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Race, Gender, and Chains of Disadvantage: Childhood Adversity, Social Relationships, and Health

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Abstract

We use a life course approach to guide an investigation of relationships and health at the nexus of race and gender. We consider childhood as a sensitive period in the life course, during which significant adversity may launch chains of disadvantage in relationships throughout the life course that then have cumulative effects on health over time. Data from a nationally representative panel study (Americans' Changing Lives, N=3,477) reveal substantial disparities between black and white adults, especially pronounced among men, in the quality of close relationships and in the consequences of these relationships for health. Greater childhood adversity helps to explain why black men have worse health than white men, and some of this effect appears to operate through childhood adversity's enduring influence on relationship strain in adulthood. Stress that occurs in adulthood plays a greater role than childhood adversity in explaining racial disparities in health among women.

The positive effects of social relationships on health and longevity are widely recognized by scientists, policymakers, and the public at large. Sociologists have long argued that the broader social context as structured by race and gender influences the formation and quality of social ties (House, Landis and Umberson 1988; Turner and Avison 2003; Williams and Sternthal 2010); yet, to date, "few studies consider how these structural variables might modify social tie/health linkages" (Umberson and Montez 2010: S62). This is particularly important because social relationships may contribute to or reduce social disparities in health (Umberson and Montez 2010). A life course perspective emphasizes that socially patterned variation in strains and resources begins in childhood and accumulates over time to produce (dis)advantage in health throughout life (Ben-Shlomo and Kuh 2002; Elder, Johnson and Crosnoe 2003; O'Rand 2006; Shuey and Willson 2008). We work from this perspective to suggest that different levels of exposure to childhood adversity by race launch

chains of disadvantage in stress and social relationships across the life course, contributing to inequalities in adult health, and this occurs in different ways for men and women.

Prior studies suggest race and gender variation in social relationships and, potentially, race and gender differences in the impact of relationships on health (Umberson and Montez 2010). For example, there is substantial empirical evidence for gender differences in the structure (e.g., number and type of social ties) and quality (e.g., emotional support and stress in those ties) of relationships (Turner and Avison 2003; Umberson et al. 1996), with women generally reporting more emotionally supportive relationships (Umberson et al. 1996; Taylor et al. 2000). Fewer studies consider the possibility of racial differences in social relationships, and, overall, these studies yield inconsistent results (see a review in Sarkisian and Gerstel 2004). Most importantly, past studies have typically focused on either race or gender variation in relationship quality. But the experience of being black or white in America is not the same for men and women, and being a man or woman in America does not lead to equal opportunities or obstacles for black and white adults (Browne and Misra 2003; Mullings and Schulz 2006). This reality is dramatically illustrated in patterns of unemployment, incarceration, and mortality that show greater disadvantage for black men than black women yet worse health and greater disability for black women than black men (Alexander 2012; Greenman and Xie 2008; Hummer and Chinn 2011; Read and Gorman 2006; Warner and Brown 2011). We expect that the unequal distribution of stress and resources across race and gender in the United States will also be seen in the distribution of strain and support in relationships with family and friends, partly explaining disparities in health along race and gender lines. We use a life course framework to suggest that childhood is a sensitive period in the life course during which significant adversity is likely to launch chains of disadvantage that then accumulate from childhood through adulthood to produce race and gender variation in the quality of relationships and their impact on health. We test a series of hypotheses using data from a national panel survey to explore whether and how childhood adversity affects the quality of relationships with family and friends in adulthood, and how childhood adversity and relationship quality in adulthood influence health disparities by race and gender.

A LIFE COURSE PERSPECTIVE ON CHILDHOOD ADVERSITY, ADULT RELATIONSHIPS, AND HEALTH TRAJECTORIES

Relationships with family members and friends are particularly important to health because of their intimate and ongoing nature (Walen and Lachman 2000; Thoits 2011). Research has consistently shown that it is not only the existence of these social relationships but especially their quality that profoundly shapes individual and population health (Thoits 2010; Umberson and Montez 2010). If supportive, social relationships provide ongoing emotional sustenance that promotes health through psychosocial, behavioral, and biological pathways (Cohen 2004; Uchino 2006); however, if strained or conflicted, relationships may provide a steady supply of chronic stress that is difficult to escape and that is harmful to health (Kiecolt-Glaser and Newton 2001).

