

Special Issue Article

Resilience-promoting policies and contexts for children of color in the United States: Existing research and future priorities

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Abstract

The health status of children in the United States varies by racial and ethnic, shaped by an interrelated set of systems that disadvantage children of color in the United States. In this article, we argue for a broad view of resilience, in both research and policy, that views resilience not just as a property of individuals but also as a characteristic of social contexts and policies. Accordingly, we describe the empirical evidence for policies and contexts as factors that can improve health among children and families that are deprived of equal opportunities and resources due to structural racism. We discuss the evidence and opportunities for policies and interventions across a variety of societal systems, including programs to promote economic and food security, early education, health care, and the neighborhood and community context. Based on this evidence and other research on racism and resilience, we conclude by outlining some directions for future research.

Keywords: adolescents, children, health disparities, interventions, resilience, racism

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Introduction

There are large and persistent racial and ethnic disparities in child health in the United States. Relative to White children, Black, Hispanic, and American Indian children display poorer health across a range of outcomes, ranging from overweight and obesity (Bullock, Sheff, Moore, & Manson, 2017; Weaver et al., 2019) to suicidality (Bridge et al., 2015; Subica & Wu, 2018). Of particular concern is the evidence that some of these disparities are worsening over time (Bridge et al., 2015), and current patterns will likely have considerable adverse effects on future population health (Ward et al., 2017). These disparities call for intensified prevention-oriented intervention efforts that have a meaningful impact in the earliest years of life. Racism is now widely recognized as a core determinant of inequities in child health (Trent, Dooley, & Dougé, 2019), broadly defined as a social system where subgroups of the population are categorized based on appearance into a hierarchy, leading the non-dominant groups to be devalued and disempowered (Williams, Lawrence, & Davis, 2019). Racism can occur via interpersonal and institutional processes across multiple sectors of society (e.g., labor market, housing, education, and health care), and results in children from disadvantaged groups deprived of opportunities and societal resources that are critical for healthy development (Reskin, 2012;

Williams & Cooper, 2019). Over the past two decades, there has been increasing research on individual or parental experiences racism and child health; to date, this research has found relatively consistent evidence for associations with socioemotional and mental health outcomes, and some evidence for associations with physical health outcomes (Heard-Garris, Cale, Camaj, Hamati, & Dominguez, 2018; Pachter & Coll, 2009; Priest et al., 2013). A more limited set of studies have examined factors that protect children from the harmful effects of racism (Neblett, Rivas-Drake, & Umaña-Taylor, 2012).

Resilience has been defined in a variety of ways, and tends to vary across disciplines and levels of analysis (Boon, Cottrell, King, Stevenson, & Millar, 2012; Denckla et al., *in press*; Kirmayer, Sehdev, & Isaac, 2009; Luthar & Zigler, 1991; Luthar, Cicchetti, & Becker, 2000; Masten, 2001; Masten, 2007; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008) with most definitions involving positive adaptation or recovery in the context of the adversity or stress. As a developmental psychologist committed to the application of science to policy, Edward Zigler (1930–2019) advanced policies to promote child resilience, playing a central role in the creation of Head Start, Early Head Start, and the Family and Medical Leave Act. While developmental scientists have traditionally conceptualized resilience-promoting factors as internal assets (e.g., personality, skills) or characteristics of families, Zigler's vision for the application of developmental research to policy (Zigler, 1998) led the way for scientifically informed programs and policies that serve to protect children from the harmful consequences of socioeconomic adversity and racism. This line of research applies Bronfenbrenner's bioecological systems theory proposed in 1979, which organizes factors that promote resilience

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according to proximity within an individual's ecosystem, advancing from within person characteristics (e.g., optimism, self-efficacy) to distal factors related to neighborhoods, schools, programs to support family economic security, health services, and so on.

In landmark publications on resilience from a child development perspective, including reviews and commentaries by Luthar and Zigler (1991), Cicchetti and Garnezy (Cicchetti & Garnezy, 1993), and Masten (1989, 2001), there is consensus that community-level resources and support systems can protect children against the negative effects of social adversity, pointing to the implications for policies and practices designed to enhance developmental outcomes for children. Studies on racism and resilience have typically considered interpersonal experiences of racism and individual- or family-level factors that foster resilience, and this set of studies has shown that individual characteristics can buffer children from the negative effects of racism. For example, research shows that children with higher levels of racial and ethnic identity (Brody, Yu, Miller, & Chen, 2016a; Jones & Neblett, 2016; Neblett et al., 2012; Romero, Edwards, Fryberg, & Orduña, 2014), religion (Butler-Barnes et al., 2018), and social support (Brody et al., 2014; Brody, Miller, Yu, Beach, & Chen, 2016; DeGarmo & Martinez, 2006) display weaker associations between discrimination and youth outcomes. In this article, we take a broad view of resilience, in both research and policy, that views resilience not just as a property of individuals but also as a characteristic of social contexts and policies.

