Published in final edited form as:

J Marriage Fam. 2018 April ; 80(2): 444–462. doi:10.1111/jomf.12454.

Race-Ethnicity, Union Status, and Change in Body Mass Index in Young Adulthood

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Abstract

This study used data from three waves of the National Longitudinal Study of Adolescent to Adult Health (Add Health) and fixed-effects regression to consider whether associations between change in union status and change in BMI were moderated by race/ethnicity. The results indicated that intimate unions were differentially associated with gains in BMI along race/ethnic lines, especially for women. Compared to White women, marriage was associated with larger increases in BMI for Black, Hispanic and Multiracial women, and cohabitation was associated with larger increases for Black and Hispanic women. In contrast, both marriage and cohabitation were associated with less weight gain for Asian compared to White women. Among men, racial/ethnic differences in the relationship between union status and BMI were similarly patterned but less pronounced. The results suggest that, particularly for women, marital status-already its own source of stratification, further exacerbates racial/ethnic disparities in BMI from adolescence to young adulthood.

Keywords

cohabitation; ethnicity; health disparities; marriage; obesity; race

Introduction

Being overweight or obese in the U.S. is increasingly recognized as a socially structured phenomenon that is both a cause and consequence of stratification (Walsemann et al. 2012, Zajacova & Burgard 2010). Support for the former comes from a spate of recent studies showing that higher BMI in adolescence or young adulthood leads to poorer labor force outcomes (Bae, Wickrama & O'Neal 2014, Conley & Glauber 2006, Pudrovska et al. 2014). Support for the latter is reflected in the fact that the U.S. obesity epidemic has unfolded unevenly across social groups, intensifying inequalities in body weight (Krishna et al. 2015). Racial/ethnic differences in bodyweight are especially prominent, particularly among women (Wong, Chou & Ahmed 2014). Indeed, despite national obesity rates rising sharply over the past three decades, age-adjusted obesity prevalence in the United States is considerably higher among Black women, followed by Hispanic women, and lowest among

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White and Asian women (Ogden et al. 2012). While these racial/ethnic disparities in body weight are well-established—the social forces that contribute to them are not nearly as well understood.

Prior studies assessing whether body weight is a consequence of social stratification have most commonly focused on the role of the social environment, e.g. neighborhood-level factors, in contributing to disparities (Boardman et al. 2005, Chang, Hillier & Mehta 2009). The mechanisms driving racial/ethnic disparities in body weight have rarely been framed at the meso-level of social relationships. Coresidential unions, including marriage and cohabitation, are a defining feature of the social environment and considerable attention has been given to the ways in which intimate unions affect health and health behaviors. Most empirical evaluations suggest a reduction in risk, with marriage and, to a lesser extent, cohabitation generally linked to better health and health behaviors (Brown 2000, Koball, Moiduddin & Besculides 2010, Umberson 1987, Waite & Gallagher 2000, Williams 2003). The case of body weight, however, suggests the opposite. Among older adults, marriage and cohabitation have generally been linked to gains in body mass index (BMI), although this finding is not consistent across all investigations (Hanson, Sobal & Vermeulen 2014). Substantial differences across racial/ethnic groups in both marital patterns and in the prevalence of obesity raise the possibility of racially differentiated consequences of coresidential unions for body weight. Understanding whether and how coresidential unions affect body weight differently by race/ethnicity could improve our understanding of the social mechanisms that contribute to racial/ethnic disparities in body weight. Yet the small number of existing studies that have focused on racial/ethnic variations in the coresidential union-body weight relationship yield conflicting results, perhaps in part because they are often restricted to one or two racial groups, are representative of earlier birth cohorts, and/or utilize cross-sectional data (Ali and Ajilore 2011, Mullan Harris, Lee and DeLeone 2010, Shafer 2010, Umberson, Liu and Powers 2009).

In this paper, we build on existing research considering whether associations between coresidential unions and body weight are moderated by race/ethnicity. In doing so we elaborate on prior sociological efforts to move our understanding of the obesity epidemic beyond a focus on individual-level traits to include the social relationships and social contexts in which individuals are embedded (Boardman et al. 2005, Chang, Hillier & Mehta 2009; Nicosia, Shier & Datar 2016; Moloney & South 2015). We draw on longitudinal survey data to consider these patterns for White, Black, Hispanic, Asian, and Multiracial men and women, thereby incorporating a sample that is more consistent with the burgeoning racial/ethnic diversity in the United States today. We focus on young adulthood because racial/ethnic health disparities often begin early in the life course and become more pronounced with age (Davignus et al. 2004, Schienkiewitz et al. 2006). Additionally, our focus on young adults serves as a counterbalance to much of the existing research on the coresidential union-body weight nexus that is concerned with older ages (Umberson, Liu & Powers 2009).

Background

Race/Ethnicity and Body Weight

Racial/ethnic differences in body weight are well-documented. Age-adjusted obesity prevalence is highest among black women (57.2%), followed by Hispanic women (46.6%) and lowest among White (38.7%) and Asian women (12.4%) (Flegal et al. 2016). Racial/ethnic disparities are considerably more muted among men, with age-adjusted obesity prevalence ranging from 35.4% (non-Hispanic white men) to 38.2% (non-Hispanic black men). Beyond increases in mean BMI, recent work has also documented widening inequalities within social groups in the U.S., with dispersion most pronounced among women, non-Hispanic Blacks, and individuals with a high school education or less (Krishna et al. 2015). Additionally, a separate assessment of BMI trajectories through 2002 found evidence of widening disparities across groups, particularly among younger adults. While disadvantaged Black women ages 25–39 experienced the greatest increase in BMI, advantaged white men experienced the least BMI growth (Ailshire & House 2012). Increasing dispersion in BMI coupled with the existence of substantial group-level disparities in mean BMI underscores the importance of assessing the role of meso-level factors, such as coresidential union status, in contributing to racial/ethnic differences in body weight (Krishna et al. 2015).

Race/ethnicity and Coresidential Unions

Strong racial/ethnic differentiation exists in selection into marriage and out of cohabiting unions. While levels of ever marrying have been on the decline for all racial/ethnic groups, they are currently lowest among Black women, whose retreat from marriage has been most marked (Raley, Sweeney & Wondra 2015). Among Hispanic adults, the share who have never married has doubled since 1980 (from 12% to 26% compared to 36% for Blacks and 16% for non-Hispanic whites). The share of Asian Americans who remain unmarried at age 25 has also increased, albeit more modestly to 19%. In contrast to marriage, cohabitation has become less selective over time for all racial/ethnic groups. Cohabitation is now the most common type of first union, with half of young adults cohabiting by age 25 and about 70% having done so by their early 30s (Kennedy & Bumpass 2008, Manning 2010, Payne 2011). Studies indicate similar levels of cohabitation for Whites, Blacks, and Hispanics, whereas Asians cohabit less often than their non-Asian peers (Cheng & Landale 2011, Zeng et al. 2012). Even still, studies indicate increases in cohabitation among Asians, especially for those who are third-generation immigrants or higher (Brown, Van Hook & Glick 2008). More prominent racial/ethnic differences re-emerge when the focus shifts to union stability. Both marital and cohabiting unions are less stable among Blacks than their non-Black counterparts (Clarkwest 2007, Corra et al. 2009, Guzzo 2009, Raley & Bumpass 2003). In an analysis of cohabitation outcomes over time, Blacks were more likely than whites to experience dissolution and all racial/ethnic groups were less likely than whites to transition to marriage versus remain cohabiting.

Coresidential Unions, and Body Weight

Theoretically, coresidential unions are hypothesized to affect body weight directly through lifestyle changes, such as more regular meals, a more sedentary lifestyle, and more social

and familial obligations that make maintaining one's weight less of a priority (Averett, Sikora & Argys 2008, Eng et al. 2005, Lee et al. 2005, Nomaguchi & Bianchi 2004, Shafer 2010, Umberson, Liu & Powers 2009). Social selection into coresidential unions on the basis of body weight may also occur. Analysis of data from the National Longitudinal Survey of Youth (NLSY) 1979 cohort found that thinner women and slightly heavier men were more likely to marry (Averett, Sikora & Argys 2008). Using data from the more recent 1997 NLSY cohort, Mukhopadhyay (2008) found that both obese men and women were less likely to cohabit, but only obese women were less likely to marry. Both studies point to the importance of gender in conditioning selection into coresidential unions based on weight, with the evidence suggesting that slim body ideals are more important for women in the marriage market than for men. Type of intimate union also matters. Averett et al. (2008) found that while both marriage and cohabitation were associated with BMI increases, for women the effects were stronger for marriage than for cohabitation. Because cohabitation in the U.S. is a more temporary relationship status than marriage, it is argued that cohabiting women maintain their weights in the recommended BMI range in anticipation of re-entering the marriage market.

