

Psychosocial Factors and Behaviors in African Americans: The Jackson Heart Study



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Introduction: There are limited reports on the association of psychosocial factors with unhealthy behaviors, which are key mediators in the psychosocial–cardiovascular disease pathway. The Jackson Heart Study was used to examine the associations of multiple psychosocial factors with behaviors among African Americans.

Methods: The Jackson Heart Study is a prospective, cohort study of cardiovascular disease among African Americans recruited from the Jackson, MS, metropolitan area between 2000 and 2004. Between 2015 and 2016, multivariable regression was used to analyze the cross-sectional associations of baseline negative affect (cynicism, anger-in, anger-out, and depressive symptoms) and stressors (global stress, Weekly Stress Inventory-event, Weekly Stress Inventory-impact, and major life events) with the odds of current smoking and mean differences in dietary fat intake, physical activity, and hours of sleep.

Results: Men were more likely to smoke than women ($p < 0.001$) and had higher physical activity scores ($p < 0.001$). Women reported more hours of sleep ($p = 0.001$). In fully adjusted models, each negative affect and stress measure was significantly associated with an increased odds of current smoking. For example, the odds of smoking increased by 14% for each 1-SD increase in cynical distrust score (OR=1.14, 95% CI=1.01, 1.27) in the fully adjusted model. Further, each negative affect and stress measure (except anger-out) was significantly associated with fewer hours of sleep in fully adjusted models.

Conclusions: Using a large sample of African Americans, this study found that multiple psychosocial risk factors were associated with unhealthy behaviors that are prevalent among this population.

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INTRODUCTION

An estimated one in three Americans have some form of cardiovascular disease (CVD).^{1,2} CVD disparities by race persist even when risk factors, such as hypertension, diabetes, and obesity are taken into account. Negative psychosocial factors prevalent among African Americans (AAs) may contribute to this persistent disparity. Perceived discrimination has been positively associated with hypertension in AAs,³ and depressive symptoms have been linked to incident coronary heart disease among AAs but not among whites.⁴ Another study found that racial residential segregation contributes to greater risk for CVD among AAs than whites and Hispanics.⁵ Some studies have

largely focused on the link between psychosocial factors and cardiovascular (CV) outcomes.^{6,7} Few have examined, in large samples of AAs, the link between multiple

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psychosocial factors and unhealthy behaviors, which are potential mediators in the association between psychosocial measures and CV outcomes.

Researchers have reported, in smaller samples, the associations of psychosocial stressors with unhealthy behaviors.⁸ Jackson and colleagues⁹ found that AAs ($n=874$) cope with stressful situations by engaging in unhealthy behaviors (e.g., poor eating, smoking), which indirectly may diminish the symptoms of stress (i.e., anxiety, depression) but directly contribute to physical health disparities by race/ethnicity. Other studies have shown that everyday and lifetime discrimination are associated with unhealthy behaviors, especially among AAs.^{10–12} These studies have incorporated a single measure of discrimination in their analyses, whereas few have examined associations of multiple measures of negative affect and stressors in a large sample of AAs. The consideration of multiple psychosocial factors (versus a single measure) may be a truer depiction of how multiple stressors predict behaviors among AAs.

Previous studies in the Jackson Heart Study (JHS) that have explored the associations of psychosocial and CV outcomes and behaviors and CV outcomes have respectively found that psychosocial factors were associated with blood pressure progression over time among AAs⁷ and sedentary behavior was associated with greater carotid intima media thickness in AAs.¹³ As no studies have examined the associations of psychosocial factors with behaviors as outcomes, the current study provides justification for undertaking this approach in a large sample of AAs. Specifically, using the JHS, this study examines cross-sectional associations of four negative affect measures (cynical distrust, anger-in, anger-out, and depressive symptoms) and four stressors (chronic stress, Weekly Stress Inventory [WSI]-event, WSI-impact, and major life events [MLEs]) with behaviors (smoking, dietary fat, physical activity, and sleep) among AAs. This study is important because it explores unhealthy behaviors that are prevalent among AAs as outcomes; it provides some understanding of how these behaviors are amplified as a consequence of multiple psychosocial exposures among AAs; and it uses the JHS, the largest prospective study of CVD in AAs, to examine psychosocial stressors and behaviors, which has implications for behavioral interventions that consider psychosocial exposures among AAs.

METHODS

Study Population

The JHS is a study of CVD in AAs (1,941 men, 3,360 women; age, 35–84 years) in Jackson, MS. Between 2000 and 2004, participants were recruited from Hinds, Madison, and Rankin counties in

Jackson, MS. Enrollment stemmed from four recruitment pools: random, 17%; volunteer, 22%; Atherosclerosis Risk in Communities Study, 30%; and secondary family members, 31% for future genetic studies. Details of the design and recruitment were published elsewhere.^{14–16} The study was approved by the IRBs of University of Mississippi Medical Center, Jackson State University, and Tougaloo College. All participants provided informed consent.

Measures

Four outcome measures collected at baseline (2000–2004) were used to characterize health behaviors: cigarette smoking, dietary consumption of calories from fat, physical activity, and sleep duration. Cigarette smoking was a binary variable—current smoker versus not current smoker based on self-report. Consumption of fat was assessed using the Delta Nutrition Intervention Research Initiative, a short-form food frequency questionnaire¹⁷ for percentage daily calories from fat (continuous). Physical activity was measured as the continuous sum of four index scores (Active Living, Work/Occupational, Home Life, and Sport) from the JHS Physical Activity Cohort survey instrument.¹⁸ Sleep duration, a self-reported item that asks the number of hours slept per night, was examined as a continuous outcome. In supplementary analyses, active living (a component of the JHS Physical Activity Cohort instrument) and alcohol consumption (number of drinks per week) were also examined as outcome variables.

Psychosocial measures included cynical distrust, anger-in, anger-out, depressive symptoms, global stress, WSI-event, WSI-impact, and MLEs. Cynical distrust was measured as a component of the full Cook–Medley Hostility Scale.¹⁹ Items 1–13 measure cynical distrust. Participants were asked to answer *true* or *false* on questions such as *I have had to take orders from someone who did not know as much as I did*. Summed scores ranged from 0 to 13. Cronbach's alpha for internal consistency was 0.76.

Anger was measured using the Spielberger trait anger scale, a 16-item scale that assessed anger-in (eight items) and anger-out (eight items).²⁰ Participants were asked to describe their reactions when feeling angry by rating how often they react in the manner described by each item. Each item is rated on a 5-point Likert-type scale from *never* (0) to *almost always* (5). For anger-in, participants were asked questions like *I keep things in* and *I pout or sulk*. For anger-out, participants were asked questions such as *I express my anger*. The scores for each subscale ranged from 0 to 23 (anger-in) and 0 to 22 (anger-out). Internal consistency was high for anger-in ($\alpha=0.77$) and anger-out ($\alpha=0.77$).

Depressive symptoms were measured using the 20-item Centers for Epidemiologic Studies Depression Scale.²¹ Participants were asked about their mood over the past week, responding to such items as *I was bothered by things that usually don't bother me*, and how often they felt *this way*. Item ratings ranged from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). This scale ranged from 0 to 60. Higher scores reflect greater levels of depressive symptoms. Internal consistency was high ($\alpha=0.82$).

Stress was measured using the Global Perceived Stress Scale. Created for the JHS¹⁵ and adapted from the Survey of Recent Life Experiences²² and the Perceived Stress Scale,²³ the Global Perceived Stress Scale is an eight-item measure of global perceptions of stressors associated with ongoing stressful conditions, such as

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