

Research article

Adverse childhood experiences, health, and employment: A study of men seeking job services



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ABSTRACT

The present study explored factors associated with barriers to current employment among 199 low-income, primarily Black American men seeking job services. The study took place in an urban setting located within the upper Midwest region of the U.S., where the problem of Black male joblessness is both longstanding and widespread. Recent research suggests that Black male joblessness regionally and nationally is attributable to myriad macro- and micro-level forces. While structural-level factors such as migration of available jobs, incarceration patterns, and racism have been relatively well-studied, less is known about individual-level predictors of Black male joblessness, which are inextricably linked to macro-level or structural barriers. This study therefore examined relations between adverse childhood experiences (ACEs), health-related factors, and employment-related problems. Participants faced both specific and cumulative childhood adversities at much higher rates than men from more economically advantaged contexts. In addition, the physical, behavioral, and mental health of the study participants were, according to self-report survey results, notably worse than that of the general population or alternative samples. Finally, results indicated that exposure to ACEs may have helped to undermine the men's ability to attain current employment and that drug problems along with depression symptoms helped explain the link between ACEs and employment barriers. Theoretical and practical implications of results are explored.

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1. Introduction

1.1. Overview of current study

As a result of a landmark study initiated in the 1990s and sponsored by the Centers for Disease Control and Prevention and the Kaiser Health Plan's Health Appraisal Center in San Diego, CA, adverse childhood experiences or ACEs are now recognized to be both prevalent and consequential (Felliti & Anda, 2010). Conducted with a predominantly middle-class sample, this "original ACE study" found that ACEs such as child abuse and neglect along with other forms of household dysfunction were: a) somewhat normative given 67% of the study sample reported exposure to at least one ACE; and b) associated with a range

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of negative health-related outcomes. Subsequent studies confirmed that ACEs were prevalent among the population at-large and that, among disadvantaged groups, ACEs were even more pervasive relative to middle-class samples. Replication studies also confirmed the strong association between childhood adversity and poor adult health outcomes among diverse samples.

Recently, data from the original ACE study and second generation studies demonstrated associations between ACEs and employment-related problems. A few recently published studies also reveal that health-related impairments mediate the link between ACEs and employment-related problems. Replicating these findings particularly among subgroups at-risk for joblessness can yield fruitful implications for theory and practice. Consequently, this study explores the relationship between ACEs, health, and job-related problems among a sample of low-income Black American men at-risk for chronic unemployment or joblessness.

1.2. Unemployment and joblessness among Black men

Rates of unemployment for Black Americans before, during, and after the Great Recession, from 2007 to 2014, were higher than those of Whites during the same period (Bureau of Labor Statistics, 2012, 2014a). However, economists commonly agree that official unemployment figures underestimate true rates of joblessness as they exclude those who are incarcerated, not actively seeking employment, or only working temporarily, circumstances that disproportionately affect Black Americans (Western & Pettit, 2010). Therefore, to determine rates of joblessness, many economists use the employment-population ratio, which calculates the number of workers in relation to the number of working-age citizens (Moffitt, 2012). According to this figure, the U.S. joblessness rate just prior to the Great Recession was 36.7%, peaked at 41.8% in 2011, and dipped to 41.0% by October of 2014 (Bureau of Labor Statistics, 2014b). For Black Americans, the joblessness rate at the start of the Great Recession was 41.5%, climbed to 48.9% in 2011, and recently was measured at 45.1% (Federal Reserve Bank of St. Louis, 2014).

Disaggregating these figures by gender and geographic region tells a more dramatic story. Levine published a study in 2012 in which he assessed the rates of joblessness among working age, African American men residing in Milwaukee, Wisconsin. He found that immediately prior to the Great Recession, these men had a higher than 51.1% rate of joblessness and that by 2010 this figure rose to 55.3%. In contrast, White men in Milwaukee experienced a joblessness rate of 18.6% prior to the Great Recession and 22.6% in 2010. Levine (2012) points out that the high rates of Black male joblessness and gross joblessness disparities between Black and White men are not chiefly due to the Great Recession. In fact in 1970, 26.6% of Black men in Milwaukee were jobless compared to 14.1% of White men. By 2000, those figures diverged such that 47.8% of Black men were jobless relative to 16.0% of White men. This employment disparity across race has therefore been attributed to deep-rooted, long-standing issues.

Levine and others identify several key structural and historical factors that drive the problem of joblessness among Black men in Milwaukee and beyond: a) location of available jobs, b) local incarceration patterns, and c) discrimination (Levine, 2012; Mong & Roscigno, 2010). Levine cites strong support for these assertions, yet he and others also suggest that structural predictors of joblessness do not account for the entire variance of the problem (Rich, 2013). For instance, many argue that structural and individual forces interact synergistically to fuel the problem of Black male joblessness (Mong & Roscigno, 2010). Consequently, while Levine recommends transitional jobs opportunities, financial investment in Black American neighborhoods, and alternative sentencing guidelines as macro-level solutions to the problem, he simultaneously calls for additional strategies such as the enhancement of job training programs in order to address unexplained micro-level manifestations of this complex problem.