We describe research from a variety of disciplines to highlight social policies, programs, and community contexts that serve as resilience-promoting factors that have the potential to reduce child health disparities across racial and ethnic groups in the United States. This literature builds on Zigler's historic contributions to scientifically based policies and intervention efforts for children that move beyond an exclusive focus on children's cognitive and academic outcomes to encompass the wellbeing of families and communities at large.

Social Policies and Community Context as Resilience-promoting Factors

In this section, we review research which supports the hypothesis that intervening on distal social and environmental factors can promote resilience and ultimately advance health equity. We focus on approaches that could be applied at the population level to promote positive outcomes in children who may face a variety of interrelated forms of adversity stemming from racism. Our goal is not to be comprehensive, but rather to highlight evidence and outstanding questions for programs or interventions within a selected set of domains that have strong potential to reduce racial and ethnic disparities across the life course, including early education, economic and food security, primary health care, place-based interventions, and community empowerment.

Early education

Longitudinal follow-up of high-quality early education programs for children in economically disadvantaged families – including the Abecedarian Project, High/Scope Perry Preschool Project, and the Chicago Parent Child centers – have illustrated the potential to promote economic security and interrupt the intergenerational transmission of health and economic disparities (Campbell et al., 2012; Reynolds & Temple, 1998; Reynolds, Temple, & Ou,

2010). The Abecedarian Project – a center-based year-round program for almost exclusively African American children living in poverty that began in the 1970s (Campbell, Helms, Sparling, & Ramey, 1998) – has conducted the most extensive health assessments and found that participants assigned to the intervention condition displayed better cardiometabolic health profiles in their mid-30s relative to controls (Campbell et al., 2014). New evidence from the High/Scope Perry Preschool intervention, also a center-based program for African American children in the 1960s, demonstrates a positive impact not only on participants, but also on their siblings and children, with the offspring of those in the treatment condition having fewer school suspensions, less criminal behavior, and greater educational attainment and employment relative to the children of participants in the control condition (Heckman & Karapakula, 2019). Moreover, a re-analysis of this intervention study to explore possible heterogeneity based on the child's socioeconomic position found that the treatment effects on both noncognitive and cognitive skills were larger and more persistent for the children from the most disadvantaged families relative to those from more advantaged families (Xie, Near, Xu, & Song, 2020).

The positive outcomes from these early trials provide compelling evidence in support of investment in high-quality center-based programs as an intervention to address racial and ethnic disparities (Karoly, Kilburn, & Cannon, 2006; Shonkoff & Fisher, 2013; Yoshikawa, 1995). The sample sizes are small, however ($n=111$ and $n=123$, respectively), and questions persist about variation in impacts across programs, outcomes, and children. Given the dramatic changes in the social context for young children since these two programs began half a century ago, these programs serve as a historical “proof of concept” (Shonkoff & Fisher, 2013). New research is needed to accurately describe: (a) the return on investment for intensive, high-quality center-based programs; (b) features of programs and participants that lead to the best results (i.e., the content of the intervention; the location, required staff training, characteristics of families served; and the timing, intensity, and duration of the program); and (c) the underlying processes contributing to program impacts over the long run.

The Chicago Parent Child centers are unique in providing longitudinal follow-up of a large public program, showing benefits in adolescence (Reynolds & Temple, 1998) and adulthood (Reynolds et al., 2010). A new generation of randomized clinical trial (RCT) studies that build programming onto existing large public programs, such as Educare (Yazzejian et al., 2017), Research-Based and Developmentally Informed-Parent home visiting program (Bierman, Welsh, Heinrichs, & Nix, 2018), and ParentCorps (Brotman et al., 2016), find positive effects for outcomes for children, and some that extend into mid-childhood (e.g., school readiness, academic performance, mental health, and need for services into mid-childhood). It will be critical to examine the long-run effectiveness and cost-benefit analyses for this new set of programs.

