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# *Annual Review of Developmental Psychology* Effects of Racism on Child Development: Advancing Antiracist Developmental Science

PRE-PUBLICATION VERSION

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Annu. Rev. Dev. Psychol. 2022. 4:4.1–4.24

The *Annual Review of Developmental Psychology* is  
online at [devpsych.annualreviews.org](https://devpsych.annualreviews.org)

<https://doi.org/10.1146/annurev-devpsych-121020-031339>

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## Keywords

racism, child development, antiracism, Black, minoritized, racial equity

## Abstract

Racism, a multidimensional system of oppression and exclusion, is part of the foundation of the United States and is detrimental to the health and well-being of Black communities and other racially and ethnically minoritized (REM) communities. There is an emerging body of literature that draws attention to the impact of racism and different racialized experiences on the lives of REM children. Based on the Racism + Resilience + Resistance Integrative Study of Childhood Ecosystem (R<sup>3</sup>ISE) and focused on attending to the interaction between racism and the cultural assets of REM families and communities, this review highlights how racism impacts REM children's healthy development and learning. In addition to calling for research that advances racial equity using the R<sup>3</sup>ISE

integrative model, we also identify policies that have some potential to ensure equity in economic stability and security, home and community environment, birth outcomes, and educational opportunities for REM children and their families.

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## INTRODUCTION

Racism is one of the most pernicious and trauma-causing factors impacting US children's healthy development (Saleem et al. 2020, Trent et al. 2019). It is a system of hierarchy and privilege based on one's skin color (i.e., race) and a core foundation of the United States (Delgado & Stefancic 2017). While there has been increased attention to the impact of racism on children's development from leading organizations (e.g., the American Academy of Pediatrics, the Society for Research in Child Development), there has been limited attention to the impact of racism in developmental science and how racism in all of its forms directly and indirectly impacts children's development and learning. We seek to unpack the different formulations of racism and, more precisely, uncover how systemic racism, structured to maintain power and privilege within White America and White culture, has created the cycle of deprivation and disparities we see before birth and throughout children's life courses.

Taking a holistic approach to understanding the multiple ways racism affects children's development is a fundamental task for developmental science. The extant theoretical frameworks of developmental science, however, are limited in their conceptualizations of the multiple forms through which racism affects children. We present the Racism + Resilience + Resistance

Integrative Study of Childhood Ecosystem (R<sup>3</sup>ISE) to address this limitation. This integrative model builds upon prior frameworks to comprehensively account for how racism affects children. We simultaneously call attention to how families of color activate their cultural assets to thrive in a racist and inequitable society and also call on developmental science to expand its attention to identify antiracist policies and practices that dismantle structural racism, biases, and other systemic inequities.

Our ultimate goal is to stimulate a developmental science that is antiracist at its core, equity-centered, and culturally grounded in its approach. To this end, this article describes the multiple forms through which racism affects children's health, development, and learning and the costs of racism on society. We then review the major theoretical frameworks of developmental science and present the R<sup>3</sup>ISE integrative model as an alternative for moving the field forward in conducting antiracist developmental science. We end with examples of potential policies that can begin to mitigate the adverse impact of racism and discrimination, recognizing that one policy alone cannot address the multiple and complex ways that racism impacts children's development and learning.

## THE DUAL PANDEMICS OF RACISM AND COVID-19

While the racist system and practice of oppression, dehumanization, and inequity have mostly remained invisible for a large segment of the US population, the global coronavirus pandemic made it more visible. COVID-19 has emerged as a "racial macro stressor" (Seaton 2020), exacerbating preexisting inequitable conditions for racially and ethnically marginalized groups. Black<sup>1</sup>, Latine<sup>2</sup>, and American Indian/Alaska Native<sup>3</sup> communities have experienced higher hospitalization and mortality rates due to COVID-19 than White communities (Tai et al. 2021). While Asian communities appear to have experienced COVID-19 similarly to White communities (Tai et al. 2021), recent evidence shows a multifold increase in anti-Asian harassment and attacks, primarily driven by divisive language linking China and COVID-19 (Wang et al. 2020). COVID-19 has had disproportionate financial impacts on racially and ethnically minoritized (REM) communities as they have experienced greater employment instability and higher job losses than White Americans, which has exacerbated existing racial wealth gaps (Tai et al. 2021). Employment losses also contributed to greater housing instability and food insecurity and less access to affordable health insurance, leaving many REM families in precarious financial situations.

School closures due to COVID-19 also disproportionately affected Black, Latine, and Native American children, who were less likely to have access to in-person learning and were less able to

<sup>1</sup>We use the term Black as a pan-ethnic description of anyone from the African diaspora including, but not exclusively limited to, African Americans, Africans, Afro-Caribbeans, Afro-Latine, or any other group that identifies as Black and/or as having any ancestral heritage from Africa. In some instances, we use the term African American if used by a particular study or report.

<sup>2</sup>Consistent with experts in the field, we use Latine to refer to individuals whose cultural background originated in Latin America. Rather than using Latinx, a term Spanish speakers find unpronounceable in Spanish, we have opted to use the gender-inclusive term Latine, commonly used throughout Spanish-speaking Latin American (Melzi et al. 2022). In some instances, we use the term Hispanic if used by a particular study or report, such as those from the US Census Bureau.

<sup>3</sup>While we use the term Native American as denoted in the US Census and as used in the research studies we cite, we recognize the term is embedded in ethnic nomenclature, racial attitudes, the legal and political status of American Indian nations and American Indian people, and cultural change (Horse 2005). We recognize that Native Americans and tribal communities are Indigenous people, making it clear that this group occupied the land first without assigning them American nationality. In this article, we use Native American interchangeably with Indigenous.

engage with remote learning due to unreliable internet connectivity or a lack of computer technology relative to their White counterparts (Tai et al. 2021, Yip 2020). Furthermore, Black, Latine, and Native American parents are more likely to be employed as essential workers (e.g., in energy, child care, agriculture and food production, retail, transportation) and thus unable to work from home during the pandemic. As a result, their children were less likely to receive parental academic supervision and support for remote learning (Gaylord-Harden et al. 2020, Lopez et al. 2020, Tsethlikai et al. 2020). US children have experienced losses of one-third of their prepandemic reading gains and one-half of their prepandemic math gains, thus further exacerbating previous achievement disparities caused by systemic racism (Gaylord-Harden et al. 2020). Students in majority-Black schools are now 12 months behind their peers in majority-White schools, having started the pandemic 9 months behind (Dorn et al. 2021). Isolation from social distancing has also left children without familial and peer support, critical for their psychological well-being. In addition, Black children and their families have faced race-related trauma during the pandemic from the increased visibility of disproportionate police brutality against Black people (Gaylord-Harden et al. 2020).

