



Research Article

# The Neighborhood as Social Exposome: Black Mothers' Narratives of Chronic Stress as a Consequence of Living in Racially Hypersegregated Neighborhoods on the South Side of Chicago

Ruby Mendenhall<sup>1\*</sup>, Rebecca L. Morrow<sup>2</sup>, Kristen L. Ethier<sup>3</sup>, Megan J Lee<sup>4</sup>

<sup>1</sup>Department of African American Studies, Department of Sociology, Carle Illinois College of Medicine, University of Illinois, Urbana-Champaign, USA

<sup>2</sup>Department of Criminal Justice, Tarleton State University, 1333 Washington Street, T-0665, Stephenville, TX 76402, USA

<sup>3</sup>School of Social Work, Simmons University, 300 The Fenway, Boston, MA 02115, USA

<sup>4</sup>Carle Illinois College of Medicine, University of Illinois, Urbana-Champaign, 702 S. Wright Ave, Urbana, IL, 61822, USA

\***Corresponding author:** Ruby Mendenhall, Department of African American Studies, Department of Sociology, Carle Illinois College of Medicine, University of Illinois, Urbana-Champaign, 702 S. Wright Ave, Urbana, IL, 61822, USA

**Citation:** Mendenhall R, Morrow RL, Ethier KL, Lee MJ (2024) The Neighborhood as Social Exposome: Black Mothers' Narratives of Chronic Stress as a Consequence of Living in Racially Hypersegregated Neighborhoods on the South Side of Chicago. J Family Med Prim Care Open Acc 8: 248. DOI: 10.29011/2688-7460.100248

**Received Date:** 20 January, 2024; **Accepted Date:** 29 January, 2024; **Published Date:** 02 February, 2024

## Abstract

**Background:** Structural racism negatively affects the lives of Black women living in hyper segregated neighborhoods on the South Side of Chicago. As a part of emerging research about social exposome's effect on health, this project seeks to understand how the neighborhood context shapes social exposures that often contribute to mental and physical health disparities for Black women. Social exposome is how social experiences can manifest in the body. **Materials and Methods:** This is a mixed methods study that combines geographic data with interviews from Black 92 mothers to understand their social exposures in their neighborhoods, with particular attention to health domains. The Chicago Health Atlas, a public health dataset created by the City of Chicago, is used to contextualize the women's stories about their lived experiences on the Southside of Chicago. The mothers' one-hour interviews are part of a larger study, "The South Chicago Black Mothers' Resiliency Project," which examined how one's health is affected by neighborhood conditions. The original study results showed that neighborhood conditions significantly affected Black mothers' health outcomes. **Results:** Multilevel thematic analysis of the in-depth interviews and descriptive analysis of a public health dataset elucidate that racially hypersegregated neighborhoods serve as enclaves of racialized health disparities. As such, Black women are left feeling trapped where they live, due to high levels of community violence exposure, vacant housing, and other forms of structural violence that are associated with diseases and early deaths among Black women. **Conclusion:** This study turns an intersectional lens on the concept of the social exposome to understand Black women's narratives of the chronic stress resulting from living in racially hypersegregated neighborhoods with high levels of gun violence. These neighborhoods are culturally rich and vibrant. Unfortunately, the health data shows that systemic racism often cuts down the life and potential of so many of the mothers and their family members. As a society, it is critical to identify and eliminate threats to well-being in the exposome. This is especially true of physicians and other healthcare providers. We argue that all healthcare training institutions must train future practitioners to holistically understand the social contexts of their patients' lives, highlighting the need to advance equity as prevention and the holistic healing of individuals.

**Keywords:** Black mothers; Social exposome; Racism; Health outcomes; Neighborhood factors; Mixed-methods

## Introduction

Structural racism, where opportunities and outcomes are unequally distributed among different groups of people, arise when the health, economic, and educational systems create inequalities without the requirement of individual racism [1]. The high cost of structural racism is reflected in (1) the systemic conditions associated with high levels of community violence exposure (e.g. unemployment, educational quality, etc.), (2) the mothers' lack of money to leave these areas and (3) the weathering of their bodies, minds, and souls that they must endure. Prior research demonstrates how the neighborhood context can, at times, imprint itself in the women's hydrocortisol receptor levels and therefore becomes embodied by the individuals living in these neighborhoods [2,3]. This study seeks to elucidate the experiences of Black women navigating the relationship between social exposures within the neighborhood and their mental and physical health.

