Mechanisms of Racial Health Disparities: Relationships between Coping and Psychological and Physiological Stress Responses

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Objective: Psychological distress and physiological dysregulation represent two stress response pathways linked to poor health and are implicated in racial disparities in aging-related health outcomes among US men. Less is known about how coping relates to these stress responses. The purpose of this exploratory study was to examine whether midlife and older men's coping strategies and behaviors accounted, in part, for Black-White disparities in men's psychological and physiological stress responses.

Methods: We examined racial differences in 12 coping strategies (COPE Inventory subscales, religious/spiritual coping, and behaviors such as stress eating and substance use) and their relationships with psychological distress (Negative Affect scale) and physiological dysregulation (blunted diurnal cortisol slopes) using regression models and cross-sectional data from 696 Black and White male participants aged 35-85 years in the National Survey of Midlife Development in the United States (MIDUS) II, 2004-2006.

Results: Black men exhibited more psychological distress and physiological dysregulation than White men. Black and White men reported comparable use of most coping strategies, none of which demonstrated similar relationships with both stress responses. Coping strategies explained variations in psychological distress consistent with conventional protective-harmful categorizations. Coping accounted for racial disparities in men's psychological distress, as Black men reported using harmful strategies more often and were more susceptible to their negative effects. Neither differential use of coping strategies nor differing relationships accounted for racial disparities in physiological dysregulation.

Conclusions: Findings revealed complex relationships between coping and psychological and physiological stress responses and suggest the importance of differing approaches to reducing associated racial health disparities among men. *Ethn Dis*. 2020;30(4):563-574; doi:10.18865/ed.30.563

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Introduction

In the United States, racial disparities in chronic disease and life expectancy are particularly pronounced among men. Black men are more likely to develop aging-related health conditions such as hypertension, heart disease and stroke, some cancers, and diabetes than White men.[1] Black men generally develop these conditions at younger ages than most other racial/ethnic groups of men and women, and their conditions tend to be more severe and lead to premature mortality.[1] The average lifespan for Black men is shorter than those for nearly all other racial/ethnic and gender groups.[1]

Race and sex are two of the strongest predictors of health in the United States independently and in combination,[2,3] yet biologic and genetic factors explain only a small portion of health differences.[2,4] Psychosocial and behavioral factors linked to race and male gender warrant further investigation as determinants of men's health and health disparities.[2,3,5] While the relationships between exposure to chronic sources of stress and health disparities are well-established, the relevance and role of a broad array of coping strategies and behaviors within the stress-heath disparities framework have been the subject of limited empirical investigation in general,[6,7] and

among men specifically.[8] The objective of this exploratory study was to examine whether racial differences in the ways in which midlife and older men coped accounted, in part, for variations in two stress response pathways, psychological distress and physiological dysregulation, which are implicated in adverse health outcomes and racial health disparities.

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Stress-Health Disparities Framework Applied to Men

Differential exposure to chronic stressors across the lifespan and the pathways through which these affect health are increasingly recognized as important mechanisms contributing to health disparities.[7,9,10] Black and White men aged 35-85 years represent an ideal population for investigating the stress-health disparities framework because: 1) collectively, Black men have been shown to face more chronic and intense stressors across the lifespan than White men[11-13]; 2) sizable and persistent Black-White health disparities are well-documented among men[1]; 3) the cumulative adverse effects of life time stressor exposure on health are posited to be more evident among midlife and older men than among youth or young adults[9]; and 4) this upper age range boundary avoids survivor bias that may be present among the oldest old (ie, aged >85 years). Furthermore, while some stressors and health outcomes that Black men experience are shared with other racial/ethnic groups of men and with Black women, there are notable differences. Race and sex intersect to influence how many and what types of stressors men experience, how they cope, proximal stress responses (eg, psychological distress and physiological dysregulation), and resultant patterns of health.[1,12,14] Researchers have documented racial differences among men and when comparing men and women for several components within the stress-health disparities framework, but whether coping plays an important role in racial health disparities among men remains unclear.

