

# Inclusion of Expanded Adverse Childhood Experiences in Research About Racial/Ethnic Substance Use Disparities

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Investigations of the impact of adverse childhood experiences (ACEs) on health outcomes have been of major public health importance in the past several decades. The original studies of ACEs were monumental because they unveiled that seemingly common family-level childhood stressors (e.g., maltreatment, family dysfunction) affected individuals' health throughout their lifetime.<sup>1</sup> Individuals who experience ACEs, which are stressful and potentially traumatic experiences during childhood, are more likely to engage in substance use<sup>2,3</sup> and suffer from the main leading causes of death (e.g., cardiovascular and respiratory diseases, cancer).<sup>4</sup> However, a major limitation of the original ACE studies was that participants were mostly White, middle-income, highly educated adults.<sup>5</sup> Thus, although public health interventions have been developed to target ACE prevention and detection, these were developed while the experiences of a substantial portion of the population were neglected. In addition, assessments of community-level stressors

that particularly affect racially/ethnically minoritized and economically diverse populations, many of which are rooted in structural racism and discrimination,<sup>6</sup> remain excluded from this work.

We argue that it is imperative to expand the conceptualization and assessment of adversity in substance use research, as exposure to both family- and community-related ACEs (e.g., community violence, discrimination) increases the risk of alcohol and drug misuse, which is causally associated with disease, disability, and early death. We posit that increasing the number of studies focused on examining the ways community-level adversities affect substance use risk is crucial in health equity research, as community-level adversities disproportionately affect individuals of color and those of low-income backgrounds.

## ADVERSITIES ROOTED IN STRUCTURAL RACISM AND DISCRIMINATION

To elucidate pathways affecting the health of minoritized communities, it is

necessary to expand our understanding of what constitutes adversities, and how we measure them. The Philadelphia ACEs Study was launched with the goal of identifying childhood adversities particularly salient to racially/ethnically and socioeconomically diverse participants residing in urban settings.<sup>5</sup> Results from the study showed that, among this population, certain adversities were described as being more salient stressors than those traditionally captured in most ACE studies<sup>7</sup> (herein referred to as "traditional ACEs"). For example, parental separation was deemed a less salient stressor during childhood than community violence and economic hardships.<sup>7</sup> These "expanded ACEs" include experiencing poverty, discrimination, bullying, community violence, migration-related stressors, and foster care involvement.<sup>7,8</sup> Expanded ACEs are mainly community-level stressors and differ from traditional ACEs, which focus on family-level adversities (e.g., abuse and neglect, household dysfunction).<sup>8</sup> Subsequent studies on expanded ACEs have been conducted, including secondary data analysis of a prospective longitudinal study that followed a majority low-income Black cohort. Twenty percent of this cohort only endorsed expanded ACEs,<sup>9</sup> meaning that had they been surveyed for traditional ACEs only, they would have been incorrectly assessed as not exposed to ACEs.

Expanded ACEs reflect stressors that are fundamentally caused by structural racism and structural violence and play out in policies and practices that perpetually marginalize communities of color.<sup>6,10</sup> Many expanded ACEs, such as living in an unsafe neighborhood or experiencing poverty, represent experiences that are concentrated in particular geographic areas, whereas others, such as experiencing racism or the

deportation of a family member, are predominantly experienced by individuals from racially/ethnically minoritized groups. The conceptualization of these ACEs cannot be separated from the social environment or from the intergenerational impacts of segregation, historical trauma, and racial trauma.<sup>6</sup> Fundamental cause theory demonstrates how socioeconomic status and racism are persistent and enduring causes of health inequities, even though the specific mechanisms linking these fundamental causes with health outcomes can change over time.<sup>11–13</sup> These two fundamental causes can work in concert (e.g., structural racism causes socioeconomic inequality) but also separately (e.g., racial inequalities in health outcomes persist even when socioeconomic status is held equal between two groups). Williams et al.<sup>13</sup> highlighted how racism operates to affect health via structural factors, including residential segregation, concentrated poverty, disproportionate incarceration, and anti-immigrant policies; these in turn result in the disproportionate impact of toxic stress on children of color over the lifespan.<sup>14</sup> Studying how racism and inequality shape exposure to traditional and expanded ACEs, and how these in turn affect substance use outcomes, therefore requires conceptual and methodological attention to analytic approaches that model complexity, dynamic change over time, and interactions between individuals and their environment.