The specific micro-level determinants of unemployment are, however, not commonly known (Turner & Lehning, 2007; Wolf, 2007). We suspect that childhood adversity along with its developmental and health-related correlates may contribute significant variance to the problem of Black male joblessness. Heckman (2011) and Tomer (2014) support this notion when asserting that exposure to serious and cumulative childhood adversities such as poverty and violence results in poor developmental trajectories, negative health outcomes, and ultimately low status attainments such as un- or under-employment. Theory emerging from public health and developmental science reinforces the point when emphasizing the importance of protective caregiving, socioemotional development, and executive functioning for lifelong health and well-being (Shonkoff, 2012). If adversity and stress overwhelm the developing child, according to this theory, impairments in adult health and functioning ensue. What follows is a review of the literature, highlighting adverse childhood experiences or ACEs and their links to health- and employment-related problems.

2. Literature review

2.1. Original ACE study

The original ACE study sampled over 17,000 patients to assess the prevalence and implications of exposure to the following ACEs: physical, sexual, and emotional abuse; physical and emotional neglect; household criminality; household substance abuse; domestic violence; parental separation or divorce; and household mental illness. Based on participants' retrospective self-report, investigators found a much higher distribution of ACEs than expected (Anda et al., 2009). Of the total sample, 28% reported exposure to childhood physical abuse, 22% reported enduring childhood sexual abuse, and 27% reported that

a household member was an alcoholic or drug user. When assessing cumulative risk, authors found that 67% of the sample experienced at least one ACE type while 17% endorsed exposure to four or more (Felliti & Anda, 2010).

However, these findings may underestimate the actual prevalence of ACEs throughout the general population for a number of reasons. First, the sample from which data were drawn is socioeconomically advantaged, meaning findings do not generalize to disadvantaged groups whose ACE exposure may be higher. Second, recall bias will favor type II error or accumulation of false negatives in studies assessing early adversity via retrospective self-report (Hardt & Rutter, 2004), and third, the ACE measures may fail to index all significant early adversities. To account for these potential sources of bias, researchers have: a) assessed ACEs among samples of low socioeconomic status; b) used data sources other than retrospective self-reports; and c) expanded the operational definitions of adversity particularly for low-income samples.

2.2. ACEs among low-income samples

A recently published study (Mouton, Hargreaves, Liu, Fadeyi, & Blot, 2016), relying on original ACE measures collected from a low-income sample of over 22,000 participants (7196 men), found that the majority of participants reported exposure to at least one ACE and that 20% of the women and 14% of the men endorsed exposure to 4 or more ACEs (compared to 19.3% of the women and 12.8% of the men in the original ACE study). Lynch, Waite, and Davey (2013) surveyed a sample of 801 low-income minority patients in a primary health care setting. Using ACE survey items from the original ACE study, the authors found that nearly 94% of the sample had at least one ACE (compared to 67% in the original ACE study), and that 49% had four or more ACEs (relative to 17% of the original ACE sample).

With a convenience sample of 224 adults experiencing homelessness and defining ACEs consistent with the original ACE study, Larkin and Park (2012) reported that 87% of their sample endorsed exposure to at least one ACE, and 53.2% endorsed exposure to four or more. Relying on these same ACE measures, Corbin et al. (2013) evaluated low-income victims of interpersonal violence, finding that all study participants ($N=35$) endured at least one ACE, and 50% experienced four or more. Taken together, these findings indicate that low-income samples may experience ACEs at much higher rates than the original ACE sample.

When researchers assess ACEs among low-income samples with alternative sources of data (e.g., administrative records), results reinforce the assertion that economically disadvantaged groups experience ACEs at higher rates relative to the original ACE sample (e.g., Burke, Hellman, Scott, Weems, & Carrion 2011). Moreover, it appears that the prevalence of certain types of ACEs, e.g., physical neglect, is high among low-income groups, leading scholars to surmise that children exposed to poverty and other forms of economic and social disadvantage may not only experience a high number of the ACEs but may also present with a unique profile of ACEs given the direct influence of these structural forces on individual experiences. Consequently, researchers have begun to expand operational definitions of ACEs in order to better capture the experience of cumulative risk among disadvantaged groups (e.g., Finkelhor, Shattuck, Turner, & Hamby, 2013; Mersky, Topitzes & Reynolds, 2013).

2.3. ACEs and health

Aside from documenting the distribution of ACEs, the original ACE study also explored the links between ACEs and common health-related problems. The investigators suspected that ACEs contributed to health risk behaviors, morbidity, and mortality (Felliti & Anda, 2010), and many studies confirmed these hunches. ACEs increased the risk for adult alcohol abuse (Dube, Anda, Felitti, Edwards, & Croft, 2002), illicit drug use (Dube et al., 2003), and current smoking (Anda et al., 1999). ACEs also predicted heart disease (Dong et al., 2004) and cancer (Brown et al., 2010) along with premature death (Brown et al., 2009). Moreover, investigators demonstrated that ACE exposure was associated with an elevated risk of mental health problems such as depression (Chapman et al., 2004). Across these analyses, authors revealed that ACE scores (i.e., the number of discrete ACE types endured) predicted the outcome in question in a graded, stepwise, or dose-response fashion (Felliti et al., 1998).

Studies administering the same ACE items with different samples replicated these results. Researchers using data from an annual CDC population-based survey project, the Behavioral Risk Factor Surveillance System, found high ACE scores to be significantly correlated with self-reported heart disease, stroke, diabetes, smoking, and mental distress (Ford et al., 2011; Gilbert et al., 2015; Monnat & Chandler, 2015). ACEs also appear to undermine health when defined with an expanded array of items and assessed among low-income samples (Mersky et al., 2013).