In Myer and colleagues' model of stress and minority health,[7] stressor exposure and subsequent appraisal and coping process are conceptualized as shaping proximal stress responses, such as psychological distress and physiological dysregulation.[15] Psychological distress is a generalized, subjective sense of discomfort and strain due to unpredictable, uncontrollable, or overwhelming stressors. Although comparisons of psychological distress levels for Black and White men have been mixed,[16] studies suggest Blacks experience more persistent and chronic episodes of poor psychological health.[17] Physiological dysregulation refers to when interrelated biological systems start functioning suboptimally, which is believed to occur as part of natural aging processes but become accelerated for those who have been exposed to chronic stressors.[18,19] When this occurs, the hypothalamic-pituitary-adrenal (HPA) axis stops generating robust surges of stress hormones, such as cortisol, in response to stressors and as part of normal circadian patterns. Black men have been documented as demonstrating more physiological dysregulation than their White counterparts.[18] While both of these stress responses are believed to intersect and have been associated with a variety of poor mental and physical health conditions, psychological distress has more consistently been linked to mental disorders and physiological dysregulation to physical health outcomes.[20,21] Both stress responses have been posited as important pathways contributing to health disparities.[16,18,19] Understanding relationships between psychological distress, physiological dysregulation, and coping processes may provide insight on mechanisms generating racial health disparities among men.

Men, Coping, and Racial Health Disparities

Coping has the potential to reduce, exacerbate, or be ineffectual

at altering the negative consequences of stressors on proximal stress responses and resultant distal health outcomes.[15] Less empirical research, however, has examined the role of coping within the stress-health disparities framework. For example, researchers have not clearly established whether Black and White men cope differently, largely because studies typically examine coping differences by sex or by race, rather than at intersections of these characteristics.[14] Studies show that men often cope in traditionally masculine ways (eg, active problem solving, disengaging)[2] and may react to stressors unconsciously or in ways they do not define as "coping" (eg, eating unhealthy comfort foods).[14] Men's coping strategies may also be influenced by social, life stage, and neighborhood factors linked to age and/or race/ethnicity.[10,22] Research examining coping differences among men by age has generated inconsistent findings, although collectively they suggest that older men use largely the same strategies as midlife men, with the exception of being less likely to use disengagement and escapism (eg, alcohol or drug use), which are even more commonly employed among young adult men.[22] Some researchers have suggested that Black men may tend to use coping strategies that are more accessible in the disadvantaged neighborhoods, where they are more likely to live (eg, religious/spiritual coping, alcohol or drug use).[10] One plausible way coping could contribute to racial health disparities is if Black men use harmful coping strategies more often than White men. To date, studies have not found substantial support for this proposition.[6,8,23]

Another way coping may contribute to racial health disparities among men is if race interacts with coping to differentially affect health outcomes. Several theoretical models can be applied to the role of coping in racial health disparities. The diminished returns hypothesis proposes that Blacks benefit from coping less than Whites,[24] while the social vulnerabilities hypothesis posits that Blacks may also be more susceptible to negative consequences of coping.[23] The Blaxter hypothesis suggests that the health of socially marginalized groups, such as Blacks, is so adversely affected by social and structural disadvantages that more proximal influences such as coping have negligible influence; the health of privileged groups, such as Whites, may be more malleable.[23] The weathering hypothesis could be extrapolated to suggest these malleability differences may become increasingly evident with age, due to the premature aging experienced by marginalized groups.[9] The Environmental Affordances Framework[6,10] proposes that one coping strategy may have divergent consequences for different health outcomes (eg, good for mental health but bad for physical health) and for different racial groups. Empirical tests of these theoretical models have produced mixed results or were not applied in the context of coping.[6,23-25]

A previous study by our research team provided an in-depth examination of relationships between various coping strategies and physiological dysregulation among Black and White men aged 35-85 years.[8] We replicated those analyses, with minor modifications, for the current study so as to juxtapose relationships between coping and two different types of stress responses within the same sample. This allowed us to investigate whether individual coping strategies demonstrated similar or differing relationships with two different stress responses. The goal of this comparison was to reveal complexities of coping and two stress response pathways linked to racial health disparities among men and to identify more nuanced intervention strategies.

Study Purpose

This exploratory study investigated whether racial differences in coping accounted, in part, for variations in psychological and physiological stress response pathways implicated in Black-White health disparities among US men. Our aims were twofold. First, we documented differences in men's reported use of 12 coping strategies and behaviors by race. We elected to examine coping strategies individually, rather than grouped in categories, given the considerable theoretical scholarship suggesting that coping strategies may demonstrate divergent relationships for different health outcomes and for different groups. Next, we examined relationships (strength and direction) between these coping strategies and two adverse stress responses, psychological distress and physiological dysregulation, and whether race moderated these relationships.