Economic support for families

There is growing consensus for a causal impact of parental income for nearly all child and youth outcomes. For a thorough review of the impact of family economic security policies on child health, we refer you to comprehensive reports on this topic (Dreyer, 2019; Duncan, Magnuson, & Votruba-Drzal, 2017; National Academies of Sciences, Engineering, and

Medicine, 2019a). Researchers have used a variety of study designs to demonstrate the benefits of interventions to promote economic security for young and expectant parents. For example, researchers have conducted natural experiments using variation in state policy, demonstrating that income-related policies (e.g., federal tax reforms, minimum wage laws) can positively impact maternal and child health outcomes. As an example, one study shows that the Earned Income Tax Credit (EITC) improves infant health outcomes, with effects stronger for Black mothers than White mothers (Hoynes, Miller, & Simon, 2015). Similarly, laws to increase the minimum wage above the federal level lead to a decline in low birth weight and post-neonatal mortality (Komro, Livingston, Markowitz, & Wagenaar, 2016).

The results from studies of state-level policies described above are consistent with evidence from the Great Smoky Mountains study, a natural experiment that took place when a subset of Native American children (ages 9–13 at baseline) already enrolled in a longitudinal study received an additional \$4000 in annual household income when a casino opened in their community. Assessed four years after income supplementation began, children in households that received supplemental income saw improvements in conduct and oppositional defiant disorder symptoms, becoming similar to the level observed among counterparts who were never poor (Costello, Compton, Keeler, & Angold, 2003). Longer-term follow-up revealed that the beneficial impact continued into adulthood, with benefits observed for educational attainment and minor criminal offenses, eliminating the Native American-White gap for both of these outcomes (Akee, Copeland, Keeler, Angold, & Costello, 2010). In addition, subgroup analyses show stronger effects for the younger subset of the cohort. A new RCT is underway to test the causal impact of monthly unconditional cash transfers on child development from birth to three years (Noble, 2017; Rojas et al., 2020), which will expand our understanding of income supplementation in the earliest years of life. The importance of this line of intervention research is reinforced by observational cohort studies which show that income in the prenatal period and early infancy may be a sensitive periods for the effect of socioeconomic disadvantage on adult body mass index (BMI) (Gilman et al., 2018; Ziol-Guest, Duncan, & Kalil, 2009) and inflammation (Sloven et al., 2015).

Federal investments directed towards taxes and benefits for families determine the child poverty rate, and therefore present an opportunity to foster resilience. For example, a UNICEF report making cross-national comparisons based on 2014 data shows dramatic variation in the reduction in the child poverty rate before and after taxes and transfers; while the child poverty rate is minimally changed in some countries (e.g., less than 10% reduction in Mexico, Romania, and Israel), taxes and transfers reduce the child poverty rate by approximately two-thirds in Finland, Iceland, and Norway. Beyond income and tax and benefit policies, other workplace policies related to paid family and medical leave that vary by race and ethnicity (Bartel, Kim, Nam, Rossin-Slater, Ruhm, & Waldfogel, 2019) could be important in addressing child health disparities. For example, access to paid leave is associated with children's well-child visits, access and use of healthcare and dental services, and fewer ER visits (Asfaw & Colopy, 2017; Clemans-Cope, Perry, Kenney, Pelletier, & Pantell, 2008; DeRigne, Stoddard-Dare, & Quinn, 2016; Shepherd-Banigan, Bell, Basu, Booth-LaForce, & Harris, 2017).

Finally, there is an opportunity to address racial and ethnic disparities in early child development via workforce training for

parents of young children. A recent line of research is now underway to advance on the hypothesized limitations of workforce training initiatives for low-income parents that were tested in the 1980s and 1990s (e.g., Project Redirection, New Chance) that are summarized as “largely ineffective” (p. 434) (Chase-Lansdale et al., 2019). These new programs incorporate a “two generational approach” and merge education and training programs for parents with high-quality early education for children (i.e., sectors that typically exist in silos). For example, *CareerAdvance*, developed by the Community Action Project of Tulsa, is a partnership between Head Start and community college partners that aligns child and adult services and provides additional on-site services at the Head Start centers (e.g., coaching support, peer meetings, in-kind assistance for transportation, wraparound child care on top of Head Start services, etc.) (Chase-Lansdale et al., 2017; Chase-Lansdale et al., 2019; Sabol et al., 2015; Sommer et al., 2018). The training program is tailored to the local economy and focuses on health care careers, which constitute a growth area for the region. At one year of follow-up of 287 low-income, racially diverse families, participants in *CareerAdvance* had a higher rate of certification and employment in the healthcare sector, and reported higher levels of optimism, self-efficacy, and career identity, relative to a matched comparison group (Chase-Lansdale et al., 2019). Of note, the program did not have an effect on short-term income, employment, or reports of material hardship or stress, even though participants in the intervention condition had additional demands of training, along with family responsibilities and employment. In future studies, it will be important to evaluate long-term impacts on income and employment, as well as outcomes for children.