## Literature Review

One in four Black women in the United States lives below the poverty line [4] and one third of urban Black women live in hypersegregated neighborhoods [5]. Women who live in hypersegregated neighborhoods experience higher levels of violence with more serious physical and mental health issues than women who do not reside in such communities [3,6-9]. In Chicago, racialized health disparities are associated with a long history of racial trauma, including systematic hypersegregation. For example, Black mortality rates in Chicago are 33% higher than for white residents [10,11]. Chicago neighborhoods with the lowest life expectancies are also the neighborhoods where more than 90% of the residents are Black [11]. Increases in community violence [12,13] (e.g. gun violence, police violence, stabbings, drug-related violence) in tandem with the COVID-19 pandemic amplified existing health disparities, with Black people and other marginalized groups dying at a disproportional rate [14,15].

To understand the relationship between structural racism, neighborhood context, and Black women's health, we draw upon the concept of the social exposome. In 2012, Wild first used the term exposome to refer to the totality of exposures that a person receives over their lifetime. The concept of the exposome was initially developed to complement science on the human genome, highlighting how external factors in the physical environment may interact with the body, with the potential to have as much impact on health as the genetic interactions [16]. The goal was to understand the holistic impact of internal and external stressors on health outcomes [17]. According to Darling et al., the body itself can be seen as an environment and is susceptible to environmental stimulus. Exposome research initially focused on stressors in the physical environment, like exposure to environmental toxins. However, scholars are expanding this perspective to explore how social experiences can also materialize in the body in the

form of adverse mental and physical health outcomes [18]. These exposures can include psychosocial characteristics, with unequal impact across individual and groups [19]. However, some scholars have found it challenging to engage the exposome framework to understand differential imprinting across conditions of socioeconomic and sociopolitical inequalities, and their impacts on health and biological development [20]. To focus this work, Gudi-Minderman et al. advanced the social exposome framework, which bridges intersectional [21,22] and social-ecological perspectives to define the features of the social exposome [23]. This framework brings together features of the physical and social environment, taking into account relationships between interpersonal, community, and structural features (e.g., public policy) and their intersections with features of structural inequality (e.g. racism, sexism, and classism).

## Methodology

This study uses two data sources. The first source draws upon data collected as a part of a larger study called "The South Chicago Black Mothers' Resiliency Project." This was a community-based participatory study consisting of surveys, semi-structured in-depth interviews, and genomic samples. For more information about the data collection, please see Lee et al. 2021. Second, we use data from the Chicago Health Atlas to triangulate our results and to discuss the health conditions of the neighborhoods where our participants reside. The Chicago Health Atlas provides rich health data for communities that allows for well-being snapshots of communities and comparisons across communities.

## Qualitative Methods

### Interview study population and setting

This analysis is based on in-depth interviews with 92 single and low-income Black mothers between the ages of 18 and 62 with an average of 33 years who participated in the "South Chicago Black Mothers' Resiliency Project." All of the mothers reside in hyper segregated, predominantly Black neighborhoods on the South Side of Chicago.

### Interview data collection and research procedures

All participants were recruited via snowball sampling. Interviews were conducted at a neighborhood center and participants received a stipend of \$40 for their time and expertise. Trained researchers, who generally matched the race and gender of participants, scheduled and completed one-hour (or longer) interviews with participants. Interviews were audio recorded and transcribed verbatim.

### Qualitative Data Analysis

Researchers conducted multi-level thematic analysis on data from 92 transcribed interviews [24]. First, teams of at least two coders per transcript conducted inductive line-by-line open coding to identify broad themes such as coping and stress, neighborhood stress, and desired changes for their neighborhoods. All participants were assigned pseudonyms. Next, teams of coders

conducted line by line coding to refine and specify themes for this analysis, including “feeling trapped” and “violence constraining full potential.” All analysis was conducted using Atlas.ti to organize the data. Two primary strategies were used to ensure analytic validity and rigor including (1) assessing interrater reliability, as teams of coders would discuss and resolve coding discrepancies and (2) reflexivity, whereby analysts discussed how social positionality shaped interpretation of the themes [25].