These disparate effects of COVID-19 on the health, social, educational, and economic outcomes of REM families and communities are especially concerning for young children. The early years are a sensitive period for children's healthy development (NASEM 2019b). Children's health, development, and learning are shaped by the interactions occurring in the biological and neurological systems of the body and the family and community environments, resulting in lifelong consequences. REM children who are disproportionately impacted by historical and contemporary inequities such as intergenerational poverty; physical, social, and economic segregation; and COVID-19 are especially vulnerable to adversities, leading scientists to term this effect as a dual pandemic—structural racism and COVID-19 (Brodie et al. 2021).

## DEFINING RACISM

One of the first scholars to define racism was Jones (1972), who conceptualized it as “the exercise of power against a racial group defined as inferior by individuals and institutions with the intentional or unintentional support of the entire culture” (p. 117). These racial groups are not biologically based but socially constructed based on skin color, hair texture, and other physical attributes. As a social construct, race was engineered to organize and communicate who has power and who does not. Race continues to be used to distort views of groups, such as by seeing groups as threatening, lazy, and so on. It is also used to justify the oppression and exclusion woven into every fabric of society (e.g., Harrell et al. 2011).

Racism is multidimensional, and it operates on various levels and can set the foundation of child health and adult development in complex ways (NASEM 2019b). Jones (1972) described racism as individual, institutional/systemic, and cultural. Individual racism, also known as interpersonal racism, is based on beliefs of the superiority of one racial group over another and can consist of behaviors that result in discrimination that preserves racial power differentials. Institutional/systemic racism consists of policies, laws, and practices that grant privileges and opportunities to some groups and not others despite being guaranteed to all within institutions such as the education, housing, labor, and criminal justice systems. Cultural racism refers to a global perspective that reflects beliefs in the supremacy of one group over another and is entrenched in people's ideological views, everyday behaviors, language, symbols, and media (e.g., White people are regarded as beautiful, intelligent, and worthy, something to which others aspire, and their values are the norms).

Over the past five decades, other forms of racism have been identified. Structural racism (interchangeable with systemic and institutional racism) refers to racism as an organized system where

policies, practices, and norms are deeply rooted and interconnected within and across various systems to support and maintain racial inequalities in the social, political, and economic systems (Bonilla-Silva 2017). Internalized racism is when a REM person adopts the race-based feelings, values, ideology, and attitudes of White supremacy about one's own racial or ethnic group, leading to feelings of inadequacy, disgust, and self-doubt about oneself (e.g., Jones 2000). Vicarious racism refers to indirect experiences of "hearing about or seeing racist acts committed against other members of one's racial group" (Chae et al. 2021, p. 509). Other forms of racism include everyday racism (e.g., microaggressions), cyber racism (e.g., online/digital racism), symbolic/modern racism (e.g., negative beliefs or stereotypes), and aversive/implicit/contemporary racism (e.g., avoidance of particular racial groups) (for a review, see Neblett 2019). These various forms of racism operate and morph unpredictably through different institutions and individuals (Anderson et al. 2021).

## MECHANISMS OF RACISM IN THE EARLY YEARS

We highlight a few mechanisms through which racism affects children's health, development, and learning opportunities: (a) economic stability and security, (b) neighborhood/community, (c) birth outcomes, and (d) educational opportunities and outcomes.

### Economic Stability and Security

Studies link living in poverty to children's development and learning through a variety of pathways, including parental economic stress, which leads to poor parental engagement, nonresponsive interactions, and a lack of financial resources that provide enriching learning materials (e.g., books), opportunities, and experiences (e.g., extracurricular activities); healthy environments (e.g., lead-free, access to nutritious food, good neighborhoods and schools); and time to engage in bonding and contingent conversations (Aber et al. 1997, NASEM 2019a). Unfortunately, due to many historical and contemporary factors, including inequitable access to educational attainment that leads to unstable employment opportunities, low-wage positions, and, most importantly, limited access to financial resources and opportunities to build economic stability and mobility (i.e., wealth), Black, Native American, and Latine households are likely to live in poverty. According to the 2020 US Census, almost one out of five children live in poverty (18%), translating to over 12 million children. While the rate of young children in poverty is about 9% for Asians/Pacific Islanders and Whites, it more than doubles for Hispanics (27%), Blacks (29%), and Native Americans (34%) (Chen & Thomson 2021). Furthermore, current racial disparities in economic vulnerability (i.e., poverty) can be directly linked to the racial wealth gap, with White families having more than 8–10 times greater wealth than Latine and Black families (McIntosh et al. 2020). Wealth provides numerous resources and social capital to simultaneously buffer children from adversities and accelerate their learning opportunities and progress (Miller et al. 2021). Unfortunately, extensive evidence indicates that children growing up in poverty are likely to experience economic, health, and social vulnerability in their adulthood, leading to intergenerational poverty (Duncan et al. 2010), and this is primarily felt by Black people, especially men (Chetty et al. 2020).

### Neighborhood and Community Environment

Due to structural racism that systematically segregates REM families, especially Black families, into particular communities coupled with institutionalized racism that denies federally backed financing or offers higher and more expensive loan products to Black families (e.g., Bailey et al. 2020), it is not surprising that REM children would experience disparities in their home and community environments. Where children live determines multiple factors that impact their health, education, and development. Racial segregation relegates Black and Latine children to grow up

in neighborhoods characterized by higher proportions of REM populations and concentrated poverty than their White counterparts, who are more likely to live in communities of concentrated wealth with higher proportions of White people (Bullock 2019). These patterns of racial segregation have ramifications for the opportunities and hazards to which children are exposed.