Race/ethnicity, Coresidential Unions, and Body Weight

An intersectional approach to understanding social disparities in body weight argues that differential susceptibility to the causes of weight gain, and differences in the resources available to buffer them, will create disparities (Ailshire & House 2012). In the realm of intimate unions, the reasons to expect racial/ethnic variation can roughly be grouped into three areas. The first concerns racial differentiation in body ideals and, relatedly, in the consequences of higher body weights. Past research has suggested Black and Hispanic women are more accepting of larger body sizes than White and Asian women (Flynn & Fitzgibbon 1998; Paeratakul et al. 2002). Other work has demonstrated that, among young adults, the negative effect of BMI growth on socioeconomic attainment is significantly stronger among Whites and Asians (Bae et al. 2014). If higher BMI is more stigmatized and/or consequential for Whites and Asians, members of these groups may draw on their resources to more actively resist the weight gain that otherwise accompanies transitions into intimate unions.

A second group of explanations for why there may be racial/ethnic variation in the influence of union status on body weight concerns environmental stressors. In the realm of intimate unions, recent evidence suggests that the increases in BMI associated with both marriage and cohabitation are significantly larger for those with no college or some college compared to those with college degrees (Kroeger 2017). If members of disadvantaged racial/ethnic minority groups are navigating their intimate unions in a lower socioeconomic context, this may increase their risk of weight gain. In addition to socioeconomic stressors, discrimination experienced by racial/ethnic minorities may serve as a marital stressor and this could also contribute to more weight gain in these marriages (Bryant et al. 2010).

Finally, racial/ethnic variation in the relationship between union status and body weight may result from selection. Considerable evidence suggests that social selection into coresidential unions on the basis of body weight is racially differentiated (Mukhopadhyay 2008).

Comparing black and white women, for example, obese women from both groups are less likely to enter into a cohabiting union or a marriage but the reduction in probability was bigger for White women than for Black women (Mukhopadhyay 2008). Indirectly, selection may also exert an effect because race/ethnicity is a precursor of union status (Ross and Mirowsky 2013). People select into unions differentially by race/ethnicity and that selection may influence outcomes, such as weight gain (Raley, Sweeney & Wondra 2015).

A number of studies have empirically assessed the possibility of racial/ethnic differences in the influence of union status on body weight, with mixed results. One of the few studies that explicitly assessed whether associations of union status with body weight were contingent on race/ethnicity found that body weight among White women was independent of marital status but Black women who were currently separated were significantly more likely to be overweight than their married counterparts (Sobal, Hanson & Frongillo 2009). However, because the data were cross-sectional, the authors were unable to assess whether intimate union statuses differentially influenced body weight across racial/ethnic groups versus whether differential selection into coresidential unions by body weight was driving the results. The present study utilizes longitudinal data and fixed effects regression methods which allow us to assess the association between coresidential union status and body weight net of differential selection into coresidential unions on the basis of BMI.

The few studies that have extended assessments of racial/ethnic differences in the coresidential union-BMI relationship into a longitudinal framework have documented substantial selection into unions based on body weight and found considerably more muted racial/ethnic differences in the implications of union status for body weight than have been found in the cross-section (Averett, Sikora & Argys 2008, Mukhopadhyay 2008, Mullan Harris, Lee & DeLeone 2010, Shafer 2010, Teachman 2016, Umberson, Liu & Powers 2009). Averett et al. (2008) found that transitions into marriage and cohabitation produced remarkably similar increases in BMI by gender across racial/ethnic groups. In a comparison between non-Hispanic white and blacks only, data from the NLSY 1979 also demonstrated a similarly consistent pattern of weight gain with marriage and cohabitation across race/ethnicity (Shafer 2010). A third study utilizing data from the NLSY79 documented racial/ethnic differences in change in body weight over time among the continuously married, with Black and Hispanic women experiencing more weight gain compared to non-Hispanic white women (Teachman 2016). Another result contradicting the pattern of similar effects of union status on BMI across race/ethnic groups was found in a study of older Americans. Using data from the American Changing Lives (ACL) Survey, Umberson et al. (2009) found that the first several years of marriage predicted increases in BMI among non-Hispanic whites but decreases in BMI among non-Hispanic Blacks.

Contributions of the Present Study

Our analysis aims to adjudicate between the oftentimes contradictory findings concerning racial/ethnic differences in how union statuses relate to body weight. Specifically, we examine associations of coresidential union status with BMI from adolescence to young adulthood, and consider whether any differences found are moderated by race/ethnicity. Our focus on young adulthood is important because of evidence showing that intractable racial/

ethnic disparities in health, including body weight, often begin early in the life course and become more pronounced with age (Daviglius et al. 2004, Schienkiewitz et al. 2006). Understanding whether and how coresidential unions affect BMI differently by race/ethnicity in young adulthood presents an opportunity for understanding how social factors early in the adult life course can contribute to well-established racial/ethnic disparities in body weight in older adulthood, benefiting scholars as well as policy makers seeking to ultimately reduce racial/ethnic disparities in obesity.

Another contribution is that while much of the prior work in this area is limited to non-Hispanic Blacks and Whites and, to a lesser extent, Hispanics, our study more accurately reflects the contemporary racial/ethnic make-up of the U.S. In addition to non-Hispanic Blacks and Whites, our analysis also includes Hispanics, non-Hispanic Asians, and non-Hispanic Multiracial respondents. The importance of accounting for this diversity is particularly relevant among young adults, our focal population, who display the highest levels of contemporary racial/ethnic diversity. Identifying the patterns exhibited by the nation's two fastest growing racial/ethnic groups, Asians and the Multiracial population, is clearly necessary. A focus on the multiracial population, in particular, is an important asset, given their exponential growth and heterogeneity. In the present study, the majority of our non-Hispanic multiracial sample identifies partially as white and/or black. Only 5% of our multiracial respondents claim two or more identities that exclude both white and black as categories.

Finally, we utilize a longitudinal framework for assessing racial/ethnic variation in the coresidential union-body weight relationship. Most other studies that have focused explicitly on racial/ethnic differences have been limited to the cross-section and are unable to assess change in body weight over time (Sobal, Hanson and Frongillo 2009). In contrast, we are able to minimize the possibility that associations between union status and BMI are driven by selection of lower weight individuals into marriage or cohabitation by using fixed-effects regression (Allison, 2009). We now turn to the data and methods section to describe the longitudinal data/fixed-effects regression contributions in greater detail.

Data and Method

We analyzed data from Waves 1, 3, and 4 of the restricted-use National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative sample of young adults ages 24 to 32 by the most recent wave (Mullan Harris 2009). Add Health features a clustered sampling design of individuals within schools. The first wave of Add Health was collected between 1994 and 1995, and included students in grades 7 through 12 from a sample of 145 U.S. middle, junior high, and high schools. In addition to the in-school survey, separate in-home surveys were given to a subset of respondents. At Wave 1, 18,924 respondents from the in-home survey had valid sampling weights. Of these, 12,288 were re-interviewed at both Waves 3 (2001–2002) and 4 (2008–2009). We excluded Wave 2 (1996) from our analysis for two reasons. First, our analytic method requires that the panels of data be evenly spaced. In using Waves 1, 3, and 4—there are approximately 7 years between each wave. Wave 2 is collected only one year after Wave 1 and therefore disrupts this equilibrium. Second, whereas 12,288 respondents were interviewed at Waves 1, 3, and 4, the inclusion of

Wave 2 would reduce the starting sample size to 9,421 and in effect would limit our ability to include the racial/ethnic groups with smaller cell sizes—i.e. Multiracial and Asian respondents, thereby limiting one of the key contributions of this study.