### Quantitative Methods

The quantitative analysis allowed for comparisons across neighborhoods in Chicago using the Chicago Health Atlas to capture health throughout the city of Chicago but also a targeted look at the hypersegregated neighborhoods that our sample resides. Stata 16 is used for all statistical analysis.

### Qualitative Results

Black mothers' narratives reveal the extent to which various dimensions of living in a racially segregated neighborhood contribute to chronic stress exposure (i.e., social exposome). In particular, mothers' narratives can be understood across three thematic domains: (1) intersectional characterization of conditions and marginalization that hypersegregates and traps mothers in their neighborhoods, (2) mothers' sensing of community violence in the neighborhood context as a primary driver of stress, and (3) grief and weathering of pervasive death of loved ones as part of mothers' personal lives.

#### Hypersegregated and Trapped: Intersectional Dimensions of Marginalization and Deprivation In Neighborhoods

Many mothers described how they are not living in their neighborhoods by choice, but by necessity due to their low-income status. One mother (Julissa) shared, “It’s [this neighborhood] not really a livable place when you think about it. . . If I had the choice I wouldn’t live there.” When asked what she needed to leave, she simply said “money.” Like her, many of the other mothers reported challenges accessing affordable housing in neighborhoods with less violence and more resources. For example, Julissa moved to her neighborhood from out of town and was channeled into a public housing community because she had three children and needed affordable housing. When asked if she thought that had to do with being Black and/or a woman, she said:

*I think that [distinction] only applies to people who [are educated] ...I'm undereducated, you're more educated, OK. And I was getting to the point. If I was more educated, I would see the difference [between race and gender]. But since I'm so low educated, I deal with what's there for me to deal with, until I make it better.*

Despite this focus on her personal responsibility to change her circumstances, she later noted a structural factor that there are “no jobs” near where she and her children reside. Like Julissa, many mothers felt resigned to the neighborhood options available to them based on their income and personally responsible for changing their circumstances. Other mothers made sense of the role of income in constraining options differently. Cristina

highlighted the rental market and the high cost of housing as responsible for funneling people into low-resource neighborhoods with high levels of violence.

*You won't make it tryin' to pay market rent, and [so] you live in a low-income [community]. No. That's why people move into these half put together neighborhoods, because the rent is cheaper, you know? It's violent over there... They move there because they can't afford to live nowhere decent, you know? That's why they're there enduring that. I'm quite sure a lot of people that live in those areas don't wanna be there. But they have no choice. They have no choice.*

Other mothers made sense of the role of the government in shaping neighborhood circumstances or their social exposomes. Many of the mothers felt that the government “does not care” about the lack of opportunities in their neighborhoods. In one case, Alexa spoke about the intersection of race and education on the role of gentrification of her neighborhood. She also identifies how housing mobility programs in shaping the changes in her low-resource neighborhood. She said the following,

*Well, I won't say [my neighborhood is] white. It's just middle class. You got white, Mexicans, whatever, Asians. They want that neighborhood, and they going to get it. They pushing us out because Black people as being Black, a lot of us don't...we're not educated so we don't know. So they telling us “Okay, well we can get you housing” and they sending us out to the suburbs where there's so much going on in the suburbs. It's just as worse in the suburbs as it is in the city.*

For Alexa, the intersections of racism and classism shapes what she perceives as gentrifiers and the government pushing out low-income Black people into suburbs, which lack transportation and employment resources. Still, other mothers hoped for relief from neighborhood deprivation in the form of resources (e.g., stores, jobs, etc.) that come with gentrification as they have seen happen in other neighborhoods.

