



# Racial Residential Segregation and Disparities in Child Protective Services: A Study of Large U.S. Counties

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## Abstract

In the U.S., Black children are overrepresented in Child Protective Services (CPS) reports relative to their share of the population. Although a large body of research has described and delineated possible causes of this disparity, the potential role of racial residential segregation is understudied. Racial residential segregation imposes vastly unequal built and social environments on Black children, including higher rates of poverty and crime and fewer amenities. These under-resourced environments may contribute to disproportionate exposure to maltreatment and related social adversity, to differences in CPS reporting decisions by professionals and community members, and to differences in CPS screening and decision-making. Using data on 584 large counties from the 2019 National Child Abuse and Neglect Data System (NCANDS), this exploratory study examines how county-level racial residential segregation is associated with CPS report and substantiation rates for Black and White children and with the Black-White disparity in CPS report and substantiation rates. Measures of county segregation — dissimilarity and isolation indices — were calculated from the American Community Survey and U.S. Census data. We found that the Black-White CPS report disparity ratio was largest in the most segregated counties. Yet, both Black and White CPS report rates were lower in the most segregated counties compared to counties with low to moderate segregation. The law enforcement–initiated CPS report rate for Black children was especially high in moderately segregated counties compared with both high- and low-segregation counties. Segregation was not associated with CPS substantiation disparities. The highest-disparity counties did not have above-average reporting rates for Black children. Together, these findings suggest that community characteristics may contribute differently to the absolute rates of CPS reports for Black children and the extent of the Black-White disparity within these rates. Racial residential segregation is an important consideration for future research, policy, and program development focused on reducing racial disparities in, and levels of, CPS contact.

**Keywords** Racial disparities · Racial residential segregation · Child protective services · Mandated reporters · Geographic variation

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## Introduction

Decades of research have documented that Black children constitute a disproportionate share of children involved with the U.S. child protective services (CPS) system. Recent state and national research found that about half (46–53%) of all Black children are investigated by CPS by age 18, compared with 22–28% of White children and 28–32% of Hispanic children (Kim et al., 2017; Putnam-Hornstein et al., 2021), resulting in a national Black-White disparity ratio (DR) of approximately 1.89. A DR value above one indicates that Black children are overrepresented in reports relative to White children while a DR value equal to 1 would indicate that rates between Black and White children are equal. There are two separate-but-related issues to consider: the overall high rate of CPS contact among Black children and the disparate rate of CPS contact relative to White children. Although these issues are often discussed interchangeably, recent state-level research highlights that areas with high CPS report rates among Black children may have comparatively small CPS report disparities, and vice versa. For example, Yi et al. (2023) find that in Arkansas, an estimated 73% of Black children experience CPS investigation but, due to above average rates of contact for White children as well, the DR is 1.17. In contrast, 53% of Black children and 26% of White children in New York experience a CPS investigation — lower rates overall than Arkansas, but a higher DR of 2.06.

Yet even state-level analyses are likely to mask significant heterogeneity in both levels of CPS contact and racial disparities therein. As a result of racial residential segregation and systematic disinvestment from Black neighborhoods, Black children often grow up in vastly different neighborhood environments than White children — neighborhoods that are more impoverished (Ananat, 2011), more dangerous (Krivo et al., 2009), and lacking in quality schools (Condrón et al., 2013) and other social goods and services (Bower et al., 2014; Heynen et al., 2006). CPS cases are spatially concentrated in disadvantaged neighborhoods (Fong, 2019; Freisthler et al., 2006; Littleton & Freisthler, 2023) and Black children's disproportionate exposure to these social and environmental contexts likely contribute to high rates of CPS contact, in both absolute numbers and relative to White children. Studies of race, place, and the CPS system have considered the racial composition of communities (Maguire-Jack, 2014); however, to date, racial residential segregation has not been examined.

To address this gap, we explore county-level associations of Black-White segregation (using indices of Black-White dissimilarity and Black isolation) with CPS report rates for Black and White children and Black-White report disparity ratios. The county is used as the level of analysis because it is the smallest unit of geography available in the National Child Abuse and Neglect Data System (NCANDS), which is the only national census of CPS reports in the U.S. Moreover, government social services (e.g., CPS, public assistance) and other functions (e.g., jails, juvenile courts) are typically provided by county offices, and important decisions about zoning and land use that often limit housing selection for lower-income families are made at the county level.

## Background

### Racial Residential Segregation

Racial residential segregation reflects the enduring legacies of slavery, Jim Crow, and *de jure* housing discrimination and is maintained by present-day barriers to neighborhood integration, such as restrictive zoning laws (Rothwell, 2011) and unmitigated illegal housing discrimination (Korver-Glenn, 2018). Entrenched racial residential segregation affects Black families intergenerationally (Sharkey, 2013) and at all income levels (Reardon et al., 2015). The marginalization of Black neighborhoods due to widespread political and economic disinvestment has resulted in Black Americans experiencing lower exposure to neighborhood amenities such as green space (Casey et al., 2017) and quality schools (Condrón et al., 2013) and higher exposure to dis-amenities such as crime (Krivo et al., 2009) and pollution (Woo et al., 2019) across the life course. Thus, segregation perpetuates and reinforces racial disparities in income (Ananat, 2011), educational attainment (Quillian, 2014) health (Kramer & Hogue, 2009), wealth accumulation (Ray et al., 2021), and upward intergenerational mobility (Sharkey, 2013).

