

# “Racialized Realignment of Time” and Disparities in Early-Onset Chronic Conditions

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## Introduction

Extant research has shown that cardiovascular disease risk precursors, including overweight/obesity and hypertension, are present in youth, and race and gender differentials are evident even by young adulthood (Geronimus et al. 2007; Harding et al. 2010). As knowledge on the race differentials in timing of onset has progressed, so too have inquiries into the role of childhood and adolescent exposures, including social adversity and stress processes, primarily investigated through the lens of socioeconomic status (SES) (Ben-Shlomo and Kuh 2002). Time, however, is another resource that may also be constrained by racialization processes (Hanchard 1999; Mills 2014), and not necessarily contingent upon low SES (Kwate 2017). Consequently, it is important to consider how racial health inequities reflect not only the accumulated effect of persistent economic disadvantage, but also the effects of experiencing other constraints, such as “racialized realignments of time.”

## Background and theoretical framework

An important link between time and racial disparities in health is the paradigm of *racialized time*. Hanchard (1999) asserts that waiting is a constant time structure imposed on Blacks in the U.S. and introduced the concept of racial time, defined as “...the inequalities of temporality that result from power relations between racially dominant and subordinate groups... produc[ing] unequal temporal access to institutions, goods, services, resources, power, and knowledge, which members of both groups recognize.” From this standpoint, racism is an underlying cause for the redistribution of time, and racial time becomes a useful marker of inequality (Hanchard 1999; Mills 2014).

Mechanisms of time loss for Blacks extend beyond waiting for resources yet to arrive, and include foregoing or having to spend more time in accessing routine goods and services, as well as withstanding spells of wasted time (Kwate 2017). A commonly referenced example is the withholding of investment dollars and restoration projects from Black neighborhoods until there is a gentrifying influx of Whites (Cooper 2017). In consequence, proximity to quality amenities (e.g., grocers, schools, and leisure opportunities) is physically more distant for many Blacks, and may require foregoing opportunities altogether or exhausting time in searches and commutes to alternatives in predominantly White communities (Pattillo 2015; Tyndall 2017). Also, losses of learning time occur through the disproportionate use of school suspensions leveraged against Black students that nab classroom time, often for subjective reasons that are invariably racialized, such as dress code and behavioral categories, such as defiance, disrespect, and loitering (Losen et al. 2016). In a last example, differential time demands for responsibility also occur by race. The greater proportion of health issues in Black communities that afflicts adults at earlier ages, combined with restraints on adult’s availability due to work and other time impositions, makes it probable that a greater number of Black adolescents face the need to devote time toward roles often assumed to be restricted to adulthood, such as caregiving down to siblings and up to ailing parents and relatives (Burton and Whitfield 2003; Hicks-Bartlett 2000). As such, there may be less time in the day to devote toward other activities considered important to building human capital and wellbeing, accompanied by stress associated with feelings of having too much to do with too little time, even in adolescence (APA 2014; National Public Radio 2014).

Taken together, these various forms of time impositions may be another form of chronic stress worthy of consideration in *weathering* -- the early health deterioration of Blacks occurring as a consequence of contending and coping with a racialized society that dictates qualitatively different life

experiences and stressors from conception (Geronimus 2000). Drawing upon *racialized time* and the *weathering hypothesis*, this study seeks to answer whether early trajectories into overweight/obesity and hypertension among Black women relative to White women might be, in part, a reflection of higher demands for responsibility (e.g., family caretaking), greater exclusion from time domains associated with building human capital (e.g., part-time work, learning time) and stress outlets (e.g., extracurriculars).