Methods

This study used linked data from participants in the second wave of the National Survey of Midlife in the United States (MIDUS II, 2004-2006) who were recruited into the National Study of Daily Experiences (NSDE II, 2004-2009). Details of these studies are described elsewhere.[8,26,27] The sample was composed of US adults aged 35-85 years and included an oversampling of African Americans. The analytic sample for the current study included the 59 Black and 637 White men who completed the MIDUS II interview and self-administered questionnaire and provided data for both outcome measures. Excluded men (n=130, 38 with missing questionnaires, 108 with missing outcome data) were more likely to be Black than the analytic sample (16.9% vs 8.5%) but were otherwise comparable. This study was exempt from internal review board because it used a publicly available dataset that contained no information that could be used to identify participants.

Measures

Psychological Distress

Non-specific psychological distress was assessed with the Negative Affect Scale.[28,29] Participants were asked how often they felt 14 moods during the past 30 days: nervous, restless/fidgety, hopeless, everything was an effort, worthless, so sad nothing could cheer you up, afraid, jittery, irritable, ashamed, upset, lonely, angry, and upset. Responses were reverse coded and averaged. Higher scores reflected higher levels of psychological distress. This scale demonstrated good reliability in our sample (Cronbach's α .954 and .897 for Black and White men, respectively).

Physiological Dysregulation

Physiologic dysregulation was indicated by early-day declining diurnal (daily) cortisol slopes. Slopes were calculated from cortisol biomarkers in saliva samples collected by participants 30 minutes post-waking (when daily cortisol levels usually peak) and before lunch, and from reported time elapsed between sample collections. More blunted (ie, flatter, closer to 0) cortisol slopes reflect less robust dynamic range, which is an indicator of HPA-axis dysregulation.[20] Diurnal cortisol slopes have been associated with a variety of health outcomes, multimorbidity, and mortality.[18,20] Early-day declining slopes have been shown to reflect substantial racial disparities.[18,30] Cortisol patterns fluctuate daily, so we averaged slopes for the four consecutive days cortisol was collected, which studies have found increases diurnal cortisol slope stability and reliability.[31] We adjusted for skew by natural log transforming raw cortisol values prior to slope calculations.

Coping Strategies

We evaluated men's use of 12 coping strategies, recording how frequently they reported 8 strategies specifically linked to coping with general stressors and whether they engaged in 4 behaviors representing common ways that men respond to stressors that can be conscious or unconscious.[14] Positive reinterpretation (α .803), active coping (α .728), planning (α .833), venting (α .800), denial (α .701), and behavioral disengagement (α .747) were assessed using COPE Inventory subscales (4 items each), in which men were asked to report how frequently they responded in certain ways to difficult or stressful situations.[32] Stress eating (α .834, standardized α .701) indicated men's reported frequency of eating larger quantities or more favorites foods (2 items) when experiencing difficult or stressful situations. Religious/spiritual coping (α .897) indicated how often men relied on faith or spirituality (6 items) to cope with major problems.[33] Alcohol abuse was assessed with the 4-item version of the Michigan Alcohol Screening Test (MAST), which evaluated whether men reported any problems symptomatic of alcohol abuse in the past 12 months.[34] Drug use indicated whether men reported taking any illegal drugs or medications counter to/without prescription in the past 12 months. Drugs assessed were marijuana, LSD/hallucinogens, inhalants, cocaine/crack, heroin, sedatives, tranquilizers, painkillers, stimulants, and antidepressants. Physically active indicated whether men endorsed ≥2 items, out of 4, asking whether they spent several days a week engaging in moderate physical activity and/or vigorous physical activity during summer (2 items) and/or winter (2 items). Smoking indicated whether men currently smoked tobacco. We calculated continuous measures so higher scores reflected more frequent coping strategy use

