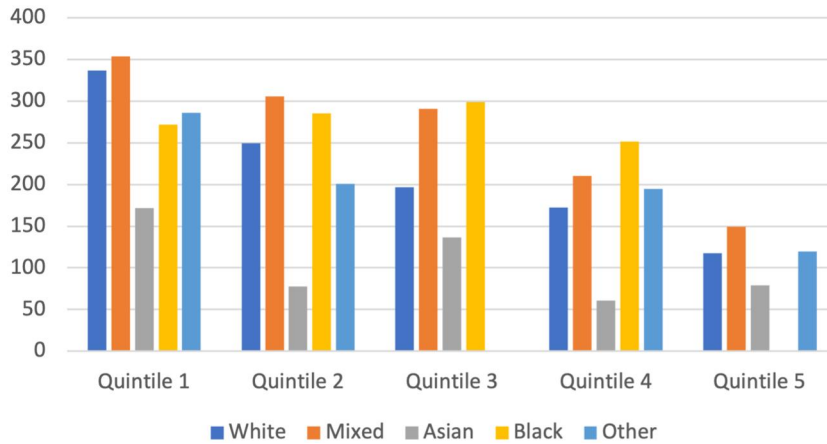

Figure 6. CIN Intervention rate by ethnicity by deprivation quintiles, 2011. Each bar within deprivation quintile represents the categories: White, Mixed heritage, Asian, Black and Other from left to right.

within each deprivation quintiles, over and beyond ethnic disproportionality. Scholars have adopted the terminology "ethnic inequality/disparity" when considering the different distribution of CIN and also the different distribution of socio-economic determinants by ethnicity. Following this approach, we also examined intervention rates (calculated using Equation 2) by five broad ethnic groups by deprivation profiles of the neighbourhoods in which children present within the dataset reside. We linked the Welsh Index of Multiple Deprivation banded into quintiles at the level of Lower Super Output Areas (LSOAs) to both child welfare data and the general population. However, around 20 per cent of the child welfare cases had missing LSOAs and thus missing deprivation information.

$$Intervention\ Rate_{Black} = \frac{Children\ in\ Need_{Black}}{Child\ Population_{Black}} \quad (2)$$

This second analysis showed that the intervention rates were generally higher in more deprived LSOAs (quintile 1 = the most deprived and quintile 5 = the least deprived), and there was considerable variation across ethnic groups even within deprivation quintiles. Whilst Asian children consistently had the lowest intervention rates across deprivation quintiles, the highest intervention rates were for White and Mixed-heritage children in the most deprived quintile (quintile 1) and Mixed-heritage and Black children in other deprivation quintiles (quintiles 2–5). As any number lower than ten cannot be cleared from SAIL Databank to prevent disclosure, the intervention rates for Other-ethnicity children in quintile 3 and Black children in quintile 5 are missing. In addition to

the consistent overrepresentation of Mixed-heritage children and underrepresentation of Asian children in the past decade, this 2011 pattern showed that even within LSOAs with the same level of deprivation status, Mixed-heritage children still experienced higher intervention rates and Asian children lower intervention rates. It is also consistent with previous findings (Webb *et al.*, 2020) that the CIN intervention rates for Black children barely vary across deprivation quintiles and therefore barely show a social gradient.

Discussion

With increasing attention to the role of ethnicity in the UK child welfare system (Owen and Statham, 2009; Bywaters *et al.*, 2019; Webb *et al.*, 2020), this is the first time that trends in ethnic disproportionality in Wales have been presented across a ten-year period. This research shows that changes in the absolute numbers of ethnic minority children in child welfare system cannot reflect changes in the level of ethnic disproportionality. Specifically, the overrepresentation of Mixed-heritage children and underrepresentation of Asian children in the child welfare system were consistently found across the years, for boys and girls, and across different age groups, whilst White children had a relatively stable level of representation across years that was about the same as their proportion in the general population. It is also worth noticing that ethnic disproportionality was more pronounced amongst females than males, in age groups zero to four and sixteenc to seventeen than in age groups five to nine and ten to fifteen years old.

The introduction of the Social Services and Well-being (Wales) Act 2014 In April 2016 has accompanied changes in both the absolute number and the level of disproportionality that was ethnicity specific. It is worth further exploring what this means for understanding and addressing ethnic inequality in the child welfare system. Specifically, the representation in the child welfare system has dropped substantially from 2016 to 2017 only for Black children, whilst remaining similar for the other four ethnic groups. This pattern was consistent for boys and girls, and for different age groups. This suggests that including children who receive preventative services in the CRCS Census might change the ethnic representation level in the child welfare system, especially if Black children are also overrepresented in preventative services. This highlights the importance of considering the child welfare census inclusion criteria when we compare the level of representation across time and countries.

The level of ethnic disproportionality in general increased in CIN 2011–2016 and decreased in CRCS 2017–2020. The same pattern applies to boys and girls, and for all age groups except ten to fifteen. The rising level of overall representation in CRCS (2017–2020) for the

underrepresented Asian, Black and Other children was primarily driven by particular demographic groups. For Black children, the increase was mainly amongst girls aged five to nine and sixteen to seventeen. For Asian children, the increase was amongst both boys and girls and those aged sixteen to seventeen. For the Other-ethnicity category, the increase was mainly amongst girls, and those aged ten to fifteen. Contrary to the general trend of decline in CRCS 2017–2020 for the overrepresented Mixed-heritage children, the representation has increased for age ten to fifteen. These findings suggest age- and gender-specific challenges that different ethnic groups may encounter, which are important to consider in developing preventative services.

