The Effect of Neighborhood Disorganization on Care Engagement Among Children With Chronic Conditions Living in a Large Urban City

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Neighborhood context plays an important role in producing and reproducing current patterns of health disparity. In particular, neighborhood disorganization affects how people engage in health care. We examined the effect of living in highly disorganized neighborhoods on care engagement, using data from the Coordinated Healthcare for Complex Kids (CHECK) program, which is a care delivery model for children with chronic conditions on Medicaid in Chicago. We retrieved demographic data from the US Census Bureau and crime data from the Chicago Police Department to estimate neighborhood-level social disorganization for the CHECK enrollees. A total of 6458 children enrolled in the CHECK between 2014 and 2017 were included in the analysis. Families living in the most disorganized neighborhoods, compared with areas with lower levels of disorganization, were less likely to engage in CHECK. Black families were less likely than Hispanic families to be engaged in the CHECK program. We discuss potential mechanisms through which disorganization affects care engagement. Understanding neighborhood context, including social disorganization, is key to developing more effective comprehensive care models.

Key words: care engagement, children with chronic illnesses, neighborhood disorganization

NEIGHBORHOOD conditions affect individual health and well-being.[1-3] Particularly, the long history of racial residential segregation and increasing income segregation have produced vastly uneven residential exposure to poverty, violence, and environmental hazards, and have allowed different levels of access to health and social services.[4] Social disorganization theory suggests that weakened social integration due to neighborhood contextual factors, such as poverty, mobility, and heterogeneity, increases the level of crime and delinquency.[5,6] Social disorganization thus indicates a lack of social connections and collective capacity to control crime and violence, which are the basis for neighborhood stability. Consequently, social disorganization affects how people interact with others and institutions, such as the health care system.[7,8]

A child's chronic conditions can be a significant burden for the family. Often, parents and siblings of children with chronic conditions suffer from psychological and emotional stress.[9,10] Parents of children with chronic conditions also experience great financial burdens due to high out-of-pocket costs for health care.[11] For families living in unstable, disorganized, and impoverished neighborhoods, the difficulty of engaging with needed health care can be even greater. Patient engagement, that is, patient's knowledge, abilities, and willingness coupled with tailored intervention strategies, is key to better health outcomes, reduced health care costs, and improved quality of care.[12,13] Concerning pediatric care, parents' involvement is an important aspect of ensuring adequate patient care engagement. Such family-centered care seems to be an important aspect to meet the needs and preferences of families, thus better engaging parents in health

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care for the child with chronic conditions.[14-16] Conversely, stigma and negative experiences interfere with optimal care engagement.[17,18] Families who had negative experiences with health care providers are more likely to anticipate greater negativity from health care providers, which leads to less care engagement and utilization.[19] Other barriers may include a lack of culturally appropriate health care, childcare, and transportation.[20]

In addition, difficult life circumstances often conflict with health care access and adherence.[21-24] Beyond individual-level barriers, neighborhood conditions further complicate how people engage in health care.[22,24] In particular, neighborhood disorganization creates a condition within which high levels of fear of crime and perceived disorder prevent people from engaging in social, civic, and health care activities.[25,26] People living in these disorganized neighborhoods are more likely to feel vulnerable and stressed.[27,28] Stressful neighborhood conditions exacerbate parents' stress caring for children with chronic conditions. Fear of crime and violence may also discourage parents from traveling to health care facilities.[29] Furthermore, such fear and a sense of vulnerability increase with a sense of distrust.[30] Yet, little research has examined the effect of neighborhood crime on care engagement among children with chronic conditions.

Chicago is the third largest city in the United States and has one of its most diverse populations: 33.3% white, 29.2% Black, 28.8% Hispanic, and 5.6% Asian.[31] Yet Chicago also is one of the most segregated cities,[32,33] with Black and Hispanic populations localized to the south and west sides of the city, communities with the highest vulnerabilities, indicating communities with greatest social and economic needs.[34] Racial and economic spatial divide reinforces existing social stratification and racial inequality.[35-38] Because economic inequality interacts with racial residential segregation, spatially concentrated disadvantage disproportionately affects predominantly Black communities[39] resulting in a myriad of highly racialized social, economic, and health outcomes.