2.4. ACEs and employment

The original ACE study along with a handful of subsequent studies also unveiled significant relations between ACEs and employment-related outcomes suggesting that ACEs extend their deleterious influence beyond health. With the original ACE study data, Anda and colleagues (2004) found that ACE scores were associated, in the familiar dose-response pattern, with several unwanted work-related outcomes including absenteeism, job problems, and financial problems. Using 2009 BRFSS data from a representative sample of five states, Liu et al. (2013) found that exposure to multiple ACE types increased the chances of unemployment.

What's more, Anda et al. (2004) and Liu et al. (2013) conducted mediation analyses. They identified the following as possible mechanisms leading from ACE exposure to employment problems: interpersonal relationship problems, emotional

distress, somatic symptoms, low educational attainment, non-married status, and substance abuse. With a low-income sample ($N = 397$) and longitudinal data, Tam, Zlotnick, and Robertson (2003) also showed that alcohol and drug use mediated an association between a truncated version of ACEs and long-term employment problems.

3. Current study contributions

Using the original ACE items, this current study assessed ACEs among a sample of low-income primarily Black men seeking job services. Only a few studies have assessed the original ACEs among low-income samples while none have done so with a sample of men at-risk for long-term unemployment, a prospect facing Black men accessing job services in Milwaukee (Levine, 2012). The study also explored the health status of these men and in addition analyzed associations between ACEs, health status, and persistent employment problems. While a plethora of studies have assessed the link between ACEs and health, only a handful have demonstrated an association between ACEs and adult job-related outcomes, and none have done so with men seeking job services. With our unique sample, we addressed the following research questions:

- 1 What is the prevalence of ACEs, as defined by the original ACE study?
- 2 What is the health status of the men, as indicated by measures of physical, behavioral, and mental health? What is the percentage of men reporting barriers to current employment due to a history of employment or job problems; what is the percentage of men reporting barriers to current employment due to a history of arrest or incarceration?
- 3 Are ACEs significantly related to self-reported health status and barriers to current employment?
- 4 Does health status mediate the link between ACEs and barriers to current employment?

We hypothesized that men in the study would report: a) high rates of individual and cumulative ACE exposure relative to the original ACE study; b) poor health status particularly when compared to population or alternative sample norms; and c) linkages between ACE exposure and health and between ACE exposure and barriers to current employment. Our question related to mediation was exploratory in nature, so we have no hypothesis regarding this research question.

4. Methods

4.1. Survey sample and study procedures

Prior to initiating the study, investigators met regularly with officials from a local, publically funded workforce development agency to develop shared project aims and procure regional and federal funding. During this time, agency staff identified in-house programs from which investigators could recruit a sample of men seeking job-related services. It was decided that research staff would recruit study participants from drop-in centers that offer low-intensity services such as access to the Internet for job searches and resume-building support. To be eligible for services, individuals were required to register with the agency, agree to simple rules of decorum, and be unemployed and seeking work. Investigators targeted four sites with study recruitment efforts, all of which served low-income, minority neighborhoods in the central city.

Investigators assembled the study survey, devised a recruitment script and consent form, obtained approval to conduct the study from the University of Wisconsin–Milwaukee's institutional review board (IRB#: 13.301), and hired research assistants. The research team developed a schedule of recruitment that coincided with high-traffic periods at the drop-in centers. Research assistants traveled to these sites during designated times, checked in with drop-in center managers, and situated themselves within resource rooms.

Research assistants approached men engaged in resource room activities, explained the study based on a script provided, and gauged level of interest in study participation. If men expressed interest, the research assistants confirmed study eligibility based upon: a) verified receipt of agency services, and b) non-duplicate study participation. Research assistants subsequently showed participants to a private room in which the men completed consent forms. A second assistant was stationed in the room to answer respondent questions after the first research assistant left to recruit more participants. Men were instructed to complete all survey items truthfully but to leave blank any items which prompted discomfort, and each respondent received a \$20 gift card for survey completion. Survey administration took place over the course of five weeks in 2013, during which time 199 participants completed the survey.

4.2. Measures

4.2.1. Outcomes. One section of the study survey assessed barriers to current employment. Two items in this section included a history of employment or job problems and a history of arrest or incarceration. These two binary measures, *history of employment problems* and *history of arrest or incarceration*, served as the distal outcome measures for questions three and four.

4.2.2. Predictor. ACEs were measured with a 10-item version of the ACE questionnaire (Felliti et al., 1998). The scale assesses the simple presence or absence of 10 different types of adversities from birth to age 18. Items include three types of abuse (*verbal, physical, and sexual*); two types of neglect (*physical and emotional*); and five manifestations of household dysfunction

(household substance abuse, mental illness in the household, parental separation or divorce, battered mother, and incarcerated household member). With these items, we created an ACE index. We also created four ACE score measures including $ACE = 0$, $ACEs = 1-2$, $ACEs = 3-4$, and $ACEs \geq 5$, basing these scoring categories on standards of distribution, face validity, and previous research. To specify, we wanted to ensure that all scoring groups had an adequate number of cases (e.g., 30 or more). We also aimed to create cut-points and increments that were symmetrical, meaningful, and intuitive. Finally, we chose scoring categories that were reflective of previous research. For instance, our 5 or more category included by far the highest number of members, but we avoided creating a 6 or more category as it is uncommon in ACE research.