### Possible Mechanisms Linking Racial Residential Segregation and CPS Reporting Levels and Disparities

Racial residential segregation could influence racial disparities in CPS involvement in three ways. First, racial segregation creates areas of concentrated advantage and concentrated disadvantage and imposes conditions of concentrated disadvantage on Black families while conferring benefits and greater opportunities that support well-being and optimal parenting to White families (Krivo et al., 2009; Acevedo-Garcia et al., 2020). These areas of concentrated disadvantage imposed by racial segregation may disproportionately expose Black children to maltreatment and thus higher rates of CPS reporting, due to manifestations of persistent stress (Benson et al., 2004; Truong & Ma, 2006), constraints on parents' options for safe care (e.g., young children require more supervision in neighborhoods with high levels of crime), and a lack of supportive social resources (Acevedo-Garcia et al., 2020). Inversely, the economic and environmental advantages segregation confers on White families may reduce maltreatment and thus CPS reporting of White children.

Second, segregated, disadvantaged neighborhoods in which Black families are concentrated may receive more surveillance than other neighborhoods due to increased contact between residents and mandatory reporters (Fong, 2020), especially law enforcement (Ousey & Lee, 2008) which accounts for approximately 19% of CPS reports (Kelly et al., 2019). A previous study found that higher arrest rates within counties were associated with a greater number of CPS reports from police (Edwards, 2019). Disadvantaged urban areas also involve smaller and

more densely populated housing, and families may be on foot or relying on public transportation — in these settings, the likelihood of being overheard or observed by others is heightened. In contrast, in areas with limited police presence and an abundance of single-family homes where most families have private yards and vehicles, abusive or neglectful behavior may go undetected. In addition, elevated rates of crime and disproportionate police responses result in high rates of incarceration in segregated communities (Simes, 2018; Smith, 2012) which destabilizes families both socially and economically (Adams, 2018) resulting in increased contact with CPS.

Third, mandated reporters and CPS caseworkers may hold negative stereotypes about residents in racially segregated, disadvantaged neighborhoods that result in an over-evaluation of risk (or an under-evaluation of risk in largely advantaged neighborhoods). The potential for implicit bias stems from spatial stigma, whereby residents of disadvantaged neighborhoods are stereotyped and blamed as embodiments of aggregate neighborhood characteristics (e.g., poverty, crime) that are the result of racial and structural inequality (Keene & Padilla, 2014). In other words, children may be perceived as more at risk because of the social conditions present in marginalized communities thus increasing both CPS reporting and substantiations.

Despite various reasons that segregation may enhance both CPS report rates for Black children and racial disparities in CPS report rates, the reverse — lower reporting and smaller disparities in highly segregated areas — is also possible. Maltreatment, like other social problems such as poverty, exists on a spectrum of severity and chronicity. The threshold for reporting maltreatment may be substantially higher (requiring evidence of more serious harm) in areas where the general prevalence of abuse, neglect, and related family problems such as domestic violence, is higher. That is, if a large share of families is facing serious challenges, the community may need to triage more — relying on other community services for lower-risk cases and only referring the highest-risk cases to CPS. In contrast, a community in which those problems are perceived to be rare may refer all applicable cases to CPS. Thus, it is possible that highly segregated counties (relative to moderate or low segregation counties) would have lower report rates for Black children because contacting CPS is used as a last resort. Within the marginalized neighborhood environments created by segregation, both professionals and other community members may be more inclined to see potential maltreatment, particularly neglect, as context-driven. If so, they may be less inclined to see reporting to CPS as an appropriate response.

## Methods

Our primary data source was the National Child Abuse and Neglect Data System (NCANDS) child files. The NCANDS annual child files provide details on the characteristics of investigated child maltreatment reports by CPS agencies across all 50 states and Washington, DC. The dataset captures suspected maltreatment that is investigated by CPS — although commonly used to capture maltreatment incidence, such an interpretation would be flawed due to high variability in reporting and screening decisions across places. For this study, we consider that CPS report

rates and substantiation rates reflect the combination of maltreatment risk to children and decisions by community members and CPS agency workers to respond. We focused largely on reports made during the 2019 calendar year, constructed from the 2019 and 2020 fiscal year files. Within the NCANDS child file, counties with fewer than 1000 CPS reports included in their fiscal year submission do not have a county identifier and thus were excluded from this study. This left a possible sample of 728 counties. However, our analytic sample is 584 counties. Counties were excluded if (1) more than 25% of observations had missing values on race/ethnicity or (2) if the county population was less than 10,000 overall or less than 1000 for the minority group. The second set of exclusion criteria was implemented because the interpretation of the dissimilarity index may be unreliable in areas with smaller populations (AMCHP, 2014). Compared to all counties for which the dissimilarity index was calculable, counties in our sample have a small percentage of Black residents, a higher percentage of Hispanic residents, and higher dissimilarity index values (see Table 2 in Appendix).