There are just over 800 census tracts in the City of Chicago, and census tracts are tied to 77 community areas,[40,41] which are well-defined geographic boundaries. Initially, 76 community areas were proposed by the Social Science Research Committee at the University of Chicago in the 1920s.[41] O'Hare Airport was added in the 1950s and in the 1980s. The population size of community areas varies from the smallest area, Fuller Park, which has fewer than 3000 people, to the largest area, Austin, with over 98 000 residents.

In this article, we examine the effect of neighborhood disorganization on care engagement using a cohort of children with chronic conditions in Chicago.[42] We hypothesize that children residing in disorganized neighborhoods with a higher level of crime, compared with those living in a lower level of crime, will be less likely to be engaged in health care.

METHODS

Setting

We utilize data from the Coordinated Healthcare for Complex Kids (CHECK) program in Chicago, Illinois. CHECK, a care delivery demonstration project funded by the Centers for Medicare & Medicaid Services Innovation Center, provides comprehensive care for children with chronic conditions.[42] For the purpose of this research, we included a total of 6458 children enrolled in the CHECK program between December 2014 and September 2017 whose residential address was available.[42-45] The CHECK program focused on children diagnosed with asthma, diabetes mellitus, sickle cell disease, epilepsy, or other chronic medical conditions who were enrolled in Medicaid. CHECK participants received health care coordination and management along with enhanced access to specialty care, behavioral health, legal services, and referrals for social services, such as housing, transportation, and food, which were tailored to where the family lived. Community health workers (CHWs) provided care coordination services to families in their homes, schools, clinics, hospitals, and communities. The state Medicaid agency, the Illinois Department of Healthcare and Family Services, and Medicaid managed care organizations applied the CHECK program eligibility criteria to Medicaid claims data to identify and refer children to the CHECK program. The CHECK eligibility criteria were children who were enrolled in Medicaid with chronic medical conditions. All children who identified as CHECK eligible were considered "enrolled" in the CHECK program. CHWs sent all enrolled children and their parent/guardian a letter explaining the CHECK program along with directions about how to opt out of the program. CHWs then contacted the child's parent or guardian by phone to conduct an initial comprehensive intake assessment. CHWs attempted to contact children up to 4 times by phone, and if unsuccessful, CHWs conducted a home visit. If the child or parent/guardian were not home, the CHW left a postcard. Enrolled children's parents or guardians who did not respond to the outreach attempts were disenrolled from the CHECK program. CHECK program staff used

multiple methods of confirming or finding the correct address for patients. Of those children who were "enrolled" in the CHECK program, a child was considered "engaged" in the CHECK program when his/her parent or guardian completed a comprehensive intake assessment, which is the first step to providing services to the participant (see Supplemental Digital Content 1, available at: http://links.lww.com/FCH/A58).

Residential addresses were geocoded using Arc GIS Desktop 10.8, which is geographic information system (GIS) software by Esri.[46] A total of 6579 addresses were included, and of those, 121 cases (1.8%) did not match due to incomplete or wrong addresses. Among the matched addresses, 6451 cases were matched and 7 cases were tied. These 7 tied cases were manually verified. Less than 1% of addresses had below 93.5 accuracy scores. We then used census tract numbers to append neighborhood variables. Neighborhood variables were calculated using data from the US Census, American Community Survey (ACS). The 5-year estimates of ACS for the period of 2013-2017 were used to match the study period.

Measures

Individual and neighborhood-level variables were used for the analysis. The outcome measure, care engagement status, was a dichotomous variable of engaged (parent/guardian completed a comprehensive intake assessment) or not engaged (parent/guardian did not complete a comprehensive intake assessment). Child demographic characteristics include age, sex, and race/ethnicity. The age variable was categorized into 3 groups: 5 to 8 years, 9 to 13 years, and 14 to 18 years. Sex was a dichotomous (male vs female) variable. Race/ethnicity variables included Black, Hispanic, and other race/ethnic groups. Child physical health diagnosis was a dichotomous variable indicating having one or more physical conditions such as asthma, diabetes, and other chronic conditions.[43] Mental health diagnosis was a dichotomous variable indicating having one or more mental health diagnoses including mood disorders, attention-deficit hyperactivity disorder (ADHD), anxiety disorders, and/or conduct disorders.