Table 1. Participant characteristics, by race

Characteristic	Black Men		White Men		P
	%	M (SD)	%	M (SD)	
Sociodemographic					
Age, in years		54.3 (10.0)		57.2 (12.1)	.040
Educational attainment					
No HS degree or GED	13.6		4.7		.011
HS degree/GED	66.1		46.9		.006
BA/BS degree	10.2		30.6		<.001
Graduate/professional degree	10.2		17.7		.152
Employed	57.6		68.4		.109
Supervisory role, current/last job	31.6		51.9		.004
Household income, median		$39,000		$65,250	<.001
Stressful life events		5.4 (3.11)		3.4 (3.27)	<.001
Health					
Psychological distress		1.73 (.81)		1.51 (.44)	.039
Physiological dysregulation		-.15 (.15)		-.21 (.11)	.004
Smoker at time of:					
psychological distress		25.4		11.8	.007
physiological dysregulation		32.2		15.4	.003
Protocol non-adherent	6.8		4.9		.528
Total N	59 (8.5%)		637 (91.5%)		

and all strategies shared the same potential score range. We used person-mean substitution to impute missing item values (<2%).

Other Variables

Demographic covariates were: age (in years); race (Black or White); and educational attainment (no high school degree/no GED reference group, high school diploma/GED, bachelor's degree, or graduate/professional degree). Two potential confounders identified in preliminary analyses were also examined: smoking indicated men's reported smoking status at the times of the interview and salivary cortisol collection (ie, two variables, one matched to each outcome variable, r=.800, P<.001); and protocol nonadherent indicated if before-lunch cortisol sample values >10 nanomoles/liter above 30 minutes post-waking values for the same day, signifying lack of adherence to instructions to avoid eating prior to before-lunch sample collection).

Data Analysis

Multiple imputation was not necessary due the small portion of data missing (<1.3% overall).[35] We compared characteristics of Black and White men using two-tailed t, χ^2, and Mann-Whitney tests. We used ordinary least squares regression models to identify racial differences in relationships between coping, psychological distress, and physiological dysregulation. We regressed psychological distress on each coping strategy, modeled separately, controlling for select demographic variables and covariates. We tested whether race moderated these relationships by adding interaction terms (product of race-indicator variable and coping measures). We used the Benjamini-Hochberg procedure to adjust for multiple comparisons and identify potential cases of race moderation for further investigation.[36] We elected a moderate false discovery rate of .25 because subsequent simple slopes tests (ie, t-tests of slopes divided by standard errors[37] with α<.05) would provide more power and precision to identify race-based differences. We repeated the steps above with physiological dysregulation as the outcome variable.

Sensitivity analyses included models: 1) that were racially stratified; 2) replicated with the subsample (n=666) that provided data for all coping measures; 3) excluding protocol non-adherent participants (n=35); 4) eliminating the smoking control variable; and 5) accounting for number of stressful life events

Table 2. Racial differences in men's coping strategies and associations between coping and psychological and physiological stress responses

Coping strategy	n	Frequencies			Relationship with psychological distress[a]		Relationship with physiological dysregulation[b]	
		Black men	White men		Main effects	Interaction w/ race	Main effects	Interaction w/ race
		M(SD) or %	M(SD) or %	P	β(SE) P	β(SE) P	β(SE) P	β(SE) P
Positive reinterpretation	688	13.01 (2.07)	12.13 (2.38)	.006	-.043(.007) <.001	.044(.030) .140	-.001(.002) .607	.003(.007) .721
Active coping	687	12.53 (2.06)	12.58 (2.14)	.860	-.038(.008) <.001	.057(.030) .058	-.001(.002) .581	.001(.007) .841
Planning	688	13.34 (2.29)	13.06 (2.33)	.378	-.027(.008) <.001	.031(.027) .268	-.002(.002) .414	.001(.007) .847
Venting	687	8.64 (2.75)	8.42 (2.56)	.531	.066(.006) <.001	.128(.021) <.001	-.001(.002) .530	-.004(.006) .437
Denial	687	6.69 (2.24)	5.73 (1.87)	.002	.056(.009) <.001	.044(.028) .121	.001(.002) .579	-.001(.007) .933
Behavioral disengagement	687	6.59 (2.46)	6.54 (2.16)	.871	.050(.008) <.001	.013(.026) .609	.002(.002) .261	.002(.006) .733
Stress eating	687	6.92 (3.09)	6.43 (3.04)	.239	.029(.006) <.001	.010(.020) .609	.001(.001) .396	-.005(.005) .344
Religious & spiritual coping	690	11.19 (3.38)	10.49 (3.64)	.162	.001(.005) .823	.009(.019) .627	-.003(.001) .019	.008(.005) .083
Alcohol abuse	689	5.2	5.1	1.00	.250(.082) .002	-.648(.289) .025	-.020(.020) .307	.044(.069) .524
Drug use	694	27.1	11.0	.001	.265(.054) <.001	.439(.146) .003	-.0002(.013) .987	-.113(.036) .002
Physically active	692	19.6	37.6	.008	-.057(.038) .136	-.143(.161) .375	.008(.009) .373	.070(.039) .070
Smoking	696	25.4-32.2	11.8-15.4	.003-.007	.162(.054) .003	.174(.151) .249	.013(.012) .262	-.065(.034) .054

a. Controlling for age, race, educational attainment, and smoking.
b. Controlling for age, race, educational attainment, smoking, and protocol non-adherent.