To generate our disparity and segregation measures, we also incorporated county and census-tract-level data from the National Center for Health Statistics (2020) and the American Community Survey (U.S. Census Bureau, n.d.-a). The ACS is an annual, nationwide survey conducted by the U.S. Census Bureau that is designed to provide sociodemographic data on communities across the U.S. The data produced by the ACS provides valuable information about the social and economic conditions that shape the communities in which Americans live, work, and play. It is widely used by social science researchers and often informs public policy decisions (Folch et al., 2016). However, the use of this data is sometimes limited by large margins of errors, particularly for smaller geographic areas like census tracts (Folch et al., 2016; Spielman et al., 2014). ACS 5-year pooled estimates from 2018 are used for data on census tracts, to ensure accurate estimates of population sizes due to the small geographic area. Black race was identified as the total population identifying as Black alone. White race was categorized as the total population identifying as White alone. Data from the three sources were linked at the county level using the Federal Information Processing Standard (FIPS).

## Measures

### Disparity Ratios

The CPS report DR for Black and White children in county  $c$  is:

$$BW\_DR_c = \left( \frac{\text{Black reports}_c}{\text{Black child population}_c} \right) / \left( \frac{\text{White reports}_c}{\text{White child population}_c} \right) \quad (1)$$

When the DR equals 1, then Black children and White children have equal rates of the outcome (reports or substantiations). A DR value exceeding one indicates disproportionality whereby Black children are overrepresented in reports/substantiations relative to White children, and a DR less than 1 indicates underrepresentation

of Black children in reports/substantiations. In both data sources (NCANDS and NCHS population counts), Black and White groups were based on the total population identifying as that racial category alone (non-Hispanic and not multiracial).

The substantiation DRs were constructed using the same based formula as depicted in Eq. 1, except that the numerator was the total victim count for Black children, and the denominator was the screened-in report total for that group. Children were identified as victims based on a substantiated or indicated disposition of an investigation or named as a victim on an alternative response assessment (note: only a few counties with active differential response programs allow for a victim designation on alternative response cases). To further explore whether disproportionality patterns were likely to reflect the oversurveillance of marginalized communities by professionals (mandatory reporters), we also generated DRs for reports made by specific sources. We focus on three types of mandatory reporters (educational personnel, law enforcement, and other professionals) and two types of voluntary reports (parents and relatives [excluding those reporting themselves], and all other voluntary reporters).

### Dissimilarity Index

The dissimilarity index (DI) is the most common metric of segregation for a county or metro area. The basic formula for Black-White DI of county  $c$  is as follows, where  $t$  indicates a census tract, and  $c$  indicates the county in which that census tract lies (CensusScope, n.d.).

$$DI_c = .5 \sum_t \left| \frac{Black_t}{Black_c} - \left( \frac{White_t}{White_c} \right) \right| \quad (2)$$

The DI measures the “percentage of a group’s population that would have to change residence for each neighborhood to have the same percentage of that group as the [county] overall” (U.S. Census Bureau, n.d.-b). It has a value ranging from 0 to 1, with 0 indicating complete integration and 1 indicating complete segregation. DIs  $<.3$  indicate that a county is well integrated. DIs ( $0.3 < DI < 0.6$ ) indicate moderate segregation and DIs greater than .6 indicate high segregation.

### Black Isolation Index (BII)

It is intended to capture a spectrum in which Black residents are never (low isolation) or only (high isolation) exposed to other Black residents (U.S. Census Bureau, n.d.-b). It is strongly associated with the percent of the population in the county that is Black. For county  $c$ :

$$BII_c = \sum_{t=1}^n \left[ \left( \frac{Black_t}{Black_c} \right) \left( \frac{Black_t}{Total_t} \right) \right] \quad (3)$$

$Black_t$  and  $Black_c$  indicate the size of the Black population in tract  $t$  and county  $c$ , respectively, and  $Total_t$  is the tract population. Both the dissimilarity and isolation equations are derived from the U.S. Census Bureau.

## Data Analysis Procedures

This study is descriptive in nature, and thus, we rely on summary statistics and data visualization to examine associations. We intentionally do not include covariates pertaining to socioeconomic attributes of the counties because racial economic stratification is a *consequence* of segregation. General statistical principles make it clear that controlling for a mechanism (mediating variable) bias estimates of association and should not be done.