#### Living in a “War Zone”: Sensing Community Violence in the Neighborhood Exposome

The mothers overwhelmingly described the role of multi-layered community violence exposure as a key feature of their neighborhood environment (social exposome) and a source of their stress. When asked to describe their neighborhood, several mothers described it as “a war zone.” Renee further described what she meant by “war zone:

*It's always something going on. It's always some kinda fights or some kinda [trouble]. Someone's [always] in trouble. We actually have a 24-hour around-the-clock police car that sits on our block. So, it's war. [This is] not a good neighborhood.*

Sydney described a complex web of people, natural conditions, and toxins in the environment that causes “wear and tear” on the body.

*I used to say the streets, the streets will beat you up. Things will*

*beat you up. The weather, the concrete, [and] the octane from the cars. All that's wear and tear on your body and stress is just when had too much of it.*

Many people use the word streets to represent a complex system of individuals (young and older) engaged in various activities, including the informal economy (i.e., selling drugs, gang activity, selling items by the expressway, etc.). Sydney also refers to the weather that can be very cold in Chicago during the winter months and very hot in the summer, especially in urban heat islands [26]. Compounding exposure to extreme weather is the exposure to toxins from car pollution in neighborhoods with diminished access to public transportation compared to areas of Chicago [27] with higher income and more white residents. Her final analysis is that when these interlocking conditions and oppressions overwhelm the body, stress is the result.

Layla describes the stress and sadness that comes from having gun shots be “normal.” Whether nearby or in the distance, the gunshots are background or ambient noise of the neighborhood. She states:

*I've seen, I've seen shootings. I heard shots. That's normal. I don't too much be around it, but I be hearing it and listening. I try to stay away from that cause I'm scared of bullets... When me and my sister was coming back from somewhere the other day, we seen maybe 22 bullets on the ground by the park, by the school. It's so sad, you know, I just think about those kids, you know?*

When asked “what causes stress in your life,” one mother, Jade, shared, “The gun violence. All of the deaths. Every time I turn on the news, somebody's child is dead, or shot.” This high level of community violence is often a result of a hypersegregated social exposome with limited access to employment and other resources. Jade describes being emotionally shaken into a state of sadness as she estimates the number of bullets in a park by a school that you associate with children. Trinity shared how regularly hearing gun shots puts her on alert about the well-being of her children.

*Um, [I hear gunshots] maybe twice a month. It may be more, but I can't distinguish it. [I can't tell] if it was or not. It sounds distant but if I look at the news or read the newspaper, that'll keep me aware. It makes me not feel safe for my children.*

Many of the mothers described an intense, looming, and persistent fear about their children leaving their homes and moving around in their neighborhoods. However, mothers spoke of several layers of community violence exposure as a primary source of stress, including intimate partner violence, gang wars and police extreme use of force. Unfortunately, these multiple layers of violence sometimes end in the tragic death of loved ones such as children, sisters, and lovers as gruesomely described in the following narratives.

### **Violence and Death at the Doorstep: Weathering Pervasive Death as a Feature of Everyday Life**

For many of the mothers, pervasive community violence and death personally impacted them as the logical conclusion to

structural conditions and racial trauma. Reactions to pervasive death and the associated grief varied across the mothers. Angelique shared her story of multiple tragic losses and discussed a range of responses.

**Participant:** I just got a little stressed when I lost my boyfriend... My husband died in 2001. Then, I met a friend, he passed last year. But I'm okay now, then my son died last year, he died. I'm like oh, my God!

**Interviewer:** So, you had two deaths in one year?

**Participant:** And then after that, my auntie died last month on the Westside. So just you know, that's how things just happen.

Like Angelique, Rhonda talked about her mother and sister's deaths one month apart.

*My mother died in June. My sister died July 4th. [My sister] was on the phone with me. I felt that it [sister's death] was my fault, because she was talking in riddles...She kept me on the phone for 30 minutes. When I hung up, well [before I hung up], she put her husband on the phone. He was talking about [how] he needed to kill somebody. I was like “Nah, bro. You don't need to kill nobody. You know, what you wanna sit in jail for [murder]?” He said, “You right sis.” and I had thought I had diffused that conversation. When he hung up, five minutes later, I got a phone call that he had gun downed her and turned to kill himself.*

Both of these mothers experienced multiple heart wrenching deaths in a short period of time. Angelique lost two romantic partners, her son and then an auntie. She talks about healing from the trauma and being “ok now” after losing her boyfriend a year before the interview. However, when she describes the tragic death of her son, the “oh my God” suggests a crying out from deep despair. She then had to grieve her aunt. Rhonda concluded by saying, “that's how things just happen.” That comment seems to reflect the tragically high levels of death present in these communities. When we asked mothers how many people that they know who have been killed by gun violence, some mothers said “too many to count” or they stopped counting.