Because of our focus on BMI, we exclude women who were currently pregnant at Wave 1 as well as women who were currently pregnant at both Waves 3 and 4 (n=28). For women who were not pregnant at Wave 1 but pregnant at either Wave 3 or 4—we still include those women in our analysis for the two waves that they were not currently pregnant. The majority of women (90%) were included in the sample for all three waves. In addition, Native Americans and those choosing ‘Other’ race/ethnicity were omitted because of sample sizes too small to analyze (n=152). Finally, so that the effects of change in union status on change in BMI could be assessed more accurately—we excluded respondents who had ever been married or in a cohabitation at Wave 1 (n=342). After these exclusions, our starting analytic sample included 11,766 respondents. Respondents who were missing information on key variables in the analysis were also excluded, resulting in a final analytic sample of 11,119. Because only 5% of our analytic sample was excluded due to missing data, we used listwise deletion, which produces the least biased estimates when 10% or less of the analytic sample is excluded due to missing data (Allison 2001, 2008).

Key Variables

Body Mass Index—Our dependent variable, BMI, is calculated at each wave with the formula used by the Centers for Disease Control: $\text{weight (lb)} / [\text{height(in)}]^2 * 703$. BMI is self-reported at Wave 1 and measured by interviewers at Waves 3 and 4. We took several steps to ensure that our results would be accurate despite Wave 1 BMI being calculated from self-reported weight and height instead of measured directly. First, we tested correlations of self-reported BMI at Wave 1 with BMI at Wave 2, which was measured by interviewers—and found a correlation of .88. Second, we ran all results that are presented in this study (i.e. the data from Waves 1, 3, and 4) with data from Waves 2, 3, and 4, which included interviewer measured height and weight, and the pattern of results was the same—albeit the smaller sample size for Asians and Multiracial respondents in Wave 2 translated into higher standard errors and therefore lower significance in results for those groups. Therefore, the robustness checks we undertook give us confidence that using a self-reported measure of BMI did not bias our results. Similarly, when the measured height and weight were missing at Waves 3 and 4, we replaced these values with the height and weight reported by the respondent, and results did not change when omitting these self-reported cases.

Coresidential Union Status—Our main predictor is coresidential union status. At each wave, we categorized individuals as single (i.e. not married and not living with a romantic partner), cohabiting (i.e. not married but living with a romantic partner in a marriage-like relationship), or married. Because we excluded respondents who were ever cohabiting or married at Wave 1 from our analytic sample, all respondents are single with no prior unions at Wave 1.

Race/Ethnicity—We consider race/ethnicity as a moderator of the relationship between coresidential union status and BMI. Race/ethnicity is self-reported at Wave 1. Respondents

are asked whether they are of Hispanic ethnicity, and in a separate question, are asked to indicate their race. They are permitted to choose more than one racial identifier. We combine these two questions to create a race/ethnicity variable that includes categories for mono-racial non-Hispanic White, mono-racial non-Hispanic Black, Hispanic (regardless of racial/identification), mono-racial non-Hispanic Asian, and non-Hispanic Multiracial. From this point on we refer to these categories simply as White, Black, Hispanic, Asian, and Multiracial.

Time-Varying Covariates

We include several time-varying indicators that are captured at each wave of analysis and that have been shown to influence BMI. Socioeconomic indicators include respondent education (with categories for *less than high school*, *high school diploma/GED*, *some college/vocational training beyond high school*, and *college degree or more*); and enrollment in school (dichotomous). Other sociodemographic covariates include number of children (with categories for *no children*, *one child*, *two or more children*); and total number of coresidential partners (interval). We control for total number coresidential partners because we are interested in current union status as the moderator. We recognize that individuals in our sample may have been involved in marriages or cohabitations in the past that are no longer intact, and that lingering effects from these relationships may affect our results.

Analytic Method

To examine whether the effects of coresidential union status on BMI differ by race/ethnicity, we use fixed effects regression models to assess within-person change in BMI from adolescence to young adulthood (Allison 2009; Stock & Watson 2011). Fixed-effects models are based on the equation:

$$y_{it} = \mu_t + \beta x_{it} + \gamma z_i + \alpha_i + \varepsilon_{it}$$

where y_{it} is the dependent variable observed for individual i at time t , μ_t is the person-specific intercept at time t , x_{it} refers to a vector of predictors for individual i at time t , z_i refers to a vector of predictors that do not vary over time (e.g. race/ethnicity), α_i refers to person-specific error, and ε_{it} refers to random error associated with individual i at time t (Allison 2009). In fixed effects models, α_i is allowed to correlate in all ways possible with the time-varying predictors in vector x_{it} and therefore signifies within-person change. This is in contrast to random effects regression models, which are based on the same equation as fixed effects but assume that α_i is uncorrelated with x_{it} . Because fixed effects models allow the person-specific error to correlate with the time-varying predictors, fixed effects models implicitly control for all individual time-invariant characteristics, and any time-invariant parameters entered into a fixed effects model are dropped due to being perfectly collinear over time. Therefore, although the main effects of race/ethnicity are not shown to us in the fixed effects model—they are implicitly controlled for. However, if we interact race/ethnicity with a time-varying predictor—such as union status—we can estimate differences in the effect of the time-varying predictor on the outcome variable by race/ethnicity. For instance, in the current study we estimate the following covariates in each model:

$$\begin{aligned}\text{Model 1: } \text{BMI}_{it} &= \beta_1(\text{union status})_{it} + \beta_2(\text{analysis wave})_{it} \\ \text{Model 2: } \text{BMI}_{it} &= \beta_1(\text{union status})_{it} + \beta_2(\text{analysis wave})_{it} + \beta_3(\text{union status} * \text{race/ethnicity})_{it} \\ \text{Model 3: } \text{Model 2} &+ \beta_4(\text{number of children})_{it} + \beta_5(\text{total coresidential unions})_{it} \\ \text{Model 4: } \text{Model 3} &+ \beta_6(\text{respondent education})_{it} + \beta_7(\text{school enrollment})_{it}\end{aligned}$$

In Model 1, within-person change in BMI is modeled as a function, in part, of change in union status. Because all respondents in the analytic sample are single with no prior unions at Wave 1 (i.e. adolescence), any involvement in cohabitation or marriage is observed at Wave 3 and/or Wave 4 (i.e. young adulthood). Therefore, all union status coefficients estimate the effect of change in coresidential union status on within-person change in BMI specifically in young adulthood. In Model 2, an interaction is added between union status and race/ethnicity, with all racial/ethnic categories except one reference group interacted with the union status categories. Because the category for ‘white’ is excluded in the interactions between union status and race/ethnicity, in Model 2 β_1 represents the effects of change in union status on change in BMI for white respondents, and β_3 represents differences in the effects of change in union status on change in BMI between Black, Hispanic, Asian, and Multiracial respondents compared to Whites. Again, because the person-specific error can correlate with the time-varying predictors, the ‘main effects’ for race/ethnicity on change in BMI are implicitly controlled for in the model but not directly estimated. Both Model 1 and Model 2 control for analysis wave, which represents the natural change in BMI from Wave 1 to Waves 3 and 4. Model 3 adds controls for number of children and total coresidential unions. Finally, Model 4 adds controls for education and school enrollment. Introducing the controls in this way allows us to assess whether any racial/ethnic differences observed in Model 2 are attenuated after controlling for demographic and socioeconomic factors.

Following past studies that show important differences in the ways that marital status affects body weight for men and women (Averett, Sikora and Argys 2008, Sobal, Hanson and Frongillo 2009), we stratify all analyses separately by gender. It should be noted that one recent study using the NLSY79 failed to detect significant gender differences regarding associations between marital status and marital transitions with body weight. Yet, this same study did find gender differences in the effects of race/ethnicity on body weight, with racial/ethnic differences in change in body weight over time being evident for women but not men (Teachman 2016). In our case, we conducted Partial F-tests (i.e. Chow tests) to examine whether stratifying our models by gender was justified. The results indicated that the coefficients in each model differed significantly by gender. Accordingly, we present our results separately for men and women. The full results for these tests are detailed in Appendix 1, which can be accessed as supporting information online.