Numerous studies show that neighborhood conditions and resources, such as access to adequate early childhood programs, libraries, schools, health facilities, and green spaces, influence children's development and long-term outcomes (Acevedo-Garcia et al. 2020), including academic achievement (e.g., Torrats-Espinosa 2020, Wei et al. 2018), cognitive skills (e.g., Vinopal & Morrissey 2020), and behavioral development (e.g., Loftus et al. 2020). White and Asian/Pacific Islander children are more likely to live in neighborhoods characterized by health-, cognitive-, and social-promoting conditions and resources, such as higher-quality early childhood education and schools and the availability of healthful foods, which benefit children's development and long-term outcomes (Acevedo-Garcia et al. 2020). Using the Child Opportunity Index, a measure of 29 neighborhood-level indicators in educational, health, environmental, and socioeconomic domains, researchers found that across the 100 largest metropolitan areas, White and Asian/Pacific Islander children lived in neighborhoods that scored much higher in child opportunity than neighborhoods where Native American, Black, and Hispanic children lived (Acevedo-Garcia et al. 2020).

These structural inequities have cascading impacts on REM children's lives, such as exposure to environmental toxins and concentrated disadvantage, placing them at risk for detrimental outcomes. These hazards include, but are not limited to, air pollution (e.g., Commodore et al. 2021, Mullen et al. 2020), noise pollution (e.g., Collins et al. 2019), and lead poisoning (e.g., Baek et al. 2021, Egendorf et al. 2021). Children are most likely to be exposed to these toxins in their homes (e.g., Manduca & Sampson 2021, Wheeler et al. 2019) and schools (e.g., Collins et al. 2019, Grineski & Collins 2018), the two places where they spend the majority of their time. Air quality, in particular, has been linked with the prevalence and severity of childhood asthma, with higher levels of air pollution exacerbating asthmatic symptoms (e.g., Commodore et al. 2021, Kranjac et al. 2017). Black and Hispanic children are more likely to be exposed to higher levels of air pollution due to higher traffic levels in their neighborhoods and have a higher prevalence of asthma/asthma-like symptoms than White and Asian children (Commodore et al. 2021).

Another environmental toxin associated with racial disparities in development and learning is lead. Lead exposure is hazardous to young children as it impairs their brains and nervous systems and can result in delayed growth and development and difficulties with learning or behavioral regulation (Baek et al. 2021). Compared with White children, Black children are more likely to live in substandard housing with deteriorating lead-based paint (Wheeler et al. 2019), drink water contaminated by lead (Davis 2021), or be exposed to lead in soil (Egendorf et al. 2021) and are thus more at risk for exposure to lead poisoning. A recent study explored the geographic distribution of lead hazard risk in residential areas and found that more than 50% of Black and Hispanic children resided in areas that have high or very high levels of lead risk compared with more than 50% of White children living in areas with low levels of lead risk (Baek et al. 2021).

### **Birth Outcomes**

As early as the perinatal period, structural racism impacts preterm birth (Martin et al. 2019), birth weight (Collins et al. 2004), and the quality of care infants receive in neonatal intensive care units (Profit et al. 2017). Further, international evidence suggests that experiences of racial discrimination during pregnancy are linked with higher cortisol reactivity among infants following birth (Thayer & Kuzawa 2015), potentially leading to adverse birthing outcomes such as preterm birth and low birth weight. Children born preterm and with low birth weight are more likely to have



cognitive (e.g., developmental, language delay), behavioral (e.g., attention difficulty), and health (e.g., rehospitalization, respiratory) challenges compared with babies born at term and normal birth weight (Petrone et al. 2001). These early life challenges due to birthing outcomes have been linked to children's school achievement and attainment and social problems (Hack et al. 1995, Johnson 2007). Evidence consistently shows racial disparities in birth outcomes, with preterm birth rates 1.6 times higher for Black women than White women and a greater prevalence of low birth weight among Black infants (Alhusen et al. 2016). Although the infant mortality rate for infants in the first year of life has been declining in the United States, the rate is still more than twice as high for Blacks (10.8 infant deaths per 1,000 births) compared with Whites (4.6 infant deaths per 1,000 births) (Clay 2022, Ely & Driscoll 2021). The reasons for these early racial disparities are mixed, as exposure to risk and protective factors (e.g., maternal health behaviors, social support, prenatal care) do not sufficiently account for the disparities (Alhusen et al. 2016, Lu & Halfon 2003). Researchers are finding support for lifetime exposure to structural racism and discrimination as a chronic stressor that operates on multiple levels, with adverse effects on birth outcomes (e.g., Alhusen et al. 2016) including racial disparities in maternal mortality (Collier & Molina 2019). Kuzawa & Sweet (2009), emphasizing the interdependent process of uterine environments and epigenetic processes, with racism and racialized stress leading to metabolic alterations in the uterine environments that are transgenerational, threatening the well-being of the fetus over generations.

### Educational Opportunities

Early childhood education intervention programs that provide safe and healthy environments with responsive early childhood professionals that provide language and cognitively enriching instruction and interactions lead to positive cognitive, language, and socioemotional development that set children up for school and life (Karoly 2016). However, there are racial disparities in children's access to these high-quality early care and education (ECE) programs, meaning Black and Latine children are more likely to attend lower-quality programs than White children (Early et al. 2010, Valentino 2018). There is some indication that the reason for these disparities may be a function of children's proximity to fewer community resources such as high-quality child care providers (i.e., structural racism), thus limiting their access (Latham et al. 2021). Hardy et al. (2020) found that Black and Hispanic children lived in neighborhoods where there were 90 and 100 eligible children per center, respectively, compared with 60 eligible children in neighborhoods where White children lived, showing the inequitable investments made where Black and Latine children, who are more likely to need such services, live. Even in instances where universal ECE programs are created, such as the prekindergarten (pre-K) program in New York City, studies show a large and significant gap in the quality provided to Black children compared with White children and slightly smaller gaps in the quality provided to Hispanic and Asian children compared with White children (Latham et al. 2021); these racial disparities in access to quality universal pre-K programs are also seen in the Boston Public School system (Shapiro et al. 2019). While the plausible reasons for these disparities are complex, it is likely due to the continued impact of racial segregation on communities with Black children and other children of color, which may affect the quality of the learning environment, the availability of a qualified workforce, and access to wraparound care, including transportation, resource allocation, and other social capital and networks that provide unmeasured advantage that impacts children's development and learning.