Another mother, Raya, described how her son was killed by the police over a decade before the interview, yet she is reliving the memories constantly. She shared:

*The police killed him. And I'm not very fond of them. You know? You got some good ones, and you got some bad ones. And I'm in court right now...and the only thing about it, I hate to go back to court because it brings back the memories and the past. I could live everyday with it, it's been ten years, but I go to court Tuesday for this. You know? And, and, and it just brings it back up.*

For this mother and others, grieving personal losses due to violence lasts far beyond the time of the event. Furthermore, the fight for justice and accountability, especially relating to police violence, is often a harrowing process. Across all of the mothers' stories is evidence of weathering a barrage of events in their social exposome that create to existential threats to themselves, their children and other loved ones. Their stories also reflect extreme

levels of death, loss and grief as a constant part of their lived experience as low-income Black women living in hyper segregated neighborhoods with high levels of gun and other forms of violence on the South Side of Chicago. In addition to the toxic exposure of intersecting forms of violence in the mothers' exposomes, they experience other conditions and threats such as eviction, poverty and low food access.

**Quantitative Results**

To examine these additional threats to Black women's health and wellness, we use the Chicago Health Atlas to capture social exposure levels to neighborhood violence, abandoned building, low access to food, high eviction rates and poverty neighborhoods on the South side of Chicago: West Englewood, Woodlawn, Greater Grand Crossing, and South Shore neighborhoods. For the purpose of this study, we examined how exposure to these conditions

differed in these neighborhoods compared to Chicago as a whole (using a % increase formula). We also have a sense of the general health of individuals dwelling in the various neighborhoods/exposomes: % with adult diabetes, rate of cancer diagnosis per 100,000 individuals, % with hypertension, and rates of diabetes and heart disease mortality per 100,000 people.

Most of the participants in the study live in and around the hypersegregated Black neighborhoods: West Englewood (84% Black), Woodlawn (81% Black), Greater Grand Crossing (95%), and South Shore (93% Black) neighborhoods. When comparing these % Black neighborhood demographics to the % Black (29%) residents in the entire city of Chicago, there is between a 182% and 230% increase of Black residents in the four neighborhoods. Table 1 helps to illuminate how racially hypersegregated these specific neighborhoods are and the next question is, what is the cost of this systemic oppression?

**Table 1: Racial Demographics by Percent.**

Community Area	White	Black	Latinx	Asian	Multiracial
All of Chicago	33.2%	28.8%	28.8%	6.8%	2.3%
Englewood	1.4%	91.4%	4.4%	0.7%	1.9%
West Englewood	1.3%	84.1%	13.3%	0.2%	1.1%
South Shore	2.6%	93.0%	2.7%	0.5%	1.2%
Woodlawn	9.6%	81.2%	2.7%	3.5%	2.7%
Greater Grand Crossing	1.0%	95.0%	2.3%	0.2%	1.5%

Table 2 explores the high cost of hypersegregation in the form of significant health disparities and excess/early deaths in the Black neighborhoods vs. Chicago as a whole due to adult diabetes, hypertension, cancer diagnosis, and diabetes. Diabetes and heart disease related mortality rates are all examined. Hypertension, for example, impacts about 26% of Chicago residents, but in Englewood, that number is astoundingly just under 50%, which is roughly an 85% increase over the city's 26 percent. Interestingly, when exploring cancer diagnosis for all of Chicago, there is a rate of 464 per 100,000 people, while in South Shore the number of people diagnosed is 863 per 100,000. This again is about an 85% increase when compared to what is happening across the city of Chicago.

