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Intersecting Social Inequalities and Body Mass Index Trajectories from Adolescence to Early Adulthood

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Abstract

This study combines multiple-hierarchy stratification and life course perspectives to address two research questions critical to understanding US young adult health. First, to what extent are racial-ethnic inequalities in body mass index (BMI) gendered and/or classed? Second, do racial-ethnic, gender, and socioeconomic inequalities in BMI widen or persist between adolescence and early adulthood? Using data from the National Longitudinal Survey of Youth 1997 cohort and growth curve models, results suggest that among white, black, and Hispanic American men and women aged 13 to 31, racial-ethnic inequality in BMI is greatest among women. Black women experience the highest adolescent BMI and the greatest increases in BMI with age. Furthermore, socioeconomic resources are less protective against weight gain for blacks and Hispanics, with the nature of these relationships varying by gender. Findings present a more nuanced picture of health inequality that renders visible the disproportionate burden of poor health experienced by marginalized groups.

Keywords

body mass index; intersectionality; life course; population health; race

Health inequalities by race-ethnicity, gender, and socioeconomic status (SES) are the topic of a vast body of literature. Disadvantaged groups, namely blacks, Hispanics, women, and those of lower SES, tend to have worse health compared to their more advantaged counterparts across an array of outcomes, including body mass index (BMI; Ailshire and House 2011; Ogden et al. 2014; Read and Gorman 2010). BMI inequality across social groups remains an important topic of research, as these disparities have not abated over time (Clarke et al. 2009; Walsemann et al. 2012; Wang and Beydoun 2007). Furthermore, prior research indicates that being overweight/obese is not only associated with poor health outcomes, including chronic conditions and premature mortality, but it is also a marker for future disease and health risks, even before disease is manifest (Dixon 2010; Reilly and Kelly 2011). Importantly, overweight/obesity has far-reaching societal consequences for the United States (US) population. For example, projections suggest that by 2030, US health care costs attributable to overweight and obesity will total over $800 billion, accounting for 16% to 18% of total costs (Wang et al. 2008). Consequently, the social, economic, and

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health burdens stemming from being overweight or obese hold significant implications for the future productivity and well-being of US adults. Identifying the social groups most plagued by increasing BMI is critical for developing efficacious strategies to improve population health.

While previous research provides ample evidence that race-ethnicity, gender, and SES independently structure BMI, the extent to which these systems of inequality intersect to pattern trajectories of weight gain remains unclear. Broadly, population health research rarely considers how racial-ethnic inequality may be gendered/classed or how gender inequality may be racialized/classed. Instead, studies tend to treat social categories as independent of one another and assume that they combine additively. These approaches may lead to inaccurate conclusions regarding the social stratification of health because they overlook the unique and simultaneous positions of power and disadvantage within which individuals are situated (Collins 2015; Lopez and Gadsden 2016)—positions that have specific consequences for weight gain and management (Ailshire and House 2011).

Prior research is further limited by the lack of attention given to aging. While age has long been considered and shown to be an important dimension of stratification (Ferraro 2016), few studies have investigated how social inequalities in health may further be conditioned by age. Recent scholarship, however, suggests that the health consequences of intersecting social statuses are dynamic, as health disparities tend to widen between early and midlife before declining in late life (Brown et al. 2016; Clarke et al. 2009). Assumptions that social inequalities operate independently of one another and are invariant across the life course therefore limit our understanding of the multidimensional and complex nature of BMI disparities over time, especially during the transition from adolescence to adulthood.

These limitations of the current literature necessitate a more nuanced approach to the study of social statuses and health. One such approach is to integrate multiple-hierarchy stratification and life course perspectives. A multiple-hierarchy stratification perspective posits that social statuses interact throughout the life course to shape various outcomes, including health (Clark and Maddox 1992; Jeffries and Ransford 1980). Recent research suggests that compared to unidimensional approaches to stratification, multiple-hierarchy stratification approaches have greater utility for understanding complex patterns of health inequality among US adults (Brown et al. 2016). In addition, a life course approach posits that historical, biographical, and social contexts throughout one’s life span cumulatively combine to shape life chances (Elder, Johnson, and Crosnoe 2003). Life course research highlights how the interplay between structural and agentic factors shapes developmental pathways and the nature and consequences of transitions between social events and roles (Ferraro 2016). It is therefore likely that the impact of multiple social statuses on health varies with age across adolescence and young adulthood, following two alternative life course hypotheses: cumulative inequality (in which inequalities increase with age) and persistent inequality (inequalities remain stable with age). Combining multiple-hierarchy stratification and life course approaches will provide a better understanding of health inequality by revealing how multiple dimensions of stratification combine to shape health across several critical stages of life.

The present study investigates the extent to which race-ethnicity, gender, SES of origin, and age intersect to shape BMI inequalities from adolescence to early adulthood. I address two research questions critical to the understanding of US young adult health. First, to what extent do racial-ethnic inequalities in BMI vary by gender and social class of origin? Second, do the intersections of racial-ethnic, gender, and early socioeconomic inequality result in widening or persistent BMI gaps with age during the transition to early adulthood? To answer these questions, I investigate group differences in BMI among non-Hispanic white, non-Hispanic black, and Hispanic American men and women using 15 waves of data from the National Longitudinal Survey of Youth 1997 cohort (NLSY97), covering ages 13 to 31.

BACKGROUND

Social Disparities in BMI

Recent estimates suggest that approximately one-third of youth and two-thirds of adults in the US are overweight or obese (Ogden et al. 2014). Rates of overweight and obesity are socially patterned, with blacks, Hispanics, women, and those of lower SES having higher prevalence rates than their white, male, and higher SES counterparts (Clarke et al. 2009; Ogden et al. 2014; Wang and Beydoun 2007). Research also indicates that racial-ethnic differences in BMI are larger among women, with black women exhibiting the highest rates of overweight or obesity (Ailshire and House 2011; Flegal et al. 2012). These patterns are consistent with the ‘fundamental causes’ of health perspective, which posits that one’s position in the social structure shapes access to important resources that can be used to avoid health risks or ameliorate the consequences of disease after its onset. Socioeconomic position and, more recently, racism and sexism are considered fundamental causes of health (Phelan and Link 2015). Indeed, past research indicates that individuals of disadvantaged racial-ethnic, gender, and socioeconomic statuses often have less access to tangible and psychosocial health-promoting resources and are exposed to more health-risk factors (Phelan and Link 2015; Williams 2012).

Parental SES (i.e., SES of origin) is also associated with rates of BMI and obesity through adolescence and adulthood. Individuals growing up in poverty or low socioeconomic contexts are more likely to be overweight or obese than those raised in higher socioeconomic environments (Lee et al. 2014; Robinson et al. 2009). Some studies, however, suggest that this relationship varies by race-ethnicity and age (Wang and Zhang 2006). Previous research also indicates that there are critical or sensitive periods during which exposures in early life (e.g., social disadvantage) have lasting effects and may permanently alter trajectories of health, socioeconomic achievement, and other determinants of weight gain among children (Elder et al. 2003; Non et al. 2016; Willson, Shuey, and Elder 2007).

While social scientists have long recognized that higher rates of morbidity among racial-ethnic minorities and women are shaped by a variety of social contextual factors (Du Bois 1899; Verbrugge 1985), a majority of population health studies still focus primarily on adult SES. Racial-ethnic and gender inequalities in health, however, often persist after accounting for group differences in socioeconomic resources (Read and Gorman 2010; Williams 2012).

