

Adverse childhood experiences (ACEs) partially account for racial disparities in lifetime cocaine disorders among US adults entering midlife: A 35-year prospective study

Tenzin Yangchen¹, Michelle L. Rogers², George D. Papandonatos³, Stephen Buka¹

¹Department of Epidemiology, Brown University School of Public Health

²Department of Behavioral and Social Sciences, Brown University School of Public Health

³Department of Biostatistics, Brown University School of Public Health

Overview

In response to the shifting patterns of substance use problems (SUPs) and the growing U.S. population diversity, we aimed to a) investigate racial differences in SUPs and b) determine the extent to which early life stressors account for these disparities.

Background

- Despite having relatively comparable substance use rates to Whites, Blacks are disproportionately burdened by deleterious consequences associated with substance use, including higher rates of drug overdose mortality, incarceration, and stigmatization (Friedman et al., 2022; Kleinman & Morris, 2021; Zapolski et al., 2014).
- More comprehensive and rigorous research is needed to advance our understanding of the multifaceted factors underlying racial disparity in SUPs.

Methods

- Data were obtained from Providence, Rhode Island, site of the National Collaborative Perinatal Project (N=720)
- Participants who were not identified as either Whites or Blacks, or had missing data across all observations were removed, resulting in a total of 696 participants.
- A structured diagnostic interview was used to assess the lifetime history of SUPs.
- Presence of abuse or dependence on cocaine, marijuana, and alcohol were described as cocaine use disorder, marijuana use disorder, and alcohol use disorder, respectively.
- Descriptive statistics, including chi-squared analyses were performed to determine whether the prevalence of SUPs differed by race.
- A composite "index" of 13 adverse childhood experiences (ACEs) measured within the first seven years of life was estimated using the Item Response Theory (IRT) modeling capabilities of the LTM R package, and this composite score was used to determine whether, and to what extent, ACEs explained racial differences in adult SUPs, with a series of modified Poisson regression models.
- Secondary analyses examined two specific ACEs: financial hardship and transition to single parent household