Food security

Food insecurity is approximately twice as common in Hispanic, non-Hispanic Black, and American Indian and Alaska Native households relative to non-Hispanic White households (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2019; Jernigan, Huyser, Valdes, & Simonds, 2017), which has implications for disparities in birth outcomes and subsequent child development (American Academy of Pediatrics, 2015; Gross & Mendelsohn, 2019). Solutions to address food insecurity include making it easier for families to access federal food and nutrition programs, and strengthening these programs. Quasi-experimental studies exploiting county- and state-level variation and change over time provide support for the benefits of programs such as Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and Supplemental Nutrition Assistance Program (SNAP) for improving food security (Mabli & Worthington, 2014), birth outcomes (Almond, Hoynes, & Schanzenbach, 2011; Hamad, Collin, Baer, & Jelliffe-Pawlowski, 2019), and children's health (East, 2020). Furthermore, longitudinal quasi-experimental evidence from the Panel Study of Income Dynamics (PSID) shows that children of parents with lower education who received food stamps in utero through 4 years of age had reduced incidence of metabolic syndrome, relative to those who did not (Hoynes, Schanzenbach, & Almond, 2016). Among women only, access to food stamps during the in utero or early childhood period was associated with increased high school graduation rates and lower use of safety net programs. Consistent with earlier research using the Panel Study of Income Dynamics showing that income support during this early period has a stronger impact on long-term health relative

to later in childhood (Ziol-Guest et al., 2009), this study found that the positive outcomes are specific to this early period.

National data from 2018 show that just over half (56%) of families reporting food insecurity participated in one of the three largest federal food and nutrition assistance programs (i.e., Supplemental Nutrition Assistance Program, Special Supplemental Nutrition Program for Women, Infants, and Children, or the National School Lunch Program) in the 30 days leading up to the survey (Coleman-Jensen et al., 2019). Beyond improving ease of enrollment and support for these government programs, nongovernmental programs may be particularly important to address food insecurity among immigrant families, as current immigration policies discourage eligible immigrant families, fearing consequences at the time of application for permanent residency, from enrolling in benefit programs (Bernstein, McTarnaghan, & Gonzalez, 2019; Laird, Santelli, Waldfogel, & Wimer, 2019; Sommers et al., 2020).

As a direction for future research, behavioral interventions related to policy utilization is an under-studied yet potentially useful area of research for developmentally informed intervention science (Yoshikawa, Whipps, & Rojas, 2017). For example, policy interventions related to utilization of income support, federal food and nutrition assistance programs, health care policies, or workplace policies require individual behaviors for access, and navigation of these supports and interactions with service providers can be challenging for parents. Intervention studies related to policy utilization, informed by a developmental understanding of the cognitive processes of specific subgroups of parents (e.g., young parents vs. grandparent caregivers; native-born vs. immigrant families, etc.), could improve access to such programs and ultimately result in improved support for low-income families (Yoshikawa et al., 2017).

Primary health care

There are a number of approaches to promote the well-being of young children of color using interventions embedded into health care practices. A commonly discussed example is Nurse Family Partnership (NFP), a home-visiting program that begins in the prenatal period and extends until the child is 2 years old (Karoly et al., 2006). In three separate RCTs with varied populations and locations, Nurse Family Partnership has shown positive effects for child well-being, including fewer emergency department visits and adverse birth outcomes, better language development, and lower health care encounters for injury and substantiated abuse or neglect. CenteringPregnancy, a group prenatal care program, is another health care-centered intervention that has been extensively studied, and has documented the potential to improve birth outcomes for minority and Medicaid-eligible women (Abshire, McDowell, Crockett, & Fleischer, 2019; Crockett et al., 2019).