4.2.3. Mediators. We measured health status with scales that assessed physical, mental, and behavioral health outcomes. For the physical health domain, the survey included items from the Short Form-36 Health Survey, a widely-used 36-item instrument demonstrating good psychometric properties (Ware, Kosinski, Dewey, & Gandek, 2000). It includes eight subscales of which the current report focused on one: *general health*. The general health subscale consists of five items, such as a question about general health status with answer categories ranging from excellent to poor. When scoring items, the raw score is transformed into a standardized score ranging from 0 to 100 and averaged with all other adjusted subscale items. Lower scores correspond with poorer health ratings relative. A *low general health* dichotomous measure was also created in which cases with general health ratings below the sample mean were coded 1.

The study survey included two sets of questions related to behavioral health: 1) the Centers for Disease Control and Prevention (2012) cigarette smoking items; and 2) all items from the Drug Abuse Screening Test (DAST). The cigarette items assessed whether a respondent has ever smoked cigarettes, how many cigarettes in a lifetime a respondent smoked, and how frequently the respondent smokes currently. The authors created a *current smoking* measure consistent with Centers for Disease Control and Prevention guidelines (i.e., participants who reported smoking 100 or more cigarettes in a lifetime and currently smoking either some days or daily were identified as current smokers).

The DAST is a 28-item scale assessing drug-use problems with binary response questions (Skinner, 1982). To score the scale, all item responses consistent with substance use problems are coded 1 and then summed. Clinicians and researchers can apply various cut scores to define clinical significance; however, a score of six is recommended for samples at-risk for substance abuse (Skinner, 1982). With this threshold, the instrument has demonstrated excellent properties of sensitivity and good properties of specificity as a substance use disorder screening tool (Yudko, Lozhkina, & Fouts, 2007). For this analysis, scores were summed into a *drug problems* measure, and a dichotomous measure, *drug abuse*, was created using the cut point of six.

To assess mental health, the authors administered the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1993), a 53-item instrument measuring mental health symptoms within the past seven days. This study includes two subscales—*depression* and *anxiety*—both of which consist of six items. Response categories range from not at all (0) to extremely (4), and subscale scores resulted from averaging constituent items. Dichotomous measures were created, using the sample means as cut points, to create *depression high* and *anxiety high* measures. Widely-used, the BSI has demonstrated good psychometric properties (Derogatis & Melisaratos, 1983).

4.2.4. Covariates. Demographic measures collected via the study survey and modeled as covariates included the following: *age*; *race* (Black = 1, all others = 0); *marital status* (single = 1, all others = 0); *number of children*; *educational attainment* (categorical measure ranging from 0, elementary/middle school, to 7, master's degree); and *past year's income* (categorical measure ranging from 0, no yearly income, to 5, \$40,001 to \$50,000 yearly income).

4.2.5. Missing data. ACE data were missing for only one case. For covariates, data were missing for no more than seven cases on any one variable (i.e., past year's income) with the exception of age, which had 37 cases without valid data. Using an expectation-maximization algorithm (Schafer, 1997), we estimated missing values for the covariate and ACE measures with multiple imputation in LISREL. This technique generates simulated values for missing observations. It draws on known associations between the measure in question and alternative study variables, in this case only other covariates, through examination of covariance matrices, variable means, and sample subsets with no missing data (du Toit & du Toit, 2001). Our mediator and outcome measures were missing valid values for at most four cases, with four measures missing no values. We did not impute values for the proximal outcomes (i.e., mediators) and distal outcomes when conducting primary study analysis.

4.3. Analysis

To answer questions one and two, we generated descriptive statistics for the ACE types, the ACE index, and the health-related measures. Tests of bivariate correlations initially addressed question three while adjusted ordinary least squares or binary logistic regressions, contingent upon the nature of the outcome measure, provided more stringent tests of associations. We also ran unadjusted, non-inferential comparisons of sample mean rates for all dichotomous study mediators (e.g., drug abuse versus drug problems) and both distal outcomes stratified by ACE score measures. These analyses expanded results from question three in which we tested the adjusted association between the ACE index and each study mediator and outcome.

Table 1
Prevalence of individual ACEs across current and original ACE study samples.

Individual ACEs, Prevalence (%)	ACE Study ^a (N = 3948)	Current Study (N = 199)
Abuse:		
Verbal	7.8	38.2
Physical	27.9	41.2
Sexual	17.1	21.6
Neglect:		
Emotional	12.5	38.2
Physical	10.7	29.1
Household dysfunction:		
Domestic violence	12.0	29.6
Household substance abuse	25.5	48.2
Mental illness in household	14.3	19.1
Parental separation or divorce	22.6	60.8
Incarcerated household member	4.9	51.3

^a Data from study's first wave of male respondents (Dube et al., 2003).

To answer the question of mediation, research question four, we ran simple hierarchical regressions. We regressed each distal outcome on a comprehensive model including all study covariates, the ACE index, and all health-related mediators, and results were reviewed for significant associations between the mediators and the outcomes. Because all mediators had already been shown to be significantly associated with the ACE index in the adjusted context, there was no need to test relations between the predictor and mediators. The authors did test all mediator combinations after analyzing the full mediator model. Based on an exploratory process, proposed mediators were dropped from analyses if: a) they did not forge a significant adjusted relation with the outcome, and/or b) they did not help attenuate the relation between the predictor and the outcome in question. Attenuation of main effect relation, i.e., mediating effects, was determined by comparing the ACE index Beta coefficients in the main effect and corresponding mediator models and calculating percent reduction from the main effect to mediator model.

