PAA 2010 Extended Abstract

Racial Variation, Psychosocial Risk Factors, and Undiagnosed and Poorly Managed Hypertension

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Abstract

An increasing amount of scientific research focuses on the impact of psychosocial risk factors on a wide range of health outcomes (Adler and Snibbe 2003; Levenstein, Smith, and Kaplan 2001). Using the 2006 wave of the Health and Retirement Study, I analyze both survey and biological data in order to examine race differences in both undiagnosed and uncontrolled hypertension. I also evaluate the impact of a comprehensive set of psychosocial risk factors (hostility, anger out, anxiety, chronic stress, and discrimination) on the relationship between race/ethnicity and hypertension in this nationally representative survey of Whites, African Americans, and Hispanics. Preliminary results point to significant gains in diagnosing hypertension, particularly among African Americans.

Introduction

Several studies have established the impact that psychosocial factors play in explaining disparities in health outcomes. Psychosocial indicators have been instrumental in our understanding of the maturation of physical health conditions such as hypertension (Levenstein et. al, 2001) as well as mental health conditions such as depression (Coryell et al, 1993; Bruce, 2002). With the recent incorporation of human development-based factors (e.g. personality, negative and positive affect) in demographic and epidemiologic research (Macleod and Davey Smith, 2003); the implementation of psychosocial measures in health disparities research deserves additional attention.

Psychosocial risk factors, unlike traditional risk factors such as obesity and poor health behaviors, have not been studies systematically. Previous research has shown that more personality-oriented characteristics are significant contributors to major conditions such as coronary heart disease (Levenstein, Smith, and Kaplan 2001), diabetes (Surwit et al 2002), and even mortality (Kauhanen et al 1996). For instance, characteristics such as hostility, anger, and anxiety have all been shown to be associated in various health outcomes. However, the magnitude and direction of these associations, particularly as it relates to cardiovascular-related illness, remains unclear.

This study attempts to expand on existing literature assessing psychosocial risk factors in hypertension by first examining differences in hypertension among a national survey of Whites, African Americans, and Hispanics. I utilize both self-reports of hypertension as well as blood pressure readings to obtain a more refined hypertension measurements. Next, I control for a comprehensive set of psychosocial risk measures in order to evaluate their impact on the race-hypertension relationship. In this study, psychosocial risk encompasses more traditional measures of risk (e.g. SES, health behaviors) as well as measures that are not typically utilized in demographic studies.

Methods and Analysis

I test race/ethnic differences in psychosocial factors using the 2006 wave of the Health and Retirement Study (HRS). Initially started in 1992, this biennual, nationally representative survey of the 50 and older U.S. population provides a wealth of information on the health, occupational, and financial status of individuals entering the later stages of life. The 2006 wave of this study is particularly important to this research agenda, in that it includes a Participant Lifestyle module that includes more detailed psychosocial indicators. In addition to

demographic characteristics, I examine six psychosocial indicators: cynical hostility (Cook-Medley Hostility Inventory), anger out (Spielberger Anger Expression Scale), anxiety (Beck Anxiety Inventory), an index for chronic stressors and everyday discrimination. Also, I created an index for negative social support, as it relates to either one's spouse, children, friends, and/or other family members.

Table 1 provides a simple breakdown of these risk factors by race. Whites, on average, appear to have a significantly lower mean on cynical hostility than their Black and Hispanic counterparts. Blacks typically do not exhibit behavior-related anger (anger out) than Whites. Whites, however, seem less anxious and suffer from lower levels of chronic stress than both Blacks and Hispanics. African Americans report a higher mean for daily perceived discrimination and are more likely to perceive negative social support.[1]

Table 2 shows the means and percentages of the covariates by the hypertensive categories. First I identified those who had hypertension versus those who did not have hypertension, based on both self reports[2] and low blood pressure readings. Respondents were deemed hypertensive if they had a systolic blood pressure (SBP) greater than 140. If respondents claimed that they have never been told that they were hypertensive yet their blood pressure is over the threshold, then these individuals were characterized as undiagnosed, as opposed to those who had been made aware of their condition and measured high. Among these individuals, I accounted for whether or not they were currently taking hypertensive medication. If they were

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[1] Negative social support composite score is reverse coded.

[2] "Has a doctor/health professional ever told you that you were hypertensive?"

adhering to a medication regimen and still measured high, then these respondents were categorized as those unable to adequately control their condition.

Table 3 displays an abbreviated table of the logistic regression models analyzed in this study. The first model shows the inclusion of demographic characteristics, whereas the second model includes the psychosocial measures[3]. In general, both demographic and psychosocial risk factors are more important in establishing the differences between those who have hypertension versus those who do not, as opppose to whether an individual is managing their condition. There is a persistent disparity between Blacks and Whites in regards to whether or not a person is hypertensive. Perhaps one of the most surprising findings is that Blacks are less likely to be undiagnosed, which suggests considerable gains in hypertension diagnosis for African Americans. Psychosocial risk factors also lend to the notion of this potential improvement in disease management, as those exhibiting higher levels of anger out, anxiety, and chronic stressors are less likely to go undiagnosed.