There is strong interest in screening for the social determinants of child health in the pediatric setting, to connect individuals to needed social resources (Garg, Marino, Vikani, & Solomon, 2012; Gottlieb et al., 2020) or legal assistance (Beck et al., 2012; Klein et al., 2013). These efforts can have a positive impact on families and children (Beck et al., 2018; Fierman et al., 2016). For example, a cluster-RCT of a screening and referral program (Well Child Care, Evaluation, Community Resources, Advocacy, Referral, Education, [WE CARE]) of mothers with infants in eight urban community health centers ($n = 336$) found that screening and referral during well-child visits can lead to positive

changes 12 months later across a range of outcomes related to social services, child care needs, and economic security (Garg, Toy, Tripodis, Silverstein, & Freeman, 2015). Another example, Healthy Steps for Young Children (Valado, Tracey, Goldfinger, & Briggs, 2019), is a clinic-based program that combines social needs screenings with child development specialists during well-child visits, developmental and family checkups, home visiting, and various parent supports. Experimental and quasi-experimental studies have demonstrated improvements in quality of health care and parenting practices, including reading, communication, and discipline (Johnston, Huebner, Anderson, Tyll, & Thompson, 2006; Johnston, Huebner, Tyll, Barlow, & Thompson, 2004; Minkovitz et al., 2007).

Medical Legal Partnership (Murphy, Lawton, & Sandel, 2015; Tobin-Tyler & Teitelbaum, 2019) is an example of a type of program that families may be connected to as the result of social screening. Medical legal partnerships embed legal expertise into the health care team to address unmet legal needs that could impact child health, such as substandard housing, denial of government supports or educational needs, family violence, and barriers to health insurance or health care. Studies have shown that medical legal partnerships can result in improvements in preventive care for infants (Sege et al., 2015) and parenting stress (Rosen Valverde, Backstrand, Hills, & Tanuos, 2019), as well as economic hardships (e.g., debt relief [Teufel et al., 2012], retroactive receipt of benefits [Klein et al., 2013], avoidance of utility shutoffs [Taylor et al., 2015]).

At present, routine screening for a range of social needs, which presents both logistical and ethical challenges, is rare in pediatric offices in the United States (Garg et al., 2019). Numerous questions remain that call for careful study, including (a) the contents of a screening measure; (b) who should administer the screening; (c) how to effectively develop trust between parents and providers to enable parents to be honest about needs; (d) how frequently screenings should be administered; and (e) how both pediatrics practices and social policies must be restructured to ensure that screening generates connections to effective community-based services and state and federal safety-net programs (Brundage, 2019; Garg, Homer, & Dworkin, 2019).

Place-based interventions

Structural inequities in contexts, such as neighborhoods and schools, affect health, educational, and economic disparities, and shape day-to-day interactions and the supports and stressors in daily living. As a result, many children of color live in neighborhood contexts that fail to provide the same opportunities for healthy development relative to White children. The Child Opportunity Index, a composite index of 29 indicators measured at the census tract level, combines information on neighborhood resources and conditions that promote optimal child development (e.g., early childhood education and schools, air and water quality, parks and playgrounds, safe housing, economic characteristics, etc.) (Acevedo-Garcia et al., 2020). According to this metric, in the 100 largest metropolitan areas in the United States in 2015, one in five White and Asian children live in communities characterized as high or very high opportunity, while two-thirds of African American children and more than half of Latino and Native American children live in low- or very low-opportunity neighborhoods (i.e., 67%, 58%, and 53%, respectively) (Acevedo-Garcia et al., 2020). Research shows that the Child Opportunity Index is related to child health outcomes and

acute care use (Beck et al., 2017; Kersten et al., 2018); therefore, these disparities in neighborhood opportunity by race and ethnicity illustrate the importance of place-based interventions as a strategy to improve life opportunities for children of color.

Comprehensive community development programs, sometimes referred to as “place-based initiatives” or “structural interventions” aim to make changes to multiple levels of the social and environmental context via cross-sectoral and sustainable collaborations and stakeholder engagement and shared decision-making (Brown et al., 2019; Raphael, 2018). Place-based interventions emerged in response to clear evidence on the importance of community context for health and inequities (Dankwa-Mullan & Pérez-Stable, 2016). There are a number of developmentally informed place-based initiatives that are designed to promote healthy child development, with initiatives tailored to the specific setting and needs of the community (Dean, Seymour, & Rider, 2016; Inkelas, Bowie, & Guirguis, 2017; Rider, Winters, Dean, & Seymour, 2014; Schuchter & Jutte, 2014; Tough, 2009).