We computed a composite score for neighborhood disorganization at the census tract level. We included variables from the US Census Bureau ACS 5-year estimates, concerning neighborhood poverty, instability, and crime.[5] Poverty-related variables were percentage of residents living below the federal poverty line, percentage of female-headed households, percentage of residents who were unemployed, and percentage of working-age individuals who were out of the labor force. Instability variables included percentage of residents who moved in the past 12 months and percentage of vacant buildings. The crime rate per 1000 residents between 2013 and 2017 was also included in computing the social disorganization measure. All neighborhood variables except crime rates were retrieved from the US Census. Crime rates were calculated at the census tract level, using the Chicago Police Department's crime data, which are publicly available.[47]

We performed a principal component analysis to generate a composite score reflecting neighborhood social disorganization using these poverty, instability, and crime variables. Varimax rotation was applied to maximize the variance of the loadings. Feature extraction was based on eigenvalues that were greater than 1. The Kaiser-Meyer-Olkin test was 0.855, indicating the adequacy of sampling, and Bartlett's test of sphericity was significant at $P < .001$, suggesting variables are not orthogonal. A 1-factor solution was identified for the neighborhood disorganization score with the 7 variables. The eigenvalue for the first component was 3.61 with variance explained at 51.6% (see Supplemental Digital Content 2, available at: http://links.lww.com/FCH/A59). The crime rate showed the greatest factor loadings. On the other hand, percentage of residents who moved in 5 years was the least loaded factor. The factor score ranged from −2.09987 (the least disorganized) to 3.13091 (the most disorganized), with the mean at 0 with the standard deviation (SD) of 1.

Analysis

We used Stata/SE 16.1 for statistical analysis[48] and ArcGIS for mapping.[46] First, descriptive statistics were used to explore the characteristics of the sample. Second, the cases were mapped to visualize the spatial distribution of the CHECK participants throughout Chicago. Third, 2-level logistic regressions were performed to examine the effect of neighborhood disorganization at the census tract level on care engagement at the individual level. Variables were entered into the equation stepwise. Race/ethnic differences in the level of neighborhood disorganization and care engagement were also explored. Individual demographics, disease classification, and risk level were controlled for in all models.

Because a considerable proportion (10.9%) of children were missing a race/ethnicity value, race/ethnicity was imputed using the multiple imputation method.[49] Missing race/ethnicity was predicted from the distribution of observed data iteratively and improved degrees of freedom for

multivariate significance tests were obtained from multiple imputed datasets.[50,51] The variable was estimated 40 times, which allows a reasonable level of power falloff, less than 5%, which is acceptable considering the relatively large sample size.[52] Census tract-level sociodemographic variables were used for the multiple imputations including percent Black, percent white, percent Hispanic, percent residents older than 25 with less than a high school education, and percent poverty. A total of 705 cases were imputed.

RESULTS

The total analytic sample for this study included 6458 cases. Of those, 42.7% were engaged in the CHECK program. Approximately 57% were male. Among those whose race/ethnicity was available, the majority of participating children were Black (61.6%), followed by Hispanic (33.7%) and other race groups (4.7%). The imputed race/ethnicity variable yielded 61.4% Black, 33.9% Hispanic, and 4.7% other race groups. More Black and Hispanic children, compared with children of other race groups, were not engaged in care (Table 1). The mean age of the participants was 11.2 years (median = 11.0). Just over 32% were between 5 and 8 years of age; 35% were between 9 and 13 years of age; and the rest (32.5%) were between 14 and 18 years of age. Participating families with children in the oldest age group were slightly less likely to engage in the CHECK service. Close to 70% of children had asthma, and just over 4% of children were diagnosed with diabetes. Eighteen percent of children had one or more mental health disorders, including mood disorders, anxiety disorders, ADHD, and conduct disorders. Families with children with mental health diagnoses were more likely to be engaged in care.

TABLE 1. Demographic Characteristics of CHECK Participants, by Care Engagement Status (N = 6458)

Variable	Not Engaged, % (57.3%)	Engaged, % (42.7%)	*P*
Age, y			
5-8	56.3	43.7	<.05
9-13	55.9	44.1	
14-18	59.6	40.4	
Gender			
Female	57.6	42.4	NS
Male	56.9	43.1	
Race/ethnicity[a]			
Black	59.3	40.7	<.01
Hispanic	54.5	45.5	
Other	49.9	50.1	
Social disorganization			
<20th	56.5	43.5	
20th-40th	54.5	45.5	
40th-60th	55.9	44.1	<.01
60th-80th	57.7	42.3	
>80th	61.6	38.4	
Physical health diagnosis[b]			
Yes	57.8	42.2	<.01
No	54.9	45.1	
Mental health diagnosis[b]			
Yes	52.5	47.5	<.01
No	58.3	41.7	

Abbreviations: CHECK, Coordinated Healthcare for Complex Kids; NS, nonsignificant.
[a]Imputed.
[b]Multiple diagnoses possible.