These residual health gaps have led researchers to consider the "added burden" of race (Phelan and Link 2015) and gender (Bird and Rieker 2008), with increased attention to the central and often overlooked roles of racism and sexism in generating health inequalities. Extensive evidence links forms of institutional and interpersonal racism to racial-ethnic health inequality via multilevel pathways, including access to opportunities and desired resources, exposure to stressors, accelerated physiological "wear and tear", and residence in neighborhoods characterized by concentrated social, economic, and political disadvantages (Gee and Ford 2011; Phelan and Link 2015; Williams 2012). Additionally, gender roles and expectations stemming from hegemonic ideals of masculinity/femininity differentially constrain choices for healthy living among men and women by influencing decisions and policies made at family, work, local, and institutional levels. These decisions and policies shape the everyday experiences of men and women in ways that may heighten women's exposure to stress relative to men, block socioeconomic opportunities, and leave women with less time for health-promoting activities (Bird and Rieker 2008; Read and Gorman 2010).

Disparities in BMI along racial-ethnic, gender, and socioeconomic lines are well-documented in population health research—yet, evidence regarding how these disparities unfold *over time* is mixed. For example, while BMI tends to increase with age for all groups (Ogden et al. 2014), several longitudinal and repeated cross-section studies indicate that BMI increases more rapidly with age for women, blacks, and Hispanics compared with their male and white counterparts (Clarke et al. 2009; Harris, Perreira, and Lee 2009; Ogden et al. 2014). Research also suggests that racial-ethnic inequality in BMI tends to remain stable among men, yet widen among women across adolescence and adulthood (Flegal et al. 2012; Harris et al. 2006). Furthermore, research on socioeconomic disparities in age-trajectories of BMI provides inconsistent results. One study, for example, finds evidence suggesting that there is a widening SES gap (Clarke et al. 2009). Other studies indicate that the nature of socioeconomic inequality in BMI trajectories—as well as the impact of specific socioeconomic resources (education and income) on weight gain—vary by race and gender (Ailshire and House 2011; Walsemann et al. 2012). Compounding these mixed findings is the limited research on the extent to which *SES of origin* shapes BMI trajectories between adolescence and early adulthood. SES of origin may be a more appropriate measure for studying health inequality in the context of the transition to adulthood because adolescents and young adults are still establishing their own position in the socioeconomic structure. Consequently, it may be difficult to classify respondents' own SES independent of their parental SES at this stage of life (Robinson et al. 2009).

A Multiple-hierarchy Stratification Perspective on BMI Inequality

Overall, prior research has produced a wealth of knowledge indicating that BMI tends to be higher among blacks/Hispanics, women, and those of lower SES. While informative, a majority of these past studies have focused on the independent or additive consequences of race-ethnicity, gender, and SES on BMI trajectories, with little attention to how these statuses may intersect or condition the effects of each other on BMI. This leaves unclear how multiple, simultaneously-experienced social statuses combine to differentially shape weight gain among members of broadly defined social groups. Therefore, heterogeneity in

pathways underlying health is overlooked, as is the extent to which BMI is unequally distributed across groups comprised of various intersecting identities.

The present study addresses these limitations of prior research by utilizing a multiple-hierarchy stratification perspective, which highlights the consequences of interacting systems of inequality (Brown et al. 2016; Clark and Maddox 1992; Jeffries and Ransford 1980). This perspective generates several hypotheses regarding the nature of the relationship between social statuses and health. The "multiple jeopardy" hypothesis suggests that the poor health of multiply disadvantaged individuals is due to the sum of the "health hazards" associated with each social status. Low SES women of color, for example, would have the highest BMI because their lower levels of socioeconomic resources—and therefore limited access to healthy foods and environments—adds to the stressors and disadvantages stemming from being both a racial-ethnic and gender minority. These circumstances may therefore create unhealthy, stressful environments and promote negative health behaviors as a means to cope. However, the multiple jeopardy hypothesis may be overly simplistic and insufficient for capturing social reality because it ignores the interdependence among systems of inequality for shaping lived experiences (Crenshaw 1989), and assumes that the consequences of such systems are additive (Bowleg 2008). Assuming additivity among social factors may obscure the full extent and nature of health inequality by ignoring how social statuses influence the likelihood of, and responses to, various lived experiences (Collins 2015; Veenstra 2011).

Intersectionality is another hypothesis generated by a multiple hierarchy stratification perspective and addresses the limitations of multiple jeopardy. The intersectionality hypothesis posits that social inequalities are interdependent, often combining *multiplicatively* to mutually construct one another and create unique contexts and social realities that are consequential for health and other life chances (Collins 2015; Lopez and Gadsden 2016). Those located at similar intersections in the social structure may therefore have shared—but not equivalent—experiences (Crenshaw 1989). These interlocking systems of inequality shape not only individual social contexts, but also social practices, institutional arrangements, and cultural ideologies (Collins 2015). Subsequently, forms and consequences of racism are gendered, such that black men and women experience and elicit different stereotypes, treatments, and life chances. This is reflected, for example, in economic domains of life, wherein African Americans have lower levels of income and wealth compared to whites, yet African American men have higher levels of these socioeconomic resources than their female counterparts (Brown 2016; Chang and Lui 2010). These gaps stem from historical and contemporary social and economic policies that constrain opportunities for and benefits from wage and wealth-building mechanisms among women of color in particular compared to their white-female, and same-race-male counterparts (Brown 2012; Chang and Lui 2010). The unique positions in the social hierarchy occupied by men and women of similar races or ethnicities likely influence their abilities to engage in healthy behaviors affecting weight gain.

Furthermore, experiences of sexism are racialized and classed, differentiating the extent to which masculinity/femininity affects health for subgroups of men and women (Griffith 2012). For example, the construction and display of hegemonic masculinity—which is

embodied in white, middle/upper-class men—requires enacting several behaviors that influence weight gain, such as excess alcohol consumption, drug use, and avoiding health care facilities (Courtenay 2000; Griffith 2012). Men of color and those of lower SES, however, occupy subordinate positions in society and often have less access to the power and resources needed to fulfill ideals of hegemonic masculinity, such as being the financial provider in the household. Scholars argue that these minority men may compensate for their marginalized positions by resisting the hegemonic masculine ideal and constructing alternative, more intense forms of masculinity that emphasize physical strength and fearlessness (Courtenay 2000; Pyke 1996). The construction and display of these hypermasculinities among lower SES black/Hispanic men may promote unhealthy behaviors that result in increased weight gain compared to their higher SES white counterparts, yet similar rates of weight gain compared to their same-race female counterparts.

Intersectionality highlights both between- and within-group differences in opportunities for good health, as well as the possibility that social statuses combine in non-additive ways. Utilizing an intersectionality framework extends prior literature by challenging the homogenization of health-relevant experiences among those occupying a similar location in the social structure. It further highlights how BMI may be disproportionately distributed among those of specific intersecting identities. While this theoretical framework provides a nuanced approach to understanding health disparities, quantitative research utilizing an intersectionality approach is relatively rare (Lopez and Gadsden 2016). For example, several health studies have focused on interactions between just two social statuses, generally finding that racial-ethnic health inequality is larger among women (Brown and Hargrove 2013), or that there are diminishing health returns to increasing socioeconomic resources among blacks and Hispanics compared to whites (Farmer and Ferraro 2005).

Additionally, while past research on trends in weight gain specifically has produced a vast amount of knowledge, there are still several limitations of this literature that would benefit from the use of a multiple-hierarchy stratification perspective. Importantly, most studies compare minority groups comprised of different identities (e.g., black women, Hispanic men) to a more advantaged reference group, usually white men. This approach precludes the possibility of examining statistical interactions to determine the extent to which social statuses multiplicatively combine to shape health. For example, Ailshire and House (2011) found that low-SES black women experienced the highest BMI at baseline (ages 25–39) and steepest increases in BMI with age, and high-SES white men had the lowest BMI at baseline and exhibited the least growth in BMI with age. Similarly, Clarke et al. (2009) found that BMI was consistently higher for racial-ethnic minorities, women, and those of lower SES. Yet, when examining whether these social categories combined in a multiplicative versus additive fashion, the authors examined several two-way interactions rather than a three-way interaction between race, gender, and SES. Taken together, these studies provide a unique contribution to the literature. However, they only consider statistical interactions between race and gender among blacks and whites, omitting the examination of Hispanics as well as statistical tests for the possibility that the effects of SES are conditional upon race and/or gender. The present study will extend this scholarship by examining whether race-ethnicity, gender, and SES of origin multiplicatively combine to influence BMI among whites, blacks, and Hispanics across adolescence and young adulthood.