## Results

Table 1 provides descriptive statistics on CPS report and substantiation rates and segregation measures (to see how these measures differ by state, please refer to Table 3 in Appendix) Counties in our sample were on average, more than two-thirds White, and were moderately segregated (DI mean = .48, median = .47), though isolation was relatively low (BII mean = 22.55, median = 17.64), consistent with a relatively small proportion of Black residents county-wide (mean 11.99, median 7.74).

The mean Black report rate was 22.11 per 1000 children, compared with 10.39 for White children; median rates were lower for both groups, suggesting positive outliers. The CPS substantiation rate was roughly equal for Black and White children, with means of 21% and medians of 20%.

The CPS report DR is interpreted such that 1 indicates equal rates among the groups being compared; a value greater than 1 indicates a higher rate for Black children relative to the White children. Overall, the median county in our sample had 2.11 times the rate of screened-in reports for Black children compared with White

**Table 1** Description of counties ( $N = 584$ )

	Mean	Median	IQR
Total county population	396,529.07	189,214.00	105,421.50–426,384.00
Pct. county Black	11.98	7.74	3.58–15.49
Pct. county Hispanic	12.87	7.50	4.23–15.96
Pct. county White	68.34	72.07	56.84–83.34
Dissimilarity Index	48.05	47.18	40.56–55.36
Black Isolation Index	22.55	17.64	8.24–32.41
CPS report rates (per 1000 children in population)			
Black	22.11	19.39	13.30–28.06
White	10.39	8.98	5.74–14.10
CPS substantiation rate (per 100 children with investigations)			
Black	20.83	19.69	12.16–28.15
White	20.79	20.28	13.31–26.95
Black-White CPS report disparity ratio	2.62	2.11	1.50–3.30
Black-White CPS substantiation disparity ratio	1.00	0.98	0.84–1.15

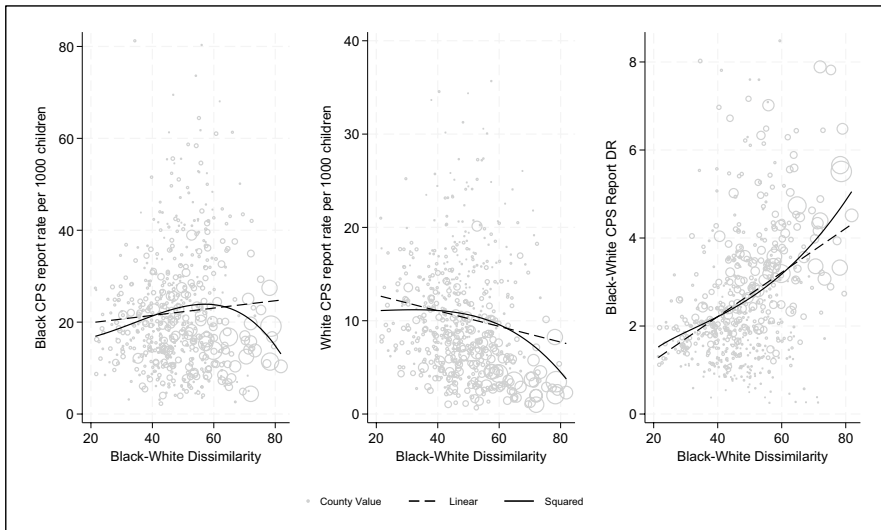
CPS child protective services, IQR interquartile ratio

children; again, the higher mean DR (2.62) indicates significant positive outliers. The interquartile ranges indicate that half of the counties had Black-White report DRs between 1.5 and 3.3. For comparison, our calculations of the national DRs (including all counties regardless of whether identified in NCANDS) during this time period suggest a Black-White DR of 1.86. In contrast, the substantiation DR had a mean of 1.00 and a median of .98, with an IQR of .84 to 1.15, suggesting little variation in substantiation decisions within the county for Black and White children.

Figure 1 presents fitted curves and scatterplots of the association between the dissimilarity index and the Black CPS report rate, White CPS report rate, and CPS report DR. The DI has a nonlinear association with the Black CPS report rate (as shown by the squared fit line) — such that Black children are reported at the highest rates within moderate-high segregated counties and lower rates in both low-segregation and high-segregation counties. Notably, this association would be mischaracterized by a linear fit model, which suggests a positive overall association. The DI is negatively associated with the White CPS report rate; however, the report rate is stable in low to moderately segregated counties but falls steeply in the most highly segregated counties. Lastly, the final graph panel suggests a positive linear association between the DI and the CPS report DR.