Overall, CHECK participants are from highly disorganized areas of Chicago. Figure 1 depicts the spatial distribution of the neighborhood disorganization score by the SD and the number of CHECK participants per 100 000 residents. Spatial clusters of high neighborhood disorganization are seen on the west and the south side of Chicago, which are, for the most part, known to be poor and highly segregated areas. To confirm the spatial clustering, we conducted a hotspot analysis. The spatial autocorrelation (Moran's *I*) for the neighborhood disorganization score was 0.753 (see Supplemental Digital Content 3, available at: http://links.lww.com/FCH/A60). The majority of CHECK participants resided in areas with highly disorganized neighborhoods.

Children living in the top 20th percentile disorganized areas were least likely to be engaged, compared with areas with lower levels of neighborhood disorganization (Figure 2). On average, 38.4% of children in the top 20th percentile disorganization group were engaged, 42% engagement among children living in 60th-80th percentile disorganization, 44% in 40th-60th percentile, and 46% in 20th-40th percentile disorganization. Interestingly, the engagement was slightly lower at 44% in the areas with the lowest disorganization score (<20th percentile). Pairwise multiple comparison analysis showed that statistical significance was between the 80th percentile disorganization category (the most disorganized) and the 4 other groups, with values ranging between $P < .01$ (80th-100th percentile vs <20th, 20th-40th, and 40th-60th percentiles) and $P < .05$ (80th-100th percentile vs 60th-80th percentile).

Black children were significantly more likely to reside in highly disorganized neighborhoods compared with Hispanic and other children (Figure 3).

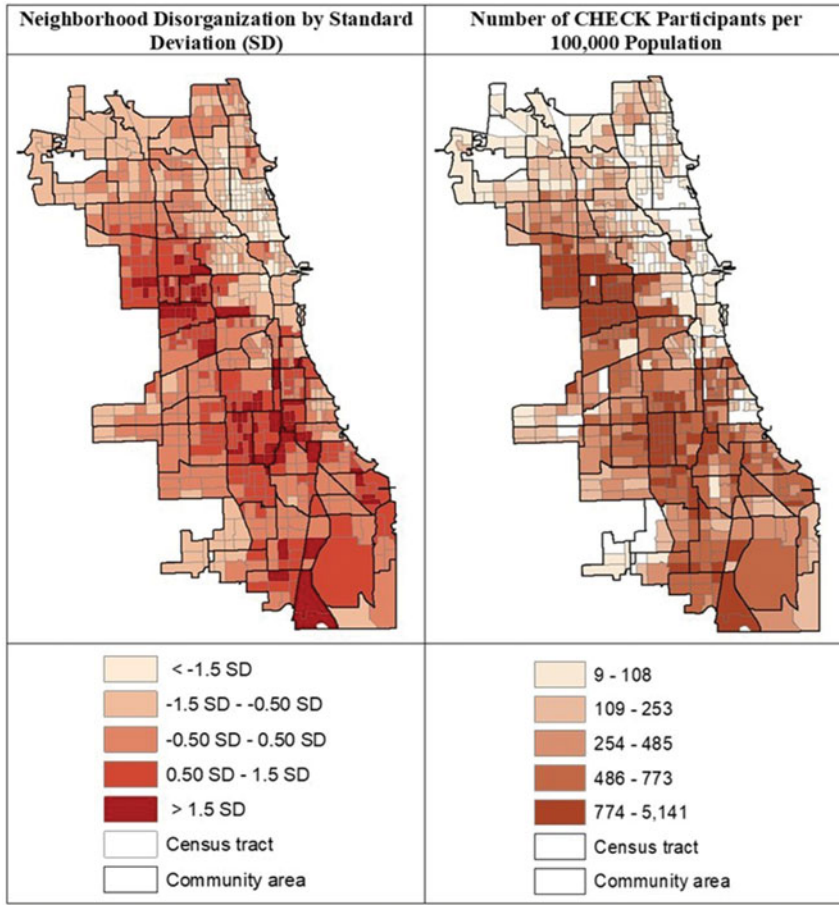

Figure 1. Spatial distribution of disorganization and CHECK participants by Chicago census tracts and community area. CHECK indicates Coordinated Healthcare for Complex Kids. This figure is available in color online (www.familyandcommunityhealth.com).