Beyond access to ECE programs and services, there is a need to attend to data suggesting biased, unfair, and harsh treatment and interactions by education professionals and staff (i.e.,



interpersonal racism) (e.g., Bryan 2020, Gilliam et al. 2016). Black boys are 2.5 times more likely to be suspended than their White counterparts for the same behavior. Further, the Office for Civil Rights (US Dep. Educ. Off. Civ. Rights 2014) has found that while Black children represent 18% of preschool enrollment, they make up almost half of preschool children receiving more than one out-of-school suspension; in comparison, White children represent 43% of preschool enrollment but 26% of preschool children receiving more than one out-of-school suspension. While there are many possible reasons for the racial disproportionality in suspension and expulsion, scholars focus on teachers' implicit biases against Black children, especially boys (Gilliam et al. 2016, Pigott & Cowen 2000). Experiences of racism among Black boys have been linked with greater feelings of hopelessness and lower self-concept (Nyborg & Curry 2003).

In sum, we argue that these racial and ethnic disparities in economic stability and security, neighborhood and community environment, birth outcomes, and educational opportunities that lead to adverse outcomes for Black, Native American, and Hispanic children are due to structural racism (Jones 1972). Some of these racist policies, including exclusion from home and business ownership, limited access to voting, stolen land, segregated schools and communities, and mass incarceration, are further exacerbated and maintained by biases in institutions such as the financial industry (e.g., home and business finance loans), the criminal justice system (e.g., mass incarceration), education systems (e.g., separate and unequal), and inequitable health systems (e.g., Bailey et al. 2020). Disparities are further felt at the interpersonal level, subjugating people of color with loans being denied by bankers, homes being systematically devalued by appraisal agents, police shooting unarmed Black people, disproportionate suspensions and expulsions being given in schools by teachers and school officials, and medical professionals providing discriminatory treatment by (e.g., denial of medical intervention for pain management to Black people). Thus, the patterns of racial and ethnic disparities in these outcomes are by-products of racism occurring at multiple levels, repeatedly and over time.

Scholars have noted the tax exerted by racism on the development and well-being of Black children and other children of color, which can be seen in their economic, birth, and educational vulnerabilities (Iruka et al. 2021b). While one estimate has assessed racism as costing the US economy up to \$16 trillion over the past 20 years, primarily due to the wealth gap, homeownership, access to higher education, and lending practices (Peterson & Mann 2020), there is also a cost being exacted on children's healthy development and their opportunity to learn and lead healthy lives (Trent et al. 2019). The American Academy of Pediatrics has flagged racism as a core social determinant of health that drives health inequities (Trent et al. 2019). Even children's secondhand exposure to racism (i.e., vicarious racism) creates racial stress and trauma (Curenton et al. 2021, Heard-Garris et al. 2018, Saleem et al. 2020). All these visible and invisible impacts of various forms of racism likely create insurmountable costs for health care, education, and social services systems and broader costs to society such as loss of work productivity and tax revenue.

## KEY THEORETICAL FRAMEWORKS OF DEVELOPMENTAL SCIENCE

For years, the bioecological model by Bronfenbrenner has been used to understand how a child's innate qualities and environments influence their growth and development in different settings (Bronfenbrenner & Morris 2007). Within this framework, the child remains at the core of five encompassing systems (i.e., microsystem, mesosystem, macrosystem, exosystem, chronosystem) that are both intimate and broad, and each system interacts with one another. Despite the significance of the bioecological model, limitations exist. Specifically, while the model highlights the importance of considering the role of context in children's developmental outcomes, it does not consider the role of racism, oppression, and inequity in their lives.

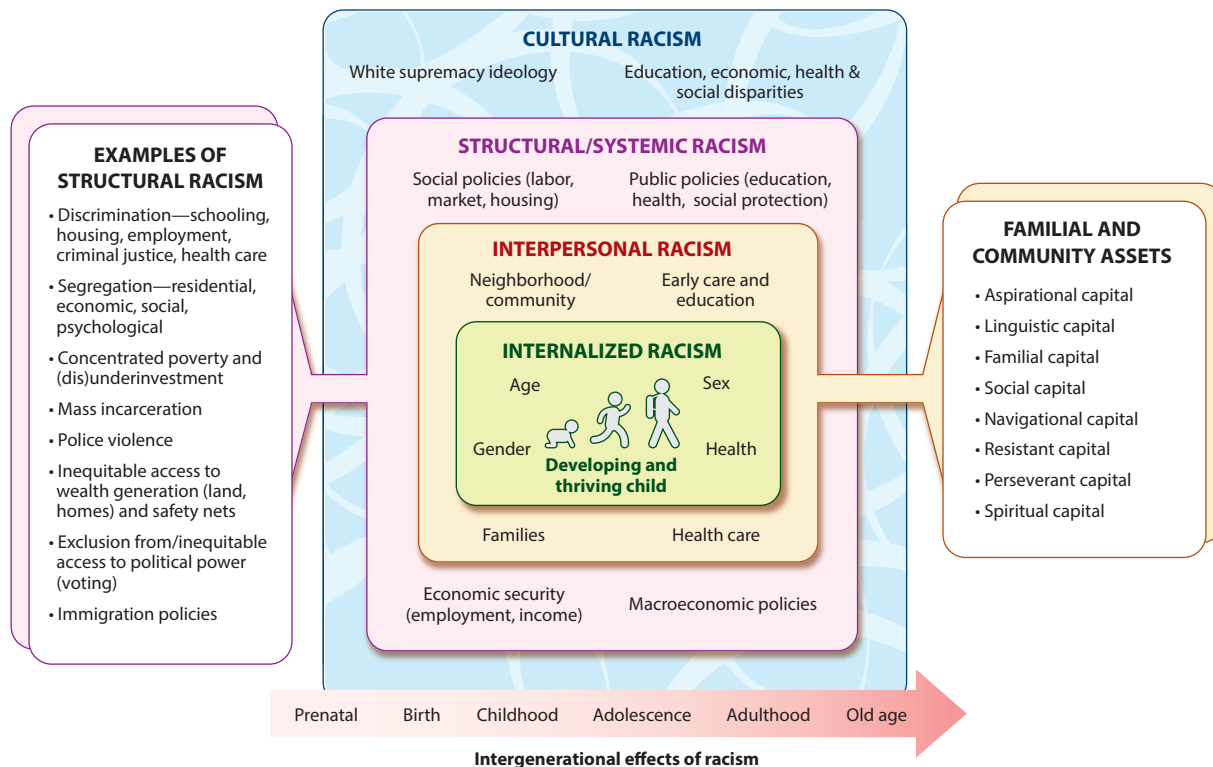
García Coll and colleagues' (1996) integrative model for the study of developmental competencies in minority children is one example of this gap being addressed. This model highlights that children's social identities, such as their race, social class, and gender, position them to have particular experiences and access to opportunities and resources that can influence their developmental competencies and later-life outcomes. For example, Black youth are more likely to be disproportionately and harshly disciplined compared with their White peers, placing them at risk of entering the school-to-prison pipeline (Whaley & McQueen 2020), which has downstream impacts on their life course as well as those of their children and family (e.g., unemployment, poverty, depression).