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[3] Several additional models were evaluated for these analyses.

References

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Table 1. Race Differences in Psychosocial Measures, Means Scores[ab]

	White (ref)	Black	Hispanic
Cynical Hostility (Range 1-6)	2.89	3.44[a]	3.48[a]
Anger-out (Range 1-4)	1.54	1.48[a]	1.50
Anxiety (Range 1-4)	1.54	1.71[a]	1.73[a]
Chronic Stressors (Range 1-28)	10.44	11.03[a]	10.84[a]
Everyday Discrimination (Range 1-6)	1.70	1.86[a]	1.69[b]
Negative Social Support (Range 1-12)	3.42	3.24[a]	3.31[ab]

		5,534	873	525

[a]different from whites ($p<0.05$); [b]different from blacks

Table 2. Means and Percentages of Demographic, Psychosocial, and Health Behavior Characteristics

	Disease (self-report or measured)	No Disease	Undiagnosed	Diagnosed	Poor Control	Good Control
	(N=4010)	(N=1819)	(N=680)	(N=3330)	(N=1329)	(N=2001)
Demographic Characteristics						
Age (mean)	67.47	63.33*	66.73	67.64†	68.39	67.14^
Black (%)	8.41	3.71*	5.32	9.12†	10.59	8.15^
Hispanic (%)	4.90	5.41	3.91	5.13	6.08	4.50^
Female (%)	53.55	55.20	46.08	55.27†	50.37	58.51^

Socioeconomic Characteristics						
Less than High School Education (%)	17.39	10.54*	16.90	17.51	19.43	16.24^
More than High School Education (%)	47.51	57.99*	51.05	46.70†	44.43	48.19^
Income (mean, in $s)	67,315.16	106,927.80*	89,622.16	62,177.16†	60,445.39	63,321.22
Uninsured (%)	3.41	4.62*	6.39	2.72†	2.87	2.62
Medicaid Coverage (%)	4.79	2.50*	4.06	4.95	5.30	4.72
Medicare Coverage (%)	58.05	36.92*	52.11	59.42†	61.36	58.14
Psychosocial Factors (mean)						
Cynical Hostility	2.99	2.92	2.96	3.00	3.01	2.95
Anger-Out	1.54	1.54	1.47	1.51	1.54	1.55
Anxiety	1.58	1.51*	1.45	1.54	1.59	1.60
Chronic Stressors	10.59	10.39	9.89	10.34	10.60	10.85
Daily Discrim.	1.70	1.73	1.65	1.68	1.70	1.72

Negative Support	3.41	3.37*	3.44	3.43	3.42	3.39
CES-D Depression Scale	1.40	1.15*	1.01	1.49[†]	1.53	1.46
Health Behaviors						
Current Smoker (%)	11.99	15.09*	16.94	10.84[†]	12.38	9.83[^]
Former Smoker (%)	44.23	39.87*	45.25	39.82[†]	44.59	45.68
Currently Obese (%)	46.13	26.33*	36.54	48.33[†]	48.92	47.94
Formerly Obese (%)	12.29	11.05	11.73	12.42	11.03	13.34[^]
Heavy Drinker (%)	2.34	1.98	3.82	1.99[†]	2.33	1.77
No Mild Physical Activity (%)	7.98	5.25*	7.36	8.12	7.91	8.26

Table 3. Analyzing Hypertension: Logistic Models of Prevalence, Undiagnosed, and Poor Control, HRS 2006.

	Disease (self-report or measured) vs. No Disease		**Undiagnosed (vs. Diagnosed)**		**Poor Control (vs. Good Control)**	
Demographic	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age	**1.049*** **	**1.029*** **	**0.991***	1.003	**1.016*** **	**1.019*** **
African-American	**2.694*** **	**2.547*** **	**0.561*** **	**0.568** **	**1.490** **	**1.538** **
Hispanic	1.068	0.862	0.706	0.683	**1.515** **	**1.410***
Female	**0.864** **	**0.827*** **	**0.718*** **	**0.779*** **	**0.681*** **	**0.690*** **
SES						
Less than HS		1.129		**1.183***		1.059
More than HS		**0.841***		1.027		0.911
No Insurance		1.067		**1.316***		1.054
Medicaid		0.892		1.085		0.962
Medicare		**1.437*** **		**0.667** **		0.868
Log Income		**0.908** **		**1.181** **		1.004
Psychosocial						
Cynical Hostility		1.000		**1.087***		1.020
Anger Out		1.018		**0.772** **		1.005
Anxiety		0.989		**0.823***		0.909
Chronic Stressors		**1.033*** **		**0.942*** **		0.986

Daily Discrim		1.022		0.960		1.027
Negative Support		1.111		1.008		1.120
Depressive symptoms		1.029		**0.927*** **		1.042
N	5829	5829	4010	4010	3330	3330
Predicted N	4010	4010	680	680	1329	1329