Results

Descriptive Results

Tables 1 and 2 present the descriptive statistics for the sample separately by race/ethnicity for men and women, respectively. Correcting for survey design, the sample was

representative of 10,102,068 men (Sample N=5,186) and 9,519,615 women (Sample N=5,933). The racial/ethnic diversity of the Add Health data is evident—among men the sample was 68% Non-Hispanic White, 14% Non-Hispanic Black, 12% Hispanic, 3% Non-Hispanic Asian, and 3% Non-Hispanic Multiracial. Similarly, among women the sample was 67% White, 15% Black, 11% Hispanic, 3% Asian, and 3% Multiracial. Our sample was approximately 15 years old at Wave 1, 22 years old at Wave 3, and 28 years old at Wave 4, consistent across all race/gender groups. There was considerable racial/ethnic variation along our sociodemographic indicators. Among men (Table 1), Black, Hispanic and Multiracial men were less socioeconomically advantaged than non-Hispanic white men, and Asian men were considerably more socioeconomically advantaged than all other racial/ethnic groups. Among Asian men, 55% had earned a college degree by the final analysis wave (compared to 32% or less for all other racial/ethnic groups). In the case of women, we see similar patterning by socioeconomic status such that Asian and White women appeared more advantaged than Black, Hispanic, or Multiracial women (Table 2). Fifty-two percent of Asian women and 41% of White women had completed a college degree by the final analysis wave, in contrast to 33% of Multiracial women, 28% of Black women and 26% of Hispanic women. Yet, Black women had the highest percentage of school enrollment at Wave 4.

Tables 1 and 2 also present evidence of considerable variation in the prevalence of coresidential unions by race/ethnicity. Beginning with men (Table 1), the majority of White, Hispanic, and Multiracial men were in some type of coresidential union by the final analysis wave. Yet, a majority of both black (nearly 50%) and Asian (58%) men were single at age 28. In addition to having the highest percentage of single men, by the final analysis wave Asian men also reported the fewest total coresidential unions. Their lower prevalence of current and total coresidential unions supports recent scholarship suggesting a bias in the marriage market against Asian men (Balistreri, Joyner and Kao 2015). Among, women (Table 2), the majority of White, Hispanic, Asian, and Multiracial women were either married or cohabiting by the final analysis wave. Yet for non-Hispanic Black women, half were not in a current coresidential union at Wave 4. Black women also stood out as having the highest percentage of women who were parents across racial/ethnic groups (almost 70%), whereas Asian women reported the lowest percentage of parenthood among young adult women (42% were parents by the final analysis wave). These trends support the literature showing that the retreat from marriage has been stronger for Black women than their non-black counterparts.

In terms of our outcome variable, for men (Table 1), few racial/ethnic differences were evident in BMI across waves. In stark contrast, among young women (Table 2), we observed racial/ethnic differences in BMI across waves. Among women at Wave 1, Black women displayed the highest BMI levels (23.75), followed by Hispanic (23.03), Multiracial (22.66), White (21.79), and Asian women (20.61). Additionally, BMI at Waves 3 and 4 followed a similar pattern, with Black/Hispanic/Multiracial women consistently exhibiting the highest BMI and Asian/White women the lowest. Looking at the difference between BMI at Wave 1 and Wave 4 for each racial group, black women also had the greatest increase in BMI over time (8.12), followed by multiracial (7.84), Hispanic (6.92), white (6.22), and Asian women (3.82). To put this in perspective, for a woman of average weight and height, each BMI unit

gained is equal to about five pounds (McDowell et al. 2008). Consequently, the racial/ethnic disparities in BMI among women were even more pronounced by Wave 4 than they were at baseline. Whether and how these widening disparities are related to change in union status is addressed in the regression models. We discuss the regression results separately by gender.

Regression Results

Results for Men—Table 3 presents the fixed effects regression results for men. The results of Model 1 indicated that movement from single to married status was significantly associated with an increase in BMI. In contrast, movement from single to cohabiting status was not significantly associated with an increase in BMI. Model 2 added the interaction terms for union status * race/ethnicity. The results indicated that among white men, movement from single to married status was associated with a .36 unit increase in BMI ($p < .05$). Further, Whites gained significantly less weight than Blacks (in the case of moving from single to married) and Hispanics (in the case of moving from single to either married or cohabiting), but gained significantly more weight than Asian men (in the case of moving from single to cohabiting). The estimates for Multiracial men did not statistically differ from White men for movement from single to married or cohabiting. The results in Model 2 remained largely unaltered by the addition of covariates in Models 3 and 4. Exceptions to this were that after controlling for all covariates, Hispanic men no longer significantly differed from White men in the case of marriage, and movement from single status to either married (.47; $p < .05$) or cohabiting status (.31; $p < .10$) was significantly associated with an increase in BMI for White men.

Figure 1 combines the interaction term estimates in Model 4 to illustrate the effect of change in union status on change in BMI by race/ethnicity. For each racial/ethnic group the estimates show the change in BMI associated with movement from single to married or cohabiting status. Statistically significant effects are underlined and bolded. The results indicated that for men, movement from being single to being married was associated with significant increases in BMI for White (.47), Black (1.11), and Hispanic (.93) men, whereas movement from single status to cohabiting status was associated with significant increases in BMI for White (.31) and Hispanic (1.10) men and decreases in BMI for Asian (−.52) men.

Results for Women—Table 4 presents the fixed effects regression results for women. The results of Model 1 indicated that movement from single to married, but not cohabiting status, was significantly associated with an increase in BMI. Model 2 added the interaction terms for union status * race/ethnicity. The results indicated that movement from single to married status was associated with a significant increase in BMI for white women (.46; $p < .05$). Compared to white women, movement from single to married status was associated with more weight gain for Black (2.35; $p < .001$), Hispanic (.68; $p < .10$), and Multiracial (1.39; $p < .05$) women, and with less weight gain for Asian women (−1.32; $p < .01$). Similarly, compared to white women, movement from single to cohabiting status was associated with more weight gain for Black (2.21; $p < .001$) and Hispanic (.68; $p < .10$) women, and with less weight gain for Asian women (−1.19; $p < .01$). The significant differences between White women compared to Black, Asian, and Multiracial women were robust to the controls added in Models 3 and 4. However, the significant differences between White women compared to

Hispanic women were attenuated once controls for number of children, total coresidential unions, education, and school enrollment were accounted for.

The estimates in Figure 1 combined the interaction terms in Model 4 of Table 4 to illustrate the effect of change in union status on BMI for each racial group. Statistically significant effects are underlined and bolded. The results indicated that net of all controls, movement from single to married status was significantly associated with increases in BMI for White (.55), Black (2.78), Hispanic (1.02), and Multiracial (1.91) women, and with decreases in BMI for Asian women (−.77). Movement from single to cohabiting status was associated with significant increases in BMI for Black (1.97) women, and significant decreases in BMI for Asian (−1.09) women.

Additional Analyses—We conducted a number of additional sensitivity analyses. First, the impact of change in union status on BMI may depend on length of relationship. To assess this possibility, we created categories for single, married less than 4 years, married 4 years or more, cohabiting less than 2 years, and cohabiting 2 years or more, and interacted these categories with race/ethnicity. Our categorization decisions were driven and limited by sample size—given that these are young adults, the average length of relationship by Wave 4 was only about 5 years, which limited our ability to assess the role of relationship length. Preliminary results indicated that the results presented here with respect to racial/ethnic differences in the effects of movement from single to married status on BMI were stronger for “longer” term marriages. In contrast, we found no evidence to support the possibility that the racial/ethnic differences for movement from single to cohabiting status differed by length of relationship. We detail these results in Appendix 2, which can be accessed as supporting information online.

Another concern with our finding of significant racial/ethnic differences in weight gain by change in union status is that it may be due to trivial differences in weight gain. To ensure that this was not the case we re-ran the analyses examining a dichotomous measure of obesity as the outcome instead of linear change in BMI. Results were the same. An additional concern was with respect to the pan-ethnic categories of Asian and Latino. Because Asian and Latino designations apply to individuals of multiple nationalities, we ran the results alternately excluding each Asian/Latino subgroup to ensure the results weren’t driven by one specific subgroup (e.g. Mexican women). The direction of results remained the same no matter which subgroups were excluded, for both men and women.