Incorporating a Life Course Perspective

Another limitation of prior research is the insufficient attention given to how BMI inequalities may change with age. Age is a key dimension of inequality that is critical for understanding social disparities in health (Ferraro 2016), as the nature of health risk and protective factors vary over time. Past studies, however, have tended to focus on a broad age range of adults, leaving uncertain the extent to which social factors combine to shape BMI trajectories during adolescence and early adulthood specifically (see Walsemann et al. 2012 for an exception). The transition to adulthood is a particularly important stage of the life course to examine for several reasons. First, it is characterized by a number of significant transitions that have implications for understanding health across the life course, such as completion of school, entry into the labor force, partnering, and childbearing (Harris 2010). Adolescents and young adults not only face several unique challenges in work and family spheres, but experience intense personal, mental, and emotional development as well. Research shows that adolescence and the transition to adulthood are periods characterized by increases in autonomy over life decisions, changes in social environments, networks, and lifestyles, and increases in risky behaviors—all of which shape health and health behaviors later in life (Harris 2010; Harris et al. 2006). Indeed, myriad studies indicate that there is substantial social variation in BMI trajectories across adolescence and early adulthood (Attard et al. 2012; Harris et al. 2009; Nonnemaker et al. 2009).

Second, the length of the transition to adulthood has increased, with risky lifestyles and behaviors now lasting until later ages compared to previous decades (Harris 2010). This extended period of time likely prolongs opportunities for health to deteriorate in earlier life and amplifies the role of parental SES in shaping health during these and subsequent life stages. Third, the experience of adolescent/early adult life varies by social groups, as racial-ethnic, gender, and socioeconomic inequality differentially shapes opportunities for fulfilling transitions characteristic of young adulthood. For example, compared to their white counterparts, blacks and Hispanics are more likely to be incarcerated (Western and Pettit 2010), live in poverty, be unemployed, have lower incomes for a given level of education, and have markedly lower levels of wealth (Brown 2016; Proctor, Semega, and Kollar 2016; Ryan and Bauman 2016). Furthermore, women—particularly women of color—hold fewer positions of power, are more likely to work part-time, and receive less pay than men for similar jobs (Read and Gorman 2010). These differences in life course markers and transitions among young adults of intersecting identities have important implications for access to, and utilization of, resources for achieving and maintaining a healthy weight across adulthood.

Two alternative hypotheses describe how the nature of BMI inequalities among racial-ethnic/gender/socioeconomic groups may change with age during the transition to adulthood. First, the *persistent inequality hypothesis* posits that health (dis)advantages hold over time, with age leaving the nature of health disparities unaltered (Richardson and Brown 2016). The extent to which unique advantages and disadvantages of various social groups affect BMI would be constant as individuals age. Thus, BMI inequality among racial-ethnic/gender/SES groups would remain stable between adolescence and early adulthood.

The second hypothesis, *cumulative inequality*, suggests that health-relevant risks and resources accumulate over time, with those who experience advantages early in life acquiring more resources and fewer risks with age. Those who experience initial disadvantages in life, conversely, accumulate more risks and fewer resources with age (Ferraro and Shippee 2009; Willson et al. 2007). Childhood and adolescence represent critical life stages that shape, and are shaped by, long term inequality processes, as childhood conditions represent intergenerational processes and engender stressors that may alter subsequent developmental and functional trajectories (Ferraro, Schafer, and Wilkinson 2016). Consequently, the accumulation and compounding of risks and resources over the life course, as well as individuals' interpretations and responses to such (dis)advantages, may magnify health inequalities with age (Ferraro et al. 2016; Schafer, Ferraro, and Mustillo 2011). This hypothesis would therefore predict that BMI differences by race-ethnicity, gender, SES, and their intersections widen with age. Prior research provides no clear support for one hypothesis over the other, particularly in regards to intersecting inequalities during adolescence and young adulthood. It is likely, however, that racial-ethnic/gender/SES inequalities will combine multiplicatively and widen with age given prior work that documents interactive and growing racial-ethnic and gender health disparities between adolescence and adulthood (Ailshire and House 2011; Harris et al. 2009; Wang and Beydoun 2007), and diminishing health returns to greater socioeconomic resources among racial-ethnic minorities (Farmer and Ferraro 2005; Walsemann et al. 2012). Findings from this study will provide a better understanding of how intersecting social statuses lead to the unequal distribution of BMI across members of broadly defined social groups.

DATA AND METHODS

Data

This study used data from 15 waves of the National Longitudinal Survey of Youth 1997 cohort (NLYS97). The NLSY is an ongoing panel study of American youth, aged 13 to 17 at baseline in 1997. Stratified, multistage probability sampling was used to recruit respondents, who constituted a representative sample of individuals born between January 1, 1980 and December 31, 1984, as well as an oversample of blacks and Hispanics ($N = 8{,}984$). Respondents were interviewed annually from 1997 through 2011, resulting in 15 waves of data. Retention rates ranged from 82% to 94% (average retention rate is 86%) and respondents were between ages 13 (youngest age at baseline) and 31 (oldest age in final follow-up wave). The NLSY97 cohort had a nearly equal amount of males (51%) and females (49%), and substantial proportions of non-Hispanic blacks (26%) and Hispanics (21%). Only US born respondents were considered in the analyses given the documented immigrant advantage in BMI (Oza-Frank and Cunningham 2010).

Dependent Variable

The outcome of interest was BMI. Consistent with previous research (Ailshire and House 2011), self-reported weight (in pounds) and height (in inches) were asked at each wave and used to create a BMI variable for each respondent at each round of data based on the standard equation:

$$BMI = weight\ (lb)\ /\ [height\ (in)]^2\ x\ 703\ .$$

BMI values smaller than 11 or larger than 70 were treated as missing, and women who reported being pregnant were excluded from the wave at which they were pregnant, though they were included in waves during which they were not pregnant (Clarke et al. 2009). Supplemental analyses (not shown) confirmed that the main findings were robust to alternative ranges of BMI and approaches to handling outliers.

Independent Variables

Social statuses—Three binary variables measured self-reported *race-ethnicity*: non-Hispanic white (yes = 1); non-Hispanic black (yes = 1); and Hispanic (yes = 1). Non-Hispanic whites served as the reference group. *Gender* was indexed by a dummy variable (0 = men; 1 = women) and *age* was measured in years (ages 13–31). *SES of origin* was defined by parental educational attainment and wealth. Parental educational attainment reflected the average of parents' educational levels at baseline or the educational attainment of the sole parent in the case of single-parent households (range = 1–20). Supplemental analyses (not shown) indicated that the findings were robust to alternative operationalizations of parental education, such as using information from the highest educated parent regardless of household structure. Wealth represented the net worth (assets minus debts) of the respondent's household according to their parent at baseline, and was logged to account for the skewed distribution of net worth (Brown 2016). For ease of interpretation and illustration, parental education and wealth were centered around the median. Additionally, to control for differential reporting of wealth information by race-ethnicity and gender, I adjusted for whether the respondent was missing on the wealth variable. I used parental wealth instead of household income for several reasons. Importantly, wealth represented a more permanent set of resources and a broader basis of SES given the fleeting nature of income and the ability of wealth to act as a financial and psychosocial safety net in the event of financial hardship (Oliver and Shapiro 2006). The relatively stable nature of household wealth made this measure an ideal indicator of respondents' early socioeconomic context of origin.