(i., Stressful Life Events Inventory created for MIDUS). We conducted statistical analyses in SPSS 26 (IBM Corp., Armonk, NY).

Results

Black and White men's demographic and health characteristics are compared in Table 1. The study sample (n=696) was 8.5% Black (n=59) and 91.5% White (n=637). Average age for the sample was mid-50s. Black participants were, on average, younger than White participants, lower socioeconomic status, and reported more stressful life events. When compared with White men, Black men had more psychological distress and exhibited more physiological dysregulation. A larger percentage of Black men than White men smoked. The frequencies of Black and White men's reported coping strategies are compared in Table 2. Relative to White men, Black men reported more frequent use of positive reinterpretation and denial, were more likely to use drugs and smoke, but were less likely to be physically active.

Coping and Psychological Distress

Relationships between coping strategies and men's psychological distress are reported in Table 2. The effect sizes and 95% CIs of these relationships, including differing relationships detected for Black and White men, are illustrated in Figure

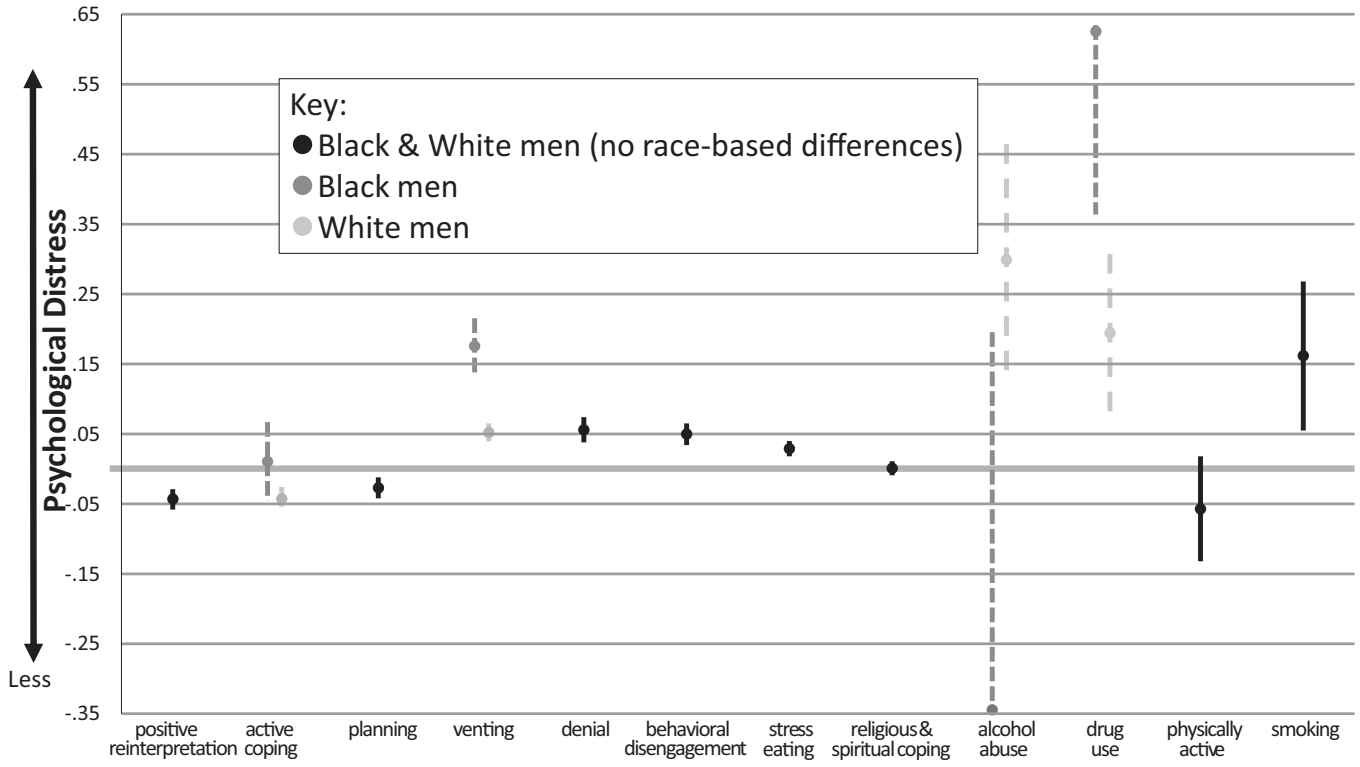

Figure 1. Relationships between men's coping strategies and psychological distress, effect sizes and 95% CIs[a]
a. Controlling for age, race (in pooled analyses only), educational attainment, and smoking

1. Six coping strategies were associated with psychological distress but did not demonstrate race-based differences: positive reinterpretation and planning were associated with less psychological distress; and denial, behavioral disengagement, stress eating, and smoking were associated with more psychological distress. Religious/spiritual coping and being physically active were unrelated to psychological distress for both Black and White men. Relationships that did not differ by race are depicted in Figure 1 in solid black, with coping strategies linked to less psychological distress below the major horizontal line positioned at zero, those associated with more psychological distress above the line, and non-significant relationships intersecting the line. Four coping strategies demonstrated differing relationships with psychological distress for Black and White men in both the interaction models (Table 2) and simple slopes tests (results in text below). In Figure 1, these are depicted with dashed medium and light grey representing the relationships identified for Black and White men, respectively. Active coping was associated with less psychological distress among White men (b= -.043, t= -5.03, P<.001), but was unrelated to Black men's psychological distress. Venting was associated with more psychological distress for both Black and White men, though venting was especially harmful for Black men (Black men b=.181, t=9.02, P<.001; White men b=.053, t=8.03, P<.001). White men who abused alcohol reported more psychological distress than those who did not (b=.303, t=3.57, P<.001); alcohol abuse was unrelated to Black men's psychological distress levels. Drug use was associated with more psychological distress for Black and White men, though drug use was especially harmful for Black men (Black men b=.636, t=4.71, P<.001; White men b=.197, t=3.38, P=.001).