## Methods

Using the National Longitudinal Study of Adolescence to Adulthood (ADD Health), a composite measure of realigned time was created from seven indicators of time disadvantage in adolescence. These measures were selected for inclusion in the index based on extant literature documenting associations with disadvantage and/or obesity or hypertension status (Feldman & Matjasko, 2007; Gordon-Larsen, McMurray, & Popkin, 2000; Gordon-Larsen, Adair, & Popkin, 2002; Hasler et al., 2004; Knutson, 2005; Leventhal, Graber, & Brooks-Gunn, 2001; The National Sleep Foundation; Vioque et al., 2000). Indicators of time disadvantage include time demands for responsibility (e.g. caretaking) and exclusions to time domains associated with human capital and stress relief (e.g., suspensions, extracurriculars). To define indicators of time disadvantage, each variable in the index is dichotomized to reflect a 1 if the respondent reported experiencing the risk, and 0 otherwise. The index is then operationalized by summing across the seven variables for a possible range of 0-7. Responses greater than 5 were collapsed into the highest category due to few classifications of more than 5 risk factors in the analytic sample.

Outcome variables of interest are derived from wave 3 and 4 physical measurements of BMI and blood pressure, defined as three-level categorical variables of weight status (normal weight, overweight, and obese) and blood pressure (normal, pre-hypertensive, and hypertensive). All statistical analyses will be conducted using STATA version 14.2, using the wave 4 survey weight, cluster, and strata variables to account for the complex survey design effects. As a first step in analyses, descriptive statistics have been calculated - means for continuous and ordinal variables, and frequencies for dichotomous variables. A series of ordinal logistic regression analyses will be performed to estimate the odds ratio for weight and hypertension status and adjusted for the racialized time index and SES in the presence of standard controls.

## Preliminary Results

In emerging adulthood (wave 3), roughly 22% of White males were obese compared to 25% of Black males (NS), and 24% of White females were obese compared to 35% of Black females ( $p < .01$ ); 28% of White and Black males met criteria for being designated as hypertensive (NS), and 13% of White females were hypertensive compared to 21% of Black females ( $p < .001$ ). Black females scored the highest on the time disadvantage index (2.82), followed by Black males (2.60), White females (2.00), and White males (1.92). Given that racial differences in obesity and hypertension were only significant for females at this age, we limit the preliminary reporting of our multivariate analyses here to women. The time disadvantage index was positively associated with overweight and obesity among women (1.22 cumulative OR,  $p < .001$ ); a weaker association was found with hypertension in young adulthood ( $p > .05$ ). Inclusion of the time disadvantage index attenuated the racial disparity in overweight/obesity status, remaining statistically significant even in the presence of adolescent SES and other controls. However, inclusion of the index in models of pre-hypertensive /hypertensive status did not affect the magnitude of the racial disparity present in emerging adulthood. Continued sensitivity analyses are being performed to further assess the performance of the index among males, and on various constructions of blood pressure status for both gender groups.

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**Table 1. Sample characteristics**