While they are not standard models used in traditional developmental science, other frameworks are essential in addressing the gap in the bioecological model, including critical race theory (CRT) (Crenshaw et al. 1995), structural determinants of early learning (SDoEL) (Iruka 2020), and life course theory (Elder 1998) (note that this is not an exhaustive list). The CRT movement was birthed in the 1970s and is an essential framework for understanding children's development because it challenges us to reflect on how racism is embedded in policies and legal systems (e.g., health, education, criminal justice, child welfare, financing) (Delgado & Stefancic 2017).

SDoEL, based on the structural determinants of health, underscores the role of social policies in areas such as economics, health, education, and labor in creating structures that have an impact that varies based on one's socioeconomic position, including race, ethnicity, gender, and occupation (Iruka 2020). These structures impact children's development through intermediary determinants such as household material circumstances (e.g., resource availability, neighborhood quality), behavior (e.g., interactions, relationships), biological factors (e.g., physical health), and psychosocial factors (e.g., stress). For example, restrictive state- and national-level policies impact Latine children's mental health and their psychosocial and academic outcomes through racial profiling, discrimination, detention and deportations, economic insecurity, and emotional stress, disrupting children's ecosystems through separation and trauma (Ayón 2017, Lovato et al. 2018).

Considering the link between adversities in the early years, a sensitive period of development, and healthy development in adulthood, life-course perspectives contend that the stress-related effects of such social contexts, systems, and policies are particularly salient during windows of heightened vulnerability (e.g., Shonkoff et al. 2021). During these sensitive periods, life-course models recognize the short-term impacts of stressors, such as racism, and emphasize the long-term implications of such stressors for health and well-being, particularly when they are experienced cumulatively or chronically. Such exposure may shift set points in the myriad systems involved in stress responses, such as the metabolic and cardiovascular systems, by affecting critical areas of the brain, including those that help restore homeostasis in times of stress by effectively curbing adaptive stress responses (McEwen & Seeman 1999). Because racism places Black and other REM children at higher risk for experiencing stressors such as psychological distress (Sanders-Phillips 2009), racism may upregulate their stress response systems, thus leading to dysregulation (Goosby et al. 2018). Life-course perspectives also highlight the concept of linked lives, recognizing that individuals are interdependent and that stressors experienced by individuals will affect those in their contexts, such as families or neighborhoods (Gee et al. 2012).

Some of these frameworks highlight the resilience of REM families and communities in response to racism and systemic exclusion. There are practices that REM families are likely to engage in as a form of coping from, navigating through, and, most critically, fighting for access to equal opportunities and resources; these are a form of resistance. Yosso (2005) highlights several types of cultural assets that REM communities utilize as evidence of their strength and resilience: aspirational, linguistic, familial, social, navigational, and resistant. Given the pervasiveness of chronic stressors due to racism, social support and family and kinship bonds are highly critical (Stamps



**Figure 1**

Racism + Resilience + Resistance Integrative Study of Childhood Ecosystem ( $R^3$ ISE). The  $R^3$ ISE integrative model is a conceptual framework examining how different forms of racism, such as cultural and systemic racism, impact children's healthy development and the moderating role of family and community cultural assets. Note that vicarious racism and some other forms of racism are not pictured.

et al. 2021). For example, we know that Black families and other families of color engage in cultural socialization practices to help their children cope with a racist society that is likely to mistreat them. These cultural socialization practices have been linked to children and youth's positive racial identity, promoting psychosocial functioning, mental health, and academic achievement (Rivas-Drake et al. 2014).

### THE RACISM + RESILIENCE + RESISTANCE INTEGRATIVE STUDY OF CHILDHOOD ECOSYSTEM ( $R^3$ ISE) INTEGRATIVE MODEL

Leveraging these existing theoretical frameworks of children's healthy development and emerging models that incorporate racism (e.g., Slopen & Heard-Garris 2022, Stern et al. 2021), we call for an integrative model called Racism + Resilience + Resistance Integrative Study of Childhood Ecosystem ( $R^3$ ISE) (see **Figure 1**).

$R^3$ ISE is an integrative model that recognizes that to support children's optimal development and ensure they thrive, we must identify the interplay between racism and family and community cultural assets. This model emphasizes the multidimensionality of racism, taking into account children's gender, age, sex, and health, starting with cultural racism, which is deeply rooted in the cultural fabric of US society (the water we swim in) and is perpetuated through societal

structures and institutions (i.e., structural/institutional racism), racist interactions between individuals experienced either personally (i.e., interpersonal racism) or indirectly (i.e., vicarious racism), and adoption of racialized attitudes about own's racial group (i.e., internalized racism). While not pictured in **Figure 1**, we are beginning to understand the emerging impact of various other forms of racism, including vicarious, cyber, and aversive racism, to name a few. At the same time, families bring multiple forms of capital (i.e., assets) that foster resiliency and support their children in overcoming the challenges of living through various forms of racism.

### Why the R<sup>3</sup>ISE Integrative Model is Needed

The R<sup>3</sup>ISE integrative model is an opportunity to advance science to understand the impact of racism on child development and mitigating processes. Developmental science, as a field, has been slow in the uptake of examining the effects of racism on children's learning and achievement and identifying policies and practices to combat these adversities. The R<sup>3</sup>ISE integrative model provides a framework to use for conceptualizing all the key mechanisms by which racism, both interpersonal and structural, exerts its effects on children's growth and learning. Presently, there is no metric by which we can examine how racism affects all domains of development (physical, social, emotional, and cognitive) within or across ecological contexts. Furthermore, many measures of racism assess racism on an individual or interpersonal level rather than at the societal or structural level. While research has shown that individual or interpersonal experiences of discrimination are strong factors for predicting children's healthy growth and development (Sanders-Phillips 2009), it is clear that structural racism also exerts a powerful effect.