Another possibility is that racial/ethnic differences in the association between change in union status and change in BMI depend on other factors, such as social class or nativity. We ran triple interaction models to test this idea. Our findings indicated that the significant interactions between union status and race/ethnicity did not significantly vary by parent education or nativity. It is possible that these sorts of variations take time to emerge, and are not yet visible in young adulthood, or that the sample sizes were too small for stable estimates across subgroups for the various interactions tested. Finally, we controlled for time-varying indicators of depressive symptoms in our analyses because higher levels of discrimination are tied to higher body weight and depression, and depression is also

associated with increased body weight (Dallman, Pecoraro & la Fleur 2005, Jackson, Knight & Rafferty 2010, Smedley 2012). The results remained the same.

Discussion

This paper sought to examine whether associations between change in union status and change in body weight were moderated by race/ethnicity. We argued that despite racial/ethnic disparities in body weight being well-established—the social forces that contribute to them are not nearly as well understood. Our findings indicated that change in coresidential union status differentially impacted changes in BMI along racial/ethnic lines and these differences may have implications for racial disparities in BMI later in the life course. Our results were stronger for young women—we found more muted support in the case of young men.

For women, change in coresidential union status was associated with significant racial/ethnic differences in weight gain. Black, Multiracial, and, to a lesser extent Hispanic, women's body weights seem particularly disadvantaged from moving from being single to being married. For instance, the descriptive statistics showed that Black and Multiracial women started out heavier than Whites and the models demonstrated that movement from single to married status (for both groups) and movement from single to cohabiting status (for Blacks only) were associated with more weight gain compared to whites. For Hispanic women, we observed a similar pattern as for Black and Multiracial women, though the differences were not as dramatic and were completely attenuated by the sociodemographic controls. Asian women were also distinct from Whites in that the descriptive statistics showed that they weighed less initially and the models demonstrated that movement from single to married or cohabiting statuses were associated with less weight gain compared to Whites. Among men—we found some of the same racial contrasts but of smaller magnitudes. The finding of more muted differences among men is consistent with past research showing that marriage is more stratifying on the basis of body weight for women than men (Conley & Glauber 2006, Mukhopadhyay 2008). We showed that this association persists in a younger cohort. In making sense of the racially differentiated results among women, one possibility concerns differences in body ideals across different race/ethnic groups. However, in ancillary analyses we tested the idea that heavier weights are more accepted or even preferred by certain race/ethnic groups by controlling for weight perceptions (i.e. regardless of the weight they are, do they feel like they are underweight, the right weight, overweight)- and the results remained the same.

Another possibility concerns environmental stressors. If marriages are more stressful because they occur in a lower resource context for Black, Hispanic and Multiracial women compared to Whites, this could contribute to more weight gain in these unions (Brown and Cochran 2003, Dallman, Pecoraro and la Fleur 2005). In the case of Hispanics, we found support for this possibility as the contrasts were attenuated to nonsignificance with the addition of the socioeconomic controls. This was not the case, however, for Black and Multiracial women. Although we controlled for socioeconomic factors in our analysis, it could be that there is a component of SES that we did not capture, or that the SES mechanisms we tested are not as salient in young adulthood as later in the life course. We

note this as a possibility especially because the racial/ethnic differences in the descriptive statistics reflected a socioeconomic differentiated pattern; Blacks and Hispanics were more similar to one another and reflect a more disadvantaged socioeconomic profile compared to Whites, and Asians were considerably more socioeconomically advantaged than all other groups. In addition to socioeconomic stressors, racial/ethnic discrimination may also act as a stressor that decreases marital quality in a way that predisposes disadvantaged minority groups to greater weight gain following marriage or cohabitation. This possibility highlights the need for more measures of discrimination and minority stress in population surveys, which would allow for greater insight into the implications of discrimination for marital quality.

At the same time, selection processes are also likely at play here. Our fixed effects regression models accounted for differential selection into coresidential unions by body weight. Yet—there are likely other selection processes present that our analyses do not account for. For instance, people select into unions differentially by race/ethnicity and that selection influences outcomes (Raley, Sweeney & Wondra 2015). For instance, at the final wave of analysis approximately 50 percent of Black women were not in a coresidential union, compared to 29% of White women, 33% of Hispanic women, 35% of Asian women, and 39% of Multiracial women, making Black women who were in coresidential unions a more select sample compared to their counterparts in other racial/ethnic groups. Though we can speculate, a limitation of this selection is that there is no way to determine what the patterns would look like if the sample for Black women was not so select (i.e. if a greater percentage of black women were observed in cohabiting/married statuses). For instance, if marriage and cohabitation are truly associated with a greater increase in BMI for Black women compared to White women, and because fewer Black women were observed in coresidential unions in our analysis, than the population of Black women would be heavier if not for less participation in coresidential unions. Yet it is also possible that if our sample of Black women was less select, that the patterns we observed would be weaker.

On a broader level, our results echo recent scholarship emphasizing that social factors are related to body weight through selection. One recent study finds that the inverse relationship between education and body weight is largely due to selection (Von Hippel & Lynch 2014). Such research underscores the idea that body weight is a marker of social stratification as much as it is a marker of health risks, an important point in light of the ongoing debate over the causal association of obesity with mortality (Wang 2014, Masters et al. 2013, Mehta and Chang 2009; Flegal et al. 2013; Flegal et al. 2015). Given scholarship suggesting that ideals for thinness and stigma against larger body types are increasing (Conley and Glauber 2006), we emphasize that body weight as a marker of social stratification needs more attention in the population health literature.

Our findings are consistent with past research focusing on older cohorts that finds a stronger association between marriage and body weight than for non-marital cohabitation (Averett, Sikora and Argys 2008). That is, with the exception of Black women, we found that cohabitation was not as strongly or consistently associated with weight gain compared to marriage in our sample. In addition, our results echo recent scholarship that has emphasized the necessity of moving beyond a singular focus on the average effects of marriage/

cohabitation on health towards a recognition of variation across population sub-groups (Frech and Williams 2007, Kamp Dush, Taylor and Kroeger 2008, Umberson et al. 2006, Williams, Sassler and Nicholson 2008). For instance, among population subgroups for whom marriage is more select, more normative social ties with friends and non-marital family members may become more salient for health outcomes than marriage. To gain further insight into these processes, scholars must increasingly focus their attention on assessing variation in the average effects of intimate unions on health, particularly for younger cohorts as they age.

Finally, this study underscores the importance of examining meso-level explanations, such as coresidential status, for racial/ethnic health disparities over the life course. Our results suggest that for women in particular, BMI differs by race/ethnicity in part as a consequence of marriage. As such, the findings suggest that marriage is yet another source of stratification that serves to widen racial/ethnic disparities in BMI. Our sense is that such meso-level explanations will continue to shed light on the forces behind racial/ethnic disparities in weight gain in ways that individualistic explanations cannot. In other words, as largely individualistic explanations for racial/ethnic disparities in BMI give way to more meso- and contextual-level explanations, this will enhance the ability of scholars to theorize on how differential selection into various union statuses by race/ethnicity and increasing racial stratification in coresidential union stability have health implications.

Acknowledgments

The first author acknowledges support by an F32 NICHD Ruth L. Kirschstein National Research Service Award (F32 HD072616), as well as an NICHD center grant to the Population Research Center at The University of Texas at Austin (R24 HD042849). The first and second author also acknowledge the support of the Institute for Population Research at the Ohio State University, supported by a grant from the Eunice Kennedy Shriver National Institute for Child Health and Development (R24 HD058484). This research uses data from Add Health, a program project designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris, and funded by a grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 17 other agencies. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Persons interested in obtaining Data Files from Add Health should contact Add Health, The University of North Carolina at Chapel Hill, Carolina Population Center, 206 W. Franklin Street, Chapel Hill, NC 27516-2524 (addhealth_contracts@unc.edu). No direct support was received from grant P01-HD31921 for this analysis.

