

**Racialized Realignment of Time and its Effects on Health Inequities:
An Investigation of Time-use as a Proxy for Differential Lived
Experiences at the Intersections of Race and Gender**

by

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DEDICATION

To Mom, Dad, and Linds for your sacrifice, love, and support.

and

In loving memory of Agatha, always by my side or under the desk.

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LIST OF ACRONYMS/ABBREVIATIONS

ADD Health	National Longitudinal Survey of Adolescent Health
ALMA	American Latino Media Arts Award
ATUS	American Time Use Survey
AVG	Average
BET	Black Entertainment Television
BLM	Black Lives Matter
BMI	Body mass index
B-W	Black-White
CPS	Current Population Survey
DDOT	Detroit Department of Transportation
DECA	Distributive Education Clubs of America
DPS	Detroit Public Schools
EAA	Education Achievement Authority
HPA	Hypothalamic-pituitary-adrenal axis
HOA	Homeowner Association
JNC7	Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (7 th report)
JROTC	Junior Reserve Officer Training Corps
Min	Minutes
NAACP	National Association for the Advancement of Colored People
NHANES	National Health and Nutrition Examination Survey
NHB	Non-Hispanic Black
NHW	Non-Hispanic White
NS	Not significant
OLS	Ordinary Least Squares
OR	Odds ratio
Ref	Reference
SEP	Socioeconomic position
TANF	Temporary Assistance for Needy Families program
W1-W4	Wave 1 through Wave 4 of the ADD Health survey
YRS	Years
1°	Primary
2°	Secondary

ABSTRACT

Research on social-structural determinants of health has greatly increased understanding of institutional policies and practices undergirding well-documented racial/ethnic disparities. Yet, this research has typically focused on one social identity (race), one institutional policy or practice, one place-based setting, and/or one temporal stage at a time. As such, the field has made huge strides in drawing attention to underlying sources of racial disparities, however, may be losing insight into the ways in which these macro-level influences are experienced day-to-day. Drawing on Geronimus' weathering hypothesis, this dissertation explores daily time-use profiles as a novel investigative approach that may more holistically capture the interactive and cumulative effects of different structural-level forms of discrimination on the daily lives of marginalized groups. Using hypertension, one of the most persistent racial health inequities in the U.S., as an example I explore how time-use profiles may relate to stress processes and the disparate differences we see in prevalence *and* timing of onset between non-Hispanic White and Black males and females. While hypertension prevalence is highest in middle through old age, increasingly evidence suggests race and gender differentials are evident by young adulthood, suggesting precursors may be present in youth. Black women, in particular, experience the steepest age-gradient increase in hypertension as they age from adolescence through middle-age. Study 1 explores time-use variations among Black and

White males and females in the American Time Use Survey, answering the question, “Are Black and White Americans spending time differently with age from adolescence into young adulthood?” Study 2 is a qualitative investigation highlighting time-use profiles of Black adolescent girls in metro Detroit, MI with the aim of increasing understanding on daily time demands and stressors that may explain the steeper age-gradient for Black females across adolescence and young adulthood. Lastly, study 3 employs the National Longitudinal Study of Adolescent Health (Add Health) to investigate whether time-use differences affect the probability of early onset hypertension across race/gender groups.

CHAPTER 1

Introduction

The landmark *Report of the Secretary's Task Force on Black and Minority Health* (US DHHS: The Heckler Report, 1985) released thirty years ago, described excess rates of morbidity and mortality among U.S. Blacks, stimulating investment in research and prevention dollars to promote health equity. Yet, little progress has been made to narrow, let alone eliminate, Black excess morbidity or mortality. Indeed, in some cases the gaps have widened. Many argue that traditional research and intervention approaches emphasizing individual behavior change have been limiting, and see promise in broadening inquiry and investments to understanding the role of social-structural factors, and how they shape environments, the psyche, as well as behaviors implicated in health disparities over the life-course (Syme, 2008; Locke et al., 2015; Dankwa-Mullan & Maddox, 2015). Taking one of the most persistent racial health disparities, hypertension prevalence, as an example, this dissertation examines why time-use distribution may be a worthy point of inquiry for health disparities research. It is my argument that time-use may be an important departure from the commonly applied approaches to health disparities research, as differences in time allocation may more holistically capture the interactive and cumulative effects of different social-structural level forms of discrimination on the daily lives of marginalized groups. In particular, this dissertation explores how varied forms of

marginalization may literally alter the daily-lived experience of whole racial/ethnic groups via the reallocation of time, and in turn, explores how this social patterning of time by social identity may contribute to stress pathways that accelerate onset of chronic health conditions, such as hypertension.

It is important to establish upfront my theoretical orientation on race as a social construct around which social and economic life is largely organized (American Sociological Association, 2003). In particular, I draw upon Geronimus' (2000) definition of race, as it highlights the interactional aspect of race between majority or dominant group and minority or non-dominant group that sets the stage for poverty, as well as many other inequities with real consequences for health:

Race is conceived of as "...a set of social relationships *between* majority and minority populations that have been institutionalized over time, that privilege the majority population, and that are *prior* to the poverty that is associated with race, " in addition to, "...a set of autonomous institutions *within* the minority population that are developed and maintained – even in the face of burdensome obligations or costs to individuals – because, on balance, they mitigate, resist, or undo the adverse effects imposed by institutionalized discrimination" (Geronimus, 2000, p. 868).]

It is from this perspective that this dissertation flows, with emphasis on the social consequences attached to racial classifications, and how the racialization process shapes access to flexible resources and life experiences, particularly time. Chapter 2 provides an overview on hypertension disparities, outlining the evolution in theoretical approaches applied to health inequities in general, and the empirical evidence specific to hypertension. Particular attention is given to limitations of common theoretical frameworks applied – with an emphasis on the importance of considering a broader array of resources mediating the path connecting race and health, and heterogeneity that occurs when simultaneously considering gender and age (particularly earlier in the lifecourse). Drawing upon the

writings of Hanchard (1999) and Mills (2014), I introduce their concept of *racial time*, or the unequal access to time, and posit that differential impositions on time is yet another way that non-White populations are *othered* and may be an important consideration when investigating the production of health, and an important step in addressing some of the gaps identified in the review of commonly applied health disparities models.

Chapter 3 is a descriptive paper to first explore the concept of *racial time* in the U.S., particularly at the earlier end of the life-course. Using data from the 2003-2012 American Time Use Survey, I describe time-use patterns in adolescence, emerging and young adulthood at the intersection of race and gender. I hypothesize that daily-demands and options for time-use are differentially distributed across these subpopulations and may be a key way to examine racial disparities in hypertension that has yet to be fully explored.

To complement this population-level statistical analysis, chapter 4 is a qualitative study of time use among non-Hispanic Black adolescent girls across a spectrum of neighborhood-school settings in the Detroit Metropolitan area varied by socioeconomic composition. Using time-use diaries and in-depth interviews facilitates investigation of time demands and stress processes that may ensue in youth through the voices of adolescent girls.

Chapter 5 considers how time-use profiles relate to racial and gender disparities in early onset hypertension (and overweight/obesity as a precursor), utilizing the National Longitudinal Study of Adolescent Health (Add Health) cohort. Add Health is one of the few datasets with physical measurements of blood pressure during the young adult years and is a nationally representative sample that will allow for stratifying by race and gender.

Following on this study, the final chapter of this dissertation will summarize important

findings across all three studies and discuss future directions for research on racial disparities in health.

CHAPTER 2

Literature review

This chapter seeks to elucidate what is known about racial inequities in health, with a focus on early onset hypertension. I first provide an overview on the social patterning of hypertension and hypertension-related outcomes. Continuing to utilize the example of hypertension, next, I review common models applied to understanding racial differentials in health, assessing current understanding on mechanistic pathways that interlink race and health. As I progress through models, I will highlight limitations in underlying theory and resulting gaps on the ways in which daily stress mediates the relationship between race and health even in adolescence and young adulthood. Several of the gaps are explored in the three empirical chapters that follow.

I. Social Patterning of Hypertension and Hypertension-related Outcomes

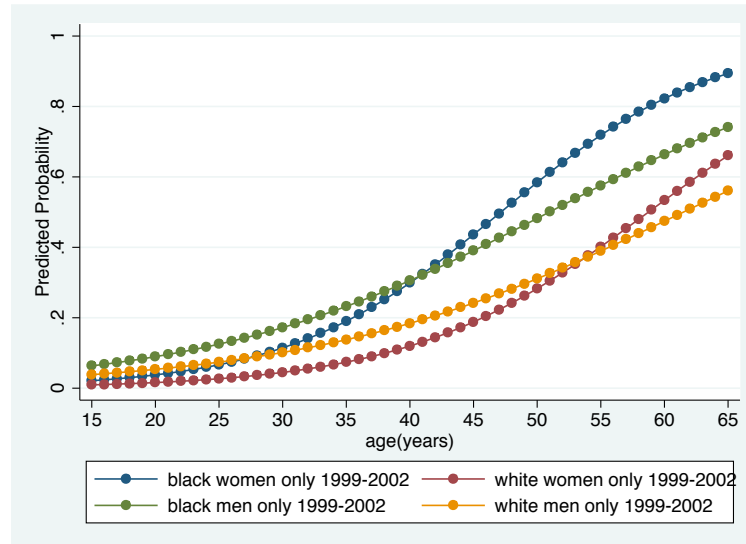
I start by reviewing the social patterning of hypertension and address why this particular health disparity has been a central focus for health inequities research, and is the health outcome selected for this dissertation research. Data from NHANES 2009-2012 show that 80 million U.S. adults, or 32.6% of the adult population have hypertension (Mozaffarian et al., 2015). In 2011-2012, the age-adjusted rates for adult hypertension were significantly higher for non-Hispanic Blacks (42.1%), than for non-Hispanic Whites (28.0%) or Mexican-Americans (24.7%) (Nwankwo et al., 2012). Pronounced differences in

prevalence rates between racial/ethnic groups, especially non-Hispanic White and Black populations, has persisted for decades and is a chief contributor to disparities in adult disability and life expectancy (Cooper, 2001; Hertz et al., 2005; Keenan & Shaw, 2011; Williams, 2002).

It is well known that blood pressure increases with age (Keenan & Rosendorf, 2011), and as such, hypertension is most often thought of as a condition of older age. As a result, efforts to address disparities in hypertension prevalence have primarily focused on interventions in middle-to old-age that emphasize individual diet and physical activity behavior change or control through medication use. However, in more recent years, increasing evidence suggests hypertension can begin much earlier, with race differentials already evident by young adulthood (Din-Dzietham et al., 2007; Geronimus et al., 2007; Muntner et al., 2004; Harding et al., 2010). Using NHANES IV data, Geronimus and colleagues (2007) showed that the Black/White disparity in hypertension widens with age, with the largest gap between Blacks and Whites occurring among women (figure 1). Starting at age 30, Black women had a higher probability of being hypertensive than White men or women, and by age 40 they surpassed Black men as well. These findings are particularly unsettling, as the steep trajectory for Black women occurs over the childbearing years, and hypertension is known to complicate pregnancy and is associated with adverse maternal and fetal outcomes (ACOG, 2001), which, themselves, may predispose children to health problems in adulthood. Such outcomes include increased incidence of placental abruption, acute renal failure, cardiac decompensation, and cerebral accidents in the mother, as well as growth retardation and unexplained mid-trimester fetal death (Gilbert, Young, & Danielson, 2007; Lindheimer, Taler, & Cunningham, 2010). These

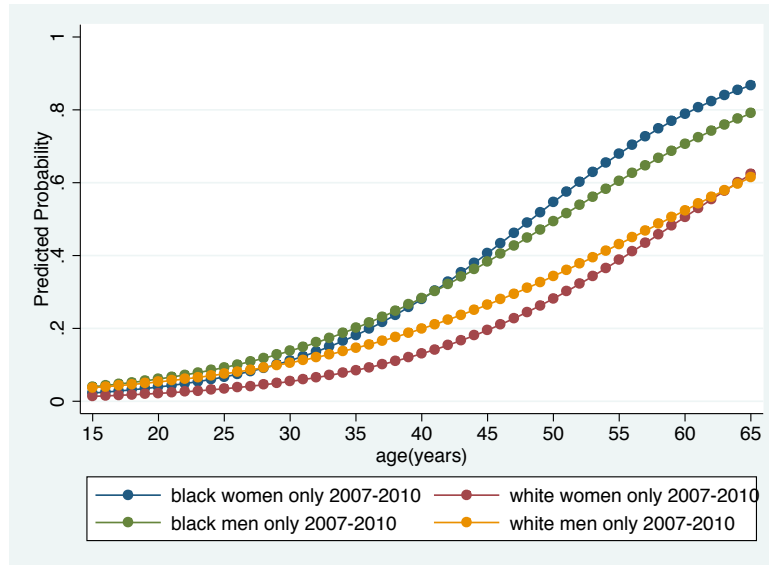
findings suggest that gaining a better understanding of what is causing early onset of hypertension in Blacks, generally, and Black women in their reproductive ages in particular, has the potential to also affect our ability to also address racial disparities in pregnancy outcomes.

Figure 1.1. Predicted probability of hypertension by age, NHANES 1999-2002



The NHANES analysis was replicated for more recent cycles of data (2007-2010) to investigate if these trends have persisted or waned over the past decade (Geronimus, Bound, & Evans, 2012). Study findings (see figure 2) demonstrate that Blacks continue to experience higher prevalence rates of hypertension and much earlier entry into hypertension. White men experienced a slight increase in hypertension prevalence (22% vs. 26% $p < .05$) that was evident beginning at age 35.¹ Black men, ages 15-34, experienced a small decrease, narrowing the Black-to-White odds ratio for men to insignificance at ages younger than 35. No significant changes between the time periods were observed in the age-gradients for Black or White women, leaving Black women with the steepest age-gradient increase in hypertension.

Figure 1.2. Predicted probability of hypertension by age, NHANES 2007-2010



Taken together, these findings suggest there is a need for continued development and testing of hypotheses to explain race, gender, and time-period disparities in hypertension as they take shape in adolescence and young adulthood. In particular, the temporal dimension of Blacks experiencing hypertension onset at much earlier ages than Whites should compel further inquiry into structural inequities and stress processes as they occur before middle-age. Secondly, the fact that the Black-White gap is greatest for women gives credence to prior critiques calling for taking an *intersectional approach*, simultaneously considering the effects of race and gender in stratification processes generally (Collins, 1990; Crenshaw, 1991), and more specifically on health (Airhihenbuwa & Liburd, 2006; Essed, 1991; Mullings & Schulz, 2006; Viruell-Fuentes, Miranda, & Abdulraim, 2012).

Here below, I will review traditional approaches employed in investigating the Black-White gap in hypertension, discussing limiting factors in these frameworks that obscured differential age-trajectories. I will cover the application of genetic, health

behavior, socioeconomic position, psychosocial stress, and structural models, five frameworks identified by Dressler and colleagues (2005) as dominant in health inequities (disparities) research. Throughout this review it is clear that evolution in conceptual thinking and methodology has resulted in interlinkages between these models, with current emphasis being placed on the ways that structural racism links with genetic, behavioral, and psychosocial pathways implicated in health inequities. Yet gaps remain, and in particular I will argue three points: 1.) giving explicit attention to earlier stages in the life-course will require adaptation of models and measures to ensure they adequately capture (dis)advantage, varied forms of discrimination, and the domains of exposure unique to the intervening years between childhood and adulthood, 2.) garnering a nuanced understanding of the social-stratification and stress processes that especially places Black women at risk for early onset hypertension and other stress-related conditions will require an intersectional approach that broadens our thinking on the ways in which racialization may vary in exposure and impact by gender, and 3.) moving forward, conceptually and methodologically, attention also needs to be directed toward conceiving of the ways in which structural racism plays out in a cumulative and interactive fashion on the day-to-day lives of marginalized persons, and extends beyond place-based settings. With the aim of steering the field of health inequities research towards these considerations, this chapter will conclude with a discussion on the ways in which the Weathering framework and application of time-use measures may be a promising way forward.

II. What is race? Ideology undergirding commonly applied health inequities (disparities) models

Reviewing advancements in racial health inequities research involves tracing progression in the conceptualization of causal origins of race differences in health. Intrinsically, debate on causal origins is contingent upon varied interpretations on the meaning of race. Here below I will review early models that treated race as biological, others pointing toward a cultural interpretation, and those that view race as a social phenomenon upon which social and economic life is organized (see the following for a more in-depth discussion on this debate: Airhihenbuwa & Liburd, 2006; ASA, 2003; Geronimus & Thompson, 2004; Krieger, 1987).

Genetic models: Race deciphered as biology

Beginning with a period in which the biomedical paradigm reigned supreme, early studies attributed disparities in group outcomes to inborn, genetic differences between races. This especially rang true for racial disparities in hypertension, with researchers hypothesizing causal origin in innate genetic difference between Blacks and Whites (i.e., Wilson & Grim's Slavery Hypothesis², 1991). Yet, overwhelming evidence, including genetic, runs counter to this hypothesis (Cooper & Kaufman, 1998, 1999; Curtin, 2000; Kaufman, 2003). For starters, there is now overwhelming evidence that greater genetic variation exists within populations typically labeled White or Black than between these populations; in other words, there is no gene or genetic cluster common to all Blacks and distinct from all non-Blacks. And to date, geneticists have failed to locate a variant gene structure responsible for hypertension, and have found no differential distribution across

race groups for those genes that were suspected to be associated with hypertension (Daniel & Rotimi, 2003; Ehret, 2010; Kardia et al., 2003; Thiel et al., 2003). Few in public health continue to place any weight on this debunked ideology, yet it remains important to document as flawed given that it periodically rears its head in contemporary debates on racial/ethnic health disparities (see Dr. Oz on *The Oprah Winfrey Show* in April, 2007 and Roland Fryer interview on CNN's 2008 documentary, *Black in America*).

Nowadays, those interested in the role of genetics in racial disparities in health are turning toward the impact of environmental influences on gene expression (see review in Kuzawa & Sweet, 2009). An example of this is the fetal origin hypothesis, first posited by Barker (1995) and expanded in more recent years. This hypothesis asserts that fetal undernutrition or placental insufficiency may result in disproportionate fetal growth and epigenetic modification of gene expression, “programming” that fetus to adult conditions, such as hypertension. Associations between a newborn's size at birth and hypertension have been identified in studies (Kuzawa & Sweet, 2009), yet these studies suggest a very small effect size; causality has been undetermined; and the role of birth weight remains difficult to interpret except as a proxy for events in intrauterine life (Huxley, Shiell, & Law, 2000; Schluchter, 2003). Moreover, both the slavery hypothesis and the fetal origin hypothesis fail to explain the steeper age-gradient of hypertension in Black women, compared to Black men.

Health behavior models: Teetering on race as culture

Individual health behaviors, such as smoking, excess alcohol consumption, less vigorous physical activity, a diet high in salt and maintaining a higher BMI have been

shown to be independently associated with hypertension (Forman et al., 2009; Mensah et al., 2005; Mozaffarian et al., 2008; Pampel et al., 2010). Thus, many have also argued that the disproportionate distribution of hypertension among Blacks is the result of engaging more widely in these health behaviors (American Heart Association, 2016; Liu et al., 1996; Sowers, Ferdinand, Bakris, & Douglas, 2002; Stamler et al., 2003). While some have argued that these behaviors may be a coping mechanism employed to deal with discrimination induced stress (Borrell et al., 2007; Jackson, Knight, & Rafferty, 2010) or displays of resistance of the dominant group norms (Factor, Kawachi, & Williams, 2011), others have cued up cultural deficit explanations by implying that Blacks fare worse because they are beholden to a dysfunctional culture steeped in “bad behaviors” or “poor lifestyle choices” (Moynihan Rainwater, & Yancy, 1967; Satel, 1996; Wilson, 1987).

Public health campaigns and programs have a long history of being staked on notions of “personal responsibility” and the need for individuals to take control of their own health (see Minkler, 1999 for historical overview of discourse in public health). However, empirical evidence runs counter to ideology that bolsters a need for “lifestyle” or behavioral modifications among Blacks, and thus is oversimplified. For example, there is a delayed onset of cigarette smoking among Blacks (late teens-early 20s) (Arrazola et al., 2015). Although cigarette smoking is generally as prevalent among Blacks as Whites in adult years, Black women maintain the lowest smoking prevalence, and Blacks are less likely to be heavy smokers (Jamal et al., 2015; James, 1999). A similar trend exists with regard to alcohol consumption. Data show that 70.8% of White men, 60.4% of White women, 55.8% of Black men, and 39.4% of Black women report being drinkers, and Black women have the lowest proportion of heavy drinking (2.2%) and White men the highest

(5.6%) (Schoenborn et al., 2004). Additionally, a study by Bassett and colleagues (2002) found that Blacks had a higher age-adjusted prevalence of hypertension across all levels of physical activity and even within the same level of physical activity. Body composition differences between Black and White women do not fully explain the racial gap in hypertension (Bell, Adair, & Popkin, 2004, Geronimus et al., 2007), and controlling for a combination of individual level risk factors explains only a small proportion of the disparity (Kershaw et al., 2010; Morenoff et al., 2007; Mujhadid, Diez-Roux, Cooper, Shea, & Williams, 2011).

Indeed, clinical trials have demonstrated that intensive one-on-one interventions modifying diet and physical activity can lower blood pressure (Fortmann et al., 1993; Hjerrman et al, 1981; Kokkinos et al., 1995; Svetkey et al., 2005). As a result, national advisory panels (i.e., JNC7) on blood pressure recommend lifestyle modifications related to diet, physical activity, and alcohol consumption (Chobanian et al., 2003; Mozaffarian et al., 2015). While this body of work has led to increased awareness and action on individual-level risk factors for hypertension, large-scale interventions have proven to be extremely costly, and yet only minimally successful in producing sustained behavior change, and have fallen short of delivering change on a population level (Bertoni et al., 2013; Fortman, Taylor & Winkleby, 1993; Hjerrman et al, 1981; MRFIT Research group, 1981). Empirical evidence poking holes in “cultural deficit” hypotheses and the limited impact of individual-level interventions have progressively fueled critiques advocating for less focus on race as a “risk factor” and a greater focus on racism (Jones, 2000; Krieger, 2001), with particular primacy given to the effects of unequal access to material resources and direct

interpersonal experiences with discrimination on communities of color (Diez Roux, 2003; Link & Phelan, 1995; Syme & Berkman, 1986; Williams & Mohammed, 2013).

Race as a social construct, stress theory and health

Sociologists have pointed towards social stratification processes as crucial determinants of health inequities, particularly the seminal analysis by Du Bois (1899) on the state of Blacks in America. Yet, the proliferation of investigations on the racial stratification of privileges and resources as key determinants of health inequities didn't occur until the latter part of the 20th century. In part, the uptick in these investigations may relate the concurrent developments among social psychologists on stress theory.

In the mid to late 90s, social scientists of mental health were playing a leading role in the advancement of stress theory, linking varied social stresses not only to mental health, but also physiological disruptions and harmful consequences for physical health (McEwen, 1998). Initial emphasis was placed on examining the effects of "acute" changes in people's lives, and a later inclusion of "chronic strains" or ongoing difficulties, and "traumas" or extreme threats to a person's wellbeing were added (Pearlin, Lieberman, Menaghan, & Mullan, 1981; Pearlin, 1989). Once attention shifted to enduring, chronic strains, evidence began to surface that this type of stress stratified on racial lines, with racial/ethnic minority groups experiencing a greater burden (Kessler, 1979; Sternthal, Slopen, & Williams, 2011). Also, stress researchers found that in addition to psychological stress coping responses involving uptake or increase in negative health behaviors, there is the potential for dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, the major endocrine system that regulates physiological homeostasis and stress response (McEwen,

1998). Studies have shown that when faced with ongoing, chronic strains this system may become taxed resulting in prolonged activation of neuroendocrine systems and severe hormonal imbalances, linked to a wide variety of mood disorders and chronic health conditions (Geronimus et al., 2006, 2007, 2010; James, 1994; McEwen, 1998). The confluence of social scientists treating race as a construct tied to unequal distribution of resources, the recognition that racial/ethnic minorities face greater exposure to chronic strains, and increased understanding of the physiological consequences to chronic strains led to a more in-depth investigation of social stressors experienced by Blacks, particularly the relationship between low socioeconomic position and race difference in health.

Socioeconomic position models: Race as a proxy for class, accumulation of (dis)advantage and life-course theory

Socioeconomic position (SEP) is considered one of the more robust predictors of health (Braveman, Cubbin, Egerter, Williams, & Pamuk, 2010; House, 2002; Link & Phelan, 1995), with a variety of SEP measures (e.g., income, education, occupation) showing an inverse relationship with blood pressure (Colhoun et al., 1998; Kaplan & Keil, 1993; Leng et al., 2015; Lynch, Kaplan, Cohen, Tuomilehto, & Salonen, 1996). Given the plethora of data showing lower levels of income, occupational status, and wealth among Blacks³, many have sought to explicate the role of socioeconomic position (SEP) in the racial disparities of hypertension. However, studies have proven time and again that the inverse relationship between SEP and blood pressure does not extend universally; excess prevalence of hypertension persists even at the highest levels of SEP for Blacks (Colhoun et al., 1998; Dressler, 1990; Hypertension Detection and Follow-up Program Cooperative Group, 1977;

James, 1992; Keil, Sandifer, Loadhold & Boyle, 1981; Klag, 1991; Thomas et al., 1997), and inclusion of SEP measures in analyses has been shown to largely reduce but not eliminate the overall Black-White gap in hypertension (Geronimus et al., 2007; Morenoff et al., 2007; Thomas, Thomas, Pearson, Klag & Mead, 1997).

Fewer studies have examined socioeconomic patterning of hypertension and related risk factors simultaneously at the intersection of race *and* gender, many treating gender as something simply be controlled for, or in other cases, a lack of sufficient racial/ethnic and gender heterogeneity in the dataset presents difficulties in stratified analyses. Evidence from the few that have suggest important variation also exists in the strength of the relationship between measures of SEP and blood pressure across race-gender groups that are masked when observing the relationship in aggregate or by race alone (Braveman et al., 2011). I offer two such examples here. In the Coronary Artery Risk Development in Young Adults Study (CARDIA), education of greater than 12 years, reported at baseline or any follow-up exam, was significantly and inversely related to elevated blood pressure in White men and in Black and White women, but not Black men (Dyer et al., 1999). The same pattern was observed in the Multi-Ethnic Study of Atherosclerosis (MESA) sample, with no SEP gradient, proxied via income or education, present among Black men (Boykin et al., 2011). Although the SEP gradient was present for both White and Black women, hypertension rates for Black women at the highest SEP bracket far exceeded the rates for White women in the lowest SEP brackets [see figure 1 and 2 on pgs. 117-118] (Boykin et al., 2011). Hence, the inverse relationship seems more relevant to Whites than Blacks.

As researchers gravitated towards ongoing, chronic strains, a more dynamic view of SEP was conceptualized under life-course (Elder, Kirkpatrick Johnson, & Crosnoe, 2003)

and cumulative (dis)advantage theory (Dannefer 1987, 2003), with attention given to the effects of low SEP at critical time-periods, such as childhood, and the tendency to lead to additional stresses compounding over the life-course (Kuh & Ben-Shlomo, 1997).

Progression in these theoretical frameworks, particularly life-course theory, involved exploration of SEP trajectories (i.e., upward and downward mobility) breaking away from SEP as a fixed trait, and instead as having the potential of “...ebbing and flowing or cascading over a person’s life course” (House & Williams, 2003). One example from the hypertension disparities literature comes from Matthews and colleagues (2002), who re-examined the role of SEP in the CARDIA study using SEP trajectories based on education, economic difficulties, and household income at baseline and across a 10-year period. In the full sample, the odds of being hypertensive at year 10 remained significantly higher for Blacks compared to Whites even after including SEP at baseline and in follow-up [Reference group: White women, Black women 3.89 OR (2.23-6.78), Black men 2.61 (1.46-4.64), White men .86 OR (.45-1.62)].

Collectively looking across these studies, the take away message is that no matter if SEP is examined as a static or dynamic trait, the racial gap observed in hypertension is only partially explained by these measures, and variation also exists in the strength of the relationship by gender. The failure of SEP controls to fully account for racial differences points towards two plausible explanations: 1.) Blacks can work hard to climb the social and economic ladder, and not witness the same returns to health (Williams & Collins, 1995, 2001), and 2.) racism can operate to restrict other flexible resources beyond SEP that are important to health (Phelan & Link, 2015; Williams & Sternthal, 2010). With regard to the first point, many SEP measures are non-equivalent across racial groups. For instance,

Blacks receive less financial compensation when compared to their White counterparts with the same education (Musu-Gillette et al., 2016; Pearson, 2008). Additionally, there is a differential purchasing power because of higher costs of goods and services in low-income and predominantly Black neighborhoods (Fellowes, 2006; Graddy, 1997), as well as staggering racial gaps in wealth at all levels of class⁴ (Asante-Muhammad, Collins, Hoxie, & Nieves, 2016; Conley, 1999; Oliver & Shapiro, 1995; Orzechowski & Sepielli, 2003). Related to the second point, there is work to be done in conceptualizing what all SEP entails and how best to capture in survey measures. Appeals have been made for a broader consideration of race-related resources, such as the psychological relief attached to prestige and power, or in the case of Blacks, the psychological toll of managing disrespectful encounters and discriminatory behavior, as well as other flexible resources, such as access to social networks that are largely structured by residential segregation (Phelan & Link, 2015; Williams & Mohammed, 2013).

Psychosocial stress models: Race capturing the effects of interpersonal racism

Perceived interpersonal experiences with racial discrimination are stress inducing life events (Brondolo, Gallo, & Myers, 2009; Clark, Anderson, Clark, & Williams, 1999; Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006) and studies that invoke racist stimuli have been shown to elicit cardiovascular reactivity and increases in blood pressure for both Blacks and Whites, although reactivity and recovery time is often greater for Blacks (Blascovitch, Spencer, Quinn, & Steele, 2001; Fang & Myers, 2001; Gyll, Matthews, & Bromberger, 2001; McNeilly et al., 1995; Sawyer, Major, Casad, Townsend, & Mendes, 2012; Sutherland & Harrell, 1986). Reviews estimate there are over 30 different scales developed

to assess experiences with interpersonal discrimination (Bastos, Celeste, Faerstein, & Barros, 2010; Priest et al., 2013; Utsey, 1998). Yet, Paradies and colleagues (2006) found that across health inequities research, two scales are most commonly used: 1.) the Everyday Discrimination Scale (EDS) based on the work of Essed (1991) and developed by Williams et al. (1997), coupled with questions on major lifetime discrimination (Williams, Gonzalez, Williams, Mohammed, Moomal, & Stein, 2008)⁵, and 2.) the 18-item Schedule of Racist Events (SRE) scale⁶ (Landrine & Klonoff, 1996). Meta-analyses have generally concluded that the association between perceived discrimination and hypertension in adulthood is significant, albeit small, and the use of eclectic measures of perceived racial discrimination coupled with limitations of these measures may be responsible for divergent findings (Brondolo, Rieppi, Kelly, & Gerin, 2003; Dolezsar, McGrath, Herzig, & Miller, 2014; Paradies, 2006; Williams, Neighbors, & Jackson, 2003). For example, a number of studies substantiate a positive relationship (Clark, 2000; James 1993a, 1993b; Kessler, Mickelson & Williams, 1999; Krieger, 1990; Lewis, Barnes, Bienias, Lackland, Evans, & Mendes de Leon, 2009; Schulz et al., 2000; Williams, Yu, Jackson, & Anderson, 1997), yet a handful of others, mostly focused on Black women, suggest none or modest positive associations with baseline blood pressure, blood pressure reactivity in response to a stimulus, or incidence of hypertension (Brown, Matthews, Bromberger, & Chang, 2006; Clark & Adams, 2004; Cozier, et al., 2006; Moradi & Subich, 2003).

A common and relevant critique of discrimination scales, that may relate to these mixed findings, is that they fail to acknowledge intersectionalities and the ways in which occupying more than one social status may influence experiences with discrimination (Grollman, 2014; Lewis, Cogburn, & Williams, 2015; Moradi & Subich, 2003). For example,

researchers have noted the different social roles occupied by men versus women, yet these scales do not capture the unique ways that Black women in particular may experience race-related stressors different from Black men, as well as gender-based discrimination that may differ from experiences of White women. For instance, the EDS assesses discrimination with regard to obtaining or keeping a job, as well as receiving promotions, but fails to capture some of the more nuanced forms. For example, Nuru-Jeter et al. (2009) conducted focus groups with Black women, in which participants reported feeling “like a quota”, being treated as an expert on “all African-American issues”, and receiving lack of support for career advancement. Across studies, Women have also reported their experiences with racism when interacting with institutions, particularly government agencies associated with safety net programs (e.g., housing, TANF, police) as well as through loved ones, particularly agencies tied to their children (e.g., schools) (Jackson & Mustillo, 2001; Nuru-Jeter et al., 2009; Warren-Findlow, 2006). Women talked extensively about anticipation of their children’s potential exposure to racism, feeling responsible for preparing them for a racially-conscious society. This finding is extremely important, given that most scales of perceived racism do not assess experience with, “vicarious racism.”

Additionally, researchers are also discussing the limitations of short or ambiguous time-periods adult respondents are asked to reference when recounting the frequency experiences with discrimination, such as “In the last month, week or year” or “Have you ever” or “In your day-to-day life.” Returning to cumulative (dis)advantage and lifecourse theory, critics argue that these reference points make it difficult to draw distinctions on the ways in which exposure to racial discrimination changes across the lifecourse⁷, and how the effects may depend on the developmental stage of the respondent and contextual

spaces unique to these stages (Gee, Walsemann, & Brondolo, 2012; Unger, Soto, & Baezconde-Garbanati, 2016). A few select scales have been tailored more specifically to the adolescent context (Fisher, Wallace, & Fenton, 2000; Harrell, Merchant, & Young, 1997), yet, Priest and colleagues (2013) found in a global review of discrimination studies with children and youth, the most commonly used scales were those developed for adults (e.g., the EDS and the EOS). While these studies have generally found youth of color more frequently attribute race and physical appearances, such as skin color and clothing, as reasons for unfair treatment (Astell-Burt, Maynard, Lenguerrand, & Harding, 2012; Clark, 2006; Flores, Tschann, Dimas, Pasch, & de Groat, 2010; Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004; Huynh, Guan, Almeida, McCreath, & Fuligni, 2016; Matthews, Salomon, Kenyon, & Zhou, 2005; Prelow, Danoff-Burg, Swenson, & Pulgiano, 2004; Seaton, Neblett, Cole, & Prinstein, 2013; Szalacha et al., 2003), the associations with blood pressure and hypertension in youth mirror patterns observed in adults, in that they are mixed.

For instance, Matthews et al. (2005) found racial attribution not to be a significant predictor of blood pressure, and Clark's (2006) results suggest that perceived discrimination is only marginally and negatively associated with blood pressure among adolescents low in trait anger. In contrast, other studies have found race-based discrimination is significantly associated with higher blood pressure (Goosby, Malone, Richardson, Cheadle, & Williams, 2015; Rosenthal et al., 2015). It is possible that adolescence is too soon to see the effects in blood pressure, hence the incongruent findings. A handful of studies have investigated and found evidence of association with changes in the cortisol diurnal rhythm (Adam et al., 2015; Huynh, Guan, Almeida, McCreath, & Fuligni, 2016), lending credence to the argument that perceived race-based discrimination in

adolescence might be triggering the HPA axis and eliciting the biological stress response important to increases in blood pressure and the development of hypertension that will emerge in later life. Altogether, this blended evidence from adults and youth suggests that additional research is warranted to better characterize the forms of discrimination experienced at the intersection of race, gender, and age. In particular, future studies should include longitudinal designs that can also monitor how the effects vary by developmental stage, extent of exposure (e.g., prolonged exposure across adolescence into adulthood versus delayed exposure in young adulthood), and the moderating effects of various cognitive processes and coping strategies.⁸

Lastly, it is important to briefly mention evidence on one particular coping disposition that may affect the reporting of discriminatory experiences and the associated health effects: the propensity for stigmatized populations to minimize discriminatory events, termed minimizing bias (Kaiser & Major, 2006). This is a point that has evaded many – discrimination scales require an individual to perceive an action as discriminatory, and be willing to label it as such. Recent research has shown that for many, repudiating an act as discriminatory, in actuality, is a way of coping with daily assaults, potentially minimizing the accompanying psychological and physiologic responses (Carter, 2007; Crosby, 1984; Kaiser & Major, 2006). Accordingly, studies that rely upon self-reported experiences with discrimination are not fully capturing interpersonal experiences with discrimination and its relationship with stress-related health conditions, such as hypertension. Given this, it is important to be mindful of other approaches that may better capture the effects of discriminatory experiences that are independent of self-report and

individual-level experiences (Krieger, 1999). This point, in particular, places us at the doorstep of structural models.

Structural models: Race capturing the effects of institutional and structural racism.

Racism operates through interpersonal interactions and discriminatory behaviors enacted by individuals and informal groups, as well as at the macro-level via formal rules and procedures of social and political institutions, known as *institutional racism* (Carmichael & Hamilton, 1967). Although SEP and psychosocial models conceptualize race as a social construct upon which resources and power are hinged, they have primarily interpreted the process by which racism occurs as discriminatory acts performed *by individuals* against those viewed as racialized “others.” This orientation distracts us from questioning the structure of society itself as racism (Bonilla-Silva, 1997). In contrast, theories of institutional racism give preeminence to racism that is embedded within normed and often overlooked policies and practices of organizations and structures, and *structural racism* expands upon this perspective to consider how the interactions among institutions produce racialized outcomes. Here below, I will briefly review evidence from investigations that have taken a structural approach to the investigation of racial disparities in hypertension, the lion’s share of which has focused on residential segregation.

Residential segregation and concentrated poverty

Hypotheses were forged on claims that an individual’s household income matters, but perhaps what matters more is living in an environment that collectively is resource

poor, hence a focus on the structural mechanism residential segregation emerged (Williams & Collins, 2001). Residential segregation was first imposed through intimidation tactics and violence by Whites, as well as legislation and institutional practices, such as restrictive covenants and federally-backed home loans available to Whites, but not Blacks (Massey & Denton, 1993; Williams, 2002). Although illegal following the passing of the Fair Housing Act, racial discrimination in both rental housing and home mortgage lending has been documented by the Department of Housing and Urban Development and others via audit studies, as recent as the early 2000s (Pager & Sheperd, 2008). Despite modest declines in segregation in recent years, the majority of larger metropolitan areas still have segregation levels of between 50 to 70, meaning more than half of Blacks would need to move to achieve full integration⁹ (Frey, 2015).

This social separation by race means that Blacks live in neighborhoods with strikingly different economic and opportunity profiles (Lefkowitz, 2007), and there is little out-migration that occurs across adulthood (Sharkey, 2008). Cyclically, the concentration of poverty in segregated neighborhoods largely perpetuates gaps in SEP between Whites and Blacks by featuring lower quality schools and determining access to employment opportunities (Williams & Collins, 2001). Residential segregation also influences access to other types of institutional resources and stressors, such as substandard housing stock, crowding, elevated noise levels, and air pollution (Bullard, 1994; Schwartz, 2001; Stansfeld, Haines, & Brown, 2000); limited access to parks, libraries, recreational facilities and concerns about personal safety (Iceland et al, 2002); substantially reduced availability of high quality, affordable fresh fruits and vegetables (Baker et al., 2006); inadequate

municipal services (Wallace, 1990, 1991); and reduced access to medical facilities (McLafferty, 1982).

Research on residential environment has documented disparate differences in health, including hypertension prevalence by residential segregation and concentrated poverty (Harburg et al., 1973; Cozier et al., 2007; Hicks, Fairchild, Gook, & Ayanian, 2003; Kershaw et al., 2011; Kiefe et al., 1997). An early study in Detroit (Harburg et al., 1973) established that both Black and White residents in “low stress areas” had lower levels of hypertension than those in “high stress areas”, characterized by rates of low SEP, high crime, high density, and high residential mobility. More recent analyses from the Atherosclerosis Risk in Communities Study (Diez Roux et al., 1997) and the Chicago Community Adult Health Study (Morenoff et al., 2007) support this linkage, demonstrating that area measures of SEP are positively related to elevated blood pressure in middle-age, independent of individual socioeconomic position. Studies by Thorpe et al. (2008) and Kershaw et al. (2011) found that race differences in hypertension vary by segregation-level, generally with the largest B-W gap occurring in highly segregated areas. However, when race and neighborhood-level SEP were considered together, race differences were greatest in segregated, low-poverty areas and weakest in non-segregated, high-poverty areas. These findings suggest continued research is needed to more precisely understand the role of concentrated poverty, alongside the other mediating pathways by which racial segregation influence stress and health (White & Borrell, 2011). Mujahid and colleagues (2011) took a step in this direction, moving beyond census-level indicators of SEP and employing direct measures of chronic neighborhood stressors. Yet, this study missed the opportunity to offer much insight into the pathways by which each type of neighborhood

stress influences hypertension, as they aggregated 13 indicators of chronic neighborhood stress into one scale and only reported independently on the inverse relationships observed between hypertension and neighborhood walkability and access to healthy foods.

In addition to the need for elucidating mediating pathways by which segregation influences health, assumptions about segregation unidirectionally impacting health in a negative way should be more fully interrogated, as a handful of studies have shown a protective association with heart disease risk and mortality (Fang, Madhavan, Bosworth, & Alderman, 1998; Hutchinson et al., 2009; Mobley et al., 2006), suggesting racially homogenous neighborhoods may have protective effects, possibly by offering some degree of refuge from the stress associated with daily exposures to discrimination. Additionally, the effects of neighborhood are rarely stratified by both race and gender, leaving open the question as to whether or not these factors are experienced differentially by men and women and important to explaining the differential age-gradients of hypertension. Finally, an additional challenge and area for continued exploration is that many of the residential environment studies focus primarily on adult, middle-aged populations (e.g., MESA data sample is 45-84 years) and their current residence only at the time of the study. While a couple of studies have examined both adult residence and place of birth on hypertension, these studies have given little consideration to the time spent in either locale (Hicks et al., 2003; Kiefe et al., 1997). Examining residential life for these brief snapshots in time limits our ability to explore the accumulation of neighborhood-level stress and its long-term impact on health. Further, regardless if there is little out-migration from segregated neighborhoods (Sharkey, 2008), many daily routines take individuals outside of their residential context into drastically different spaces (Sastry, Pebley, & Zonta, 2002),

suggesting continued research should explore the influence of other policies and practices that racialize space and daily-life in other contexts that extend beyond residential context. Two particular examples seemingly gaining traction as the next hot topics, are 1.) school reform policies influencing youth, and 2.) punishment and surveillance policy influencing life course trajectories of youth and young adults. Accordingly, I will mention the ways in which I see these two domains as equally worthy of investigation when considering race-based stress and differential trajectories of health.

School reform policies and practices

It is well documented that a majority of the schools deemed as low-performing are concentrated in predominantly Black and low-income districts¹⁰ (Diamond & Spillane, 2004; Rothwell, 2012). School reform policies¹¹ that promote school choice and fueled growth in charters are frequently lauded as the lifeline families need to emancipate their children from under-performing neighborhood schools (Holt, 2000; Stulberg, 2008). More recently, however, calls for a moratorium and reevaluation of charters have been launched by groups such as the NAACP and Black Lives Matter Movement (Vaszuez Heilig, 2016; Rizga, 2016). These groups have noted mixed evidence of effectiveness, seemingly dependent upon locale (Gill et al., 2007; Gleason, Clark, Tuttle, & Dwoyer, 2010; Ni, 2007; Stanford Center for Research on Education Outcomes, 2015), and studies that have found students of all races, including Whites, are more likely to be in a racially isolated school than their peers in non-charters, suggesting that the charter school movement may actually be exacerbating segregation (Booker, Zimmer, & Buddin, 2005; Frankenberg, Siegel-

Hawley, & Wang, 2010; Gulosino & d'Entremont, 2011; Institute on Race and Poverty, 2008; Renzulli & Evans, 2005).

Additionally, publically funded but privately run charters independently adopt their own policies, and many have come under fire for “zero tolerance” policies that invoke suspensions for dress code violations and subjective behavioral categories, such as defiance, disrespect, and loitering, leveraged more heavily against Black students (Losen et al., 2016). It is well documented in education research that disparities in disciplinary practices meaningfully influence life trajectories, removing students from the opportunity to learn and heightening risk for involvement in the juvenile justice system, also commonly referred to as the “school to prison pipeline” (Christensen, 2012; Ekstrom, Goertz, Pollack, & Rock, 1986; Gregory, Cornell, & Fan, 2011; Noguera, 2003; Skiba, Arredondo, & Williams, 2014; Wald & Losen, 2003). Taken together, this debate at the very least warrants a call for future research to move beyond educational outcomes to documentation of how removal of learning time may also influence disparities in stress and health trajectories.

Surveillance and punishment

Another form of structural racism gaining traction in racial health inequities research is surveillance and punishment policy, especially via the criminal justice system. From the 1970s to 2012, the number of people incarcerated quadrupled, largely due to *tough-on-crime* laws passed during the *war on drugs* that made prison sentencing more likely, and mandatory minimum sentencing laws that made durations of confinement much longer (National Research Council, 2014). Bias embedded within the laws themselves¹² and systemic racial differences in enforcement strategies¹³ have disproportionately affected

communities of color, especially Black communities, leading scholars to describe the criminal justice system as *the New Jim Crow*, our contemporary system of racial control (Alexander, 2010). This pervasive level of imprisonment in Black communities has been interpreted as altering the life-course of Black males, asserting a new life-stage that displaces other life events thought typical to adulthood (e.g., marriage, education, work) (Pettit & Western, 2004; Western & Wildeman, 2009). Imprisonment not only reshapes the life paths of Black men, but also the lives of partners and children, and strips whole communities of social and economic resources¹⁴ (see NRC, 2014 for a summary). It makes sense to expect stress-related physical health conditions in family members of the imprisoned, especially among women who often shoulder the brunt of childcare and household management activities, and a few investigations have ventured down this path. For instance, Lee and colleagues (2014) examined the association of family member incarceration with cardiovascular risk factors and found greater odds in all 5 factors for women, but not men. The field of racial health inequities would benefit from more investigations that examine how incarceration alters the daily lives of family members left behind, and in turn, how alterations in daily life may relate to stress and health.

This section on social-structural models captures only a partial look at policies and practices found to be relevant or that hold the potential to be relevant to racial inequities in health. More or less, I've offered up residential segregation, school reform, and punishment and surveillance policies as examples of where the majority of structural-level research on racial health inequities has been (place-based) and is likely to go in the next wave of research. A more thorough review would include discussion on voting rights and democracy (e.g., use of emergency manager laws in majority Black/non-White cities); the

citing of environmental hazards and differential enforcement of environmental laws and regulations; and economic development policy and initiatives that foster gentrification in communities of color, amongst others.

Summary of strengths and limitations of common health inequities models

In reviewing the most common health inequities models, it is clear from the expansive body of work on individual-level influences, attention has rested on behavioral mechanisms, such as diet and physical activity. Indeed, research has documented the association between these risk factors and hypertension. Knowledge of these individual-level risk factors, however, has not sufficiently advanced our ability to address the racial gap in hypertension, nor the associated health-related consequences. As such, the turn towards stress processes has been an important move in advancing our thinking on important determinants of racial health inequities. However, stratifying data by both race and gender appears to have been a fairly infrequent practice of most race-stress-health research. Consequently, viewing Blacks as a homogenous group unfortunately masked a steeper age-gradient in Black women and a sizeable gap in knowledge on stress pathways perhaps unique and most influential to Black women. Knowing this now, should compel future research aimed at examining those stressors that are unique not only to Blacks or other racial/ethnic minorities, but that may also be influential at the intersections of other social identities, particularly gender.

