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Pediatric RESEARCH

COMMENT

“Racism as a public health issue” APS racism series: at the intersection of equity, science, and social justice

Joseph L. Wright[1,2], James N. Jarvis[3], Lee M. Pachter[4,5] and Leslie R. Walker-Harding[6]

Pediatric Research (2020) 88:696–698; https://doi.org/10.1038/s41390-020-01141-7

RACISM AS A PUBLIC HEALTH ISSUE

The social unrest of the past several months highlights the importance of ensuring that science and fact-based objectivity align with the public discourse. A deepening body of literature makes clear the historical association of bias, discrimination, and injustice on Black, indigenous, and people of color (BIPOC) and the deleterious impact experiences of racism can have on healthy child development. This commentary surfaces recent and rooted evidence defining racism as a public health issue.

THE BIOLOGICAL EFFECTS OF CHRONIC AND REPETITIVE STRESS

Among the ineluctable effects of racism are poverty and social marginalization. There has been a longstanding interest in the potential link between the chronic stress that accompanies poverty and marginalization and the poor health outcomes observed in populations that have been most subject to racism.[1] Only now, with advances in cell biology and epigenetics, have we begun to understand the underlying biology through which stress contributes to these outcomes.[2] A detailed review of this subject in not within the scope of this commentary; however, two recent examples from the literature are illustrative of the underlying biologic stressors that add support to the idea that racism is, in fact, a public health problem. Hong and colleagues investigated the effects of in utero stress on the adult immune system in an animal model.[3] Prenatal stress was predictably associated with disruption of the hypothalamic–pituitary axis but more surprising was the effect on the immune system. These authors observed reduced survival and function in CD8+ T cells, a population of cells that is important in combatting viral and bacterial infections and also in suppressing tumors and autoimmunity. The reduced function of CD8+ T cells was mediated epigenetically, as demonstrated in chromatin accessibility experiments. In another study, Dias et al. demonstrated that stress-induced epigenetic effects can be transmitted intergenerationally, even when the stress-producing stimulus is no longer present.[4] In this mouse model, the stress-inducing stimulus was preceded by a specific odor. The F1 generation of the stressed mice (that had not been exposed to either the odor or the stressful stimulus) demonstrated the same fear in response to the odor as did the F0 mice (i.e., those exposed to the odor and stress). Furthermore, the brains of the F1 mice demonstrated significant aberrations in the organization of the regions of the brain that regulate smell, as well as, altered DNA methylation of relevant genes. The F2 generation of these mice showed similar anatomy, behavior, and epigenetic changes. These two studies are illustrative of the degree to which we are beginning to understand the underlying biology of chronic stress, including the stresses that accompany racism and social marginalization. The Dias study in particular is a reminder that the biological effects of historically mediated trauma such as slavery and the forced removal of Native Americans may linger even in individuals who have seemingly escaped the more toxic environments to which their ancestors were exposed.

DISPARITIES ACROSS THE LIFE COURSE

Health, sickness, and access to affordable and high-quality health care are not equally distributed in our country. The root causes of these differences are often attributed to structural and social factors that are commonly referred to as the social determinants of health. Differences in access to resources such as wealth and income, employment, housing, safe neighborhoods, education, and nutritious food significantly contribute to disparity development and overall wellness. For BIPOC, such differential access is almost always a result of racially discriminatory practices. These practices are sometimes overt but often are so woven into the fabric of our society as to seem invisible to those not willing to acknowledge that our country has been built on the historical and cumulative legacy of physical, emotional, and social trauma caused by racism. This is what sociologist, historian, and activist W.E.B. Du Bois was referring to when he wrote, “The problem of the twentieth century is the problem of the color line.”[5] Now, 20 years into the twenty-first century, we note that this line has not changed, and we are now just beginning to acknowledge that the health disparities that clinicians and researchers have documented for well over 100 years are primarily a result of systemic, transpersonal, and internalized racism.[6]

How has this trauma manifest? BIPOC children have higher rates of asthma, obesity, infant mortality, low birth weight, prematurity, poor oral health, special health care needs, adolescent acquired immunodeficiency syndrome, and overall reported poor health status.[7] Many of these conditions can be directly related to the social determinant noted above, which have root causes in historical and systemic racism. Prematurity, low birthweight, and