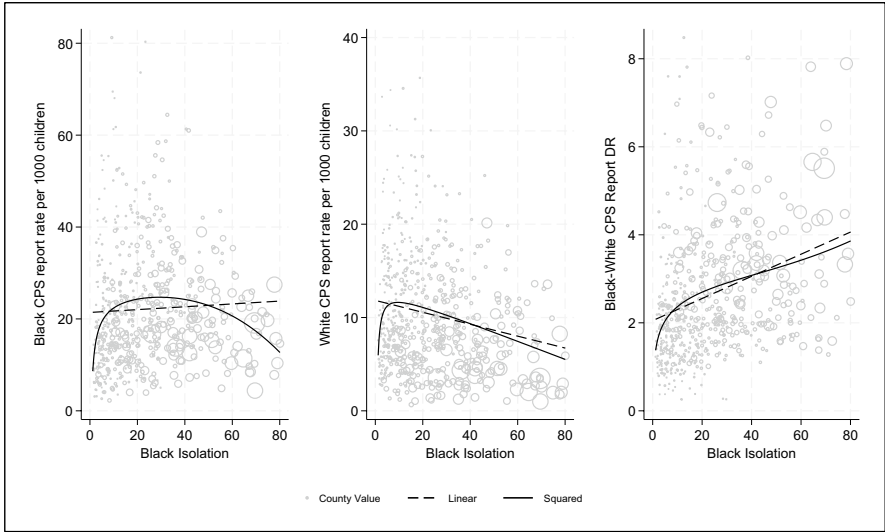
Figure 2 presents the same graphs but using the Black isolation index instead of the dissimilarity index. The results show a starker nonlinearity for the Black CPS report rate, with far lower report rates in counties with the lowest and highest levels of Black isolation, compared with moderate isolation.

Figure 3 presents fitted curves and scatterplots of the association between the dissimilarity index and substantiation rates and DR. The DI is positively

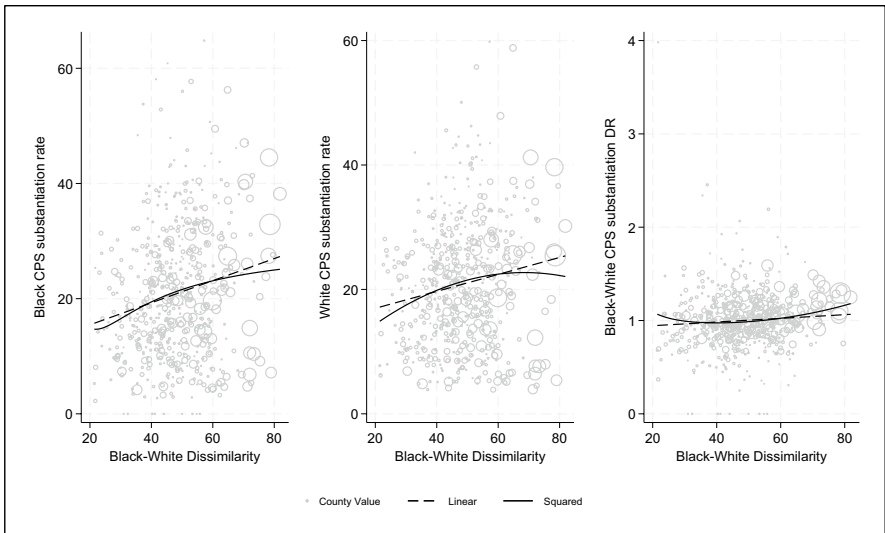


**Fig. 1** Associations of county Black-White dissimilarity index and CPS report patterns. Notes: CPS, child protective services. DR, disparity ratio. DR graph excludes six counties with DR > 10 for clarity of the graph. The y-axis scales differ between panel 1 (Black report rate) and panel (White report rate). Size of scatterplot circles based on the size of the Black population in the county





**Fig. 2** Associations of county Black isolation index and CPS report patterns. Notes: CPS, child protective services. DR, disparity ratio. DR graph excludes six counties with DR>10 for clarity of the graph. The y-axis scales differ between panel 1 (Black report rate) and panel (White report rate). Size of scatterplot circles based on the size of the Black population in the county

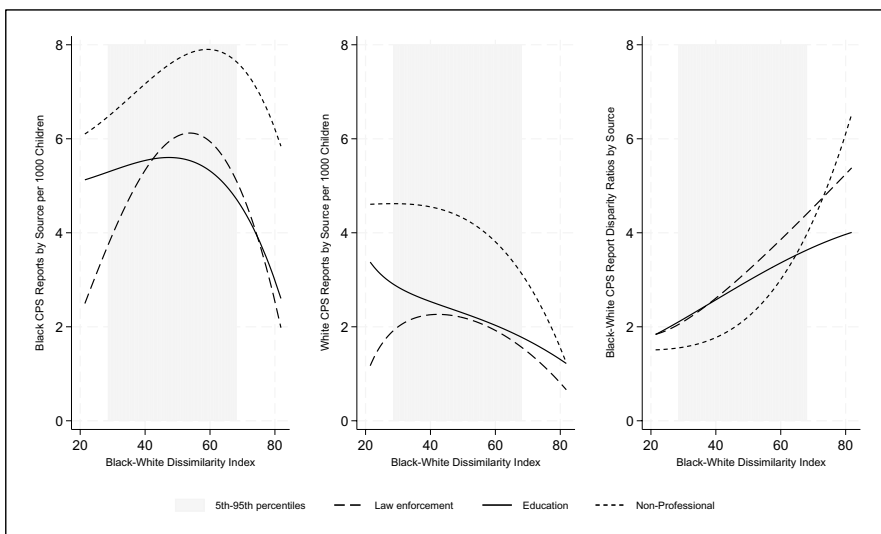


**Fig. 3** Associations of county Black-White dissimilarity index and CPS substantiation patterns. Notes: CPS, child protective services. DR, disparity ratio. Substantiation rate is per 100 CPS investigations (denominator does not include alternative response reports). Size of scatterplot circles based on the size of the Black population in the county

associated with substantiation rates for both Black and White children and has no clear association with the substantiation DR. There was no association between the BII and substantiation rates or DRs.