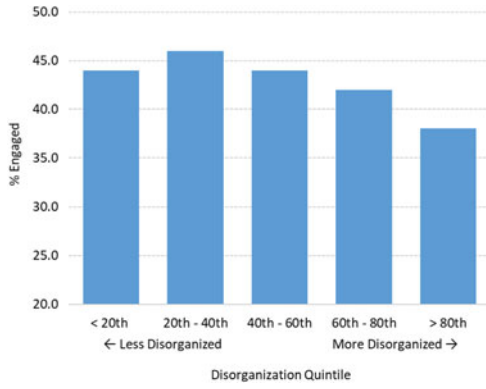

Figure 2. The level of engagement by neighborhood disorganization. This figure is available in color online (www.familyandcommunityhealth.com).

More than 31% of Black children were living in areas that fell into the highest 20th percentile disorganization, and an additional 29% in the second highest quintile. On the other hand, less than 2% of Hispanic children and other children were living in areas with the top 20th percentile disorganization. The majority of Hispanic children (78.4%) and other children (86.3%), compared with 15.7% of Black children, resided in the bottom 40th percentile least disorganized areas.

Two-level logistic regression models examining the relationship between neighborhood disorganization and care engagement are shown in Table 2. To examine changes in coefficients, we introduced variables stepwise. Model I summarizes the relationship between individual demographic variables and care engagement. Older children ages between 14 and 18 years were less likely to be engaged in CHECK compared with children aged 5 and 8 years as well as 9 and 13 years. There was no difference in care engagement between male and female children. Hispanic children were 1.2 times more likely than Black children to be engaged in care, while there was no significant difference in care engagement between Black and other children. In Model II, we introduced mental health and physical health diagnoses. Children with one or more mental health diagnoses were 1.3 times more likely to be engaged in care, but having physical health diagnoses was not statistically associated with care engagement. In Model III, we included the social disorganization score. The result showed that social disorganization was not statistically significant

TABLE 2. Two-Level Logistic Regression Explaining Care Engagement

	OR			
Variable	**Model I**	**Model II**	**Model III**	**Model IV**
Age, y				
5-8	1.22*	1.27**	1.27**	1.27**
9-13	1.17*	1.19**	1.19**	1.20**
14-18	…	…	…	…
Gender				
Male	1.03	1.02	1.09	1.03
Female	…	…	…	…
Race/ethnicity			…	…
Black (reference)	…	…	…	…
Hispanic	1.16*	1.14*	1.09*	1.26*
Other	1.11	1.08	1.02	0.77
Mental health diagnosis	…	1.29**	1.29**	1.29**
Physical health diagnosis	…	0.93	0.92	0.93
Social disorganization	…	…	0.96	0.90*
Race/ethnicity*disorganization				
Hispanic	…	…	…	1.33**
Other	…	…	…	0.85
Log likelihood	−3908.44	−3901.69	−3901.18	−3895.83

Abbreviation: OR, odds ratio.
*$P < .05$.
**$P < .01$.

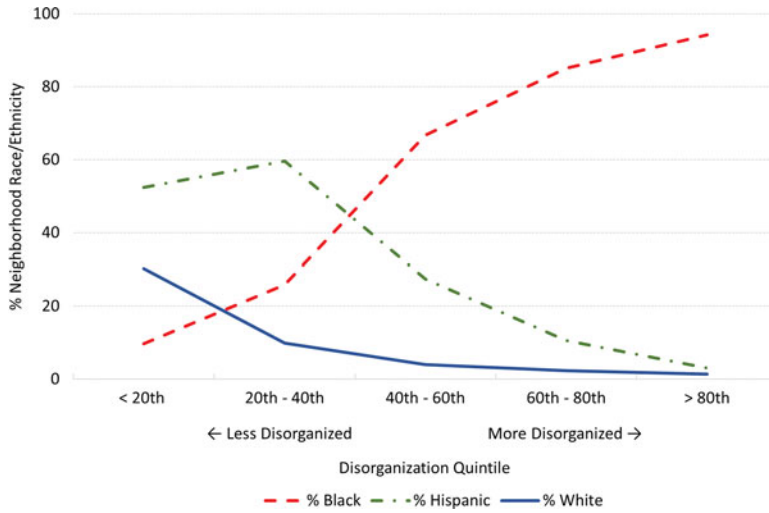

Figure 3. The proportion of care engagement by the neighborhood disorganization level. This figure is available in color online (www.familyandcommunityhealth.com).