**Table 2: Neighborhood Health.**

Community Area	Adult Diabetes	% Increase	Cancer Diagnosis Rate*	% Increase	Hypertension	% Increase	Diabetes-Related Mortality Rate*	% Increase	Heart Disease Mortality Rate*	% Increase
All of Chicago	12.20%	X	464.17	X	26.80%	X	89.5	X	176.9	X
Englewood	22.30%	82.80%	685.64	47.70%	49.80%	85.80%	112.9	26.14%	306.1	73.00%
West Englewood	23.20%	90.20%	586.3	44.90%	40.10%	49.60%	101.3	13.18%	277.6	56.90%
South Shore	18.80%	54.10%	863.4	86.00%	29.10%	8.60%	123.1	37.54%	255.1	44.20%
Woodlawn	13.60%	11.50%	687.3	48.10%	25.40%	-5.20%	71.8	-19.78%	228.8	29.30%
Greater Grand Crossing	16.10%	31.90%	672.97	45.00%	35.50%	32.50%	106.4	18.88%	243.8	37.80%

\*Rate per 100,000 people

Lastly, Table 3 explores some neighborhood stressors impacting the lives of our Black female participants. Table 3 represents stressors in a neighborhood/exposome such as violence, vacant housing, poor access to food, evictions and poverty. First, neighborhood violence represents the percentage of adults who reported violence occurs in their neighborhood “every day” or “at least every week”. Thirty-three percent of those who reside in Chicago responded that they identify with this statement. This is higher in all four of the neighborhoods analyzed. Strikingly, 75% of those who live in the Englewood neighborhood endorse the statement. For Englewood, that is over 125% more than Chicago as a whole. Vacant housing also is a neighborhood stressor, wherein Chicago has about 10%, and Englewood has three times that number (32%). Low food access which is noted by the percent of residents who have low access to food, (further than 1/2 mile from the nearest supermarket in an urban area), eviction rates, and poverty rates are also examined, wherein there is a clear disparity when comparing these neighborhoods to Chicago. The most extreme numbers that tell a tale of two cities is the eviction rates. In Chicago, 0.13% of individuals experience eviction. In the four neighborhoods in our study, 2% to 3% of families experience evictions, which is 1,238% to 2,030% higher than the city as a whole. These numbers speak to issues around safety and affordable housing in the social exposome of Black families versus what is occurring in white communities or exposomes. This tale of two cities that warrants the attention and economic investment in creating social exposomes where everyone can live a long and health life, despite their race, gender, class, geographical location, etc.

**Table 3: Neighborhood Stressors.**

Community Area	Neighborhood Violence	% Increase	Vacant Housing	% Increase	Low Food Access	% Increase	Eviction Rate	% Increase	Poverty Rate	% Increase
All of Chicago	33.20%	X	10.40%	X	21.90%	X	0.13%	X	17.06%	X
Englewood	75.20%	126.50%	32.20%	209.60%	22.30%	1.80%	2.31%	1676.90%	39.65%	132.40%
West Englewood	48.10%	44.90%	23.20%	123.10%	63.50%	189.90%	1.74%	1238.50%	32.62%	91.20%
South Shore	64.40%	93.90%	18.90%	81.70%	36.90%	68.50%	2.77%	2030.80%	31.36%	83.80%
Woodlawn	40.90%	23.20%	20.20%	94.20%	57.60%	163.00%	1.99%	1430.80%	29.97%	75.70%
Greater Grand Crossing	51.60%	55.40%	22.30%	114.40%	10.60%	51.60%	2.27%	1646.20%	34.18%	100.40%

## Discussion

Burgeoning research engaging the social exposome framework elucidates the connection between the social environment, including neighborhood context, on physical and mental health outcomes and inequality among marginalized groups [16]. Although studies highlight the correlation between social and structural factors and health, few studies provide insight into people’s lived experiences using their voices to show the connection between social and structural factors, chronic stress, and health. Specifically, mothers report feeling funneled and trapped in hypersegregated Black neighborhoods that expose them to pervasive and premature death and community violence. Their exposome is full of various forms of toxins that foster chronic stress and worry in ways that negatively shape health outcomes. Such chronic stress exposure, as evidenced by increased PTSD symptoms for mothers who feel trapped in their neighborhood, demonstrates the extent to which persistent exposure to racial trauma/oppression is detrimental to the very lives of Black mothers, their children, and their communities [3,29].