Lastly, we consider whether segregation was differentially associated with reporting from professional and voluntary sources. Figure 4 presents associations between the DI and CPS report rates for law enforcement, education personnel, and non-professional sources by race. The association between DI and reports of Black children by law enforcement is nonlinear. The average rate of law enforcement reports for Black children is roughly three times higher in moderate-high segregation counties compared with either the most integrated or most segregated counties. White CPS report rate by law enforcement is slightly higher in moderate segregation counties compared with the most integrated and most segregated counties, but the average peaks at slightly higher than two reports per 1000. In contrast, the peak rate of law enforcement reporting of Black children is just over 6 per 1000. For reports by education personnel, we see that reports of Black children are flat (stable) across levels of segregation until a very high segregation level ( $DI > .6$ ), when report rates decrease. In contrast, education personnel reports of White children decrease in a linear manner across levels of segregation, such that the Black-White DR for reports by education personnel is largest in the moderate-high segregation counties.

Lastly, reports of Black children by non-professionals are primarily positively associated with segregation levels but begin to decline in the most heavily segregated counties (where  $DI > .6$ ). In contrast, non-professional reports of White children are steady at low and moderate levels of segregation and begin to decline when DI exceeds .5.



**Fig. 4** Black and White CPS report rates and disparity ratio by source and county dissimilarity index. Note: CPS, child protective services. Gray-shaded area is used to indicate values within the 5<sup>th</sup> and 95<sup>th</sup> percentiles of the dissimilarity index. The estimates within the unshaded areas are based on a small number of counties and should be interpreted with caution

## Discussion

This study is the first to our knowledge to investigate the relationship between county-level racial residential segregation and racial disparities in CPS reports and substantiations. Prior work in this area has tended to focus on the racial composition (percentage of racial or ethnic groups) of neighborhoods and counties; though perhaps of substantive interest, such studies are not informative about the degree to which members of different races live separately. Thus, this study expands our understanding of how geographical factors contribute to variations in CPS report rates and racial disparities in CPS reports across the United States.

The association between segregation and CPS report patterns is complex. Compared with low segregation counties, moderate segregation counties have substantially higher rates of CPS reports for Black children but similar report rates for White children. Yet, in the highest segregation counties — accounting for approximately 5% of observed counties — report rates drop substantially for both Black and White children across multiple categories of report sources (law enforcement, education, and voluntary reporters). Despite nonlinearities in the association between segregation and CPS report rates by race, the Black-White disparity ratio for CPS reports increased consistently across levels of segregation — even though both White and Black children's report rates declined in high-segregation areas, the rate declined at a lower tipping point and more steeply for White children. These patterns are generally consistent for the dissimilarity index and Black isolation index.

Racial residential segregation has not been a significant focus of prior research on racial disproportionality or racial disparities in CPS involvement. Our exploratory study shows that segregation is associated with both CPS report rates for Black and White children and the disparity in those rates. This linkage warrants greater attention as the US seeks to reduce racial inequality in rates of involvement with the CPS system and to also promote equity in children's health and development, domains which are substantially affected by child maltreatment. We thus focus our discussion on possible mechanisms and directions for future research. The results of our study raise three important questions for future research: (1) how does the context of segregation influence reporting behaviors of mandatory reporters and nonmandatory reporters such that there is an increase in racial disparities in CPS reporting but an overall decline in absolute rates of reporting for Black and White children in the most segregated counties; (2) how does segregation influence CPS report rates and racial disparities in reporting differently in urban, rural, and suburban environments; and (3) how does the context of racial residential segregation influence the organizational decision making of CPS agencies.

We observed an increase in reporting rates of Black children as levels of segregation increase with rates peaking in moderately segregated counties. Higher report rates in moderate (versus low) segregation counties may reflect that Black, racially segregated communities are often under-resourced and fraught with significant social and economic problems that are common correlates to child maltreatment, including concentrated poverty (Barboza-Salerno, 2020), high unemployment rates (Freisthler et al., 2006), and limited supportive resources (Klein, 2011). Residing in

such communities undermines parental functioning and constrains parents' choices and thus can compromise child safety.