[1]Department of Pediatrics, University of Maryland School of Medicine, Baltimore, MD, USA; [2]Department of Health Policy and Management, University of Maryland School of Public Health, College Park, MD, USA; [3]Department of Pediatrics, State University of New York at Buffalo School of Medicine and Biomedical Sciences, Buffalo, NY, USA; [4]Department of Pediatrics, Sidney Kimmel School of Medicine, Thomas Jefferson University, Philadelphia, PA, USA; [5]Value Institute, Christiana Care Health System, Newark, DE, USA and [6]Department of Pediatrics, University of Washington School of Medicine, Seattle, WA, USA
Correspondence: Joseph L. Wright (joseph.wright@umm.edu)

Received: 22 July 2020 Revised: 3 August 2020 Accepted: 16 August 2020
Published online: 11 September 2020

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infant mortality in particular highlight the intergenerational effects of toxic stressors such as racism and elucidate the epigenetic-driven physiologic "weathering" experienced by BIPOC children and adolescents across the life course.[8] Higher incidence of behavioral and mental health diagnoses among children from certain BIPOC groups can also be attributed to the mechanisms discussed above or by implicit (or explicit) diagnostic bias. Reviews of the literature on the effects of racism on children's health have shown positive associations between childhood exposure to racism and depression, anxiety, self-esteem, internalizing and externalizing behaviors, and alcohol and tobacco use.[9] For the adults that these children become, the scars deepen and broaden. Adding to the list of health disparities, adults from the BIPOC groups have higher incidence of cardiovascular disease and hypertension, stroke, chronic kidney disease, diabetes, and certain cancers (e.g., indigenous Americans have the highest rate of liver and intrahepatic bile duct cancer). The origins of many of these chronic diseases certainly begin in childhood. As per the allostatic load mechanism, psychosocial stressors such as racism get under the skin to disrupt normal physiology, and over many years this dysregulation results in chronic disease. A second mechanism that associates racism to poor health is John Henryism—high effort coping strategies needed to counteract the burdens of racism, which has been associated with higher rates of hypertension and depression in Blacks.[10,11]

From a life course perspective, evidence suggests that exposure to racism—implicitly and explicitly—results in poor health outcomes and disparities from the intergenerational prenatal period (prematurity and low birthweight) to childhood and adolescence (behavioral and mental health conditions) on to adulthood (chronic health conditions).

THE IMPACT OF INEQUITY IN CARE PROVISION

Racial disparities in the clinical provision of care has been broadly recognized across organized medicine.[12–15] Inequities in multiple clinical settings ranging from primary care access to management of closed head injury to prescription of opioid analgesia have all been well documented.[16–18] Over the past 5 years, a series of cross-sectional analyses of large national datasets and retrospective studies leveraging the Pediatric Emergency Care Applied Research Network (PECARN) registry have contributed significant specificity and much needed verification of the impact of disparate care delivery on children of color.

In two separate studies, Goyal and colleagues examined analgesia administration for pediatric patients presenting to the emergency department for acute appendicitis and long bone fractures, respectively.[19,20] Each analysis revealed that African American children received opioid analgesia significantly less frequently than white patients and were less likely to achieve optimal pain reduction. A methodologically similar PECARN registry analysis of treatment for viral acute respiratory tract infection (ARTI) found that white children were more likely to receive antibiotics for viral ARTI than African American or Hispanic children.[21] In a large, single-center study assessing racial differences in sepsis recognition utilizing a standardized clinical alert pathway, white children were found more likely to be treated for sepsis than African American children.[22]

These studies contribute to the growing implication of latent biases exercised by pediatric health care providers. Using the validated implicit-association test (IAT), Johnson and colleagues documented strong unconscious bias against African American children by providers in a single-center study.[23] A meta-analysis of the IAT in the healthcare setting revealed a paucity of published literature definitively aligning latent or implicit bias with deleterious clinical outcomes.[24] However, one can intuitively argue that oligoanalgesia in a child in pain and antibiotic overprescription in the face of burgeoning multiple drug-resistant organisms compromise patient safety and certainly represent adverse individual health and public health consequences. The pediatric academic community must continue to direct scholarly attention to the examination of the root causes of race and ethnicity-associated practice discrepancies and clinical guideline deviations.[25] Mitigating harm and defining provider-directed interventions are vitally important. Further, structural support at the institutional level for investigators engaged in this work, many of whom are early career, underrepresented in medicine academicians, is warranted and necessary in order to advance this work.