The Harlem Children’s Zone (HCZ) is an example of a multi-sectoral community intervention that began in the 1990s, designed to interrupt intergenerational cycles of poverty by providing wide-ranging supports to children and their families (Tough, 2009). The initiative is designed to comprehensively address threats to healthy child development, including issues related to housing, education, and pervasive drug use, crime, and chronic health problems in the community (Nicholas et al., 2005; Northridge et al., 2009; Spielman et al., 2006; Taylor, Schorr, Wilkins, & Smith, 2018). Various aspects of the initiative have been evaluated over time. For example, the educational programs have shown positive impacts for (a) kindergarten readiness (Harlem Children’s Zone, 2020), (b) reducing racial gaps in academic achievement (Dobbie & Fryer, 2011, 2015), and (c) reducing incarceration among males, and teenage pregnancy among females (Dobbie & Fryer, 2015). HCZ was used as a model by the US Department of Education to design the Promise Neighborhoods program which was established in 2010. This initiative provides competitive grants to support coordination between the education sector and family and community services in now more than 80 communities around the United States (Promise Neighborhood Institute, 2020).

There is increasing recognition that efforts to create communities of opportunity and to achieve population-level impacts are most likely to be effective when they generate systemic and multi-sectoral changes (National Academies of Sciences, Engineering, and Medicine, 2019b). Taylor and colleagues (2018) outline features of systemic approaches within place-based initiatives such as HCZ and Promise Neighborhoods that can provide a starting point for effective systems changes, including: leveraging infrastructure (i.e., connecting existing infrastructure to make improvements to the overall system and individual components), community orientation (i.e., responding to community-identified priorities), skills and resources to handle complexity (i.e., structures to enable partners to collaborate and align efforts in a strategic manner), commitment to rigor (i.e., investment in skilled personnel for data collection and rigorous analysis), and use of multiple methods and data for evaluation and continuous improvement. It is important to note that while place-based initiatives hold great potential for sustainable population-level impact, there are many challenges, as they require substantial time and resources, and effort and strategy to build trust, accountability, and shared goals across partners and stakeholders (Raphael, 2018; Taylor et al., 2018).

Community empowerment

Community empowerment, defined as “processes of interaction between individuals and organizations to enhance community living, thereby effecting changes in the large social system” (p. 810) (Cyril, Smith, & Renzaho, 2015), is a community-level trait that may promote resilience for children and families experiencing discrimination. For example, a seminal study by Chandler and Lalonde examined youth suicide rates in relation to a measure of community empowerment and continuity across 196 First Nations communities in British Columbia, Canada (1987–1992) (Chandler & Lalonde, 1998). The measure of community empowerment and continuity – designed to reflect the degree to which a community had taken steps to preserve and continue cultural practices and use legal and political strategies for advocacy and empowerment (i.e., pursuit of land claims, right to self-governance, control over education, police, fire, health services, and the presence of cultural facilities) – displayed an inverse dose–response relationship with youth suicides. Of note, all six of the indicators of community empowerment were protective against youth suicides, and these results were replicated in a later study with subsequent years of data (i.e., 1993–2000) (Chandler & Lalonde, 2008).

Research on empowerment as a community-level trait is consistent with (a) a small literature on the positive effects of fostering racial/ethnic pride for adolescent health behaviors (DiClemente et al., 2004; Enriquez, Kelly, Cheng, Hunter, & Mendez, 2012), and (b) studies of sociopolitical control, which refers to individual beliefs about one’s skills and abilities to create change within social and political systems (Peterson, Peterson, Agre, Christens, & Morton, 2011; Zimmerman & Zahniser, 1991). The research on individual perceptions of sociopolitical control finds that higher perceptions of sociopolitical control are associated with better youth outcomes such as community and school participation and drug use (Peterson et al., 2011). Accordingly, this work illustrates the potential for political movements that promote (a) justice within governmental processes and (b) the allocation of power and resources within communities most affected by health disparities, as a means to achieve health equity. These topics represent potentially useful directions for future research on health disparities in children and adolescents.

Research Priorities

The evidence described above suggests that resilience-promoting factors in the social environment have the potential to improve health among children of color in the United States. In the final section of this paper, we discuss three directions for future research that will help to advance the science of resilience and the potential for this work to advance health equity.