Similarly, the majority of extant research has largely focused on adulthood – e.g., diet and physical activity in middle-age, interpersonal experiences with racism on the job, and static measures of segregation based on adult residence. With race differentials in

hypertension already evident by young adulthood, a logical next step is to research stress processes by race and gender, as they begin in youth and interact over time to accelerate the differential age trajectories into hypertension. Advancements in socioeconomic and psychosocial models are beginning to move in this direction, with recent attempts backtracking into earlier life, mostly childhood for SEP, and adolescence for perceived discrimination. Nevertheless, a majority of these studies still rely upon proxies or scales originally developed with adult populations in mind. For instance, early life economic disadvantage is often proxied via parental income of the respondent, and psychosocial stress models are still largely employing discrimination scales developed around adult contextual spaces. As a result, there is a knowledge deficit on what these measures are capturing that may be relevant to stages preceding adulthood, and in turn, the relationship between these factors and hypertension trajectories. Moreover, we were reminded in this review that an increase in SEP does not guarantee a reduction in hypertension risk; studies have repeatedly demonstrated that higher SEP Blacks experience hypertension at comparable rates of low SEP Blacks. Consequently, adhering to the belief that increasing social mobility among Blacks will result in the narrowing of racial disparities in hypertension is likely oversimplified and consideration needs to be given to the health costs paid in pursuing ascent on the social ladder.

The body of work on perceived racial discrimination has advanced our thinking on stress pathways potentially important to racial health inequities that are not necessarily contingent upon SEP. Herein lies the great strength of psychosocial models: we see diversification in the ways we think about Black race and attention is given to everyday experiences, and not only acute traumas. So for example, not all Blacks are poor, and

higher-SEP Blacks may share in stress-inducing experiences encountered on a daily basis by low-SEP Blacks (e.g., profiled in public spaces), or may experience uniquely different experiences triggered by ascending the social ladder and entering less racially homogenous settings (e.g., microaggressions in the workplace). A noted limitation of psychosocial models, however, is that they rest upon cognitive appraisal and willingness to label an experience as discriminatory, for which there are many reasons why someone may wish not to do so, even if their gut tells them otherwise. One approach taken to address this limitation is a turn towards structural theory and modeling, negating the reliance on self-report or individual-level experiences.

Research derived from the structural perspective has connected individual-level behaviors associated with hypertension with constraints presented spatially, in the social and physical environment, established through mechanisms such as residential segregation. These advances are important strides in public health, as this research base has encouraged the development of interventions that have historically focused solely on health education, to include efforts aimed at increasing availability of health promoting structures, such as access to fresh fruits and vegetables and safe physical activity environments. Yet, noticeably absent in the literature, is the same level of attention directed toward other policies and practices that characterize daily life, sometimes often distinct from one's residential setting. It is my argument here, that the very strength of psychosocial models, is a legitimate weakness in structural models: we've lost sight of how structural-level determinants play out in the frame of everyday life. For instance, social, economic, and physical stressors are also doled out differentially across other social spheres, and research on the ways in which these stressors are experienced as individuals

move between places such as residence and school or residence and work, offer an opportunity to garner a better understanding on the internalization of stress, and its relationship to disparities in hypertension. This may be especially true for racially/ethnically marginalized groups that are more likely to move from racially homogenized residential settings, to more racially and economically diverse spheres of influence as they pursue school, work, and the day-to-day errands of daily living. Lastly, a related critique involves what seems to be the increasing trend of conceptualizing structural determinants of health around place. We saw this pattern in the share of investigations directed towards residential segregation, as well as evidenced in the latest intervention lingo, such as “place-making” and public health campaigns that proclaim “Health happens here: Your zip code shouldn’t determine how long you live, but it does.” I raise what I believe to be a legitimate concern: in our attempt to steer attention towards institutional practices and policies that set the stage for more individual level health processes, we are chopping up these institutional-level determinants into place-based silos and losing sight of how these policies and practices interact and accumulate in the day-to-day lives of the marginalized.

III. Theoretical frameworks undergirding an alternative approach to investigating racial health inequities: Racialization, time, and the Weathering Hypothesis

Conceptualizing the ways in which race-based stressors may vary by gender, class, age (youth as opposed to adulthood) and across time, however, will require adaptations in the use of theories undergirding health inequities investigations and reconsideration of

applicable measures. In particular, I argue that such investigations may benefit beginning from a reference point of thinking more critically about race-making and then moving forward in conceptualizing how racialization practices, in turn, influence health. This is contrasted against the more common practice of asking how is health made, and then backtracking into how marginalized groups deviate in ways that might be associated with disparate outcomes. Focusing attention on the race-making process is important, as Schwalbe et al. (2000) argue, “To explain inequality requires attention to the processes that produce and perpetuate it.” In implementing this practice, I will draw upon literature from race and inequality theorists that focus on *racialization* processes, to discuss how these processes relay into health consequences via the *Weathering Hypothesis*. More specifically, I will highlight how the coupling of this literature supports investigation into another flexible resource infrequently considered in racial health disparities, time.

Racialization

Winant and Omi (1994, 2015) describe racial formation as “the sociohistorical process by which racial identities are created, lived out, transformed, and destroyed.” Under this definition, race is a social concept that organizes human bodies based on phenotypic markers of difference, and the categories are not rigid, but rather fluidly responsive to social and historical times. *Racialization* as a process ascribes social and symbolic meaning to these racial categories to justify and/or reinforce social differentiation and the ideologies and practices of dominant versus subordinate status, differential treatment, and distribution of resources and life chances (Winant & Omi, 1994, 2015). This commonly entails *othering* (Bonilla-Silva, 1997; Winant & Omi, 1994, 2015;

Schwalbe et al., 2000), whereby a dominant group invents categories of “same” or “other” by identifying another human being based on his or her differences from one’s self, and then asserting difference as inferior. In the U.S. context this takes the form of Whiteness as standard and Black or non-White as deviant, exotic, savage, etc. As noted above, the racialization process via othering is responsive to social-historical times and constantly in play. Although overtly racist attitudes are reportedly on the decline (Bobo, Kluegel, & Smith, 1997), Jim Crow racism has been supplanted with more covert forms, variously labeled by researchers as symbolic racism (Kinder & Sears, 1981), laissez-faire racism (Bobo et al., 1997), aversive racism (Dovidio & Gaertner, 2004), and color-blind racism (Bonilla-Silva, 2010). Commonly recognized across these “new racisms” is a more subtle claim to superiority over Blacks (and other people of color) via stereotyping as irresponsible, lacking in motivation or slow to change, and prone to self-deprecating behavioral “choices” that keep “them” (read othered) behind in economic standing, mental and physical wellbeing (Moynihan, Rainwater, & Yancey, 1967; Patterson, 1998).

Once White, and non-White categories are cast, *boundaries are erected and maintained* and *network access is controlled* in order to preserve dominance and inferiority (Schwalbe et al., 2000). Bonilla-Silva (1997) describes these actions as racialized social systems that allocate economic, political, social, and psychological rewards by racial strata. Top of mind is the spatial boundary erected via restrictive housing covenants and redlining (Massey & Denton, 1993), segregating residential living environments by race, and maintained today via discriminatory practices in renting and home mortgage lending (Pager & Sheperd, 2008). Another avenue is the restriction of knowledge or cultural capital via schools and work networks. The common practice of tying school funding to property

taxes means that wealthier, White neighborhoods receive more local funding per student (Kelly, 1995), securing access to better infrastructure, smaller class sizes, enriching educational offerings, as well as more credentialed teachers (Darling Hammond, 2004; Orfield et al., 2012; Orfield & Lee, 2005). Other examples include the restriction of Blacks in the body politic via restrictive ID laws (Alvarez, Bailey, & Katz, 2008; Bentele & O'Brien, 2013), the policing and surveillance of Blacks and other non-White groups that restrict access to White spaces via racial profiling (ACLU, 2013; Human Rights Watch, 2009; The Sentencing Project, 2013; U.S. Department of Justice, 2011), and the *threat and use of violence* (Schwalbe et al., 2000) and removal of freedoms if these boundaries are contested (i.e., incarceration) (Alexander, 2010; Pettit & Western, 2004; Western & Wildeman, 2009).

Indeed, just as oppression is a part of race-making, opposition and resistance against both the meanings and limitations attached to subordinate racial categories is a part of racialization (Bonilla-Silva, 1997; Winant & Omi, 1994, 2015). *Racial contestation* (Bonilla-Silva, 1997) can be seen in “us” versus “them” interactions that unified masses in protest during the civil rights movement, and current day iterations exemplified in the Black Lives Matter movement, Indigenous Peoples movement against the Dakota Access Pipeline, and social media hashtags such as #HeretoStay showing solidarity against travel bans and immigration reform. Another form of resistance frequently noted are adaptations by a racially subordinated group to create alternative community networks of exchange and support, and prestige hierarchies by which to judge oneself as competent and successful, when the structures of a White dominant society offer no such validation (Schwalbe et al., 2000). For instance, in educational arenas, Black fraternal organizations support networking opportunities unavailable to Blacks in dominant culture (Chambers,

2014; Jackson, 2005; McClure, 2006); in the arts, racially minoritized-owned cable networks (e.g., ASPIRE, Bounce TV, Revolt, El Rey, Primo TV) and award shows (e.g., BET Honors, NAACP Image Awards, Latin Grammy Awards, ALMA awards) offer some degree of visibility and balanced portrayals of racial groups lacking in mainstream media; and, within households, the uptake of social roles that serve to keep a family afloat is revered and given differential status than what is afforded in dominant White culture (Stack, 1974).

In order to quash racial contestation another strategy employed in the racialization process is the *regulating of discourse* that quells emotions of injustice and any sympathy towards the oppressed (Schwalbe et al., 2000). In current day this takes the form of claims of having progressed into a post-racial society that “sees no color, only people” and treats individuals equally, without regard to race. Researchers have discussed this script as a way of turning a blind eye to current structures that perpetuate racism, making it easier to rationalize the status quo as attributable to anything else except structural constraints (Bonilla-Silva, 2010; Winant, 2015). Accordingly, it is no surprise that survey research has found increasing support for the principle of racial equality, yet opposition by Whites (and others) for reform of policies that disproportionately impact people of color in negative ways, and even less support for policies aimed towards closing racial gaps¹⁵ (Bobo, 2011; Schuman, Steeh, Bobo, & Krysan, 1997).

Time: Another flexible resource dictated by racialization

Time is the central organizing feature of social life that serves to “...reveal the rhythms, pulsations, and beats of societies...” (Sorokin & Merton, 1937). Units of time are set by the rhythm of collective life – for instance, what constitutes “the work day,” or when

something is “on-time” or “late” is dependent upon regulated social norms. Viewing time as a social construction (Lewis & Weigert, 1981) forces us to recognize that it is not a constant, but yet another valuable resource, considered scarce, and when controlled is another form of power and mark of inequality. In an essay on Afro-Modern politics, Hanchard (1999) introduces the concept of *racial time* when discussing how the inequalities imposed upon African and African-descended populations have been understood as impositions on time. He defines *racial time* as:

“the inequalities of temporality that result from power relations between racially dominant and subordinate groups. Unequal relationships between dominant and subordinate groups produce unequal temporal access to institutions, goods, services, resources, power, and knowledge, which member of both groups recognize”...Its effects can be seen in the daily interactions – grand and quotidian – in multiracial societies.” (p. 253).

In essence, Hanchard is arguing that time is yet another flexible resource controlled in racialization processes, and examples throughout history abound. In the most literal sense, the transatlantic slave trade was the seizure and exploitative reallocation of time (labor time and free time) from one race to another (Hanchard, 1999). Waiting is a common theme that connects the not so distant past of slavery to present forms of temporal inequality across the African diaspora (Hanchard, 1999; Mills, 2014). In the U.S., this took the form of Whites dictating the pace for social inclusion of Blacks and other non-Whites via Jim Crow laws, segregation, and restricted voting rights (Kennedy, 1990). Contestation against racial time impositions are evidenced in SCLC protest slogans for “Freedom Now!” and Martin Luther King’s book *Why We Can’t Wait* (1963). Current day iterations of time reallocation by race can be seen in gentrifying cities where investment dollars and restoration projects are withheld from non-White neighborhoods until the

influx of Whites (Cooper, 2017) or the excising of learning time via differential enforcement of suspensions and expulsions by race (Fine & Ruglis, 2009; Nance, 2016).

Charles W. Mills (2014) advances the argument further by arguing that it is important to consider not only the lagged allocation of resources, but also their representation, as racial political work is also done via the representational production of a *White time*. One way this occurs is via a revisionist historical accounting of the past that is identity affirming to Whites. Present day examples of erasure can be found in Texas state board of education revisions to social studies standards and textbook selection that attribute the civil war to sectionalism and state's rights and represent slavery as a "side issue" (Brown, 2015), and in a recent version of McGraw-Hill's *World Geography* high school edition that describes African slaves as "workers" on a page labeled "Patterns of Immigration" (Schlanger, 2015). Mills (2014) suggests the capacity to utilize time also becomes racialized by the representational production of a *White time* characterized as punctual, and the natural or appropriate use of time. Any different rhythm kept by non-White groups has on occasion been viewed as late, relaxed, and indifferent, as evidenced in the widely recognized stereotypical phrase, "colored people's time." Likened to the Lipsitz's (2011) *White Spatial Imaginary*, *White time* becomes a part of the invisible surround and assumed to be universally accessible by all, marking those who do not adhere to it as different, and often viewed as inferior. Drawing upon the writings of Hanchard and Mills, it is my argument that time is yet another resource that is structured through racialization processes in ways that often inhibit non-White groups in their use of it, and in turn, this inability to fully maximize time is used to assert *otherness*.

Review of racialization literature calls to mind the strategic processes by which race is created, and in turn, the ways that racial inequities are constructed through the attachment of meaning, distribution of resources, and management of rhetoric, while simultaneously being resisted by racial groups relegated to a subordinate status. Now it is appropriate to turn toward theory that appropriately discusses the health implications associated with powering through daily life under these oppressive tactics. One such theory is the Weathering Hypothesis, which will be contrasted against other commonly employed theories discussed in the literature review (e.g., lifecourse theory and cumulative (dis)advantage models).

Weathering Hypothesis and physiological stress response

Geronimus (1992) first initiated the Weathering Hypothesis as a possible explanation for racial variation in maternal age patterns of births and birth outcomes, positing that racial disparities in neonatal mortality, that widen with maternal age, may be consistent with a theoretical view of aging as a “weathering process.” The Weathering Hypothesis (1992, 2001) posits that the health of socially marginalized groups deteriorates at an accelerated pace and results in early onset of chronic conditions as a consequence of the cumulative impact of social and economic marginalization, and repeated exposure with related objective and subjective psychosocial stressors. As a result of repeatedly engaging in the high-effort coping strategies to manage these persistent stressors, physiological responses are triggered. If these stressors are unremitting, dysregulation of physiological response systems can occur and result in profound health effects, including hypertension (McEwen, 1998).

Grounded in social research, the Weathering Hypothesis connects race to health by framing early onset of chronic health conditions as consequence of the marginalization processes outlined above under racialization (also common to marginalization by sex, gender, sexuality, religion, and nativity). Emphasis is placed on how racial differences in health visible at the population-level are reflective of a racialized society that dictates qualitatively different life experiences and stressors from conception, and access to coping resources that help to mitigate and resist (Geronimus, 2000) the effects of adversity. The Weathering Hypothesis is a cumulative stress perspective that others often lump with life-course theory and cumulative (dis)advantage models. Unique from other cumulative stress theories, however are several features.

First, this hypothesis considers how racial health inequities reflect not only the accumulated effect of persistent disadvantage, but also the health effects that may be tied to the adaptations and high-effort coping that marginalized groups enact in order to resist a dominant culture that devalues their existence (Geronimus, 2000). So the mantra goes, “you have to work twice as hard to get half as much” (Danielle, 2015; White, 2015 discussing findings in paper by Cavounidis & Lang, 2015), and unlike other cumulative disadvantage models, the Weathering Hypothesis does not assume that upward mobility will reduce health risk for Blacks. Instead, the Weathering Hypothesis allows for the possibility that there is a physical toll also associated with working hard to climb the social ladder, and the toll paid may occur through physical dysregulation of the body’s stress response system. Second, born from research on racial variation in birth outcomes, the hypothesis and resulting empirical work has given attention to the ways in which marginalization by race can vary in dynamic ways when examined at the intersections of

social identities, especially gender. Lastly, age is conceptualized as a process of weathering and therefore is not thought of as standard across race; this is most aptly captured by this statement, “When comparing the health of African American and white women, 20 does not equal 20, and 30 is even less likely to equal 30” (Geronimus, 2001). As such, the normed idea of what constitutes developmental periods such as childhood, adolescence, middle- and old-age, is brought into question, along with what we think are age-related health risks. This last point returns us to a discussion that weds racialization processes and weathering with time, yet another flexible resource worthy of consideration in racial health inequities research, and particularly for disparities in the timing of hypertension onset.

IV. Weathering as a consequence of racialized time: A focal point of three papers to follow

Applying racialization to time allows us to more fully consider the ways in which a racialized society structures differential lived experiences for different races not only through space, but also time. A great advantage of focusing in on the racialization of time is that it also turns our eye towards the day-to-day lived experience. In considering what racialized time looks like, Mills (2014) implies that “working times, eating and sleeping times, free times, commuting times, waiting times, and ultimately, of course, living and dying time” are differentiated by race, and provocatively asks, “where has it [time] gone?” He then proposes “Could we speak, perhaps fancifully, of its having been transmuted into White time...through increments of White time on one side matching decreases of non-White time on the other, shortened life-spans over here extending life-spans over there?”

Here is where racialization of time, stress and weathering perhaps collide and prompts a novel approach to investigating racial health inequities as they play out on day-to-day life.

First, however, I must address the question that some will ask -- but isn't the differential distribution of time really about poverty, and therefore poor Whites are also subject to the theft of time and associated weathering? Indeed there is evidence that poverty (via exclusions to employment, educational opportunities, wealth accumulation, etc.) is important in the reallocation of time for all. Important to cue here is the rich body of qualitative work that has documented the organization of daily life of poor families. For instance, Lareau (1987, 2000) found that both Black and White middle-class parents reproduce advantage in their children by fostering "concerted cultivation" via organized extracurricular activities thought important in building academic and work prospects, whereas Black and White working-class and poor children created "natural growth" conditions that resulted in children engaging more in informal play and family time. Ethnographic data on poor families (particularly women) during welfare reform, showed that because of structural constraints, poor families engage in an extraordinary amount of coordinating time and are constantly "improvising daily rhythms" to obtain and sustain resources, including child care, transportation, and social services in order to get by (Burton, Tubbs, Jarrett, & Skinner, 2000; Edin & Lein, 1997; Roy, Tubbs, & Burton, 2004; Stack, 1974). Women often restructure their daily round by extending routines into early morning and evening hours, and sacrificing time to eat, sleep, and care for their own health (Burton et al., 2000; Roy et al., 2004) in order to keep a family afloat, and the hectic pace of overlapping, competing demands can throw a family into crisis-mode when the kin

networks poor families rely upon to fill essential needs (childcare in order to work, attend school) are also limited by the “public timetable” (Roy et al., 2004).

In actuality, this body of work importantly gives credence to the argument that restructuring of time can occur through the restriction of material resources, and the effects can look very differently by gender, with women particularly responsive to juggling work and caregiving demands. However, I argue that it does not negate the idea that the effects may be more widespread and impactful for Blacks (and other non-Whites) because of 1.) greater exposure to processes that restrict time via the pathway of social exclusion and restricted material resources, 2.) racialization processes that alter time via the representational production of White time, that may not flow through SEP, and 3.) the potential for both of these pathways to cut deeper among Blacks because the kin networks they draw upon to mitigate against these processes are sicker from premature onset of chronic health conditions. As such, caretaking needs may be drawn upon to extend not only down to children, but also more frequently to adult siblings, mothers and father, and grandparents (Hicks-Bartlett, 2000). Given these considerations, as well as others discussed in the following chapters, the extent to which the distribution of daily demands and time spent in stress-relieving outlets are differentially distribution by race remains an important empirical question. As such, chapter 3 asks and attempts to answer the first research question:

RQ 1: Do Blacks and Whites in the U.S. exhibit time-use patterns suggestive of unequal access to the flexible resource of time?

In chapter 3, using the American Time Use Survey, I construct and examine time-use profiles for White and Black racial groups. Guided by the weathering theory, I hypothesize that racialization is at play even in adolescence and may be visible through time-use

measures, in ways that cannot be fully captured by income and education. I focus the analysis on ages reflective of adolescence, emerging and young adulthood, with the intention of addressing the gap in our understanding structural inequities and stress processes as they occur before middle-age. Secondly, the analyses are stratified by race and gender to consider the simultaneous effects of these social identities. There are conceptual advantages to using time-use data. Time-use data has largely been used to examine gender discrimination in social norms and the influence on gender equality. For example, time-use studies have reflected how gender roles attributed to women and men shape the division of labor within households, gender disparities in total workload and discretionary time, as well as gaps in equality of opportunity to attend school and work (ActionAid, 2013). Therefore, I argue that it is not a stretch to anticipate that time-use data may also serve to more holistically capture the interactive and cumulative effects of different social-structural level forms of racial discrimination on the daily lives of marginalized groups.

Chapter 4 aims to extend this line of research beyond documenting how the average day differs for Whites and Blacks, to considering how a range of contextual factors dictate observed differences. In particular, this paper focuses in on Black adolescent girls in the context of metro-Detroit, and asks:

RQ Set 2: What do the daily lives of Black adolescent girls look like, including what they define as their regular obligations? What influences are important in structuring their obligations and “time outs” from daily demands?

Again, the focus remains on a life-stage that precedes middle-age, as I am interested in assessing if the same stressors documented as important in middle-aged black women are salient in adolescence. The decision to narrow in on girls was made because the largest race-disparity in the timing and prevalence of hypertension occurs among White and Black

women. A qualitative approach was selected to provide access to not only what happens, but how and why it happens. For example, the crude measures of SEP available in the ATUS may not fully capture the complexity and nuances in what determines time-use allocation. Also, this approach allows for probing of mechanisms that create tension between different investments in time (e.g., family and work), as well as psychosocial implications and adaptive responses through the voices and vantage point of adolescent girls.

Lastly, using the National Longitudinal Study of Adolescent Health (ADD Health), chapter 5 explores the relationship between racial differences in time-use in adolescence and emerging adulthood with early onset hypertension in young adulthood. This study asks:

RQ 3: Does time-use, as a proxy for differential lived experience in adolescence and emerging adulthood, explain the association between race and early onset hypertension among Blacks and not Whites?

By seeking answers to these questions, I hope to add to our understanding of the complex social-structural processes involved in creating and maintaining Black-White disparities in hypertension in particular, as well as other racial health inequities that may operate through the stress pathways implicated in racialization processes that alter the daily lived experiences of marginalized racial/ethnic groups.

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ENDNOTES

1. Interestingly, the uptick among White males in the 2007-2010 NHANES waves aligns with hypotheses that Whites are also experiencing increased stress with the economic downturn of this time-period.

2. Grim's slavery hypothesis (Grim & Robinson, 1996) posited that African Americans and other Black populations in the western hemisphere have a greater prevalence of high blood pressure because of a genetic variant selected upon during the Middle Passage. More specifically, the argument was made (without supporting empirical evidence) that a salt-sparing genetic variant was selected for during the Middle Passage when enslaved Africans were subjected to extreme conditions, including sodium deprivation; those who survived were thought to be better retain sodium.

3. In 2011, 27.6% of Blacks (10.9 million) and 25.3% of Hispanics (13.2 million) had incomes below poverty, compared to 9.8% of non-Hispanic Whites (19.2 million). Blacks represent only 12.8% of the total population, yet, they make up 23.6% of the poor population; Hispanics, who represent 16.5% of the population, account for 28.6% of the poor (Gabe, 2012). Additionally, income only captures a sliver of the economic gap, as Black family wealth is less than one-sixth that of Whites (McKernan et al., 2013). Blacks are more likely to hold service jobs (26% vs. 17%), whereas Whites are twice as likely as Blacks to hold managerial jobs (39% vs. 29%) (BLS, 2013).

4. A 2016 report by CFED and Institute for Policy Studies documented the Black-White gap in average household wealth and found that it rose from \$280,000 in 1983 to \$656,000 in 2013. The authors estimate that if the average Black family wealth continues to grow at the same pace it has over the past three decades, it would take Black families 228 years to amass the same amount of wealth White families have today (Asante-Muhammad, Collins, Hoxie, & Nieves, 2016).

5. Everyday discrimination sums 9-10 items that capture the frequency of discrimination in the day-to-day lives of respondents. For example, respondents are asked "In your day-to-day life, how often have any of the following things happened to you? 1.) "You are treated with less courtesy or respect than other people", 2.) "You receive poorer service than other people at restaurants or stores," 3.) "People act as if they think you are not smart." Major experiences of discrimination are assessed via questions, such as: 1.) "Do you think you have ever been unfairly fired or denied promotion?", 2.) "For unfair reasons, do you think you have ever not been hired for a job?", and 3.) "Do you think you have ever been unfairly stopped, searched, questioned, physically threatened or abused by the police?" (Williams, Yu, Jackson, & Anderson, 1997; Williams et al., 2008).

6. Example questions from the Schedule for Racist Events: “How many times have you been treated unfairly by teachers and professors because you are Black?,” “How many times have you been treated unfairly by people in service jobs because you are Black?” Each of the domain questions are followed by, “How many times in the past year?” “How many times in your entire life?” and “How stressful was this for you?” (Landrine & Klonoff, 1996).

7. Anecdotally, in my own administration of the EDS scale, respondents often requested clarification on how to interpret these instructions, with frequent mentions of “well I’m not sure if you want me to count childhood too” as well as commentary suggestive that experiences in childhood and adolescence were distinctly different from adulthood, such as “well if I were to give you a main reason why, it would be different in my youth than it would be for now” (Study PI: Professor Geronimus. Study title: Assessing validity of EBV-immortalized blood and saliva cells to estimate population differences in telomere length, a biomarker of stress-mediated health and aging. Unpublished raw data.).

8. The high-effort coping mechanism termed John Henryism is a notable example of one of the innumerable pathways by which the psychological toll of racism is embodied and particularly detrimental to those with fewer economic resources. Referencing the folk lore of John Henry, James (1994) first coined the coping disposition “John Henryism”, hypothesizing that continuous employment of high-effort coping strategies could compromise health among those who experienced psychosocial and environmental demands that exceeded their personal coping resources. The construct is measured using a 12-item, 5-point likert scale assessing three major themes: efficacious mental and physical vigor; a strong commitment to hard work; and a single-minded determination to succeed (James, 1996).

9. Self-segregation has been proposed as a potential factor responsible for maintaining segregation in current times. However, several studies that incorporate residential preference in analytic models find that preference plays a trivial role in neighborhood composition (Bruch & Mare 2006; Ihlanfeldt & Scafidi 2002). After all, “preference” comes across as a generous characterization when decisions about where to live are made in a context where Blacks are ranked as the least attractive neighbors by all other racial/ethnic groups (Bobo & Zubrinsky, 2001).

10. School segregation remains high for Black students, with 74% of Black students attending majority non-White schools (50-100% minority), and the average Black student in a school where 64% of fellow classmates are low income (Orfield, Kucsera, & Siegel-Hawley, 2012).

11. School reform policies, such as No Child Left Behind (NCLB, 2001) were enacted to address school performance disparities. Yet, NCLB required stringent accountability (standardized testing and rigid teacher qualifications) without providing the adequate funding to meet imposed requirements. Failure to progress resulted in sanctions, ranging from the procurement of private tutoring services all the way to restructuring (Darling-Hammond, 2004; Hursch, 2007). Ultimately, many believe NCLB contributed to the

privatization of large components of public education and fueled growth in charter schools, then further incentivized by the Obama Administration's 2009 Race to the Top (Fasching-Varner, Mitchell, Martin, & Bennett-Haron, 2014; Tanner, 2013; Taubman, 2007).

12. In 1986, Congress passed the Anti-Drug Abuse Act establishing mandatory minimum sentences for specific quantities of cocaine. Sentencing disparities existed between crack cocaine and powder cocaine, with much lengthier sentences attached to crack cocaine offenses. For example, distribution of 5 grams of crack cocaine carried a minimum 5-year federal prison sentence, whereas 500 grams of powder cocaine (100 times the amount of crack cocaine) carried the same sentence (ACLU, 2006). The majority of people arrested for crack offenses are Black, the sentencing disparity resulted in Blacks serving nearly as much time in prison for non-violent drug offenses as Whites did for violent offenses. In 2010, Congress passed the Fair Sentencing Act (FSA), which reduced the sentencing disparity between offenses from 100:1 to 18:1. Despite passing the FSA, disparities in sentencing remain, with 28 grams of crack cocaine triggering a mandatory five year sentence, whereas it would take 500 grams of powder cocaine to trigger the same sentence (U.S. Department of Justice, 2010).

13. Studies repeatedly show that Blacks are no more likely to use or sell illegal drugs than Whites (National Institute on Drug Abuse, 2012; Wu et al., 2011), but are significantly more likely to be searched during a traffic stop, have higher rates of arrest for drug offenses, and receive longer sentences than White offenders for the same crimes (ACLU, 2013; Human Rights Watch, 2009; The Sentencing Project, 2013; U.S. Department of Justice, 2011). Black men, in particular, are significantly overrepresented in the prison population -- lifetime risk estimates of imprisonment among Black men born between 1965 and 1969 show that 30% of those without college education and 60% of high school dropouts went to prison by 1999 (Pettit & Western, 2004).

14. Immediate loss begins with the removal of income potential, as well as compromising unions and familial bonds with children (Arditti, Lambert-Shute, & Joest, 2003; Braman, 2004; Christian, 2005; Turney & Wildeman, 2012). Additional costs surface, including legal fees and monetary sanctions, travel time and expenses for visitation to prison sites far from home, and exorbitantly priced services often set by for-profit prison vendors, such as collect calls and commissary items (Arditti et al., 2003; Harris, Evans, & Beckett, 2010; Markowitz, 2016; Roberts, 2004). Penalization continues well after time served. Audit studies have shown that most employers are reluctant to hire job seekers with a criminal record, especially Black men (Holzer, Raphael, & Stoll, 2004; Pager & Quillon, 2007; NRC, 2014). Additionally, for many, a criminal record also curtails access to public housing, food stamps, federal education aid, and the right to vote and serve on juries (National Inventory of Collateral Consequences of Conviction, 2016).

15. For example, in the General Social Survey, respondents were asked to agree or disagree with the statement, "Irish, Italian, Jewish and many other minorities overcame prejudice and worked their way up. Blacks should do the same without special favors" and consistently through the 1994-2008 timespan, roughly 75% of White Americans agreed with this statement (Bobo, 2011).

CHAPTER 3

Differential lived experiences in the U.S. at the intersection of race and gender? Time-use in adolescence, emerging, and young adulthood for Whites and Blacks

The normative ideal for how American youth should best spend their time is often framed as follows: adequate time should be devoted to educational endeavors that will allow for securing sufficient knowledge to advance in school and attain credentials. Pairing part-time paid employment with sufficient time in education may allow for a more balanced individual by securing skilled-training and networks that lead to future career employment (Hofferth & Sandberg, 2001; Mortimer, 2003). Adequate hours of sleep are considered essential for recovery, cognitive functioning, and health (Snell, Adam & Duncan, 2007; National Sleep Foundation, 2015). A slice of time in household chores may instill maturity and responsibility (Goldscheider & Waite, 1991; Smolensky & Gootman, 2003), and the remaining time available to an adolescent is best served in active, structured leisure activities that stimulate the mind, provide outlets for physical exertion, and opportunities to promote social skills and networks (Carnegie Corporation of New York, 1992; Kaufman & Gabler, 2004; Linver, Roth, & Brooks-Gunn, 2009; Rivera, 2011). Generally, there is widespread belief that all youth -- if they or their parents choose, can achieve this ideal in adolescence, as if all youth have equal access to time -- including options and constraints for its use. Theoretical contributions on the construction of race, however, suggest that time may not be equally accessible across race groups (Hanchard,

1999; Mills, 2014), and serves as another mechanism by which inequality is reproduced. For instance, evidence of social exclusion of racialized minorities from White spaces is viewed as a limiting factor in work and leisure pursuits even in adolescence (Lipsitz, 2011), and ethnographic studies of impoverished families suggest that youth may engage earlier in social roles often thought reserved for adulthood, such as economic provider or caregiver to other family members, in order to keep a family afloat (Burton, 2007; Roy, Messina, Smith, & Waters, 2014). As such, the normed idea of what constitutes developmental periods is brought into question, along with what we typically think of as universal age-related stressors and health risks. Therefore, it is my argument that central to understanding racial health disparities, is the need to understand how daily life may be structured differently for race groups, particularly in the years preceding onset of stress-related chronic health conditions.

Unfortunately, the depth to which extant time-use investigations fully characterize daily life of racial/ethnic minoritized populations has been relatively shallow. Greater attention should be given to the conceptualization of pathways by which racialization processes may impede time-use; ways in which racial identities intersect with gender to further differentiate time-use patterns; and the relational aspect of time use, whereby privileges or constraints in one time domain of life may increase or decrease time spent in another. This paper aims to fill this gap by discussing pathways by which structural constraints and social norms allocated by race and gender may interact to differentially influence time, and then assessing if population-level differences are indeed visible at the intersection of these socially marginalized identities and suggestive of differential lived experiences in adolescence, emerging-, and young-adulthood. Using nationally-

representative data from the American Time Use Survey (ATUS), the analysis will focus on describing time-use profiles for non-Hispanic Black and White males and females as they age from adolescence to young adulthood, and what factors are associated with observed differences.

Background

When discussing the development, health, and wellbeing of adolescents, time is often referenced with concerns expressed over “too little” or “too much” time dedicated toward a particular context, as well as exposure to social experiences occurring “too early” or “too late” for the adolescent life-stage (Elder, Kirkpatrick Johnson, & Crosnoe, 2003). Emphasis is often placed on maximizing time in contexts believed to build knowledge and skills thought to be important to success in later life, and minimizing activities and roles thought to be reserved for adulthood. This framing characterizes time as individualistic and within our own control, or in the case of youth, in the control of an immediate caretaker.

A critical feature of time, however, is that it is constructed through common everyday interactions, such that social acts are temporally located within larger social acts, or what some term *time embeddedness* (Lewis & Weigert, 1981). For instance, self-time becomes embedded within interactional time when we align our schedules with family members in order to fulfill the social role of caretaker and orchestrate trading-off on supervision of children and assistance to dependent elders. Interactional time, in turn, is embedded within the larger temporal orders of social institutions and norms that dictate macro-social timetables (Lewis & Weigert, 1981), such as synchronizing our watches to tell ourselves when it is time to go to school or work, how late the bus is from the publicly set

timetable, or what days and times institutions are open and closed. Our time, therefore, is not entirely our own to control. Knowing this has prompted consideration by some researchers on how our ability to use time may be dictated further by our standing in society, resulting in distinct time-use patterns that stratify by subordinate and dominant status markers, such as race, gender and class. Here below I will briefly highlight key findings from time-use investigations that have sought to capture the effects of social institutions and societal norms on daily life of adolescents by gender, class, and race, beginning with the most commonly investigated, gender.

Gender differences in time use

A substantial volume of time-use research has focused on differences between boys' and girls' time expenditures, with the underlying motivation stemming from attempts at explaining the continued disparity between adult men and women's time spent in household labor despite increasing participation by women in the formal labor market (see Wight et al, 2009; Bianchi & Robinson, 1997; Gager, Cooney & Thiede Call, 1999; Raley, 2006; Bonke, 2010; McNeal, 1998; Gager et al., 1999; Feldman & Matjasko, 2007; Hofferth, 2009; Olds et al., 2009). A general conclusion from this body of work is that teenage males engage more heavily in paid work than females, as well as in sleep and leisure activities such as sports, T.V. and games; while teenage females spend more time than males in studying, housework, caregiving, and social and artistic forms of leisure. These findings bolster the claim that patterns observed in adulthood are established in childhood through the modeling of gender-based division of labor between boys and girls (see Gager et al., 1999 for a review), as well as societal messaging regarding appropriate leisure pursuits for

boys and girls.

Socio-economic differences in time-use

Studies that have included household income and parent/caretaker education in analyses have generally found that higher values of these socioeconomic position (SEP) measures are predictive of higher overall activity involvement (Zill, Nord & Loomis, 1995; Lareau, 2002; Feldman & Matjasko, 2007). Relatedly, Stearns & Glennie (2010) sought to examine whether school characteristics influence extracurricular participation rates. In their examination of North Carolina schools, they found that larger schools and those with more affluent student bodies offered more activities. In turn, schools with more activities available tended to have higher participation rates.

Wight and colleagues (2009) found that teenagers in families with higher incomes spent more time in paid work (27 more minutes per day) relative to their counterparts in the lowest income-bracket. This finding has been identified in previous research that points to employment barriers for teens in economically disadvantaged families, such as less access to transportation, and fewer networking and employment opportunities near to where they live (Lerman, 2000; Rothstein, 2001). A study utilizing the Current Population Survey (CPS), Monitoring the Future (MTF), and ATUS data found a “hill-shaped” relationship between education and employment, with average hours spent in paid work highest for teens whose most educated parent had completed some college only, while they were lower in the least and most educated families. However, restricting the observation to employed teens revealed that those teens whose parents have less education worked a greater average number of hours (19.2-27.3 hrs/week) than those in more advantaged families (8.5-14.7 hours per week), and a larger fraction worked 20 hours or more per

week (Porterfield & Winkler, 2007). Interestingly, examination of time-trends suggest that this divide has grown in recent years, with teens of more highly educated families seeing significantly steeper declines in paid employment. Porterfield and Winkler (2007) argue that this is likely because teens from more highly educated and economically advantaged families are reducing paid work to engage in other activities thought to enhance college prospects. Porterfield and Winkler (2007) sought to characterize how these higher socioeconomically positioned teens were re-allocating their time, and found that teens of parents with more education spent significantly less time in commuting to school, and marginally less time in housework and sports compared to their less advantaged counterparts. Advantaged teens spent more time in homework, hobbies, reading and writing, civic/volunteer and religious activities than less advantaged teens.

Racial differences in time-use

Compared to gender and economic stratification time-use analyses, far fewer studies have examined time-use patterns in adolescence by race. Feldman and Matjasko (2007) constructed time-use profiles of adolescent school-based extracurricular activities in the National Longitudinal Study of Adolescent Health (Add Health) dataset, and found no significant differences by race/ethnicity in the rates of single activity portfolio participation (i.e., sports only, academics only, school only, performance only). However, Whites were more likely to participate in multiple activities in comparison to Blacks.

Although race was not the focus of these investigation, a study of 6-12 year olds using data from a 2003 Panel Study of Income Dynamics (PSID) child supplement, and another of 15-17 year olds using ATUS data, included race as a covariate in multivariate analyses of time-use (Hofferth, 2009; Wight et al., 2009). In the case of the PSID analysis, it

was found that Blacks spent less time in sports, passive leisure, and outdoor activities as well as household work compared to White youth. More time was spent by Black youth in studying and watching T.V., compared to their White counterparts (Hofferth, 2009). The ATUS analysis (Wight et al., 2009) found no significant differences in time spent on “contracted time” (i.e., paid work, studying) or “committed time” (i.e., housework and caregiving) between Black and White adolescents. In their leisure time, Black adolescents watched more television and were less likely to experience high supervision during after-school hours. Looking across these studies, the only consistent finding is that Black adolescents appear to be spending more time watching television and less time in “structured,” high-supervision leisure than White adolescents. However, the dearth of studies on race and time-use makes even this summary provisional, at best. Race is not the primary focus of most time-investigations, and as such, thought given to the processes that may be involved in mediating the relationship between race and time-use is underdeveloped or lacking in discussion.

Remaining gaps and unanswered questions

Taken together, existing empirical evidence on adolescent time-use differences has generally only explored time-use differences by considering one social identity at a time, with the lion’s share of research directed toward gender and socioeconomic stratification. As such, a number of questions remain. For example, when we look at time dispersion across the full array of domains with which one can spend their time, do we see a reallocation of time from certain domains into others that stratify by race-group? Would differences in time-use patterns by race change if we further stratified by gender? What role does familial composition and socioeconomic position play in any differences observed

between Black and White adolescents, and does this depend upon gender? These questions seem particularly relevant to the study of adolescent development and wellbeing, but also a key piece in the study of how health disparities begin and unfold into young adulthood (Crenshaw, 1989; Bowleg, 2012). Drawing upon theoretical contributions on racialization and weathering discussed in chapter 2, I posit that time-use may be socially patterned in adolescence and young adulthood, such that there may be racial/ethnic differences in the opportunities, demands and stressors faced by youth in everyday life, and gendered expectations for coping with them that may further differentiate racial differences in time-use. As such, exploring race/gender group time-use patterns may be an important first step toward understanding the role of daily privileges and hassles toward the timing of deleterious health effects across race/gender groups. Here below I use existing literature to conjecture how racialization processes, coupled with gendering of social roles, may structure daily life differently for Blacks than Whites, particularly Black girls and women.

Social exclusionary practices and policies as pathways influencing time-use

Social exclusionary practices and policies that physically separate non-Whites (particularly Blacks) from Whites and channel resources and amenities to White spaces maintain distinctively different living environments by race (Lipsitz, 2011; Williams & Collins, 2001). Residential segregation has given Whites advantages such as proximity to sources of employment and exclusive access to job networks and business opportunities (Farley, 1982, 1987; Kirschenman & Neckerman, 1991; Pager & Sheperd, 2008; Wilson, 1987, 2010). The physical and social separation of Blacks from work opportunities may result not only in lower workforce participation rates of Blacks (Tyndall, 2017; Marsh, et al., 2011), but also racial differences in time devoted to finding work and the time it takes

to travel to and from worksites that are physically distant from one's residential neighborhood setting. There is no reason to believe that this would be any different for Black adolescents seeking work opportunities (Raphael, 1998).

Historic and present day tax and zoning policies also steer amenities to places designated as White, perpetuating limited access and inferior quality services in grocery and shopping facilities, banks, and medical services in Black communities (Baker et al., 2006; Dai, 2010; Lipsitz, 2011; McLafferty, 1982; Wallace, 1990, 1991). As such, it is likely that Blacks exhaust time in checkout lines and waiting rooms when accessing the limited quantity of nearby amenities or spend longer in travel time to secure services situated in White communities. Given the gender ideologies on core household maintenance activities (Gager et al., 1999; Hochschild & Machung, 1989), this may be a greater time drain for Black women and Black adolescent girls alike that may lend support by engaging in these activities to a greater degree. Altogether, extended time in locating and getting to and from work or household errands may limit free time for Blacks that could be spent elsewhere, such as homework, family time, or recovery time in sleep.

Another mechanism maintaining the racialization of space is the prolific growth in homeowners associations (over 350,000 according to HOA-USA, 2017) and associated fees that buy exclusive access to parks and recreational facilities, and pay for private security guards to prevent entrance by anyone deemed an "outsider" (Lipsitz, 2011), which by default includes a larger share of the Black population who are less likely to be homeowners as a legacy of past residential segregation practices. Among those able to buy exclusivity via HOA fees and privatization of services is growing resistance to contribute towards the tax base that supports local services used by all (Lipsitz, 2011), further stifling

the ability of local governments to provide upkeep of public facilities and transportation that could supply leisure outlets to Black communities segregated from White communities and resources. In consequence, the opportunity to engage in physically active leisure is limited for Blacks of all ages (Bennett, Wolin, Puleo, & Emmons, 2006; Ray, 2014; Shiness, Floyd, & Parry, 2004) and logically would limit time spent in this domain for Blacks.

Relatedly, the reliance of school districts on the local tax base means that Black communities facing restricted economic opportunities have a weaker financing structure to support the upkeep of aging buildings, teacher contracts, books and other learning supplies, and extracurricular amenities (Darling Hammond, 2004; Kozol, 1991, 2005; Orfield et al., 2012; Orfield & Lee, 2005). Fewer teachers equate to larger class sizes; fewer books and learning supplies prompt schools to deter students from taking such supplies out of the classroom (Kozol, 1991, 2005); and taken together, one can imagine that overburdened teachers and restricted learning materials might dissuade the assignment of research and homework, limiting required time in these domains for Black adolescents. Another natural response to shrinking school budgets is cuts to school-based extracurricular amenities such as art programs, clubs, and sports teams, and a rise in pay-to-play policies (Bucy, 2013; Sagas & Cunningham, 2014). Families with means are able to continue their kid's participation, while lower-income families may not, and as a result, these students, many Black, may be shut out of participation and limit time devoted to active, skill-building leisure pursuits believed to build social and cultural capital (Bucy, 2013). Through title IX, opportunities for girls to participate in sports grew since the 70's, but never fully reached gender equity, and therefore cuts in sports programs may disproportionately impact girls, especially Black girls in urban, underfunded areas (Push,

2014; Sabo & Veliz, 2012). School reform policies promoting school choice and the proliferation of charters, especially in Black communities (Frankenberg et al., 2010) likely exacerbate these hardships, as charters create competition with already fledgling district public schools for students and funding (Green, Baker, Oluwole, & Mead, 2016; Zernike, June 28 and August 20, 2016). Additionally, charters are not required to provide certain services such as transportation, thereby transferring the cost and time demand on families to shuffle children to and from school and extracurricular activities. Again, studies documenting the gender stratification of organizing children's time (Lareau & Weininger, 2008) would suggest that this time demand may land more so on women in impacted families.

Household composition, SEP, and family illness as pathways influencing time-use

More recently, consideration has been given to demographic patterns in marital and labor force status by race that may influence time in leisure for adult women (Passias, Sayer, & Pepin, 2016; Ray, 2014). Citing lower marital status rates among Blacks and work participation rates that show Black women are more likely to work full-time compared to White women, researchers have hypothesized that the institution of marriage may advantage White women by increasing disposable income to purchase childcare and other household services, freeing time constraints and resources to explore leisure opportunities (Passias et al., 2016; Ray, 2014).

Importantly, I note this prior theoretical and empirical work to acknowledge that others before me have considered the compositional differences in family structure in ways that may importantly disadvantage Black women in particular. However, I veer away from their hypothesized causal pathways. Instead, I suggest that the institution of marriage is

less important to the time-constraint of Black women, and instead posit that the restricted availability of partners and spouses due to documented biases in the criminal justice system that functionally pluck Black men from their communities (Charles & Luoh, 2010; Western & Wildeman, 2009; Wolfers, Leonhardt, & Quealy, April 20, 2015) and the higher rate of premature death (Geronimus, Bound, & Colen, 2011), along with the disconnection of Black males from paid work and segregation into low wage labor (Farley, 1982, 1987; Holzer, Offner, & Sorensen, 2005; Kirschenman & Neckerman, 1991; Western & Pettit, 2000), are more appropriate focal points in the time reallocation of Black women. This point is especially so, given empirical evidence that non-institutionalized Black men do contribute significantly to caregiving activities and in many regards are more involved in their children's lives compared to White men, regardless of whether or not they are residing in the child's homestead (Jones & Mosher, 2013). It is still reasonable to suggest that Black women may experience longer hours in paid work than White women, and potentially have less spousal support to spread household and caregiving tasks between, but I attribute the cause to these underlying sources, and not lower marriage rates among Blacks.

Two additional considerations potentially important in the consideration of racial reallocation of time are differential returns on education by race, and differential health profiles. For every level of education, Blacks experience lower income returns, earning less income than Whites at comparable levels of education (Musu-Gillette et al., 2016; Pearson, 2008). Given this, even upwardly mobile Black households with higher education may still look drastically different from White household comparable in class markers, such as educational status. The lower returns on education and lower-levels of wealth (Asante-

Muhammad, Collins, Hoxie, & Nieves, 2016) result in Blacks having less disposable income to draw upon to buy out of household and caregiving activities that may alleviate family-work life conflict. Time and economic constraints faced by Black parents, particularly Black moms, may prompt the uptake of some of these social roles, typically thought of as adult responsibilities, by adolescent children that can assist in these efforts to keep the family afloat (Burton, 2007). As such, it is likely that Black adolescents, particularly girls, will spend longer in household maintenance tasks and caregiving to siblings.

Additionally, Black families experience a greater proportion of health issues on the whole, both among adults at earlier ages (Geronimus, Bound, & Waidmann, 1999), and also among the young (Burton & Bromell, 2010; Burton & Whitfield, 2003). Hence, the demand for caregiving likely extends beyond traditional supervision of the young, and into more intensive forms of care that require more time. Again, restraints on adult's time imposed by work-family life makes it probable that that a greater number of Black adolescents are facing the need to devote time toward roles often assumed to be restricted to adulthood, such as household maintenance, caregiving down to siblings and other children in the household or in neighboring homes, and caregiving up to ailing parents and relatives (Stack & Burton, 1993; Burton & Whitfield, 2003; Stack, 1974; Hicks-Bartlett, 2000). Altogether, these activities will hereafter be referred to as "kin-work" (Stack, 1974) to capture any labor or task that the family does to endure over time. Again, given the gendering process that is still largely present in the domains of housework and caregiving, Black adolescent girls may perform a larger share of these tasks than Black adolescent boys. In turn, these demands are also likely to minimize one's discretionary time to pursue leisure.