THE CASE FOR RACIAL SOCIALIZATION OF CHILDREN

Children represent the most rapidly diversifying segment of the population in the United States (US). In fact, non-Hispanic white (NHW) children already constitute <50% of the pediatric population, and by 2045, it is projected that, collectively, people of color will eclipse NHWs across the entirety of the US demographic.[26] As such, it is critical for parents, pediatricians, and all who impact the lives of children to embrace the importance of racial socialization as a foundational construct on the path to healthy human development. Further, open, transparent discussion about the historic and current realities of race in America can no longer be hidden or be the "third rail" of social discourse to be avoided. Rather diversity, inclusion, and belonging must be celebrated with an authentic intentionality rooted in truth and acknowledgement not only for the benefit of <u>all</u> children and their families but also the institutions that support them.

What is racial socialization? Broadly speaking, racial socialization refers to the process by which children learn to navigate race issues.[27] Studied for decades in the social science literature, and notably grounded in the seminal doll experiments of trailblazing African American psychologists Kenneth and Mamie Clark, racial socialization has primarily been explored as the work of parents of children of color to help their children navigate a racially biased world.[28,29] One well-studied racial socialization strategy, cultural pride reinforcement, helps children to learn and value their cultural heritage and has been associated with improved academic, behavioral, and mental health outcomes for children of all ages.[30] However, in order for pediatricians to successfully support children and families in contextualizing and operationalizing racial socialization as a part of longitudinal care, it is incumbent on all of us to learn, educate, and become facile in the fundamental tenets of race relations in this country. This is not a trivial task and will require proactive engagement by all facets of the pediatric community especially in the development and evaluation of tools and evidence-based approaches that can mitigate the impact of exposure to racist behaviors.[31]

POLICE VIOLENCE AND COMMUNITIES OF COLOR

The murder of George Floyd at the knee of a police officer is the most recent tragic example of what parents of BIPOC children fear on a daily basis—that their child will be in a situation where their life depends on a reflexive millisecond decision of an adult who is trained to act on the most negative assessment of a situation. Tamir Rice (age 12 years), Michael Brown (age 18 years), Janisha Fonville (age 20 years), Stephon Clark (age 22 years), Gabriella Nevarez (age 22 years)—these are but a few of the more highly publicized cases of adolescents and young adults who have been slain by police in their homes, in their cars, holding a toy gun, holding a cellphone, or otherwise performing acts of daily living while being a young person of color.

These tragic incidences are the tip of the iceberg. Many African Americans can tell stories of "DWB" (Driving While Black), "SWB" (Shopping While Black), or otherwise being harassed or profiled on the basis of being Black.[32] These situations happen to children as

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well. In a sample of 277 Black, Latinx, and multicultural children 8–18 years of age, 54% responded that they had been followed by a security guard at a store, and 34% reported being unfairly treated by a police officer.[33] How are these stressful experiences embedded into the developing minds of our children?

Police violence should not be seen in isolation but as one expression of societal norms that implicitly devalue and adversely impact the lives and well-being of BIPOC.[34,35] Taken within the context of economic redlining, educational inequities, racialized employment and salary disparities, and other instances of general violence, the pattern becomes evident. Unequal treatment from law enforcement should be seen as one symptom of the underlying pathology of systemic racism.

AUTHOR CONTRIBUTIONS

J.L.W. and L.R.W.-H. conceptualized the manuscript; J.L.W. developed the outline and content areas; all authors contributed content to the manuscript; J.L.W. and L.R.W.-H. reviewed and revised the manuscript; and all authors reviewed and approved the revised manuscript as submitted and agreed to be accountable for all aspects of the work.

ADDITIONAL INFORMATION

Competing interests: The authors declare no competing interests.

Patient consent: Not required.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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