Minimizing unintended negative effects of interventions

Future research on policies to promote resilience and improve health equity will benefit from focused attention to identifying and minimizing unintended negative outcomes stemming from interventions. Unintended negative effects could occur due to: (a) the widening of inequalities, as the result of interventions that differentially impact subgroups of the population (Krieger, 2011; Thomson et al., 2018; Whitehead, 2007); or (b) positive impacts of an intervention for some outcomes or subgroups

simultaneous to harmful consequences for others outcomes or subgroups.

Variation in the impact of an intervention across child health outcomes and subgroups (e.g., defined by age or sex) have been observed for housing mobility interventions (Chetty, Hendren, & Katz, 2016; Fauth, Leventhal, & Brooks-Gunn, 2007; Kessler et al., 2014) and income supplementation (Akee, Simeonova, Copeland, Angold, & Costello, 2010). For example, in an analysis of data from the Moving to Opportunities study ($n = 2872$ children aged 0–8 years at baseline, assessed at 13–19 years), boys whose families received vouchers to relocate from high- to low-poverty neighborhoods displayed increased depression, posttraumatic stress disorder, and conduct disorder relative to the control group, whereas girls in families that received traditional vouchers were less likely to experience major depression and conduct disorder relative to the control group (Kessler et al., 2014).

Considering the Great Smoky Mountains Study described above, one analysis reported an increase in accidental deaths during the specific months that households received the income supplement, presumably linked to increases in vehicular travel and substance use (Bruckner, Brown, & Margerison-Zilko, 2011). In addition, the cash supplements were also associated with increased adolescent obesity among American Indian families whose incomes were low at the inception of the income supplements with no effect for those families whose income was high (Akee, Simeonova, et al., 2010). These findings suggest the potential importance of a comprehensive, multilevel strategy, that could combine income interventions with individual-level interventions that increase health knowledge and engagement that empowered individuals and families to minimize risks associated with substance use and unhealthy nutritional patterns.

Outcome specificity of resilience promoting factors

A recent phenomenon identified within resilience research, referred to as “skin deep resilience” has documented a consistent pattern where disadvantaged adolescents who display external signals of achievement and success (e.g., self-control, academic excellence) and positive mental health outcomes have poorer physical health outcomes according to biomarkers that predict risk of subsequent chronic diseases (Brody et al., 2013; Chen, Miller, Brody, & Lei, 2015; Gaydosch, Schorpp, Chen, Miller, & Harris, 2018; Miller, Cohen, Janicki-Deverts, Brody, & Chen, 2016; Miller, Yu, Chen, & Brody, 2015). In the first study to show this pattern, Brody and colleagues analyzed longitudinal data from a sample of 489 African American youth in the rural Southeast followed from age 11–19, with teacher ratings of academic and social competence assessed annually during the first three years of the study. Individuals with high cumulative socioeconomic-related risk and identified as “resilient” based on teacher reports had low levels of depressive symptoms and externalizing behaviors at age 19, but had the highest allostatic load scores at this time (i.e., a count of physiological indicators in the top quartile of risk, including body mass index, resting diastolic and systolic blood pressure, and overnight cortisol, epinephrine, and norepinephrine) (Brody et al., 2013).

Since this initial publication, this pattern of resilience showing an association with better psychosocial outcomes and worse physical health has been replicated for other outcomes among African American participants, ranging from epigenetic aging of immune cells (Miller et al., 2015), to susceptibility to infection (Miller et al., 2016), to diabetes (Brody, Yu, Miller, & Chen, 2016b).

Importantly, at least two studies have shown that this relationship between resilience, measured in these studies using assessments of conscientiousness and “striving”, and compromised physical health does not extend to White participants (Brody, et al., 2016b; Miller et al., 2016). The nongeneralizability of these results across racial and ethnic groups raises critical questions about the external social conditions, interpersonal interactions, and individual coping methods that lead to these race-specific findings. To understand these patterns, it may be valuable for future studies to consider the potential role of systemic inequities in community context (Williams & Collins, 2001), personally mediated racism (Williams et al., 2019), social isolation (Cole & Omari, 2003), and “John Henryism” (i.e., a stress-related coping method that involves sustained high effort to the point of adverse physiological consequences) (Bennett et al., 2004; James, 1994).