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Appendix 1. Tests for Gender Differences in Fixed Effects Regression of BMI on Union Status, Union Status * Race/Ethnicity, and Covariates

	Model 1a		Model 1b		Model 2a		Model 2b	
	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>
Union Status								

	Model 1a			Model 1b			Model2a			Model 2b		
	<i>B</i>		<i>SE B</i>	<i>B</i>		<i>SE B</i>	<i>B</i>		<i>SE B</i>	<i>B</i>		<i>SE B</i>
Married	0.43	**	0.13	0.36	*	0.17	0.50	***	0.13	0.47	**	0.17
Cohabiting	−0.00		0.12	0.16		0.16	0.18		0.12	0.31	+	0.17
Union Status * Female												
Married * Female				0.10		0.25				0.08		0.24
Cohabiting * Female				−0.35		0.23				−0.28		0.24
Union Status * Race/Ethnicity												
Married * NH-Black	1.50	***	0.33	0.66	*	0.32	1.42	***	0.33	0.64	+	0.33
Married * Hispanic	0.59	*	0.23	0.51	+	0.30	0.49	*	0.23	0.46		0.30
Married * NH-Asian	−0.84	**	0.26	−0.27		0.37	−0.79	**	0.25	−0.22		0.37
Married * NH-Multiracial	0.49		0.36	−0.24		0.46	0.53		0.37	−0.14		0.48
Cohabiting * NH-Black	1.17	***	0.27	0.14		0.38	1.03	***	0.27	0.11		0.38
Cohabiting * Hispanic	0.74	*	0.31	0.77	+	0.43	0.67	*	0.31	0.79	+	0.42
Cohabiting * NH-Asian	−1.07	**	0.34	−0.79	*	0.31	−1.04	**	0.31	−0.83	**	0.29
Cohabiting * NH-Multiracial	−0.07		0.37	−0.37		0.58	−0.15		0.37	−0.39		0.58
Union Status * Race/Ethnicity * Female												
Married * NH-Black * Female				1.69	**	0.59				1.59	**	0.60
Married * Hispanic * Female				0.17		0.47				0.01		0.49
Married * NH-Asian * Female				−1.05		0.66				−1.10		0.66
Married * NH-Multiracial * Female				1.63	*	0.80				1.49	+	0.82
Cohabiting * NH-Black * Female				2.08	**	0.60				1.83	**	0.59
Cohabiting * Hispanic * Female				−0.09		0.56				−0.24		0.55
Cohabiting * NH-Asian * Female				−0.40		0.49				−0.29		0.45
* Cohabiting * NH-Multiracial * Female				0.57		0.91				0.44		0.91
Analysis Wave												
Wave 3: 2001	3.96	***	0.08	3.85	***	0.08	3.72	***	0.19	3.40	***	0.26
Wave 4: 2008	6.13	***	0.12	6.13	***	0.14	6.14	***	0.22	5.84	***	0.27
Analysis Wave * Female												
Wave 3: 2001 * Female				0.23	+	0.12				0.87	*	0.40
Wave 4: 2008 * Female				0.03		0.19				0.88	+	0.47
Number of Children												
One Child							0.16		0.11	−0.07		0.16
Two or More Children							0.29	*	0.14	0.08		0.20
Number of Children * Female												
One Child * Female										0.39	+	0.22
Two or More Children * Female										0.29		0.32

	Model 1a		Model 1b		Model 2a		Model 2b					
	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>				
Total Coresidential Unions					−0.18	**	0.06	−0.12	+	0.06		
Total Coresidential Unions * Female								−0.14		0.12		
Education												
HS/GED					0.23		0.18	0.34		0.23		
Some College					0.44	*	0.20	0.81	**	0.27		
College Degree					−0.65	**	0.21	−0.06		0.26		
Education * Female												
HS/GED * Female								−0.37		0.35		
Some College * Female								−0.94	*	0.41		
College Degree * Female								−1.41	***	0.38		
Enrolled in School					−0.09		0.10	−0.03		0.14		
Enrolled in School * Female								−0.14		0.20		
Intercept	22.42	***	0.05	22.42	***	0.05	22.50	***	0.10	22.51	***	0.10
F-Test Comparing Models A and B			3.42	***			3.99	***				
F-Test (df1, df2)			(12, 131)				(19, 131)					

Notes: Authors' own estimates using the National Longitudinal Study of Adolescent to Adult Health;

*** p<.001;

** p<.01;

* p<.05;

+ p<.10;

Estimates are weighted and standard errors adjust for clustering in primary sampling units to account for complex survey design; (N Waves=32768; N Individuals=11,119)

Appendix 2. Estimates from Fixed Effects Regression of Body Mass Index on Union Status/Length of Relationship and Union Status /Length of Relationship * Race/Ethnicity among Women and Men

	Women						Men					
	Model 1			Model 2			Model 1			Model 2		
	<i>B</i>	<i>SE B</i>		<i>B</i>	<i>SE B</i>		<i>B</i>	<i>SE B</i>		<i>B</i>	<i>SE B</i>	
Union Status/Length of Relationship												
Married/less than 4 years	0.81	***	0.19	0.67	**	0.24	0.68	***	0.18	0.64	**	0.20
Married/4 years or more	0.80	***	0.19	0.48	*	0.22	0.60	**	0.19	0.49	+	0.22
Cohabiting/less than 2 years	0.08		0.20	−0.23		0.21	0.01		0.18	−0.12		0.22
Cohabiting/2 years or more	0.59	**	0.21	0.18		0.22	0.65	**	0.20	0.67	**	0.21

		Women		Men	
		<u>Model 1</u>		<u>Model 1</u>	
		<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>
		<u>Model 2</u>		<u>Model 2</u>	
		<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>
<u>Union Status/Length of Relationship</u>		<u>*Race/Ethnicity</u>			
Married/less than 4 years	*NH-Black	1.00	0.77	0.51	0.42
Married/less than 4 years	*Hispanic	0.02	0.37	0.02	0.44
Married/less than 4 years	*NH-Asian	-0.32	0.57	-0.25	0.54
Married/less than 4 years	*NH-Multiracial	0.58	1.16	0.19	0.46
Married/4 years or more	*NH-Black	2.99	***	0.66	0.48
Married/4 years or more	*Hispanic	0.68	0.45	0.58	0.39
Married/4 years or more	*NH-Asian	-1.83	***	-0.24	0.42
Married/4 years or more	*NH-Multiracial	1.84	**	-0.39	0.58
Cohabiting/less than 2 years	*NH-Black	1.93	**	0.49	0.34
Cohabiting/less than 2 years	*Hispanic	0.01	0.50	0.72	0.51
Cohabiting/less than 2 years	*NH-Asian	-1.20	*	-0.29	0.30
Cohabiting/less than 2 years	*NH-Multiracial	0.17	0.70	-0.11	0.66
Cohabiting/2 years or more	*NH-Black	2.01	***	-0.28	0.59
Cohabiting/2 years or more	*Hispanic	0.85	+	0.66	0.63
Cohabiting/2 years or more	*NH-Asian	-1.25	*	-1.31	**
Cohabiting/2 years or more	*NH-Multiracial	0.05	0.77	-0.74	1.02

Notes: Authors' own estimates using the National Longitudinal Study of Adolescent to Adult Health;

p<.001;

**
p<.01;

*
p<.05;

+
p<.10;

Estimates are weighted and standard errors adjust for clustering in primary sampling units to account for complex survey design; All models control for analysis wave, number of children, total unions, education, and school enrollment

Figure 1.

Change in BMI associated with Change in Union Status, relative to remaining single, by race/ethnicity and gender

Note: Author's own estimates using the National Longitudinal Study of Adolescent to Adult Health; Estimates are derived from Model 4 of Table 3 (Men) and Table 4 (Women); Estimates are net of controls for analysis wave, number of children, total unions, education, and school enrollment; Significant differences are underlined and bolded.