Once we selected a final mediator model based on strongest mediating effect criterion, that is, highest percent reduction of original main effect, we examined the difference in model fit between the final mediator and main effect models. To do so, we subtracted the -2 Log likelihood fit index of the main effect model from the -2 Log likelihood fit index of the full and final mediator models, respectively. The resulting estimates follow a chi-square distribution, with a significant chi-square result indicating that the two models under analysis render significantly different fit indices. The higher index reflects a better fit. This operation confirmed that the final mediator model represented a significantly better fit of the data compared to the main effect model. This prescribed, variable paring procedure represents an “adaptive” means of specifying mediator models and enhancing causal inference (MacKinnon, 2008). Authors conducted all analyses with SPSS Statistics 22 software (IBM Corp, 2012).

5. Results

5.1. Demographic measures

The sample consisted of men ranging in age from 16 to 63 years with an average of 34.2 years; therefore, all men fell within the government's official definition working age, i.e., 16–64 years. The vast majority were African American (94.5%); 3.5% identified as multiracial, 0.5% as Hispanic, and the remainder, “other.” While 12.6% of the sample were married or partnered and 10.6% were separated, divorced, or widowed, the majority—76.8%—reported being single. Approximately 63% had one or more children, and the sample mean number of children was 1.45. Although only 10.5% of the men indicated that they had not completed high school, 45.0% disclosed that they earned a high school diploma or a general education degree as their highest educational attainment. About 35% completed some postsecondary education without earning a postsecondary degree, while 8.5% earned a postsecondary degree. Over three-quarters of the men reported a yearly income of \$10,000 or less. A scant 2.5% earned from \$30,000 to \$50,000 yearly, the highest category endorsed.

5.2. Research question 1

Question 1 analyses generated descriptive statistics from responses to the ACE items. The prevalence of individual ACEs throughout the sample ranged from 19.1% for childhood exposure to household mental illness to 60.8% for parental divorce or separation during childhood. Of note, around 40.0% of the sample reported exposure to verbal or physical abuse, one in five endorsed exposure to sexual abuse, nearly 40.0% experienced physical neglect, just under 50.0% reported exposure to household substance abuse, and just over 50.0% reported exposure to household criminality (see Table 1). Table 2 shows the percentage of men in the full study sample that experienced anywhere from 0 to 5 or more ACEs. Less than 16.0% reported

Table 2
Prevalence of ACE scores across current and original ACE study samples.

ACE Index Score, Prevalence (%)	ACE Study ^a (N = 3948)	Current Study (N = 199)
0	34.2	15.7
1	27.3	11.6
2	16.4	17.2
3	9.3	8.1
4	4.8	8.6
≥5	8.0	38.8

^a Data from study's first wave of male respondents (Dube et al., 2003).

exposure to 0 ACEs, while nearly 40.0% endorsed exposure to 5 or more ACEs. As we hypothesized, the current study sample reported higher prevalence of individual and cumulative ACE types compared to the original ACE study male subsample.

5.3. Research question 2

Averaging adjusted scores from the five items that compose the general health subscale of the Short Form-36 Health Survey, the general health measure, resulted in a sample mean of 66.2 and a predictable range of 0–100, where 0 indicates poor health and 100 reflects excellent health. Regarding behavioral health, 55.8% of the sample reported currently smoking cigarettes. The sample mean on the DAST was 6.1, slightly above the recommended clinical cutoff score for disordered use. Moreover, 38.2% of the respondents scored above 6, suggesting that they met criteria for substance use disorders such as substance abuse. The observed sample means from the depression and anxiety subscales of the BSI were 0.84 and 0.67, respectively (Derogatis & Melisaratos, 1983). As hypothesized, these health-related results reveal that the current study sample reported health disparities or poorer health outcomes relative to nationally representative or alternative samples; content in the discussion section below will corroborate this assertion. Finally, the majority of the study participants reported that they experienced barriers to current employment due to a history of employment or job problems over the course of their lifetime (52.3%), while just over half disclosed that they had an arrest or incarceration history that undermined current employment.

5.4. Research question 3

Conducting simple Kendall Tau bivariate correlations revealed that the ACE index was significantly associated, in the expected direction, with all health-related mediators—general health, current smoking, drug problems, depression, and anxiety. These same analyses demonstrated that the ACE index was also significantly linked to both distal study outcomes: history of employment problems and history of arrest or incarceration. All statistically significant relations reached $\alpha < 0.05$ level of probability, while the majority reached $\alpha < 0.01$. Testing relations within a multivariate regression context adjusting for study covariates yielded the following results. The ACE index was significantly associated with each of the study's health indicators and employment-related measures, i.e., general health ($p = 0.002$), current smoking ($p = 0.010$), drug problems ($p < 0.000$), depression ($p < 0.000$), and anxiety ($p < 0.000$), history of employment problems ($p = 0.001$), and history of arrest or incarceration ($p = 0.001$). In all cases, as ACE scores increased so did health-related or employment-related problems.