The purpose of this paper is not to test these causal pathways, but to first assess whether or not there are distinct patterns between race/gender group and time-use. Here below, I summarize my hypotheses as they pertain to this study.

1. White teens, on average, will spend more time on studying/homework compared to their Black adolescent counterparts. Black adolescents, on average, will spend longer in commute times to and from school, compared to their White counterparts. These time-use patterns in education will persist for B-W men into young adulthood, but not for B-W women.
2. A greater proportion of White teens will work for pay compared to Black teens, although, among the working, White adolescents will work fewer total minutes than Black working adolescents, balancing their remaining time more evenly between education and active, structured leisure outlets. Black adolescents, on average, will spend longer in job-search and commute times to and from work compared to their White counterparts. The B-W gap in work will grow for men in young adulthood; Black women, however, will likely outpace White women in total time in work during young adulthood.
3. Teen girls of both races, on average, will spend more time in household maintenance and caretaking compared to their teen boy counterparts. Black teens, however, especially girls, will spend longer in these domains than White teens, due to lower socioeconomic means for their families to buy out of these activities, and a greater burden of illness that may require caregiving up to elders. Similar levels of commitment will not be seen in Whites until young adulthood.
4. White teens, on average, will spend more time in active, structured and social leisure pursuits compared to their Black adolescent counterparts. In contrast, Black teens, on average, will spend more time in passive leisure pursuits. The gap in active, structured leisure time will be greatest between White and Black teen girls, as the demands imposed from kin-work will be greater for Blacks and taken up more by Black teen girls, thereby minimizing free time. These time-use patterns in leisure will persist and perhaps grow in young adulthood.
5. Given the social exclusion of Black teens from educational time, work, and active-structured leisure supports, it is probable that Blacks teens will experience more “free” and “necessary” time to devote toward recovery via sleep, eating, and grooming. However, kin work demands may compress this time and result in no differences in available free and necessary time by race-group.
6. Household income and family composition will attenuate racial differences in time-use profiles, but will not fully account for observed differences, as not all exclusionary practices and time demands operate through or are contingent upon income.

Data and methods

The American Time Use Survey (ATUS) is a time diary survey, sponsored since 2003 by the Bureau of Labor Statistics and is fielded by the Census Bureau to provide nationally representative estimates of how Americans spend their time. ATUS respondents are persons aged 15 and older, drawn from households who have concluded their participation in the Current Population Survey (CPS). From this eligible group, households are selected that represent a range of demographic characteristics and then one person, age 15 or over, is randomly chosen from the household to provide a telephone interview detailing an account of their 24-hour diary day. Interviewers record the verbatim responses on each activity, starting at 4 a.m. the previous day and ending at 3:59 a.m. on the interview day.

These analyses draw from the 2003-2012 microdata file that pools time-use diaries across years. The sample for this analysis was further limited to non-Hispanic White and Black males and females between the ages of 15 and 35 years old, resulting in an unweighted sample size of 30,459. Distribution of key activity domains were stratified by both race and gender for the following age-blocks: adolescents aged 15-17 years, emerging adults aged 18-24 years, and young adults 25-35 years.

Conventional approaches to examining time-use data (Robinson & Martin, 2012) involve dividing activities into non-free and free time categories. Non-free time is further subdivided into contracted-, committed-, and necessary-time. Contracted time captures paid work and educational endeavors, whereas committed time or “kin-work” includes activities such as unpaid housework and caretaking, and necessary time captures self-care and sleep. Free time, or leisure, is often subdivided into active-structured and passive-unstructured activities. Figure 1 gives a snapshot overview of the time-use activities that

comprise each time-use domain, followed by a narrative description.

Figure 3.1. Activities comprising umbrella time-use domains

Contracted Time	Committed Time	Necessary Time	Free Time (Active, structured)	Free Time (Social & entertain)
Work - Paid work & other income - Job searching - Commute for work	Household Tasks - Housework, food prep & clean-up - Grocery shopping - Medical, legal, & social services - Commute for household/care	Grooming Eating and drinking Sleep - "On-time" sleep - "Off-time" sleep (naps)	- Extracurriculars, sports & exercise - Volunteering - Religious service & educ. - Hobbies/crafts/arts & museum - Playing music / games	- Parties & socializing - Telephone calls - Attend sports events - Movies & shopping
Education - Taking classes - Homework/research - Commute for education	Caregiving - Caregiving to children - Caregiving and helping adults			Free Time (Passive) - Relax/think - T.V. viewing - Listening to radio - Computer use (personal)

Dependent variables: Time-use domains

Contracted time includes time devoted to work and education. *Work-related activities* captures time spent in paid employment, engaging in work-related activities (e.g., commute), other income-generating activities (e.g., selling homemade items, babysitting, maintaining a rental property), as well as job search and interviewing. *Education time* includes taking classes for a degree or for personal interest, along with education-related activities such as commute time and doing research and homework.

Committed time includes time spent on maintaining a household and caretaking. *Maintaining a household* encompass activities such as housework, cooking and clean-up, grocery shopping and other services. I did not use the pre-determined categorization employed by the Bureau of Labor Statistics, as it includes subdomains which may only be applicable to those who own a home or car (e.g., lawn and garden care, interior and exterior home maintenance, vehicle maintenance), and therefore may bias the summary measure of household time in favor of those advantaged in terms of home and car ownership.¹ Instead, I limited sub-items of the composite measure to the daily activities we

all typically do to keep a household running, and hereafter refer to these activities as *core housework* (similar to approach taken by Gupta, Sayer, & Cohen, 2009).

Different from prior studies, I have also included *accessing services*, as a subdomain of maintaining a household, given that social, medical, financial, and legal services are also sought as essentials in order to provide household stability. *Caretaking* includes time spent doing activities to care for any child (under age 18) or adult within and outside the household. Activities such as providing physical care, playing with, reading to, assistance with homework, and dropping off or picking up a child is included as caretaking for a child. Caretaking for an adult includes activities such as providing physical and medical care, as well as helping with household tasks. Generally speaking, the ATUS does not collect information on secondary activities or multitasking. It does however include a set of questions asking respondents to identify times when a child under age 13 was “in your care.” As such, there is also the opportunity to report on *secondary childcare* and the amount of time respondents spend looking after children while doing something else.

Necessary time is the time devoted to maintaining physiological health (Zilanawala, 2016) via eating and sleep, as well as grooming or hygiene. Of note, *sleep* captures total minutes of sleep in from the first and second spells of sleep. The one-day diary recorded for each respondent begins at 4 a.m. the previous day and ends at 3:59 a.m. on the interview day. Therefore, the first spell of sleep runs from 4 a.m. to wake and the second spell runs from the next start of sleep until a recorded wake time or the end of the recorded time period, whichever comes first. Sleep was further disaggregated into “*on-time*” sleep and “*off-time*” sleep or napping. *Off-time* sleep is sleep that starts at 8 a.m. or later and ends before 8 p.m. *On-time* sleep is the residual.

Free time or leisure, is the residual time once contracted- and committed-time are subtracted from the total minutes in a day. Within time-use research, distinctions are often made between what researchers categorize as structured versus unstructured leisure activities (Eccles & Barber, 1999; Larson, 2000; Caldwell & Faulk, 2013). Structured activities are typically defined as those that are organized and/or supervised by adults around specific social or behavioral goals, that focus on skill building, often are limited by place, and place restrictions on how time is to be spent (Caldwell & Faulk, 2013; Mahoney & Stattin, 2000). In contrast, the defining of unstructured has been more vague and arises more as a catchall category for those activities that do not meet the standards set for the structured domain. As described by others (Osgood et al., 1996; Abbott & Barber, 2007), unstructured activities are often spontaneous and lack an agenda for how time is to be spent. Some researchers have critiqued this dichotomy arguing that leisure should be conceptualized in a more nuanced way, along continuums that give attention to the skill type (physical, cognitive, emotional, and/or creative), difficulty and time-commitment required, requirements for social interaction with peers, etc. (Bradley & Inglis, 2012). In an effort to address some of these points, I have opted for three overarching leisure categories, with underlying subdomains. These three umbrella categories are: 1.) active, skill-building leisure, 2.) socializing and entertainment leisure, and 3.) passive, unstructured leisure.

Active skill-building leisure, most closely aligns with what researchers have typically classified as structured leisure, with an emphasis on achievement-based skill development, such as extracurricular involvement in club activities (except sports which are captured in a separate category), music and performance, and student government; attending religious

service and education activities; and volunteering. Skill-building leisure that is not necessarily organized by adults includes sports and active recreation (ATUS did not collect information to distinguish between team or individual, and competitive or noncompetitive), hobbies and crafts, attending art/museums, reading and writing for personal interest, and playing games (board, card and computer). *Socializing and entertainment leisure* includes two subdomains of activities – those that are centered on social interaction and communication, separate from those that revolve around attending events and consuming various forms of entertainment. Although these activities also are often place-based, they are less focused on achievement and more on acquiring social skills or amusement. Socializing and communication includes telephone calls with friends and family, and attending or hosting social events and parties. Entertainment is captured through attendance of sporting events, and going to the movies or shopping. The final umbrella leisure domain, *passive, unstructured leisure*, encompasses reports of relaxing and thinking, watching T.V., listening to the radio, and engaging in computer use for leisure (excludes games). For a more detailed breakdown of specific activities comprising the three leisure domains, please see appendix A for a listing.

Independent variables

The key explanatory variables upon which the analysis is stratified include race, gender, and age-group. *Racial/ethnic classification* was determined through the CPS-interview in a two-part question: the first inquiring, “Are you Spanish, Hispanic or Latino?” followed by a question that inquired about race (these questions were not re-asked during the ATUS-respondent interview). From these two questions, non-Hispanic White and Black categories were constructed. The gender and age of the respondent were derived from

responses obtained during the ATUS interview. *Female gender* is coded as 1, and male gender as 0. *Age* was categorized into three brackets: 15-17 years, 18-24 years, and 25-35 years. The youngest age-block reflects the age categories most likely to represent high-school years, as the offerings available through school dictate a substantial component of time-use during these years. The 18-24 year age-category is typically representative of the years progressing out of high school and on to the next endeavor. Arnett (2000, 2007) refers to this general age-range as “emerging adulthood”, a period of significant demographic variability, with recognition that life circumstances may limit options for some and present an unending array of possibilities that offers a space of exploration for others. As such, I have separated the chronological years of 18-24 from 25 and above.

In multivariate analyses, I include controls for family composition. For adolescents, the *number of parents in the household* is captured for ATUS respondents aged 15-17 years, and included in the regression analysis as follows 1=no parent or single parent household and 2=two parent household (includes step-parents). A dichotomous variable to indicate the presence of an extended adult family member is included, as the presence of that member may reduce household and caregiving responsibilities of teens, but alternatively may increase both the need to work and the time spent by teens in kin-work if that adult family member is ill and requires assistance. *Number of children* is included as a continuous variable, as larger families may increase household work. Additionally, a dichotomous variable is included to indicate the presence of a child aged 2 or younger, as this age group requires more intensive care and increase time in household work and caregiving. For respondents aged 18 years and above, in addition to the above compositional variables, I assigned partnership status from the household roster and coded this variable 1 if the

respondent is living with a spouse or unmarried partner in the household, and 0 otherwise.

Household income is included as a mediator that may partially explain differences that might be observed between Blacks and Whites, and males and females. I utilize this information to examine how household income influences time-use of the youngest age-block (15-17 years), likely still in the care of parents/guardians, as well as the older age-blocks when this information is likely reflective of their own SEP. Reported household income was measured as a categorical variable in the ATUS and further collapsed into four brackets for this analysis: less than \$20,000; \$20,000-\$49,999; \$50,000-\$74,999, \$75,000 or more. Income data is missing for 8.81% of sample respondents; in an effort to retain cases, respondents missing on income were assigned to an unknown category. Lastly, as is typical of time-diary data, I constructed variables to control for whether the diary day fell on a weekend day or holiday, and during the summer for adolescents (defined as June through August).

Analysis strategy

All statistical analyses were conducted using STATA version 14.0 and were adjusted to account for the complex design of the ATUS data, including the use of weights to compensate for oversampling of certain subgroups and of weekend days, as well as differential response rates, and a replicate variance method to obtain standard errors (i.e., for each final weight, there are 160 replicate weights for each respondent) (United States Department of Labor, 2013, p. 34-41). For each race-gender group included in this analysis (non-Hispanic Black males, non-Hispanic Black females, non-Hispanic White females, and non-Hispanic White males), I calculated the standard measures in time use data (United States Department of Labor, 2013), *population-level estimates of average minutes per day*

spent in an activity. Some activities are not done on a daily basis, or are only taken up by a subset of the population. For this reason, I have also included in appendix A the *daily participation rates* (percent of persons who did the activity), and the *average minutes per day among those who engaged in that particular activity on their diary day*. The primary focus of the analysis remains on comparisons *between* race groups at the intersection of gender, and therefore tables within the body of this paper focus on differences between a.) White and Black males and b.) White and Black females, by age-bracket. However, comparisons have also been made *within* race and are included in the appendix.

Ordinary least squares (OLS) regression² was employed to examine how race influences time-use for each of the gender groups, in the presence of household income, family composition and other controls. Models were run separately for adolescents, emerging-, and young-adults, as the descriptive analyses showed differing patterns in time-use emerged across the age-spectrum of the study population, and this allows for better model specification with age-appropriate predictors (i.e., parental income and workforce status vs. respondent's own education and workforce status in young adulthood). I regressed average minutes per day in each of the following: 1.) paid work, 2.) studying/homework, 3.) household maintenance, 4.) caregiving (adult and child), 5.) leisure (active, skill-building and passive), and 6.) sleep on race, household income, family composition and other controls. Asterisks denoting statistically significant differences between comparison groups are noted in accompanying tables for each age-grouping: 15-17 years, 18-24 years, and 25-35 years (* $p < .10$, ** $p < .05$, *** $p < .01$, two-tailed t -test).

Results

Table 3.1. ATUS Sample characteristics

Age-brackets	NH - White males			NH - Black males			Male comparison			NH -White females			NH - Black females			Female comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Unweighted counts	2079	2448	6780	376	501	1008				2014	2838	9294	350	796	1975			
Household size	4.27	3.49	2.91	4.41	3.43	3.06	NS	NS	NS	4.17	3.45	3.20	4.25	3.52	3.35	NS	NS	***
Living with 2 parents (%)	79.09	.	.	45.35	.	.	***	.	.	77.17	.	.	35.52	.	.	***	.	.
Other adult relative in hhold (%)	7.20	6.71	3.41	20.82	16.01	8.76	***	***	***	7.41	6.02	2.83	18.39	14.77	5.09	***	***	***
Living with a partner (%)	0.32	15.15	61.58	0.51	8.07	43.44		***	***	0.28	23.16	71.65	0.00	8.71	33.42	**	***	***
Households with kids<2yrs (%)	1.08	5.64	18.42	7.93	6.22	11.30	***	NS	***	2.02	12.69	21.54	5.88	19.04	18.16	**	***	***
Respondent is parent to hhold child (%)	0.44	6.80	41.25	0.55	8.19	35.38	NS	NS	***	0.64	17.99	59.33	2.82	31.18	68.09	**	***	***
Respondent's work status (%):																		
Not working	82.48	36.56	11.08	94.90	59.60	24.40	***	***	***	79.81	38.49	25.60	92.98	55.20	29.63	***	***	***
Working part-time	16.33	22.84	5.05	5.10	14.75	6.87	***	***	NS	18.95	30.93	15.41	6.67	17.93	12.80	***	***	**
Working full-time	1.19	40.60	83.87	0.00	25.65	68.73	***	***	***	1.24	30.57	58.99	0.36	26.87	57.58	**	NS	NS
Household income (%):																		
<20,000	6.57	15.34	8.76	22.00	30.79	17.24	***	***	***	5.73	17.11	10.32	24.97	35.83	31.83	***	***	***
20,000-49,999	18.13	23.94	30.33	30.51	29.97	41.92	***	**	***	19.06	27.86	29.75	31.34	33.72	32.43	***	**	*
50,000-74,999	21.77	17.29	23.11	14.68	11.79	19.26	***	***	**	23.23	15.91	23.26	13.56	8.50	12.72	***	***	***
75,000+	44.15	34.45	30.10	15.82	11.85	13.04	***	***	***	43.70	29.35	29.76	18.84	10.60	12.46	***	***	***
Missing	9.38	8.98	7.70	16.99	15.59	8.54	***	***	NS	8.27	9.76	6.91	11.29	11.38	10.55	NS	NS	***

*p<.10; **p<.05; ***p<.01

Source: ATUS 2003-2012 micro-data file

Table presents weighted estimates taking into account the complex sample design.

Household size differs very little across race groups from the teen years through emerging adulthood. Household composition, however, does appear to vary in important ways starting in adolescence. Black teens were much more likely to be living in households with children under age six (17-18% v. 6-7%) and this difference persists through emerging adulthood. Over 75% of White adolescents report living in a two-parent household, compared to less than 45% of Black adolescents. A greater proportion of Black teens (20%) live in households in which another adult relative is present, compared to White teens (7%), and this difference continues into young adulthood. Roughly 6% of Whites adolescents come from families with less than \$20,000 in household income, compared to more than 23% of Black adolescents; almost half of the adolescent White sample lives in households that make over \$75,000. During the transition to young adulthood, over a third of Whites climb into the over \$75,000 bracket, compared to roughly 15% of Blacks. Black women in particular see the least growth in household income over young adulthood, with 48% remaining below the \$30,000 household income mark in their early 30s.

i. Distribution of day in adolescence (ages 15-17 years)

Tables 3.2 and 3.3 show the number of minutes Black and White males and females spend on an average day in selected activities, when combined, account for the four overarching time domains of interest: contracted time, committed time, necessary time, and free time. In some cases, a more detailed description of activities that comprise a particular time-use domain is available in appendix A.

Table 3.2. Average minutes per day non-Hispanic Whites and Black males spend in various activities during adolescence, emerging adulthood, and young adulthood

	NH - White Males			NH - Black Males			Male Comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
<i>Contracted time^A</i>	274.81	309.43	371.03	235.99	222.71	323.86	**	***	***
All education	221.57	68.87	18.09	189.73	51.57	15.61	**	**	
Taking classes	174.23	35.53	6.93	157.88	32.59	6.39			
Homework/Research	36.07	27.85	9.70	18.86	14.92	8.15	***	***	
Travel for education	11.27	5.49	1.47	12.99	4.06	1.07			
Paid work	52.90	237.26	350.54	44.38	164.53	302.28		***	***
Work	41.90	216.58	321.61	36.24	145.25	273.21		***	***
Other income generating	6.40	2.06	1.20	4.22	1.97	3.41			
Travel for work	4.52	18.62	27.73	3.91	17.22	25.67			
Job-searching & interviewing	0.35	3.30	2.39	1.88	6.61	5.97		*	**
<i>Committed time^B</i>	22.27	39.96	78.64	26.70	51.72	68.59		**	**
Maintaining a household	13.17	24.76	37.64	18.00	30.94	38.32	*	*	
Core household tasks	12.06	22.51	36.01	16.25	28.67	36.74		*	
Social, med, legal, & finan.	1.11	2.25	1.62	1.75	2.27	1.57			
1° caretaking for all	9.11	15.20	41.00	8.70	20.78	30.27			***
1° Caretaking of children	4.79	9.08	34.46	6.49	11.32	25.51			***
Caretaking/helping adults	4.32	6.12	6.54	2.21	9.46	4.76	*		*
2° Caretaking of children <13 yrs ^C	25.45	34.20	120.98	42.92	51.74	123.83	**	**	
<i>Necessary time^D</i>	644.43	625.20	593.61	667.20	654.93	602.17	**	**	
Grooming	32.33	32.67	31.59	49.83	42.31	38.43	***	***	***
Eating and drinking	55.86	59.90	66.93	39.47	34.29	50.16	***	***	***
Sleep	556.24	532.62	495.10	577.89	578.34	513.58	*	***	***
On-time sleep	542.04	519.00	483.03	554.04	547.50	485.00		**	
Off-time sleep (naps)	14.20	13.62	12.07	23.85	30.84	28.57	**	***	***
<i>Free time^E</i>	498.48	465.40	396.73	510.11	510.64	445.39		***	***
Active leisure	158.85	100.06	62.75	158.18	116.73	61.43		*	
Social/entertainment leisure	71.56	77.63	58.91	77.67	75.87	64.43			
Passive leisure	163.48	169.55	159.01	181.15	208.55	217.43		***	***

*p<.10 **p<.05 ***p<.01

Table presents weighted estimates taking into account complex survey design. A. Contracted time: time in education- and work-related activities, plus job-searching. B. Committed time: maintaining the household and 1° caretaking of children and adults. C. Secondary caretaking: time the respondent spent with a child <13 years " in his or her care" while doing something else. D. Necessary time: grooming, eating/drinking, and sleep, both night and day sleep. E. Free time: the residual after subtracting contracted, committed, and necessary time from 1440 minutes. Active, social/entertainment, and passive leisure are subdomains of free time.

Table 3.3. Average minutes per day non-Hispanic Whites and Black females spend in various activities during adolescence, emerging adulthood, and young adulthood

	NH - White Females			NH - Black Females			Female Comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Contracted time^A	284.39	280.17	255.97	255.45	234.94	252.41	*	***	
All education	232.65	75.87	16.42	209.85	66.21	23.40			**
Taking classes	169.77	34.19	6.22	163.50	34.68	8.96			*
Homework/Research	50.61	35.99	8.89	31.65	23.05	11.96	***	***	
Travel for education	12.26	5.69	1.30	14.70	8.48	2.47		*	**
Paid work	51.44	202.16	237.80	45.35	164.03	225.60		***	
Work	43.06	185.94	219.54	33.92	146.81	206.26		***	
Other income generating	5.01	1.88	1.86	9.82	4.09	0.89			*
Travel for work	3.38	14.35	16.40	1.61	13.13	18.45	***		**
Job-searching & interviewing	0.30	2.13	1.76	0.24	4.71	3.42		*	**
Committed time^B	41.75	94.69	192.06	46.79	104.97	165.99			***
Maintaining a household	28.16	55.03	97.35	33.38	58.04	93.31			
Core household tasks	26.09	51.93	94.38	30.62	54.49	88.57			**
Social, med, legal, & finan.	2.07	3.11	2.97	2.76	3.55	4.75			
1° caretaking for all	13.59	39.66	94.71	13.41	46.93	72.68		*	***
1° Caretaking of children	9.96	32.94	89.51	10.66	41.51	68.21		**	***
Caretaking/helping adults	3.63	6.72	5.17	2.75	5.43	4.46			
2° Caretaking of children <13 yrs ^C	40.63	88.37	242.15	76.91	162.79	253.02	***	***	
Necessary time^D	661.79	653.44	621.32	687.58	688.64	630.00	**	***	*
Grooming	55.97	49.47	44.03	60.56	62.59	52.94		***	***
Eating and drinking	54.54	62.34	63.63	38.27	42.22	48.41	***	***	***
Sleep	551.29	541.64	513.66	588.75	583.83	528.65	***	***	***
On-time sleep	538.66	526.95	500.42	563.76	550.82	504.81	**	***	
Off-time sleep (naps)	12.63	14.69	13.23	24.99	33.02	23.84	***	***	***
Free time^E	452.07	411.71	370.64	450.18	411.45	391.59			***
Active leisure	93.77	55.19	49.66	60.37	38.12	36.96	***	***	***
Social/entertainment leisure	99.79	93.05	75.26	96.62	83.37	70.20			
Passive leisure	145.01	145.42	130.18	198.43	188.44	182.16	***	***	***

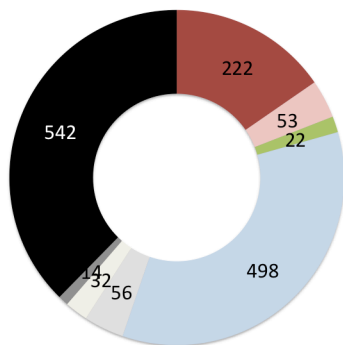
*p<.10 **p<.05 ***p<.01

Table presents weighted estimates taking into account complex survey design A. Contracted time: time in education- and work-related activities, plus job-searching. B. Committed time: maintaining the household and 1° caretaking of children and adults. C. Secondary caretaking: time the respondent spent with a child <13 years " in his or her care" while doing something else. D. Necessary time: grooming, eating/drinking, and sleep, both night and day sleep. E. Free time: the residual after subtracting contracted, committed, and necessary time from 1440 minutes. Active, social/entertainment, and passive leisure are subdomains of free time.

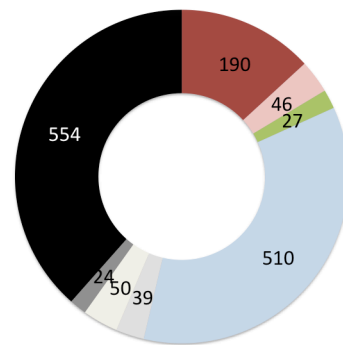
Figure 3.2. captures information from tables 3.2 and 3.3 in a birds-eye visual display that allows for a more holistic discussion of how these four time-use domains fill an average day, and how subtle race- and gender-differences emerge as early as adolescence

Figure 3.2. Average day in adolescence (age 15-17) at the intersection of race and gender

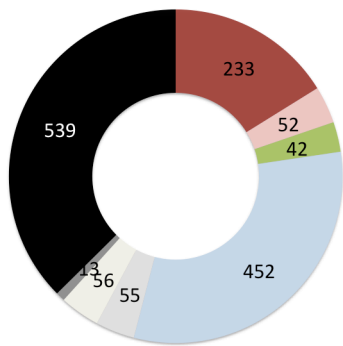
White boys



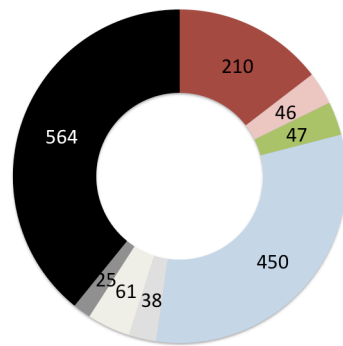
Black boys



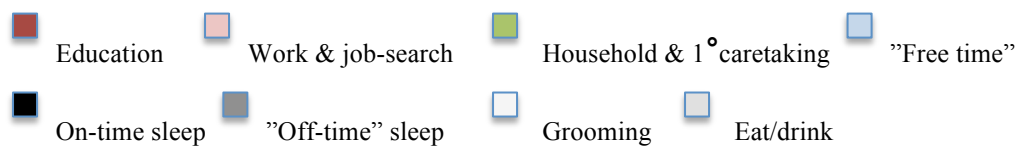
White girls



Black girls



Average minutes per day by domain:



Notable differences can be viewed moving from left to right, across race, as well as from top to bottom, when examining differences by gender. As hypothesized, contracted time appears to be greater for White than Black adolescents, with White boys and girls spending, on average, 23-30 minutes more on education-related activities ($p < .05$), yet only slightly more time on work-related activities (6-7 minutes more; NS). Differences in committed time swing in the other direction with Black boys and girls spending approximately 5 minutes longer each day on household and caretaking compared to their White counterparts (NS). Girls of both race groups are spending nearly 20 minutes more each day on committed time when compared to their male counterparts ($p < .01$). Race-based patterns are also evident in necessary time, with Black adolescents engaging in longer sleep and grooming, whereas White adolescents spend longer periods in eating and drinking. Free time is much shorter for girls than boys (45 to 60 minutes more per day; $p < .01$).

Decomposing these overall averages by participation rate and time differences among those reporting participation in the activity on a diary day illuminates nuanced differences behind these overall averages that further complicates dominant narratives on race and time. These differences are discussed in more detailed descriptions below on contracted, committed, necessary and free time.

Contracted time in adolescence

Figures 3.3 and 3.4 shows the percentage of boys and girls who report participating in various forms of contracted and committed time on their diary day and mean difference in minutes in an activity between Black and White adolescents reporting the activity on their diary day. Starting with education, these figures suggest that the overall B-W

education gap is due to lower participation rates among Black adolescents in studying and homework (34% White boys vs. 24% Black boys, $p < .01$; 41% White girls v. 35% Black girls, $p < .10$), coupled with less time in this activity (30 minutes less, $p < .01$) among Black adolescents reporting studying/homework on their diary day. Conversely, Black adolescents traveling to school on their diary day have a longer commute time (7-9 minutes more, $p < .05$ for boys; $p < .10$ for girls).

Figure 3.3. Percent of adolescent boys in contracted time on diary day and the time gap between Black and White adolescents who reported participation on diary day

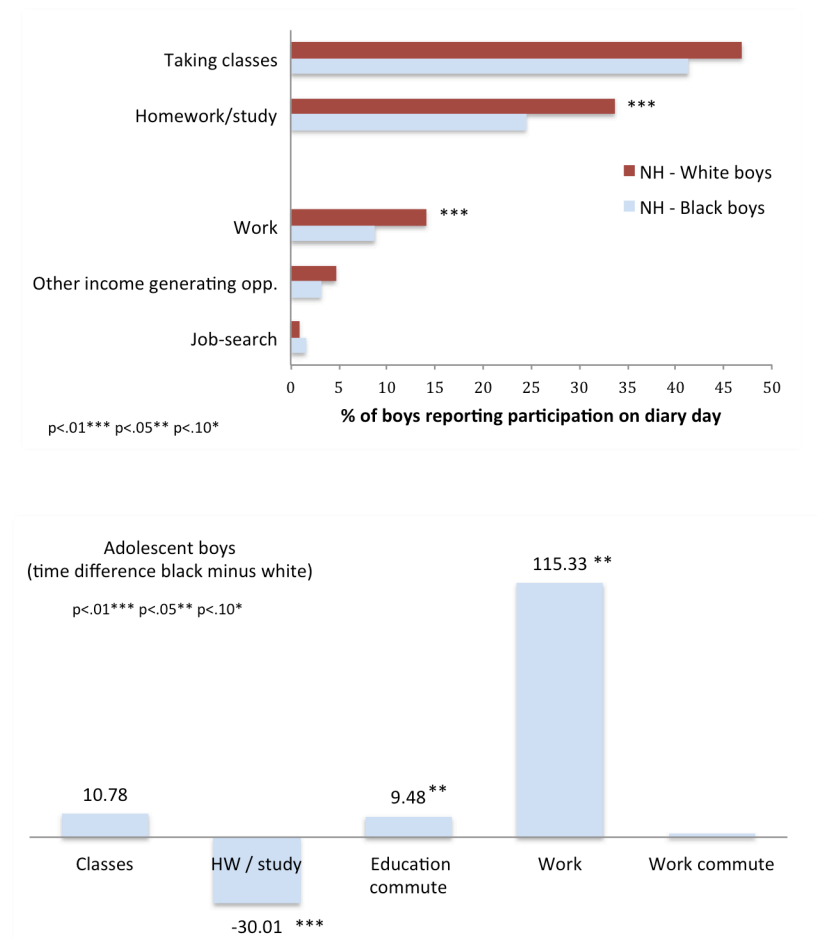
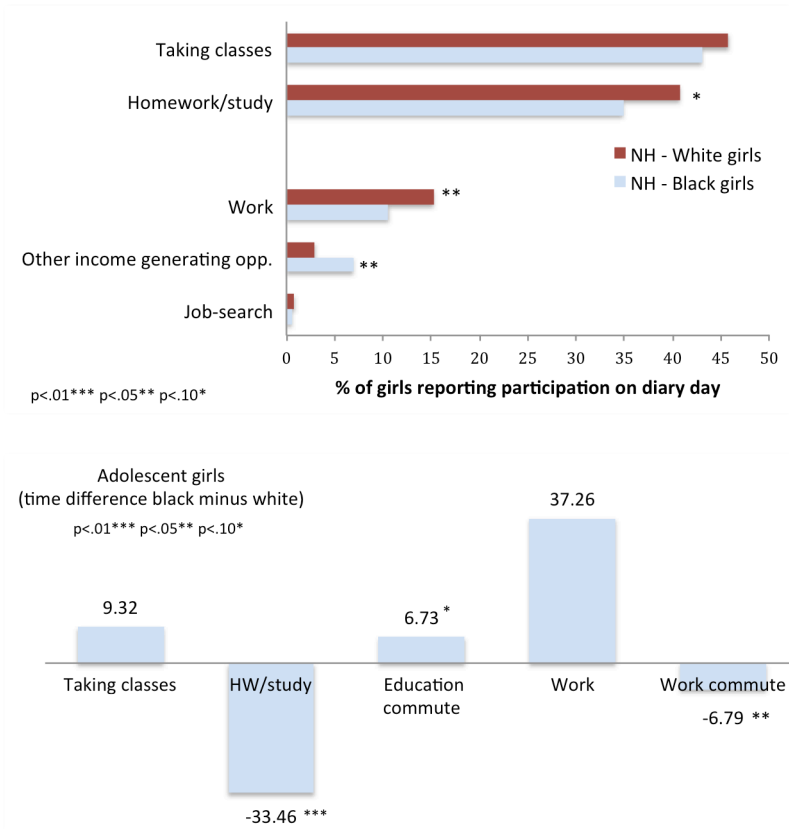


Figure 3.4. Percent of adolescent girls in contracted time on diary day and the time gap between Black and White adolescents who reported participation on diary day



Turning to work-related activities, another important finding emerges when exploring participation rates and disaggregating by type of work. Although a greater proportion of White adolescent boys are working (19%) compared to their Black male counterparts (12%), among the working, Black adolescent boys work, on average, 115 minutes more or nearly 2 additional hours each day ($p < .05$). This pattern is present for Black girls as well, although not statistically significant.

Committed time in adolescence

Consistent with previous research, figure 3.6 shows that adolescent girls of both race groups spend longer in committed time compared to boys. Another striking finding

also emerges when examining participation rates and subdomains of committed time in figure 3.5. A greater proportion of Black adolescent boys (19%) report time in maintaining a household compared to their White male counterparts (12%) ($p < .10$). On average, Black boys and girls are spending slightly more time in maintaining a household and primary caretaking of children when compared to their White counterparts, although these differences did not reach statistical significance in adolescence. Fewer teens report caretaking of adults ($\cong 8\%$) and average approximately 30 minutes; unexpectedly, White boys engaging in this activity on their diary day report the lengthiest time (51 minutes).

Figure 3.5. Percent of adolescents doing committed time on diary day and the time gap between Black and White adolescents who reported participation on diary day

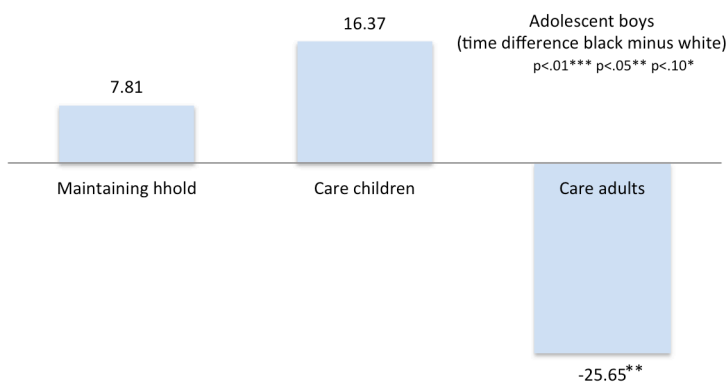
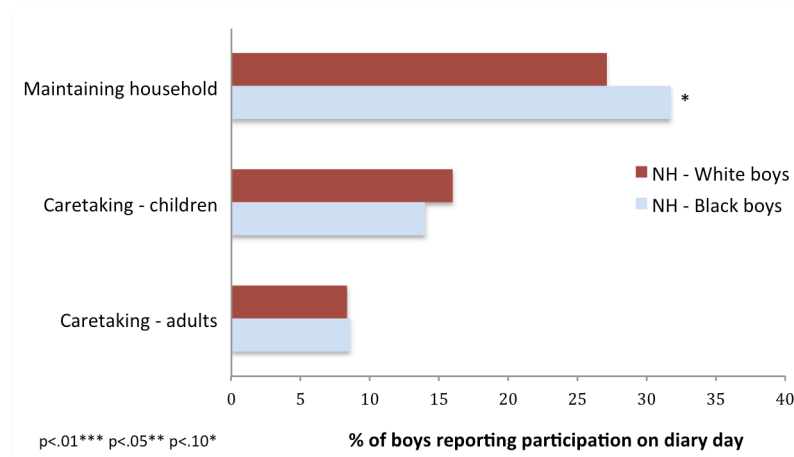
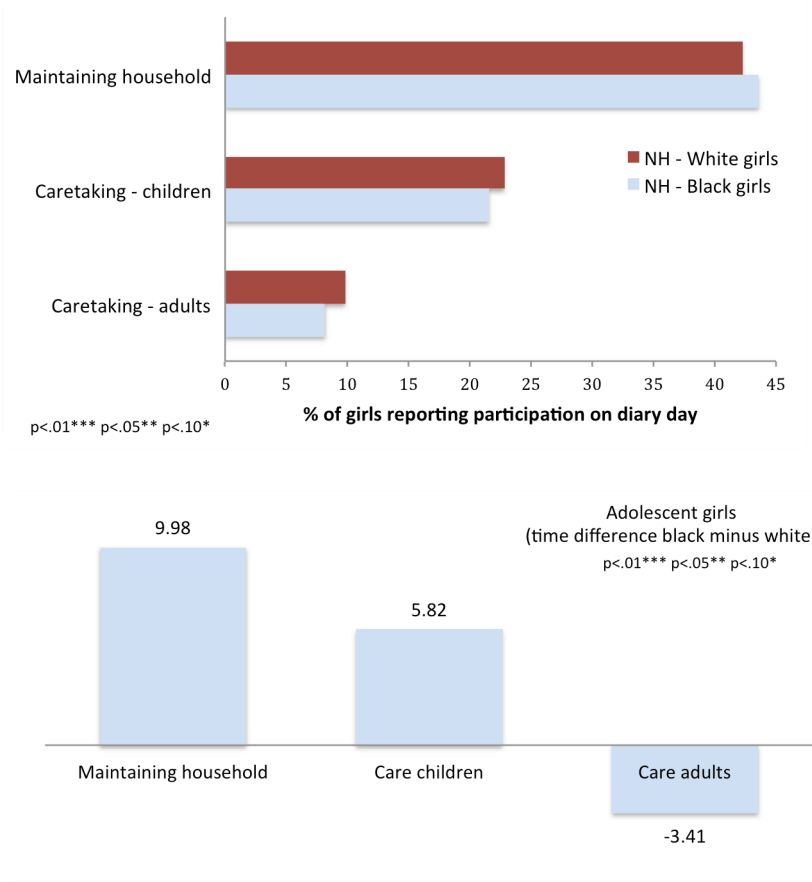


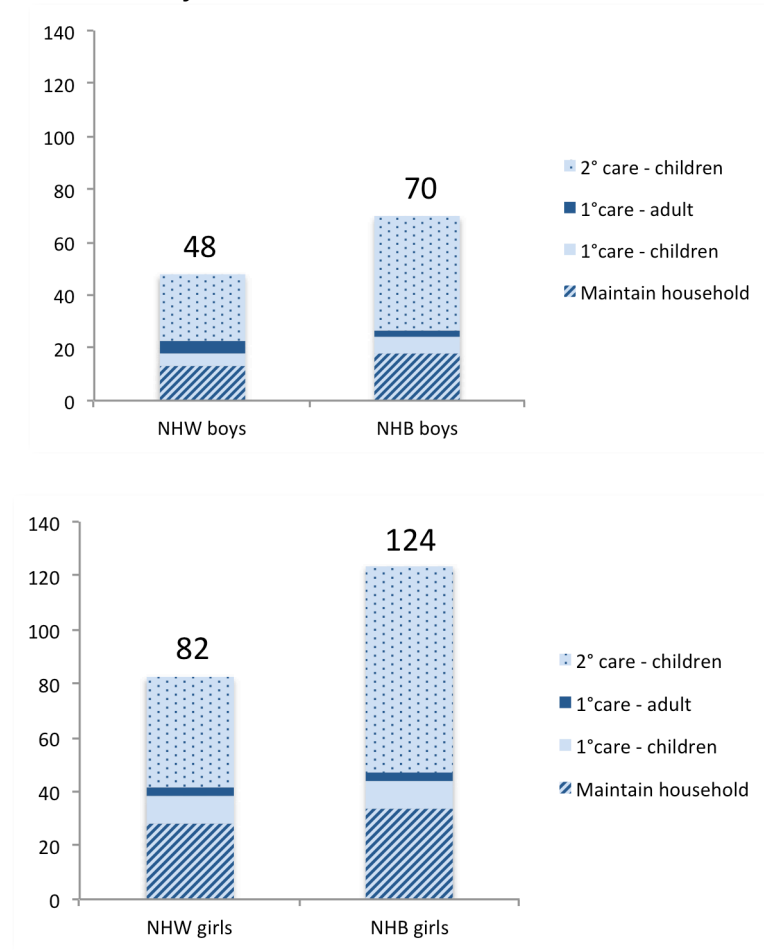
Figure 3.6. Percent of adolescents doing committed time on diary day and the time gap between Black and White adolescents who reported participation on diary day



Importantly, estimates reported thus far only account for childcare done as a primary activity. The ATUS does however collect information on secondary childcare, defined as having a child under 13 years “in his or her care” while doing something else. For both boys and girls, Black adolescents spend significantly more time in secondary caretaking when compared to their White counterparts (see table 3.2 and figure 3.7). Once secondary caretaking is considered, the non-significant differences in time devoted to caretaking grows. Black teen boys average 17 minutes more than White teen boys in total caretaking time (p<.10) and Black girls spend 36 minutes more than White girls (p<.01).

Time in caretaking as a secondary activity is only assessed for childcare, therefore the same cannot be examined for adult care.

Figure 3.7. Average minutes per day adolescents spend in committed time after accounting for secondary childcare



Necessary time in adolescence

Race-based patterns were noted in necessary time, with Black adolescents spending more time in sleep and grooming and White adolescents spending more time in eating and drinking. Participation levels are relatively high in all levels, and as such, not a lot of new information is gleaned from decomposing these categories further into participation rates and average minutes among participants. However, there are some important points to

highlight in sleep time. We know from figure 3.2 that Black adolescents sleep, on average, approximately 20-30 minutes longer than White adolescents. Table 3.4 further disaggregates sleep time into “on-time” and “off-time”, and shows that these differences are due to both longer night sleep, as well as “off-time” sleep, or day naps. Nearly 30% of Black adolescent girls report taking part in 3 or more sleep spells, compared to 25% of Black boys and 14% of White girls and boys. Previous research has examined sleep interruptions for care of children, and found that women are significantly more likely to report having interrupted sleep for care (Burgard & Ailshire, 2013). Less than 1% of each race-gender group could be classified as having interrupted sleep for care in adolescence, therefore I reserve any interpretation for this age-group.

Table 3.4. Average minutes per day adolescents spend in “on-time” and “off-time” sleep

	NH-White Boys	NH-Black Boys	NH-White Girls	NH-Black Girls	
"On-time" sleep (Avg min)	542.04	554.04	538.66	563.76	**
"Off-time" sleep (Avg min)	14.20	23.85	12.63	24.99	***
3+ sleep spells (%)	13.5	24.64	14.08	29.67	***
Sleep interrupted for care (%)	0.03	0	0.07	0.88	*

*p<.10; **p<.05; ***p<.01

Source: ATUS 2003-2012 micro-data file

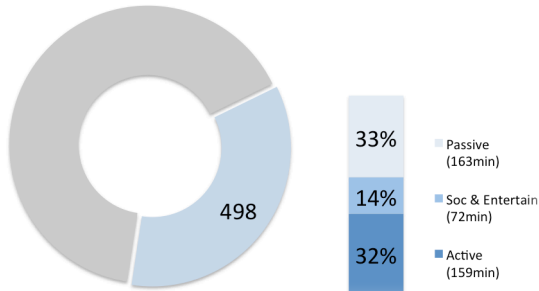
Free time in adolescence

Figure 3.8 shows the average minutes in free time for each race-gender group, and the amount of free time categorized into a.) active, skill-building, b.) socializing and entertainment, and c.) passive, unstructured forms of leisure. The most pronounced finding is the drastic difference we see in Black girls' time spent in active, skill-building leisure, compared to all other groups. In adolescence, Black girls spend, on average, 60 minutes per day in active leisure, compared to 94 minutes by White girls and roughly 158 minutes per

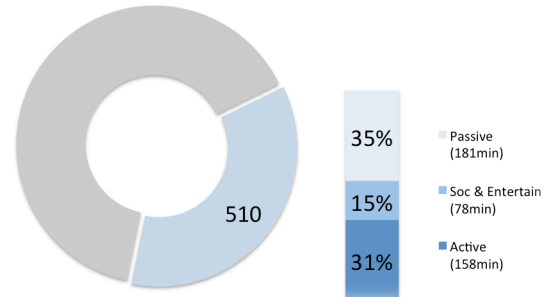
day by Black and White boys ($p < .01$). Major differences occur in extracurricular activities, sports and recreation, and hobbies. In some cases these differences seem to be primarily associated with race, affecting both Black boys and girls, and in other cases gender seems to simultaneously play an important determining role. For example, fewer Black boys and girls participate in extracurricular activities when compared to their White counterparts. Girls of both races participate at lower rates and spend less time in sports and recreation, listening to/playing music, and games when compared to their male counterparts; however, the rates for Black girls and time spent in areas such as sports and recreation and hobbies are significantly lower than their White female counterparts (further details on particular activities are provided in appendix 3A).

Figure 3.8. Average minutes of free time categorized into active, social and entertainment, and passive leisure for each race-gender group

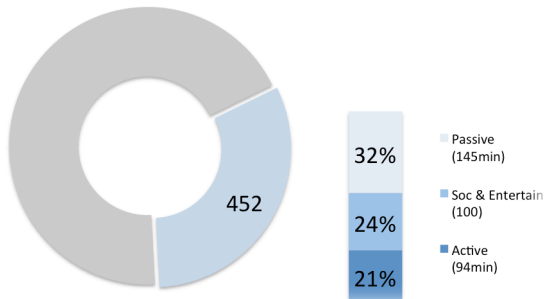
White boys



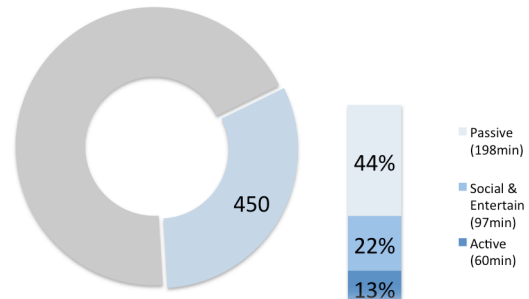
Black boys



White girls



Black girls

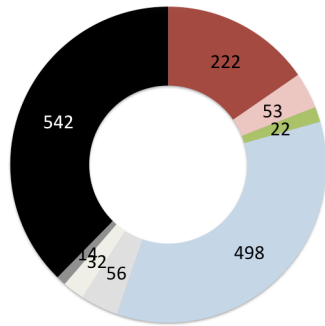


ii. *Distribution of day moving from adolescence into emerging- and young-adulthood*

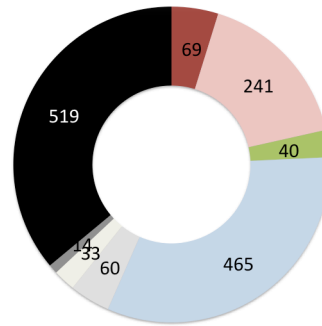
In addition to summarizing average minutes per day in various activities for adolescents, table 3.2 also provides estimates for emerging- (ages 18-24 years) and young-adulthood (ages 25-35 years). Figures 3.9 and 3.10 visually depict how these various time-use domains fill an average day for each race-gender group as they progress from adolescence into emerging and young adulthood. This section will describe the changes observed.