Control variables—Models adjusted for the proportion of waves a respondent was not interviewed to account for differential rates of *attrition due to dropout* (Brown et al. 2016). Models also controlled for whether the respondent was *ever incarcerated* during the study (yes = 1) due to the disproportionate rates of incarceration for blacks and Hispanics (Western and Pettit 2010). Having lived in an *urban environment* (yes = 1) was additionally included in all models given racial-ethnic differences in neighborhood contexts (Pattillo 2013) and the robust relationship between the built environment and BMI (Burdette and Needham 2012). Lastly, models that included parental education additionally controlled for whether the respondent was raised in a *two-parent household* (yes = 1) to account for differences in parental education across household types.

Analytic Strategy

The research questions were addressed in two stages. First, I used multilevel models estimated within a mixed model framework to investigate the joint consequences of race-ethnicity, gender, and SES of origin on the mean level of BMI among whites, blacks, and Hispanics between ages 13 and 31. These models adjusted for correlations and non-independence of observations due to repeated measures of the same individual across multiple waves and clusters within the sample (Raudenbush and Byrk 2002). Fixed effects of covariates were estimated in the models, as well as random effects for the intercept to account for person-specific errors (unobserved differences between individuals that were stable over time and not accounted for by the covariates). A comparison of likelihood ratio tests indicated that including a quadratic term for age improved the overall model fit. Therefore, both an age and an age-squared term were included in each model. All models were also stratified by gender, and Chow tests were used to determine whether the coefficients for race-ethnicity, SES of origin, and their interactions statistically differed for men and women (Landry 2006). Significant interactions among race-ethnicity, gender, and SES of origin would suggest that these social statuses multiplicatively combined to shape BMI, and would therefore provide support for the intersectionality hypothesis. Alternatively, non-significant interactions among the social status variables would indicate that they combined additively, providing support for multiple jeopardy.

Second, I employed random coefficient growth curve models to assess whether the joint consequences of race-ethnicity, gender, and SES of origin widened or remained stable across ages 13 to 31. Growth curve models estimated person-specific intercepts (initial value) and slopes (rate of change) that described intra-individual variations in the relationship between age and health. Model fit indices suggested that a quadratic growth curve with random intercepts and random linear and quadratic slopes provided the best fit to the data. Additional analyses indicated that the model fit did not improve when regressing social statuses on quadratic slopes. For the sake of parsimony, models were stratified by gender, and the coefficients for race-ethnicity, SES of origin, and their interactions were regressed on the intercepts and linear-age slopes only. The persistent inequality hypothesis was supported if age slopes were similar across groups (as indicated by non-significant effects of race-ethnicity, gender, and SES of origin on the age slopes). Conversely, the cumulative inequality hypothesis was supported if there were significant interactions between social statuses and the age slopes that indicated widening health inequalities.

RESULTS

Table 1 provides the means and proportions of study variables at baseline by race-ethnicity and gender. Results show that BMI, SES of origin, and control variables differ across racial-ethnic and gender lines. Black women experience the highest average BMI at baseline (ages 13–17), followed by Hispanic men, black men, Hispanic women, and white men and women. Furthermore, blacks and Hispanics have a lower SES of origin compared to whites, with respondents of color generally growing up in households with less educated parents and lower levels of wealth. Findings from Table 1 suggest that those in the most privileged positions (white men) tend to be advantaged in adolescence, while women of color appear to

be the most disadvantaged racial-ethnic-gender groups in terms of adolescent BMI and SES of origin.

Joint Consequences of Social Statuses on Average BMI for Young Adults Ages 13 to 31

Table 2 presents multilevel models of BMI using data from waves 1 through 15 of the NLSY97. These models provide estimates of the extent to which racial-ethnic differences in average levels of BMI vary by gender and/or class of origin. Model 1 regresses BMI on race-ethnicity across all ages (13–31), while Model 2 adjusts for socioeconomic resources, and Model 3 includes the main effects of race-ethnicity, SES of origin, and their interactions. Results from Model 1 suggest that BMI varies along racial-ethnic lines for both men and women, as blacks and Hispanics have a higher BMI than whites. Additionally, the statistically significant Chow test for the intercept and black coefficient indicates that white women tend to have lower BMIs than white men, and that the black–white disparity in BMI is greater among women than men; the latter finding is consistent with the intersectionality hypothesis. Moreover, results from Model 1 show that black women have the highest average BMI between ages 13 to 31, compared to other racial-ethnic-gender groups.

Model 2 adds SES of origin measures to Model 1. Results indicate that parental education is negatively associated with BMI for men and women, while wealth is negatively associated with BMI among men only. Model 3 of Table 2 estimates the extent to which the SES of origin-BMI relationship varies by race-ethnicity, separately for men and women. The significant negative coefficients for the main effects of parental education for men and women indicate that parental education is inversely related to BMI among whites. Consistent with the intersectionality hypothesis, the negative coefficients of parental education in tandem with the positive coefficients for interactions between black/Hispanic and parental education among men suggests that higher parental education is less protective against increasing BMI for black and Hispanic men compared to white men. The non-significant coefficient for the interaction between black/Hispanic and parental education among women indicates that the association between parental education and BMI is similar for women regardless of race-ethnicity. Furthermore, the significant negative coefficient of parental net worth for men and women and the non-significant Chow test for the wealth coefficient indicates that higher levels of wealth similarly predict lower levels of BMI for all racial-ethnic-gender groups with the exception of black women. The significant positive coefficient for the interaction between black and parental net worth among women suggests that higher levels of parental wealth are predictive of higher BMI for black women.

Joint Consequences of Social Statuses on BMI between Adolescence and Adulthood

Table 3 presents results from growth curve models of BMI between ages 13 and 31. Model 1 provides estimates of racial-ethnic and gender inequality in BMI trajectories. The significant positive coefficients for black and Hispanic on the BMI intercepts among both men and women indicate that blacks and Hispanics have a higher BMI at age 13 compared with their same-gender white counterparts. The significant Chow test for the intercept indicates that white men have a higher BMI at age 13 than white women, while the significant Chow test for the black coefficient suggests that black women have the highest BMI at age 13, and that the magnitude of white–black inequality in BMI at age 13 is greater among women than

men. The significant positive coefficients for black and Hispanic on both the intercept and slope among women indicate that the gap between black/Hispanic and white women increases between ages 13 and 31, consistent with the cumulative inequality hypothesis. Similarly, the significant positive Hispanic coefficient for the BMI intercept and age slope among men suggests that the BMI gap between Hispanic and white men widens with age as well. While black men have a higher BMI at age 13 than white men, this racial disparity remains stable between ages 13 and 31 as indicated by the nonsignificant coefficient for black on the linear age slope among men. This result provides support for the persistent inequality hypothesis. Additionally, the significant positive coefficient for the linear age slope in tandem with the significant negative coefficient for the quadratic age slope in all models of Table 3 suggests that BMI is increasing with age at a decelerating rate. Weight gain is therefore steeper at earlier ages for all respondents, and then levels off at later ages of young adulthood. These findings from Model 1 are illustrated in Figure 1, which depicts age-trajectories of BMI for each racial-ethnic-gender group.

Model 2 of Table 3 adds parental education and wealth to Model 1. Parental education is not significantly associated with BMI at age 13 for men or women, and wealth is negatively related to BMI among men at age 13. Parental education, however, has a significant negative effect on the age slope for both men and women, indicating that BMI increases less steeply for those with higher educated parents. Thus, a gap in BMI between those whose parents have more versus less education emerges and widens between ages 13 and 31.