Coping and Physiological Dysregulation

The relationships between coping strategies and men's physiological

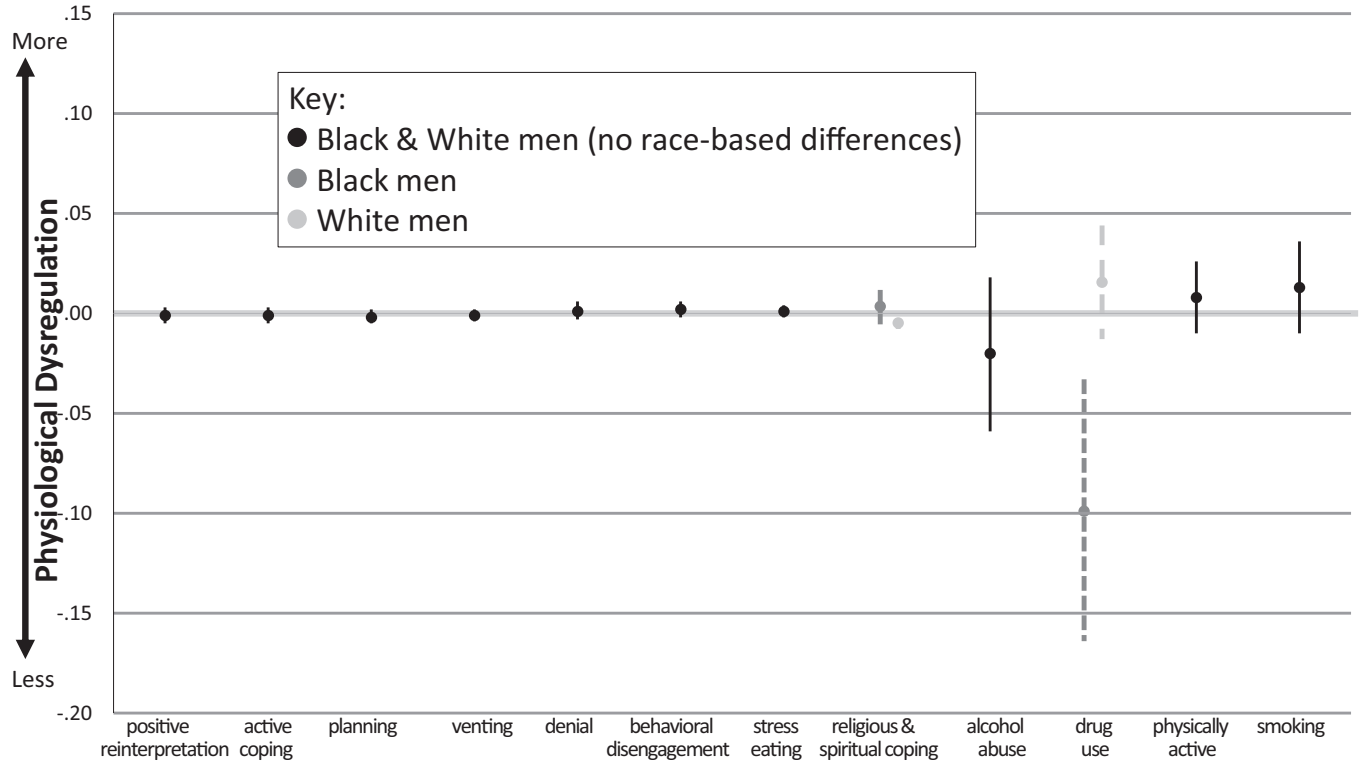

Figure 2. Relationships between men's coping strategies and physiological dysregulation, effect sizes and 95% CIs[a]
a. Controlling for age, race (in pooled analyses only), educational attainment, smoking, and protocol non-adherent

dysregulation are reported in Table 2 and their effect sizes and 95%CIs, including race-based differences, are depicted in Figure 2. The interaction terms for four coping strategies met the criteria for further investigation: two of these confirmed race-based differences in the more precise simple slopes tests (ie, religious/spiritual coping and drug use) and two did not (ie, smoking and being physically active). A total of 10 coping strategies were unrelated to both Black and White men's physiological dysregulation, as suggested by their CIs intersecting the major horizontal line. In the simple slopes tests, two strategies were associated with physiological dysregulation for one racial group of men but not the other. Religious/spiritual coping was associated with less physiological dysregulation for White men (b= -.003, t= -2.45, P=.015), but not Black men. Black men who used drugs had less physiological dysregulation than those who abstained (b= -.096, t= -2.91, p=.004; drug use was unrelated to White men's physiological dysregulation.

Sensitivity analyses were largely consistent with results reported above, though some analyses were affected by reduced power. Racially stratified models confirmed the robustness of the simple slopes test findings. While smoking was correlated with several coping strategies, eliminating the smoking control variables had negligible effects on results. Number of lifetime stressful events was an independent predictor of men's psychological distress, but not physiological dysregulation. Lifetime stressful events generally did not diminish the size of racial differences in relationships between coping and either stress response; one exception was race moderation was no longer detected in the active coping-psychological distress relationship.

Discussion

The novel contribution of this exploratory study was the finding that the coping strategies and behaviors of Black and White US men aged 35-85 years may contribute to racial disparities in one stress response and risk factor for poor health outcomes (psychological distress), but not another (physiological dysregulation). Overall, Black and White men reported comparable use of most of the 12 coping strategies examined in this study. Men's reported coping strategies were closely related to their psychological distress levels, and in ways that were generally consistent with conventional conceptualizations of protective and harmful strategies, but not physiological dysregulation. Psychological distress was predicted by six coping strategies that did not demonstrate race-based differences, and four coping strategies moderated by race. Coping accounted for psychological distress disparities in two ways: 1) Black men used some harmful strategies more often (ie, denial, drugs, smoking); and 2) Black men were more adversely affected by the negative consequences associated with some coping strategies than White men were (ie, venting, drugs). With a few unanticipated exceptions (ie, religious/spiritual coping, drug use), coping strategies were unrelated to physiological dysregulation for both Black and White men. Accordingly, neither differential coping nor differing relationships accounted for racial disparities in men's physiological dysregulation. Details of relationships between coping strategies and physiological dysregulation of men aged 35-85 years are investigated and discussed in greater detail elsewhere.[8]