Figure 3.9. Average day for males from adolescence to emerging and young adulthood

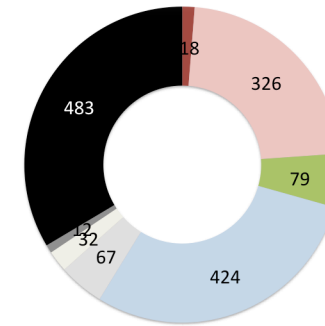
White boys (15-17yrs)



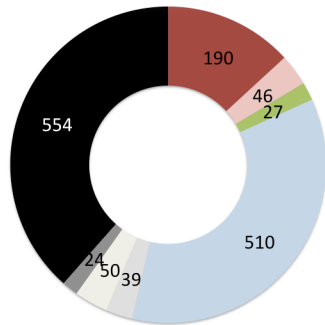
White men (18-24 yrs)



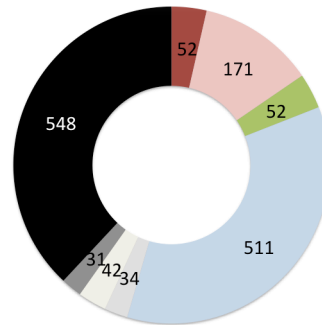
White men (25-35 yrs)



Black boys (15-17 yrs)



Black men (18-24 yrs)



Black men (25-35 yrs)

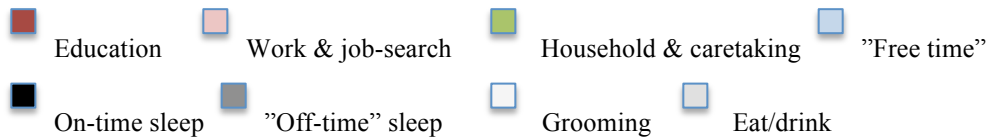
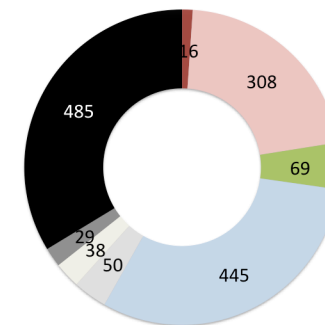
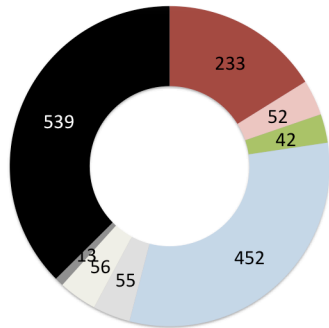
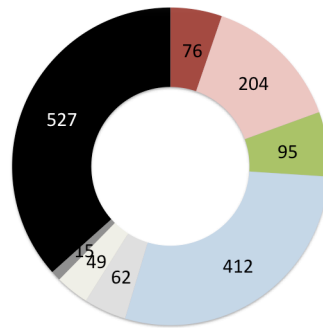


Figure 3.10. Average day for females from adolescence to emerging and young adulthood

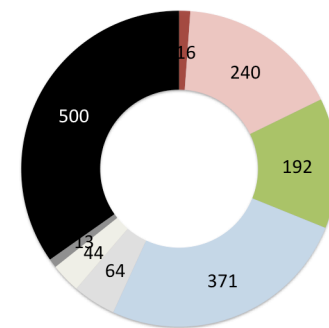
White girls (15-17yrs)



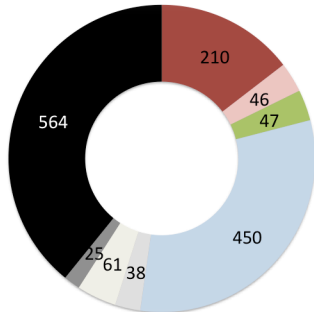
White women (18-24 yrs)



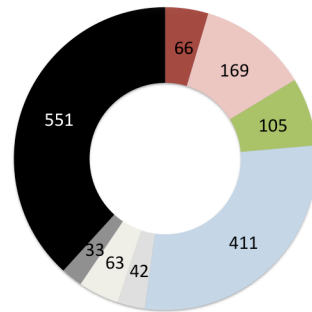
White women (25-35 yrs)



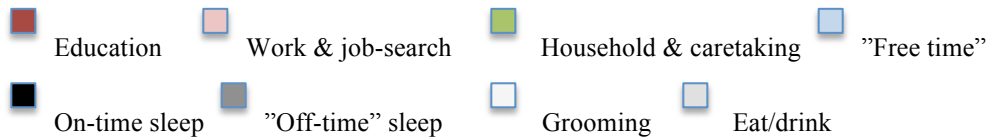
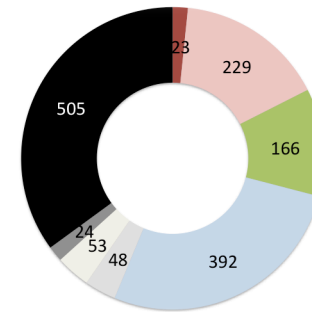
Black girls (15-17 yrs)



Black women (18-24 yrs)



Black women (25-35 years)



Contracted time in emerging- and young-adulthood

In examining subdomains that comprise contracted time, it appears that the B-W gap in education-related activities narrows from adolescence to young adulthood. By young adulthood, Black women supersede all others in time devoted to education, and this is due to greater participation rates later in life (10% of Black women age 25-35 years versus 6% of all others report time in education-related activities). As such, the overall racial gap of contracted time during emerging adulthood instead relates more to a growing gap in paid work. In emerging adulthood, White men, on average, spend 237 minutes in paid work each day, 72 minutes more than Black men ($p < .01$). White women of this age spend 202 minutes in paid work each day, 38 minutes more than Black women ($p < .01$). These population-level average differences are largely due to work participation rates (52% of White men v. 40% of Black men ($p < .01$) and 47% of White women versus 40% of Black women ($p < .01$)). This B-W participation gap in work persists into young adulthood for men, but not women. Lastly, in examining time spent in job-search and interviewing, notable differences also emerge by race, with Blacks represented at higher proportions and spending more time in this domain than Whites.

Committed time in emerging- and young-adulthood

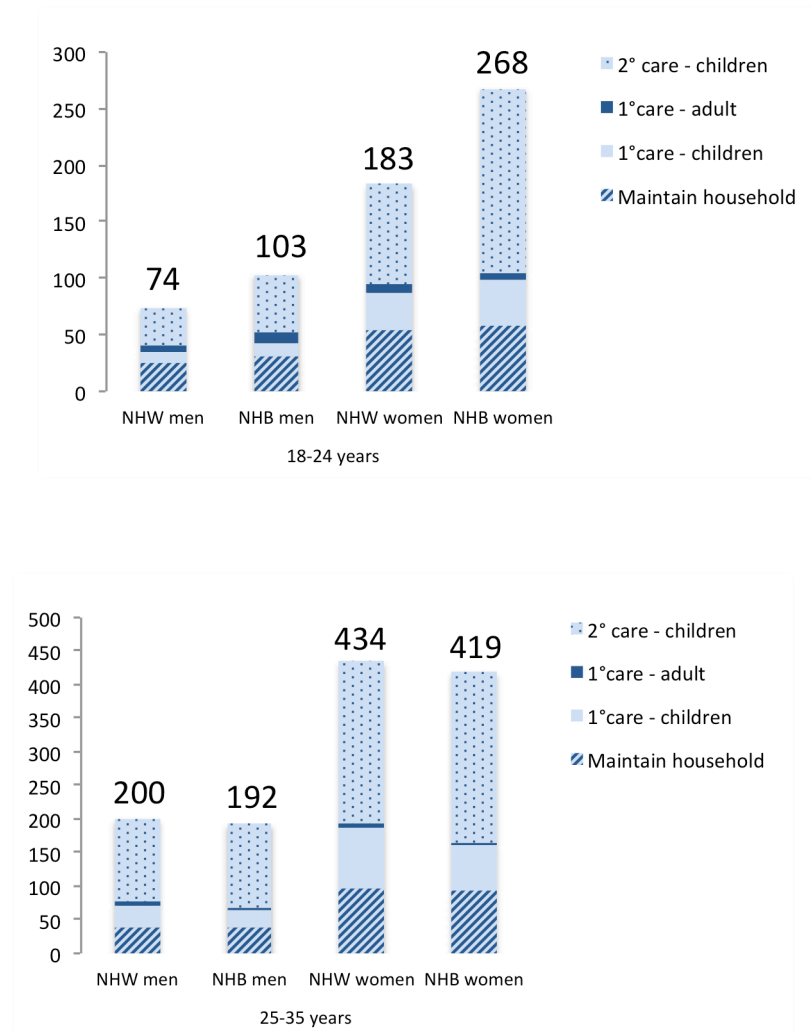
Patterns observed in adolescence extend to emerging adulthood, with time spent on committed activities 10-12 minutes higher for Black men and women, when compared to their White counterparts ($p < .05$ for men, NS for women). However, this pattern flip-flops in young adulthood, where on average, White men and women spend more time in committed activities each day. In emerging adulthood, differences in committed time between White and Black men involve both subdomains of maintaining the household and caretaking. For

instance, Black men spend, on average, 31 minutes in maintaining the household and 21 minutes in caretaking, 6 minutes more each day in both domains when compared to White men ($p < .10$ for maintaining household). For emerging adult women, the B-W time difference is mostly concentrated in caretaking, where on average, Black women spend 42 minutes in caretaking, 7 minutes more than White women ($p < .10$). The largest difference is observed in caretaking of children, where the gap grows to 12 minutes ($p < .05$), as a greater share of Black women (36%) report time in primary childcare when compared to White women (23%) ($p < .01$).

The flip flop in committed time by young adulthood is also largely concentrated in caretaking. White men age 25-35 years, on average, spend 34 minutes in primary childcare each day, 8 minutes more than young adult Black men ($p < .01$). White women age 25-35 years, on average, spend 90 minutes in primary childcare each day, 22 minutes more than young adult Black women ($p < .01$). Important to note, the participation rates among young adult women are similar, and therefore, the observed difference in average minutes per day reflects extended time in this area by White women. This finding goes against my initial hypothesis. However, upon further reflection, these results may hint at competing demands that may be present for young adult Black women that may not be present or exist to the same degree for White women. Unexpectedly, the only significant racial difference in emerging- and young-adulthood in time spent on caretaking of adults occurs between White and Black men age 25-35 years, with White men reporting more time in this domain (65 vs. 37 minutes per day). Again, a potential explanation for this finding may be competing demands.

Importantly, until this point, childcare estimates for emerging and young adults only reflect time spent in childcare as a primary activity. Figure 3.11 illustrates the effect of considering both primary caretaking *and* secondary childcare when making comparisons by race. The additional effect of secondary childcare is most noticed in emerging adulthood, where Black men spend a total of 103 minutes in committed time (76 minutes of this time devoted to caretaking), nearly a half an hour longer per day when compared to White men; Black women of the same age spend 268 minutes in committed time (210 minutes of this time devote to caretaking), a total of 85 minutes more than White women. The gap in young adulthood dramatically closes between White and Black women, largely due to White women spending more time in primary childcare than Black women and their time in secondary childcare inching closer to that of Black women, but still lagging slightly behind. These patterns perhaps lend credence to the hypothesis that Black women may more intensely experience competing demands on their time, compared to White women, and therefore need to multi-task caretaking with other obligations.

Figure 3.11. Average minutes per day in committed time for emerging- and young-adults, after accounting for secondary childcare



Necessary time in emerging- and young-adulthood

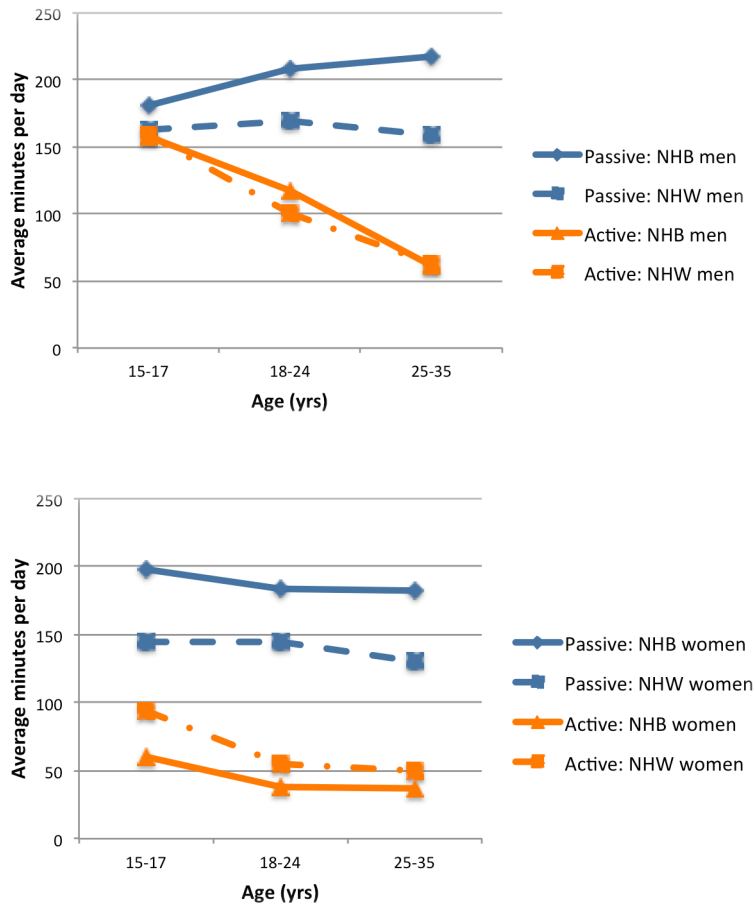
Emerging adulthood again mimics adolescence in that Black men spend 655 minutes on necessary time, 30 minutes more than White men ($p < .01$) and Black women spend 689 minutes on necessary time, 36 minutes more than White women ($p < .01$). By young adulthood, these gaps close to non-significant differences for both men and women. These overall averages, however, obscure how differently Black and White adults ration their time in necessary care. For instance, White men and women, age 18-24 years, spend

approximately an hour in eating/drinking, roughly 20 minutes more than Black men and women of the same age ($p < .01$). Conversely, Black men and women in emerging adulthood, spend more time in grooming and sleep when compared to their White counterparts. Black men, age 18-24 years, spend 578 minutes in sleep, 45 minutes more than White men of the same age ($p < .01$); Black women, age 18-24 years, spend 584 minutes in sleep, 42 minutes more than White women ($p < .01$). Once young adulthood is reached, the overall gap in necessary time closes between race groups, largely as a result of Black men and women's declining time in night sleep. Yet, the observed racial patterns in grooming, eating/drinking, and day naps remain.

Free time in emerging- and young-adulthood

Figure 3.10 illustrates that as girls progress into emerging- and young-adult women, they continue to have significantly less free compared to men, and this is true of both race-groups. For instance, in emerging adulthood, Black men spend 511 minutes in free time, compared to 465 minutes for White men, 412 minutes for White women, and 411 minutes for Black women. Differences in the amount of free time available to women do not diverge by race until young-adulthood, when White women spend 371 minutes in free time, 21 minutes less than Black women ($p < .01$).

Figure 3.12. Average minutes per day in active and passive leisure from adolescence to young adulthood



Consistent with adolescence, differences in the quality of leisure undertaken in “free time” varies by race, with Whites maintaining an advantage in active, skill-based leisure. Figure 3.12 shows the change in active and passive leisure for men and women from adolescence through young adulthood. The B-W gap in passive leisure grows from emerging- to young-adulthood, with Black men and women spending nearly an hour more in passive leisure when compared to their White counterparts ($p < .01$). Active leisure decreases for all groups over time, yet Black women continue to trail all other groups in active leisure. By young adulthood, Black women, on average, spend 37 minutes in active

leisure, 13 minutes less than White women, 24 minutes less than Black men, and 26 minutes less than White men. Time in social and entertainment leisure does not vary significantly by race and gender across time (see tables 3.2 and 3.3).

Table 3.5. OLS regression coefficients predicting number of minutes per day 15-17 year olds spend on various activities

	Studying/Homework			Paid Work			Household			1° and 2° Caretaking			Active leisure			Passive leisure			Sleep		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Panel A: Boys																					
Black (ref=White)	-17.51***	-11.90***	-8.71**	-7.86	-12.20	-13.47	5.25*	2.48	2.61	17.08*	13.07	11.50	-1.75	5.29	4.75	19.34	10.05	10.95	21.47*	27.70**	23.89**
	(3.46)	(4.28)	(4.23)	(9.83)	(9.89)	(10.53)	(2.92)	(2.74)	(2.79)	(9.10)	(10.11)	(9.34)	(11.35)	(11.54)	(11.56)	(12.78)	(13.89)	(13.52)	(12.03)	(11.97)	(11.56)
N	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439
Panel B: Girls																					
Black (ref=White)	-18.81***	-14.48***	-13.08***	-5.60	-4.08	-2.05	3.97	-0.11	-0.28	35.48***	12.79	6.13	-33.40***	-28.40***	-28.40***	52.31***	48.59***	47.11***	37.49***	29.28**	25.97**
	(4.07)	(4.02)	(4.19)	(8.30)	(8.82)	(8.73)	(4.27)	(4.48)	(4.61)	(12.20)	(11.98)	(11.63)	(6.24)	(6.72)	(6.84)	(10.72)	(11.49)	(11.76)	(11.31)	(11.98)	(12.22)
N	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348

Table 3.6. OLS regression coefficients predicting number of minutes per day 18-24 year olds spend on various activities

	Total Education			Paid Work			Household			1° and 2° Caretaking			Active Leisure			Passive Leisure			Sleep		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Panel A: Men																					
Black (ref=White)	-18.34**	-22.07***	-27.71***	-72.43***	-60.58***	-54.68***	5.54	6.03	6.04	22.20***	20.31**	16.74**	16.78*	13.99	5.94	40.95***	42.01***	30.20**	47.77***	44.06***	31.83**
	(8.67)	(8.51)	(8.70)	(14.84)	(15.36)	(16.87)	(3.84)	(3.85)	(4.16)	(8.41)	(8.54)	(7.98)	(10.15)	(9.93)	(10.61)	(11.78)	(11.65)	(12.28)	(12.39)	(12.51)	(12.44)
N	2756	2756	136960	2756	2756	136960	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756
Panel B: Women																					
Black (ref=White)	-7.90	-7.59	-10.38	-35.58***	-29.60**	-24.01**	2.51	1.88	-1.52	82.28***	45.39***	24.45**	-17.27***	-19.01***	-19.43***	44.76***	46.83***	39.95***	41.30***	42.51***	34.60***
	(9.13)	(8.73)	(8.86)	(12.30)	(11.91)	(12.09)	(4.56)	(4.45)	(4.43)	(14.81)	(11.58)	(11.06)	(4.78)	(4.39)	(4.65)	(9.08)	(9.18)	(9.63)	(8.27)	(8.24)	(8.32)
N	3444	3444	136960	3444	3444	136960	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444

Table 3.7. OLS regression coefficients predicting number of minutes per day 25-35 year olds spend on various activities

	Education			Paid Work			Household			1° and 2° Caretaking			Active Leisure			Passive Leisure			Sleep		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Panel A: Men																					
Black (ref=White)	-1.57	-4.03	-9.52**	-49.46***	-33.28***	-5.68	0.10	1.36	-0.95	-7.87	-7.14	-13.59	-2.02	-4.63	-6.03	58.50***	48.73***	37.55***	18.14**	15.74**	10.71
	(4.02)	(4.25)	(4.22)	(12.26)	(11.65)	(10.90)	(2.75)	(2.83)	(2.89)	(9.81)	(8.44)	(8.50)	(5.13)	(5.16)	(5.05)	(8.09)	(8.65)	(8.78)	(7.54)	(7.30)	(7.29)
N	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292
Panel B: Women																					
Black (ref=White)	7.70**	5.82*	6.80*	-9.74	-1.16	1.51	-4.26	-5.46	-7.03**	-9.36	-31.79***	-28.54***	-12.15***	-11.20***	-9.04***	49.21***	40.94***	34.82***	14.34***	11.93**	6.58
	(3.20)	(3.51)	(3.48)	(8.25)	(7.73)	(7.12)	(3.40)	(3.57)	(3.54)	(11.41)	(9.34)	(9.34)	(2.58)	(2.70)	(2.76)	(6.33)	(6.72)	(6.74)	(5.27)	(5.45)	(5.26)
N	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739

Standard errors in parentheses
 Source: ATUS 2003-2012 microdata file
 * p<.10, ** p<.05, *** p<.01

Multivariate analysis

Weighted ordinary least squares (OLS) regression was applied to assess the extent to which racial differences in observed time-use patterns can be explained by household composition and socioeconomic position. For each time-use domain, there are three models. Model 1 shows the bivariate relationship between the time-use domain and race. Model 2 builds from the first by adding in household composition variables and controls. Model 3 further adjusts by including household income, and in the emerging- and adult models, labor force status. Table 3.4-3.6 shows the change in the race coefficient for males (panel A) and females (panel B), progressing through each of the three models for each time-use domain. To view the full models, consult appendix 3B.16-3B.21.

In adolescence (table 3.4), Black boys and girls alike spend, on average, significantly less time in homework and studying compared to their White counterparts (roughly 18 minutes per day, $p < .01$), and although not significant, only slightly less time in work. For boys, the B-W difference in homework and studying time reduces to a difference of 8 minutes per day after controlling for household composition and resources; the B-W difference for teen girls, however, is less affected by household composition and income, reducing only slightly to 13 minutes per day net of controls ($p < .01$). Time allocation to household tasks is slightly higher for Black teens (5 minutes for boys, 4 minutes for girls) compared to White teens, but the difference is no longer significant after adjusting for family composition and income. Bivariate models suggest Black teens spend significantly more time in caretaking on the whole (primary and secondary) – Black boys averaging 17 minutes more per day than White boys ($p < .10$), and Black girls averaging 35 minutes more

per day than White girls ($p < .01$). However, this difference reduces to non-significance once household composition is included in the model.

Consistent with the descriptive data presented on adolescence, results for time spent in leisure and recovery show notable time-use patterns between Black and White teens that diverge when stratified by gender. In the presence of household income and composition controls, significant racial differences are not present for teen boys in active, skill-building and passive leisure. Black girls, however, spend significantly less time in active, skill-building leisure (33 minutes per day, $p < .01$) and significantly more time in passive leisure (52 minutes per day, $p < .01$) compared to White teen girls, and these differences remain relatively unchanged by household composition and income. Black youth spend significantly more time in sleep when compared to their White counterparts, and these differences remain significant after controlling for household composition and income (24 minutes longer for Black boys and 26 minutes longer for Black girls, $p < .05$).

Turning to multivariate results for emerging and young adulthood (tables 3.2 and 3.3), the negative association between race and education remains for men, with Black men spending significantly less time on education-related activities, even after controlling for covariates (gap is widest in emerging adulthood at -26 minutes per day net of controls, $p < .01$). In contrast, the racial difference for women is not present in emerging adulthood, and by young adulthood, Black women spend slightly more time on education than White women (7 minutes per day), before and after controlling for household composition, income, and labor force status. The non-significant differences in paid work between Black and White teens grows significantly by young adulthood, with both Black men and women spending significantly less time in paid work in emerging adulthood. After controlling for

family composition and income, on average, Black men age 18-24, spend 54 minutes per day less in paid work than White men of the same age ($p < .01$) and Black women spend 24 minutes per day less in paid work than White women, age 18-24 years ($p < .05$). Racial differences in paid work time remain in young adulthood for men, although the gap is less drastic compared to emerging adulthood. For young adult women, before the addition of controls, paid work time is slightly less for Black than White women. After controls, Black women average 14 minutes more per day in paid work than White women ($p < .10$).

No racial differences are observed between White and Black men in core household tasks during emerging- and young-adulthood. Although, in emerging adulthood, Black men average more time in caretaking – roughly 17 minutes more per day, net of household composition, household income, and labor force status ($p < .05$). Similarly, Black and White women in emerging adulthood spend the same time in household tasks; only after the addition of household income and labor force status in young adulthood, do I find a slight difference for women, with Black women spending 7 minutes less per day in this domain ($p < .05$). The largest B-W difference in time allocated to caretaking occurs between emerging adult women. Before controls, Black women average 82 minutes longer in all forms of caretaking ($p < .02$). This gap is largely attenuated by both by household composition and income and labor force status, but remains significantly higher for Black women in emerging adulthood (24 minutes, $p < .05$). Controlling for these same factors in young adulthood reveals that Black women average roughly 30 minutes less in caretaking during young adulthood.

Results for leisure and recovery time in sleep suggest that race by gender gaps observed in adolescence extend into emerging and young adulthood, and in some cases

worsen. Time in active, skill-building leisure remained relatively the same for Black and White men in emerging- and young-adulthood. In emerging adulthood, however, a racial divide emerges in passive leisure for men, with Black men averaging a half an hour more in passive leisure than White emerging-adult men, net of controls ($p < .05$) and this gap continues to grow in young adulthood. In adolescence we found that Black girls experience significantly less time in active, skill-building leisure and more time in passive leisure. This pattern holds in emerging and young adulthood and the point estimates remain relatively unchanged in the presence of household composition, income, and labor force status controls (e.g., 9 minutes less in active leisure and 35 minutes more in passive leisure in young adulthood, net of controls). Lastly, net of controls, time allocation in sleep remains longer (roughly 30 minutes) for both Black men and women in emerging adulthood, compared to their White counterparts. In young adulthood, however, these noted differences reduce to non-significance once household income and labor force status are included in models.

Discussion

Utilizing the relatively large sample size of adolescents, emerging- and young-adults provided by the ATUS, this study broadens our knowledge on how time-use is structured for Blacks and Whites at the intersection of gender during these important transitional years. Evidence is presented that the time use of Black and White males and females does vary in ways that are suggestive of racialized and gendered opportunities, demands and constraints. In some cases, these differences are already evident in adolescent years and widen over the transition to young adulthood, whereas others surface in emerging-adulthood and become more pronounced thereafter.

For example, racial differences in time spent on education-related activities were present for teen boys and girls age 15-17 years old, with Blacks averaging significantly less time in education (particularly in the sub-domain of research/homework). In multivariate models, we saw that household resources partially explained these difference for boys, but less so for girls (perhaps due to their greater time devoted to kin work). Given that racial differences were only partially mediated by household income during the high school years, one might speculate that larger structural constraints, such as separate and unequal education settings (Kozol 1991, 1995) have a hand in the differential time-use patterns in research and homework between Black and White teens. The longer commute times to school and the lower participation rates in extracurricular activities among Blacks align with this speculation. Stratifying these analyses by gender proved important, as it helped to distinguish the divergent paths for Black males and females, with Black females engaged in educational pursuits at higher rates in their late 20s and early 30s, compared to Black men and all others.

Another prominent finding suggestive of opportunities and constraints imposed by race are the stark differences in time spent on work. As hypothesized, White males and females fill more of their productive time with paid work, compared to their Black counterparts. Differences for women were largely restricted to adolescence and emerging adulthood and partially explained by household composition and income. In young adulthood, however, once household composition and income are accounted for, Black women supersede White women in time allocation to work. For men, however, the differences are consistently large in emerging to young adulthood. Some may in turn argue that the observed differences, especially for men, may be attributed to discordant views

and motivation for engaging in the paid workforce. Yet, results on the average minutes per day in job-searching and interviewing rebut this argument, with significantly more Black men and women looking for work than Whites, and averaging sometimes 2-3 times spent on job-searching compared to Whites. Additionally, the bivariate analysis showed that working Blacks (women especially) average more time in work when compared to working Whites. Lastly, results suggest that Black women were able to average slightly more time than black men in their teens and early 20s by taking up other-income generating activities. It is plausible that the types of skills Black women employ outside of traditional work for pay (e.g., styling hair, selling craft wares, organizing small parties/events) may be gendered and socially less accessible to Black males, making it more difficult to piece together alternative income generating opportunities when experiencing job deserts and exclusionary practices that keep them locked out of the traditional paid workforce.

Results on committed time only partially confirmed my initial hypotheses. I anticipated that women would engage more heavily in these tasks compared to men because of the sex-typing of these tasks. Additionally, I argued that Black women especially may invest more time in these areas due to less economic resources available to buy out of these tasks, and a greater burden of illness among Blacks at younger ages necessitating a greater proportion of Black families caring for ill and aging relatives and friends earlier than Whites. This analysis confirmed the hypothesis that these roles are highly sex-typed and imposed even in adolescence, with both Black and White female teens spending more time in household tasks and caretaking of children when compared to their male counterparts. Additionally, once secondary childcare is considered, the time allocated to committed work was significantly greater for Black teen girls compared to all other others.

This pattern continued into emerging adulthood, however reverses in young adulthood, when Whites moderately surpass Blacks in time devoted to caretaking. In particular, young adult White women spend more time in caretaking of children as a primary activity, whereas Black women and men are spending more time in secondary childcare, multitasking caretaking with other activities. The need to multitask in this domain may have major implications for the health and wellbeing of Blacks, particularly Black women, as extant literature has documented stress associated with work-family conflict (Edin & Lein, 1997; Munger, 2002), as well as the possibility that multitasking caretaking with other activities may infringe upon the health promoting benefits of self care time (e.g., active leisure). Moreover, the known benefits bestowed upon children via parent-child interactions (e.g., assistance with homework, attendance of children's games/recitals, dinner time, etc.) are likely curtailed for Black children if the demands placed upon their parents and caretakers are so great as to force the multitasking of care with other competing obligations.

Findings on time spent in caretaking given to adults is in conflict with my initial hypotheses, as differences by race and gender in time spent on caring for adults are non-significant. Males of both race groups report engaging in similar levels of care for adults when compared to their female counterparts, and Whites report similar time allocation when compared to Blacks. In reviewing these findings, several plausible explanations came to mind. First, the ATUS did not collect information on caretaking of adults as a secondary activity, as they did with childcare. As such, there is no way of knowing if the caretaking of adults is also more frequently performed out of necessity as a secondary activity by Blacks, in comparison to Whites. Relatedly, a reporting bias may be present by race and gender,

with Whites and males more likely to categorize interactions with adults as forms of caregiving, while Blacks and women perceive these same interactions to be different from caretaking and helping adults, and/or they downplay the amount of time devoted to this activity. Another potential explanation for no significant differences being observed between Black women and men, in particular, may be related to Black men experiencing greater difficulties accessing the paid workforce compared to Black women. As a result, Black men may be more available around the homestead to take up these responsibilities, while Black women are away participating in the paid workforce.

Specific hypotheses were not generated for this paper on racial and gender differences in time spent in sleep. However, interesting results were found in this study and worthy of discussion. Consistent with extant research (Krueger & Friedman, 2009; Hale, 2005; Burgard & Ailshire, 2013), this study finds that sleep duration is higher overall for females, compared to males. Others have also shown the gender gap is largest for life-course stages when interrupted sleep for caretaking is common (Burgard & Ailshire, 2013) and suggest that the extra time in sleep may be a result of women attempting to compensate for disrupted sleep. Interestingly, notable differences between Blacks and Whites are also observed, with both Black females and males spending more time in sleep when compared to their White counterparts, even after adjusting for household composition and resources. Although impossible to test in this study, plausible explanations for higher sleep times among Blacks in general, and Black women in particular, may relate to mental health and stress responses. One might hypothesize that the burden of managing the daily-demands one may experience that are associated with being both Black and female may induce added stress, uniquely different from White males

and females, and even Black males that may tax this group and elicit sleep as a coping response.

Lastly, results partially confirm my final hypothesis that Black males and females spend less time in active, skill-building leisure and more time in the less-structured forms, such as relaxing and media-use. Black females, in particular, stand out as the group absent from active, skill-building leisure and most concentrated in unstructured leisure options. Sub-domain analyses suggest that the differences involve Black female teens reporting lower participation in extracurricular activities, hobbies, and especially sports and recreation. In the case of males, multivariate analyses show no significant differences between White and Black teens in the overarching domain of skill-building leisure. Yet, descriptive analyses of the sub-domains show that Black males are also reporting lower participation rates in extracurricular activities and hobbies. A potential avenue by which this happens in adolescence, but cannot be tested here, may relate to the cuts made to non-academic programming in schools and the disproportionate impact occurring among schools in Black neighborhoods. Male-dominated sports such as football, basketball, and baseball may weather budget-cuts better than sporting programs aimed toward females (e.g., gymnastics, dance team, softball, volleyball, etc.). Unfortunately, this dataset does not allow for testing this potential pathway, but should be taken up in future research with datasets more appropriately suited to this question.

The persistence and expansion of race and gender gaps in leisure patterns signal how important it may be to garner understanding on and interrupt these patterns as they take hold in early life. Additionally, findings suggest that increases in household resources may not reduce the disparate differences observed, especially among females. This is

implied from adjusted models that show racial differences endure even after controlling for household income and other resources. The active ingredients responsible for observed differences may indeed be more structural in nature, and embedded in policies and institutions that confer disadvantage and advantage by race and gender.

The ATUS is the most comprehensive dataset available for characterizing how Americans spend their time, yet, it has its limitations. Relying on household information collected through the linked Current Population Study means limited data points are available on household composition and resources, and other potential explanatory variables. As a result, I am left to speculate in some cases on the mechanisms driving differential time-use patterns we've observed by race and gender. Despite these noted limitations, this study has taken a step towards better characterizing how time-use differs for youth and young adults at the intersection of race and gender. Most extant research on time-use has narrowed in on one social identity, without giving consideration to how time-use may differ drastically at the intersection of identities. My study findings show diverging patterns of time-use when stratifying simultaneously by race and gender that are important to untangle when thinking about policies and programs aimed at promoting healthy adolescent development and/or programs aimed at preventing the entrenchment of social inequities that start at a young age.

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ENDNOTES

1. OLS coefficient estimates obtained by Gupta et al. (2009) are suggestive that these other forms of household tasks included in the ATUS summary measure may indeed be indicative of advantage, as higher weekly earnings was positively associated with time spent in these non-core household activities.

2. Time use researchers frequently debate whether it is more appropriate to fit censored regression (tobit) models using maximum likelihood estimation or linear models using ordinary least squares (OLS) to explain time-allocation. Advocates for the use of tobit models argue it addresses the left censoring (i.e., zeros) in time-diary data and therefore OLS leads to biased and inconsistent estimates. However, others have shown that optimization occurs over a longer period than that covered by the typical time diary, and as a result zeros represent measurement error rather than true non-participation in the activity, in which case OLS is preferred. It has been decided here that OLS is the more appropriate approach given that I do not have to adhere to the assumption that error terms are distributed normally, as is required by tobit. Robust standard errors have been generated to correct standard errors against model misspecification.

APPENDIX 3-A:

Descriptive tables: Participation rates and average minutes per day among only those reporting participation

Table 3.8. Education: Participation rates and average minutes per day among only those reporting participation on the diary day

Panel A	non-Hispanic white males			non-Hispanic black males			w-b male comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: All education ^A	221.57	68.87	18.09	189.73	51.57	15.61	**	**	
%	55.84	21.26	5.95	46.37	18.46	6.15	***		
Avg min of participants	396.82	323.93	304.24	409.13	279.35	253.77			
Taking classes (Avg min)	174.23	35.53	6.93	157.88	32.59	6.39			
%	46.90	14.43	3.30	41.30	11.87	3.02			
Avg min of participants	371.49	246.24	210.14	382.27	274.48	211.64			
Homework/Research (Avg min)	36.07	27.85	9.70	18.86	14.92	8.15	***	***	
%	33.67	14.92	4.59	24.46	9.73	4.09	***	***	
Avg min of participants	107.14	186.63	211.18	77.13	153.29	199.07	***	**	
Travel for education (Avg min)	11.27	5.49	1.47	12.99	4.06	1.07			
%	39.79	15.82	3.24	34.37	12.90	3.52			
Avg min of participants	28.31	34.68	45.24	37.79	31.47	30.26	**		**

*p<.10; **p<.05; ***p<.01

A. Summary variable includes taking classes for degree or personal, homework and research, as well as education travel time.

Source: ATUS 2003-2012 micro-data file

Panel B	non-Hispanic white females			non-Hispanic black females			w-b female comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: All education ^A	232.65	75.87	16.42	209.85	66.21	23.40			**
%	59.18	24.30	6.33	50.97	22.77	9.78	**		***
Avg min of participants	393.10	312.22	259.43	411.74	290.79	239.29			
Taking classes (Avg min)	169.77	34.19	6.22	163.50	34.68	8.96			*
%	45.81	13.78	3.12	43.03	15.38	5.14			***
Avg min of participants	370.62	248.16	199.59	379.94	225.51	174.20			
Homework/Research (Avg min)	50.61	35.99	8.89	31.65	23.05	11.96	***	***	
%	40.73	19.55	4.69	34.86	15.21	7.45	*		***
Avg min of participants	124.25	184.12	189.56	90.79	151.50	160.58	***		*
Travel for education (Avg min)	12.26	5.69	1.30	14.70	8.48	2.47		*	**
%	41.05	14.83	3.15	40.15	15.70	5.45			***
Avg min of participants	29.87	38.35	41.23	36.60	54.03	45.36	*	**	

*p<.10; **p<.05; ***p<.01

A. Summary variable includes taking classes for degree or personal, homework and research, as well as education travel time.

Source: ATUS 2003-2012 micro-data file

Table 3.9. Work: Participation rates and average minutes per day among only those reporting participation on the diary day

Panel A	non-Hispanic white males			non-Hispanic black males			w-b males comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: All work^A	53.25	240.56	352.93	46.26	171.14	308.25		***	***
%	19.28	52.81	67.77	13.45	42.58	60.65	***	***	***
Avg min of participants	276.2	455.56	520.78	343.84	401.95	508.25		***	
Summary variable: Paid work^B	52.90	237.26	350.54	44.38	164.53	302.28		***	***
%	19.07	51.78	66.89	13.37	40.47	59.64	***	***	***
Avg min of participants	277.39	458.29	524.04	331.94	406.55	506.83		***	*
Work (Avg min)	41.98	216.58	321.61	36.24	145.35	273.21		***	***
%	14.08	48.76	65.80	8.76	34.18	56.15	***	***	*
Avg min of participants	298.28	444.20	488.81	413.61	425.22	486.59	**		
min)	6.40	2.06	1.20	4.22	1.97	3.41			
%	4.67	1.46	1.03	3.16	0.89	1.17			
Avg min of participants	136.87	140.86	116.68	133.78	219.77	292.15			
Travel for work (Avg min)	4.52	18.62	27.73	3.91	17.22	25.67			
%	13.96	47.18	57.34	11.55	36.36	51.88		***	***
Avg min of participants	32.37	39.47	48.36	33.86	47.34	49.48			
Job-searching & interviewing (Avg min)	0.35	3.30	2.39	1.88	6.61	5.97		*	**
%	0.85	0.37	2.06	1.54	7.25	4.37		**	**
Avg min of participants	40.92	89.41	116.32	122.65	91.10	136.75			

*p<.10; **p<.05; ***p<.01

A. All work includes paid work, other-income generating activities, travel time for work, and job-search and interviewing.

B. Paid work includes work, other-income generating activities, and travel time for work.

Source: ATUS 2003-2012 micro-data file

Panel B	non-Hispanic white females			non-Hispanic black females			w-b female comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: All work^A	51.75	204.30	239.56	45.60	168.74	229.02		***	
%	18.55	47.88	52.70	17.50	41.12	50.03		***	*
Avg min of participants	278.91	426.67	454.53	260.56	409.67	457.76		***	
Summary variable: Paid work^B	51.44	202.16	237.80	45.35	164.03	225.60		***	
%	18.31	47.29	52.00	17.04	39.53	48.87		***	**
Avg min of participants	281.03	427.51	457.29	266.17	414.96	461.62		***	
Work (Avg min)	43.06	185.94	219.54	33.92	146.81	206.26		***	
%	15.22	45.60	50.97	10.59	35.27	47.06	**	***	***
Avg min of participants	282.92	407.74	430.74	320.18	416.26	438.33			
min)	5.01	1.88	1.86	9.82	4.09	0.89			*
%	2.97	1.05	0.96	6.89	2.01	0.67	**		
Avg min of participants	168.86	178.73	193.92	142.58	203.29	133.03			
Travel for work (Avg min)	3.38	14.35	16.40	1.61	13.13	18.45	***		**
%	14.69	42.65	43.58	1.00	34.86	42.08	**	***	
Avg min of participants	22.98	33.63	37.62	16.19	37.65	43.83	**		***
Job-searching & interviewing (Avg min)	0.30	2.13	1.76	0.24	4.71	3.42		*	**
%	0.84	2.01	1.46	0.53	4.00	2.99		**	***
Avg min of participants	35.88	105.85	120.79	46.25	117.80	114.16			

*p<.10; **p<.05; ***p<.01

A. All work includes paid work, other-income generating activities, travel time for work, and job-search and interviewing.

B. Paid work includes work, other-income generating activities, and travel time for work.

Source: ATUS 2003-2012 micro-data file

Table 3.10. Household: Participation rates and average minutes per day among only those reporting participation on the diary day

Panel A	non-Hispanic white males			non-Hispanic black males			w-b male comparison			
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35	
Summary variable: Maintaining a household^A		13.17	24.76	37.64	18.00	30.94	38.32	*	*	
	%	28.44	37.16	54.52	33.27	41.71	50.59			*
	Avg min of participants	46.29	66.63	69.03	54.10	74.18	75.74			
Core household tasks^B (Avg min)		12.06	22.51	36.01	16.25	28.67	36.74		*	
	%	27.07	35.21	52.43	31.73	40.69	47.94		*	**
	Avg min of participants	44.53	63.94	68.69	51.22	70.46	76.65			*
Housework (Avg min)		6.74	10.87	16.07	9.88	15.36	15.69		*	
	%	11.83	13.04	20.50	18.98	21.93	21.46	***	***	**
	Avg min of participants	57.01	83.35	78.37	52.06	70.03	73.11			
Food prep & clean-up (Avg min)		4.46	9.15	15.97	4.46	10.61	17.13			
	%	17.71	26.60	40.93	15.13	25.50	36.14			
	Avg min of participants	25.19	34.40	39.03	29.47	41.61	47.40			***
Grocery shopping		0.85	2.49	3.98	1.91	2.70	3.93			
	%	2.93	5.93	10.50	5.45	6.35	10.39	**		
	Avg min of participants	29.05	41.93	37.88	35.13	42.49	37.79			
Accessing social and professional services^C		1.11	2.25	1.62	1.75	2.27	1.57			
	%	2.12	3.84	4.10	2.49	3.52	3.73			
	Avg min of participants	52.30	58.61	39.60	70.13	64.43	42.18			

*p<.10; **p<.05; ***p<.01

A. Maintaining a household includes core household tasks and accessing social and professional services.

B. Core household tasks include housework, food prep/cleanup, and grocery shopping.

C. Accessing (includes wait time) government social services, banking/financial, legal, and medical services.

Source: ATUS 2003-2012 micro-data file

Panel B	non-Hispanic white females			non-Hispanic black females			w-b female comparison			
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35	
Summary variable: Maintaining a household^A		28.16	55.03	97.35	33.38	58.04	93.31			
	%	42.26	56.63	79.04	43.57	59.81	75.59			***
	Avg min of participants	66.64	97.18	123.18	76.62	97.04	123.44			
Core household tasks^B (Avg min)		26.09	51.93	94.38	30.62	54.49	88.57			**
	%	40.02	53.90	77.64	41.21	57.81	73.95			***
	Avg min of participants	65.21	96.34	121.56	74.31	94.26	119.77			
Housework (Avg min)		14.20	27.98	48.30	16.76	28.51	39.33			***
	%	20.94	30.63	48.83	24.65	30.52	41.89			***
	Avg min of participants	67.81	91.35	98.93	68.01	93.41	93.90			
Food prep & clean-up (Avg min)		9.72	19.52	38.48	12.82	21.00	42.62			**
	%	24.96	38.31	65.48	27.63	41.25	62.77			*
	Avg min of participants	38.93	50.94	58.77	46.40	50.91	67.90			***
Grocery shopping		2.18	4.43	7.60	1.04	4.99	6.61	***		*
	%	5.02	9.05	17.13	2.99	11.01	15.18	**		*
	Avg min of participants	43.36	48.99	44.37	34.74	45.32	43.56			
Accessing social and professional services^C		2.07	3.11	2.97	2.76	3.55	4.75			
	%	4.03	6.54	7.14	3.95	6.22	6.70			
	Avg min of participants	51.36	47.46	41.54	69.83	57.03	70.87			**

*p<.10; **p<.05; ***p<.01

A. Maintaining a household includes core household tasks and accessing social and professional services.

B. Core household tasks include housework, food prep/cleanup, and grocery shopping.

C. Accessing (includes wait time) government social services, banking/financial, legal, and medical services.

Source: ATUS 2003-2012 micro-data file

Table 3.11. Caretaking: Participation rates and average minutes per day among only those reporting participation on the diary day

Panel A	non-Hispanic white males			non-Hispanic black males			w-b male comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: 1°caretaking for all^A	9.11	15.20	41.00	8.70	20.78	30.27			***
%	22.07	25.30	39.81	21.29	26.86	35.69			*
Avg min of participants	41.26	59.84	102.32	40.85	77.35	83.27			***
1° Caretaking of children (Avg min)	4.79	9.08	34.46	6.49	11.32	25.51			***
%	16.02	8.83	31.33	14.02	11.02	26.92			**
Avg min of participants	29.92	102.87	109.99	46.29	102.77	94.75			*
1° Caretaking of household children (Avg min)	1.95	6.40	32.40	4.40	4.67	19.89			***
%	5.80	6.19	29.18	8.25	5.64	22.28			***
Avg min of participants	33.60	103.50	111.05	53.36	82.79	89.24			***
1° Caretaking of non-household children (Avg min)	2.84	2.68	2.05	2.08	6.65	5.62		*	**
%	10.92	2.83	2.59	6.80	5.56	4.99	**	*	***
Avg min of participants	26.03	94.78	79.31	30.64	119.62	112.55			
Caretaking of children w/o recreational (Avg min)	2.29	4.22	19.46	3.32	6.14	17.71			
%	14.02	7.07	28.25	10.81	9.10	23.61			**
Avg min of participants	16.36	60.59	68.87	30.69	67.47	75.05			
Recreational caretaking of children (Avg min)	2.50	4.80	15.00	3.17	5.18	7.79			***
%	2.49	3.82	14.33	5.41	4.35	8.55	*		***
Avg min of participants	100.37	125.71	104.66	58.56	119.16	91.09	**		
Caretaking/helping adults (Avg min)	4.32	6.12	6.54	2.21	9.46	4.76	*		*
%	8.40	17.95	12.44	8.59	18.83	13.30			
Avg min of participants	51.37	34.08	52.58	25.72	50.23	35.81	**		**
Caretaking and helping household adults (Avg min)	1.19	0.62	1.00	1.10	1.49	1.54			
%	3.90	2.97	4.35	3.46	5.81	5.34		*	
Avg min of participants	30.65	20.97	22.90	31.86	25.58	28.86			
Caretaking and helping non-household adults (Avg min)	3.12	5.50	5.55	1.11	7.97	3.22	**		**
%	4.84	15.71	8.59	5.49	14.76	8.62			
Avg min of participants	64.55	34.98	64.59	20.13	54.00	37.38	***		***
2° Caretaking of all children under 13	25.45	34.20	120.98	42.92	51.74	123.83	**	**	
%	13.77	11.18	38.43	19.57	20.40	36.58	**	***	
Avg min of participants	184.74	305.97	314.78	219.38	253.70	338.50		*	