Mothers’ repeated reflections that “that’s just how things happen” has been over four hundred years in the making. The broader context in which mothers must learn become resigned to living in “war zone” conditions connects to centuries of enslavement and inhumane treatment, neoslavery, hypersegregation, lack of access to educational and employment resources, hyper surveillance, and often death at the hands of the police. In centering Black mothers’ narratives of weathering the consequences of living in hyper segregated neighborhoods on the South Side of Chicago, our study provides critical insight into the extremely high cost of racial oppression in their everyday lives [30].

## Conclusion

Healthcare providers, community advocates, scholars, policy makers, and others who are committed to a vibrant and thriving society play a crucial role in fostering social exposome equity. When it comes to the prevention of diseases and extending life in general, Robert Wood Johnson [31] is leading the nation and the world with their focus on a culture of health. The culture of health stresses the importance of where people live, learn, work, play, and worship in creating wellbeing across the life course. This historical moment of global excess deaths after COVID-19 represents a unique opportunity to create new science about our total environments (or exposomes) that centers the voices of Black mothers, their children and communities [32]. Cancer researcher Christopher Wild is known as the scholar who coined the term exposome. In a 2005 editorial, he states:

“The imbalance in measurement precision of genes and environment has consequences, most fundamentally in compromising the ability to fully derive public health benefits from expenditure on the human genome and the aforementioned cohort studies. There is a desperate need to develop methods with the same precision for an individual’s environmental exposure as we have for the individual’s genome” (p. 1848).

The exposome methodologic challenge described by Wild necessitates interdisciplinary scholars (e.g., social, behavioral and life scientists; humanists and artists) working with community members and citizen/community scientists in unprecedented ways to not only garner deeper knowledge but to act in service of an equitable exposome.

We currently work with community members and citizen/community scientists to improve the social and structural elements of their social exposome. For example, in response to what we learned in the South Chicago Black Mothers’ Resiliency Project, we are creating transformative and culturally innovative Wellness Stores/Places that put wellness tools and health knowledge at the fingertips of individuals, especially those who are experiencing interlocking traumas such as racism, gun violence, incarceration, hyper segregation and rural geographic isolation. The goal of the Wellness Stores/Places is to serve as a buffer against the negative effects of injustices in society by preventing diseases and fostering wellness in individuals whose bodies, minds and souls are under attack, often with limited resources needed to remain whole with dignity [33,34].

## Declaration of Participant Consent

The authors certify that they have obtained all appropriate participant consent forms. In the form, the participants gave us their consent for the interview data to be reported. The participants understand that we will use pseudonyms to protect their identity, but anonymity cannot be guaranteed.

## Conflicts of Interest

There are no conflicts of interest.