and the child's race/ethnicity was also no longer significant, indicating potential interaction between neighborhood social disorganization and individual race/ethnicity. Thus in Model IV, we included an interaction term between social disorganization and the child's race/ethnicity, which was statistically significant. The result showed that a 1-SD increase in social disorganization was associated with a 10% decrease in the likelihood of care engagement, controlling for race/ethnicity. Hispanic children were 30% more likely than Black children to be engaged in care, controlling for neighborhood social disorganization. Overall, Hispanic children were 1.52 times or 52% more likely than Black children to be engaged in care, with each 1-unit increase in the social disorganization measure.

DISCUSSION

We examined the effect of neighborhood disorganization on care engagement using a cohort of children with chronic conditions living in a large urban city. Findings showed that CHECK enrollees living in more disorganized neighborhoods were significantly less likely to be engaged in care, while Black children were disproportionately living in extremely disorganized areas. Our finding suggests that neighborhood contextual disorganization and racial composition of neighborhoods are both associated with care engagement, implying differential health outcomes that indeed have been documented extensively. Multiple intersecting social forces, such as poverty, crime, and racial segregation, are known to be spatially clustered.[37,53] In his book, *The Truly Disadvantaged* published in 1987, sociologist William Julius Wilson argued that the concentration of racial discrimination and economic subordination in the inner city produced the "black underclass."[38] Since then, Massey and Denton's simulation models in their 1993 book, *American Apartheid*, also point to the interaction effects of race and segregation.[54] The authors argue that although racial and income segregation have independent effects on neighborhood context, simultaneous effects of these interacting factors create marked deterioration of the neighborhood environment.

There are several potential mechanisms through which neighborhood disorganization may affect care engagement. At the neighborhood level, disorganization weakens neighborhood social capital, that is, the capacity to collectively deal with neighborhood problems.[55,56] Thus lack of social capital weakens neighborhood-level social control and stability. Lack of social control then results in crime and delinquency, leading to further neighborhood disorganization.[57] Consequently, families living in disorganized neighborhoods have to deal with an unstable social environment, fear of crime, and victimization, which may influence residents to withdraw from civic as well as health care engagement.[58,59]

At the individual level, families living under extreme social and economic stress may have conflicting needs.[60,61] By design, all CHECK enrollees were poor. CHECK was designed to address barriers to improve access to care. To connect with enrolled families, CHECK staff conducted home visits. In addition, CHECK services were offered

by phone and in-person wherever enrollees could be reached including in clinics, hospitals, the community, and schools. Some parents were able to take advantage of the CHECK services, while others failed to engage. Once families are engaged in the CHECK program, the CHECK staff assesses the family's need to link to additional resources such as housing, food, and transportation. The families that did not engage in CHECK did not receive referrals and assistance accessing needed resources. Although it is out of the scope of our analysis, we speculate that poor families living in highly disorganized neighborhoods may struggle to engage because other basic needs such as housing, food, and safety may take precedence over care coordination.[62] The lack of preventive care engagement often results in unnecessary emergency department visits and hospitalizations.[63-65]

Over 50% of Medicaid-eligible families did not engage with the offered CHECK service. One potential reason for not engaging would be medical mistrust.[66,67] Overt racial discrimination, implicit bias, and historical events such as Tuskegee have a powerful impact on how Black families engage with the health care system.[68,69] Parents' medical mistrust may affect how they deal with their children's health care. To mitigate potential mistrust, CHECK implemented a CHW model, where health workers were often from the communities where CHECK participants resided. CHECK staff was also trained in several intervention approaches including motivational interviewing, cultural awareness, and trauma-informed practice, to improve their understanding of potential barriers to patient engagement; and to engage families. Despite a myriad of strategies, many families living in the most disorganized neighborhoods were least likely to engage in care at the initial contact. This finding indicates that interventions aiming to address medical mistrust among disadvantaged minority neighborhoods require structural changes at all levels of health care delivery.[66]