*p<.10; **p<.05; ***p<.01

A. Caretaking of both household and non-household children and adults as a primary activity.

Source: ATUS 2003-2012 micro-data file

Panel B	non-Hispanic white females			non-Hispanic black females			w-b female comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: 1°caretaking for all^A	13.59	39.66	94.71	13.41	46.93	72.68			
%	29.95	35.75	61.37	28.09	46.81	60.89			***
Avg min of participants	46.05	110.67	155.01	47.74	99.52	118.95			***
1° Caretaking of children (Avg min)	9.96	32.94	89.51	10.66	41.51	68.21		**	***
%	22.79	22.54	55.63	21.54	35.81	56.57			***
Avg min of participants	43.68	146.14	160.97	49.50	115.90	120.58			***
1° Caretaking of household children (Avg min)	4.84	29.55	86.83	6.51	37.18	65.08			**
%	9.68	19.32	53.79	11.05	30.76	54.37			***
Avg min of participants	49.94	152.95	161.41	58.91	120.90	119.69			***
1° Caretaking of non-household children (Avg min)	5.12	3.39	2.71	4.15	4.33	3.14			
%	14.56	3.67	4.34	11.94	6.33	4.71	**		
Avg min of participants	35.18	92.40	62.51	34.78	68.38	66.62			
Caretaking of children w/o recreational (Avg min)	5.43	21.01	60.71	6.79	32.47	54.35			***
%	19.29	21.32	53.94	19.26	33.68	53.93			***
Avg min of participants	28.15	98.53	112.55	35.25	96.41	100.78			***
Recreational caretaking of children (Avg min)	4.53	11.93	28.83	3.87	9.03	13.86		*	***
%	5.54	10.16	27.12	5.27	9.49	16.63			***
Avg min of participants	81.63	117.40	106.29	73.43	95.18	83.37	**		***
Caretaking/helping adults (Avg min)	3.63	6.72	5.17	2.75	5.43	4.46			
%	9.79	17.66	12.82	8.16	16.40	12.62			
Avg min of participants	37.09	38.04	40.33	33.68	33.09	35.37			
Caretaking and helping household adults (Avg min)	1.07	1.37	1.29	2.03	1.58	0.41			
%	3.28	4.95	5.06	4.11	4.59	3.82			***
Avg min of participants	32.60	27.69	25.53	49.38	34.36	10.72			***
Caretaking and helping non-household adults (Avg min)	2.56	5.35	3.88	0.72	3.85	4.05	***		
%	7.06	13.73	8.26	4.28	12.51	9.54	**		
Avg min of participants	36.26	38.96	46.96	16.88	30.77	42.51	**		
2° Caretaking of all children under 13	40.63	88.37	242.15	76.91	162.79	253.02	***	***	
%	17.78	23.97	58.90	29.40	42.98	64.58	***	***	***
Avg min of participants	228.53	368.73	411.12	261.58	378.79	391.80			*

*p<.10; **p<.05; ***p<.01

A. Caretaking of both household and non-household children and adults as a primary activity.

Source: ATUS 2003-2012 micro-data file

Table 3.12. Necessary time: Participation rates and average minutes per day among only those reporting participation on the diary day

Panel A	non-Hispanic white males			non-Hispanic black males			w-b male comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: Necessary time^A	644.43	625.20	593.61	667.20	654.93	602.17	**	**	
%	100.00	100.00	100.00	100.00	100.00	100.00			
Avg min of participants	644.43	625.20	593.61	667.20	654.93	602.17	**	**	
Grooming (Avg min)	32.33	32.67	31.59	49.83	42.31	38.43	***	***	***
%	82.19	79.64	78.31	88.10	80.06	77.12	***		
Avg min of participants	39.34	41.02	40.33	56.56	52.85	49.83	***	***	***
Eating and drinking (Avg min)	55.86	59.90	66.93	39.47	34.29	50.16	***	***	***
%	95.40	94.07	95.48	92.19	85.87	90.27	**	***	***
Avg min of participants	58.55	63.68	70.09	42.82	39.93	55.57	***	***	***
Summary variable: Sleep^B (Avg min)	556.24	532.62	495.10	577.89	578.34	513.58	*	***	***
%	99.98	99.85	99.86	100.00	99.80	99.85			
Avg min of participants	556.36	533.42	495.77	577.89	579.52	514.36	*	***	***
On-time sleep (Avg min)	542.04	519.00	483.03	554.04	547.50	485.00		**	
%	99.95	99.28	99.14	99.76	99.49	99.41			
Avg min of participants	542.34	522.77	487.24	555.37	550.32	487.86		**	
Off-time sleep (Avg min)	14.20	13.62	12.07	23.85	30.84	28.57	**	***	***
%	4.54	4.23	3.21	1.82	3.96	2.38	**		
Avg min of participants	65.41	58.13	55.89	60.71	42.73	62.62			
3+ sleep spells (%)	13.50	10.38	8.89	24.64	24.12	20.80	***	***	***
Sleep interrupted for care (%)	0.03	0.49	1.57	0.00	0.45	1.11			

*p<.10; **p<.05; ***p<.01

A. Summary variable includes grooming, eating/drinking, and sleep.

B. Includes "on-time" and "off-time" sleep.

Source: ATUS 2003-2012 micro-data file

Panel B	non-Hispanic white females			non-Hispanic black females			w-b female comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: Necessary time^A	661.79	653.44	621.32	687.58	688.64	630.00	**	***	*
%	100.00	100.00	99.99	100.00	100.00	100.00			
Avg min of participants	661.79	653.44	621.39	687.58	688.64	630.00	**	***	
Grooming (Avg min)	55.97	49.47	44.03	60.56	62.59	52.94		***	***
%	88.47	83.26	82.64	88.14	85.78	82.63			
Avg min of participants	63.26	59.41	53.28	68.71	72.96	64.07	*	***	***
Eating and drinking (Avg min)	54.54	62.34	63.63	38.27	42.22	48.41	***	***	***
%	95.00	94.05	95.30	90.28	89.79	90.18	**	***	***
Avg min of participants	57.41	66.28	66.77	42.39	47.02	53.69	***	***	***
Summary variable: Sleep^B (Avg min)	551.29	541.64	513.66	588.75	583.83	528.65	***	***	***
%	100.00	99.95	99.98	99.87	99.92	99.84			
Avg min of participants	551.29	541.91	513.77	589.49	584.30	529.51	***	***	***
On-time sleep (Avg min)	538.66	526.95	500.42	563.76	550.82	504.81	**	***	
%	100.00	99.84	99.66	99.87	99.84	99.32	**	***	
Avg min of participants	538.66	527.81	502.11	564.48	551.68	508.28	***	***	
Off-time sleep (Avg min)	12.63	14.69	13.23	24.99	33.02	23.84	***	***	***
%	10.67	11.86	11.13	19.66	22.09	17.84	***	***	***
Avg min of participants	118.50	123.84	118.92	127.08	149.48	133.58		**	**
3+ sleep spells (%)	14.08	14.91	18.27	29.67	27.42	24.20	***	***	***
Sleep interrupted for care (%)	0.07	1.94	5.92	0.88	2.29	2.58	*		***

*p<.10; **p<.05; ***p<.01

A. Summary variable includes grooming, eating/drinking, and sleep.

B. Includes "on-time" and "off-time" sleep.

Source: ATUS 2003-2012 micro-data file

Table 3.13. Active leisure: Participation rates and average minutes per day among only those reporting participation on the diary day

Panel A	non-Hispanic white males			non-Hispanic black males			w-b male comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: Active leisure (Avg min)	158.85	100.06	62.75	158.18	116.73	61.43		*	
%	75.99	55.49	43.23	75.00	54.26	39.92			
Avg min of participants	209.05	180.32	145.16	210.90	215.12	153.86		**	
Extracurricular (Avg min)	4.02	0.40	.	0.70	0.13	.	***		.
%	2.86	0.39	.	0.27	0.10	.	***	*	.
Avg min of participants	140.33	103.87	.	264.88	128.00	.			.
Volunteering (Avg min)	10.28	6.21	5.29	12.39	7.24	7.05			
%	7.31	5.04	3.98	10.63	3.27	4.91			
Avg min of participants	140.72	123.26	132.86	116.64	221.23	143.52			
Religious service and education	6.39	3.63	3.43	8.37	14.59	7.71			
%	5.20	3.21	3.05	4.35	7.18	4.69		***	***
Avg min of participants	122.78	113.20	112.71	192.30	203.32	164.45	***	***	***
Sports / recreation (Avg min)	64.74	35.48	22.31	66.45	28.72	14.93			***
%	42.31	26.55	18.67	41.77	21.45	16.23		**	
Avg min of participants	153.04	133.63	119.51	159.11	133.88	92.00			***
Hobbies / crafts^A (Avg min)	9.27	9.46	9.49	4.08	10.22	7.97	***		
%	11.46	12.05	14.08	6.47	9.73	9.77	***		***
Avg min of participants	80.89	78.54	67.39	63.04	105.05	81.59			
Listening to/playing music	8.91	7.04	2.01	9.12	5.73	4.42			
%	12.33	5.84	2.10	10.92	6.96	2.33			
Avg min of participants	72.27	120.66	96.05	83.54	82.43	189.91		**	**
Playing games	54.14	35.48	18.41	55.51	49.93	18.34		**	
%	34.31	20.24	11.49	35.33	25.74	9.82		**	
Avg min of participants	157.82	175.30	160.15	157.11	193.97	186.68			
Attend arts and museum	1.09	2.35	1.80	1.54	0.16	1.00		***	
%	0.77	1.30	1.08	0.52	0.53	0.57		*	*
Avg min of participants	141.85	180.95	166.66	296.09	30.92	175.82	***	***	

*p<.10; **p<.05; ***p<.01

A. This variable includes hobbies, crafts, reading and writing for personal pleasure.

Source: ATUS 2003-2012 micro-data file

Panel B	non-Hispanic white females			non-Hispanic black females			w-b female comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: Active leisure (Avg min)	93.77	55.19	49.66	60.37	38.12	36.96	***	***	***
%	61.29	42.35	44.03	41.07	28.93	30.45	***	***	***
Avg min of participants	153.00	130.33	112.78	147.01	131.76	121.40			
Extracurricular (Avg min)	5.31	0.29	.	1.60	1.05	.	***		.
%	4.83	0.32	.	1.63	0.41	.	***		.
Avg min of participants	109.96	90.02	.	97.75	256.49	.		***	.
Volunteering (Avg min)	10.98	5.51	6.87	4.41	3.34	6.37	***		
%	9.60	4.86	5.68	5.44	2.16	5.10	**	***	
Avg min of participants	114.37	113.51	120.89	81.02	154.72	124.95			
Religious service and education	7.18	3.87	4.70	10.13	7.34	9.22		***	***
%	5.87	3.53	4.26	6.98	4.67	5.09			
Avg min of participants	122.29	109.54	110.28	145.00	157.12	180.95		***	***
Sports / recreation (Avg min)	33.75	16.65	13.74	18.40	9.16	6.46	***	***	***
%	27.43	16.31	17.70	14.38	9.45	8.83	***	***	***
Avg min of participants	123.05	102.06	77.61	127.96	96.94	73.16			
Hobbies / crafts^A (Avg min)	15.44	13.42	14.61	5.95	6.30	7.85	***	***	***
%	18.47	14.62	20.22	6.84	8.00	11.38	***	***	***
Avg min of participants	83.62	91.80	72.28	86.89	78.72	69.02			
Listening to/playing music	5.77	2.31	0.44	5.15	2.69	1.07			*
%	9.02	3.67	0.74	5.77	3.96	1.10	**		
Avg min of participants	63.97	63.04	59.91	89.22	67.77	97.27			**
Playing games	13.69	10.91	7.29	13.40	7.74	4.71			**
%	11.34	9.48	6.67	9.63	5.72	4.36		***	***
Avg min of participants	120.76	115.08	109.32	139.13	135.24	108.01			
Attend arts and museum	1.64	2.23	2.00	1.36	0.51	1.29		***	
%	1.04	1.22	1.29	1.10	0.61	0.74		*	*
Avg min of participants	157.65	182.22	155.59	123.49	84.94	174.37		**	

*p<.10; **p<.05; ***p<.01

A. This variable includes hobbies, crafts, reading and writing for personal pleasure.

Source: ATUS 2003-2012 micro-data file

Table 3.14. Social/entertainment leisure: Participation rates and average minutes per day among only those reporting participation on the diary day

Panel A	non-Hispanic white males			non-Hispanic black males			w-b male comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: Social/entertainment leisure	71.56	77.63	58.91	77.67	75.87	64.43			
%	60.83	55.24	48.99	62.90	52.03	49.45			
Avg min of participants	117.64	140.54	120.23	123.47	145.81	130.30			
Parties and socializing (Avg min)	46.38	56.13	41.16	49.54	54.22	47.40			
%	47.42	41.01	34.70	46.55	37.55	36.22			
Avg min of participants	97.81	136.86	118.62	106.41	144.40	130.88			
Telephone calls with family and friends	6.25	3.93	2.07	12.92	7.05	5.05	**	**	***
%	13.16	9.52	5.52	18.84	11.95	9.69	**		***
Avg min of participants	47.46	41.29	37.47	63.79	59.01	52.18		*	
Attend sports events (Avg min)	6.65	2.86	1.98	3.51	1.79	0.93	*		**
%	3.95	1.84	1.06	4.63	1.33	0.57			**
Avg min of participants	168.06	154.85	186.15	75.92	133.86	162.97	***		
Attend movies / shopping	12.29	14.72	13.70	12.60	12.81	11.04			*
%	14.73	20.06	19.88	17.34	20.25	18.22			
Avg min of participants	83.48	73.36	68.95	72.65	63.25	60.61			

*p<.10; **p<.05; ***p<.01

Source: ATUS 2003-2012 micro-data file

Panel B	non-Hispanic white females			non-Hispanic black females			w-b female comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: Social/entertainment leisure	99.79	93.05	75.26	96.62	83.37	70.20			
%	69.84	65.06	61.03	69.71	61.64	52.16			***
Avg min of participants	142.88	143.03	123.31	138.61	135.26	134.58			**
Parties and socializing (Avg min)	61.48	61.57	48.89	52.92	51.50	45.95		**	
%	53.34	47.05	42.89	53.62	41.48	33.91		**	***
Avg min of participants	115.26	130.85	113.98	98.70	124.15	135.52			***
Telephone calls with family and friends	9.65	5.48	4.22	17.67	10.47	6.16	***	***	**
%	18.43	12.29	10.42	21.91	15.65	12.56		**	*
Avg min of participants	52.34	44.60	40.52	80.62	66.90	49.05	**	**	*
Attend sports events (Avg min)	7.08	2.49	1.73	3.20	1.41	1.08	***		*
%	4.52	1.61	1.05	2.98	1.06	0.71			
Avg min of participants	156.51	154.45	163.89	107.38	133.57	152.65	**		
Attend movies / shopping	21.59	23.52	20.42	22.83	20.00	17.01			**
%	23.89	28.89	27.88	22.33	29.10	22.59			***
Avg min of participants	90.40	81.39	73.25	102.23	68.71	75.28		*	

*p<.10; **p<.05; ***p<.01

Source: ATUS 2003-2012 micro-data file

Table 3.15. Passive leisure: Participation rates and average minutes per day among only those reporting participation on the diary day

Panel A	non-Hispanic white males			non-Hispanic black males			w-b male comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: Passive leisure (Avg min)	163.48	169.55	159.01	181.15	208.55	217.43		***	***
%	86.94	83.74	83.02	83.54	85.06	86.96			**
Avg min of participants	188.05	202.48	191.53	216.84	245.19	250.04	**	***	***
Relax/think (Avg min)	9.75	11.62	10.35	11.88	15.06	15.60			***
%	14.41	17.54	16.62	18.07	19.04	23.44			***
Avg min of participants	67.69	66.26	62.27	65.76	79.10	66.57			
TV (Avg min)	130.88	140.51	136.74	151.13	172.21	189.02	*	***	***
%	78.84	75.65	75.70	73.30	75.44	79.09	*		*
Avg min of participants	166.00	185.74	180.65	206.17	228.27	238.98	***	***	***
Radio (Avg min)	1.69	0.59	0.64	3.01	0.59	1.29			
%	2.27	1.42	1.23	1.82	1.66	2.24			
Avg min of participants	74.51	41.71	51.88	165.61	35.81	57.62			
Computer use (Avg min)	21.15	16.83	11.28	15.12	20.69	11.51	**		
%	21.18	13.92	12.04	15.88	14.66	9.78	**		*
Avg min of participants	99.89	120.89	93.65	95.23	141.07	117.76			

*p<.10; **p<.05; ***p<.01

Source: ATUS 2003-2012 micro-data file

Panel B	non-Hispanic white females			non-Hispanic black females			w-b female comparison		
	15-17	18-24	25-35	15-17	18-24	25-35	15-17	18-24	25-35
Summary variable: Passive leisure (Avg min)	145.01	145.42	130.18	198.43	188.44	182.16	***	***	***
%	81.61	81.22	82.10	88.35	85.10	84.80	***	**	**
Avg min of participants	177.70	179.04	158.56	224.59	221.43	214.80	***	***	***
Relax/think (Avg min)	8.65	11.01	9.16	14.41	17.54	18.73		**	***
%	12.32	15.30	15.22	15.72	20.68	21.92		***	***
Avg min of participants	70.20	72.00	60.20	72.10	80.51	85.45			***
TV (Avg min)	115.18	123.04	112.06	169.92	161.15	156.70	***	***	***
%	72.90	74.81	74.98	82.81	76.94	77.73	***		**
Avg min of participants	158.01	164.47	149.46	205.18	209.45	201.59	***	***	***
Radio (Avg min)	1.32	0.44	0.25	2.44	0.92	0.62			
%	2.50	1.15	0.63	4.12	1.77	1.42			**
Avg min of participants	52.68	38.20	40.14	59.35	51.80	43.48			
Computer use (Avg min)	19.87	10.93	8.71	14.73	9.72	6.11			**
%	24.75	13.03	11.47	13.61	10.02	7.63	***	*	***
Avg min of participants	80.27	83.83	75.93	108.22	97.01	80.05			

*p<.10; **p<.05; ***p<.01

Source: ATUS 2003-2012 micro-data file

APPENDIX 3-B:

Full OLS regression models

Table 3.16. Full OLS regression results predicting average minutes per day in domains for 15-17 year old boys

	Studying/Homework			Paid Work			Household			1° and 2° Caretaking			Active Leisure			Passive Leisure			Sleep			Eat/drink		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Black (ref=White)	-17.51*** (3.46)	-11.90*** (4.28)	-8.71** (4.23)	-7.86 (9.83)	-12.20 (9.89)	-13.47 (10.53)	5.25* (2.92)	2.48 (2.74)	2.61 (2.79)	17.08* (9.10)	13.07 (10.11)	11.50 (9.34)	-1.75 (11.35)	5.29 (11.54)	4.75 (11.56)	19.34 (12.78)	10.05 (13.89)	10.95 (13.52)	21.47* (12.03)	27.70** (11.97)	23.89** (11.56)	-16.59*** (2.47)	-13.12*** (2.59)	-12.25*** (2.56)
Age		-1.76 (2.09)	-2.05 (2.07)		26.98*** (4.63)	26.68*** (4.75)		0.55 (1.11)	0.52 (1.12)		-6.09 (3.86)	-6.01 (3.90)		-13.86*** (5.03)	-13.79*** (4.91)		-2.10 (4.53)	-1.92 (4.51)		-6.03 (4.76)	-6.03 (4.80)		0.41 (1.04)	0.30 (1.05)
0-1 parent (ref=2 p:		-14.34*** (3.58)	-7.93** (3.85)		-2.37 (9.22)	-2.81 (11.08)		5.22*** (1.89)	5.65** (2.31)		-2.30 (6.27)	-2.99 (6.83)		-4.72 (9.62)	-4.01 (10.41)		17.75 (10.82)	17.21 (12.86)		-3.87 (9.52)	-9.82 (11.02)		-7.22*** (2.02)	-5.12** (2.21)
Other adult relative		-2.42 (5.34)	-2.58 (5.21)		-5.07 (11.89)	-3.91 (11.97)		1.04 (4.07)	1.06 (4.02)		10.79 (10.07)	10.46 (9.93)		-10.10 (15.08)	-10.52 (14.64)		18.38 (16.49)	17.96 (16.58)		-24.43** (11.94)	-23.27** (11.87)		-1.93 (2.80)	-1.91 (2.83)
Number of children		-1.81 (1.56)	-1.62 (1.58)		1.11 (3.46)	1.15 (3.44)		0.67 (1.03)	0.66 (1.02)		18.42*** (2.79)	18.46*** (2.81)		4.43 (4.06)	4.37 (4.08)		-7.86** (4.00)	-7.98** (3.98)		1.38 (4.09)	1.23 (4.04)		0.07 (0.74)	0.13 (0.74)
Presence of young c		2.21 (13.39)	4.04 (13.06)		38.24 (56.75)	36.25 (56.38)		10.21 (9.95)	10.34 (9.93)		-7.19 (22.74)	-7.19 (22.97)		-48.30 (32.40)	-47.35 (33.60)		54.66 (45.00)	55.52 (45.17)		10.24 (50.68)	6.91 (50.59)		-11.76** (5.02)	-11.26** (5.24)
Hhold income: (ref=\$20,000-49,999)																								
<\$20,000			0.76 (4.52)			1.64 (11.61)			-5.34 (4.03)			-13.36 (10.03)			-34.07** (14.83)			-2.61 (15.80)			1.92 (15.54)			-3.60 (3.05)
\$50,000-74,999			0.93 (4.67)			12.94 (8.84)			1.22 (3.03)			-7.51 (7.69)			-3.41 (13.33)			-1.74 (13.37)			10.75 (10.50)			1.35 (2.36)
\$75,000+			21.01*** (5.07)			-3.62 (8.70)			-2.47 (2.68)			-10.40 (7.04)			-20.31* (11.38)			-2.41 (11.31)			-20.65** (10.15)			3.99* (2.42)
Income unknown			5.44 (5.28)			15.10 (16.45)			-0.93 (4.30)			5.30 (14.48)			-6.42 (16.27)			-15.13 (14.43)			8.08 (18.09)			2.22 (3.23)
Diary day on holida		-9.02*** (3.04)	-9.53*** (3.00)		1.12 (6.33)	1.90 (6.22)		3.19* (1.76)	3.26* (1.77)		16.28*** (4.66)	16.51*** (4.57)		41.32*** (7.44)	41.64*** (7.44)		48.17*** (7.49)	47.85*** (7.47)		95.40*** (6.30)	96.50*** (6.16)		2.52 (1.60)	2.47 (1.62)
Diary day in the sur		-28.94*** (2.71)	-29.25*** (2.73)		41.31*** (9.65)	41.29*** (9.70)		5.74*** (2.00)	5.74*** (2.00)		20.24*** (7.72)	20.62*** (7.77)		53.50*** (10.20)	53.80*** (10.22)		41.71*** (11.22)	41.60*** (11.24)		34.33*** (10.09)	34.55*** (10.02)		0.08 (2.10)	0.01 (2.10)
Constant	36.21*** (1.85)	80.77** (33.60)	74.02** (33.98)	52.79*** (3.51)	-393.06*** (73.05)	-391.24*** (73.35)	13.14*** (0.95)	-0.55 (18.12)	1.02 (18.00)	34.58*** (2.54)	86.41 (62.23)	91.69 (62.31)	159.36*** (4.02)	350.45*** (82.54)	361.67*** (81.91)	162.77*** (3.91)	181.66** (72.67)	182.27** (72.27)	556.21*** (3.40)	615.55*** (76.82)	622.57*** (76.13)	56.03*** (0.90)	50.18*** (16.76)	49.51*** (16.74)
N	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439	2439
R-sq	0.0110	0.0552	0.0724	0.0005	0.0416	0.0444	0.0029	0.0132	0.0156	0.0041	0.0513	0.0541	0.0000	0.0413	0.0459	0.0026	0.0442	0.0450	0.0034	0.1006	0.1075	0.0326	0.0431	0.0460

Standard errors in parentheses
 Source: ATUS 2003-2012 microdata file
 * p<.10, ** p<.05, *** p<.01

Table 3.17. Full OLS regression results predicting average minutes per day in domains for 15-17 year old girls

	Studying/Homework			Paid Work			Household			1° and 2° Caretaking			Active Leisure			Passive Leisure			Sleep			Eat/drink		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Black (ref=White)	-18.81*** (4.07)	-14.48*** (4.02)	-13.08*** (4.19)	-5.60 (8.30)	-4.08 (8.82)	-2.05 (8.73)	3.97 (4.27)	-0.11 (4.48)	-0.28 (4.61)	35.48*** (12.20)	12.79 (11.98)	6.13 (11.63)	-33.40*** (6.24)	-28.40*** (6.72)	-28.40*** (6.84)	52.31*** (10.72)	48.59*** (11.49)	47.11*** (11.76)	37.49*** (11.31)	29.28** (11.98)	25.97** (12.22)	-15.94*** (2.05)	-11.33*** (2.19)	-10.60*** (2.20)
Age		0.07 (2.41)	-0.07 (2.38)		30.55*** (3.92)	30.55*** (3.95)		4.00** (1.76)	3.96** (1.75)		2.02 (4.00)	2.02 (4.01)		-5.70* (3.16)	-5.79* (3.14)		-11.36*** (3.73)	-11.34*** (3.73)		-2.46 (4.46)	-2.35 (4.47)		-0.70 (1.18)	-0.68 (1.17)
0-1 parent (ref=2 parent hhold)		-10.87*** (4.06)	-4.10 (4.46)		10.05 (7.09)	16.40** (8.27)		2.67 (3.00)	2.29 (3.26)		22.03*** (7.31)	5.72 (8.66)		-13.27* (6.85)	-10.49 (7.17)		16.62** (7.60)	10.52 (7.67)		25.22*** (8.02)	15.15* (8.92)		-11.27*** (1.95)	-9.15*** (2.15)
Other adult relative in hhold (0/1)		-9.31 (5.87)	-10.52* (5.61)		-21.17* (11.11)	-22.55** (11.18)		11.85** (5.92)	12.02** (5.96)		7.66 (16.44)	10.12 (16.26)		2.32 (12.75)	1.97 (12.64)		4.19 (14.05)	4.98 (13.98)		11.79 (15.84)	13.34 (15.82)		-0.11 (3.20)	-0.44 (3.20)
Number of children in hhold		0.11 (2.27)	0.20 (2.30)		1.54 (2.58)	1.80 (2.57)		4.17*** (1.30)	4.12*** (1.31)		31.18*** (4.06)	30.35*** (4.15)		2.17 (2.35)	2.13 (2.36)		-9.63*** (3.11)	-9.85*** (3.09)		-2.13 (2.80)	-2.46 (2.81)		0.37 (0.86)	0.49 (0.85)
Presence of young child in hhold (0/1)		-3.62 (10.90)	-1.29 (10.86)		0.40 (21.36)	3.19 (21.28)		15.55 (14.98)	15.17 (14.84)		73.68 (49.15)	68.13 (48.06)		-9.01 (17.06)	-8.32 (16.96)		1.69 (27.09)	-0.16 (26.98)		-42.42 (28.73)	-45.68 (28.66)		-2.08 (7.12)	-1.32 (7.10)
Hhold income: (ref=\$20,000-49,999)																								
<\$20,000					10.05 (7.48)	-2.78 (10.51)			2.39 (6.06)			28.34 (20.37)			9.57 (9.44)			2.06 (13.40)			3.18 (15.92)			-3.63 (2.83)
\$50,000-74,999					11.39* (5.87)	14.09 (9.48)			-0.19 (4.01)			-25.04** (10.74)			-3.73 (8.92)			4.64 (10.77)			-16.98 (10.89)			-0.08 (2.58)
\$75,000+					20.42*** (4.84)	13.18 (8.12)			-0.10 (3.63)			-25.46** (10.14)			12.69 (8.10)			-16.64* (9.86)			-21.84** (10.29)			4.19* (2.40)
Income unknown					1.98 (6.56)	14.84 (13.42)			-5.03 (4.13)			-15.80 (14.80)			-4.60 (10.83)			-0.75 (12.80)			-3.43 (13.64)			2.96 (3.48)
Diary day on holiday/weekend		-8.64** (3.90)	-7.99** (3.92)		12.79** (5.70)	13.59** (5.71)		9.14*** (2.78)	9.06*** (2.75)		6.47 (6.93)	4.66 (7.01)		22.22*** (5.24)	22.33*** (5.29)		34.05*** (6.97)	33.60*** (6.94)		90.45*** (6.38)	89.42*** (6.39)		4.93*** (1.71)	5.13*** (1.71)
Diary day in the summer		-44.44*** (3.52)	-44.45*** (3.53)		46.74*** (7.79)	47.03*** (7.75)		3.99 (3.54)	3.87 (3.54)		28.22*** (9.24)	27.59*** (9.38)		22.34*** (6.65)	22.30*** (6.68)		46.46*** (7.58)	46.21*** (7.59)		55.03*** (7.90)	54.89*** (7.93)		1.22 (2.07)	1.37 (2.07)
Constant	50.61*** (2.45)	66.64* (39.61)	54.75 (38.24)	51.32*** (3.19)	-459.57*** (62.19)	-471.92*** (63.53)	28.02*** (1.42)	-49.83* (28.46)	-48.55* (28.98)	54.19*** (3.30)	-54.59 (66.12)	-31.95 (68.27)	93.97*** (3.06)	172.05*** (51.32)	168.06*** (51.84)	144.81*** (3.33)	319.74*** (60.38)	327.52*** (60.27)	551.32*** (3.59)	548.39*** (70.73)	563.32*** (70.71)	54.57*** (0.91)	65.99*** (19.41)	63.03*** (19.28)
N	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348	2348
R-sq	0.0072	0.0641	0.0718	0.0003	0.0696	0.0718	0.0007	0.0224	0.0231	0.0087	0.0900	0.0995	0.0119	0.0295	0.0333	0.0203	0.0648	0.0685	0.0096	0.1198	0.1232	0.0272	0.0483	0.0520

Standard errors in parentheses
 Source: ATUS 2003-2012 microdata file
 * p<.10, ** p<.05, *** p<.01

Table 3.18. Full OLS regression results predicting average minutes per day in domains for 18-24 year old men

	Total Education			Paid Work			Household			1° and 2° Caretaking			Active Leisure			Passive Leisure			Sleep			Eat/drink		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Black	-18.34** (8.67)	-22.07*** (8.51)	-25.54*** (8.64)	-72.43*** (14.84)	-60.58*** (15.36)	-54.68*** (16.87)	5.54 (3.84)	6.03 (3.85)	6.04 (4.16)	22.20*** (8.41)	20.31** (8.54)	16.74** (7.98)	16.78* (10.15)	13.99 (9.93)	5.94 (10.61)	40.95*** (11.78)	42.01*** (11.65)	30.20** (12.28)	47.77*** (12.39)	44.06*** (12.51)	31.83** (12.44)	-25.72*** (2.03)	-25.40*** (2.06)	-22.33*** (2.30)
Age		-15.11*** (1.86)	-10.63*** (1.90)		23.79*** (3.68)	22.62*** (3.73)		2.04** (0.94)	2.10** (0.96)		5.34** (2.41)	5.72** (2.27)		-4.87* (2.61)	-2.99 (2.47)		3.77** (1.91)	6.78*** (2.11)		-6.64*** (2.01)	-4.12** (2.07)		1.82*** (0.67)	1.61** (0.63)
Spouse/partner in hhold (0/1)		-57.88*** (12.18)	-40.49*** (11.12)		75.72*** (28.88)	63.18** (30.58)		-0.48 (4.00)	-0.19 (4.05)		73.17*** (14.26)	72.42*** (14.29)		2.31 (14.03)	2.86 (13.77)		-9.21 (10.99)	-3.18 (11.58)		-17.70 (12.60)	-11.66 (13.00)		-1.55 (4.48)	-1.63 (4.52)
Extended relative in hhold (0/1)		-31.67*** (11.02)	-37.42*** (9.91)		-33.65* (18.71)	-54.42** (21.53)		-2.86 (4.00)	-4.43 (5.04)		-4.46 (8.66)	-2.39 (10.40)		17.28** (8.23)	7.32 (9.74)		31.32*** (10.61)	28.27** (13.33)		6.31 (9.21)	17.98* (10.06)		-1.96 (3.51)	-6.85* (3.84)
Number of children in hhold		-4.59 (3.75)	-3.78 (3.67)		15.06** (7.25)	14.51** (7.26)		0.38 (1.62)	0.37 (1.64)		33.02*** (6.21)	33.01*** (6.26)		2.25 (3.71)	1.94 (3.75)		-15.58*** (3.93)	-15.85*** (3.98)		-2.75 (4.06)	-3.07 (3.90)		0.81 (1.16)	0.71 (1.15)
Presence of young child in hhold (0/1)		2.95 (14.53)	3.53 (14.34)		-7.31 (28.53)	-1.97 (28.94)		5.56 (4.63)	5.71 (4.63)		185.29*** (26.61)	184.68*** (26.50)		-38.69*** (11.73)	-38.02*** (11.22)		15.89 (15.06)	14.79 (15.07)		-7.68 (16.18)	-11.17 (16.16)		-5.82 (3.84)	-4.76 (3.92)
Labor force status (ref= not working)																								
Part-time			8.44 (10.36)					-3.74 (3.56)			-3.70 (6.58)			-35.47*** (8.32)			-39.14*** (10.08)			-27.84*** (8.66)			-3.06 (3.05)	
Full-time			-53.52*** (8.49)					-2.31 (4.42)			-6.66 (8.15)			-40.20*** (10.06)			-49.32*** (11.17)			-34.65*** (8.71)			0.28 (2.85)	
Household income (ref=\$20,000-49,999)																								
<\$20,000			27.90** (11.14)			-71.03*** (21.88)		1.08 (4.21)			-7.48 (10.53)			-22.93** (10.71)			-3.94 (13.92)			15.22 (11.60)			1.82 (3.78)	
\$50,000-74,999			8.72 (8.89)			15.40 (19.14)		3.62 (5.15)			-1.78 (11.84)			4.96 (11.39)			-16.74 (11.54)			-22.27* (12.23)			10.13** (4.08)	
\$75,000+			30.91*** (9.28)			-31.69* (18.47)		3.30 (4.37)			-16.66** (8.40)			-15.74* (9.03)			-6.42 (10.57)			-15.55 (10.83)			12.71*** (3.53)	
Income unknown			24.17* (13.09)			-5.14 (24.55)		4.15 (6.37)			-7.59 (9.21)			11.14 (14.28)			10.48 (16.15)			-33.53** (14.92)			3.54 (4.14)	
Diary day is on holiday/weekend		-62.95*** (6.59)	-63.26*** (6.42)		-135.70*** (11.65)	-135.71*** (11.49)		2.11 (2.87)	2.19 (2.88)		17.33** (7.12)	17.29** (7.19)		29.51*** (6.62)	29.75*** (6.42)		41.67*** (8.06)	41.69*** (8.00)		71.37*** (6.96)	71.19*** (6.94)		-0.13 (2.16)	0.02 (2.15)
Constant	69.75*** (4.42)	441.17*** (44.19)	348.77*** (43.11)	234.39*** (7.68)	-223.27*** (83.33)	-162.49* (84.75)	25.31*** (1.88)	-16.88 (21.25)	-17.55 (21.87)	50.29*** (3.52)	-103.31* (53.67)	-101.17* (52.61)	100.56*** (3.90)	183.31*** (58.68)	181.86*** (58.88)	169.56*** (4.09)	63.81 (42.22)	35.36 (47.73)	531.56*** (3.75)	650.80*** (46.40)	619.09*** (46.45)	59.69*** (1.27)	22.73 (15.14)	24.66* (14.42)
N	2756	2756	2756	2756	2756	136960	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756
R-sq	0.0019	0.0811	0.1145	0.0097	0.1294	0.1399	0.0012	0.0083	0.0094	0.0028	0.2366	0.2387	0.0018	0.0263	0.0455	0.0081	0.0336	0.0517	0.0125	0.0703	0.0886	0.0362	0.0420	0.0519

Standard errors in parentheses
Source: ATUS 2003-2012 microdata file
* p<.10, ** p<.05, *** p<.01

Tables 3.19. Full OLS regression results predicting average minutes per day in domains for 18-24 year old women

	Education			Paid Work			Household			1° and 2° Caretaking			Active Leisure			Passive Leisure			Sleep			Eat/drink					
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3			
Black	-7.90 (9.13)	-7.59 (8.73)	-9.00 (9.01)	-35.58*** (12.30)	-29.60** (11.91)	-24.01** (12.09)	2.51 (4.56)	1.88 (4.45)	-1.52 (4.43)	82.28*** (14.81)	45.39*** (11.58)	24.45** (11.06)	-17.27*** (4.78)	-19.01*** (4.39)	-19.43*** (4.65)	44.76*** (9.08)	46.83*** (9.18)	39.95*** (9.63)	41.30*** (8.27)	42.51*** (8.24)	34.60*** (8.32)	-20.36*** (2.17)	-19.35*** (2.33)	-15.50*** (2.40)			
Age		-17.09*** (1.77)	-13.70*** (1.96)	27.06*** (3.10)	26.27*** (3.14)		0.59 (0.90)	2.19** (0.93)		7.59*** (2.10)	12.92*** (2.23)		-1.16 (1.27)	0.11 (1.33)		-2.58 (1.66)	-1.29 (1.70)		-7.08*** (1.66)	-5.20*** (1.74)		1.46* (0.76)	1.71** (0.81)				
Spouse/partner in hhold (0/1)		-26.79*** (10.19)	-30.17*** (10.24)	-56.05*** (14.75)	-67.27*** (15.60)		34.12*** (5.85)	34.06*** (5.77)		78.72*** (13.12)	81.67*** (13.66)		-0.48 (5.45)	-1.24 (5.39)		18.55** (8.27)	19.88** (8.61)		21.54*** (8.69)	23.80*** (8.86)		0.22 (3.10)	-1.66 (3.24)				
Extended relative in hhold (0/1)		-18.55* (10.89)	-27.20** (12.06)	-10.42 (13.58)	-22.78 (16.36)		-19.43*** (4.30)	-19.30*** (5.33)		-55.50*** (12.13)	-36.83** (14.88)		1.59 (4.89)	-2.82 (5.19)		20.44** (8.61)	26.57*** (9.83)		25.41*** (7.75)	33.27*** (9.41)		2.70 (3.29)	-5.96 (3.65)				
Number of children in hhold		-0.61 (3.90)	-2.24 (3.97)	-26.25*** (5.15)	-25.97*** (5.22)		13.11*** (2.65)	12.16*** (2.70)		75.78*** (6.82)	71.10*** (6.32)		5.61* (3.23)	4.84 (3.19)		0.53 (4.07)	-0.84 (4.00)		2.24 (3.91)	0.56 (4.02)		-2.20** (1.02)	-2.04* (1.05)				
Presence of young child in hhold (0/1)		-35.57*** (8.21)	-39.30*** (8.44)	-15.82 (14.26)	-10.73 (14.20)		9.12 (6.22)	5.83 (6.23)		324.14*** (18.15)	310.12*** (17.72)		-20.76*** (4.92)	-22.25*** (4.72)		-8.01 (9.53)	-12.36 (9.41)		-5.85 (9.34)	-11.35 (9.35)		-6.51** (3.11)	-5.14 (3.26)				
Labor force status (ref= not working)																											
Part-time			-12.13 (10.51)				-10.39*** (4.01)			-50.02*** (9.23)			-11.14** (4.80)			-22.02*** (8.10)			-15.73** (7.26)			-1.35 (2.71)					
Full-time			-48.02*** (11.07)				-23.30*** (4.74)			-78.65*** (10.58)			-20.96*** (4.82)			-21.39** (8.41)			-28.55*** (8.34)			-5.94** (2.71)					
Household income (ref=\$20,000-49,999)																											
<\$20,000			-2.71 (10.86)		-51.05*** (15.31)		4.66 (5.82)			41.00*** (12.46)			2.70 (5.29)			14.78* (8.53)			16.71* (9.34)			-7.54*** (2.93)					
\$50,000-74,999			7.40 (11.45)		14.89 (16.49)		-8.34 (5.78)			-16.78 (16.42)			1.37 (5.92)			-6.54 (9.73)			-20.18* (10.85)			6.25 (4.13)					
\$75,000+			4.48 (11.33)		-19.21 (16.68)		-0.83 (4.69)			-27.62*** (10.46)			9.78* (5.68)			-4.68 (9.50)			-8.53 (9.26)			14.03*** (3.57)					
Income unknown			18.76 (17.20)		-33.83* (20.09)		4.73 (6.83)			-7.75 (11.60)			-0.48 (6.94)			-3.52 (10.03)			-14.56 (12.09)			2.85 (4.17)					
Diary day is on holiday/weekend			-56.13*** (6.45)		-55.04*** (6.32)		-122.11*** (9.13)		-122.50*** (9.12)		11.27*** (3.49)	11.65*** (3.43)		15.77** (6.99)	16.81** (6.86)		30.02*** (4.71)	30.29*** (4.70)		29.90*** (6.48)	30.02*** (6.51)		47.81*** (6.68)	48.03*** (6.73)		7.83*** (2.27)	7.93*** (2.26)
Constant	75.29*** (4.40)	475.36*** (43.40)	425.59*** (43.90)	199.94*** (6.20)	-296.48*** (67.23)	-255.16*** (69.75)	55.45*** (1.90)	33.69 (20.62)	11.37 (21.30)	130.31*** (5.51)	-110.31** (49.01)	-186.06** (50.05)	55.97*** (2.43)	69.69** (27.68)	52.59* (28.11)	145.74*** (3.28)	175.24*** (36.65)	159.03*** (36.72)	541.29*** (3.23)	655.50*** (36.24)	630.07*** (38.75)	62.59*** (1.43)	30.09* (16.97)	28.11 (17.53)			
N	3444	3444	3444	3444	3444	136960	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444	3444			
R-sq	0.0003	0.0824	0.0958	0.0032	0.1210	0.1287	0.0001	0.1011	0.1150	0.0145	0.4916	0.5140	0.0049	0.0314	0.0397	0.0144	0.0294	0.0372	0.0121	0.0535	0.0661	0.0232	0.0359	0.0519			

Standard errors in parentheses
 Source: ATUS 2003-2012 microdata file
 * p<.10, ** p<.05, *** p<.01

Table 3.20. Full OLS regression results predicting average minutes per day in domains for 25-35 year old men

	Education			Paid Work			Household			1° and 2° Caretaking			Active Leisure			Passive Leisure			Sleep			Eat/drink			
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	
Black	-1.57 (4.02)	-4.03 (4.25)	-9.52** (4.22)	-49.46*** (12.26)	-33.28*** (11.65)	-22.18* (11.66)	0.10 (2.75)	1.36 (2.83)	-0.95 (2.89)	-7.87 (9.81)	-7.14 (8.44)	-13.59 (8.50)	-2.02 (5.13)	-4.63 (5.16)	-6.03 (5.05)	58.50*** (8.09)	48.73*** (8.65)	37.55*** (8.78)	18.14** (7.54)	15.74** (7.30)	10.71 (7.29)	-17.50*** (2.07)	-17.39*** (2.22)	-15.80*** (2.19)	
Age		-2.35*** (0.55)	-2.02*** (0.56)		2.10 (1.34)	0.76 (1.38)		0.42 (0.28)	0.50* (0.28)		1.47* (0.83)	1.92** (0.85)		-1.54** (0.63)	-1.52** (0.65)		1.88** (0.93)	2.57*** (0.91)		-2.18** (0.88)	-1.81** (0.90)		0.16 (0.30)	0.02 (0.29)	
Spouse/partner in l		-15.69*** (4.35)	-12.28*** (4.44)		15.81 (11.89)	4.95 (12.04)		2.68 (2.57)	3.59 (2.64)		76.83*** (7.01)	80.49*** (7.25)		2.79 (5.84)	3.00 (5.74)		-12.03* (6.36)	-5.84 (6.06)		-4.28 (4.81)	-0.96 (4.93)		-0.18 (1.91)	-1.37 (1.93)	
Extended relative ir		1.63 (6.70)	-8.85 (5.95)		-52.43*** (15.58)	-63.54*** (15.71)		-8.46*** (3.10)	-12.37*** (3.29)		-4.10 (7.21)	-9.35 (8.15)		16.52** (7.43)	11.23* (6.68)		39.92*** (11.44)	29.87*** (11.35)		4.95 (8.01)	1.74 (8.16)		0.27 (3.66)	0.06 (4.02)	
Number of children		-0.63 (1.51)	-0.27 (1.59)		2.46 (3.70)	5.20 (3.77)		0.98 (0.90)	0.96 (0.90)		83.98*** (3.57)	83.29*** (3.61)		-3.23* (1.73)	-2.96* (1.71)		-7.14*** (2.12)	-8.16*** (2.10)		-3.11 (1.92)	-3.64* (1.90)		-0.83 (0.67)	-0.54 (0.68)	
Presence of young c		-0.19 (3.26)	0.87 (3.16)		7.19 (9.80)	3.36 (9.69)		3.21 (2.61)	3.77 (2.56)		100.49*** (8.71)	102.48*** (8.59)		-13.42*** (4.08)	-13.20*** (4.15)		-24.99*** (5.40)	-21.70*** (5.50)		-7.54 (4.83)	-6.03 (4.80)		3.05* (1.66)	2.54 (1.66)	
Labor force status (ref= not working)																									
Part-time			19.25 (16.78)																						5.95 (5.13)
Full-time			-46.70*** (8.89)																						6.03** (2.90)
Household income (ref=\$20,000-49,999)																									
<\$20,000			18.76** (9.07)			-90.01*** (16.16)																			-6.72** (2.87)
\$50,000-74,999			-3.99 (2.80)			4.05 (10.78)																			-0.79 (2.35)
\$75,000+			9.31** (4.47)			25.16** (11.90)																			3.25 (2.24)
Income unknowr			0.05 (5.32)			-17.93 (17.25)																			3.24 (4.19)
Diary day is on holi		-8.33*** (2.67)	-8.55*** (2.61)																						9.87*** (1.84)
-321.29*** (6.64)																									9.99*** (1.82)
-321.32*** (6.71)																									
Constant	18.14*** (1.66)	101.12*** (18.56)	124.84*** (18.46)	348.20*** (4.61)	375.83*** (39.97)	423.32*** (41.39)	37.72*** (1.05)	17.79** (8.75)	36.89*** (9.58)	162.79*** (3.12)	-58.82** (24.47)	-33.83 (26.22)	63.65*** (2.01)	98.60*** (19.18)	117.09*** (21.05)	159.90*** (2.70)	93.47*** (26.67)	144.38*** (28.63)	495.31*** (2.25)	545.04*** (26.14)	557.43*** (28.53)	67.05*** (0.90)	59.45*** (8.90)	58.63*** (8.70)	
N	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292	7292
R-sq	0.0000	0.0225	0.0868	0.0033	0.2588	0.2693	0.0000	0.0234	0.0364	0.0001	0.3767	0.3807	0.0000	0.0383	0.0431	0.0149	0.0835	0.1113	0.0020	0.0667	0.0739	0.0121	0.0192	0.0238	

Standard errors in parentheses
Source: ATUS 2003-2012 microdata file
* p<.10, ** p<.05, *** p<.01

Table 3.21. Full OLS regression results predicting average minutes per day in activities for 25-35 year old women

	Education			Paid Work			Household			1° and 2° Caretaking			Active Leisure			Passive Leisure			Sleep			Eat/drink			
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	
Black	7.70** (3.20)	5.82* (3.51)	6.80* (3.48)	-9.74 (8.25)	-1.16 (7.73)	14.39* (7.71)	-4.26 (3.40)	-5.46 (3.57)	-7.03** (3.54)	-9.36 (11.41)	-31.79*** (9.34)	-28.54*** (9.34)	-12.15*** (2.58)	-11.20*** (2.70)	-9.04*** (2.76)	49.21*** (6.33)	40.94*** (6.72)	34.82*** (6.74)	14.34*** (5.27)	11.93** (5.45)	6.58 (5.26)	-15.09*** (1.36)	-11.72*** (1.56)	-9.87*** (1.51)	
Age		-1.22*** (0.35)	-1.11*** (0.36)		1.27 (1.14)	-0.55 (1.18)		0.65 (0.43)	1.18*** (0.42)		-0.12 (0.95)	0.81 (0.98)		0.03 (0.38)	-0.04 (0.40)		-1.35* (0.76)	-0.31 (0.81)		-1.65*** (0.50)	-0.79 (0.51)		0.45** (0.22)	0.20 (0.22)	
Spouse/partner in hhold (0/1)		-5.27** (2.32)	-6.60** (2.61)		-15.72** (7.70)	-43.37*** (8.06)		17.83*** (3.05)	20.18*** (3.19)		60.73*** (6.09)	55.53*** (6.35)		0.94 (2.60)	-2.39 (2.77)		-11.90** (4.64)	-0.92 (5.24)		-3.07 (3.63)	6.30* (3.76)		4.96*** (1.65)	1.26 (1.74)	
Extended relative in hhold (0/1)		4.64 (5.73)	1.00 (5.15)		-17.64 (12.20)	-39.56*** (11.85)		-9.20** (4.63)	-11.42*** (4.40)		-14.49 (10.78)	-31.73*** (10.85)		0.17 (4.06)	-3.75 (4.18)		22.33*** (8.19)	28.09*** (8.04)		13.03* (6.97)	19.00*** (6.82)		-1.26 (2.49)	-4.50* (2.47)	
Number of children in hhold		-1.89** (0.83)	-4.42*** (0.98)		-34.10*** (2.56)	-27.20*** (2.56)		22.70*** (1.11)	17.26*** (1.19)		138.39*** (2.84)	123.70*** (2.94)		-3.05*** (0.77)	-3.92*** (0.83)		2.26 (2.22)	-4.04* (2.27)		-2.10 (1.40)	-6.97*** (1.47)		-3.58*** (0.55)	-2.93*** (0.52)	
Presence of young child in hhold (0/1)		-5.79*** (1.94)	-8.89*** (2.06)		-61.51*** (7.59)	-67.79*** (7.49)		3.13 (3.08)	-0.56 (3.08)		209.71*** (8.94)	193.91*** (8.57)		-8.90*** (2.26)	-11.21*** (2.33)		-22.90*** (3.56)	-22.96*** (3.57)		-8.03** (3.42)	-8.03** (3.37)		1.20 (1.41)	-0.20 (1.41)	
Labor force status (ref= not working)																									
Part-time						-6.19 (4.24)						-32.35*** (4.11)													
Full-time						-26.74*** (4.30)						-49.82*** (3.74)													
Household income (ref=\$20,000-49,999)																									
<\$20,000						-1.60 (3.90)						-76.89*** (10.04)													
\$50,000-74,999						-2.09 (2.80)						34.96*** (8.95)													
\$75,000+						3.73 (3.68)						44.97*** (7.98)													
Income unknown						-3.02 (3.45)						-0.49 (12.88)													
Diary day is on holiday/weekend																									
Constant	16.10*** (1.44)	61.52*** (11.62)	79.70*** (14.13)	236.52*** (4.03)	334.49*** (35.10)	390.62*** (36.75)	97.63*** (1.49)	31.95** (13.13)	59.56*** (13.75)	338.14*** (4.70)	59.94** (27.78)	165.65*** (29.54)	49.42*** (1.33)	44.99*** (12.01)	60.28*** (12.38)	131.25*** (2.02)	170.02*** (22.07)	172.23*** (22.80)	513.84*** (1.56)	548.25*** (15.12)	540.86*** (15.61)	63.80*** (0.76)	48.65*** (6.72)	58.92*** (7.12)	
N	10739	10739	10739	10739	10739	136960	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739	10739
R-sq	0.0013	0.0111	0.0314	0.0002	0.1982	0.2153	0.0002	0.0974	0.1354	0.0001	0.4639	0.4990	0.0028	0.0300	0.0368	0.0176	0.0420	0.0690	0.0019	0.0694	0.0912	0.0142	0.0282	0.0377	

Standard errors in parentheses
 Source: ATUS 2003-2012 microdata file
 * p<.10, ** p<.05, *** p<.01

CHAPTER 4

Managing aspirations and daily obligations under boundaries of exclusion: Black girlhood in metro-Detroit

Introduction

Adolescence is conceived of as a time-period that buffers childhood innocence from adulthood realities (Finkelstein, 2001). It is a “life-stage” marked most by change – physical growth, cognitive and emotional development, and social changes that include identity formation, development of relationships, and preparation for adult roles. With change comes stress – a range of contemporary characterizations of adolescence and stress extend from the overscheduled, advantaged youth to the underscheduled, idle youth concentrated in high poverty areas “at high risk” of school failure, substance use, crime and welfare dependence (Mahoney & Vest, 2012; National Center for School Engagement, 2017; Pew Research Center, 2015). Mainstream attention and research has fixated on these two characterizations, defining the solution in “positive coping dispositions” for those who are “overscheduled,” and ways to fill up the time of the “underscheduled” while also developing their “resilience” or “grit” to equip them in handling what is more likely than not to be a continued life of adversity.