Lastly, Model 3 of Table 3 considers interactions between race-ethnicity and SES of origin, specific to gender, on the BMI intercepts and slopes. Findings indicate that wealth, race-ethnicity, and gender combine to shape BMI inequalities from ages 13 to 31. These relationships are illustrated in Figures 2 and 3 for men and women, respectively.[1] The non-significant main effect of wealth on the age slopes in tandem with the significant positive coefficient for the Hispanic × wealth interaction on the age slopes among men suggests that there is an emerging and widening gap between Hispanic and white men who were raised in households with similar levels of wealth. Hispanic men who live in households with higher levels of wealth experience steeper increases in BMI with age compared to their similarly advantaged white male counterparts. Among women, the non-significant main effect of net worth and the significant positive coefficient for the black × net worth interaction on the age slopes indicate that increasing levels of wealth are not as beneficial for BMI among black women compared to their white counterparts.

DISCUSSION

While racial-ethnic, gender, and socioeconomic disparities in health are well-documented, the extent to which these social inequalities intersect to shape health trajectories—particularly during the transition to adulthood—remains largely unknown. Prior research has often focused on disparities in health along individual social identities, or have assumed that the collective impacts of social statuses are additive in nature. Compounding this tendency to

[1]It is important to note that the distributions of parental wealth differ dramatically across racial-ethnic groups, with relatively few black and Hispanic respondents with parental wealth at the top end of the wealth distribution for the total sample. Ancillary analysis, however, indicated that using race-specific wealth percentiles yielded similar substantive conclusions.

view systems of inequality as autonomous is the lack of attention given to aging. The assumption that racial-ethnic, gender, and socioeconomic inequality do not vary with age hinders investigations of the dynamic nature of health disparities. The present study addresses these gaps and advances our understanding of health inequalities during the transition to adulthood in several important ways.

First, this study goes beyond the black–white dichotomy to investigate BMI trends among Hispanics, who represent a large and growing segment of the US population (Passel, Cohn, and Lopez 2011). Second, the present study is among the first to examine how race-ethnicity, gender, and SES of origin jointly combine to shape BMI trajectories. Prior studies have tended to treat social categories as additive and compare the most and least advantaged. Consequently, there has been little conceptualization of how social statuses *multiplicatively* intersect to influence health, although this approach may better capture the complexities of social life (Collins 2015; Lopez and Gadsden 2016; Veenstra 2011). In addition, few studies have paid sufficient attention to the ways in which SES of origin intersects with race-ethnicity and gender to shape health inequality, particularly as these intersections relate to BMI trajectories between adolescence and adulthood. This study explicitly tests the extent to which social statuses combine multiplicatively across adolescence and early adulthood. Findings from multilevel models suggest that racial-ethnic inequality in BMI is gendered such that the black–white disparity in BMI in early life is greater among women than men. Black women also have the highest BMI compared to all other racial-ethnic-gender groups. Moreover, results indicate that SES of origin differentially influences BMI among men and women. Specifically, parental education is less protective for minority men, particularly black men, compared to their white counterparts, while higher levels of wealth do not translate into lower average levels of BMI across adolescence and early adulthood for black women. These results support the intersectionality hypothesis given the significant interactive relationship between race-ethnicity, gender, and SES of origin.

Findings suggest that socioeconomic resources do not confer the same health benefits across racial-ethnic and gender groups. Prior work has also found that there are diminishing returns to health of socioeconomic mobility among racial-ethnic minorities (Brown et al. 2016; Walsemann et al. 2012). This pattern is generally attributed to the restricted opportunities for economic success, the non-equivalence of socioeconomic indicators across race, and increased experiences of discrimination among racial-ethnic minorities of higher SES in the context of institutional and interpersonal racism (Colen 2011; Farmer and Ferraro 2005; Pearson 2008). What is novel about the findings of this study, however, is the use of SES of origin, which may be a more appropriate measure of socioeconomic context for individuals transitioning into adulthood (Robinson et al. 2009). The results indicate that individuals' social and familial networks experience fewer health benefits from improved socioeconomic position as well. That is, children from households with higher levels of SES are similarly influenced by the context that has been established by parents. Moreover, the findings suggest that childhood socioeconomic circumstances have dynamic effects on individuals' health throughout adolescence and early adulthood. These lasting consequences have implications for subsequent trajectories of health and socioeconomic status among the younger population as they transition to adulthood.

Recent scholarship provides insight into additional mechanisms that produce diminishing health returns of socioeconomic mobility (Thomas 2015). The Environmental Affordances Model suggests that those who are exposed to chronic stress and live in poorer neighborhoods are likely to engage in coping behaviors that are harmful for physical health, such as smoking, overeating, or alcohol use (Jackson, Knight, and Rafferty 2010; Mezuk et al. 2013). Prior research indicates that blacks of higher SES experience elevated levels of stress compared to their lower SES counterparts (Pearson 2008), and, due to race-based segregation, live in poorer neighborhoods than their white counterparts (Patillo 2013). It is therefore possible that blacks with higher levels of education and wealth cope with their stress and surroundings in ways that are deleterious for their physical health, including weight gain. These negative consequences of increased exposure to stress may therefore undermine the benefits of any improved living conditions.

Life course theory explicates how exposures, social circumstances, and coping behaviors of parents may affect the health of children. The life course principle of linked lives posits that relationships in social networks are reciprocal and dynamic such that the exposures and events experienced by members of one's social network can have an impact on one's own health trajectory (Elder et al. 2003). Consequently, the health-related resources, behaviors, and contexts of parents that are displayed or established in the household may facilitate the development of lifelong patterns, dispositions, and understandings of healthy living among children (Kumanyika 2008; Lau, Quadrel, and Hartman 1990; Wickrama et al. 1999). In this case, the unhealthy behaviors in which parents of color at higher levels of SES engage to cope with stress, such as poor diet or lack of exercise, may be understood by children as acceptable ways of living, in general, and legitimate means of coping with one's environment, in particular. These behaviors and understandings may result in poorer health in adulthood.

A third contribution of this study is the integration of multiple-hierarchy stratification and life course perspectives to investigate how age in conjunction with race-ethnicity, gender, and SES of origin simultaneously combine to shape BMI inequality between adolescence and early adulthood. Previous studies have tended to rely on cross-sectional data, or assume that the nature health inequality does not change across the life course. Findings from this study highlight the dynamic nature of health inequality between ages 13 and 31. For example, results from the growth curve models indicate that black men have a higher BMI than white men at age 13, yet experience the same rate of weight gain as their white counterparts, providing support for the persistent inequality hypothesis. Racial-ethnic differences in BMI among women and the Hispanic–white disparity among men, however, support the cumulative inequality hypothesis. Specifically, black and Hispanic women as well as Hispanic men experience higher baseline BMI and steeper increases in weight gain compared to their same-gender white counterparts, resulting in widening BMI gaps. Black women also have the highest BMI at baseline and the greatest rate of change in BMI across ages 13 through 31, compared to all other groups.

Furthermore, the health consequences of SES of origin appear to widen with age. Results indicate that similar levels of wealth are less protective of increasing BMI with age for Hispanic men and black women compared to their white counterparts. Indeed, the largest

racial-ethnic gaps are at the highest levels of parental wealth. In addition to the diminishing returns hypothesis discussed above, similar theoretical propositions, such as the status incongruence, rising expectations, and effort-reward imbalance hypotheses, provide insight into why men and women of color from wealthier families may experience some of the steepest increases in weight gain with age compared to their less wealthy and white counterparts. Taken together, these hypotheses posit that as individuals gain more socioeconomic resources and prestige, expectations and desires for a certain standard of living rise at a faster rate (Geschwender 1964). The sustained effort and demands needed to meet and maintain this new standard of living—especially among women of color who face numerous unique barriers to achieving high levels of wealth—will likely induce strain, conflict, and distress (Pearson 2008; Thomas 2015). This, in turn, may lead to the acceptance and espousal of unhealthy behaviors as a means to cope.