## EXPANDED ADVERSITIES AND THEIR ROLE IN SUBSTANCE USE

Racial/ethnic disparities in substance use have been previously documented, but research on why and how these

disparities exist in the first place remains underdeveloped.<sup>15</sup> The ACE literature has established that experiencing traditional ACEs increases the risk of developing substance use disorders in adulthood (for a review, see Leza et al.<sup>3</sup>). Theoretical frameworks linking ACEs and health outcomes throughout the lifetime posit that exposure to ACEs can lead to impairments in socioemotional, cognitive, and biological domains.<sup>16</sup> Therefore, individuals with these disruptions in development can adopt health-risk behaviors, such as substance use, to cope with stress, which then places them at higher risk for disease, disability, and early death.<sup>17</sup> Given that expanded ACEs are rooted in structural racism and discrimination, substance use may be a major mechanism linking ACEs and poor health in racially/ethnically minoritized individuals.

Research on traditional ACEs and substance use consistently finds that individuals exposed to traditional ACEs are more likely to engage in alcohol and drug misuse, and develop a substance use disorder.<sup>3</sup> However, investigations into racial/ethnic differences in the association between traditional ACEs and substance use have yielded mixed findings. For instance, although the association between traditional ACEs and alcohol use was weakest for White respondents compared with racially/ethnically minoritized individuals, the relation between traditional ACEs and illicit drug use was significant only for White and Asian/Pacific Islander respondents.<sup>18,19</sup> This type of nuanced finding points to the possibility that the behavioral risks associated with traditional ACEs vary among racially/ethnically diverse groups, and it merits additional attention.

It is plausible that other risk patterns specific to racial/ethnic subgroups will

emerge as studies examining expanded ACEs increase. For example, Latinx youths experiencing the expanded ACE of deportation–migration stressors had higher odds of alcohol use than those who did not experience them.<sup>20</sup> Research suggests that, in addition to being differentially affected by ACEs, certain groups are also disproportionately exposed to them. Black youths were more likely to experience expanded ACEs, whereas White youths were more likely to report traditional ACEs.<sup>21</sup> Researchers have also found that males are more likely to experience expanded ACEs (e.g., community violence) and females are more likely to experience traditional ACEs, although these findings are not specific to race/ethnicity.<sup>5,9</sup> Thus, an intersectional approach, such as one that examines ways in which individuals with multiple marginalized and minoritized identities experience ACEs, is needed but remains underdeveloped.

Most studies have not explicitly examined ways traditional ACEs differentially affect racially/ethnically minoritized groups. Further, no studies to our knowledge have studied racial/ethnic differences in studies focused on expanded ACEs and substance use, but expanded ACEs have been associated with health risks such as substance misuse and a history of sexually transmitted infections.<sup>7</sup> Moving forward, we need to incorporate both traditional and expanded ACEs into studies that are adequately powered to assess differential levels of risk for population subgroups. By doing so, we will gain a deeper understanding of risk and resilience pathways for racially/ethnically minoritized groups that move beyond those narrowly defined by traditional ACEs models, which were derived from the experiences of White and middle-income

participant samples. If certain ACEs are related to substance use for some racial/ethnic groups and not others, it is imperative to identify which protective mechanisms are at play to harness those findings into prevention efforts.

## TARGETING INTERVENTIONS TO REDUCE DISPARITIES

Although ACEs are assessed via a checklist and their cumulative scores are used to estimate health behaviors, all ACEs do not “weigh” equally. For instance, in traditional ACE studies, sexual abuse has a stronger weight than other ACEs in predicting health outcomes in the general population.<sup>22</sup> Elucidating pathways of risk for traditional and expanded ACEs among racially/ethnically minoritized individuals will better allow us to target interventions aimed at eliminating racial/ethnic health disparities.

A multilevel conceptualization of ACEs, including expanded ACEs, emphasizes the structural and social determinants of ACEs exposure,<sup>23</sup> including income inequality and structural racism. Moreover, a multilevel conceptualization also illuminates how traditional ACEs are related to social conditions. For example, at the community level, financial stress and high rates of unemployment can increase the likelihood an individual is exposed to adversities within the home. At the national level, immigration policies and enforcement practices result in individual-level trauma that affects the health of children of immigrant-origin parents.<sup>10</sup> Increased societal awareness of the impact of ACEs has led to a focus on identifying ACEs in childhood to provide appropriate interventions and mitigate the impacts of these

potentially traumatic events. However, if these efforts are focused only on individual-level interventions for coping with trauma, they risk pathologizing individuals and families without changing the underlying social conditions that cause trauma in the first place.