Much of the research on this second characterization of adolescence and stress remains centered on racially/ethnically minoritized youth, particularly Black and Latino boys (Harding, 2010; MacLeod, 2009; Rios, 2011). Yet, Black and Latina girls presumably

grow up in the same households and neighborhoods, attend the same schools, and therefore experience many of the same adversities as their male counterparts (although perhaps in uniquely different ways). Crenshaw (2014) argues this narrow focus occurs because of a common belief that Black men are “exceptionally endangered by racism.” As a result, relatively little is known about the “underscheduled” Black girl – does she exist? And how does she think about her time and experience it? The best way to assess this is to ask her and listen.

Presented here are accounts from 26 Black adolescent girls, 15-18 years of age, living in the metro-Detroit area about their time use and obligations in response to the following research questions: A.) How do Black adolescent girls think they should be spending their time, and how do they actually spend their time, with a focus on what they see as their obligations? B.) What sorts of influences are at play in determining the organization of their time, including constraints that impede meeting their obligations? and C.) What are their subjective experiences when attempting to negotiate dispersion of time, including the implications for stress?

Setting

This study draws from the metro-Detroit area, one of the most racially-segregated metropolitan areas in the U.S. (Logan & Stults, 2011). Once a thriving industrial mecca, Detroit boasted a population of 1.8 million in 1950 and the largest Black middle class in the U.S. By 2013, however, decades of depopulation and disinvestment eroded the city population to roughly 680,000 and resulted in the second largest municipal bankruptcy in U.S. history, following Puerto Rico (Dolan, 2013). White flight coupled with the auto-

industry's closing of central city factories and relocation to outlying suburban areas left a city core of Black residents, many stuck in low-paying jobs or out of work altogether (Sugrue, 1996). Badly weakened by depopulation and disinvestment, the city tax base was pulverized, and in turn, the quality of schools and services suffered, prompting a subsequent outflow of middle-income Blacks into pockets of Inkster, Oak Park, Southfield, and Pontiac (Frey, 2015; U.S. Census Bureau, 2010). As middle-income Blacks began to push into the "first ring" suburbs, a second wave of White flight pushed further into "second ring" suburban areas, largely re-segregating Black middle-income families from White middle-income families.

Experimentation with school choice policy in the 90's was billed as a fix to disparate differences between wealthier and poor school districts in Michigan, especially metro-Detroit. In 1993 the Michigan legislature, under pressure from the Engler administration, defunded the state's public education system setting the stage for a 1994 constitutional amendment authorizing the creation of "public school academies," better known as charters (Goenner, 2011). In 1996 another public act loosened restrictions on where students could attend schools and authorized the reallocation of per-pupil funding to the receiving school (Brouillette & Moser, 2001). Advocates argued that choice and the creation of charters would improve schools by forcing schools to compete for students and empower students, families, teachers, and taxpayers by providing options from which they can choose (Goenner, 2011). Detroit's school landscape was forever changed by the introduction of charters and reallocation of per-pupil funding to receiving schools. Despite continued depopulation of the city, a charter school boom coincided with the steady closure of neighborhood schools (Grover & van der Velde, 2016; Zernike, 2016).

Enactment of emergency manager laws was yet another school reform tactic also crucial in shaping the current state of Detroit's schools, marketed as the State's way of holding schools accountable to parents and taxpayers. In 1999, the State of Michigan appointed a reform board takeover of DPS to address a school district "in distress" (disputes exist over validity given stabilizing improvements in the late 90s – see Guyette, 2015 for discussion). The appointed reform board remained in control of DPS until 2005, when Detroiters voted to reinstate the elected board and local governance. Struggling to inherit a \$200 million deficit that developed under the reform board (Guyette, 2015), the State intervened again. From 2009 to 2015, a total of 4 emergency managers had control of DPS – a time period in which enrollment continued to decline and finances never stabilized (Citizens Research Council of Michigan, 2016; Grover & van der Velde, 2016; Guyette, 2015). Additionally, at the time of these interviews, 12 former DPS schools were run by the State under the Education Achievement Authority (EAA), a governing body formed in 2011 by the State to takeover the city's lowest-performing schools. In the spring of 2016, DPS teachers began to upload pictures of school building and classrooms to twitter and stage sickouts as forms of protest on crumbling infrastructure, overcrowded classrooms, pay cuts, and security of pensions (Detroit Free Press Editorial Board, 2016; DeVito, 2016a; DeVito, 2016b; Lewis, Oosting, & Livengood, 2016). Following the close of data collection, state lawmakers approved a \$617 million rescue package returning the district to local governance and returning EAA into the district (Sanburn, 2016; Zaniewski, 2016). Widespread dissatisfaction with the plan has been voiced over the amount of bailout funds and the removal of language that would regulate the addition of new charters and make it more difficult for to remain open if deemed failing (Gray, 2016; Henderson, 2016).

Methods

Recruitment and sample

Participants were recruited through posted flyers, neighborhood associations and community organizations, word-of-mouth and snowball sampling among interviewees. In an effort to not bias the sample toward girls that are connected to organizations offering extracurricular activities that would fill their leisure time, a concerted effort was made to first draw upon the utility of flyers that were posted strategically at the following types of locations: bus stops that run along a main thoroughfare of Detroit's business and entertainment sector, as well as the main bus lines that run to and from this thoroughfare and into the residential neighborhoods; outside shopping plazas occupied by hair and nail salons, as well as grocery and clothing retail; areas surrounding schools; parks and sports/exercise facilities; public libraries; and outside government service organizations. Interested girls were instructed to contact the primary investigator of the study via phone or email, as listed on the flyer to learn more about the study.

During the initial contact (most by phone), prospective participants and their parent or caretaker were informed of the study aims: to learn more about how young girls spend their daily time, what determines their time use, and how girls their age experience and cope with stress. Potential participants were instructed that the initial interview would take between 1-2 hours, followed by a request to record their activities in a time-use diary over a four-day period, spanning 2 weekdays and 2 weekend days. After describing the study, a brief screener was utilized with potential interviewees for the purposive sampling (Patton, 2002; Strauss & Corbin, 1998). Efforts were taken to purposefully sample girls in

three different neighborhood-school settings that vary by socioeconomic composition and curricula structure: 1.) those who attend traditional neighborhood and charter schools in the city center, 2.) those who attend magnet schools within the city limits that admit students based on application only, and those that rely upon application and examination scores, and 3.) those who attend neighborhood schools in the outer-ring suburbs that serve a student body characterized as lower-middle income status. These three criterion cases have been selected to provide variation that will facilitate answering how place influences time-use and if there is equalization through a school-based setting.

Although demographic data shows city boundaries that largely divide poor and working class families from the middle class, it is important to acknowledge that this is not a hard and fast rule. As such, the first author employed multiple indicators to facilitate categorizing the sample into poor, working, and lower-middle class status. The median household income for a family in the census tract was obtained for each residence, and paired with the reported parent/caretaker occupational status and educational attainment (when available). Participants were classified as: a.) living in poverty if they resided in a census tract where the median household income was below the poverty threshold and their parent(s)/caretaker was employed in a position with little or no managerial authority and without a college-level education; b.) working class if they lived in a census tract where the median household income was above the poverty threshold but within 150% and their parent(s)/caretaker was employed in blue-collar or semi-skilled labor; or c.) lower middle class if they lived in census tracts where the median household income was at or moderately above the median household income for the State and at least one parent(s)/caretaker was employed in white collar, mid-level management, frequently

drawing upon a college-level education. Table 1 provides an overview of the purposive sample, sorting girls by this social class status schema, and providing further information on their residential status and high school. For those that have attended multiple high schools, information is offered on the current (*) and previously attended schools.

Table 4.1. Qualitative sample characteristics

Social Class	Pseudonym	Residence	School sector ^D
Poor ^A (n=12)	Justice	City	DPS-magnet
	Aniya	City	Charter (alternative)*, EAA, DPS-neighborhood (2)
	D'aja	City	DPS-magnet
	Chivonn	City	DPS-neighborhood (2)*, DPS-magnet
	Lexi	City	Charter (alternative)*, EAA, DPS-neighborhood
	Tiara	City	DPS-neighborhood
	Celeste	City	DPS-neighborhood
	Makayla	City	Charter
	Felicia	City	Charter
	Elyse	City	Charter*, Out-of-state neighborhood
	Kierra	City	DPS-neighborhood
	Sydney	City	DPS-neighborhood
Working class ^B (n=5)	Amina	Suburb	DPS-magnet
	Brandy	City	DPS-magnet
	Imani	City	Suburban-neighborhood (2)*
	Kendra	City	DPS-magnet
	Daphne	City	Charter
Lower middle class ^C (n=9)	Laila	Suburb	Suburban-neighborhood (2)*
	Ebony	Suburb	Suburban-magnet
	Raven	City	DPS-magnet
	Jordan	Suburb	Suburban-neighborhood*, DPS-magnet
	Nina	Suburb	Suburban-neighborhood
	Ciara	Suburb	Suburban-neighborhood
	Shonice	Suburb	Suburban-neighborhood*, DPS-magnet
	Jayla	Suburb	Online charter*, DPS-neighborhood, DPS-magnet
Melanie	City	Charter	

A. Poor adolescents are those who live in census tracts where the median household income for a family is below the poverty threshold and parent(s)/caretaker are employed in a position with little or no managerial authority and without a college-level education.

B Working class adolescents are those who live in census tracts where the median household income for a family is above the poverty threshold but within 150% of the poverty threshold and parent(s)/caretaker is employed in blue-collar or semi-skilled labor. Note: two adolescents in this category have parents with at least some college-level education.

C. Lower middle class adolescents are those who live in census tracts where the median household income for a family is at or moderately above the median household income for the state and at least one parent(s)/caretaker is employed in white collar, mid-level management, frequently drawing upon a college-level education.

D. * For those girls attending more than 1 high school, the asterik indicates the school sector that teen was attending at the time of the interview. DPS=Detroit Public School EAA=Educational Achievement Authority (DPS school taken over by state) Charter=charter in Detroit. DPS magnet schools include both examination and application based that offer a specialized curricula.

Data collection

Between May 2014 and January 2016, in-depth interviews and diary data was collected from 26 girls meeting the sample criteria. In all but five cases, interviews were conducted in the privacy of the girl's home. Two interviews were conducted in secluded corners of coffee shops/eateries, one in the privacy of a neighborhood safe-house, and another a private room in the University of Michigan Detroit Center. Upon the initial meeting, interviewees were reminded of the study purpose and both youth assent and parental/guardian consent were obtained in writing before beginning data collection. Once this process was complete, the parent/guardian left the room and the interview commenced.

Adapting a modified grounded-theory approach (Glaser & Strauss, 1967), I entered the field with pre-specified interests in the ways in which race, gender, and class influence daily-life for Black adolescent girls, especially in schools and homes, yet I also remained open to the data leading to other domains of inquiry. In-depth interviews lasted between 90 to 120 minutes and were steered by a semi-structured interview guide that probed the following areas: personal histories; daily organization of time, walking me through a typical school day and weekend, as well as probes specific to school, work, household and family responsibilities, and extracurricular activities; the physicality and social nature of settings in which they spend their time (neighborhood, home, high school, work, etc.); perspectives on determining factors of time-use, including expectations from others, and finally experiences with stress. While exploring daily organization of time for Black adolescent girls in the sample, I wanted to glean some insight into what they saw as obligations in

their daily life, and how these daily obligations and demands map onto future goals, either established via their own wants and desires and, or arising from the expectations that they feel from others. I specifically inquired about how they think they should be spending their time, and activities they see as things they “must do.” I also probed to inquire about constraints that make it more difficult to fulfill these obligations. As a sign of gratitude and respect for their time and participation, participants were remunerated \$40 for the in-depth interview, and another \$30 upon return of the 4-day diary.

Analysis and data presentation

All interviews were audiotaped and transcribed, and subsequently coded using NVIVO qualitative research software. Analysis began with in-depth reading of the transcripts in order to confirm accuracy of the transcription and re-familiarize with the content. After this initial step, I open-coded text line-by-line, creating analytic categories reflective of experiences of the interviewees, tagging large pieces of data to avoid the loss of context and meaning. In the next cycle, comparisons were made across cases, looking for similarities and variation in order to establish broader categories, and revision of initial codes into subcategories. From this stage, thematic categories began to develop and I began to elaborate on these ideas by writing code memos on themes that cut across cases. I chose not to edit words or grammar of the girls presented here, hoping to capture their experiences and emotions in their own voices. I did however, remove fillers such as “um”, “uh”, “like”, and “you know” in places where I felt it improved readability and did not change the meaning of the text.

Overview of findings

From this inductive inquiry into how Black adolescent girls experience and structure their time, the themes of being a productive citizen, avoiding hardships they see in their parents, and taking care of family emerged as significant for the girls across social class-levels, and key motivations underlying beliefs about time-use. In nearly all cases, getting good grades and proving oneself for college rang through as a first response when asked, “How do you think you should be spending your time?” Other frequently offered answers involved securing paid work, spending time with family and just being a kid. Contributing towards the wellbeing of family emerged when asked about “...stuff you feel is important to you that you *must do*”, or in specific probes about their contribution to the household, and although more prevalent among poor teenage girls, was not unique to this class status.

Distinct time-use patterns did emerge in the daily organization of time – lower-middle income Black teen girls seemingly were able to execute their time in ways that adhered more closely to the ways in which they believed they should be spending their time (more homework/studying and doing activities to prepare for college). However, a subset of both poor and middle class girls engaged in few structured leisure activities typically thought important in building social capital opportunities. Narratives of the girls suggest the large-scale changes in the Detroit-metro school landscape, including closures, reorganization via state takeover, and the charter school explosion are implicated in facilitating the disconnection of girls from the very activities they believe they should be spending their time on. Lastly, the need to devote time toward caretaking networks

responsive to childcare needs and family illness were not confined to the poor and working class families; girls from middle class families also are contending with splitting their time between areas centered on developing their own human and social capital and time demands aimed towards survival of the larger family unit.

Here below I present the experiences of girls in what they define as their time demands and obligations, discussing what sorts of influences dictate these obligations, including personal motivations and, or expectations of others, as well as structural constraints that present challenges in fulfilling their stated obligations. In short, not unlike many adolescents, girls expressed a desire to get good grades, attend college, and please parents by achieving “what they were unable to do.” However, embedded within their narratives are unique challenges and an added layer of stressors rooted in resource deprived neighborhoods, schools, and families that complicate this pursuit.

Aspirations: Independence, stability, and better life than parents

In order to understand time-use, it is important to start with the long-term goals of girls, and situate the current contextual factors influencing time-use in this larger frame. Through interviews, I met 26 Black teen girls that dared to dream of becoming doctors (n=5) – pediatricians, OB/GYN, child psychologist; nurses (n=2); lawyers (n=3); engineers (n=3) architectural and environmental; a crime investigator; a playwright or novelist; a marine biologist; a music therapist; a massage therapist or scratch that, maybe a MRI technician; and a budding fashion designer, also considering animation, culinary school or maybe even becoming a voice actress. When asked about motivations driving their dreams, the aspiring doctors and nurses told me, “I like children” and “I want to help people.” The

future lawyers shared, “I like to debate,” whereas the future playwright clings to the therapeutic rewards of her craft’s ability to help her “release a bunch of stuff.” I was also quickly reminded that aspirations are just as much about desires for stability and peace of mind - “you’ve got to find a job you can count on” that makes you “independent,” and can provide a “better life.” For example, Melanie and Makayla offered monetary explanations in support of their career choices, ultimately stressing the value of stability and being able to provide for future families. Melanie, age 16, shared:

I want to be a MRI technician or a massage therapist...really, I just want to be a person that makes good money. *Interviewer: Why is that important to you?* Because when I have kids, I want to get them the stuff that I wasn't able to have.

Makayla, 18 explained her draw to crime investigation: “Crime just interests me – the photos, blood staining – and it could be a good job because there’s always a crime that needs to be investigated.” Chivonn and Sydney’s accounts of their motivations highlight how aspirations are also wrapped in desires to be “respected” and to be seen as a “productive” citizen. When discussing her motivations to pursue her writing in college, Chivonn, 17, offered:

I want to make it to where I don’t need to ask anybody for anything – I don’t need a handout, you know? I don’t want to be that person that’s living – just working job to job, trying to make it. I don’t want to be looking forward to getting eviction notices and struggling. I want to be able to have a place to be able to just say, “okay, I’m good,” you know, and a car, a job, you know, a life.

Similarly, 15-year old Sydney insists she “must go to college and get a good job” so she can be a “productive member of society – making money and just living life.” For Chivonn, Sydney, and most of the girls, they believed peace of mind in adulthood is achieved by way of college and paid work that adequately provides for the essentials. Stable housing and reliable transportation was the end game, and not lavish splurges one

might assume a teen to likely list when describing their idea of “the good life.” Daphne’s mother, Ms. Williams, echoed many of these same sentiments in our interactions following her daughter’s interview. She explained to me that above all else it is most important that Daphne live a “better life” than her own.

I just don't want either one of my children to work like I work. *Interviewer: What do you mean?* Well just working two jobs that really are dead-end jobs. You work really hard to get underpaid for what you do. That's a lot of added stress. [Turns toward Daphne] Just do something that you love to do. You don't have to go to college right away - I do [emphasis added] want you to go. But if you don't go [right away], do something with your time where you're making money to help with paying for your education.

Overall, these quotes on aspirations and long-term goals from Black teen girls stands in direct contrast to familiar tropes of Black women, as lazy, financially-dependent ‘welfare queens’ that sap social assistance programs of much needed resources (Hancock, 2004; Harris-Perry, 2011). Instead, their narratives accord more closely with the American creed: if you work hard and play by the rules, you will be rewarded with success. Embedded within these excerpts are mentions of college as a key ingredient in the formula that gets you to that good life – worry free from economic hardships and job insecurity, and marked by the carefree way of being the girls associate with an advantaged social standing. As such, it is no surprise that when asked about how they felt they should be spending their time, academic performance was top of mind. However, expectations on attending college, and the sequencing of events leading up to college differed among girls, with a greater share of poor and working class girls raising the need to work first, or during part-time attendance at community colleges. The third domain commonly characterized as a “must do” was taking care to ensure family is ok. In this next section, I will detail the girls’ experiences in these three domains.

School performance: Getting good grades v. finishing high school

Without fail, nearly every girl told me that doing well in school was one of the important ways they felt they should be spending their time. More often than not, this was phrased as “getting good grades” and “putting in the work” to show you have what it takes and are deserving of college admission, and these sentiments were expressed by girls hailing from families across the class spectrum (n=22). For instance, Shonice, a 17-year-old senior who lived in a middle-class outer-ring suburb and attended a neighborhood school, offered:

Homework. Scholarships. College apps. You have to go to college. You have to do your homework so you can have good grades so you can get accepted. *Interviewer: You believe that you have to go to college?* Well, I think so because everything now, you need a higher education past a high school diploma. Either it's vocational or it's military or it's college. Eventually, you'll need something past what those other two can give you.

Amina, a 15-year-old sophomore who also lives outside the city but attends a city-magnet (examination) high school in Detroit initially presented as quiet and reserved, but suddenly transformed into a very self-assured young lady when discussing school performance. She made a point to look me directly in my eyes and her speech accelerated with confidence as she explained the necessity of grades for her future.

Okay, well I think I'm a hard working young lady for my age. I know what I want to do in the future, and I strive towards that now. Like getting good grades...just getting on the right track so I can graduate with honors and get a full ride to some school.

Clearly, Elyse believes there is more to academic performance than grades – you also need to show you can resist distractions and maintain a clean school record. Celeste, 15, echoed this sentiment when she offered, “...And staying out of trouble will get you

places. When you have so much behind your record, some colleges won't accept you." In particular, girls referenced their vigilance in avoiding the "wrong crowds of people" to protect against being associated with drugs, fighting, or escalated conflict with a teachers.

Four girls stood apart on academic orientation – Aniyah (18), Lexi (17), Makayla (18), and Sydney (15) focused less on grades and instead spoke on the importance of "finishing high school." All four girls lived in areas of the city that most would characterize as "high stress" by any indicator: high unemployment and poverty, large parcels of vacant and burned out homes and businesses, overgrown parks, and few remaining neighborhood schools. Aniyah, Lexi, and Makayla attended charters outside of their neighborhoods, whereas Sydney was the lone student that remained in a traditional, neighborhood high school. Although grades were infrequently mentioned, college was still on their radars – particularly, community college. In introductions, Lexi led with, "I'm nice. I go to school everyday. And I'm trying to find a job." Later, she shared she would like to become a nurse because that way she'll "always have a job."

I'm probably going to start out at WC3 [Wayne County Community College District] and then go to Wayne State...I was also looking into like Dorsey schools – but they have their own financial aid and it only pays for the school and the books. WC3's financial aid helps you like every couple months...they give you money to help you live. With WC3, it'll take you four years, but in Dorsey, you saw the commercials ...you'll be done in like nine months. That's the difference.

Securing financial aid was paramount to Lexi – not only for school, but also to just get by when she turns 18 and reaches the point where "they'll [mother and older sister] expect me to be doing something with my life." Likewise, Aniyah planned to start with WC3 to become a certified nursing assistant because she believed it's the most accessible training she can do to get work, and later on she will transfer to pursue "what she really wants to do," [law]. Unique to the sample, Makayla (age 18) and Sydney (age 15) were

expecting mothers, both in their second trimesters. In discussing expectations for the future, Sydney explained that she was wavering between college and the army, because the Army will pay for school, but “I don’t trust people so I don’t know who I’d trust my child with [while away].” Some might argue in the case of Makayla and Sydney that pregnancy is a distracting factor complicating their education, potentially derailing their connectedness to school and their ability to obtain a high school degree and beyond. Yet, extant research supports the possibility that contextual factors associated with disadvantage are implicated in both the erosion of academic performance, as well as a shift in the timing of childbearing among poor and racially marginalized groups (Geronimus, 2004; Hotz, McElroy, & Sanders, 2005; Upchurch & McCarthy, 1990). Makayla’s experience, in particular, aligns with this evidence, as she reported her difficulties with school preceded her pregnancy. She explained:

I just got tired of the school ‘cause it was going down. It just kept going down so I was like okay I don’t want to be here no more...I had got to a point where I got bored in class so I’d get my work, walk out of my class, end up in somebody else’s class or end up in the gym.

Others might point toward the influence of parental involvement in the girls’ educational experiences as an important factor in school orientation, often characterized as less intensive among families in poverty (Lareau, 2011). Indeed, Lexi and Aniyah did not give indication of receiving push from their parents on preparing for college, and Sydney and Makayla’s descriptions suggested their parents had less “know-how” than the more advantaged parents on the college application process and securing financial aid (Holland, 2014). Generally speaking, however, the four girls represented their parents as wanting better for them – an experience they shared in common with the larger sample. More so, what stood apart from Lexi, Aniyah, Sydney and Makayla’s accounts and the larger sample,

were difficulties with school structure and a unifying narrative of compromise in order to continue their education – a willingness to take on intermediary majors, debt from private-for-profit institutions, and military service to simply get their foot in the door of institutions of higher education. In this next section, girls elaborate on the role of school structures in influencing their time and orientation toward school. Commonly woven across the four girls focused on finishing school, as well as sprinkled throughout the entire sample, were experiences with institutional failures of the school system that in many ways were characterized as obstacles that squandered their learning time.

School barriers that sap learning time and college prospects

Exercising school choice was prevalent in the sample – at the time of their interview the majority of girls attended a school other than their closest traditional, neighborhood school. However, relying upon this trend as evidence that students and parents were successful in securing autonomy over their educational opportunities and access to better quality schools would be mistake (Pattillo, 2015). Also worthy of consideration is the count on girls that switched between schools, which was not uncommon in the sample – 9 girls attended more than one high school, and some shuffled between multiple (see table 1). At the time of their interviews, Aniyah was on her fourth high school, Lexi, Chivonn and Jayla each were on their third, and Elyse, Imani, Laila, Jordan, and Shonice had made the switch between just two. Moreover, this count does not capture instances in which schools changed on students, as was the case for students who remained at their home schools that were taken over by the State and reorganized. Taken together, instead, these numbers hint at the possibility that school choice and state accountability efforts instead are causing

greater disruptions in the overall lives of Black adolescent teens, and the narratives of girls provide further evidence of this, including infringements on their learning time.

Previous studies on school choice in Black communities have documented parent's desires for their children to be exposed to college prep curricula, in a setting that is structured and safe, and the exhaustion incurred when "doing the work of school choice" (Pattillo's, 2015). Imani, 16, chronicled a burden tied to her school choice experience akin that that documented in the literature. She opted not to attend either of the two high schools physically located nearest to their city residence, because she was "looking for the best public education –private is too much" and the neighborhood schools were "unstable academically" and plagued by "violence." In order to avoid these "distractions," Imani woke at 5 am, left the house by 6, and arrived at 7 to wait for an 8 a.m. start time. The wait was necessary, as her mom had to transport other family members to work and this drop-off arrangement accommodated everyone's schedule. In order to attend her charter school, Daphne's morning was also highly coordinated. Because her charter does not provide transportation and her mother works early hours, the following routine was worked out with Daphne's father, who lives in another area of town that her mother felt was safer to walk to the city bus stop: wake at 4:30 am, dropped off at dad's by 5:10, catch bus at 7:30 for 8 am start. Both girls reported being tired by afternoon and frequent day napping after school. Beginning with Imani and Daphne confirms the intricate routines that parents and students devise to piece together quality options. Yet, these two examples are just a sliver of the school choice burden experienced by girls, and frankly more representative of those advantaged enough to have cars, parental time, and other resources that allow for exploring these school options. Other features of State accountability efforts and school

choice present in Detroit's school landscape are raised here below as important in explaining the multitude of school transitions and disconnection from schools that perhaps are more representative of Black girls from families of lower socioeconomic standing.

A. School closures, takeovers, and disciplinary tactics.

For both Lexi and Aniyah, the first move occurred when the district's emergency manager selected their high school for termination, citing low academic performance and a decreasing number of students. The girls were shuffled to different public schools in the area, and both girls reported experiencing difficulties with teachers at their second high school, prompting a third switch.

Aniyah's conflict escalated to a physical altercation with a teacher and ultimately resulted in her expulsion from school number two. At this stage, Aniyah was sent to a third school, one the state had deemed as failing and at the direction of the emergency manager, was taken over and subsumed under the EAA. Once this happened, the school rules changed, transportation services were cutback, an extended school year was instituted, and in her words, "they just wanted too much." These changes were enough to prompt yet another move, this time to an alternative charter school that offered a "self-paced curriculum" for students "at risk" of dropping out.

In the case of Lexi, her mother did not drive and her second high school required reliance upon bus services to get to and from her school. The inconsistencies in bus service resulted in an accumulation of tardies at her second home school, which in turn resulted in classroom removal and suspensions. After several rounds of this routine, she felt "I'm not learning nothing being out of school, so I might as well switch to another school." Lexi's

second school was the same as Aniyah's, and the EAA takeover also prompted her to look elsewhere. On this third transition, she too landed in an alternative charter school, although on a different campus than Aniyah's. To get to her new home school, Lexi walked to and from the bus stop (several blocks from her home to the bus and 8 city blocks from the bus to her school) and took the crosstown bus, which on a good day averages around 30 minutes out of her morning and afternoon, but could go in excess of an hour and a half if they don't make the bus before other schools in the area let out. By no mean did she describe this commute as any better, but the alternative school offered a schedule that is more amenable. When I inquired about attending another public school on her side of town, Lexi shared that she didn't feel like this was an option for her because closures that affected her first high school and another in the area, coupled with the transition of her second school to the EAA, herded many affected students under one roof at one of the few remaining public schools in the area, resulting in a setting primed for conflict.

It's like they got their own gangs, so at [school name redacted], it's a lot of fighting and stuff every day because kids from [closed school A], [closed school B], and [EAA takeover] go. That's three different gangs, plus the gangs that was inside of the old school building, that's all at one school now. And they be fighting every day. That school is dangerous.

Kierra, age 16, was a student at the very neighborhood school Lexi described, and although they knew nothing of one another, Kierra offered confirmation of Lexi's account in her own words and without prompts. Kierra described herself as being "way into sports," and selected her school because she was familiar with the coach via her time in the Detroit Police Athletic League. However, she shared that she isn't thrilled about other aspects of her school:

I only like it for the sports wise and certain teachers. I feel like the whole school is so unorganized because they have so many kids in there. We were over capacity when

school first started. It was just so many kids. The teachers didn't have no type of control. It was no type of learning really going on because they couldn't get the classroom under control.

Kierra's narrative suggests school closures and state takeovers adversely affect not only those students at the school being terminated or reorganized, but also the student body at the receiving school seeing an influx of students. Aniyah and Lexi's learning environment was forcibly altered as they transitioned to another school. By the same token, Kierra's learning environment was negatively transformed via overcrowding and mergers with ill-conceived plans for addressing tensions between formerly divided groups, all coalescing to similarly impose on her learning time. Interestingly, the enforcement of school rules also emerged as a source of stress when Kierra detailed her family's struggle with reliable transportation:

I have advanced placement environmental science for first hour. I wasn't getting there on time because this was before he [brother] had a car. So we had to rearrange rides ...I was doing my work, but when I asked [the teacher] for help she would get an attitude and I'd just say, "Forget it. I'll ask somebody else. One of my peers." Then I got my last report card. She gave me an F on my report card. Me and my dad, we was upset about it so when we went to parent/teacher conference he was explaining to her about the car. My dad, he didn't really like the way she handled that. He was just like, it's okay. Forget it, cause I might not be going there next year because he don't like the way they handled that. I don't either 'cause I feel I'm not learning as much as I should.

Intermingled in these stories on school closures and takeovers are difficulties with the execution of school rules and punishments that effectively results in the removal of class time. We argue that the girls' narratives suggest that school closures and takeovers are key in fracturing relationships across the larger school ecosystem (peer to peer, teachers to students), and that loss of familiarity primes school authorities to institute a more strict code of conduct and take harsher disciplinary actions against students. Savvy

beyond her years, Chivonn recognized this early on in her high school career and so eloquently sums up the protections of strong teacher-student ties:

I have to have a relationship with my teachers because that kind of helps in the long run. Like if you miss something and you need to go back and do it, they might let you. But they might not give everybody that chance. See if they know you, they know that you're not the type of person that does not do your work and they know something has to be going on with you. And that's half the reason why I've never been suspended from school, because I got close to the main people so if anybody ever tried to give me trouble, they'd be like, "No, I know her. She's not like that."

The bond between teacher and student that Chivonn described is undeniably compromised for girls as they transition from one school to another. For instance, Aniyah's description of the one (and only) person she considers a mentor, is telling. In her phased plan for becoming a lawyer, Aniyah stated her desire to attend law school down South. I asked her why in the South at that particular school, and she shared, "because my mentor [teacher/coach from her first high school], he went there. And they all took the girls' basketball team down there to play a game and look around." This visit impressed her and she felt like she could see herself there. But after inquiring how often she continues to maintain contact with her mentor, I was told, "I don't really talk to him like that. He's my friend on facebook though." If I had not inquired further, I would have left with the impression that an ongoing exchange of guidance and skills was occurring; however, this was far from the case. In Aniyah's eyes, her mentor is a trusted source -- someone who offered exposure to opportunities, and provided knowledge and guidance on securing those opportunities. However, dissolution of her first school eroded the strength of that network tie, weakening the continuity of guidance and allies that will assist her educational and personal growth.

Relatedly, our second assertion is that schools rules are more aggressively applied in environments that serve populations experiencing greater setbacks. Further support on this claim is offered by 16-year old Jayla, who prior to the house fire that prompted her family's move to the suburbs, attended a traditional neighborhood school and magnet (examination) school in the city. She contrasted her experiences between the two, noting differential enforcement of the same district's conduct policies:

It [neighborhood school] was definitely a different environment - really strict. Say you got into an argument with somebody. It wasn't even a heated argument. If a security guard heard you arguing, you would get suspended for three days. And, you couldn't be in the bathroom for longer than like, five minutes...I think they were so strict because of where the kids came from... it's like they're so used to rough, always really aggressive everything.

Finally, in returning to Lexi and her description of the alternative charter environment we learn just how scant opportunities for social interactions were for her after cycling through to this last option. She described the instructional set-up much like a call-center, where each student sits at a desk with sidewalls, a computer, and headphones:

We don't even use textbooks. Like, the teacher talks to us via video. We have two teachers that sit in our classroom, but like they're not really the teachers that teach us. If we fail on a quiz, we ask them for a retake or we would ask them for a check
Interviewer: So on the video, are they live? Are you able to interact with them? mm-mm [no]. [Later on] You have to do three quizzes a day to get a bus ticket, to get to go home and then they give you a bus ticket to get back, so you have to do three quizzes a day.

Noticeably absent from this description is dialogue between the classroom teacher and student that builds reasoning and critical thinking skills. Instead, the classroom teacher is more akin to a monitor. Headphones and side-blinder walls on the desks are there to discourage social interaction between students. And, transportation to and from school is

conditioned upon test-taking, setting up a situation that incentivizes teaching to the test and diminishes the likelihood for building long-term comprehension of a subject matter.

Altogether, considerable evidence has been presented that suggests school closures, takeovers, and unequal enforcement in disciplinary school policies are catalysts to girls hemorrhaging enormous amounts of learning time. They are investing time in sorting through the next best options when told their current school is no longer a choice, or suddenly changes from what they knew it to be. Ironically, many families in the “Motor City” do not own cars that would aid in accessing other options within these districts of school choice. Consequently, when the closest neighborhood school shutter, girls are forced to deplete even more time in long commutes on a disjointed public transportation system. Additionally, there is time taken to learn new buildings, new faces – both peers and teachers, and new rules. Moreover, girls like Kierra located in the receiving schools are also impacted by the domino effect that occurs when one school is closed, and as it goes down, the immediate neighboring school is subjected to added pressures. Underfunded and overworked teachers are tasked with the impossible job of managing familiar and new faces in an overcrowded environment. In consequence, everything tightens up, including slack given to students who face difficulties getting to and from physically more distant schools. The erosion of teacher-student bonds fosters a harsher learning environment, increasing the likelihood of experiencing a suspension that further nabs class time.

B. Teacher churn: Even if students stay put, teachers often do not.

D’aja, a sophomore at a city magnet (examination) school sharply recounted the moment she felt behind in her first year science class:

He [science teacher] said to me, “Oh, you should have been [emphasis added] known that!” I’m like, “I didn’t have a science teacher!” and he says, “that sounds like a personal problem.” All my friends could tell you, we didn’t have a science teacher from seventh to eighth grade. *Interviewer: How did that happen?* I think they laid her off. No, for real. They had to of because I remember seeing her and then 3 weeks later, she left. And then our math teacher was supposed to be our science teacher. She was supposed to teach us both, but she’s a math teacher. That’s what she’s going to teach. That’s going to be the first thing in her brain, so of course she is going to teach us math [not science].

This incident stuck in D’aja’s mind because it generally made her feel “behind,” resulting in a great deal of stress that first year. She continued to feel embarrassed for not knowing the “basics,” and reported frequently turning to Khan academy to teach herself the stuff that her teacher says she should already know. The teacher shortage D’aja described is not atypical. Turnover was noted by students in the city and suburban districts, and in traditional, neighborhood and charter schools alike. The examples shared below are just a subset of the stories shared, all from girls that have yet to rotate between schools. As such, their stories illuminate the effects on learning time even in the face of some semblance of stability.

We don’t really have a lot of teachers. Most of our teachers are transferring or just quitting. *Interviewer: Why is that?* I don’t know but most of ‘em say because of the pay. It’s a lot of substitute teachers, or some classes don’t have teachers. We just sittin’ there. *Interviewer: What do you mean by just sitting there?* Just sitting, like I had a health class, we didn’t have a teacher the whole year so we just went in there every day and sat down. *Interviewer: A principal didn’t come down or they didn’t combine classes?* Sometimes they’ll walk past and just make sure everybody’s like sitting down.

Ciara, 15, lived in a suburban school district and was in the throes of her freshman year during our interview. She shared that throughout her middle school years she elected Spanish as her language requirement. Naturally, she expected to continue with Spanish upon entering her freshman year of high school. However, her plans were foiled when she too experienced a teacherless classroom, and ultimately switched to French.

We was sitting there for [pauses as she thinks] it was a month or two, honestly. We was just sitting there on our phones. *Interviewer: Was there a teacher in the room? It was a sub. Interviewer: What would the sub do?* She would be on her computer and we'd just be on our phones. She was like "You need to stay in there until the teacher get there." I'm like after awhile is crazy - I want to do some work. I'm like might as well learn something, I'm not about to sit here and let this be my study hall. If I had a really big core class before then, then ok...I would have kept that class and be like, Oh, this is how I do my homework. But I didn't and I'm like, okay, this phone is getting boring and everybody in class, can't nobody text me so I'd rather just go switch and learn something.

These accounts of teacherless classrooms occurred in both core and elective subjects and extended long into a semester. For D'aja, the absence of a science teacher resulted in learning deficits in a core content area. In Makayla's experience, health class was one of the few slivers of time in the educational system where content on nutrition, growth, and development; sexual health; substance use; and, mental and emotional health are required content. Assuredly, the absence of a permanent teacher meant cuts to what is already a severely limited time-period for introducing and openly discussing these critical health issues. Teacher attrition was equally as disruptive to learning time when experienced mid-school year and/or involved multiple substitutions. For instance, Daphne described the mid-year exit of her English instructor:

We lost a lot of teachers and I kind of blame [it] on not just the school, [pauses to think]...just anybody that pays the teachers. They have to leave and go find better jobs and we're just left with substitutes...Our English teacher left right after our Christmas break. People were forgetting stuff that they learned.

Linked through the stories shared by D'aja, Makayla, Ciara, and Daphne are the extensive costs tied to teacher churn – a loss of instruction time and continuity in learning, a removal of choice in elective content, and the emotional tax that comes with feeling behind and receiving the message that you don't seem to matter. The experiences of teacher churn extended beyond city boundaries and had a direct impact on a broader

swath of students than that of closures and takeover, which tended to be more concentrated in the poorest neighborhoods.

Securing paid work. "I fill out applications all day, everyday"

Locating paid work also comes up frequently when discussing the ways girls think they should be spending their time, most notably among those age 16 plus, the minimum age many of the girls believed they needed to be in order to work. Among the 16 girls between ages 16-18 years, eight indicated they were looking for work, and two worked in a paid job - Shonice did a few hours here and there in retail and Aniyah worked full-time hours doing hair in a braid shop. A couple of other girls did not work in a shop, but charged friends and family for wraps, a press and curl, or braiding. The eight girls actively looking for work reported little success and much frustration. "I've looked everywhere!," Chivonn exclaimed.

Interviewer: Give me examples of places. Clothing stores, restaurants, some – I went to a nursing home. Everywhere. Don't nobody want me...I go to malls and try to go out to like East Point to the Walmart stores and stuff like that because they always need people – Kroger and stuff like that. But I really don't look around here much at all because everybody says the same thing, "They're not hiring."

Commonalities are shared between Chivonn and Lexi – she too described the suburbs as the hot spot for work opportunities. For those readers unfamiliar with the metro-Detroit area, 8 mile road is the physical boundary between Wayne county (Detroit proper) and Macomb, Oakland, and Livingston counties to the North. This boundary separates the city's predominantly Black core from the predominantly White, upper-middle class population in the suburbs.

I fill out applications all day every day. You have to know people to get a job now, like, all the neighborhood jobs, like all the restaurants and stuff, like you can't get hired into them unless you know people, like all of the jobs that's past 8 Mile.

Sydney mentioned a desire to help pay her mom's bills, but most frequently girls reported wanting to help pay for their costs, such as phone bill, clothes, and school-related expenses. Felicia's description of how she needs "her own money" illustrates the types of expenses she considered as a part of her responsibilities:

Because, well I just feel I should have my own money because I really run my mother and my sisters pockets, and then my senior year is coming up, so that's going to take a big toll out of em, so I want to contribute as much as I can. Senior dues and then prom is going to cost them a lot, and then pep rallies and stuff, and homecoming, so that's going to be outfits, and money to go out, and stuff, so...I just kind of feel I should get that on my own.

Aniyah, one of only two girls formally employed, has been working for the past 5 months at an African braid shop. Her mother does hair and this is where she first learned her talent. Although she cringed when talking about the shop, because of her "distaste for the owners" and amount of hours she is working (averages 6-8 hours a day), she explained that the ability to work "eases her mind, because she doesn't have to ask her mama for a bunch of money anymore." Securing a job is also often discussed as a means towards self-sufficiency in the extended plan. When I ask Aniyah what are the expectations for how she spends her time, she says working and school, "Because this is around the time that I'm supposed to be graduating and because I'm 18 and most 18 year olds should have jobs. Cause when you turn 18, that's when your parents want you out the house." Similarly, Lexi was thinking about a long-range plan. When I asked "What is your primary goal in getting a job?", Lexi responded: "To get a car. So I can actually quit that [hypothetical] job and get a better one farther out. past 8 Mile."

Frustration resulting from countless failed attempts resonates across the narratives, and especially so for those who emphasize the need to pay for their own expenses. As evidenced in Chivonn's and Lexi's descriptions of their job-search strategy, they've broadened their search to the surrounding suburbs. Lexi also shared that she completes online applications that make it easier to apply to jobs that are more difficult to access in person. However, as she sat up and pressed her glasses up her nose, posed with a head tilt and big smile, she said that she made sure to "show her face" in nearby stores because she felt like "knowing someone" was the only way to get her foot in the door. Frustration resulting from countless failed attempts was present in her interview and resonated across interviews.

Taking care of those who are important to you

A. Household tasks and caretaking down to the young

Maintaining the household and caretaking of children in the family is another activity often described as something "you've just got to do" because it's "your responsibility to take care of those important to you." Extant research has shown that girls engage at a young age in household maintenance and caregiving roles, (Gager, Cooney & Thiede, 1997), so it was not unexpected to hear reports of cooking, washing dishes, doing laundry, cleaning shared spaces such as living room floors and bathrooms, and watching after their younger siblings. For a few like Lexi, the household was run where everyone is responsible for themselves, "I clean up what I mess up....I do my own cooking [when she eats at home], I clean up my own dishes, I do my own laundry. I stand for myself." Most, however, reported a chore list where responsibilities are divvied up across family

members. As Celeste explained, “There’s a schedule. This day you do this. If I clean up the house on Monday, I don’t clean it back up until Wednesday.” In reviewing the dispersion of chores, on occasion there were disgruntle complaints of other siblings “weaseling out of their chores,” and this is noted as occurring especially among brothers by Kierra, Imani and Amina. The chore list can also be amended to accommodate those who are working or overburdened with school work. Kierra explained that she often took up for her brother, because he obtained a job and is helping pay the bills of their grandmother that suffered a stroke. Similarly, Imani described how her sister’s chores fall back on her and their mother, because her sister is just too tired after working two jobs [her older sister is the only employed adult in the formal workforce in a household of five with three adults, including her mother who is on disability and her grandmother]. In other examples, Amina and Justice shared times their parents took over their own household duties when school was demanding more of their time. For example, Amina, age 15 stated:

So when we first moved, I was on top of my chores and things. Every weekend I would wake up on Saturday, clean the bathroom – because my job is to clean the bathrooms and to dust. So I would always make sure that was done. But when I got to [school A] and I was in the marching band and things, I kind of started to slack on my chores. And I still do but I’m trying to make time.

Provision of caregiving to siblings was another frequently mentioned obligation. For instance, Jordan’s mom worked nights, so she was responsible for her little brother and sister (age 14 and 9).

My mom works so I make sure they have something to eat, do their homework, have clothes, all that stuff. *Interviewer: How often do you do those types of things for them?* Whenever my mom works. She works midnight... she goes in at 11 and gets off at 7.

Celeste and Tiara also described hands-on involvement in raising their baby sisters. Celeste reported assisting her seven year old sister get up and around in the morning and

after school with homework. Tiara spent several hours of her day watching her 3-year old sister and assisting in getting her washed, dressed, fed and practicing how to spell her name and say her ABCs.

Rarely is caregiving described as work, yet child caregiving sometimes develops into an income-generating opportunity. For those such as Lexi who “...fill out applications all day, every day” in the formal work world, having the chance to earn a few dollars caring for family and friends’ kids was a welcomed opportunity. It’s important to note, however, that pay wasn’t always expected. For example, Imani watches after her cousin’s son, who lives immediately next door. Sometimes she is paid, most typically when her cousin is “going out” or “gone for long periods.”

Oh yeah, and I babysit him [male cousin, age 6]. That’s my job. Yeah, her son. Right here, him. He got autism, but he is very bright. I took it on because I needed the money and she wanted somebody to babysit, so I did it. But like, if I’m like just doing something around the house, I’m not going to say give me \$5 or something. I just do it, because I feel like I’m supposed to.