Societal or structural racial discrimination is often hard to measure because the problem seems so vast and multifaceted. However, Acevedo-Garcia et al. (2013) explained that the experience of racial and ethnic residential segregation is a form of institutional discrimination that is not always fully captured because it may affect children either directly or indirectly through individual or interpersonal and societal or structural discrimination. Therefore, any measure of racism in children's lives must consider the multiple forms of racism in households' material circumstances and behavior and biological and psychosocial functioning. The R<sup>3</sup>ISE integrative model also encourages the examination of cultural assets that may be activated in response to racism and discrimination (e.g., pool funds for multifamily housing), an aspect often overlooked for REM families and children.

### The Effects of Different Forms of Racism on Child Development

We briefly describe in this section how the different forms of racism in the R<sup>3</sup>ISE integrative model affect young children, such as through their development, experiences, and outcomes. While we recognize various forms of racism (e.g., cyber racism, aversive racism), we are limited by the current science and knowledge related to young children's development, experiences, and outcomes.

Cultural racism is entrenched in people's ideological views and everyday behaviors. For example, there is an underlying ideology that views Black, Latine, and other people of color as lazy, dangerous, and unworthy of opportunities, which results in harmful interactions with law enforcement, mass incarceration, disparities in hiring and leadership opportunities, inadequate health service, and so much more. It is also seen in the harsh and punitive treatment of children, with Black children likely to be viewed as older, more culpable, and less empathetic, leading to adultification (Cooke & Halberstadt 2021), as well as the lower expectations and learning opportunities provided to Black children and other children of color (Gardner-Neblett et al. 2021). As noted by Gardner-Neblett et al. (2021) in their examination of the achievement gap paradigm, cultural

racism is evident in the advantages given to White children, from centering their competencies, cultural values, and their funds of knowledge to showing them as the standard of achievement. In contrast, funds of knowledge, cultural heritage, and competencies of Black children and other children of color are ignored. White children are further advantaged by being likely to be taught by a teacher who shares their racial and cultural background compared with Black children and other children of color. Teacher–child racial-ethnic match has been linked to a close and positive relationship between child and teacher and positive academic and social outcomes for children (Redding 2019).

Systemic racism (interchangeable with structural and institutional racism) creates and maintains advantages (and disadvantages) through rooted and interconnected policies, practices, and norms. For example, due to long-standing housing discrimination, Black children are likely to live in high poverty communities where they are likely to be exposed to violence, toxins, low-quality education (including early-learning programs), unsafe and unhealthy housing, poor health care facilities, and poverty (Jargowsky 2015), while also being subjected to police violence and inadequate political representation, among other policies and practices that directly and indirectly impact children’s healthy development. Similarly, Native American children are likely to live in isolated and low-income communities that reduce their access to healthy food, health care, education, and connection to their land, language, and cultural traditions, which has a devastating consequence on their health and life outcomes (Ahmed et al. 2007). Other ways children of color are adversely impacted by systemic racism include the following. (a) Mass incarceration, which is experienced disproportionality by Black and Latine people, has been linked with economic, social, and emotional challenges for children (Outland et al. 2020, Wildeman et al. 2018). (b) Black, Native American and Latine people are more likely to be unemployed and underemployed compared with their White peers, leading to limited economic resources and increased emotional stress of caregivers which has been linked to negative outcomes for children’s learning and well-being (Iruka et al. 2012). (c) Ample evidence exists about young Black and Latine children being more likely to go to high-poverty and segregated schools compared with their White peers, which is likely to expose them to low-quality resources, noncredentialed teachers, and unsafe and unhealthy learning environments, which are linked to poor academic and social outcomes (Greenberg & Monarrez 2019). (d) While many racial and ethnic groups are harmed by inequitable immigration policy, Latine communities, in particular, are disproportionately harmed by these policies, which have been found to adversely affect the well-being of Latine children and youth through stress due to structural racism, inequitable access to social support (including education), health care and related services, and material resources (e.g., food, housing) (Ayón & Philbin 2017, Philbin et al. 2018).

Interpersonal racism is behaviors and interactions that result in discrimination that preserves racial power differentials, as seen with the police killing of Black people, which evidence indicates is harmful to the emotional health and sense of safety of Black children and youth (Outland et al. 2020). Experiences between health care professionals and families and children of color also leave an indelible mark on children’s development and learning. For example, Black children are less likely to be identified by and provided access to early intervention services and programs, such as those for autism spectrum disorder (Boyd et al. 2018). McManus et al. (2020) found that Black children were less likely than their White counterparts to be referred to early intervention. Providers tended to dismiss parental developmental concerns and abnormal developmental screening results and attribute them to social (e.g., poverty) rather than clinical factors more for Black families compared with White families. Racial bias is also found in the quality of early intervention services Black and Latine children are likely to receive, leading to poorer progress (Khetani et al. 2017). These discriminatory practices and biased experiences are also seen in other sectors, including

ECE (e.g., suspension and expulsion), child welfare (Dettlaff et al. 2011, Miller et al. 2013), and children's health care (Flores 2010), which all harm children's healthy development and learning.

Vicarious racism is the indirect experience of racism. Scholars have postulated the pathways through which vicarious experiences may impact children's development (Bécares et al. 2015, Chae et al. 2021). One pathway is through maternal mental health, with evidence showing that parents who are more depressed are less likely to engage in sensitive and language-rich interactions with their children. Another pathway is through parenting, with parents experiencing discrimination being stressed and engaging in more harsh and punitive parenting. In their systematic review, Heard-Garris et al. (2018) found vicarious racism linked to various child outcomes, especially externalizing and internalizing behaviors and socioemotional difficulties. Nevertheless, there were several null findings linking vicarious racism to child health meriting further attention, especially regarding measurement, informants, timing, frequency, and impacts on young children's engagement and achievement.

Internalized racism is the feeling of inadequacy, which, arguably, starts early in life due to the sustained assault of stereotypic imagery about one's own group perpetuated by a White dominant culture that creates "self-doubt, identity confusion, and feelings of inferiority" (David et al. 2019, p. 1060). Internalized racism was exemplified in the classic Clark & Clark (1947) doll test, which found that Black and White children connected the White doll to more favorable characteristics than the Black doll. Subsequently, scholars began to examine when and how children form their racial identity and the processes that lead to positive (and negative) racial identity (see review by Iruka et al. 2021a). In their systematic review of internalized racism, David and colleagues (2019) found it to be negatively related to racial/ethnic identity and, though findings seem to be mixed, career aspirations, valuing of education, academic self-concept, and grades and positively related to assimilation. There were also findings linking internalized racism to depression and obesity. These studies are incredibly nascent for young children, calling for more research that focuses on that age group and the experiences of different racial and ethnic groups.