Efforts to address expanded ACEs should include upstream interventions at the community and structural levels—rather than focusing only on the individual level—to more effectively address racial/ethnic mental health disparities.<sup>24</sup> Disparities-reducing, evidence-based community interventions range from policies focused on increasing generational wealth<sup>11</sup> to place-based interventions that address social and environmental conditions by leveraging community expertise and cross-sector collaborations.<sup>14</sup>

Approaches such as these may be particularly powerful in decreasing exposure to expanded ACEs because they increase family economic stability and improve neighborhood conditions. For example, in a recent cluster randomized trial focused on predominantly Black neighborhoods with high percentages of low-income households, South et al.<sup>25</sup> demonstrated that remediation of abandoned houses was associated with reduced weapons violations and reduced gun assaults in those neighborhoods. For both traditional and expanded ACEs, an emphasis on addressing these structural and social conditions via policies and structural interventions will have a greater impact on disparities in ACE exposure than attempting to mitigate the impact of these adversities at the individual level. Given that socioeconomic status and racism are fundamental causes of health disparities,<sup>12</sup> including disproportionate exposure to expanded ACEs and their health effects, structural

interventions aimed at reducing socioeconomic inequalities and dismantling racist policies and practices are necessary to make long-term progress in improving health equity.

## CONCLUSION

Investigations into the impact of ACEs and health outcomes in the past decades have focused on the causal impact of ACEs on disease and early death—the last two levels of the ACE conceptual model.<sup>17</sup> The expansion of the ACE framework to include expanded ACEs is a way to address a critical gap in the original ACE study—namely, a focus on how social and structural inequalities further shape adversity. We urge the field to shift the focus to the first two levels of the ACE conceptual model—(1) generational embodiment and historical trauma and (2) social conditions and local context<sup>17</sup>—by expanding the conceptualization and assessment of adversities in future substance use studies. In turn, this knowledge can advance structural and community-level interventions to prevent ACEs and promote health equity.

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## CONTRIBUTORS

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D. Colombo contributed to the manuscript preparation.

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**CONFLICTS OF INTEREST**

The authors have no conflicts of interest to disclose.

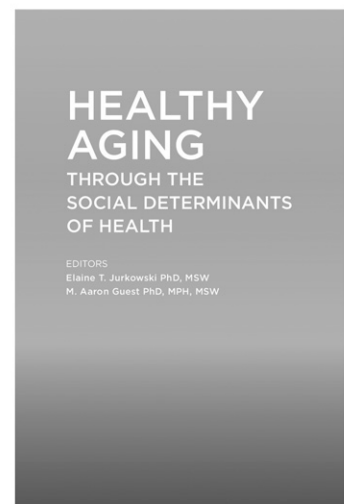
**REFERENCES**

1. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med.* 1998;14(4):245–258. [https://doi.org/10.1016/S0749-3797\(98\)00017-8](https://doi.org/10.1016/S0749-3797(98)00017-8)
2. Dube SR, Miller JW, Brown DW, et al. Adverse childhood experiences and the association with ever using alcohol and initiating alcohol use during adolescence. *J Adolesc Health.* 2006;38(4):444.e1–444.e10. <https://doi.org/10.1016/j.jadohealth.2005.06.006>
3. Leza L, Siria S, López-Goñi JJ, Fernández-Montalvo J. Adverse childhood experiences (ACEs) and substance use disorder (SUD): a scoping review. *Drug Alcohol Depend.* 2021;221:108563. <https://doi.org/10.1016/j.drugalcdep.2021.108563>
4. Bellazaire A. Preventing and mitigating the effects of adverse childhood experiences. Paper presented at: National Conference of State Legislatures; August 1, 2018; Denver, CO.
5. Cronholm PF, Forke CM, Wade R, et al. Adverse childhood experiences: expanding the concept of adversity. *Am J Prev Med.* 2015;49(3):354–361. <https://doi.org/10.1016/j.amepre.2015.02.001>
6. Bernard DL, Calhoun CD, Banks DE, Halliday CA, Hughes-Halbert C, Danielson CK. Making the “C-ACE” for a culturally-informed adverse childhood experiences framework to understand the pervasive mental health impact of racism on Black youth. *J Child Adolesc Trauma.* 2020;14(2):233–247. <https://doi.org/10.1007/s40653-020-00319-9>
7. Wade R, Shea JA, Rubin D, Wood J. Adverse childhood experiences of low-income urban youth. *Pediatrics.* 2014;134(1):e13–e20. <https://doi.org/10.1542/peds.2013-2475>
8. Harris NB, Renschler T. Center for Youth Wellness ACE-Questionnaire (CYW ACE-Q Child, Teen, Teen SR), version 7. Available at: <https://centerforyouthwellness.org/wp-content/uploads/2018/06/CYW-ACE-Q-TEEN-SR-1-copy.pdf>. Accessed January 17, 2023.
9. Giovannelli A, Reynolds AJ. Adverse childhood experiences in a low-income Black cohort: the

importance of context. *Prev Med.* 2021;148:106557. <https://doi.org/10.1016/j.ypmed.2021.106557>