Achieving these rising expectations may be particularly challenging among those of marginalized social statuses, for whom systems of inequality (e.g., racism and sexism) constitute additional and compounding barriers to realizing and maintaining new standards of living. Indeed, wealthy black families continue to live in markedly different neighborhoods and experience disparate social realities than their wealthy white counterparts (Oliver and Shapiro 2006; Pattillo 2013). The structural and psychosocial obstacles to good health experienced by parents likely affect children's weight gain. Specifically, children have been raised in these disparate social contexts, and when transitioning to their own SES, may follow similar methods as their parents to maintain a certain standard of living. Furthermore, efforts to maintain an advantaged position in the socioeconomic hierarchy may be particularly difficult among African Americans and Hispanics for whom the nature of wealth across generations is fleeting. Indeed, historical and contemporary policies and practices have constrained wealth accumulation among people of color, thereby limiting the amount of wealth that may be accumulated and passed on to the next generation (Brown 2016; Oliver and Shapiro 2006). In the context of institutional and interpersonal racism, the process of accumulating and maintaining wealth may be an especially difficult task throughout life for families of color. These processes, in turn, likely create stressful and potentially hazardous environments that affect weight gain.

This study is not without limitations. First, this study is not able to independently analyze Asians, Native Americans, and subgroups of Hispanics given small sample sizes. This limits our understanding of how multiple and intersecting identities may differentially shape health among a variety of racial-ethnic groups. Similarly, the existing data do not allow for the examination of heterogeneity by nativity and ethnicity within racial-ethnic groups.

A second limitation is the reliance on self-reported data to create the BMI measure, which may be subject to reporting bias. Adolescent women and those who are measured as overweight tend to underestimate their weight compared to men and those who are measured as nonoverweight (Stommel and Schoenborn 2009). While other methods of collecting BMI may be preferable, studies show that the use of self-reports from adolescents is valid and produce reliable estimates (Brener et al. 2003), especially if statistical models adjust for several sociodemographic factors, including gender, age, and pregnancy status (Stommel and Schoenborn 2009). Additionally, if self-reports of weight were underestimated in this study,

it is likely that there would be lower estimates among women and those of lower SES of origin given that individuals from lower socioeconomic contexts are more likely to be overweight (Wang and Beydoun 2007). Therefore, findings regarding gender and socioeconomic differences in BMI are likely conservative.

Furthermore, BMI calculations do not take into account muscle and bone mass, which may lead to an overestimation of those who would be classified as overweight or obese (Burkhauser and Cawley 2006). Additionally, some individuals classified as overweight based on BMI values have comparable or better rates of survival and cardiovascular health compared to those defined as having a normal weight (McGee et al. 2005; Romero-Corral et al. 2006). While the present study is less concerned with using BMI to categorize individuals into weight classes, it should be mentioned that other measures of adiposity might be better suited to delineate groups and consequences of overweight/obesity. The use of BMI here, however, represents an ideal approach for monitoring and assessing risk for future disease and poor health among adolescents and young adults.

Lastly, the mechanisms through which parental SES shapes BMI trajectories in early adulthood are unclear. Previous research suggests that SES of origin affects adult health both directly and indirectly through subsequent stress exposure and achievement processes (Hargrove and Brown 2015; Willson et al. 2007). Thus, it is possible that the observed association between parental SES and BMI in early adulthood may be due, in part, to subsequent patterns of stress exposure and access to socioeconomic resources that have been shaped by SES of origin. Further research is needed to identify the specific mechanisms through which SES of origin impact BMI trajectories in adulthood.

Despite these limitations, the present study provides strong evidence that race-ethnicity, gender, and SES of origin multiplicatively combine to shape trajectories of BMI during the transition to adulthood. These findings highlight the classed and gendered consequences of racial-ethnic inequality, and underscore the dynamic nature of heterogeneity in early life health within racial-ethnic groups. The unique patterns of health disparities uncovered here would have been obscured if a conventional approach to inequality had been utilized, wherein structures of inequality are assumed to be autonomous and additive in nature, rather than interactive and mutually constructing. This more nuanced picture of health inequality illuminates the disproportionate burden of health risks and disadvantages experienced by marginalized groups. Policies that address the multifaceted pathways to health must consider how race-ethnicity, gender, SES of origin, and age combine to shape exposures to health risks and opportunities for healthy living among individuals across diverse groups.

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Biography

Taylor W. Hargrove is a postdoctoral research fellow in the Department of Sociology and Office of the Vice Chancellor for Research at the University of North Carolina at Chapel Hill. Her main areas of interest are social stratification, social determinants of health, and aging and the life course, with emphasis on understanding how systems of inequality, namely race-ethnicity, skin color, gender, and social class, intersect to shape health disparities throughout life. Her current research interests focus on exploring the biosocial underpinnings of poor health between early and late life. Her recent peer-reviewed publications appear in the *Journal of Health and Social Behavior, Ethnicity & Disease,* and the *Journal of Family and Community Health*.

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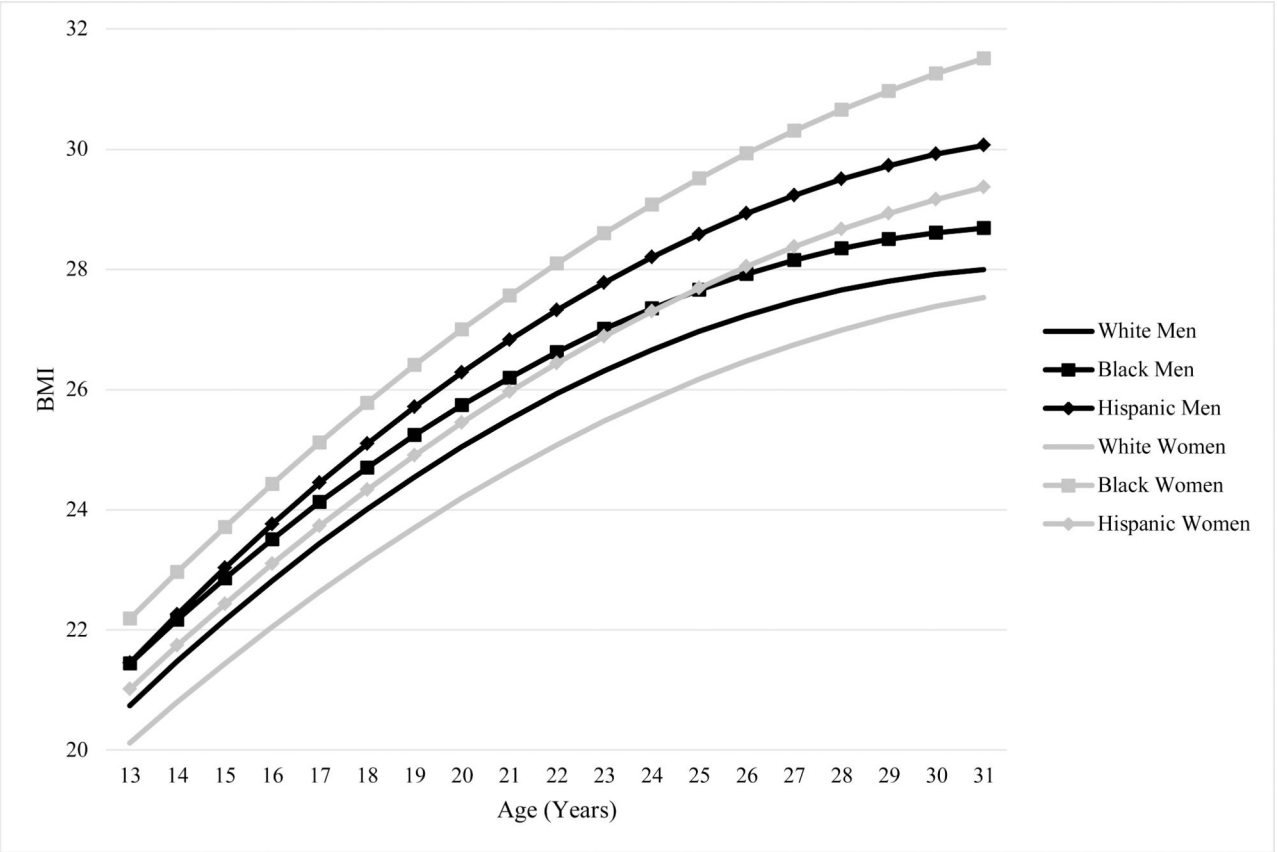

Figure 1. Age-trajectories of BMI from 13–31 by Race-ethnicity and Gender, National Longitudinal Survey of Youth 1997 Cohort, Waves 1–15 (*N* = 7, 205)

Note: Figure 1 is based on Model 1 in Table 3.