	Males			Females		
	White Mean (SE) or %	Black Mean (SE) or %	p-value	White Mean (SE) or %	Black Mean (SE) or %	p-value
Unweighted sample size	2192	692		2386	1028	
BMI (W3):						
Overweight (%)	25.76	25.15	NS	19.69	23.07	NS
Obese (%)	22.43	24.94	NS	24.46	35.02	**
Blood pressure (W4):						
Mean systolic reading (SE)	129.60 (.36)	131.17 (.85)	NS	119.99 (.36)	123.02 (.62)	***
Mean diastolic reading (SE)	81.66 (.28)	81.78 (.65)	NS	76.80 (.28)	79.17 (.50)	***
Taking blood pressure medication (%)	4.65	2.86	NS	3.7	5.46	*
Hypertensive (%)	28.09	28.01	NS	12.8	21.15	***
Adolescent SEP score (W1)	0.16 (.04)	-.20 (.07)	***	0.09 (.04)	-.35 (.08)	***
Emerging adulthood financial stress (W3) (%)	29.24	46.81	***	33.37	47.8	**
Adolescent time realignment index (W1):						
5+ times a week engaged in household work (%)	1.92 (.05)	2.60 (.08)	***	2.00 (.04)	2.82 (.09)	***
Low school-based extracurricular involvement [0-1 activities] (%)	32.78	34.15	NS	43.16	47.83	NS
Loss of learning time: at least 1 out of school suspension or expulsion (%)	44.14	50.14	NS	37.1	46.91	***
No work experience by age 18 (%)	28.62	54.3	***	16.21	38.67	***
No time spent in hobbies over the week [0 bouts] (%)	18.24	33.44	***	21.58	38.93	***
Low participation in physical leisure over the week [0-1 bouts] (%)	17.63	24.15	**	18.26	27.1	**
Typical sleep on weeknights are either short or long sleep (%)	24.03	25.23	NS	34.04	45.42	**
Short sleep (%)	30.48	43.51	***	33.81	45.09	**
Long sleep (%)	27	39.51	***	30.14	41.27	**
Age	3.48	4	NS	3.67	3.82	NS
Household composition (W1)						
No parent/other arrangement (%)	28.14 (.16)	28.50 (.24)	NS	27.93 (.14)	28.17 (.22)	NS
Single parent household (%)	1.9	13.58	***	2.92	7.56	***
Blended family (1 bio parent) (%)	15.11	38.3	***	16.72	45.8	***
Two biological parent household (%)	4.86	5.51	NS	5.75	4.84	NS
Two biological parent household (%)	78.14	42.61	***	74.61	41.8	***
Smoking status (W4)						
Never a smoker (%)	23.92	41.61	***	28.89	62.11	***
Intermittent/former smoker (%)	46.76	37.52	**	44.68	25.72	***
Daily smoker (%)	29.32	20.87	**	26.43	12.17	***

Means (SE) are presented for continuous variables, percentages for categorical variables.

\*p<.05 \*\*p<.01 \*\*\*p<.001 NS=not significant

**Table 2. Cumulative Odds Ratio for Weight Status in Young Adult Females**

	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI)	Model 5 OR (95% CI)
Black race	1.69*** (1.35-2.12)	1.37** (1.09-1.71)	1.36** (1.08-1.71)	1.26* (1.01-1.57)	1.27* (1.02-1.58)
Adolescent SEP (W1)		0.67*** (0.59-0.76)		0.71*** (0.62-0.80)	0.73*** (0.64-0.82)
Adolescent time disadvantage index (W1)			1.22*** (1.13-1.31)	1.17*** (1.08-1.26)	1.16*** (1.07-1.25)
Financial stress in emerging adulthood (W3)					1.27*** (1.12-1.43)

All models adjusted for age, family composition in adolescence, and relevant health behaviors.

Exponentiated coefficients; 95% confidence intervals in brackets

Source: ADD Health longitudinal data

\* p<.05 \*\* p<.01 \*\*\* p<.001

**Table 3. Cumulative Odds Ratio for Hypertensive Status in Young Adult Females**

	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI)	Model 5 OR (95% CI)
Black race	1.49*** (1.21-1.83)	1.36** (1.11-1.66)	1.42** (1.15-1.76)	1.35** (1.10-1.65)	1.30* (1.05-1.62)
Adolescent SEP (W1)		0.76*** (0.69-0.85)		0.77*** (0.69-0.85)	0.85** (0.76-0.95)
Adolescent time disadvantage index (W1)			1.05 (0.99-1.12)	1.02 (0.96-1.08)	0.97 (0.91-1.03)
Financial stress in emerging adulthood (W3)					1.1 (0.98-1.24)
BMI (ref=underweight/normal; W3)					
Overweight					2.39*** (1.94-2.95)
Obese					3.73*** (3.04-4.57)

All models adjusted for age, family composition in adolescence, and relevant health behaviors.

Exponentiated coefficients; 95% confidence intervals in brackets

Source: ADD Health longitudinal data

\* p<.05 \*\* p<.01 \*\*\* p<.001