Fig. 1 unpacks these findings, showing the percent of study participants facing health-related problems or problems with current employment, stratified by ACE score categories. Comparing mean rate results on dichotomously coded study mediators and both study outcomes across the four ACE score categories revealed the familiar graded association between ACE scores and problem outcomes. For instance, 25.8% of the sample with zero ACEs reported low general health compared to 42.1% with 1–2 ACEs, or to 51.5% with 3–4 ACEs, or to 55.8% with 5 or more ACEs. For current smoking, 32.2% of the zero ACE group endorsed smoking currently; the ACEs 1–2 and ACEs 3–4 groups smoked currently at a rate just over 50.0%, while 66.2% of the 5 or more ACE group smoked currently. DAST results showed that drug abuse rates increased from 9.7% in the zero ACE group, to 22.8% in the 1–2 ACEs group, to 45.5% with 3–4 ACEs group, and peaking at 58.4% with 5 or more ACEs group.

Across the four groups with increasingly higher ACE scores, rates of high depression scores and high anxiety scores followed the familiar progressive pattern: 10.0% to 21.1% to 36.4% to 54.6% for high depression; and 10.0% to 12.3% to 36.4% to 51.2% for high anxiety. Sample rates for barriers to current employment, when stratified by ACE score categories, are also laddered: 33.3%, 41.1%, 53.1%, and 68.8% for history of employment problems and 23.3%, 44.6%, 53.1%, and 65.8% for history of arrest or incarceration. Again, our hypothesis stating that ACE exposure will be linked to health and employment-related outcomes was supported.

5.5. Research question 4

Mediator paring procedures revealed that the combination of drug problems and depression best explained the link between ACEs and the two study outcomes. After testing the full mediator model, proposed mediator measures were dropped from models if they were not significantly associated with the outcomes in question and/or did not help to reduce the

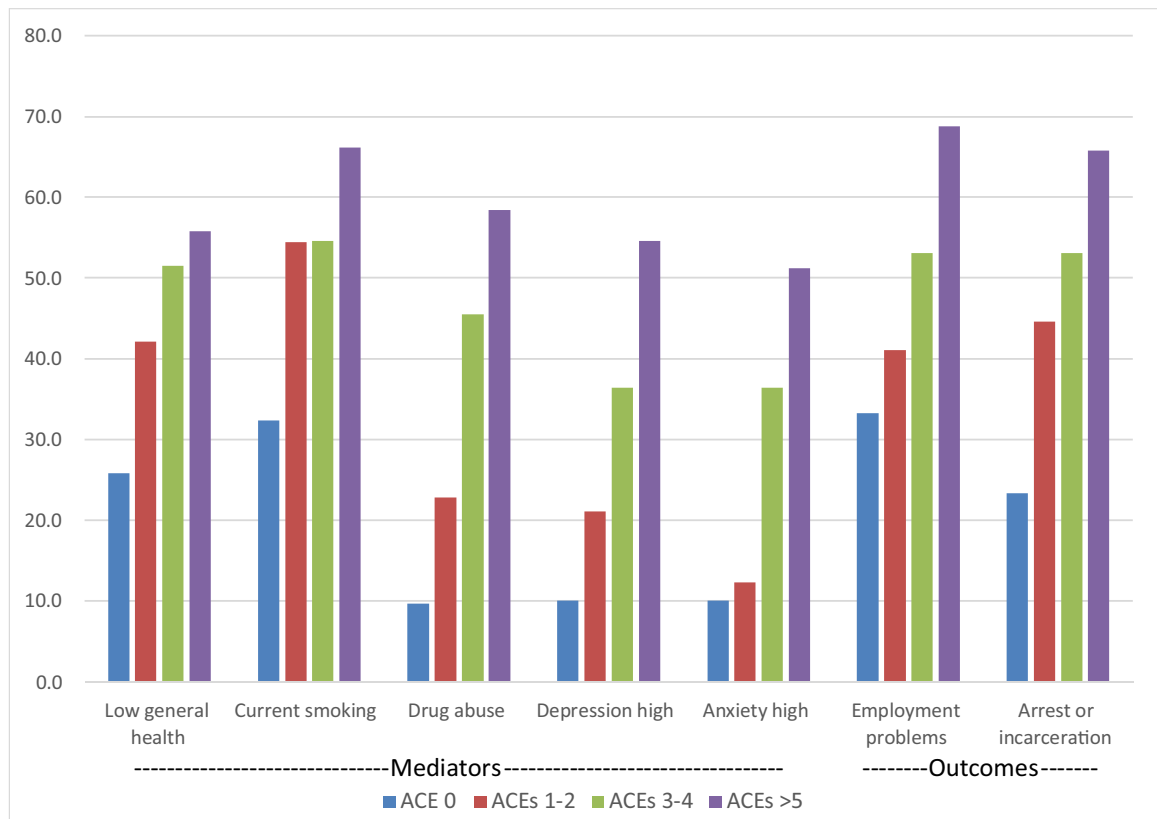


Fig. 1. Prevalence of mediating and outcome variables by ACE score.

main effect association between the ACE index and each respective study outcome. Drug problems remained the strongest mediator based on these criteria, forging a statistically significant link with both outcomes and helping to attenuate the association between the ACE index and both study outcomes by over 30%, respectively. Although the depression measure did not link significantly with the outcome measures, it did help reduce the influence of the ACE index while all other proposed mediators failed to do so net of drug problems. Table 3 reveals results for the study's main effect, full mediation, and final mediation logistic regression models per study outcome. All beta estimates were semi-standardized via a method described by King (2008).