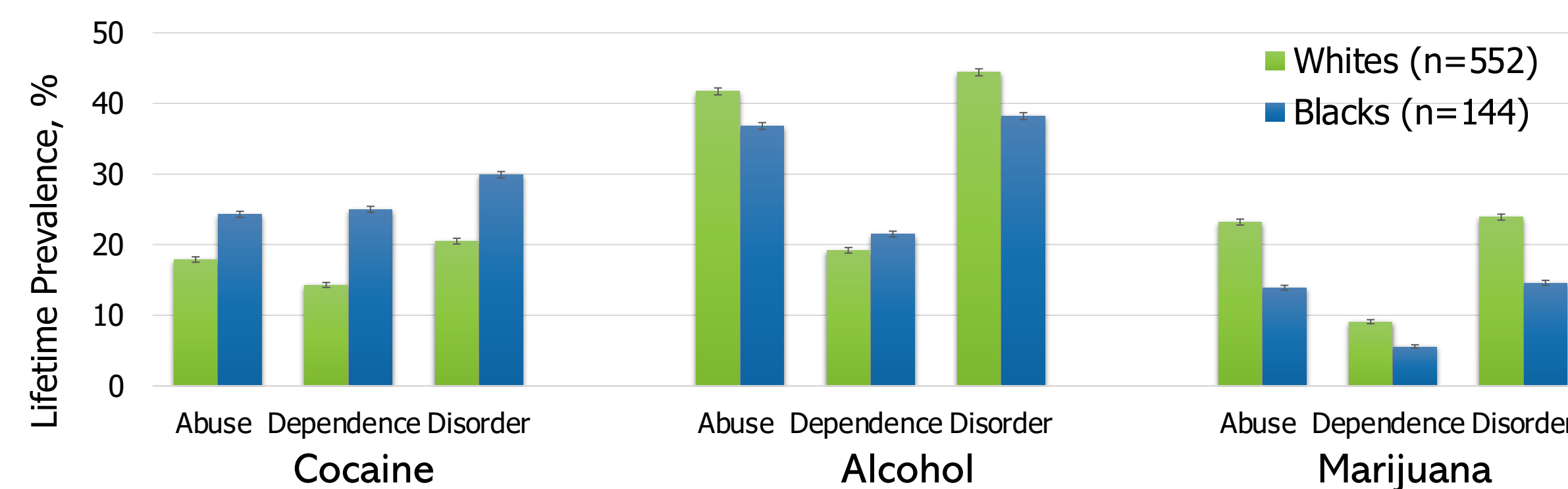


Fig 1. Lifetime prevalence of SUPs among U.S. adults aged 30-39 years by race

Table 1. Socioeconomic characteristics of the sample by race

SES, n (%)	Whites (n=552)	Blacks (n=144)	Total (n=696)	Bivariate Analysis	p-value
Childhood SES					
Combined Index				$\chi^2 (2)=18.195$	<.001**
Low	146(26.4)	59(41.0)	205(29.5)		
Medium	229(41.5)	65(45.1)	294(42.2)		
High	150(27.2)	18(12.5)	168(24.1)		
Adult SES				$\chi^2 (1)=1.831$	0.176
Employment Status					
Unemployed	123 (22.3)	40 (27.8)	163 (23.4)		
Employed	426 (77.2)	104(72.2)	530 (76.1)		
Annual Household Income				$\chi^2 (3)=3.071$	0.381
\$0- \$19199	121 (21.9)	34 (23.6)	155 (22.3)		
\$19200 - \$38399	140 (25.4)	45 (31.3)	185 (26.6)		
\$38400 - \$57599	142 (25.7)	29 (20.1)	171 (24.6)		
≥ 57600	119 (21.6)	30 (20.8)	149 (21.4)		

Results

- Relative to Whites, Blacks reported an elevated risk for lifetime cocaine abuse, dependence, and cocaine use disorder (See Fig 1).
- Black participants were of significantly lower socioeconomic status (SES); but by adulthood, no such difference was observed for educational attainment, household income, and employment status.
- After accounting for sex and childhood SES, Blacks had 1.29 times the risk of developing lifetime cocaine abuse and 1.58 times the risk of developing lifetime cocaine dependence.
- After accounting for ACEs composite score, the effect on the race risk ratio(RR) for cocaine abuse is 0.93, i.e., a 7% reduction and the race RR for cocaine dependence is 0.89 i.e., 11% reduction. The proportion of excess risk mediated through ACEs is 70% for cocaine abuse and 69% for cocaine dependence (See Tables 2 & 3).
- In separate models, adjusting for financial hardship, in addition to race, sex, and SES, similarly reduced the effect on the race RR for lifetime cocaine abuse and dependence by 1.94% and 4.92%, respectively and accounting for transition to single parent household resulted in a 1.55% and 5.49% reduction in cocaine abuse and dependence, respectively.
- Despite these reductions, the racial differences remained significantly elevated for lifetime cocaine dependence for these separate models.

Table 2. Adjusted risk ratio for lifetime cocaine abuse

	Model 1	Model 2	Model 3	Model 4
Race				
White	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Black	1.29 (0.87-1.89)	1.20 (0.80-1.79)	1.26 (0.85-1.87)	1.27 (0.85-1.87)
Sex				
Male	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Female	1.70 (1.16-2.46)**	1.69 (1.16-2.45)**	1.70 (1.16-2.46)**	1.70 (1.16-2.47)**
Childhood SES				
Low SES	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Middle SES	1.11 (0.75-1.61)	1.10 (0.75-1.60)	1.12 (0.76-1.63)	1.09 (0.74-1.60)
High SES	0.85 (0.55-1.29)	0.90 (0.57-1.38)	0.88 (0.56-1.36)	0.85 (0.55-1.29)
ACEs Composite Score				
Tertile1: None (n = 235)		1.00 (Ref.)		
Tertile2: Some (n = 229)		0.90 (0.57-1.40)		
Tertile3: Substantial (n = 232)		1.31 (0.86-1.97)		
Financial Hardship			1.10 (0.76-1.56)	
Transition to Single Parent Household				1.11 (0.76-1.59)

Table 3. Adjusted risk ratio for lifetime cocaine dependence

	Model 1	Model 2	Model 3	Model 4
Race				
White	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Black	1.58 (1.07-2.33)*	1.40 (0.94-2.09)	1.51 (1.02-2.22)*	1.50 (1.01-2.21)*
Sex				
Male	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Female	1.48 (1.00-2.17)*	1.47 (0.99-2.17)	1.47 (1.00-2.17)	1.49 (1.01-2.20)*
Childhood SES				
High SES	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Middle SES	0.89 (0.59-1.31)	0.88 (0.59-1.30)	0.92 (0.61-1.35)	0.85 (0.56-1.26)
Low SES	0.61 (0.38-0.97)*	0.68 (0.42-1.09)	0.67 (0.41-1.08)	0.61 (0.39-0.96)*
ACEs Composite Score				
Tertile1: None (n = 235)		1.00 (Ref.)		
Tertile2: Some (n = 229)		0.84 (0.49-1.43)		
Tertile3: Substantial (n = 232)		1.63 (1.03-2.56)*		
Financial Hardship			1.29 (0.87-1.90)	
Transition to Single Parent Household				1.48 (1.02-2.13)*

*p<.05, **p<.01

Conclusions

Our findings highlight the importance of early screening for ACEs to capitalize on critical opportunities for prevention, early detection, and empirically supported and culturally effective interventions targeting early ACEs, including financial hardship and single parent household to mitigate both the magnitude and racial disparities of cocaine use disorders.

References

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