Lexi too described watching her nephew in order to aid her niece in continuing on with high school. She didn’t view this as work, per say, unless her niece goes out for leisurely purposes, and then she charges:

When my sister takes my niece to school in the morning - since I don’t have to be to school till eleven [alternative school flex schedule], I watch my nephew...I get him up, I make him something to eat if she ain’t back yet, and then she’ll just come and I leave to school. I babysit too, but they got to pay me.

In many circumstances, caregiving to children is offered by teen girls as a mechanism to ensure the family unit runs at its optimum. As we’ve seen in the weight given to school performance and the search for paying jobs, these “must dos” generally reflects the narrative that pushes investment in one’s human capital as a way forward and a path towards becoming a productive, self-sufficient adult. Yet, there also seems to be dueling

obligation toward family as evidenced in narratives about caretaking of children and familial peers, such as the circumstances of Chivonn. In some of the cases mentioned above, girls were able to shape the demands that come in the form of family obligations into paying opportunities that they seem to struggle with securing in the formal working world. However, other forms of familial caretaking frequently conflict with future aspirations of self-sufficiency and investing in one's human capital. This is especially evident in the various demands described by teen girls that perform caretaking of their elders.

B. Caretaking up to elders

More extreme forms of caretaking frequently involved elders. Nearly 35% of the sample reported having provided care to an elder that exceeded occasional help and involved more intensive duties. For instance, Kierra, discusses caring for her 67 year old grandma who had a stroke that resulted in paralysis on the left side of her face and torso. Her account illustrates the physical demands, as well as the time drain and interrupted sleep.

I used to sleep with my grandma so she could be okay. I had to wake up in the middle of the night, change her, take her to the bathroom and I had school the next day. I would get up early and go to school, go to practice, come home and do it all over again. I was really tired, she'd wake me up like 4 in the morning, "I gotta go to the bathroom." I had to push myself to get up. Some nights she'd be scared to ask me 'cause she know how tired I be.

Girls hailing from families of middle-class status also engaged quite extensively in the physical care of grandparents. Laila, 18, had moved in with her grandfather who had dementia. She cooked, cleaned, and took him on field trips to some of his favorite past times – hitting golf balls and finding a good burger. This isn't her first time caring for an

elder, though. In their final years, both her great grandmother and her mom's grandpa moved into her childhood home and she assisted them as well.

Well, I've been doing it for awhile because my great grandmother, she used to live in Tennessee so me and my grandma, we went to Tennessee and we brought her back to Michigan and I helped take care of her until she died. Then, my [other] grandpa who just recently died in November...He moved into the house with us and I used to have to take care of him, like have to change his diapers and stuff. Make his meals.

Chivonn's caregiving was less physical and instead took the form of taking charge of tasks that her mother typically did to keep the household running.

She had kidney disease. When she started getting real sick we had to help her around the house. I would cook so she wouldn't have to get up and be on her feet. Clean up. I would go to the store for her. She was on dialysis every other day so she was kind of drained all the time.

Similarly, Justice described how she assisted in the caretaking of her epileptic uncle who came to live with her family after the passing of her grandmother, his primary caretaker. She assists her mother, his new caretaker, by performing household tasks such as cooking and finding ways to help keep him engaged: "I mean I don't do medicine but yeah, sometimes I like cook. I'll play a card game with him, I'll encourage him to like exercise with me: he's a little reluctant but I do try.

As evidenced in girls' accounts of caregiving to elders, time is devoted toward physical care, picking up on household tasks that others can no longer perform, and just looking after and entertaining those in need. It is important to also note that literal time is also eaten up in worry, and has the potential to also interfere with other obligations, such as school and future careers. Laila felt "anxious" and conflicted about pursuing the navy, not knowing how her grandpa would fare after her departure. She stated, "I worry about my grandpa a lot because my uncle's selfish and stuff. I don't feel like he [will] care for my grandpa, but I can't be there all the time. I'm trying to find a health person to come in so

when I leave, someone can take care of him. Chivonn also discussed how family illness and taking on the caregiving role acted as a time crunch influencing other obligations in her life because worry.

I worried about her so much. That was half of the reason why my grades went down because I was worried about my momma, worried about losing her, worried about just everything. So I was kind of going crazy about that. She's one of the most important people.

Chivonn's school and familial obligations were in direct conflict, and during the height of her mother's illness, familial obligations won out. It seems this will more often than not be the case for girls caught between these dueling obligations, as the urgency presented by family illness is too much to deny.

Just being a kid

Although less prominent than school performance, work, or care, sporadically I was told it's important to also spend some of your time on "just being a kid." Probing for clarification on what that meant generally resulted in discussions on leisure time. Justice felt pride when she noticed improvements from the practice time she spent on her violin. Whereas Chivonn and Kierra described their respective hobby and sport in restorative terms. Chivonn shared, "With writing you can kind of be yourself and at the same time you can kind of create a different world. Some people when they go through stuff they talk to people: I like to write it out." Kierra used the phrase "stress reliever" when she described cheer practice:

It seems like all my problems would go away. I'm not even focused on that [referring to care of grandmother]. I'm just focused on cheering, getting my stuff together, get my strength up, doin' everything I have to do to make myself better in cheerleading. I just feel like that was a stress reliever.

Despite the sample's strong disposition toward college, surprisingly, few girls explicitly drew an association between extracurricular involvement and college. For us, this raised the question, is this due to fewer girls having access to constructive activities organized via their school? Through interview probes and diary data, participation in activities, typically considered active-, structured-, or constructive- in nature were recorded for each individual (see table 4.2). Most girls that reported organized leisure via school were engaged in 1 to 2 activities. On both ends of the class spectrum a subset of girls reported no school-based extracurriculars (if you consider that JROTC activities are mostly confined to a class hour, then a greater share were concentrated in the poor class status group). Four girls, in particular, stood apart from all others in carrying a slightly higher number of school-based activities and greater diversity in the type of activity: Justice, D'aja, Kendra, and Daphne. Common amongst 3 of the 4 girls was enrollment in a city magnet school (examination and application-based).

Girls also reported engaging in a range of constructive activities detached from school – some at no cost and grounded in the organized efforts of churches and local NGOs (e.g., orchestra, church youth group), and others that require fees-for-service (e.g., driver's training, gym classes). Many girls, particularly from poor families, solely reported constructive activities carrying low or no costs (e.g., reading/writing for pleasure, baking, playing cards).

Table 4.2. Engagement in constructive leisure attached to and external to schools

Social Class	Pseudonym	Constructive leisure organized via school	Constructive leisure external to school
Poor (n=12)	Justice	Track and field, chess club, orchestra, religious club, GearUp (college readiness youth development)	Orchestra
	Aniya		Does hair for pay, pleasure reading
	D'aja	Marching band, environmental science club, GearUp (college readiness youth development)	Church youth group
	Chivonn		Theater youth development group (on/off), writes short stories and poems, pleasure reading
	Lexi		Plays card games
	Tiara	JROTC (mostly confined to school hrs)	Baking
	Celeste	JROTC (mostly confined to school hrs)	Does hair on occasion for pay
	Makayla		
	Felicia	Cheerleading, gymnastics	Does hair on occasion for pay
	Elyse	Softball, girls empowerment club (on/off)	Baking
Kierra	Cheerleading, volleyball	Volunteer cheer coach	
Sydney	JROTC (mostly confined to school hrs)		
Working class (n=5)	Amina	Marching band	Girl Scouts, pleasure reading
	Brandy	Basketball	
	Imani	DECA	Church youth group/ Bible study
	Kendra	Swim team, anime club, gaming club, track and field	Swim team at rec center, drawing, crafting, rowing (summer)
	Daphne	Yearbook, robotics club, social justice club, gaming club, environmental science club	Reads for pleasure, crafting, golf (summer)
Lower middle class (n=9)	Laila		Bootcamp exercise at gym, drivers training (summer)
	Ebony		Drivers training (summer)
	Raven	Dance club, marching band	MI 4H Program (summer), drivers training (summer)
	Jordan	Swimming and diving team	Swimming at rec center, sorority (on/off), drivers training (summer), pleasure reading
	Nina		
	Ciara	Medical academy club	
	Shonice		Part-time work in retail, sorority (1/month)
	Jayla		Sorority (1/month)
	Melanie	Scorekeeper - basketball, DECA	

The patterns observed are somewhat consistent with extant literature that suggests class status matters to some degree in constructive leisure participation (see chapter 3). However, school sector also seems to rouse diversity in school-based options for girls, and greater participation. For instance, both Kendra and Justice are engaged in a sport (track and field, swim team) and at least one club (chess club, anime club). Raven also attends a magnet school, although a different one from Kendra and Justice, she too is engaged in two different types of constructive leisure. In contrast, girls in the neighborhood schools and charters (Daphne is the exception), primarily carried the historical, core sports – basketball, cheerleading, volleyball, or a core vocational/tech club (e.g., DECA), or totally disconnected from school-based extracurriculars altogether.

Some would suggest the patterns observed are due to compositional differences in the values and motivations of students, and not about schools. However, inquiry on the availability of extracurricular sports and clubs revealed clear differences. Lists rattled off by students in magnet schools presented more like a smorgasbord, whereas charters fell on the other end of the spectrum, offering slim pickings. Additionally, in interviews, all girls were asked to design their ideal school. It would be remiss of me to not mention that dress code and school lunches were top-of-the-mind – comically, Michelle Obama is frequently mentioned by name - described as “loved,” but “in trouble” with the girls for the healthy school lunch program. However, an expansion in extracurricular activities was also widely reported in girls’ dream school builds, particularly by girls in charters and neighborhood schools: “A pool. I would have a cheerleading team and a dance team.” (Melanie, charter); “we’d use the pool [building has one that is not operational]. I’d have tennis” (Sydney, neighborhood school); “I’d have dance or debate. Or majorette.” (Imani, neighborhood school); “I would like some performing arts, like band, orchestra, dance, drama, or theater” (Elyse, charter school). Moreover, the negative effects of school closures, takeovers, and school choice resurfaced in the context of extracurriculars.

Lexi made no mention of sport, clubs, or for that matter, any organized activity on her own. Only after probes did she indicate that she used to be a cheerleader, but that came to an end after her second high school went through the state takeover:

I was on the cheerleading team for a little bit, but then EAA happened and I didn’t have no way home. They stopped buying us the bus cards. Everybody has to ride the cheese bus if you want a way home. *Interviewer: So they used to provide the bus pass, for like City busses?* Yeah, the D dot busses, and it will last until 9:00 p.m. and that’s where if you had cheerleading practice, you can go and still get on the D dot busses. With the cheese bus, it will only come after school. So you’d have to walk or somebody come pick you up. I didn’t have that [mother doesn’t have a car].

Lexi also explains how opportunities to socialize with peers changed:

In my school, like they don't have a basketball team or any of that stuff. That's what I did, actually, when I went to [first school] and [second school]. Go to the games. Um hmm [with nostalgia]. We'd all get together and go to the games.

Felicia had never switched schools, and yet described a similar experience at a different school that was taken over by the State and handed off to a private reform agency:

They used to have robotics and ROTC. I loved ROTC. There was drama and debate. And they used to have band and majorette. They got really low money and they are really in debt so actually a whole new group had to come and take over. It's my last year and I have to readjust to a whole new building and a whole new staff. And this [administrative] group is just different from the original high school [tone of disdain]. *Interviewer: How so?* They are very, very, very, very strict. And they took away all after school activities that people actually enjoyed which kind of motivated people to come to school.

Teens like Imani that commuted to suburban school districts far from their home often turned to cornerstones that remained in the neighborhood to get what they lost in the distance between home and school: "I go to church Tuesdays, Sundays, Saturdays if they have events. It's literally walking distance from my house. Yeah, everything is walking distance except for my school." For Shonice, the move to the suburbs also meant a loss of belonging. This uneasiness kept her from pursuing basketball, a sport she used to do. She too turned to an organized activity external to school:

Interviewer: Do you participate in any after-school activities? No, I just wasn't comfortable. It was too many new faces. I do the sorority, because some of the people that was in there, I knew from [my old] school and one girl goes to my grandma's church. It was kind of easier to interact with people.

Taken together, this sketch of the girls' activities suggests some degree of exclusion from constructive, social activities via school choice and state accountability efforts.

Managing conflicting obligations and expectations: A glimpse at daily activities

Belief in college as a surefire way to fulfill their aspirations was diffuse across class status, and the narratives of girls suggested this motivates their views on the importance of spending their time on getting good grades, finishing school, and to some degree, engaging in extracurricular activities viewed as demonstrating dynamism, balance, and maturity, including work. Yet, making sure the family is okay and jumping in to contribute to the needs of family and friends was equally raised as important and something you just must do in daily life. Pairing diary data with interview data offers the opportunity to take a glimpse into how their beliefs on time use were actualized day-to-day. Based on 2 weekdays and 2 weekend days, table 4.3 provides a snapshot into the average minutes per day the girls spent in homework and studying, household tasks, caregiving, and constructive leisure.

Table 4.3. Average minutes per day in activities and participation rates based on diary data

	Weekdays			Weekend		
	Homewk - study	Household	Caretaking	Homewk - study	Household	Caretaking
Poor (n=12)	32 min (58%)	41 min (83%)	60 min (75%)	15 min (42%)	69 min (100%)	50 min (66%)
Working class (n=5)	45 min (100%)	25 min (60%)	63 min (20%)	14 min (40%)	41 min (60%)	84 min ^B (40%)
Lower middle class (n=8) ^A	77 min (88%)	27 min (50%)	19 min (50%)	64 min (50%)	40 min (50%)	57 min (63%)

Note: Adolescent girls recorded how they spent their time on 2 weekdays and 2 weekend days. Average minutes in was calculated for each girl in the domain of interest. Within each class ranking, an average was calculated for each domain. The percent of girls in each class status that reported participating in the domain on their weekday and weekend diary days is included in parentheses ().

A. 9 girls, in total, met the parameters for middle class. However, 1 diary in this subgroup was not viable for these purposes.

B. 1 teen in this subgroup spent nearly an entire day serving as the primary caretaker of child relative, raising the average.

This exercise was conducted with the intent to observe general patterns to see if they mimicked those in the time-use literature, not to statistically test differences between

class groups (as the cell sizes are small and the sample is non-random). Generally, I found that fewer girls in poverty reported any time on homework or studying on their diary days, and they averaged around 30 minutes a day during the weekday, whereas working and middle class girls averaged 45 and 77 minutes a day. The reverse was true of household tasks and time spent in caretaking, with girls in poverty and working class status spending more time on weekdays than middle class girls. These patterns generally mimic class patterns observed in the literature. Notable, however, is time spent in caretaking during the weekend, with girls appearing more alike.

In many cases, girls were entangled in a complicated balancing act when attempting to juggle investment in school and work, with family obligations. School they believed would afford a chance to be self-sufficient and achieve their desired goals of college and career. Yet, there was this pull to make money and tend to familial needs that are just as important to them (and self-affirming in different ways than school or work). And, all of this is happening while being sent the message that they are to focus on school and just being a kid. Strung throughout their narratives are structural blockades that simply cut away time that can be devoted towards building human and social capital via classroom time, homework and studying, and participation in active, organized leisure pursuits. Although more extreme for girls from poorer backgrounds, no one seemed immune from the large-scale changes occurring in the city and surrounding school districts.

Throughout their narratives on daily life, there is evidence that girls and their parents recognized the a mismatch between what they're told and believe they should be doing with their time, and what they actually have to do with their time, and this creates internal conflict – frustrations in not being able to do what you know is expected of you,

often followed by guilt because they know they are depended upon and need to fulfill roles that help the whole unit, and guilt in needing to depend on them is felt by parents alike. As we see with Kierra, she describes the need to care for her grandmother as launching her into adulthood.

It made me feel like I was older. Like I had no type of child experience or teenage experience. I couldn't do nothing.' It just made me feel like it was my responsibility for everything.

Kierra's conflict between expectations for "being a child" and the reality that requires assuming adult roles seems to be recognized by both parent and child, as she explained to me how her father tries to "make-up" for what she does to help out her grandmother.

He always think I'm too young to be havin' all this much stress and everything that goes on with me. Now when I go out he's just lettin' me go cause he know I need to get out of the house cause the more I do stuff...that's why I do things, so everything won't be on my mind. The more I do things and the less I'm not at home, I just feel like I'm okay and everything's gonna be okay. When I'm at practice [cheerleading] then I don't think about anything. I never think about nothin' until maybe at night if I can't sleep. If it's a hard night sleepin', everything is just rushin' in my head.

Kierra's words explicitly connect the strain she experiences in managing family obligations to feeling older. In another example, we find that the strain on the larger family is recognized and internalized by young girls, even when they are not serving in the primary caretaker role. For example, when I asked Justice if she ever felt tense or anxious, her response interlaced her need to fulfill her mother's expectations for her education as a way to minimize the stress her mother and familial unit is dealing with as they manage the care of her uncle:

Yeah, I just feel like your family expects a lot from you and it's a lot of pressure so then you kind of pressure yourself. Then it's like a lot a lot of pressure and then it becomes overwhelming. *Interviewer: When you say your family expects a lot from you: what do they expect?* I mean with my mom's situation having to kind of work

and take care of my uncle, I try not to like put too much stress on her so – I mean I don't misbehave really in school. I try to get good grades so she doesn't have to come to parent-teacher conferences, or so she doesn't have to like worry about summer school and other stuff for me. Yeah, I try to not add stress to her – and I think that adds stress to me.

Justice's account of her family's expectations highlights the importance her family places on her education and her desire to live up to those expectations. But muddled in her response is also the need she feels to minimize the strain currently weighing on her family, particularly her mother. She attempted to do this by assisting her mother in the care of her uncle, while also pushing herself to perform in school and pursue self-advancement. Sydney also described a tug-and-pull scenario when discussing the stress she sees in her mother, and compares how her experiences compare to peers. Her contribution often involves significant amounts of time devoted to helping her mother care for her little brothers (ages 1 and 3 years old), and soon will have a child of her own to raise:

I grew up fast...I just know [from] seeing me with other kids. I worry about a lot of stuff my momma's worried about and it's bringing me to be mature. *Interviewer: Can you tell me about what some of those things are?* Sometimes when she be having a hard time paying the bills, I worry about that when I don't suppose to. I be trying to find ways to help her.

In relating their experiences with stress and maturity, Justice and Sydney shows us through their stories how the heightened anxiety and stress experienced in a family can trickle down to adolescent girls, and prompt them to react in ways that aim to minimize their family's overall stress, but perhaps at risk of heightening their own.

Discussion

Presented in this paper are examples of daily obligations experienced by Black adolescent girls in the Detroit, metro area, with attention given to the personal motivations and expectations establishing these obligations; the constraints that present when attempting to fulfill obligatory roles; and, the subjective experiences of managing these obligations. Results of this study suggest the human capital narrative is salient to these young girls, as evidenced in their desires to perform well in school, advance to college, pursue careers and secure jobs that will afford cars, homes, and the necessities of life. Fear of failing their family's expectations for college and career is described as stress-inducing, whereas others seem to experience stress as they take on more self-directed goals of escaping restrictions imposed by lack of financial resources. Both circumstances may become even more stress-inducing when complicated by barriers towards attaining these goals, such as transportation issues; a failing school system, and managing the competing obligations of family.

Girls' narratives parallel aspects of the Weathering Hypothesis, starting with the role of environmental stressors. The divide in opportunity structures between the city center and neighboring suburbs rang through in difficulties securing paid work, as well as a safe, academically sound school learning environment. As Geronimus argues (1992), the stress inherent in living in a race-conscious society that systematically disadvantages Blacks in ways such as this is likely to present stress implicated in the weathering process. We see experiences of frustration and feeling trapped in girls' job-search accounts, not unlike research on "job deserts" and middle-age adults (Elliott, 1999; Levine, 2012).

The same forces at play in segregating work opportunities, also influenced the school system structure, and are uniquely experienced as stressors in adolescence. Numerous girls were forced out of schools because of closures, and others “chose” to switch schools in search of a better academic experience. In the case of Imani, the decision was made to switch to a school in a neighboring suburb, requiring a 30-minute drive to and from the school everyday, raising the demands on her mother to get her to and from school while also accommodating the schedule of other family members. While this was considered the best choice by Imani and her family, this is not within the realm of options for the many without a car and dependent upon the fractured public transportation system. Therefore, some may feel trapped in a less than ideal situation that stands in the way of prepping for pursuit of their intended future at college and beyond. On the flip side, those that do switch are likely also experiencing distress over adapting to new teachers, school structure and policies, loss of extracurriculars, and reckoning the loss of familiar friendships and the need to start over in formulating new ones.

Additionally, several girls mentioned difficulty in interfacing with inflexible school policies that penalize and further interrupt their learning. Kierra believed the apathy she was receiving from her teacher when she asked for help was the teacher’s way of punishing her for the times she experienced difficulties in getting to school on-time. Others reported suspensions after accumulating several tardies, which further interrupted the learning process, and ultimately prompted departure from that school. These accounts are consistent with reports that have shown tightening of school policies is occurring nationwide, and reports that have suggested Black children, including Black girls have been disproportionately affected through suspensions and expulsions (Morris, 2016; NAACP

Legal defense and Educational Fund & the National Women's Law Center, 2014).

Researchers that have focused on the experience of Black girls in the educational system have found that the same assertive characteristics encouraged in White, middle-class children (Lareau, 2002) are interpreted as loud and abrasive, all stereotypes of Black femininity that result in patterns of discipline aimed at reform towards deference, passivity, and silence (Morris, 2007; Morris, 2016; Tyson, 2003). The consequences attached to policies and practices aimed at "reforming" Black girls will result not only in the loss of learning time, but also distress as girls contend with these reform efforts, and exhibit high-effort coping strategies to power through under these circumstances. Survival strategies vary across situations, yet common amongst them is the tendency to engage with others only in those spaces that are perceived as safe. For instance, girls are traveling far distances to secure "safe" and "less strict" learning environments, in some cases in schools that require minimal interaction with teachers and students; when landing in a new school or an altogether new neighborhood/school setting, girls remain insular and skeptical of sports and clubs that require engagement with unfamiliar faces; and going out of the way to make oneself known to teachers, so they know "what you are about." These are all real considerations for the ways in which school policies may be implicated in producing social isolation and weathering as it picks up steam in the adolescent years, and results in health detriments by early adulthood.

Caregiving role strain has also been suggested as a potential mechanism for weathering among Black women (Geronimus, 2001, 2007). It has been shown in other works that the excess burden of poor health among Blacks, coupled with the gendered divisions of labor and social expectations, place Black women in positions where they are

devoting a significant amount of their time toward caregiving, and suffering a great deal of stress in this role (Burton & Whitfield, 2003; Hicks-Bartlett, 2000; Stack, 1974; Stack & Burton, 1993). Many of the adolescent girls in this sample were already serving in caregiving roles, some to their siblings and neighbors children, while others were taking on greater shares of household responsibilities and caregiving of their parents and elders. Often caregiving down to the young was not described as work, and in some circumstances actually provided a way to earn small amounts of money. However, caregiving up to elders more frequently was described as presenting conflict with other obligations aligned with personal growth, and often invoke feelings of being overwhelmed and older than one is. These findings strengthen the argument that certain demands tied to caregiving are important in understanding stress and health in Black females, and may play a key role in the weathering process even in adolescence.

The findings from this study illuminate some of the complexities of Black adolescent girls' lives, that we often overlook and assume are restricted to the adult years. Juggling these obligations appears to be not uncommon among interview participants, and their accounts reveal anxiety, frustration, and worry that accompany their attempts at managing these obligations. These rich illustrations of how girls contend with dueling obligations aimed at personal growth and survival of the family are worthy of consideration when investigating factors responsible for the varying age-gradients of stress-related disease between men and women of Black and white racial groups. Findings should serve to enhance dialogue on existing ideas on the best factors, strategies, and settings to pursue when designing future interventions and policies aimed at reducing health disparities, especially chronic health conditions among Black women.

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CHAPTER 5

Investigating the role of “realigned time” in Black-White health disparities in emerging and young adulthood

Introduction

Extant research has shown that cardiovascular disease risk precursors, including hypertension, are present in youth, and race and gender differentials are evident even by young adulthood (Din-Dzietham et al., 2007; Geronimus et al., 2007; Harding et al., 2010; Muntner et al., 2004). For instance, Black women, in particular, appear to be experiencing the steepest age-gradient increase of hypertension as they age from adolescence through middle adulthood (Geronimus et al., 2007). As knowledge on the timing of hypertension disparities has progressed, so too have inquiries into childhood and adolescence exposures, ranging from genetic, to behavioral, to stress processes triggered by social and economic adversity (Felitti et al., 1998; Slopen et al., 2011). A focus on social adversity and stress processes, especially, is a logical point of inquiry, as race and gender are both social constructions of identity around which social and economic life is largely organized, including the unequal distribution of resources and chronic strains. In chapter 3 of this dissertation, I posited the argument that time is yet another resource that is structured through racialization processes in ways that often inhibit non-White groups in their use of it. Through a descriptive analysis of time-use in the U.S., indeed, I found distinct patterns in time-use that stratify by race in the daily life domains of education, work, family, and

leisure time. Hence, using the National Longitudinal Study of Adolescent Health (ADD Health), this study asks: Does time-use, as a proxy for differential lived experience in adolescence, explain the association between race and early onset overweight/obesity (a relevant precursor) and hypertension status among Blacks and not Whites?

A cumulative index of realigned time

Most studies that have examined adversity in adolescence in relation to early onset hypertension or other-stress related conditions, have primarily considered adversity only through the lens of economic deprivation (Ben-Shlomo & Kuh, 2002, Lynch & Davey Smith, 2005). Early life economic disadvantage is often proxied via parental education, or the household income of the respondent, and as a result, there is a knowledge deficit on other resources that may be relevant to adversity in adolescence, and in turn, the relationship between these factors and hypertension trajectories. Moreover, increases in SEP do not guarantee a reduction in hypertension risk; studies have repeatedly demonstrated that higher SEP Blacks experience hypertension at comparable rates of low SEP Blacks. 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 the “racial realignment of time.”

I borrow the terminology, “racialized realignment” from Fine and Ruglis’ (2009) essay on the *racialized realignment of the public sphere*, a piece that considers the effects of policies that have steered public dollars away from

education and toward criminal justice surveillance of racial/ethnic minoritized communities. The word, realignment, means to change the direction or position of something in relation to something else, and I believe fittingly describes patterns of time-use observed in chapter 3 by race and gender, where we see population-level differences in time-use that hint at social exclusionary practices and policies repositioning the structure of daily life for Blacks, even in adolescence. Drawing upon Geronimus' weathering hypothesis, this study seeks to answer whether early trajectories into hypertension among Blacks relative to other groups might be, in part, a reflection of higher demands for responsibility (e.g., family caretaking), exclusion from time domains associated with building human capital (e.g., part-time work, learning time), and fewer stress outlets for leisure among Black compared to White youth.

Conceptually, it is difficult to imagine one time-use profile that may stand above all others as being the most detrimental to health. Yet, drawing upon cumulative stress theory, multiple exposures to time realignment, relative to single exposures is likely to result in more stress and a greater erosion of health. For this reason, a composite index of realigned time is created in this analysis to test the relationship between disadvantages embedded in various domains of time-use and the relationship with early onset hypertension. The cumulative risk score approach (Evans et al., 2013) accounts for the clustering of risk factors together, and facilitates the examination of simultaneous exposures.

Focal point of this study and hypotheses

The Add Health dataset is uniquely situated to examine this relationship, as it includes social, behavioral, and health outcome indicators; assesses blood pressure measurements in young adulthood, instead of waiting until middle-age; and, is a nationally representative sample with adequate numbers needed to stratify simultaneously by race and gender. However, hypertension status is only assessed in the most recent wave of data, when respondents have reached young adulthood (generally ages 24-32 years). For this reason, I have also included a related health outcome in the analysis, overweight/obesity status. Overweight/obesity tracks into adulthood, raises cardiovascular risk factors such as high blood pressure, high cholesterol, and abnormal glucose tolerance and diabetes, as well as contributes to a multitude of social and economic costs (CDC, 2011; Ogden, 2010; Ogden et al., 2012a; Ogden, Carroll, Kit, & Flegal, 2012b), and therefore can serve as another indicator for exploring the early effects of realigned time in adolescence.

Hypothesis 1: Black females will have the highest prevalence of overweight/obesity in emerging adulthood and pre-hypertension and hypertension in young adulthood, compared to all other race-gender groups, followed by Black males. White females will have the lowest prevalence rates.

Hypothesis 2: Increased early-life stressors (e.g., low SEP, high time-use in committed activities such as household work, and low time in organized discretionary time) are positively associated with overweight/obesity and early-onset hypertension. Once entered into regression models, SEP and the realigned time index will lessen the racial differences in early-onset hypertension for males

and females, with different combinations of time-use variables potentially having greater influence by gender.

Methods

Data source and analytic sample

Add Health is a nationally representative sample of adolescents in grades 7-12 during the 1994-1995 school year, followed into young adulthood with four in-home interviews, the most recent in 2008 when the sample generally ranged from 24-32 years of age. Students were stratified by grade and gender and randomly selected from each strata to yield a total of approximately 200 adolescents from each pair of select schools, providing a nationally representative core sample of 20,745 American adolescents in grades 7 to 12 (Harris & Udry, 2010). A parent or guardian, usually the resident mother, also completed a 30-minute op-scan interviewer-assisted interview during wave 1. New questions were included in wave 3 (2001-2002) and 4 (2007-2008) to capture expanded experiences in young adulthood, such as labor market participation, higher education, wealth and debt, morbidity, relationships, and children and parenting. In addition to the in-home interview, physical measurements were collected in wave 4 to obtain more objective measures of health status and biological markers of future chronic health conditions.

For this study, I restricted the analysis to respondents assigned a probability weight at wave 4, who self-identified as non-Hispanic White or non-Hispanic Black, with complete information on the health outcome measures of BMI at wave 3 and

blood pressure measurement and/or medication use in wave 4 (n=8,789). An additional 342 respondents who reported being pregnant at wave 4 were also excluded from the analysis.¹ An additional 2,149 respondents were excluded due to item non-response on the key indicators independent variables of this analysis, resulting in an analytic sample of 6,298 respondents.

Outcome variables

Overweight/obesity and hypertension status: In wave 3, emerging adulthood, overweight and obesity categories were obtained via physical measurement of height and weight. A subset of the sample is still under age 20 at wave 3, therefore the CDC guidelines to compare BMI of those under age 20 to those 20+ was utilized to establish cutpoints for overweight and obesity for these respondents. BMI values at or above the 95th percentile of the sex-specific BMI growth charts are categorized as obese and those above the 85th percentile but below the 95th are categorized as overweight. Body mass index was calculated and those <25 kg/m² were classified as underweight/normal weight, 25-29.9 kg/m² as overweight, and \geq 30 kg/m² as obese (Krebs, Himes, Jacobson, Nicklas, Guilday, & Styne, 2007; CDC, 2012).

Following the wave 4 interview, respondents were asked to rest in a seated position for five minutes, after which three measures of resting, seated blood pressure were recorded. The second and third measurements were averaged, and then classified according to Joint National Committee (JNC) 7 guidelines (Chobanian et al., 2003). After taking blood pressure readings, field-interviewers inventoried antihypertensive medications used by participants within the preceding four weeks by visually inspecting respondent-assembled medication containers. Measured

systolic and diastolic blood pressure were used to categorize respondents as 0=normotensive (<120 systolic and <80 diastolic), 1=prehypertensive (12-139 systolic or 80-89 diastolic), and 3=hypertensive (≥ 140 systolic or ≥ 90 diastolic). Those using a beta-blocker, calcium channel blocker, angiotensin converting enzyme inhibitor, angiotensin II receptor blocker, anti-adrenergic, vasodilator, thiazide diuretic or antihypertensive combinations were also classified as hypertensive.

Key independent variable

Realigned time index: A composite measure of realigned time in adolescence was created from seven indicators of time disadvantage, primarily measured at wave 1. 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). 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. A noted disadvantage of the composite index is that each indicator is equally weighted; a starting point from which I acknowledge future analyses might improve upon by considering weighting schemes.

The seven dichotomized variables comprising the realigned time index are as follows: 1.) engaging in 5+ times a week in household work, ascertained via the question, “during the past week, how many times did you do work around the house, such as cleaning, cooking, laundry, yardwork, or caring for a pet?” [W1], 2.) low school-based extracurricular involvement, defined by a low score of 0-1 when answering the tally of 33 domains of school-based extracurricular involvement [W1], 3.) a forced loss of classroom learning time assessed via an affirmative response to at least one of two questions “Have you ever received an out-of-school suspension from school?” and another inquiring “Have you ever been expelled from school?” [W1, W2], 4.) no work experience by age 18, assessed via a retrospective accounting of respondents age at first job and work experience from W1-W3, 5.) a response of none to the question, “How many times did you do hobbies?” during the past week [W1], 6.) classification in the lowest quintile of physical activity bouts over the week. Sources of physical activity assessed included biking, roller-skating, skateboarding or rollerblading; playing an active sports; and exercise such as jogging, gymnastics and dancing, [W1], and 7.) a report of typically experiencing short sleep, when answering the question, “How many hours of sleep do you usually get?” [W1]. The National Sleep Foundation (2015) recommends 8 to 10 hours of sleep per night for adolescents, age 14-17 years old (2015). Those under age 18 at each interview are assigned a 1 if they report short hours (<8 hours). Similarly, respondents age 18+ were assigned a value of 1 for short sleep (<7 hours) based on recommendations for adults. Long sleep also has associations with poor health

outcomes, however, less than 1% of the sample reported long sleep. Therefore, short sleep only was selected as the indicator for this last domain.

Sociodemographics

Demographics: Age at wave 3 and 4 was obtained from a pre-calculated variable derived from birth date and date of interview for each wave. Race/ethnicity was assessed via the questions: a.) "Are you of Hispanic or Latino origin?" and b.) "What is your race?" A dichotomous variable was constructed to distinguish between non-Hispanic Black "1" and non-Hispanic White racial categories "0." A dichotomous variable was also constructed for gender and coded as "1" if the respondent is female and "0" for male. Household structure was included in models to account for the advantages attached to a two-parent household (e.g., parental availability). Categories were created for two biological parent household, blended family (one biological and one step parent), single-headed household, and other arrangement.

Adolescent SEP: Following the practice of others (Doom, Gunnar, & Clark, 2016; Walsemann, Goosby, & Farr, 2016), adolescent SEP was constructed using a composite measure averaging the standardized z-score measures of three domains all assessed at wave 1: family poverty (parent reported household income to federal poverty level in 1994), parental education (parent reported 10-level ordinal variable), and parental occupation (respondent reported 6-level ordinal variable based on the 6 summary groups used in 1980/1990 U.S. Census). Respondents with missing information on all three indicators were excluded from the analysis.

Respondents living in a household with two parents used the average of both parents' education and occupation information. Scores above 0 represent SEP above the sample mean and scores below 0 represent SEP below the sample mean.

Emerging adult SEP (financial stress and adult responsibilities): Given the dynamic nature of educational attainment and income in emerging adulthood, an alternative measure of SEP was selected to assess the effect of economic hardship at this life-stage. Financial stress is dummy coded as 1 if the respondent reported experiencing any one of 3 economic strains in the past 12 months: could not pay rent/mortgage, could not pay electrical/gas/oil bill, or went without phone service for a period of time. In addition to financial stress, a measure of psychosocial stress associated with taking on adult responsibilities was included as a potential mediating variable of interest in models, coded as 1 if the respondent indicated feeling as though they grew up faster because of adult responsibilities.

Behavioral covariates

Smoking status and physical activity in young adulthood: (W4): More proximate health behaviors associated with hypertension status are included in models assessing the effect of time disadvantage on hypertension status in the presence of these controls. Smoking status is defined by the question, "During the past 30 days, on how many days did you smoke cigarettes?" In line with other studies that have examined tobacco use with the Add Health cohort (e.g., Hatzenbuehler, McLaughlin, & Slopen, 2013), categories of cigarette smoking include: daily smoking for the past 30 days, intermittent or former smoker defined

as 1-29 of the past days or was previously a regular smoker, and those reporting having never smoked cigarettes. Similar to the measure within the adolescent time index, a measure of low physical activity in young adulthood [W4] was constructed based on the distribution of the sample, with the lowest quintile assigned a value of 1. Sources of physical activity assessed in young adulthood included activities such as: walking, biking, skateboarding, dancing, hiking, hunting, and yard work; roller blading, roller skating, downhill skiing, snow boarding, playing racquet sports, or aerobics; and team and individual sports.

Analyses

All statistical analyses were conducted using STATA version 14.2, using the wave 4 survey weight, cluster, and strata variables to account for the complex survey design effects, including unequal probability of selection, non-response, and clustering. As a first step in analyses, descriptive statistics were calculated - means for continuous and ordinal variables, and frequencies for dichotomous variables. Next, bivariate associations were explored between domains of the realignment of time index and the two health outcomes, overweight/obesity and hypertension status. Bivariate analyses were followed by a series of multinomial logistic regression analyses to estimate the odds ratio of overweight or obesity to normal weight status in emerging adulthood, and the odds ratio of pre-hypertensive and hypertensive status to normotensive status. For all analyses, gender stratified models were constructed to explore how the time disadvantage index performed in explaining observed racial disparities between White and Black males, and White

and Black females. Model 1 estimates explore age-adjusted associations of race and the health outcome of interest; with sequential additions of predictors, the Black race coefficient was observed to detect the influence of predictor variables in explaining observed racial disparities in health. Parameter estimates were exponentiated to retrieve the adjusted odds ratio, corresponding to the multiplicative impact of a one-unit increase in the predictor variable, x_j on the odds that the response is equal to k relative to the odds of a response in the baseline category, which in this case is either normal weight or normotensive status (Heeringa, West, & Berglund, 2010).

Results

Sample characteristics

Table 5.1 presents the characteristics of the study sample (n=6,298). Approximately 35% (n=2,192) of the sample was White, non-Hispanic males; 11% Black, non-Hispanic males (n=692); 38% (n=2,386) White, non-Hispanic females; 16% Black, non-Hispanic females (n=1,028). The mean age of the sample was 15.1 at wave 1 when assessment of adolescent's time-dispersion was assessed, 21.6 at wave 3 when emerging adult BMI was assessed, and 28.1 at wave 4, the time period of the blood pressure recording and medication assessment in young adulthood. In emerging adulthood (wave 3), racial differences were present in overweight and obesity for females, but not males. Among White females, roughly 20% were overweight and 24% obese, compared to Black females, where 23% were overweight and 35% were obese ($p < .01$ for obesity comparison). By young

adulthood (6 years post wave 3), half of the males and roughly 40% of females in the sample had blood pressure readings classified as pre-hypertensive. Although a larger percent of males had hypertension, than females, the Black-White disparity was only present in females. Approximately 21% of Black females in the sample were hypertensive, compared to nearly 13% of White females ($p < .001$).

Significant racial differences were noted in adolescent household composition and SEP measures for both males and females. At wave 1, White adolescents were more likely to live in households with two biological parents with SEP scores above average for the sample (.16 for White males and .09 for White females), whereas Black adolescents were more likely to live in single-parent/other household structures with SEP scores below the mean for the sample (-.20 for Black males, -.35 for Black women). Consistent with findings for adolescence, a greater share of Blacks reported financial stress later in life during emerging adulthood (47% of Blacks compared to 31% of Whites, $p < .001$).

Black adolescents also had higher scores on the time realignment index; Black females scored the highest (2.82), followed by Black males (2.60), White females (2.00) and White males (1.92) ($p < .001$ for B-W comparison for both females and males). Generally, racial disparities were present within each of the domains comprising the time index, although more so for females than males. For example, 47% of Black adolescent girls reported low school-based extracurricular involvement (0-1 activities), compared to 37% of White adolescent girls ($p < .001$), whereas the difference between Black and White adolescent boys is not statistically significant (50% vs. 44%). In other domains, such as loss of learning time through

suspensions and expulsions, a greater proportion of Black males and females (50% and 48% respectively) reported this experience than White males and females (29% and 16% respectively). Of note, both short and long time in sleep is considered detrimental to health, yet a small proportion of adolescents reported typically experiencing long sleep time and no racial differences were present. Therefore, short sleep was used as the indicator for the sleep time domain included in the index.

Table 5.1. Sample characteristics of ADD Health study sample (n=6398)

	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	*
Pre-hypertensive (%)	55.72	54.33	NS	40.98	40.43	NS
Hypertensive (%)	28.09	28.01	NS	12.8	21.15	***
Adolescent SEP score (W1)	0.16 (.04)	-.20 (.07)	***	0.09 (.04)	-.35 (.08)	***
Adolescent time realignment index (W1):	1.92 (.05)	2.60 (.08)	***	2.00 (.04)	2.82 (.09)	***
5+ times a week engaged in household work (%)	32.78	34.15	NS	43.16	47.83	NS
Low school-based extracurricular involvement [0-1 activities] (%)	44.14	50.14	NS	37.1	46.91	***
Loss of learning time: at least 1 out of school suspension or expulsion (%)	28.62	54.3	***	16.21	38.67	***
No work experience by age 18 (%)	18.24	33.44	***	21.58	38.93	***
No time spent in hobbies over the week [0 bouts] (%)	17.63	24.15	**	18.26	27.1	**
Low participation in physical leisure over the week [0-1 bouts] (%)	24.03	25.23	NS	34.04	45.42	**
Typical sleep on weeknights are either short or long sleep (%)	30.48	43.51	***	33.81	45.09	**
Short sleep (%)	27	39.51	***	30.14	41.27	**
Long sleep (%)	3.48	4	NS	3.67	3.82	NS
Note: other time-use categories considered for young adulthood-see appendix.						
Emerging adulthood financial stress (W3) (%)	29.24	46.81	***	33.37	47.8	**
Had to grow up faster: adult responsibilities	2.34 (.03)	2.29 (.06)	NS	2.40 (.02)	2.34 (.04)	NS
Age	28.14 (.16)	28.50 (.24)	NS	27.93 (.14)	28.17 (.22)	NS
Household composition (W1)						
No parent/other arrangement (%)	1.9	13.58	***	2.92	7.56	***
Single parent household (%)	15.11	38.3	***	16.72	45.8	***
Blended family (1 bio parent) (%)	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

Bivariate associations of time realignment index with health outcomes

Table 5.2 presents the bivariate associations between the index of realigned time and overweight and obesity status in emerging adulthood; and table 5.3 presents the associations with hypertension status in young adulthood. In general, the realignment of adolescent time index was positively associated with overweight and obesity for emerging adult males and females (1.34 OR for obesity vs. normal weight for females, $p < .001$; 1.18 OR for obesity vs. normal weight for males, $p < .01$). Somewhat of a weaker association was found with hypertension in young adulthood and was only present for females (1.15 OR for hypertensive vs. normotensive status, $p < .01$).

Individual indicators within the index generally were significant for females, but not males, suggesting a greater relevance for females. For example, reporting the highest frequency of time in the gendered activity of household work was positively associated with obesity (versus normal weight) for adolescent females (1.42 OR, $p < .05$), but there is no statistically significant association for adolescent males. The presence of high household work, low extracurricular involvement, loss of learning time, no work time by age 18, no time spent on hobbies, and low frequency of physical activity bouts were all found to increase the odds of obesity for females. Short sleep time is the only indicator in the index that had no association with obesity risk for females. In contrast, low extracurricular involvement, no work time by age 18, and short sleep time increased the odds for obesity in males. The weaker association of the index with hypertension status is reflected in the individual indicators, with positive and significant associations only present for females via the loss of learning time (1.50 OR for hypertensive vs. normotensive status, $p < .05$) and no

work experience by age 18 (1.36 OR for hypertensive vs. normotensive status, $p < .05$). None of the individual indicators were significant predictors for hypertension in males.

Of note, indicators for the realignment of time in emerging adulthood were conceptualized and tested for associations with the health outcomes of this study. However, the index for realignment of emerging adulthood did not perform well with the study sample as was dropped from the analyses. To view the indicators in the young adult index and the bivariate analysis with health outcomes, please see appendix 5A.

Table 5.2. Association between adolescent time disadvantage index and overweight/obesity in emerging adulthood

Reference= underweight/normal weight	Males		Females	
	Overweight OR (95%CI)	Obese OR (95%CI)	Overweight OR (95%CI)	Obese OR (95%CI)
5+ times a week engaged in household work	1.04 (0.80-1.36)	0.92 (0.69-1.23)	1.27* (1.03-1.57)	1.42* (1.08-1.87)
Low school-based extracurricular involvement (0-1 activities)	1.06 (0.83-1.36)	1.41* (1.07-1.84)	1.15 (0.92-1.44)	1.72*** (1.38-2.15)
Loss of learning time: experienced school suspension or expulsion	1.3 (1.00-1.69)	1.23 (.94-1.61)	1.34* (1.00-1.79)	1.66*** (1.27-2.17)
No work experience by age 18	1.26 (0.95-1.67)	1.36* (1.03-1.79)	1.29 (.98-1.71)	1.29* (1.02-1.64)
No time spent in hobbies over the week [adolescence]	1.3 (0.96-1.77)	1.18 (0.86-1.61)	1.07 (0.81-1.41)	1.41** (1.09-1.83)
Low on physical activity bouts over the week [adolescence] (lowest quintile)	0.86 (0.64-1.16)	1.18 (0.92-1.52)	1.29* (1.01-1.64)	1.48** (1.18-1.84)
Hours of sleep usually get on weeknights are short or long sleep	1.28 (0.96-1.68)	1.48** (1.11-1.97)	0.97 (0.75-1.25)	1.08 (0.85-1.36)
Hours of sleep usually get on weeknights is short sleep	1.3 (0.98-1.73)	1.36* (1.00-1.84)	0.99 (0.78-1.28)	1.06 (0.84-1.34)
Hours of sleep usually get on weeknights is long sleep	0.96 (0.52-1.78)	1.8 (0.94-3.46)	0.83 (0.41-1.66)	1.11 (0.65-1.89)
Adolescent time realignment index	1.12* (1.02-1.22)	1.18** (1.07-1.30)	1.16** (1.06-1.27)	1.34*** (1.24-1.46)
N	2884		3414	

Exponentiated coefficients; Confidence intervals in parentheses
*p<.05 **p<.01 ***p<.001

Table 5.3. Association between adolescent time disadvantage index and prehypertension/hypertension in emerging adulthood

Reference= normotensive (<120 systolic and <80 diastolic blood pressure)	Males		Females	
	Prehypertensive OR (95%CI)	Hypertensive OR (95%CI)	Prehypertensive OR (95%CI)	Hypertensive OR (95%CI)
5+ times a week engaged in household work	0.84 (0.61-1.17)	0.83 (0.62-1.09)	1.08 (0.87-1.35)	1.16 (0.89-1.51)
Low school-based extracurricular involvement (0-1 activities)	0.91 (0.71-1.16)	1.11 (0.84-1.47)	1.03 (0.85-1.25)	1.28 (1.00-1.67)
Loss of learning time: experienced school suspension or expulsion	1.12 (0.83-1.52)	1.17 (0.86-1.61)	1.28* (1.00-1.63)	1.50* (1.10-2.04)
No work experience by age 18	1.34 (0.99-1.81)	1.36 (0.95-1.95)	1.07 (0.87-1.32)	1.36* (1.01-1.85)
No time spent in hobbies over the week [adolescence]	0.99 (0.71-1.39)	1.09 (0.75-1.58)	1.06 (0.83-1.36)	1.06 (0.75-1.49)
Low on physical activity bouts over the week [adolescence] (lowest quintile)	1.02 (0.75-1.39)	1.23 (0.84-1.79)	0.96 (0.80-1.15)	1.25 (0.98-1.61)
Hours of sleep usually get on weeknights are short or long sleep	1.16 (0.86-1.57)	1.17 (0.84-1.61)	1.07 (0.85-1.35)	1.2 (0.91-1.59)
Hours of sleep usually get on weeknights is short sleep	1.22 (0.90-1.64)	1.19 (0.86-1.64)	1.04 (0.81-1.34)	1.31 (0.96-1.79)
Hours of sleep usually get on weeknights is long sleep	1.13 (0.86-1.50)	1.07 (0.76-1.50)	0.86 (0.62-1.19)	0.71 (0.49-1.02)
Adolescent time realignment index	1.05 (0.96-1.15)	1.1 (.99-1.21)	1.08 (1.00-1.17)	1.15** (1.05-1.25)
N	2884		3414	

Exponentiated coefficients; Confidence intervals in parentheses
*p<.05 **p<.01 ***p<.001

Multinomial logistic regression models

Multinomial logistic regression models were also stratified by gender and are presented in tables 5.4-5.7 to explore the explanatory effect of the time realignment index on overweight/obesity and early-onset hypertension, and racial disparities in the these two health outcomes in emerging and young adulthood. Beginning with males, table 5.4 displays results for overweight and obesity status (versus normal weight) and table 5.5 displays results for prehypertension and hypertension (versus normotensive).