We argue that the experience of childhood adversity sets in motion distinct developmental pathways that link adults' relationships to their health throughout life and this process varies

by race and gender. Theoretical and empirical work suggests that stress processes launched in childhood undermine health years and even decades later (Haas 2008; Hatch 2005; Hayward and Gorman 2004; Miller, Chen and Parker 2011; Shonkoff, Boyce and McEwen 2009; Warner and Hayward 2006). For example, poverty, parental conflict and divorce, living with a depressed or alcoholic parent, and domestic violence during childhood have all been associated with poorer health in adulthood (Miller, Chen and Parker 2011; Repetti, Taylor and Seeman 2002). A life course perspective points to two primary ways that childhood adversity influences health in adulthood (Ben-Shlomo and Kuh 2002; Miller, Chen and Parker 2011; Shonkoff, Boyce and McEwen 2009). First, childhood adversity may be the beginning of a long process of hits or insults to health that accumulate throughout the life course to produce cumulative disadvantage in health over time (Ben-Shlomo and Kuh 2002; Hatch 2005; Hayward and Gorman 2004). Through this process, early adversity initiates stress proliferation, the tendency for primary stressors to lead to additional and accumulating stress over time (Pearlin et al. 2005). Second, childhood may be a sensitive period in the life course during which significant stress/adversity triggers a lifelong pattern of heightened psychological and physiological reactivity to stress (e.g., hypervigilance, greater cardiovascular arousal and inflammatory response) that is particularly detrimental to health through both direct and indirect pathways (Ben-Shlomo and Kuh 2002; Miller, Chen and Parker 2011; Shonkoff, Boyce and McEwen 2009).

Both of these processes may be operative in linking childhood adversity to social relationships and, in turn, health in adulthood. For example, through stress proliferation and cumulative disadvantage processes, people who face more adversity in childhood may be more likely to encounter stressors in adulthood; the accumulation of stress over the life course may then strain adult relationships that, in turn, undermine health. In addition, through a process of differential vulnerability to stress, childhood adversity may launch a lifelong pattern of psychological and physiological reactivity to stress that influences the quality of relationships in adulthood. A growing body of evidence suggests that “when early experiences prepare a developing child for conditions involving a high level of stress or instability, the body’s systems retain that initial programming and put the stress response system on a short-fuse and high-alert status” (Shonkoff, Boyce and McEwen 2009: 2257). Indeed, Miller and colleagues develop a theoretical model of childhood adversity and health to suggest that, “children exposed to stress mature into adults… [who] tend to be vigilant for threat and mistrusting of others…They have persistent difficulties forming and keeping close social ties…further contributing to the chronic inflammatory state in the body” (Miller, Chen and Parker 2011: 31; also see Repetti, Taylor and Seeman 2002). We expect that these processes will vary by race and gender, as we describe below.

Race, Relationships, and Health

Although empirical evidence is scant, there are strong theoretical reasons to expect that differences in childhood adversity and relationship quality partly underlie racial disparities in adult health. Social structures, defined as “enduring patterns of social life that shape an individual’s attitudes and beliefs, behaviors and actions, and material and psychological resources” (Williams and Sternthal 2010: S18), influence life experiences and health outcomes across a person’s lifespan (Schnittker and McLeod 2005). In the United States,

structural systems surrounding race produce different opportunities, constraints, strains, resources, and demands that may affect social relationships, and these structural systems begin to affect relationships early in life. Racial segregation and discrimination have disproportionately exposed black children and adults to poverty and more stressful environments that may promote social isolation and conflict, undermine relationship quality, and limit resources offered by social ties (Massey 2004; Warner and Hayward 2006; Williams and Sternthal 2010). Certainly, stress imposes strain on adults' relationships and, in turn, strained relationships have adverse effects on health (growth-Glaser and Newton 2001). We suggest that childhood adversity is the first step in a life-long accumulation of stress that is greater for black than for white Americans (Warner and Hayward 2006). Childhood adversity then launches a cascade of risk that increases the probability of stress exposure in adulthood that, in turn, degrades relationship quality in adulthood. Indeed, some studies find that, compared with white adults, black adults report less support in their relationships (Ferraro and Koch 1994) and lower levels of marital quality (Broman 2005; Bulanda and Brown 2007). We expect that black adults are disadvantaged relative to white adults in the levels of support and strain in their social relationships and that these disparities have their origins, in part, in differential exposure to childhood social conditions.