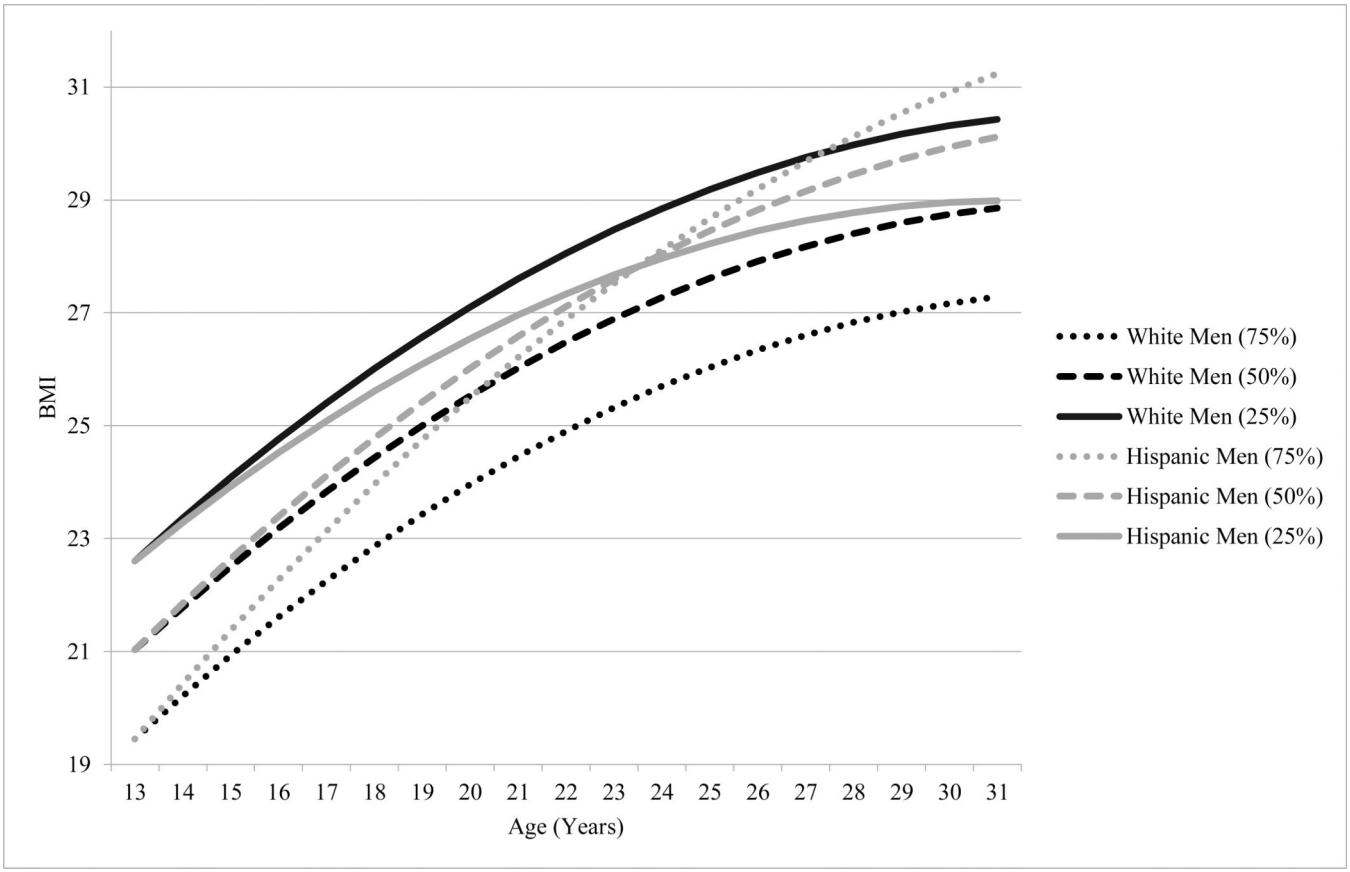

Figure 2. Age-trajectories of BMI by Race-ethnicity and Parental Wealth among Men, National Longitudinal Survey of Youth 1997 Cohort, Waves 1–15 (*N* = 3, 711)

Note: Figure 2 is based on Model 3 in Table 3. 25% indicates individuals at the 25th percentile of the parental wealth distribution, and 50% and 75% represent those at the 50th and 75th percentile, respectively. For the sake of concision, only trajectories for white and Hispanic men are displayed. Results indicated that parental wealth similarly affected BMI trajectories for white and black men.