For the history of employment problems, the final mediator model corresponded to a reduction in the magnitude of the main effect association between the ACE index and the outcome from $p = 0.001$ to $p = 0.058$, with a mediating effect of 38.9%. Assessing change in the -2 Log likelihood statistic revealed that the final mediator model significantly improved on model fit relative to the main effect model, with a chi-square difference statistic of 8.648 ($df = 2$, $0.01 < p < 0.025$). Drug problems and depression reduced the magnitude of association between the ACE index and a history of arrest or incarceration from $p = 0.001$ to $p = 0.071$, translating into a percent reduction of 39.2%. In this instance, the final mediator model also fit the data significantly better than the main effect model (chi-square = 25.960, $df = 2$, $p < 0.005$).

6. Discussion

6.1. Study contributions

Descriptive statistics from the current study lend initial support to the hypothesis that, relative to socially and economically advantaged subgroups of men such as those represented by the original ACE study, Black men seeking job services in Milwaukee have been exposed to higher rates of: a) specific childhood adversities and b) accumulated childhood adversities. In other words, prevalence for each individual ACE were higher among the current sample relative to the original ACE study sample (see Table 1), and a higher percentage of men in the current sample experienced high ACE scores compared to men in the original ACE sample. For instance, 38.8% of the current sample reported an ACE score of 5 or more versus 8.0% of the original ACE sample (Table 2). These results add to a growing body of evidence indicating that low-income, ethnic/racial minorities experience greater exposure to ACEs compared to middle-class, primarily white groups due in all likelihood to the influence of structural forces such as racism and poverty (Wade, Shea, Rubin, & Wood, 2014).

Table 3
Simple hierarchical logistic regression results from mediation analyses.

Dependent Variable	Independent Variables	Main Effect	Full Mediation	Final Mediation
		β (p-value)	β (p-value)	β (p-value)
History of employment problems	Covariates			
	Age	.094 (.040)	.094 (.049)	.097 (.039)
	Race	−0.032 (.449)	−0.030 (.486)	−0.028 (.519)
	Marital status	.030 (.489)	.041 (.363)	.037 (.406)
	Number of children	.065 (.138)	.045 (.328)	.048 (.291)
	Educational attainment	−0.046 (.274)	−0.045 (.297)	−0.042 (.320)
	Past year's income	−0.096 (.041)	−0.085 (.067)	−0.088 (.067)
	Predictor			
	ACE index	.149 (.001)	.097 (.051)	.091 (.058)
	Mediators			
	General health	–	−0.028 (.545)	–
	Current smoking	–	.009 (.836)	–
	Drug problems	–	.097 (.061)	.100 (.041)
	Depression	–	.081 (.294)	.067 (.200)
	Anxiety	–	−0.039 (.637)	–
R ²	16.3%	19.8%	19.5%	
−2 Log likelihood	222.722 (7)	213.436 (12)	214.074 (9)	
History of arrest or incarceration	Covariates			
	Age	.088 (.051)	.094 (.056)	.100 (.042)
	Race	−0.010 (.814)	−0.010 (.823)	−0.006 (.885)
	Marital status	−0.057 (.185)	−0.045 (.345)	−0.052 (.272)
	Number of children	.021 (.629)	−0.019 (.701)	−0.009 (.856)
	Educational attainment	−0.045 (.278)	−0.042 (.352)	−0.036 (.414)
	Past year's income	−0.047 (.297)	−0.029 (.552)	−0.029 (.544)
	Predictor			
	ACE index	.148 (.001)	.099 (.052)	.090 (.071)
	Mediators			
	General health	–	−0.061 (.247)	–
	Current smoking	–	.017 (.716)	–
	Drug problems	–	.224 (.000)	.228 (.000)
	Depression	–	.062 (.440)	.028 (.591)
	Anxiety	–	−0.080 (.313)	–
R ²	13.2%	25.2%	24.2%	
Percent reduction	–	33.1%	39.2%	
−2 Log likelihood	228.820 (7)	200.414 (12)	202.860 (9)	

In addition, the low-income men of this study faced significant health challenges consistent with our hypotheses related to research question two. The current sample mean for the general health subscale of the Short Form-36 Health Survey (66.2) is nearly ½ of a standard deviation lower than the estimated U.S. population mean for all adults, which equals 75 (Ware et al., 2000). This health result is unsurprising as low-income adults tend to have poorer general health outcomes, including self-reported health, relative to economically advantaged samples, a phenomenon in part referred to as the *wealth-health gradient* (Deaton, 2002). Even compared to a general sample of low-income Black men, the current study sample reported poorer self-rated health (Calvert, Isaac, & Johnson, 2012), leading to the conjecture that low-income Black men seeking job services may present with particularly high rates of health problems, possibly due to unemployment and/or potentially contributing to employability problems.

Also consistent with our hypotheses, the participants of this study reported a higher probability of behavioral or mental health challenges relative to national norms or alternative samples. To specify, the rate of current smoking for our sample (55.8%) far exceeds national averages for all adults (19.0%), for adult men (21.6%), and for Black Americans (19.4%) according to the Centers for Disease Control and Prevention (2012). Adults living below poverty level tend to smoke at higher rates relative to all other adults (Centers for Disease Control and Prevention, 2016); nonetheless, men in the current study sample reported double the rate of current smoking compared to population estimates for impoverished adults (55.8% vs. 26.3%). Data from the Drug Abuse Screening Test indicated that nearly 40.0% of our study participants met criteria for substance use disorders. When compared to a population mean rate of around 10.0% (Daughters, Bornoalova, Correia, & Lejuez, 2007), the prevalence of substance use disorder in our study sample is four times as high. Regarding mental health, a non-clinical sample produced an observed BSI depression subscale mean of 0.28 and an observed BSI anxiety subscale mean of 0.35 (Derogatis & Melisaratos, 1983), compared to much higher observed BSI means on both the depression (0.84) and the anxiety (0.67) subscales in our sample. What's more, ACE exposure was significantly associated with these poor health-related outcomes in a familiar graded fashion, adding to the evidence that the ACE-health connection generalizes to low-income groups, including Black men seeking job services.