### Family and Community Assets

In the R<sup>3</sup>ISE integrative model, we call for attention to be paid to the cultural assets of families and their children, the concept of which is adapted from Yosso's (2005) community cultural wealth framework. Cultural assets help Black, Indigenous, Latine, Asian, and other communities of color to navigate through the various forms of racism. Aspirational capital refers to one's ability to maintain hopes and dreams for the future, "even in the face of real and perceived barriers" (Yosso 2005, p. 77). Linguistic capital refers to various communication and language skills (storytelling, visual art, music, poetry, etc.) and the intellectual and oral traditions of people of color. Familial capital refers to personal, family, and communal relationships and resources accessed via broad kinship and community networks. Social capital refers to people and other resources that can be accessed to support educational or professional access, growth, advancement, and emotional support. Navigational capital refers to skills and abilities that can be used to maneuver through environments that are unsupportive, hostile, or in opposition to people of color. Resistant capital refers to the knowledge and skills used to seek social justice and equal rights and challenge inequality and oppression. Perseverant capital is the skill to cope with obstacles and adversities that get in the way of a goal. Spiritual capital is the personal faith and belief, communal worship experience, and resources one relies on during challenging times. Some of these assets were captured by Robert Hill (1972) in his book about the strengths of Black families, which included strong kinship bonds (i.e., familial capital), strong work orientation (i.e., perseverant capital), adaptability of family roles (i.e., navigational capital), high achievement orientation (i.e., aspirational capital), and religious

orientation (i.e., spiritual capital). Limited studies have been done on the cultural assets of REM communities, necessitating a resurgence in attending to these competencies to further programs and policies that leverage these skills (Cabrera & SRCD Ethn. Racial Issues Comm. 2013).

## **ROLE OF DEVELOPMENTAL SCIENCE IN IDENTIFYING RACISM-MITIGATING POLICIES IN THE EARLY YEARS**

The R<sup>3</sup>ISE integrative model highlights the importance of developmental science in identifying policies that mitigate racism and its consequences for young children and families. Malawa and colleagues (2021) presented a solutions-centered public health intervention framework, referred to as Racism as a Root Cause (RRC), that addresses children's health and well-being. The RRC framework posits that efforts and resources should be targeted toward a specific racial group to maximize the impact for those groups that need help the most: Black and Indigenous populations who have suffered "centuries of brutality, genocide, slavery, oppression, and dehumanization" (Malawa et al. 2021, p. 2).

With the RRC in mind, we call for developmental science to use the R<sup>3</sup>ISE integrative model to examine policies that address how best to protect, promote, and preserve the developmental potential of REM children and their families (Iruka et al. 2021c). Essentially, policies that have the potential to "disrupt experiences of multilevel racism and its harmful effects" (Iruka et al. 2021c, p. 4) while also attending to the cultural assets of the family are likely key levers in promoting children's optimal development. While no one policy can undo the historical legacy of racism, it is an amalgamation of policies that will undo the harmful effects of structural and systemic injustices. As such, the policies mentioned below are not intended to be exhaustive but rather highlight key areas essential to promoting REM children's positive development: (a) economic security and mobility, (b) safe neighborhoods, (c) prenatal and child health, and (d) access to quality affordable early education. Attending to these critical areas has the potential to address racial inequality, especially anti-Black racism, and advance equity in the early years.

### **Economic Security and Mobility**

REM children and families are disproportionately more likely to experience poverty and economic insecurity than their White counterparts (Maroto et al. 2019). Research shows that children who experience poverty are more likely to be exposed to less-than-optimal conditions such as low-quality early education, inadequate nutrition, and higher-stress environments (Engle et al. 2007, Ryan et al. 2006). Policies that address poverty and income inequalities and promote economic security and wealth generation are essential in generating more equitable outcomes for REM populations. Such policies should focus on tax credits, income supports, racial wage equity, baby bonds, investment in Black- and Brown-owned and led entities, and reparations.

Expansion of the Earned Income Tax Credit (EITC) and the Child Tax Credit (CTC) under the Working Families Tax Relief Act of 2019 is expected to benefit 35 million households through the EITC and lift roughly 10 million families out of poverty through the CTC (Marr et al. 2019). The US Census showed that after two rounds of the CTC, Black childhood poverty rates reduced by 6.8%, from 23.7% to 16.9%, totaling 756,000 Black children lifted out of poverty by stimulus payments (Burns et al. 2021). Similarly, the child poverty rate was reduced by 6.8% for Hispanics, representing 1.3 million Hispanic children. In addition, the CTC lifted 1 million White children and 153,000 Asian children out of poverty. Emerging research supports the relationship between poverty-alleviating programs such as the EITC and CTC and their relation to improved health and educational child outcomes (NASEM 2019a).



Income supports, investment in Black- and Brown-owned and led entities, and attending to the racial wage disparities are key levers in promoting economic security and mobility for Black families. The links between race, income inequalities, and economic security and mobility date back to the enslavement period when Black people were forced to provide free labor. This inhumane treatment became the fabric of American society and continues to shape current wage disparities. Black people earn less than their White counterparts across every level of education and profession (Iruka et al. 2021d, Semega et al. 2017). Policies that prohibit employers from keeping pay secret and require the reporting of racial wage data are needed to ensure accountability and equity. The expansion of programs such as Temporary Assistance for Needy Families, which promotes self-sufficiency through income supports to lower-income families, and the Raise the Wage Act of 2021, which would gradually raise the federal minimum wage from \$7.25 to \$15 by 2025, are essential policies that have the potential also to address racial pay inequities (Iruka et al. 2021d).

### **Fostering Safe and Stable Homes and Neighborhoods**

Safe and stable housing is essential for children's healthy development. However, racist housing policies (e.g., redlining, zoning, segregation, predatory lending, underinvestment, and gentrification) and racialized exclusions in public policies such as the New Deal and the GI Bill have produced racial disparities. These disparities are evident in the undervaluation of Black neighborhoods and homeowners. REM households are likely to be low-income renters, be housing cost burdened, have high rates of eviction, live in low-quality and overcrowded housing, and have high rates of homelessness, especially among Black people (Butler et al. 2020).