Comparing patterns of ethnic disproportionality across UK nations, years and stages of intervention provides important implications for future research. Owen & Statham's (2009) CIN study for 2003 and 2005 found Black children to have the highest level of overrepresentation in England. But more recent research found the Mixed-heritage group to have the highest intervention rates for Children Looked After in England, Scotland and Wales (Bywaters *et al.*, 2020). We found the Mixed-heritage ethnic group to consistently be the most overrepresented in the child welfare system in the past decade in Wales. This finding raises further questions on whether patterns of ethnic differences in the child welfare system vary between different nations within the UK because of different child welfare practice or ethnic differences in the social determinants of child welfare need.

Comparing to previous research on ethnic differences in the Welsh Children and Family Court Advisory and Support Service (Cafcass), CP and CLA (Bywaters *et al.*, 2020; North *et al.*, 2022), our research on CIN/CRCS showed a similar pattern and level of ethnic disproportionality. The overrepresentation was consistently higher for Mixed-heritage children than for Black children, and Asian children were persistently underrepresented. Our findings suggested similar levels of ethnic disproportionality in CIN/CRCS to those in CP and CLA. Whilst there has been extensive research in the USA to explore the level of ethnic differences in different key decision-points within the child welfare system (e.g. Antwi-Boasiako *et al.*, 2020 from report to investigation, from investigation to substantiation, from substantiation to placement for out-of-home care, and further to return to home), there is still little work on the level of ethnic inequality in each stage of decision-making, conditional on an earlier stage, within the social welfare system in the UK.

For international comparison, we note that our findings of the underrepresentation for Asian children in Welsh child welfare system mirrors the Canadian pattern (Lee *et al.*, 2016), whilst the overrepresentation is the highest for Mixed-heritage children in Wales, rather than for Black children as found in Canada (King *et al.*, 2017) and the USA (Hines *et al.*, 2004; Cross, 2008; Dettlaff, 2021). However, when making such

comparisons, it is important to note that the same broad ethnic groups can comprise of very different populations in different countries. For example, a child with a combination of White and Black heritages would be categorised as Black in Canada (e.g. Antwi-Boasiako *et al.*, 2020), but as Mixed heritage in the Welsh studies.

Strengths and limitations of the research

Ours is the first study in the UK to describe the patterns and trends of ethnic disproportionality in the wider group of CIN/CRCS over a ten-year period. To improve data quality, we linked administrative CIN/CRCS records to Census 2011 data to fill in missing data on ethnicity in CIN/CRCS wherever possible. This is a useful step to acquire more accurate numbers of children in the child welfare system and is especially important for the number of ethnic minorities who have a small number of children in the child welfare system to start with. For example, the numbers of Black children and Other-ethnicity children are between 100 and 200 across the years, so even a small number of missing data in ethnicity in the original administrative data would produce a significant change in the calculation of disproportionality for any given year. Whilst our research provides a more robust estimation for ethnic disproportionality through filling in the missing values on ethnicity for CIN/CRCS, the results still need to be interpreted with caution, as the CIN/CRCS Census only covers around 80 per cent of the total number of child welfare records. This data incompleteness is caused by the fact that Welsh local authorities only report cases continuously open between 1st January and 31st March in a return year. We do not anticipate it to affect the level of ethnic disproportionality in any given direction, but the patterns found could potentially deviate from the underlying pattern for the whole CIN/CRCS population.

The calculation of ethnic differences in child welfare interventions requires information on the number of children in the general population by ethnicity. But these numbers are not available in the years other than population Census years (e.g. 2011). Previous research on years such as 2015 has used the population data in 2011, or its updated version after adjusting for the rate of change in the child population (e.g. Webb *et al.*, 2020). However, such an approach assumes that the ethnic population was either constant or grew at the same rate, which was quite unlikely given the ethnic differences in birth rate, lifespan and migration patterns. Our research followed the approach of StatsWales (2022) which draws on the multi-year average Annual Population Survey datasets provided by the Office for National Statistics to estimate the child population by ethnicity by year. Whilst such an approach no longer assumes that the ethnic population grows at the same rate each year, the data

were subject to differing degrees of sampling variability induced by estimating population data based on surveys. In other words, the true value of ethnic population lies in a differing range around the estimated value, which increases as the granularity in the data improves.

Conclusion

In this study, we reported ethnic disproportionality trends in CIN/CRCS across a ten-year period to advance current knowledge on ethnicity in the Welsh child welfare system. We have estimated ethnic disproportionality in the child welfare system using information on the yearly child population by ethnicity, rather than assuming the child population was constant or growing at the same rate for different ethnicities. The perspective of ethnic disproportionality trends allowed us to explore how stable the level of representation is across years for any ethnic group, and as a result if there was clear increasing/decreasing ethnic disproportionality over the past decade and through legal framework adjustments.

In line with previous research on the ethnic differences in Welsh public family law cases, children on child protection registers and children looked after, we also found in CIN/CRCS Mixed-heritage children to be consistently and the most overrepresented and Asian children to be consistently and the most underrepresented over the recent ten years, despite fluctuations in the level of over- and underrepresentation. Instead of a clear rising or declining trend over the scale of a decade, the overall level of ethnic disproportionality in Wales showed increases in CIN 2011–2016 and then decreases in CRCS 2017–2020. Finally, the overall level and trend of ethnic disproportionality were not equally spread out by gender and age groups. The trend in the overall level of representation for each ethnicity concealed substantial variation in the changes for the constituting sub-groups by sociodemographic characteristics.

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