This line of research has raised significant questions on the outcome specificity related to resilience, and indicates a need for research on: (a) the unique challenges of social disadvantage and upward mobility that are distinct for racial minority children and adolescents, to inform interventions; (b) supportive strategies to protect the physical health of high-achieving minority students; (c) the longer-term consequences of these patterns observed in young adulthood (i.e., it is unknown if the benefits of higher education over the long run are most consequential for long-term risk of age-related diseases); and (d) the interactive relationship between resilience-promoting factors at multiple levels, including political and economic forces. In future research, it will be valuable to document how carefully designed programs and interventions have the potential to work synergistically with broad social policies to protect the long-term health of at-risk youth in the United States.

Increasing public support to address racial and ethnic health inequities

Although substantial progress across disciplines has advanced knowledge regarding policies and interventions that can foster resilience among children who face intersecting systems of disadvantage, bridging the gap from research to practice or policy is a challenge (Yoshikawa et al., 2017), and will require increasing public support to address racial and ethnic inequities (Williams & Cooper, 2019, 2020). To do this, there is a need to elevate awareness of racial and ethnic inequalities in economic and health outcomes, which are under-recognized by the general public in the United States (Benz, Espinosa, Welsh, & Fontes, 2011; Kraus, Onyeador, Daumeyer, Rucker, & Richeson, 2019; Niederdeppe, Bigman, Gonzales, & Gollust, 2013). Connected to this is increased understanding of and compassion towards the diverse circumstances of children in the United States could play an important role in building public support and political will to mitigate inequities (Gollust, Nagler, & Fowler, 2020; Williams & Cooper, 2019), and research shows that empathy can be developed (Weisz & Zaki, 2017; Zaki, 2019). For example, a randomized field experiment set in Miami, Florida found that a single 10-minute conversation with a door-to-door canvasser designed to encourage empathy led to a change in attitudes towards transgendered individuals and increased support for a discrimination law, and these changes were sustained for at least three months (Broockman & Kalla, 2016). As another example, in a randomized trial with middle-school math teachers ($n = 31$ teachers, $n = 1682$ students), an empathy-focused intervention designed to address implicit bias reduced suspension rates from

9.6% to 4.8% over the course of one year (Okonofua, Paunesku, & Walton, 2016). Similarly, in a randomized trial of 34 White female pre-service teachers, an empathy-focused intervention to improve implicit bias (as measured by the Implicit Association Test) led to a decline in implicit bias towards Black individuals (Whitford & Emerson, 2019); however, future research is needed to establish how this type of change in implicit bias leads to a meaningful decline in discriminatory behavior towards children, or to increased support for progressive policies.

Conclusions

In this review, we have described a wide variety of policies and programs that build on Zigler's contributions to the application of developmental research to social programs and policies that have the potential to promote resilience among children of color in the United States. This review highlights just a handful of promising directions, related to early education, economic and food security, primary health care, place-based interventions, and community empowerment; other topics of importance include housing assistance programs (Dunn, 2020; Slopen, Fenelon, Newman, & Boudreaux, 2018), school-based interventions to promote resilience (Lee & Stewart, 2013) and reduce prejudices (Grapin, Griffin, Naser, Brown, & Proctor, 2019), and the role of media for reducing cultural racism (Dill-Shackleford et al., 2017; Ramasubramanian, 2015).

In order to bridge the gap between research and the implementation of policies and programs to protect children and prevent health disparities, it is necessary for researchers to recommend actions based on the best science available (Braveman, Egarter, Woolf, & Marks, 2011; Zigler, 1998). Zigler (1998) acknowledged the challenges inherent to producing the type of conclusive and timely recommendations that policymakers require, stating "this is a difficult order to empiricists, for whom details are everything and the search for answers to one research question often leads only to other questions" (p. 540); and yet, he encouraged developmental scientists to forge relationships with policymakers, writing "Laws will be formed with or without us, so we might as well contribute what we can" (p. 540). As research on the social determinants of health has increased dramatically in the subsequent two decades, a variety of tools and recommendations have been developed to guide the use of evidence for social policy in the absence of the type of evidence that is typically used within evidence-based medicine; see Braveman et al. (2011) for a review of this topic.

Considering contemporary events and conditions in the United States, developmental scientists have an opportunity to learn from and inform policies surrounding the coinciding COVID-19 pandemic and recent uprisings to combat racism, which offer the potential to study novel programming, interventions, and social policies that could potentially promote resilience in children and reduce racial and ethnic inequities. As data become available, it will be valuable to identify characteristics of policies and places where children are best able to maintain educational, nutritional, economic, and social supports during and after the pandemic, and where disparities by race/ethnicity and socioeconomic status are minimized.

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