Organizations such as the National League of Cities (Butler et al. 2020) and Urban Institute (Scally et al. 2020) call for specific policies that address the needs of households, especially those with young children. Some of these policies include (a) conducting a racial impact study to examine racial disparities in housing and land-use policies; (b) mitigating displacement due to gentrification by instituting race-specific policies such as the ancestral clause that gives top priority to those whose families lived in gentrified neighborhoods; (c) keeping renters and homeowners housed while targeting those with the greatest need through unemployment benefit boosts, rental assistance, and mortgage forbearance and refinancing (d) funding comprehensive eviction diversion programs that can assist both renters and landlords; (e) implementing inclusionary housing policies that maintain an affordable supply of housing; and (f) supporting and funding shared equity homeownership, such as community land trusts, that makes a home affordable for a lower-income family. As noted by Iruka, Durden, and colleagues (2021b), equitable housing policies such as the Housing Choice Voucher Program (i.e., Section 8) help more than 5 million low-income families access affordable rental housing that meets health and safety standards, which are associated with many child outcomes including improved nutrition due to greater food security, reductions in poverty and homelessness, and protection from unsafe communities.

### **Prenatal and Child Health**

The well-being of a mother during the prenatal stages of development directly affects the future developmental outcomes of their child (Crnic et al. 2005, Keating et al. 2020). Strengthening access to programs, such as Medicaid, the Children's Health Insurance Program, and Women, Infants, and Children, that disproportionately serve REM families is essential because they provide access to services for women during the perinatal period, continued health coverage for children as they develop, and access to nutritional foods during and after pregnancy. Expansion of such programs has been noted to increase access and use of healthcare, improve health outcomes, and reduce racial disparities (Guth et al. 2020, Iruka et al. 2021e, Ortega & Roby 2021). Additionally,

the Maternal, Infant, and Early Childhood Home Visiting program and the Group Prenatal Care program are promising strategies for incorporating targeted services to meet the needs of Black families. Both programs are designed to support the healthy pregnancy practices of women at greater risk of adverse maternal and child health outcomes. While the effects of the programs on reducing racial disparities are debatable, the foundational structure of how the programs were developed provides an avenue to offer culturally centered education and supportive environments that promote healthy pregnancy and birth outcomes (Iruka et al. 2021e, Lewy 2021, Schmit 2014). Coupling healthcare access with culturally centered prenatal care is key to addressing the racial disparities in adverse birth outcomes (Hardeman et al. 2020).

### Access to Quality Early intervention and Education

Access to quality early-childhood and intervention programs and services supports school readiness skills and academic attainment over time, but access to these opportunities is scarce for REM families (Barnett et al. 2013, Iruka et al. 2021b). The lack of financial resources and geographic proximity to early-learning opportunities—cultivated by systemic and structural racism—places REM children and families at greater risk of experiencing limited access to affordable, quality, and accessible early-learning opportunities and services (Meek et al. 2020). Policies that address systemic barriers, such as cost, quality of care, and accessibility of care, are key in advancing racial equity in early-learning outcomes.

Adopting legislation to implement tuition-free universal pre-K, increasing the distribution and amount of child care subsidies to match the need and cost of quality care, and expanding Early Head Start and Head Start opportunities are essential in alleviating the cost of child care. These policy strategies widen the reach of affordable early care options, increase family income, and increase enrollment in ECE programs (Iruka et al. 2021e, Meek et al. 2020, NASEM 2019b).

While several factors contribute to the continuity of quality early-learning experiences for all children (e.g., teacher turnover), for Black and Native American children, harsh and unfair disciplinary practices and lack of cohesion between their lived experiences and classroom curricula are particularly important. Educator perceptions and expectations of students are often lower for Black children, which leads to harsher disciplinary responses (Gilliam et al. 2016, Goff et al. 2014, Okonofua & Eberhardt 2015). These responses (i.e., higher expulsion and suspension rates) disrupt children's learning, which is detrimental to quality early-learning experiences because it directly affects children's ability to actively engage. Policymakers should consider advocating for and implementing policies that prevent suspension and expulsion during these critical years of development while instituting policies that require the collection of meaningful data about the use of harsh punishment in schools (Meek et al. 2020).

In addition to expanding access to these programs, program leaders must center and integrate the cultural assets of REM communities. Curriculum and pedagogy that promote Black excellence through “leveraging children's cultural and linguistic assets, while building on prior knowledge,” are vital parts “of creating psychologically safe spaces” (Iruka et al. 2021d, p. 19). Allocating funding to support the development and training of culturally responsive educators is essential because it validates the lived experience of Black, Indigenous, Latine, and other REM children and engages them in the curricula as active contributors, which is known to have lasting effects on children's learning over time (Bassey 2016).

### CONCLUSION

Racism and its various forms (e.g., structural, interpersonal, vicarious) have led to detrimental impacts on the well-being and developmental outcomes of REM children and families.

Developmental science demonstrates that racism's impact impinges on every aspect of children's health and well-being, including at the neurobiological, academic, social, psychological, and environmental levels. In this article, we draw attention to disparities that exist—before and after birth—in education, affordable housing, healthcare, ECE, and other areas. The costs of not intervening with effective public policies that are antiracist threaten the well-being of REM children and families and the US society as a whole. Policies that mitigate the destructive effects of racism must be rooted in what developmental science shows children and families need to flourish and thrive.

Luckily, there are ways to mitigate the effects of racism on REM children's outcomes, and these include informing and improving policies that focus on economic security and mobility, safe and affordable housing, prenatal care and child health, and access to early intervention and quality education. We implore researchers, educators, and policymakers to use the R<sup>3</sup>ISE integrative model to continue examining ways to improve and protect the well-being of REM children and work collaboratively to advance racial equity and dismantle systems that have prevented the full participation of REM children and their families in society.

## DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

## ACKNOWLEDGMENTS

I.U.I. would like to give special thanks to all of the funders, partners, supporters, and champions of the Equity Research Action Coalition at the UNC Frank Porter Graham Child Development Institute, Boston University's Center on the Ecology of Early Development, and the RISER Network. We stand on many shoulders and are grateful to be able to center racism, cultural wealth, and racial equity and justice for children and their families. Special thanks to the anonymous reviewers who provided helpful feedback on an earlier version of this manuscript.

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