10. Barajas-Gonzalez RG, Ayón C, Brabeck K, Rojas-Flores L, Valdez CR. An ecological expansion of the adverse childhood experiences (ACEs) framework to include threat and deprivation associated with US immigration policies and enforcement practices: an examination of the Latinx immigrant experience. *Soc Sci Med.* 2021;282:114126. <https://doi.org/10.1016/j.socscimed.2021.114126>
11. Phelan JC, Link BG, Tehranifar P. Social conditions as fundamental causes of health inequalities: theory, evidence, and policy implications. *J Health Soc Behav.* 2010;51(1 suppl):S28–S40. <https://doi.org/10.1177/0022146510383498>
12. Phelan JC, Link BG. Is racism a fundamental cause of inequalities in health? *Annu Rev Sociol.* 2015;41(1):311–330. <https://doi.org/10.1146/annurev-soc-073014-112305>
13. Williams DR, Lawrence JA, Davis BA. Racism and health: evidence and needed research. *Annu Rev Public Health.* 2019;40(1):105–125. <https://doi.org/10.1146/annurev-publhealth-040218-043750>
14. Shonkoff JP, Slopen N, Williams DR. Early childhood adversity, toxic stress, and the impacts of racism on the foundations of health. *Annu Rev Public Health.* 2021;42(1):115–134. <https://doi.org/10.1146/annurev-publhealth-090419-101940>
15. Pinedo M, Zemore S, Rogers S. Understanding barriers to specialty substance abuse treatment among Latinos. *J Subst Abuse Treat.* 2018;94:1–8. <https://doi.org/10.1016/j.jsat.2018.08.004>
16. McLaughlin KA, Lambert HK. Child trauma exposure and psychopathology: mechanisms of risk and resilience. *Curr Opin Psychol.* 2017;14:29–34. <https://doi.org/10.1016/j.copsyc.2016.10.004>
17. National Center for Injury Prevention and Control, Division of Violence Prevention. CDC-Kaiser ACE Study Pyramid. About the CDC-Kaiser ACE Study. Available at: <https://images.app.goo.gl/W9fYEndYPjVvBBG8>. Accessed January 17, 2023.
18. Forster M, Grigsby TJ, Rogers CJ, Benjamin SM. The relationship between family-based adverse childhood experiences and substance use behaviors among a diverse sample of college students. *Addict Behav.* 2018;76:298–304. <https://doi.org/10.1016/j.addbeh.2017.08.037>
19. Forster M, Vetrone S, Grigsby TJ, Rogers C, Unger JB. The relationships between emerging adult transition themes, adverse childhood experiences, and substance use patterns among a community cohort of Hispanics. *Cultur Divers Ethnic Minor Psychol.* 2020;26(3):378–389. <https://doi.org/10.1037/cdp0000304>
20. Roche KM, White RMB, Lambert SF, et al. Association of family member detention or deportation with Latino or Latina adolescents’ later risks of suicidal ideation, alcohol use, and externalizing problems. *JAMA Pediatr.* 2020;174(5):478–486. <https://doi.org/10.1001/jamapediatrics.2020.0014>
21. Rebbe R, Nurius PS, Ahrens KR, Courtney ME. Adverse childhood experiences among youth aging out of foster care: a latent class analysis. *Child Youth Serv Rev.* 2017;74:108–116. <https://doi.org/10.1016/j.childyouth.2017.02.004>
22. Briggs EC, Amaya-Jackson L, Putnam KT, Putnam FW. All adverse childhood experiences are not equal: the contribution of synergy to adverse childhood experience scores. *Am Psychol.* 2021;76(2):243–252. <https://doi.org/10.1037/amp0000768>

23. McEwen CA, Gregerson SF. A critical assessment of the adverse childhood experiences study at 20 years. *Am J Prev Med.* 2019;56(6):790–794. <https://doi.org/10.1016/j.amepre.2018.10.016>
24. Alegria M, Zhen-Duan J, O’Malley IS, DiMarzio K. A new agenda for optimizing investments in community mental health and reducing disparities. *Am J Psychiatry.* 2022;179(6):402–416. <https://doi.org/10.1176/appi.ajp.21100970>
25. South EC, MacDonald JM, Tam VW, Ridgeway G, Branas CC. Effect of abandoned housing interventions on gun violence, perceptions of safety, and substance use in Black neighborhoods: a citywide cluster randomized trial. *JAMA Intern Med.* 2023;183(1):31–39. <https://doi.org/10.1001/jamainternmed.2022.5460>



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