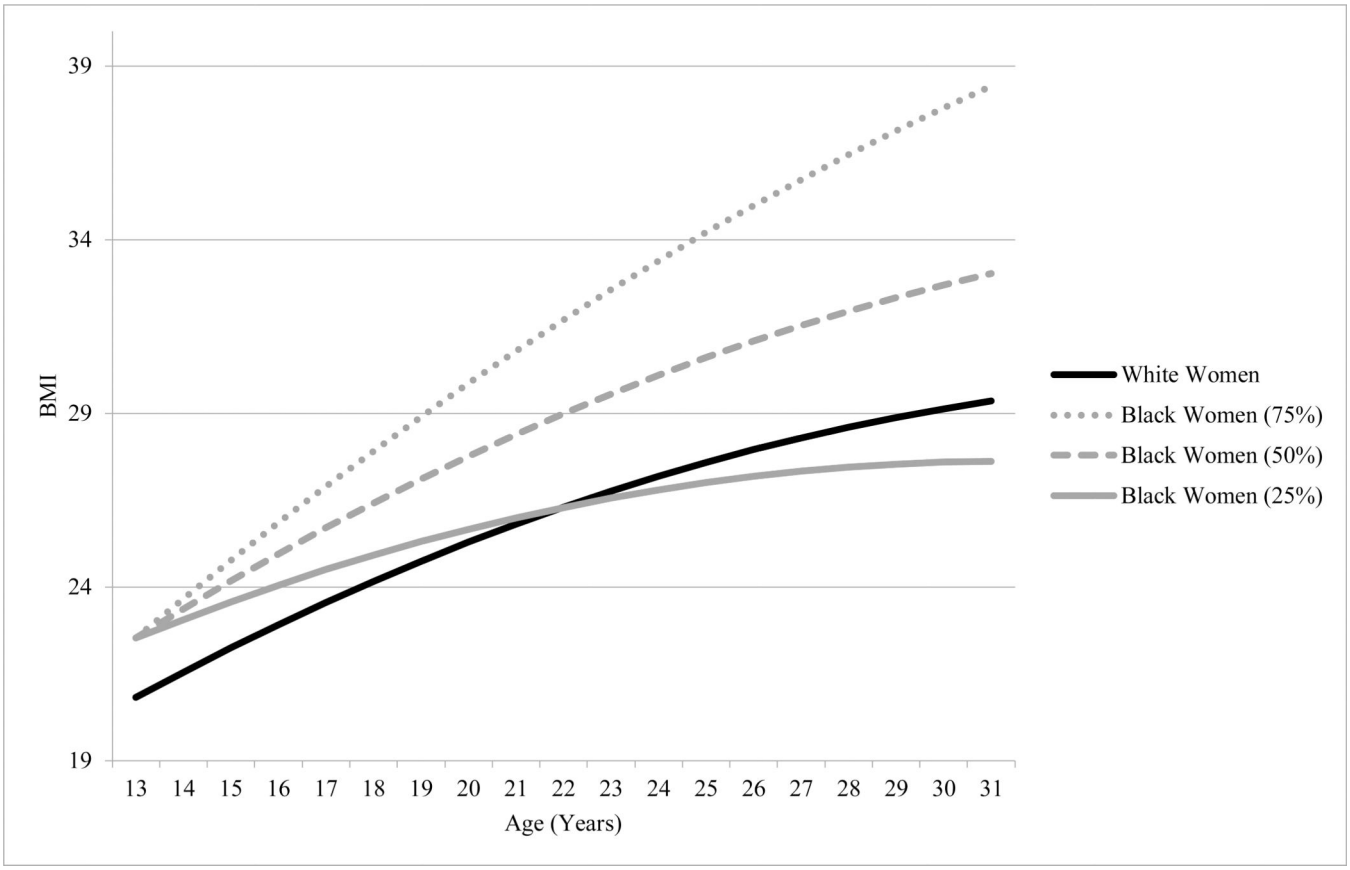

Figure 3. Age-trajectories of BMI by Race-ethnicity and Parental Wealth among Women, National Longitudinal Survey of Youth 1997 Cohort, Waves 1–15 (*N* = 3, 494)

Note: Figure 3 is based on Model 3 in Table 3. 25% indicates individuals at the 25th percentile of the parental wealth distribution, and 50% and 75% represent those at the 50th and 75th percentile, respectively. For the sake of concision, only one line is shown for white women at all levels of wealth. Results indicated that the intercepts and age slopes did not differ by level of parental wealth among white women.

Table 1.

Weighted Means/Proportions, by Race-ethnicity and Gender; NLSY97, Wave 1, 1997 (*N*=6,873)

	WM	WW	BM	BW	HM	HW
BMI	21.700	21.069 *†	22.558 *	23.209 *†	22.755 *	21.882 *†
SES of Origin						
Parental Education	13.550	13.555	12.429 *	12.470 *	11.057 *	10.993 *
Parental Wealth	8.270	8.132	6.151 *	6.271 *	5.959 *	6.122 *
Age	14.979	15.027	15.012	15.003	15.120 *	14.912 †
Controls						
Two Parent Household	.781	.755	.449 *	.445 *	.684 *	.674 *
Proportion of Waves Missing	.149	.136	.134	.078 *†	.161 *	.121 *†
Urban Residence	.619	.609	.731 *	.786 *†	.880 *	.891 *
Incarcerated (in 1998)	.004	.001 *†	.012 *	.000 *†	.006 *	.000 *
Missing on Parental Wealth	.167	.172	.198 *	.166	.279 *	.243 *
N	1989	1808	857	802	753	664

Note: BMI=body-mass index; SES=socioeconomic status; NLSY97= National Longitudinal Survey of Youth 1997 cohort;

WM, WW, BM, BW, HM, HW refer to white men, white women, black men, black women, Hispanic men, and Hispanic women, respectively.

* $p < .05$ for comparison of racial/ethnic-gender group to white men

† $p < .05$ for comparison of men and women within racial/ethnic groups

Table 2.

Multilevel Models of Race-ethnicity, Gender, SES and BMI; NLSY97, Waves 1–15

	Model 1			Model 2			Model 3		
Fixed Effects [a]	**Men**	**Women**	$b_{m\neq w}$	**Men**	**Women**	**m≠w**	**Men**	**Women**	**m≠w**
Intercept	20.878***	20.058***	†	21.146***	21.134***		21.289***	21.253***	
Race (ref. White)									
Black	.579***	2.991***	†	.341	2.375***	†	.178	2.713***	†
Hispanic	1.361***	1.417***		1.051***	.733*		1.123***	.367	
SES									
Parental Education				−.071*	−.174***		−.207***	−.278***	
Parental Net Worth				−.052*	−.028		−.077**	−.064*	
Race × SES									
Black × Parental Education							.214*	.145	
Hispanic × Parental Education							.184**	.142	
Black × Parental Net Worth							.030	.144***	
Hispanic × Parental Net Worth							.057	−.038	†
Age	.709***	.678***		.709***	.678***		.709***	.678***	
Age^2	−.016***	−.013***		−.016***	−.013***		−.016***	−.013***	
Random Effects									
Level 1 Residual	2.392***	2.873***		2.392***	2.873***		2.392***	2.873***	
Level 2 Intercept	4.557***	5.651***		4.542***	5.593***		4.534***	5.572***	
−2 Log Likelihood	10469712	10117096		10468625	10113934		10467976	10112768	
N	3711	3494		3711	3494		3711	3494	

Note: BMI=body-mass index; SES=socioeconomic status; NLSY97= National Longitudinal Survey of Youth 1997 cohort.

[a]All models control for proportion of waves missing, urban residence, whether the respondent was ever incarcerated, and missing on parental net worth

[b]'m≠w' indicates Chow tests for differences between men and women

*$p < .05$

**$p < .01$

***$p < .001$

Table 3.

Growth Curve Models of the Joint Impacts of Race-ethnicity, Gender, SES, and Aging on BMI; NLSY97,Waves 1–15

	Model 1			Model 2			Model 3		
Fixed Effects [a]	**Men**	**Women**	$b_{m\neq w}$	**Men**	**Women**	**m≠w**	**Men**	**Women**	**m≠w**
Intercept	20.745***	20.121***	†	20.869***	20.693***	†	21.026***	20.816***	
Race (ref. White)									
Black	.690***	2.062***	†	.507*	1.777***	†	.318	1.709***	†
Hispanic	.707***	.888***		.508*	.665**		.400	.522	
SES									
Parental Education				−.030	−.055***		−.127**	−.129***	
Parental Net Worth				.−065**	−.007***		−.063**	−.015	
Race × SES									
Black × Parental Education							.181	.184	
Hispanic × Parental Education							.125	.079	
Black × Parental Net Worth							−.002	.027	
Hispanic × Parental Net Worth							.000	−.003	
Linear Slope (Age)	.749***	.689***		.778***	.739***		.777***	.744***	
Race (ref. White)									
Black	−.005	.106***	†	−.018	.076***	†	−.018	.109***	
Hispanic	.076***	.052*		.054**	.003		.070***	−.020	
SES									
Parental Education				−.007*	−.013***		−.011**	−.021***	
Parental Net Worth				.002	−.001		−.001	−.005	†
Race × SES									
Black × Parental Education							.008	.007	
Hispanic × Parental Education							.005	.011	
Black × Parental Net Worth							.003	.012***	
Hispanic × Parental Net Worth							.006*	−.002	
Quadratic Slope (Age^2)	−.019***	−.015***	†	−.019***	−.015***	†	−.019***	−.015***	†
Random Effects									
Level 1 Residual	1.865***	2.180***		1.865***	2.180***		1.865***	2.180***	
Level 2 Age	.772***	.768***		.773***	.765***		.772***	.762***	
Level 2 Age^2	.040***	.039***		.040***	.039***		.040***	.039***	
Level 2 Intercept	4.240***	4.056***		4.228***	4.048***		4.221***	4.041***	

	Model 1			Model 2			Model 3		
Fixed Effects [a]	**Men**	**Women**	***b*** **m≠w**	**Men**	**Women**	**m≠w**	**Men**	**Women**	**m≠w**
−2 Log Likelihood	9931576	9503493		9929803	9500248		9928927	9498583	
N	3711	3494		3711	3494		3711	3494	

Note: BMI=body=mass index; SES=socioeconomic status; NLSY97= National Longitudinal Survey of Youth 1997 cohort.

[a] All models control for proportion of waves missing, urban residence, whether the respondent was ever incarcerated, and missing on parental net worth

[b] 'm≠w' indicates Chow tests for differences between men and women

* $p < .05$

** $p < .01$

*** $p < 0.001$