However, this does not explain why reporting of Black children declines in the most segregated counties. One possible explanation is that the most segregated counties in our sample are often the center of a metropolitan area (e.g., Detroit, Milwaukee, Los Angeles) which tend to have more extensive formal infrastructure targeting social and economic needs. These counties may be able to triage more of their lower-risk cases to voluntary community agencies. That is, larger Black-White CPS report disparity and lower absolute CPS report rates within high segregation areas could reflect elevated inequity in Black children's environments coupled with a reluctance to use CPS to respond to children's needs. Additional research applying diverse methodological approaches is needed to understand CPS reporting and screening decisions across different community contexts. Notably, future research on this subject would benefit from the inclusion of smaller population counties, which could not be included in the study due to data limitations. Even when faced with extreme racial segregation and social inequalities, smaller population areas tend to have fewer social services and a less supportive infrastructure (e.g., limited public transportation). Thus, they may continue to rely on CPS due to a lack of options for triaging lower-risk cases, or they may have developed extensive informal infrastructure to address family needs (Smith et al., 2021). To facilitate such research, administrative data aggregated at the county level should be made publicly available for all counties, which would allow researchers to explore the influence of segregation within suburban and rural counties without threatening data confidentiality.

Future research may also explore the possibility that negative stereotypes of racial groups or racially segregated communities influence reporting behaviors, particularly within moderately segregated counties where CPS report rates for Black children are particularly elevated. Existing approaches for quantifying racial bias in CPS reporting or substantiation typically attempt to compare children of different races but with similar risk profiles. Yet, in segregated areas, there is little overlap in children's environments (Manduca & Sampson, 2019). Despite methodological challenges, higher quality research is needed to understand the nature and scope of differential treatment, particularly in reporting decisions, which are less widely studied than substantiation decisions. Approaches such as vignette studies may help to elucidate whether and how spatial stigma may impact evaluations of risk and harm in ways that lead to differential rates of CPS contact. In addition, the use of multiple approaches to measuring child maltreatment and associated risks, including survey and administrative data approaches (e.g., hospital records), has the potential to yield a better understanding of whether and under what circumstances the incidence of CPS reporting diverges from other measures of maltreatment.

Our findings by CPS report source reveal a similar pattern of elevated report rates for Black children as segregation increases (peaking in moderately segregated counties) and then lower rates of reporting for both Black and White children by mandatory reporters in extremely segregated counties. Notably, the DRs for education personnel and law enforcement reports were very similar in integrated areas, but the DRs for law enforcement reports are larger in the most segregated counties. Law enforcement reports to CPS commonly involve either domestic violence or drug-related activity in the presence of a child; both of which are linked with segregation and neighborhood disadvantage (Benson et al., 2004; Cooper et al., 2007). Improved data on the

content of CPS reports — particularly greater detail on the broad category of neglect — is needed to assess the role of domestic violence and drug activity in law enforcement reporting disparities. In addition, research on city segregation links segregation to larger arrest disparities (Ousey & Lee, 2008) and to more aggressive policing in Black neighborhoods (Siegel et al., 2019). Higher levels of police contact, as well as differential treatment by police, may contribute to the large DRs for law enforcement reporting in segregated counties. Conversely, research suggests that the relative size of the police force in the most segregated cities diminishes because of reduced fears of interracial crime which may reduce resident contact with police and thus account for diminishing absolute numbers of CPS reports (Kent & Carmichael, 2014). Future research would greatly benefit from the integration of law enforcement and CPS data to better understand reporting behaviors.

Although community members highlight unequal surveillance by public institutions and service systems as a concern in disadvantaged neighborhoods (Fong, 2020), we find that Black-White report disparities for voluntary reporters (e.g., reports from relatives, friends, and neighbors) are larger than Black-White report disparities for mandatory reporters (law enforcement and education personnel) in the most segregated counties. These patterns provide some support for the hypothesis that segregation contributes to racial disparities in CPS contact primarily through marginalized and stressful social environments that impact family functioning. Yet, it may also suggest that in some disadvantaged contexts, community members rely on CPS to provide basic financial support and other services, such that relatives and neighbors will contact CPS (Roberts, 2021). Further, residents in disadvantaged communities may be more likely to involve CPS in interpersonal disputes with other residents or co-parents and may make false reports of child maltreatment as a means of retaliation (Roberts, 2021). Concerns about retaliatory or malicious reporting contributing to excessive rates of CPS involvement have led some advocates to call for a ban on anonymous reporting of child maltreatment, though anonymous reporting is also used by good-faith reporters who are reluctant to be named. As discussed earlier, this area of research would benefit from qualitative research to explore the perceptions of CPS among community members and how this informs their reporting behavior in segregated, Black neighborhoods.