Table 1

Descriptive Statistics for Men, by Race/Ethnicity

Variables	White		Black		Hispanic		Asian		Multiracial	
	M	SE M	M	SE M	M	SE M	M	SE M	M	SE M
Body Mass Index										
Wave 1	22.47	0.16	23.08	0.29	22.91	0.31	22.20	0.61	22.44	0.39
Wave 3	26.44	0.18	27.00	0.28	26.89	0.31	26.23	0.74	26.27	0.51
Wave 4	28.74	0.18	29.53	0.37	29.95	0.41	27.90	0.75	28.62	0.68
Union Status										
Wave 1										
Single	1.00	---	1.00	---	1.00	---	1.00	---	1.00	---
Cohabiting	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---
Married	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---
Wave 3										
Single	0.68	0.02	0.68	0.02	0.65	0.02	0.82	0.05	0.63	0.06
Cohabiting	0.19	0.01	0.23	0.02	0.17	0.02	0.10	0.04	0.20	0.05
Married	0.13	0.01	0.09	0.02	0.18	0.02	0.08	0.03	0.17	0.04
Wave 4										
Single	0.37	0.02	0.49	0.03	0.40	0.02	0.58	0.06	0.32	0.05
Cohabiting	0.21	0.01	0.25	0.02	0.19	0.02	0.11	0.03	0.26	0.05
Married	0.42	0.02	0.26	0.03	0.41	0.02	0.31	0.05	0.42	0.06
Number of Children										
Wave 1										
No Children	1.00	---	0.99	0.00	0.98	0.01	1.00	---	1.00	---
One Child	0.00	---	0.01	0.00	0.01	0.01	0.00	---	0.00	---
Two or More Children	0.00	---	0.00	---	0.01	0.01	0.00	---	0.00	---
Wave 3										
No Children	0.86	0.01	0.73	0.03	0.76	0.03	0.93	0.03	0.88	0.04
One Child	0.11	0.01	0.19	0.02	0.15	0.02	0.05	0.02	0.06	0.03
Two or More Children	0.03	0.01	0.08	0.02	0.09	0.02	0.02	0.01	0.06	0.03
Wave 4										

Variables	White		Black		Hispanic		Asian		Multiracial	
	M	SE M	M	SE M	M	SE M	M	SE M	M	SE M
No Children	0.61	0.02	0.46	0.03	0.54	0.03	0.78	0.06	0.52	0.06
One Child	0.19	0.01	0.24	0.02	0.19	0.02	0.10	0.03	0.22	0.05
Two or More Children	0.20	0.01	0.30	0.02	0.28	0.03	0.12	0.04	0.26	0.05
Total Coresidential Unions										
Wave 1	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---
Wave 3	0.52	0.02	0.54	0.04	0.51	0.04	0.23	0.06	0.56	0.09
Wave 4	1.34	0.03	1.37	0.07	1.24	0.07	0.82	0.10	1.66	0.18
Age										
Wave 1	15.47	0.14	15.71	0.22	15.64	0.24	15.55	0.31	15.27	0.24
Wave 3	21.84	0.14	22.09	0.22	22.06	0.24	21.88	0.31	21.73	0.23
Wave 4	28.32	0.14	28.58	0.22	28.55	0.23	28.45	0.31	28.16	0.24
Education										
Wave 1										
Less than HS	1.00	---	0.99	0.00	1.00	---	1.00	---	1.00	---
HS/GED	0.00	---	0.01	0.00	0.00	---	0.00	---	0.00	---
Some College	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---
College Degree	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---
Wave 3										
Less than HS	0.09	0.01	0.15	0.02	0.17	0.02	0.05	0.02	0.11	0.04
HS/GED	0.37	0.02	0.47	0.04	0.42	0.03	0.19	0.06	0.35	0.05
Some College	0.43	0.02	0.31	0.03	0.37	0.03	0.61	0.05	0.40	0.05
College Degree	0.10	0.01	0.07	0.02	0.05	0.01	0.15	0.04	0.13	0.03
Wave 4										
Less than HS	0.07	0.01	0.12	0.02	0.14	0.02	0.02	0.01	0.14	0.04
HS/GED	0.29	0.02	0.39	0.04	0.31	0.03	0.17	0.05	0.25	0.04
Some College	0.32	0.01	0.30	0.02	0.36	0.03	0.26	0.06	0.30	0.04
College Degree	0.32	0.02	0.19	0.03	0.19	0.02	0.55	0.07	0.31	0.05
Enrolled in School										
Wave 1	0.99	0.00	0.97	0.01	0.98	0.01	0.99	0.01	1.00	0.00
Wave 3	0.36	0.02	0.25	0.03	0.31	0.03	0.54	0.05	0.40	0.05

Variables	White		Black		Hispanic		Asian		Multiracial	
	M	SE	M	SE	M	SE	M	SE	M	SE
Wave 4	0.13	0.01	0.12	0.01	0.13	0.02	0.14	0.02	0.14	0.03

Notes: Authors' own estimates using the National Longitudinal Study of Adolescent to Adult Health; Estimates are adjusted for the complex survey design of the data; (Sample N=5,186; Population N=110,102,068)

Table 2

Descriptive Statistics for Women, by Race/Ethnicity

Variables	White			Black			Hispanic			Asian			Multiracial		
	M	SE	M	M	SE	M	M	SE	M	M	SE	M	M	SE	M
Body Mass Index															
Wave 1	21.79	0.15	23.75	0.24	23.03	0.25	20.61	0.41	22.66	0.36					
Wave 3	25.94	0.20	28.40	0.35	27.38	0.34	23.28	0.52	27.51	0.72					
Wave 4	28.01	0.24	31.87	0.42	29.95	0.37	24.43	0.61	30.50	0.85					
Union Status															
Wave 1															
Single	1.00	---	1.00	---	1.00	---	1.00	---	1.00	---					
Cohabiting	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---					
Married	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---					
Wave 3															
Single	0.58	0.02	0.65	0.02	0.59	0.04	0.65	0.04	0.60	0.05					
Cohabiting	0.23	0.01	0.25	0.02	0.18	0.02	0.20	0.05	0.24	0.04					
Married	0.19	0.01	0.10	0.01	0.22	0.04	0.15	0.04	0.17	0.04					
Wave 4															
Single	0.29	0.01	0.50	0.02	0.33	0.03	0.35	0.05	0.39	0.05					
Cohabiting	0.20	0.01	0.25	0.02	0.20	0.03	0.19	0.05	0.22	0.04					
Married	0.51	0.02	0.24	0.02	0.47	0.03	0.46	0.06	0.39	0.05					
Number of Children															
Wave 1															
No Children	0.99	0.00	0.94	0.01	0.98	0.01	0.99	0.01	0.98	0.01					
One Child	0.01	0.00	0.06	0.01	0.02	0.01	0.01	0.01	0.02	0.01					
Two or More Children	0.00	---	0.01	0.00	0.00	---	0.00	0.00	0.00	---					
Wave 3															
No Children	0.77	0.02	0.51	0.03	0.67	0.03	0.82	0.04	0.69	0.05					
One Child	0.17	0.01	0.31	0.02	0.23	0.02	0.14	0.03	0.24	0.05					
Two or More Children	0.07	0.01	0.18	0.02	0.10	0.02	0.04	0.02	0.06	0.02					
Wave 4															