No racial disparity was observed in overweight/obesity status for males in emerging adulthood. In model 2 of table 5.4, adolescent SEP decreases the odds of obesity (.72 OR, $p < .001$) relative to normal weight status. The inclusion of the time index in model 3 shows a mildly positive relationship with obesity status relative to normal weight status (1.12 OR, $p < .05$). However, when adolescent SEP is returned to the model, this effect is attenuated. Unexpectedly, in model 5 and 6, financial stress experienced in emerging adulthood decreased the odds of overweight and obesity status. Psychosocial stress experienced in emerging adulthood with regard to adult responsibilities works in the opposite direction, increasing the odds of overweight status by 58% (1.58 OR, $p < .01$). Importantly, adolescent SEP remains a significant predictor of obesity, even in the presence of adult measures of SEP.

Similar findings are present for hypertensive status as males reach young adulthood (table 5.6) and no racial disparity exists. Not surprisingly, adolescent SEP similarly matters to hypertension as it did with overweight/obesity status, with increases in SEP reducing the odds of hypertension relative to normotensive status, and remains a significant predictor of a decrease in the odds for males even in the presence of young adult SEP and

behavioral indicators. In model 5, BMI and behavioral indicators are entered into the model and show that overweight and obesity status, but not physical inactivity or smoking, increase the odds of prehypertension and hypertension; for instance, obesity increases the odds of hypertension (versus normotensive status) by a factor of 5.51 ($p < .001$).

Results for overweight/obesity and hypertensive status for females are shown in tables 5.6 and 5.7. Unlike males, racial disparities are present for females even in emerging adulthood, with Black females more likely to be overweight (1.54 OR, $p < .001$) or obese (1.87 OR, $p < .001$) versus normal weight status than White females. Adolescent SEP reduces the odds of overweight and obesity for females, and slightly attenuates the racial disparities in overweight and obesity status versus normal weight status for females. Similarly, in model 3 the inclusion of the time realignment index, instead of adolescent SEP, attenuates the racial disparity in overweight and obesity status. In model 4, when entered simultaneously, adolescent SEP and the realignment of time index both remain statistically significant and the coefficient for race was markedly reduced and no longer statistically significant. Even after controlling for financial and psychosocial stress in models 5 and 6, both adolescent SEP and the time index remained statistically significant.

Compared with White females, Black females experience a 94% increase in the odds for being hypertensive versus normotensive ($p < .001$); no racial differences are present for pre-hypertensive status versus normotensive. The racial disparity in hypertension status among females is only slightly attenuated by the addition of adolescent SEP in model 2 and even less so by the inclusion of the time index in model 3. The addition of financial and psychosocial stress measures in emerging adulthood make little difference in explaining hypertensive status and the racial disparity, as shown in models 4 through 6. BMI and

behavioral measures are entered in model 6, and although significant, overweight/obesity and intermittent smoking only slightly attenuate the racial disparity in hypertensive versus normotensive status in young adult Black and White females.

Table 5.4. Multinomial logistic regression models of overweight/obesity in emerging adult males (n=2884; ref=normal weight)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	overweight	obese	overweight	obese	overweight	obese	overweight	obese	overweight	obese	overweight	obese
Black race	0.92 (0.68-1.26)	1.10 (0.83-1.45)	0.84 (0.62-1.13)	0.93 (0.70-1.23)	0.84 (0.62-1.15)	0.94 (0.70-1.25)	0.83 (0.61-1.13)	0.89 (0.67-1.20)	0.87 (0.64-1.18)	0.92 (0.69-1.23)	0.89 (0.65-1.21)	0.92 (0.69-1.23)
Age (years- W3)	1.32*** (1.23-1.42)	1.17*** (1.08-1.27)	1.32*** (1.22-1.42)	1.18*** (1.09-1.27)	1.31*** (1.22-1.41)	1.15** (1.06-1.25)	1.31*** (1.22-1.42)	1.16*** (1.07-1.25)	1.33*** (1.23-1.43)	1.17*** (1.08-1.26)	1.32*** (1.23-1.42)	1.17*** (1.08-1.26)
Household (ref=2 bio parents; W1)												
No parent/other			1.64 (0.87-3.06)	1.06 (0.56-2.02)	1.76 (0.94-3.29)	1.35 (0.73-2.50)	1.64 (0.87-3.07)	1.06 (0.56-2.01)	1.61 (0.85-3.05)	1.05 (0.55-2.01)	1.59 (0.82-3.07)	1.05 (0.55-2.00)
Single parent			1.04 (0.78-1.40)	1.21 (0.86-1.69)	1.06 (0.80-1.42)	1.28 (0.93-1.77)	1.04 (0.78-1.39)	1.19 (0.84-1.67)	1.05 (0.78-1.41)	1.20 (0.85-1.69)	1.03 (0.76-1.39)	1.20 (0.85-1.68)
Blended family			0.58* (0.35-0.96)	1.10 (0.68-1.78)	0.59* (0.36-0.97)	1.11 (0.68-1.79)	0.58* (0.35-0.96)	1.07 (0.66-1.75)	0.59* (0.35-0.98)	1.08 (0.66-1.78)	0.56* (0.34-0.94)	1.08 (0.66-1.76)
Adolescent SEP (W1)			0.91 (0.79-1.07)	0.72*** (0.62-0.85)			0.92 (0.78-1.07)	0.74*** (0.63-0.87)	0.90 (0.77-1.05)	0.73*** (0.62-0.86)	0.92 (0.78-1.07)	0.73*** (0.62-0.86)
Adolescent time disadvantage index (W1)					1.01 (0.92-1.11)	1.12* (1.00-1.24)	1.00 (0.91-1.11)	1.08 (0.97-1.21)	1.01 (0.92-1.12)	1.09 (0.97-1.21)	1.01 (0.91-1.11)	1.09 (0.97-1.21)
Financial stress in emerging adulthood (W3)									0.72** (0.59-0.88)	0.81* (0.68-0.96)	0.71** (0.57-0.88)	0.81* (0.68-0.96)
Had to grow up faster: adult resp. (W3)											1.58** (1.19-2.11)	1.05 (0.79-1.39)

Exponentiated coefficients; 95% confidence intervals in brackets

Source: ADD Health longitudinal data

* p<.05 , p<.01**, p<.001***

Table 5.5 Multinomial logistic regression models of pre-hypertension/hypertension in young adult males (n=2884; ref=normotensive)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	pre-hypert.	hypert.	pre-hypert.	hypert.	pre-hypert.	hypert.	pre-hypert.	hypert.	pre-hypert.	hypert.	pre-hypert.	hypert.
Black race	0.89 (0.62-1.27)	0.87 (0.61-1.26)	0.80 (0.56-1.14)	0.79 (0.54-1.15)	0.80 (0.54-1.15)	0.82 (0.55-1.18)	0.78 (0.55-1.18)	0.78 (0.55-1.22)	0.78 (0.54-1.15)	0.80 (0.52-1.16)	0.78 (0.52-1.15)	0.80 (0.53-1.19)
Age (years - W3)	1.03 (0.95-1.11)	1.13** (1.04-1.23)	1.02 (0.95-1.11)	1.13** (1.04-1.23)	1.01 (0.93-1.10)	1.12* (1.02-1.22)	1.02 (0.94-1.11)	1.13** (1.03-1.23)	0.99 (0.91-1.09)	1.08 (0.98-1.19)	0.99 (0.91-1.09)	1.08 (0.98-1.19)
Household (ref=2 bio parents; W1)												
No parent/other			1.24 (0.60-2.57)	0.94 (0.41-2.15)	1.43 (0.71-2.89)	1.27 (0.557-2.85)	1.24 (0.59-2.57)	0.94 (0.41-2.15)	1.21 (0.59-2.47)	0.93 (0.40-2.14)	1.20 (0.58-2.47)	0.92 (0.39-2.14)
Single parent			1.10 (0.75-1.62)	0.94 (0.61-1.43)	1.14 (0.78-1.67)	1.02 (0.67-1.56)	1.09 (0.75-1.60)	0.93 (0.61-1.42)	1.07 (0.73-1.56)	0.88 (0.57-1.35)	1.07 (0.73-1.56)	0.88 (0.57-1.35)
Blended family			0.78 (0.43-1.40)	0.74 (0.33-1.67)	0.79 (0.45-1.40)	0.77 (0.35-1.70)	0.77 (0.43-1.38)	0.74 (0.33-1.65)	0.79 (0.44-1.41)	0.72 (0.32-1.64)	0.76 (0.43-1.37)	0.69 (0.31-1.56)
Adolescent SEP (W1)			0.83 (0.68-1.01)	0.69*** (0.56-0.84)			0.84 (0.68-1.03)	0.69*** (0.56-0.85)	0.85 (0.69-1.05)	0.74** (0.60-0.91)	0.86 (0.69-1.06)	0.74** (0.60-0.92)
Adolescent time disadvantage index (W1)					1.05 (0.95-1.17)	1.06 (0.94-1.18)	1.03 (0.93-1.15)	1.02 (0.91-1.14)	1.03 (0.92-1.15)	1.00 (0.89-1.14)	1.02 (0.91-1.14)	0.99 (0.87-1.13)
Financial stress in emerging adulthood (W:									1.07 (0.85-1.35)	1.09 (0.84-1.42)	1.07 (0.86-1.35)	1.09 (0.84-1.42)
Had to grow up faster: adult resp. (W3)									1.07 (0.80-1.42)	1.20 (0.88-1.62)	1.06 (0.80-1.42)	1.19 (0.88-1.62)
BMI (ref=underweight/normal; W3)												
Overweight									1.42* (1.02-1.98)	1.82** (1.23-2.70)	1.42* (1.01-1.98)	1.82** (1.23-2.70)
Obese									1.89** (1.23-2.91)	5.69*** (3.80-8.51)	1.85** (1.20-2.86)	5.51*** (3.64-8.34)
Smoking status (ref=never smoked; W4)												
Intermittent/former									1.03 (0.75-1.42)	1.28 (0.89-1.83)	1.03 (0.75-1.43)	1.28 (0.89-1.83)
Daily smoker									0.88 (0.60-1.30)	0.93 (0.63-1.37)	0.87 (0.59-1.28)	0.90 (0.61-1.34)
Low physical activity frequency (W4)											1.29 (0.95-1.75)	1.42 (0.99-2.04)

Exponentiated coefficients; 95% confidence intervals in brackets

Source: ADD Health longitudinal data

* p<.05 , p<.01**, p<.001***

Table 5.6. Multinomial logistic regression models of overweight/obese in emerging adult females (n=3414;ref=normal weight)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	overweight	obese	overweight	obese	overweight	obese	overweight	obese	overweight	obese	overweight	obese
Black race	1.54*** (1.23-1.93)	1.87*** (1.40-2.51)	1.33* (1.04-1.70)	1.45* (1.08-1.95)	1.33* (1.04-1.72)	1.43* (1.06-1.93)	1.27 (0.98-1.64)	1.31 (0.98-1.74)	1.28 (0.98-1.74)	1.32 (0.99-1.65)	1.28 (0.99-1.75)	1.32 (0.98-1.77)
Age (years- W3)	1.09** (1.02-1.17)	1.12** (1.04-1.20)	1.09** (1.02-1.16)	1.12** (1.04-1.19)	1.07* (1.00-1.15)	1.08* (1.00-1.16)	1.08* (1.01-1.15)	1.09* (1.02-1.17)	1.08* (1.01-1.15)	1.08* (1.01-1.16)	1.08* (1.01-1.15)	1.08* (1.01-1.16)
Household (ref=2 bio parents; W1) No parent/other			1.13 (0.67-1.91)	1.16 (0.68-1.99)	1.21 (0.73-2.01)	1.33 (0.79-2.23)	1.08 (0.65-1.81)	1.05 (0.61-1.78)	1.04 (0.62-1.72)	0.96 (0.55-1.66)	1.03 (0.62-1.73)	0.96 (0.55-1.66)
Single parent			1.15 (0.85-1.55)	1.12 (0.85-1.47)	1.23 (0.91-1.65)	1.29 (0.97-1.70)	1.14 (0.85-1.54)	1.11 (0.85-1.45)	1.11 (0.83-1.49)	1.04 (0.79-1.36)	1.11 (0.83-1.49)	1.04 (0.79-1.36)
Blended family			0.95 (0.60-1.50)	0.66 (0.37-1.16)	1.00 (0.63-1.59)	0.73 (0.40-1.32)	0.93 (0.59-1.48)	0.64 (0.35-1.14)	0.91 (0.57-1.44)	0.59 (0.32-1.06)	0.90 (0.57-1.44)	0.59 (0.32-1.06)
Adolescent SEP (W1)			0.78*** (0.69-0.90)	0.61*** (0.52-0.72)			0.80** (0.70-0.93)	0.65*** (0.55-0.76)	0.82** (0.71-0.95)	0.67*** (0.57-0.79)	0.82** (0.71-0.95)	0.67*** (0.57-0.79)
Adolescent time disadvantage index (W1)					1.11* (1.01-1.23)	1.27*** (1.17-1.39)	1.08 (0.98-1.20)	1.21*** (1.10-1.32)	1.08 (0.97-1.19)	1.20*** (1.09-1.31)	1.08 (0.97-1.19)	1.20*** (1.10-1.31)
Financial stress in emerging adulthood (W3)									1.17 (0.98-1.39)	1.35*** (1.16-1.57)	1.17 (0.98-1.39)	1.35*** (1.16-1.57)
Had to grow up faster: adult resp. (W3)											1.02 (0.79-1.31)	1.01 (0.80-1.27)

Exponentiated coefficients; 95% confidence intervals in brackets

Source: ADD Health longitudinal data

* p<.05 , p<.01**, p<.001***

Table 5.7. Multinomial logistic regression models of pre-hypertension/hypertension in young adult females (n=3414; ref=normotensive)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	pre-hypert.	hypert.	pre-hypert.	hypert.	pre-hypert.	hypert.	pre-hypert.	hypert.	pre-hypert.	hypert.	pre-hypert.	hypert.
Black race	1.17 (0.93-1.48)	1.94*** (1.46-2.57)	1.11 (0.88-1.40)	1.67*** (1.26-2.21)	1.14 (0.89-1.44)	1.82*** (1.34-2.45)	1.09 (0.87-1.37)	1.67*** (1.25-2.21)	1.11 (0.85-1.44)	1.54* (1.11-2.13)	1.10 (0.85-1.43)	1.48* (1.06-2.05)
Age (years - W3)	1.05 (1.00-1.11)	1.13** (1.05-1.21)	1.05* (1.00-1.11)	1.13*** (1.05-1.21)	1.04 (0.99-1.10)	1.12** (1.04-1.20)	1.05 (1.00-1.11)	1.13** (1.05-1.21)	1.03 (0.98-1.09)	1.10* (1.02-1.19)	1.03 (0.98-1.09)	1.10* (1.02-1.19)
Household (ref=2 bio parents; W1)												
No parent/other			0.91 (0.52-1.60)	0.69 (0.36-1.32)	1.00 (0.57-1.75)	0.86 (0.45-1.64)	0.89 (0.50-1.58)	0.69 (0.35-1.32)	0.81 (0.44-1.50)	0.64 (0.32-1.27)	0.81 (0.44-1.48)	0.61 (0.31-1.19)
Single parent			0.89 (0.71-1.11)	0.96 (0.64-1.46)	0.95 (0.76-1.18)	1.11 (0.75-1.65)	0.89 (0.71-1.11)	0.96 (0.64-1.46)	0.81 (0.63-1.05)	0.91 (0.8-1.41)	0.81 (0.63-1.05)	0.91 (0.58-1.41)
Blended family			0.84 (0.54-1.31)	0.91 (0.48-1.73)	0.89 (0.57-1.39)	1.02 (0.53-1.97)	0.84 (0.54-1.31)	0.91 (0.48-1.73)	0.88 (0.57-1.36)	1.03 (0.54-1.96)	0.88 (0.57-1.36)	1.03 (0.54-1.95)
Adolescent SEP (W1)			0.81*** (0.73-0.90)	0.67*** (0.57-0.80)			0.82*** (0.74-0.91)	0.67*** (0.57-0.80)	0.89 (0.80-1.00)	0.76** (0.63-0.92)	0.89 (0.80-1.00)	0.76** (0.63-0.92)
Adolescent time disadvantage index (W1)					1.06 (0.97-1.16)	1.05 (0.96-1.16)	1.03 (0.94-1.13)	1.00 (0.91-1.10)	0.99 (0.90-1.08)	0.94 (0.85-1.04)	0.99 (0.90-1.08)	0.93 (0.84-1.03)
Financial stress in emerging adulthood (W3)									1.13 (0.98-1.30)	1.13 (0.93-1.37)	1.13 (0.98-1.30)	1.13 (0.93-1.37)
Had to grow up faster: adult resp. (W3)									1.12 (0.89-1.41)	0.95 (0.73-1.24)	1.12 (0.89-2.71)	0.96 (0.73-1.25)
BMI (ref=underweight/normal; W3)												
Overweight									2.12*** (1.67-2.70)	3.34*** (2.37-4.70)	2.13*** (1.68-2.71)	3.41*** (2.42-4.80)
Obese									3.55*** (2.78-4.54)	6.24*** (4.45-8.74)	3.56*** (2.78-4.55)	6.29*** (4.49-8.82)
Smoking status (ref=never smoked; W4)												
Intermittent/former									1.28* (1.01-1.61)	1.03 (0.74-1.44)	1.28* (1.01-1.61)	1.04 (0.75-1.45)
Daily smoker									1.06 (0.80-1.40)	0.91 (0.59-1.39)	1.06 (0.80-1.40)	0.89 (0.58-1.37)
Low physical activity frequency (W4)											1.04 (0.84-1.28)	1.38* (1.01-1.89)

Exponentiated coefficients; 95% confidence intervals in brackets

Source: ADD Health longitudinal data

* p<.05 , p<.01**, p<.001***

Discussion

The overarching aim of this study was to investigate the role of a cumulative index of time disadvantage in explaining early racial differences in the stress-related chronic condition of overweight/obesity and prehypertension/hypertension between White and Blacks, particularly women. Findings from this study suggest that time “realignment” in adolescence indeed increases the likelihood of overweight and obesity status in emerging adulthood, especially among females. Working in conjunction with traditionally employed SEP measures, the realignment of time index in adolescence helped to fully explain the racial disparity in overweight and obesity status in emerging adulthood. Yet, contrary to my hypotheses, the time realignment index is not a strong predictor of developing prehypertension or hypertension by young adulthood, and does not operate in the same way to explain racial differences in the timing of hypertension status that extant research shows to be evident for both males and females by middle-age. A discussion of plausible explanations for these mixed results follows.

Consistent with other studies, this analysis finds that racial disparities in stress-related conditions such as hypertension do emerge even before middle-age and highlights the importance of considering the simultaneous role of gender. Although males had higher rates of overweight status in emerging adulthood and hypertension by young adulthood, when compared to young adult women, the Black-White racial disparity was only present for females in both emerging adult BMI and young adult hypertension. This finding confirms that a focus on women is equally warranted when considering the role of racialization and stress on the health of young adult Blacks. Unfortunately, hypertension status was not assessed in the Add Health cohort in emerging adulthood (wave 3), and

therefore little can be concluded through this study about the size of the racial disparity at this life-stage. However, BMI status was assessed at wave 3 and became a way of exploring the role of adolescent time realignment in setting the stage for the hypertension and perhaps an uptick in other stress-related conditions in young adulthood and middle-age.

Regarding the relationship between time realignment and overweight/obesity status, an important finding to note is that time loss across daily life domains do accumulate and increase the odds of overweight and obesity status. With each additional “time risk,” the odds of overweight and obesity status increased for females. Most research that incorporates time-use into the study of disparities, however, narrows in on the singular loss of physical activity time. Findings from this study suggest that the loss of physical activity time is just one domain of time disadvantage that matters to racial disparities in overweight/obesity. The same racialization processes that underlie lower levels of physical activity in Black adolescent females compared to White adolescent females is likely driving the loss of time in other daily life domains via overlapping exclusionary practices. For instance, the same exclusionary practices that dry up work opportunities in Black neighborhoods for both adults and teens, also is implicated in maintaining separate and unequal schools in majority Black areas, and hence availability of school-based extracurricular options that one might invest their leisure time in. As such, the practice of singularly focusing on expenditure of time in one life domain may lead to erroneous conclusions on what matters in the relationship between race and health.

The conceptualization of time as yet another resource important to health may be a valid consideration, given that the realignment of time index remained significant in the presence of familial SEP. This finding may be important when considering why studies

have continually shown excess hypertension among higher income Blacks relative to their White counterparts, despite attaining some degree of social mobility. Constraints on time may be similarly experienced by middle income Blacks who may have some monetary advantages to draw upon for accessing opportunities unavailable to families living in poverty, but continue to experience social exclusion to networks and spaces that monetary resources cannot overcome. Additionally, this composite index allows for the consideration of ways in which gendered social roles may impose time constraints and stressors more uniquely experienced by females, and particularly so for Black females. For example, the higher percentage of Black women in many of the individual indicators of time disadvantage (e.g., high frequency of household work) relative to others confirms that race and gender are important to consider simultaneously in marginalization processes important to health.

Unexpectedly, however, the measure of time realignment was not associated with pre-hypertension or hypertension status in young adulthood. I offer several plausible considerations as to why this is the case, the first being the flip side of the argument on the relevance of this measure to socially mobile Blacks, and limitations presented by composition of the Add health sample and availability of nuanced time-use measures. In the design of Add Health, middle-income Blacks were oversampled. As I just discussed, in some ways, middle-income Blacks may experience some of the very same time exclusions as poor Blacks. And yet, this does not negate the idea that monetary advantages may facilitate some degree of access to education, work, and leisure spaces that are predominantly occupied by Whites. As such, the literal time differences may be less relevant in some domains for Blacks of middle- to higher-income status, and instead the experience of that time is what

matters more. Relevant to this point is literature on *biculturalism* and *shifting* (Bell et al., 2001; Jones & Shorter-Gooden, 2003).

Biculturalism refers to the multiple identities that upwardly mobile Black women adopt in order to move between their family of origin and their heightened social standing (Bell et al., 2001). Jones and Shorter-Gooden (2003) describe *shifting* as a similar process that Black women undergo when suppressing aspects of their identity in order to project a self-image that is appealing to White colleagues or Black men. Both of these concepts suggest that Blacks, particularly Black women, pursuing middle-class status may encounter discrimination with greater frequency, and employing a *bicultural* life or *shifting* might allow them to maintain affirming ties to the Black communities, but may also trigger psychological and/or physiological manifestations of stress when one is forced to suppress those same aspects of racial/ethnic identity when crossing class boundaries. Admittedly, the index of time realignment developed for this study will not capture the psychosocial costs of pushing against exclusionary boundaries and spending time in higher education, work, and leisure spaces that are predominantly White occupied. I make this point here to acknowledge that I am not suggesting a universal experience of Blacks that can be captured via a time index, but rather that this is just one conceptualization to add to the many pathways in which racialization processes may manifest to influence differential lived experiences by race of potential importance when attempting to understand and formulate interventions to reduce racial health disparities. Given this point, a next step in this analysis will be to explore stratifying the sample by SEP and exploring the performance of the realignment of time index in lower versus higher SEP Blacks.

Additionally, given the associations found with overweight/obesity, variants in the realignment of time index should be considered for exploration in other health datasets that might offer alternative time use indicators more appropriate for capturing nuanced differences between race groups, men and women, and in lower and higher income subgroups. Relatedly, it is important to note the proximity of time index constructed for this analysis as being closer to the BMI assessment (wave 3) than hypertension (wave 4). Overweight/obesity status is a known contributor to hypertension and metabolic disorders, and as such it would be reasonable to suggest to some degree, the effects of adolescent time disadvantage on differential racial trajectories into hypertension are mediated through overweight/obesity in emerging adulthood. Importantly, a measure of time realignment was also conceptualized for young adulthood, using variables approximating domains perhaps most salient to this life-stage, including exclusion from higher education and time conflicts that may be arise between work and family (see appendix 5-A). This scale also did not perform well in predicting pre-hypertension and hypertension, yet other datasets with more detail on time-use in young adulthood may offer vital insight on differential lived experiences between Blacks and Whites, and other racial/ethnic groups important to know when designing and administering interventions to address health disparities.

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APPENDIX 5-A:
Adult time disadvantage index

Table 5.8. Association between adult time disadvantage index and prehypertension/hypertension in emerging adulthood

	Males		Females	
	Prehypertensive OR (95%CI)	Hypertensive OR (95%CI)	Prehypertensive OR (95%CI)	Hypertensive OR (95%CI)
Reference= normotensive (<120 systolic and <80 diastolic blood pressure)				
No college by age 24	0.96 (0.73-1.26)	1.08 (0.80-1.47)	1.15 (0.92-1.45)	1.33* (1.01-1.75)
Irregular work hours (current/most recent work) (W4)	0.73 (0.53-1.02)	.66* (0.45-0.95)	0.89 (0.68-1.16)	0.81 (0.56-1.19)
Spend any time in caretaking of kids < age 6 (W3)	0.92 (0.62-1.36)	1.23 (0.82-1.85)	1.13 (0.91-1.39)	1.26 (0.96-1.66)
Family responsibilities interfered w/ ability to work (current/most recent work)	0.96 (0.63-1.44)	0.78 (0.46-1.33)	0.86 (0.68-1.08)	0.98 (0.68-1.40)
Spending less time with family due to work (current/most recent work) (W4)	0.85 (0.64-1.13)	0.72* (0.52-1.00)	0.99 (0.81-1.22)	1.04 (0.81-1.33)
No time spent in hobbies over the week [young adulthood]	1.31 (0.92-1.86)	1.33 (0.88-1.99)	0.93 (0.74-1.18)	1.04 (0.77-1.42)
Low on physically active bouts over the week [young adulthood]	1.33 (1.00-1.78)	1.63** (1.17-2.28)	1.01 (0.82-1.25)	1.40* (1.04-1.88)
Hours of sleep on night before "on-day" is short or long sleep	1.12 (0.86-1.46)	0.98 (0.71-1.36)	0.96 (0.77-1.20)	1.07 (0.81-1.42)
Hours of sleep usually get on weeknights is short sleep	1.13 (0.86-1.50)	1.07 (0.76-1.50)	1.04 (0.81-1.34)	1.31 (0.96-1.79)
Hours of sleep usually get on weeknights is long sleep	1.01 (0.61-1.67)	0.75 (0.44-1.28)	0.86 (0.62-1.19)	0.71 (0.49-1.02)
Adult time realignment index	1.04 (0.98-1.11)	1.08* (1.00-1.16)	0.99 (0.90-1.10)	1.11 (0.99-1.25)
N	2884		3414	

Exponentiated coefficients; Confidence intervals in parentheses
*p<.05 **p<.01 ***p<.001

CHAPTER 6

Conclusions

Summary of study findings

Continually, studies find that Blacks fare worse than Whites in the U.S. on a majority of health status indicators that result in shortened lifespans and more years spent in illness and disability (CDC, 2011, 2013; NCHS, 2016; US DHHS, 1985). Decades of research have been devoted to the study of underlying causes of racial health inequities, including genetic, behavioral, as well as psychosocial and socioeconomic factors. In more recent years, attention has particularly shifted toward structural level social factors, especially residential segregation. Many have argued that the unequal distribution of socioeconomic resources across neighborhoods sets the stage for Blacks to experience more limited access to a healthy diet and physical activity; heightened exposures to noise pollution, substandard housing, and environmental toxins; and experiences with violence and trauma (within relationships, community, and state-inflicted), all forms of stressors that contribute to the erosion of physical and mental health (Alexander, 2010; Bullard, 1994; Williams & Collins, 2001). Without question, social scientists have amassed a body of research connecting the dots between the distinct physical spaces created via exclusionary policies and practices and the health status of Blacks. This work has been essential to challenging the notion that health lags among Blacks are simply a reflection of poor personal choices

and solely created by one's own hand. Yet, if we are to continue to progress in our understanding and countering the ways in which high-level policies and practices structure racial disparities, it is important to give attention to the ways in which there are interactions across institutional systems and cumulative effects that play out on day-to-day life. It is from this perspective that I initiated this dissertation exploring time allocation as yet another flexible resource controlled in racialization processes, unbounded by physical space, and potentially important in capturing the interactive and cumulative effects of different social-structural level forms of discrimination on the daily lives of marginalized groups.

In chapters 1 and 2, I utilized the example of hypertension disparities to outline the evolution in theoretical approaches applied to racial health inequities. Through this review, I highlighted limitations of common theoretical frameworks applied – with an emphasis on the importance of considering a broader array of resources mediating the path connecting race and health, and heterogeneity that occurs when simultaneously considering gender and age (earlier in the life-course). In particular, I discussed the failure of prevailing theoretical models to explain not only the steeper age-gradient into hypertension by Blacks overall, but also evidence that shows the probability of being hypertensive for Black women steepens to surpasses White men and women by age 30, as well as Black men by age 40 (Geronimus et al., 2007). Drawing from *intersectionality theory* (Collins, 1990; Crenshaw, 1991) and the writings of social political philosophers on *racialization* (Bonilla-Silva, 1997; Schwalbe et al., 2000; Winant & Omi, 1994, 2015) and *racial time* (Hanchard, 1999; Mills, 2014), I argued that examination of time-allocation across race-gender groups may be an important way to capture a differential lived experience that occurs when

navigating daily experiences that are a reflection of intersecting systems of privilege and oppression. I further posited that if differential impositions on time are evident by race and gender, this may be yet another way that non-dominant populations are *othered* and an important consideration when investigating the production of health. The *weathering hypothesis* (Geronimus, 1992) is then offered as the overarching theoretical model that appropriately discusses the potential health implications associated with the realignment of time by race and gender, and served as the guiding framework for the three empirical papers comprising this dissertation.

The first noteworthy contribution of this dissertation is that based upon gaps identified in the literature review, all three empirical papers simultaneously considered the influence of race and gender, and focused on the transition from adolescence to young adulthood, a period of the life-course particularly neglected when considering how racial health disparities take hold and become evident by middle age. In this next section, I will summarize individual contributions from each empirical study. Next, I will follow with a discussion on the strengths and limitations of the research presented, suggesting areas for future research to pick up where I left off in this dissertation. Finally, I will close with a discussion on the overarching implications of my findings for future public health research, practice, and policy.

Beginning with chapter 3, I sought to answer the question posed in the literature review, “Do Black and White males and females in the U.S. have time-use patterns suggestive of unequal access to the flexible resource of time?” Utilizing the American Time Use Survey, I examined the daily round, or average time-use profile each day, for Black and White males and females in adolescence (ages 15-17 years), emerging (ages 18-24 years),

and young adulthood (ages 25-35 years), exploring if certain race-gender groups are better able to attain the normative ideal American society visualizes for how youth and young adults should be spending their time. Findings suggest very different daily rhythms of work, leisure, and recovery do indeed exist at the intersection race, gender, and age. In the high school years, observed differences in participation rates show that Black adolescents may already be experiencing structural blockades to work and leisure pursuits. For instance, a smaller proportion of Black males and females reported work on their diary day compared to their White counterparts, yet more Blacks than Whites reported time spent in job-searching and interviewing. Observing free time in adolescence, I found that Black adolescent girls, especially, are disconnected from school-based extracurricular programs and experiencing the shortest amount of time in active, skill-building leisure and the lengthiest times in day sleeping. Examination of time committed to maintaining the household and caretaking of siblings and family members confirms that girls of both race groups devote a larger portion of their day to these tasks in comparison to boys, perhaps further compressing time devoted to other domains; and, Black girls superseded White girls by nearly an hour more each day compared to White girls (Black adolescent boys also devoted more time in this domain when compared to White adolescent boys).

Altogether, chapter 3 findings suggest that Black females, in particular, appear to experience a *realignment of time* that distances them the most from the normalized ideal of time-use. Moreover, many of the patterns observed in adolescence continue into young adulthood and point toward a pathway by which daily life differs at early ages and may be important in the stress and health inequities equation. As such, chapter 3 findings lend support to the concept of *racial time*, and the notion that different obligations and demands

on our time may be reflective of constraints imposed by racialized systems that interact with gendering processes to differentially bestow privileges and disadvantages in daily life. Importantly, OLS multivariate regression results showed that the racial gap in a number of time-use domain (e.g., sleep patterns, active skill-building leisure, passive leisure) persisted in the presence of family composition and resource controls, signaling the importance of considering mechanisms that operate outside of households to dictate opportunity structures.

In chapter 4, I presented findings from a qualitative inquiry into how Black adolescent girls experience and structure their time. This study focused solely on late adolescence and was exclusively centered on Black girls. These choices were made in the study design to illuminate social factors important to the race-gender group experiencing the most accelerated uptick in hypertension risk during this transitional stage. A total of 26 time-use diaries and in-depth interviews on time allocation and stress processes were collected from Black adolescent girls across a spectrum of neighborhood and school settings in the Detroit Metropolitan area. The themes of being a productive citizen, avoiding hardships they see in their parents, and taking care of family emerged as significant for the girls, and key motivations driving what they viewed as their primary obligations: getting good grades and going to college, securing paid work, and pitching in on familial needs. Embedded within their narratives emerged unique challenges within these domains that complicated their pursuits, and served as an added layer of stress to what is already a transitional and volatile life-stage. For instance, a long history of racial strife, disinvestment, and school reform policies has prompted instabilities in the region's school system that prompted learning disruptions via school closures, takeovers, and teacher

churn. Disconnecting from stress-outlets, such as extracurriculars, frequently occurred for reasons such as school cutbacks that limited girls' sports and art options, and transportation woes that hindered getting to and from practice and events, as well as job opportunities described as only present in the outer-ring suburbs. Moreover, girls were balancing time devoted to self-advancement against familial needs, such as caretaking of siblings, ill parents and elders. All the while, girls were keenly aware of their own draw on already strained networks, and frequently worried about further contributing to stress they see in parents, siblings, aunts/uncles, grandparents and close friends. These narratives lend additional support to the hypothesis that time is controlled in racialization and gendering processes, and through the voices and vantage point of Black adolescent girls, provides concrete examples of mechanistic pathways that structure advantages and disadvantages by race and gender.

Lastly, in chapter 5, I explored whether early trajectories into hypertension (and overweight/obesity as a related precursor) among Blacks relative to Whites is in part a reflection of realigned time. Using the National Longitudinal Study of Adolescent Health dataset (ADD Health), I constructed an index of realigned time and ran gender stratified multinomial logistic models to examine the role of realigned time in explaining the racial gap in overweight/obesity and blood pressure status between White and Black men and women in emerging and young adulthood. As hypothesized, Black adolescents had higher scores on the realigned time index: Black females averaged the highest score of 2.82, followed by Black males at 2.60, White females at 2.00, and White males at 1.92. A racial gap in overweight/obesity and blood pressure status was only present for women and not by men in young adulthood. Partial support was found for my hypothesis in multinomial

logistic regression results when the inclusion of the realigned time index attenuated the racial gap in overweight/obesity observed between Black and White emerging adult females. Multivariate results for blood pressure status, however, showed that realigned time was not a significant predictor of blood pressure status and did not attenuate the racial gap observed in prehypertensive and hypertensive status for young adult women. In part, mixed findings may be due to the cohort being old enough to exhibit onset of overweight and obesity, yet still relatively young enough to not exhibit crossover into blood pressure readings that meet the criteria for prehypertension and hypertension status by wave 4 of data collection.

Looking across these empirical studies, findings offer evidence in support of a differential lived experience by race and gender, visible at population-levels, even in adolescence, via the employment of time-use measures. These studies uniquely contribute to research on race, stress, and health by more holistically capturing the simultaneous effects of systems that doll out differential expectations and time demands, as well as resources for managing such obligations. For instance, by examining the full domains that fill a day in Chapter 3, we were able to see how time in educational pursuits, workforce participation, and household maintenance/caretaking differentially stratifies by race and gender, ultimately resulting in different amounts of free time available to White and Black girls and boys. In another example, the inclusion of secondary childcare into our analysis allowed for a glimpse into the multitasking of time, with population averages suggestive of competition between dueling obligations perhaps being more salient for Blacks than Whites.

Chapter 4 uniquely contributes insight into a number of underlying determining factors that were identified by Black adolescent girls, in their own words, as important in dictating qualitatively different time-use profiles. Girls did not utilize the labels frequently employed in academic circles – e.g., residential segregation, White flight, neoliberalism, school reform policies, etc. Yet, evident in their narratives is recognition that their personal experiences are influenced by institutions and perceptions about who they are – e.g., “I kind of blame it [loss of teachers] on not just the school, just anybody that pays the teachers”, “you have to know people to get a job now...you can’t just get hired into them unless you know people, like all of the jobs that’s past 8 mile”, and “...they [teachers] were so strict because of where the kids came from...” As they discussed challenges, girls also revealed important details on the wherewithal required to manage these daily stressors – as exemplified in their long commutes across town to secure a safe and stable learning environment; their short- and long-term strategic planning for achieving work that will pay for better transportation, that in turn will facilitate access to better work options located outside of the city center; and, the devotion of their time toward ensuring the wellbeing of loved ones, both young and old, in many cases as a way to alleviate stress of others who are juggling work and family illness. Additionally, chapter 4 offers insight into coping strategies such as escapism from the toils of daily life via day napping, extracurricular involvement (when available and familiar), and staying insular when in environments deemed unfamiliar (e.g., new school). Coupled with findings from chapter 5 that show a relationship between the accumulation of time disadvantages and overweight/obesity, I believe there is enough evidence to warrant further research on the ways in which time disadvantages relate to health and disparities between dominant and non-dominant groups.

Limitations and future research

These empirical studies are not without limitations. Weaknesses in this dissertation research are discussed in the context of ways in which future research could further advance this line of inquiry. First, it is important to note the dearth of datasets that ask questions on time-use *and* health status measures. Given this constraint, a number of critical limitations were imposed on the quantitative studies in chapters 3 and 5. The ATUS offers one of the best options for exploring time-use, therefore, I chose it to lead in the three empirical papers exploring time-use profiles by race and gender. Because I was particularly interested in investigating the temporal aspect (early onset) of racial disparities in chronic conditions, I chose ADD Health as the complementary dataset to bookend the empirical chapters given the biological assessment of chronic conditions conducted at relatively young ages. However, the availability of time-use measures in ADD is minimal and crude at best. As a result, chapter 3 is only able to describe time-use patterns and not in relation to health. And, the index of realigned time constructed in chapter 5 employs relatively crude measures of time-use. Despite this limitation, results suggest that realigned time is a significant predictor of overweight/obesity and important in explaining the racial gap among young women. However, I believe the question remains, would a more solid index of realigned time also predict blood pressure status and explain racial hypertension disparities? Future research efforts examining the role of time-use in the race, stress, and health equation that are not limited by the confines of age should explore other datasets that may offer a wider array of time-use domains to construct a more sophisticated index of realigned time.

Second, although the ATUS is the most comprehensive dataset on time-use in the U.S., the focus remains on primary activities and gives rather limited attention to secondary activities and multitasking. The one exception is that the ATUS does ask about the care of children as a secondary activity. Chapter 3 findings revealed that inclusion of this measure resulted in 1.) a widening of the gap between Black and White adolescents on time in caregiving, with Black adolescents spending significantly more time than their White counterparts, and 2.) in young adulthood, Black women are spending more of their childcare time in secondary care, compared to White women. These findings suggest that multitasking childcare may be required more of Black women as they age into young adulthood and contend with the competing demands of work and childcare, in ways that may not be present or as intense for White women. This finding suggests a need for study designs that can accommodate examination of multitasking in other domains and the potential for added stress in juggling multiple obligations at one time. Until large-scale datasets move in this direction, the potential impact of such work may be greatest in qualitative inquiries that can garner detailed information on the circumstances that provoke the necessity for multitasking, the tactics employed to keep all balls in the air when juggling more than one time-demand, and the emotions and consequences that enter in when “balls” are dropped in one domain because of another.

Third, in chapter 3, I constructed time-use profiles by age-groups in an effort to explore how time shifts by race and gender during the aging process. However, these profiles were constructed from cross-sections of different people. A more thorough analysis would take advantage of longitudinal datasets that offer the possibility of exploring changes in time-use for a cohort that is followed over time. Additionally, I believe

future qualitative inquiries could offer unique opportunities to bolster our understanding on the ways in which marginalized racial groups (and others for that matter) think about their time and navigate it, especially as they traverse major transitions. For instance, I, along with many others reading this dissertation are likely to wonder, what is in store for the girls I interviewed in chapter 4 that were nearing the latter part of high school? How will their ideas on time change as they transition from high school into their next step in life, whether that be college, work, parenthood, or another path? How will they change in their thinking about their own time and others', as well as fairness in the world with regards to time? How will their next transition dictate their time and what strategies will they employ to resist disadvantages in time? And of course, what toll will persistent disadvantages in time take on their health and wellbeing, and who else around them will be impacted? These are all questions that only an extended qualitative inquiry could pursue, and future large-scale endeavors should consider the value added by such a study design.

Fourth, although much of the literature reviewed and the focus of empirical papers emphasized disparities between Blacks and Whites, it is important to note that the concept of racial time should also be explored among other racial/ethnic minoritized groups. Although the mechanistic pathways and resulting time-use profiles may diverge from Blacks, there is no reason to believe that time disadvantages are not also present for other non-dominant groups in ways that might be important in understanding health gaps for other subpopulations. Relatedly, in chapter 4, I sought to explore a more nuanced understanding of time-use specifically amongst Black adolescent girls. Broadening the sample to include White adolescent girls of both poor and middle income status, Black adolescent girls of higher-middle income status, or even Black adolescent boys would have

offered contrasts that could provide additional details on important contextual factors key in dictating different perspectives on time and experiences with navigating time. This is yet another gap that could be filled through continued explorations of race, time/stress, and health.

Implications for practitioners and policy makers

Taken together, findings from the quantitative and qualitative inquiries in this dissertation illustrate the importance of Schwalbe and colleagues (2000) statement, “To explain inequality requires attention to the processes that produce and perpetuate it.” Too often, assumptions are made in society and public health programming, that adolescents are free of stressors typically associated with adulthood roles and responsibilities. Yet, findings from this dissertation suggest even in adolescence, exclusionary policies and practices structure the daily rhythm of life differently by race and gender, often imposing obstacles to productive time-use domains, coupled with accelerated exposure to time demands and obligations more typically characterized as being confined to the adult years. Thus, public health practitioners and policymakers must consider time as yet another resource mediating the path connecting race and health.

Many will say, “but what can we *really* do about any of this? What is the so called intervention?” Perhaps the most fundamental intervention of all is the use of these findings to support a change in widespread views about why Blacks and other non-dominant groups may exhibit rhythms of daily life that diverge from Whites. Findings in this dissertation support the claim that policies and practices touted as in the best interest of society as a whole may in fact be implicated in perpetuating disadvantages for our most

marginalized groups, even in adolescence, through the realignment of time. As such, this evidence should be used to counter public perceptions that equate Blackness with laziness, ineptitude, lack of self-control and dependence. Cyclically, the disruption of this racialized ideology should work to alter support away from policies and programs that penalize those who do not align closely “*White time.*” In this process, it is important to not lose sight of the evidence that suggests time disadvantages are not confined to lower income Blacks; as such, proposed policies and programs emphasizing socioeconomic disparities alone may not be as effective as intended if exclusions based chiefly on race are not also acknowledged and addressed.

Beginning with adolescence, findings from chapters 3 to 5 should especially draw the attention of researchers, practitioners, and policy makers interested in the ways in which our educational system reproduces inequality, including in health. Others before me have discussed the deleterious effects on students learning borne from the enactment of emergency management laws that are disproportionately applied in Black and Brown communities, resulting in the removal of local governance and execution of school closures and reorganizations from afar. This study adds to this evidence base by illuminating the ways in which such policy actions also trigger social isolation and chronic, daily stress for Black girls and their families (e.g., extraordinary commute times, fractures to the teacher-student bond, and loss of extracurricular involvement and peer socialization). Given this, findings should prompt policy makers to include stress and stress-related health outcomes for individuals and communities in assessments when considering the implications attached to school reform, such as emergency management laws, school closures and

takeovers, as well as the potential benefits attached to policy proposals restricting the siting of new charters to high need areas (few schools relative to high student density).

Another intervention point involving adolescence and the educational system is school disciplinary policies and practices. This is an area where a number of studies have already raised red flags drawing attention to the subjective application and disproportionate use of suspensions and expulsions with Black adolescents, including girls (Morris, 2016; NAACP Legal Defense and Educational Fund 2014). As a result of these investigations, advocacy efforts have called for alternative classroom management strategies that do not involve classroom removal as a disciplinary tactic (e.g., Morris, 2016 pg. 213 recommends mindfulness exercises, restorative practices, and buddy systems to build accountability among peers). Findings from this dissertation should be considered in conjunction with these previous efforts, as it contributes new information on the ways in which larger instabilities in a local school system (closures, takeovers, and teacher churn) acts to prime a harsher disciplinary environment in the schools that remain open in an underfunded, high need area. Students traveling further distances are more likely to accumulate tardies that result in punishment; students from rival schools are merged under one roof without adequate numbers of teaching staff to appropriately manage anticipated conflicts; and, the lack of familiarity between teachers and newly arriving students prompts strictness in interactions and enforcement of rules and punishment. Coalescing this information serves to help bolster understanding among teachers, school administrators, and policy makers on the potential harms that can be attached to large scale school reform, as well as the day-to-day enforcement of school rules.

Let's also ponder a few potential intervention levers for practitioners and policy makers that may be more suitable for emerging and young adulthood. First to mind is evidence from chapters 3 and 4 that showed Black adolescents, both boys and girls, face blockades to work that begin in adolescence and grow in emerging adulthood. To address persistent opportunity gaps among Black men, national efforts such as My Brother's Keeper and local initiatives like NYC Mayor Bloomberg's Young Men's Initiative, were launched in cities around the nation to support the success of Black men, which includes curbing high unemployment by connecting young Black men to mentoring and support networks to find work or go to college (Barbara & Santos, 2011; The Obama Administration, 2016). Given that study results show Black girls and women are equally tasked with challenges to school attachment and work, one must ask, why do we not have equivalent declarations and levels of investment devoted towards helping young Black women to thrive? Crenshaw (2014) and others have raised this question and suggested this is due to Black men viewed by society as being "exceptionally endangered", whereas Black women fare much better off. Findings from all three empirical studies here rebut this claim – Black women fare worse on time disadvantages and are exhibiting signs of stress-related erosions in health at early ages that rival that of Black men. As such, practitioners and policy makers must reconsider the need for similar levels and investment and programming with Black girls and women.

Relatedly, this previous point also calls to mind the supports (or lack thereof) we offer to families with children and ill or elderly adults requiring care. Findings from chapters 3 and 4 that show adolescent girls, particularly Black adolescent girls, take up sizeable amounts of time in caretaking to alleviate working parents and extended family members. This should prompt discussions on the potential inadequacies of supports

available to families that struggle with meeting both needs. Childcare subsidies and paid family leave are just a few of many options that might be reviewed for their potential to alleviate the stress that ensues when productive time use domains are in conflict with actions needed to keep the familial unit afloat. Lastly, policies such as welfare-to-work that impose work requirements with the potential to create added stress if in conflict with the provision of continuous care for ill and aging family members, must also be reviewed in this context.

The select areas I've chosen to highlight here are just a few of the more obvious ways in which I view policy and practice as it relates to influencing our time, and holds the potential to profoundly impact health disparities when structured in ways that realign time to disadvantage Blacks while simultaneously advantaging Whites. Others are surely to surface in the minds of those who have engaged in reading this dissertation. It is precisely my hope that this body of work will serve to generate continued enthusiasm for questioning the ways in which exclusionary policies and practices realign time, and in turn, how these processes relate to various racial inequities that include, but are not limited to health.

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