Considering these results from research questions one, two, and part of three in aggregate suggests that urban-dwelling, low-income men of color seeking job services may present with myriad problems aside from unemployment, such as

exposure to childhood adversity and trauma along with adult health-related concerns. Whether these problems influence employability is an issue that the second part of research question three along with research question four addressed. Results from the analyses related to these remaining research questions supported the claim that ACE exposure and health-related problems may affect employability. Question three results indicated that ACEs contributed significantly to current employment barriers, a result we anticipated and hypothesized based on a few ACE-employment studies cited in our literature review along with the theoretical frameworks referenced in the literature review.

We also found, based on results from question four analyses, that early childhood adversity among urban Black men may increase the barriers to current employment through drug problems. In other words, exposure to accumulated adversity may result in the emergence of drug problems. These behavioral health impairments in turn may contribute to a history of job problems and a history of arrest or incarceration, ultimately undermining current employment potential. Depression symptoms may also help exacerbate the influence of ACEs on employment problems, but this finding warrants further attention given it is somewhat mixed.

Our mediation results reinforce specific findings from a few studies cited in the literature review, while also supporting analyses from [Monnat and Chandler \(2015\)](#), who found that poor health behaviors along with mental health problems helped to explain long-term consequences of ACEs. Our mediation results also align with several emergent theoretical frameworks identified in the literature review. These theories suggest that ACEs introduce “toxic stress” and undermine mastery of various stage-salient tasks, rendering individuals vulnerable to impaired adolescent and young adult functioning. Affected domains include behavioral and mental health, while economic productivity ultimately suffers as a result of the cascading effects of early adversity ([Shonkoff, 2010](#)). Theorists studying the implications of early trauma also recognize this familiar trajectory from exposure to early trauma, to adolescent behavioral and mental health problems, and finally to adult dysfunction ([Grasso, Greene, & Ford, 2013](#)).

Our findings help generalize this narrative to unemployed Black males residing in urban centers of the U.S. That is, our results implicate ACEs along with a predictable sequelae of early trauma or toxic stress as contributors to Black male joblessness. This assertion is not meant to eclipse the importance of structural barriers to economic self-sufficiency among low-income urban-dwelling Black males, especially considering that ACEs and their sequelae result from and are intertwined with structural forces such as poverty and racism (see [Gee, Walsemann, & Brondolo, 2012](#)). However, we do argue that a full understanding of the Black male employment problem should and must account for individual-level determinants, which when illuminated can inform more effective solutions. The problem of Black male unemployment is both extensive and long-standing. It is also very consequential and, according to our analyses, appears to require a comprehensive solution that incorporates insights from many disciplines including the developmental, behavioral, and social sciences.

6.2. Limitations

While results from our analyses support our hypotheses, caution must be exercised when interpreting findings given several key study limitations. First, the research team assembled a convenience versus random sample. Practical concerns including the local program’s structure prevented effective implementation of a random sampling design. Therefore, the authors cannot be confident that the sample is representative of the clients using the drop-in centers. Second, all data collected were cross-sectional in nature, meaning that any associations found can be assumed to be only correlational. For instance, results cannot distill temporal sequencing between drug problems, depression, and barriers to current employment. Third, the sample was modest in size, precluding the use of advanced analytic models. Finally, the study ACE measure did not include expanded categories of adversity that appear to be relevant for low-income samples; in addition, the authors did not triangulate the self-reported ACE items with other sources of data. Consequently, the prevalence of ACE exposure may have been underestimated.

6.3. Practical implications

Our results suggest that job placement programs serving urban-dwelling Black men should consider educating frontline workers about the nature, prevalence, and consequences of ACEs experienced by the program’s clients. In addition, these programs might consider integrating behavioral and possibly mental health services into their menu of offerings. Whether they deliver such services directly or refer clients to trauma-focused interventionists off site will hinge upon a number of local considerations. More fundamentally, our results reinforce the need to prevent ACE exposure among socially and economically disadvantaged members of our society through effective policy and programming. This a topic about which many have written quite forcefully (e.g., [Shonkoff & Levitt, 2010](#)) but clearly initiatives ought to address both concentrated poverty, which predicts maltreatment among African American children (see [Schuck, 2005](#)), and pervasive racism, which contributes to child adversity through parental stress (see [Bécares, Nazroo, & Kelly, 2015](#)).

6.4. Future research

The authors are in the midst of analyzing qualitative data gathered through semi-structured interviews and focus groups with a subset of the survey completers. This research activity will expand upon the results of the quantitative data analyses, potentially offering insight into the nature of ACE exposure among this unique sample. For instance, data may contribute

to the effort afoot to expand the definition of ACEs as applied to urban-dwelling, low-income ethnic/racial minorities. In addition, analyses will qualitatively probe for mechanisms leading from ACEs to adult functioning, following up on exploratory mediation results from question four of this study. Unveiling risk and protective mechanisms can yield significant implications for developmental science. At the applied level, this work can inform responsive programming and policy for unemployed adults of color as well as for children at-risk for adult unemployment.

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