Obviously, parents or guardians are the ones who determine the level of care engagement of children in the CHECK program. Optimal care for children with chronic conditions can be very difficult to obtain when parents or guardians are under social and economic stress. While the CHECK program is a care delivery model for children with chronic conditions, it was designed as a family intervention model whereby siblings and parents also were eligible to receive services based on their identified needs. For example, all parents were screened for mental health problems and offered services from the CHECK Behavioral Health Team. Many families participated in comprehensive services. However, many of the most disadvantaged families never were engaged, and thus were unable to take advantage of these services.

Finally, some limitations of this study need to be addressed. The relatively large proportion of missing values in race/ethnicity may introduce unobserved biases, which may affect study findings, particularly if missing patterns are not at random. The dataset had close to 11% missing race/ethnicity of the participating children. One of the reasons for the high proportion of missing is because Medicaid claims data do not mandate applicants to report race/ethnicity information. CHECK staff collected race/ethnicity data during assessments with families, which then were entered into the medical record. In addition, race/ethnicity data were obtained from schools for the children enrolled in Chicago Public School systems. To address the missing race/ethnicity data, we implemented the multiple imputation methods. We then analyzed data using all cases including imputed race/ethnicity and only the cases without missing. The results from both datasets showed the same results, which provided added confidence to our findings.

Another limitation associated with utilizing existing administrative data is that many administrative data, such as Medicaid claims, often have coding errors that are difficult for researchers to know or correct. It is possible that our findings might be affected by these misclassification errors concerning the presence of mental health diagnoses or physical health conditions. To ensure the stability of our findings, we performed analyses with and without these confounding factors. We do know that the relationship between engagement and race/ethnicity and neighborhood disorganization, in fact, was stronger without these confounders, perhaps as expected. However, there are potential biases due to coding errors and misdiagnoses that could have affected our findings.

We have examined the pattern of care engagement and neighborhood disorganization among children and their families in Chicago's 77 community areas. Chicago is the third largest city in the United States, with extreme racial and economic segregation. Chicago with its distinct spatial segregation often follows its community areas, thus the city of neighborhoods. Our study finding reflects this type of segregation, which may significantly differ from the effects of other types of segregation and the distribution of disadvantages on care engagement. Nevertheless, our findings are useful because of the extreme spatial segregation of disadvantage and disorganization. Our findings from Chicago could reveal underlying functions of neighborhood context, race/ethnicity, and utilization of health care, which might have not been evident in other cities.

CONCLUSION

Despite health care and technological advances, racial disparities in health persist in large urban cities such as Chicago. Furthermore, current health inequality is a spatially clustered phenomenon, where highly segregated, impoverished areas are affected by poor health outcomes. One of the reasons for spatial clusters of poor health would be widening spatial inequality.[61,70] Poor people tend to reside in poor areas because of their economic limitations, but neighborhood conditions also determine residents' social, economic, and health outcomes.[22-24] Neighborhood disorganization contributes to a child's health by exposing children to stress, disorder, and violence, as well as family and parents' ability to actively engage and attain social and health services. As individual, family, and neighborhood-level social, economic, and physical conditions contribute to a child's health and well-being, research aiming to reduce health disparities will need to address interconnected and yet distinct multilevel socioecological factors.

Early life experiences shape one's life trajectories[71,72] and long-term health outcomes are determined by childhood life context.[73,74] Inequality in neighborhood conditions during childhood may perpetuate racial inequality in health.[7,58] Consequently, interventions to improve care engagement for disadvantaged families with children, particularly children with chronic conditions, are essential to reducing health disparities. Successful interventions implement several key approaches, including family-level systems approaches, family support and coping, and directly addressing engagement issues with the family.[75,76] Beyond family-level interventions, strengthening linkages among health care and social service providers at the neighborhood level could also improve care engagement.[77] Further research is warranted to learn insights from families about barriers to care engagement and ways to increase access to resources. Finally, scholars and policymakers will need to expand interventions for children living in the most disadvantaged environments to go beyond health care services, to effectively address fundamental causes of social, economic, and health disparities.

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