## References

1. Chaskin RJ (2013) Integration and Exclusion: Urban Poverty, Public Housing Reform, and the Dynamics of Neighborhood Restructuring. *Ann Am Acad Pol Soc Sci* 647: 237-267.
2. Lee MJ, Rittschof CC, Greenlee AJ, Turi KN, Rodriguez-Zas SL, et al. (2021) Transcriptomic analyses of black women in neighborhoods with high levels of violence. *Psychoneuroendocrinology* 127: 105174.
3. Mendenhall R, Lee MJ, Cole SW, Morrow R, Rodriguez-Zas SL, et al. (2023) Black Mothers in Racially Segregated Neighborhoods Embodying Structural Violence: PTSD and Depressive Symptoms on the South Side of Chicago. *J Racial Ethn Health Disparities* 10: 2513-2527.
4. Black Women’s Roundtable (2015) Black Women in the United States, 2015. The National Coalition on Black Civic Participants.
5. Massey DS, Tannen J (2015) A research note on trends in Black hypersegregation. *Demography* 52: 1025-1034.
6. Jarrett RL (1997) Resilience among Low Income African American Youth: An Ethnographic Perspective. *Ethos* 25: 218-229.
7. Jenkins EJ (2002) Black women and community violence: Trauma, grief, and coping. *Women Ther* 25: 29-44.
8. Massey DS, Denton NA (1988) The Dimensions of Residential Segregation. *Soc Forces* 67: 281.
9. Sampson RJ, Laub JH (1997) A life-course theory of cumulative disadvantage and the stability of delinquency. *Dev Theor Crime Delinquency* 7: 133-161.
10. Geronimus AT, Bound J, Colen CG (2011) Excess black mortality in the United States and in selected black and white high-poverty areas, 1980-2000. *Am J Public Health* 101: 720-729.
11. Roberts DE (2013) *Fatal Invention: How Science, Politics, and Big Business Re-Created Race in the Twenty-First Century*. The New Press.
12. Overstreet S (2000) Exposure to community violence: Defining the problem and understanding the consequences. *J Child Fam Stud* 9: 7-25.
13. Kennedy TM, Ceballos R (2014) Who, what, when, and where? Toward a dimensional conceptualization of community violence exposure. *Rev Gen Psychol* 18: 69-81.
14. Garcia MA, Homan PA, García C, Brown TH (2021) The color of COVID-19: Structural racism and the disproportionate impact of the pandemic on older Black and Latinx adults. *J Gerontol Ser B* 76: e75-e80.
15. Louis-Jean J, Cenat K, Njoku CV, Angelo J, Sanon D (2020) Coronavirus (COVID-19) and racial disparities: a perspective analysis. *J Racial Ethn Health Disparities* 7: 1039-1045.
16. Wild CP (2012) The exposome: from concept to utility. *Int J Epidemiol* 41: 24-32.
17. Gao P (2021) The Exposome in the Era of One Health. *Environ Sci Technol* 55: 2790-2799.
18. Darling KW, Ackerman SL, Hiatt RH, Lee SSJ, Shim JK (2016) Enacting the molecular imperative: How gene-environment interaction research links bodies and environments in the post-genomic age. *Soc Sci Med* 155: 51-60.
19. Deguen S, Amuzu M, Simoncic V, Kihal-Talantikite W (2022) Exposome and Social Vulnerability: An Overview of the Literature Review. *Int J Environ Res Public Health* 19: 3534.

20. Vineis P, Robinson O, Chadeau-Hyam M, Dehghan A, Mudway I, et al. (2020) What is new in the exposome? *Environ Int* 143: 105887.
21. Collins PH (1990) Black Feminist Thought in the Matrix of Domination. From Patricia Hill Collins, *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment* (Boston: Unwin Hyman, 1990), pp. 221-238.
22. Crenshaw K (1991) Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Rev* 43: 1241-1299.
23. Bronfenbrenner U (1994) Ecological models of human development. *Read Dev Child* 2: 37-43.
24. Saldaña J (2012) *The Coding Manual for Qualitative Researchers*. Sage.
25. Morse JM (1991) Approaches to qualitative-quantitative methodological triangulation. *Nurs Res* 40: 120-123.
26. Heaviside C, Macintyre H, Vardoulakis S (2017) The urban heat island: implications for health in a changing environment. *Curr Environ Health Rep* 4: 296-305.
27. Ermagun A, Tilahun N (2020) Equity of transit accessibility across Chicago. *Transp Res Part Transp Environ* 86: 102461.
28. Massey DS (2016) Residential segregation is the linchpin of racial stratification. *City Community* 15: 4-7.
29. Mendenhall R, Ethier K, Lee MJ, Overton K, Houser S (2021) Trauma over the Life Course for Black Mothers in Chicago: Understanding Conditions, Meaning Making and Resiliency. *J Fam Med Prim Care Open Acc* 5: 159.
30. Geronimus AT (1991) The weathering hypothesis and the health of African-American women and infants: evidence and speculations. *Ethn Dis* 2: 207-221.
31. Robert Wood Johnson. *Our Vision* || RWJF.
32. Wild CP (2005) Complementing the genome with an "exposome": the outstanding challenge of environmental exposure measurement in molecular epidemiology. *Cancer Epidemiol Biomarkers Prev* 14: 1847-1850.
33. Du Bois WE (1903) *The Souls of Black Folk: An African American Heritage Book*. Wilder Publications.
34. Mendenhall R (2016) *DREAMing and Designing Spaces of Hope*. TEDxUIUC.