Segregation was positively associated with substantiation rates for both Black and White children and had no clear association with the Black-White disparity ratio. In other words, the likelihood of substantiation is lower for Black and White children in the most integrated settings — where report rates are higher. This intuitively suggests that counties that investigate fewer reports substantiate a greater share of them — perhaps because they are triaging out (not investigating) the cases with a low probability of substantiation. However, substantiation rates vary widely across counties and states; who is labeled a victim of maltreatment reflects factors such as the severity of risk and harm to a child, internal organizational factors, perceived need for services, and caseworker and supervisor discretion (Font et al., 2020), none of which is captured by NCANDS. Within our sample, there was limited variation in substantiation rates, and substantiation disparity ratios were typically small. Unlike report DRs, which were nearly all greater than 1 (indicating a higher report rate for Black children than for White children), substantiation DRs were small, with similar shares having DR values above and below 1. This pattern is consistent with research highlighting little or no racial disparity

in substantiation (conditional on report) at the national level (Drake et al., 2023) and, on the whole, suggests that reducing racial disparities in CPS involvement requires a focus on reporting. However, we caution that we cannot determine whether the risk threshold for substantiation was equitable. That is, it is possible that the accuracy or severity of reports is unequal across racial groups and varies across counties, such that equal rates of substantiation are nevertheless inequitable. Additional research that incorporates a variety of methodologies to examine CPS decision making in the context of racial residential segregation may shed light on these issues.

## Study Limitations

This study is descriptive and exploratory. As such, there are several limitations to the data and analysis that limit our conclusions. First, as mentioned earlier, our study sample is limited to large urban counties. Within the NCANDS dataset, counties with fewer than 1000 CPS reports are masked which means that we lose both low-population counties and counties that use CPS very narrowly. As a result, rural and suburban counties are underrepresented in the sample. States also vary in how race is measured in administrative data (e.g., how children with multiracial backgrounds are classified). In addition, the data are shallow — we cannot readily explore mechanisms for some of the findings and thus causation cannot be assumed. Lastly, detailed information about the circumstances of reported children and families and agency characteristics are not available in the NCANDS data or through external sources.

## Place-Based Strategies to Reduce Racial Disparities

Racial segregation has long been relegated to the background of geographical studies of child maltreatment instead of understood as a key factor in disparate outcomes. Nearly six decades after the end of *de jure* segregation, research continues to document high levels of segregation and negative outcomes for Black residents of racially segregated communities. We expand that large body of research, finding that (1) racially segregated counties have larger disparities in CPS reports for Black children; (2) these patterns reflect higher rates of reports involving Black children by both mandatory and voluntary reporters in moderately segregated counties but declining rates in the most segregated counties; and (3) segregation is not associated with the Black-White disparity ratio for substantiation of a CPS report. Together, these findings suggest that increased segregation aligns more clearly with the Black-White gap in reporting than with reporting rates for Black children.

This study follows a growing interest in expanding and developing a child maltreatment prevention infrastructure that, if successful, would reduce racial disparities and disproportionality in child maltreatment and in CPS involvement, while also broadly reducing the need for CPS intervention. As efforts to expand the prevention framework evolve, we argue policies that address the inequities wrought by segregation should be considered in current conversations about how to reduce racial disparities in CPS. Strategies aimed at reducing racial disparities should consider the spatial characteristics

of communities and how these factors may contribute differently to absolute rates of CPS contact and Black-White disparity in these rates. Researchers can help inform these decisions by disaggregating samples into same-race groups to examine how social and economic conditions impact racial groups differently (Jones et al., 2023). Low-income White families are still more likely to access better neighborhoods than even middle-class Black families (Reardon et al., 2015). Black and White children of the same income may be exposed to different levels of environmental deprivation, and thus, the contextual factors influencing the risk of contact with CPS will differ. Thus, when developing interventions or targeting social programs, it may be useful to consider place as an eligibility criterion rather than solely focusing on individual-level characteristics that mask differences in exposure to structural risk factors.

At the policy level, strategists can apply a racial equity lens (Garces & Gordon da Cruz, 2017), to consider whether proposed prevention policies and programs are situated to ameliorate unjust circumstances of Black families. The U.S. Center for Disease Control's recommended strategies for preventing child maltreatment emphasize the importance of the housing sector (Fortson et al., 2016), particularly for providing adequate and affordable housing; however, the report falls short in acknowledging the ways that entrenched patterns of racial segregation and discrimination limits housing opportunities for Blacks and other people of color (Korver-Glenn, 2018). In addition, single-family zoning has limited the construction of multifamily housing which has reinforced racial and economic segregation in neighborhoods (An et al., 2019). California recently eliminated single-family zoning taking a step towards increasing housing equity in the future (Naveed, 2023). Inclusionary zoning requires builders to make a certain portion of new rental units affordable to families with lower incomes. A racial equity approach would involve a two-prong strategy that integrates Black people into high-opportunity communities (e.g., through inclusionary zoning efforts) but also prioritizes investments in Black neighborhoods that center the voices of the community. Placed-based strategies aimed at reducing racial disparities in CPS contact should transform the discourse around segregated neighborhoods by emphasizing how structural racism has created these conditions and therefore requires intentional policies aimed at rectifying inequities by funneling resources into these communities.

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## Declarations

**Conflict of Interest** The authors declare no competing interests.

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