Variables	White			Black			Hispanic			Asian			Multiracial		
	M	SE	M	M	SE	M	M	SE	M	M	SE	M	M	SE	M
No Children	0.48	0.02	0.31	0.03	0.44	0.04	0.58	0.05	0.46	0.05	0.05	0.46	0.05	0.05	0.05
One Child	0.22	0.01	0.27	0.01	0.22	0.02	0.14	0.04	0.26	0.04	0.05	0.26	0.04	0.05	0.05
Two or More Children	0.30	0.02	0.43	0.02	0.33	0.04	0.28	0.04	0.28	0.04	0.03	0.28	0.04	0.03	0.03
Total Coresidential Unions															
Wave 1	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---	---	0.00	---	---	---
Wave 3	0.65	0.03	0.53	0.04	0.56	0.05	0.44	0.06	0.79	0.08	0.08	0.79	0.08	0.08	0.08
Wave 4	1.40	0.03	1.19	0.04	1.14	0.05	1.04	0.08	1.57	0.11	0.11	1.57	0.08	0.11	0.11
Age															
Wave 1	15.29	0.13	15.55	0.21	15.37	0.23	15.83	0.30	15.17	0.20	0.20	15.17	0.20	0.20	0.20
Wave 3	21.63	0.14	21.93	0.21	21.80	0.24	22.19	0.29	21.59	0.21	0.21	21.59	0.21	0.21	0.21
Wave 4	28.11	0.13	28.42	0.21	28.32	0.24	28.67	0.33	28.19	0.21	0.21	28.19	0.21	0.21	0.21
Education															
Wave 1															
Less than HS	1.00	0.00	0.99	0.00	0.99	0.01	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00
HS/GED	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Some College	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---	---	0.00	---	---	---
College Degree	0.00	---	0.00	---	0.00	---	0.00	---	0.00	---	---	0.00	---	---	---
Wave 3															
Less than HS	0.07	0.01	0.10	0.02	0.11	0.02	0.01	0.01	0.11	0.03	0.03	0.11	0.03	0.03	0.03
HS/GED	0.29	0.02	0.38	0.03	0.40	0.03	0.22	0.05	0.35	0.04	0.04	0.35	0.04	0.04	0.04
Some College	0.49	0.02	0.41	0.03	0.42	0.03	0.55	0.05	0.43	0.04	0.04	0.43	0.04	0.04	0.04
College Degree	0.15	0.02	0.10	0.02	0.07	0.01	0.22	0.05	0.11	0.03	0.03	0.11	0.03	0.03	0.03
Wave 4															
Less than HS	0.05	0.01	0.07	0.01	0.08	0.01	0.01	0.01	0.11	0.03	0.03	0.11	0.03	0.03	0.03
HS/GED	0.19	0.01	0.28	0.03	0.31	0.03	0.16	0.04	0.21	0.04	0.04	0.21	0.04	0.04	0.04
Some College	0.35	0.01	0.37	0.02	0.35	0.03	0.32	0.05	0.35	0.04	0.04	0.35	0.04	0.04	0.04
College Degree	0.41	0.02	0.28	0.04	0.26	0.03	0.52	0.07	0.33	0.05	0.05	0.33	0.05	0.05	0.05
Enrolled in School															
Wave 1	0.98	0.00	0.99	0.00	0.99	0.01	1.00	0.00	0.99	0.00	0.00	0.99	0.00	0.00	0.00
Wave 3	0.44	0.02	0.38	0.03	0.38	0.04	0.57	0.05	0.36	0.04	0.04	0.57	0.05	0.36	0.04

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Variables	White		Black		Hispanic		Asian		Multiracial	
	M	SE M	M	SE M	M	SE M	M	SE M	M	SE M
Wave 4	0.18	0.01	0.23	0.01	0.20	0.02	0.17	0.03	0.21	0.03

Notes: Authors' own estimates using the National Longitudinal Study of Adolescent to Adult Health; Estimates are adjusted for the complex survey design of the data; (Sample N=5,933; Population N=9,519,615)

Table 3

Fixed Effects Regression of Body Mass Index on Union Status, Union Status * Race/Ethnicity, and Covariates among Men

Union Status	Model 1		Model 2		Model 3		Model 4					
	B	SE B	B	SE B	B	SE B	B	SE B				
Single (reference)												
Married	0.48	**	0.15	0.36	*	0.17	0.40	*	0.17	0.47	**	0.17
Cohabiting	0.24		0.15	0.16		0.16	0.26		0.18	0.31	+	0.17
Union Status * Race/Ethnicity												
Married * NH-Black				0.66	*	0.32	0.66	*	0.32	0.64	+	0.33
Married * Hispanic				0.51	+	0.30	0.50	+	0.30	0.46		0.30
Married * NH-Asian				-0.27		0.37	-0.27		0.36	-0.22		0.37
Married * NH-Multiracial				-0.24		0.46	-0.21		0.48	-0.14		0.48
Cohabiting * NH-Black				0.14		0.38	0.12		0.38	0.11		0.38
Cohabiting * Hispanic				0.77	+	0.43	0.76	+	0.42	0.79	+	0.42
Cohabiting * NH-Asian				-0.79	*	0.31	-0.82	**	0.30	-0.83	**	0.29
Cohabiting * NH-Multiracial				-0.37		0.58	-0.38		0.58	-0.39		0.58
Analysis Wave												
Wave 1: 1994 (reference)												
Wave 3: 2001	3.86	***	0.08	3.85	***	0.08	3.88	***	0.09	3.40	***	0.26
Wave 4: 2008	6.13	***	0.14	6.13	***	0.14	6.20	***	0.16	5.84	***	0.27
Number of Children												
No Children (reference)												
One Child							-0.01		0.16	-0.07		0.16
Two or More Children							0.18		0.19	0.08		0.20
Total Coresidential Unions							-0.11	+	0.06	-0.12	+	0.06
Education												
Less than HS (reference)												
HS/GED										0.34		0.23
Some College										0.81	**	0.27
College Degree										0.06		0.26

Union Status	Model 1		Model 2		Model 3		Model 4	
	B	SE B	B	SE B	B	SE B	B	SE B
Enrolled in School							-0.03	0.14
Intercept	22.60 ***	0.05	22.60 ***	0.05	22.60 ***	0.05	22.63 ***	0.14
F-Test	1003.58 ***		380.48 ***		317.24 ***		275.98 ***	

Notes: Authors' own estimates using the National Longitudinal Study of Adolescent to Adult Health;

*** p<.001;

** p<.01;

* p<.05;

+ p<.10;

Estimates are weighted and standard errors adjust for clustering in primary sampling units to account for complex survey design; (N Waves=15558; N Individuals=5186)

Table 4

Fixed Effects Regression of Body Mass Index on Union Status, * Race/Ethnicity, and Covariates among Women

	Model 1		Model 2		Model 3		Model 4					
	B	SE B	B	SE B	B	SE B	B	SE B				
Union Status												
Single (reference)												
Married	0.77	***	0.15	0.46	*	0.18	0.36	*	0.18	0.55	**	0.18
Cohabiting	0.23		0.16	-0.19		0.16	-0.08		0.16	0.03		0.17
Union Status * Race/Ethnicity												
Married * NH-Black			2.35	***	0.55	2.28	***	0.56	2.23	***	0.55	
Married * Hispanic			0.68	+	0.36	0.65	+	0.36	0.47		0.37	
Married * NH-Asian			-1.32	**	0.46	-1.36	**	0.47	-1.32	**	0.45	
Married * NH-Multiracial			1.39	*	0.60	1.47	*	0.60	1.36	*	0.61	
Cohabiting * NH-Black			2.21	***	0.41	2.03	***	0.40	1.94	***	0.40	
Cohabiting * Hispanic			0.68	+	0.41	0.60		0.41	0.55		0.40	
Cohabiting * NH-Asian			-1.19	**	0.45	-1.17	**	0.44	-1.12	**	0.40	
Cohabiting * NH-Multiracial			0.21		0.60	0.22		0.59	0.05		0.59	
Analysis Wave												
Wave 1: 1994 (reference)												
Wave 3: 2001	4.08	***	0.11	4.08	***	0.11	4.01	***	0.12	4.27	***	0.30
Wave 4: 2008	6.14	***	0.17	6.15	***	0.17	6.01	***	0.22	6.71	***	0.37
Number of Children												
No Children (reference)												
One Child						0.56	***	0.14	0.32	*	0.15	
Two or More Children						0.86	***	0.23	0.38		0.23	
Total Coresidential Unions						-0.16		0.10	-0.26	*	0.10	
Education												
Less than HS (reference)												
HS/GED									-0.02		0.27	
Some College									0.13		0.30	

	<u>Model 1</u>		<u>Model 2</u>		<u>Model 3</u>		<u>Model 4</u>	
	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>
College Degree							-1.47 ***	0.30
Enrolled in School							-0.18	0.14
Intercept	22.22 ***	0.08	22.22 ***	0.07	22.21 ***	0.07	22.39 ***	0.15
F-Test	556.35 ***		238.78 ***		208.48 ***		202.15 ***	

Notes: Authors' own estimates using the National Longitudinal Study of Adolescent to Adult Health;

- *** p<.001;
- ** p<.01;
- * p<.05;
- + p<.10;

Estimates are weighted and standard errors adjust for clustering in primary sampling units to account for complex survey design; (N Waves= 17210; N Individuals=5933)