Existing theoretical models linking coping to health disparities informed our decision to examine coping strategies individually, rather than grouped in categories.[6,10,23-25] This strategy was advantageous, as study findings provided evidence that coping strategies demonstrated divergent relationships with two different stress responses and for different racial groups of men. Although formally testing these theoretical models was not our goal, our findings generally did not provide evidence for the roles of coping hypothesized in most of these models. The one exception was the social vulnerabilities hypothesis.[23] Our findings provided some support for the premise that Black men's psychological distress levels were more affected by some harmful coping strategies than White men's, though this did not hold for other harmful coping strategies (ie, denial, behavioral disengagement, stress eating, smoking) or with physiological dysregulation as the outcome.

Overall, Black and White men reported comparable use of most of the 12 coping strategies examined in this study.

None of the coping strategies examined demonstrated similar relationships with men's psychological distress and physiological dysregulation. This provides substantial evidence that these two stress responses are distinct and warrant different intervention strategies at least among men, aged 35-85 years. Interventions that prioritize improving midlife and older men's coping skills and access to coping resources show promise for reducing men's psychological distress and improving associated mental health outcomes. Findings indicate that building men's capacity for positive reinterpretation and developing alternatives to venting, denial, behavioral disengagement, and alcohol abuse may be especially effective. In contrast, coping-focused interventions may have small or no effects on midlife and older men's physiological dysregulation and associated adverse health outcomes and disparities.

The sample's older age range may be an important consideration with our findings, particularly the differences documented when comparing relationships between coping and men's psychological and physiological stress responses. Theoretical and empirical research suggests that chronic exposure to stressors weathers the body in a cumulative manner over the life course.[9,18,19] Perhaps by the latter half of the lifespan, men's physiological stress responses were dysregulated to the point that they were unresponsive to coping, either positively or negatively. Psychological health, on the other hand, may remain malleable irrespective

of age. Replicating this study with a younger age cohort of males or with longitudinal data may clarify whether relationships between coping and men's psychological and physiological stress responses remain consistent and distinct across different stages in the lifespan.

Study Limitations

First, the measures used may have failed to capture nuances in race-based interpretations and coping intensity or may have been biased by social desirability or perceived vs actual coping discordance. Second, diurnal cortisol slopes demonstrate only moderate day-to-day stability because they are affected by lifestyle and measurement factors.[31] We addressed this by averaging slopes across four days, accounting for potential confounding factors, and performing several sensitivity analyses. Third, the sample size and characteristics affected our analyses and results. We did not compare different age groups by race within the sample or to men of other racial/ethnic groups due to low subsample sizes, and we may not have detected smaller race-based differences in relationships between coping and the two stress responses due to the modest subsample of Black men. Finally, we did not weight the results to be nationally representative because of the variable sampling strategies used in MIDUS and NSDE.

Findings indicate that building men's capacity for positive reinterpretation and developing alternatives to venting, denial, behavioral disengagement, and alcohol abuse may be especially effective.

Conclusions

Our study revealed complex relationships between coping and psychological and physiological stress response pathways of Black-White health disparities among US men aged 35-85 years. Coping accounted for racial disparities in men's psychological distress, as Black men reported using harmful strategies more often and were more susceptible to some negative consequences. Neither differential use of coping strategies nor differing relationships accounted for racial disparities in physiological dysregulation among men. While the coping strategies used by midlife and older men may be important for their psychological wellbeing and warrant consideration for intervention to reduce associated disparities, they have little impact to men's physiological dysregulation in later life.

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Compliance with Ethical Standards

This study was exempt by institutional review board (IRB) because it used a publicly available dataset that contained no information that could be used to identify participants. MIDUS and NSDE collected the data used in this study in accordance with the ethical standards of the University of Wisconsin IRB and the Helsinki Declaration of 1975, as revised in 2013. All MIDUS and NSDE study participants provided informed consent.

Conflict of Interest

No conflicts of interest to report.

Author Contributions

Research concept and design: Allen, Watkins, Chatters, Johnson-Lawrence; Acquisition of data: Allen; Data analysis and interpretation: Allen, Watkins, Mezuk, Chatters, Johnson-Lawrence; Manuscript draft: Allen, Mezuk; Statistical expertise: Allen, Johnson-Lawrence; Acquisition of funding: Allen; Administrative: Allen; Supervision: Watkins, Mezuk, Chatters, Johnson-Lawrence

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