We suggest that not only are black people exposed to higher levels of childhood adversity that may undermine relationship quality in adulthood (through the cumulative disadvantage process described above), but black Americans are also more vulnerable to the adverse effects of childhood adversity on adult relationships (through the process of stress reactivity described above). The relationships of black adults are likely to be more adversely affected by childhood stress because the stress of childhood adversity is compounded by the additional stress of daily exposure to racism and discrimination throughout life (Kessler, Mickelson and Williams 1999; Williams and Mohammed 2009). A significant body of research on effects of environmental adversity on "weathering" of the body emphasizes that the chronic stress of racial discrimination contributes to racial disparities in health over time (Geronimus et al. 2006; Shonkoff, Boyce and McEwen 2009). Thus, we expect that greater exposure to childhood adversity *and* greater vulnerability to childhood adversity's effects on adult relationship quality for black Americans help to explain racial disparities in health.

Chains of Disadvantage at the Nexus of Race and Gender

A significant limitation of prior research on race, relationships, and health is lack of attention to the role of gender in shaping these processes. Despite recognition that structural opportunities and constraints shape life experiences and outcomes, most empirical analyses treat race and gender as separate spheres of influence. But race and gender reflect the intersection of different systems of constraint and opportunity (Brown and Misra 2003; Collins 2009; Mullings and Schulz 2006; Warner and Brown 2011).

We hypothesize that race differences in both exposure and vulnerability to childhood adversity will contribute to greater disadvantage in relationships experienced by black compared to white adults and this racial disadvantage will be greater for men than women. Exposure to childhood adversity likely interferes with the development of close and confiding relationships. Higher levels of childhood adversity would then result in lower

relationship quality for black adults compared to white adults. This race effect is likely to be stronger among men than women because of gendered relationship processes. Gendered systems foster expressions of masculinity (e.g., self-sufficiency, independence, strength, controlled expression of emotions) that may interfere with close relationships (Connell and Messerschmidt 2005; Courtenay 2000; Williams 2003). Indeed, studies show that, compared to women, men are less likely to have close and confiding relationships, share their feelings with others, and to provide and seek emotional support from others (Rosenfield, Lennon and White 2005; Taylor et al. 2000; Umberson et al. 1996). Scholars suggest that these gendered processes may be more exaggerated for black men compared to white men because many black men lack access to other ways of practicing masculinity, such as occupational and economic success (Connell and Messerschmidt 2005). The gendered platform for adult relationships, characterized by fewer close relationships for men than women, is further lowered for black men because of their greater exposure to childhood adversity.

We also expect race differences in vulnerability to the effects of childhood adversity on social relationships in adulthood to be greater for men than women. Childhood adversity should increase the impact of stress on ad4t relationships because such adversity makes people more reactive to stress throughout life (Miller, Chen and Parker 2011; Repetti, Taylor and Seeman 2002), but this process is likely to operate in different ways for men and women. Taylor and colleagues (2000) provide substantial evidence that women are more likely than men to respond to stress both by seeking out social contact and support and by providing support to others, whereas men are more likely to respond to stress by withdrawing from others. Arguably, this gendered way of responding to stress would be more likely to undermine men's relationships while having little adverse effect (or possibly even a positive effect) on women's relationships. Given higher levels of childhood adversity (Warner and Hayward 2006) and more adult stress (Turner and Avison 2003) for black men than for white men, in addition to gendered ways of responding to stress (Taylor et al. 2000), we expect that black adults are more vulnerable than white adults to the effect of childhood adversity on their relationship quality in adulthood and this racial disparity will be amplified among men.

Three sets of hypotheses test our ideas about childhood adversity, chains of disadvantage in relationship quality, and consequences for adult health at the nexus of race and gender. The first set of hypotheses addresses racial disparities in life course disadvantage in exposure to childhood adversity, overall stress in adulthood, and relationship quality in adulthood (results that are foundational to subsequent hypotheses):

H1a: Black Americans experience greater childhood adversity than white Americans.

H1b: Black Americans experience higher levels of overall stress in adulthood compared with white Americans. This racial difference is stronger for men than women.

H1c: Black Americans experience lower relationship quality (more strain, less support in their relationships) in adulthood compared with white Americans. This racial disparity is stronger for men than women.

The second set of hypotheses addresses the processes through which racial disparities in exposure and vulnerability to childhood adversity lead to racial disparities in the quality of relationships in adulthood, with gender differences in these processes.

> H2a: Childhood adversity is inversely associated with the quality of relationships in adulthood (i.e., direct effect), and differences between racial groups in *exposure to childhood adversity* partly explain racial differences in the quality of adult relationships, especially for men.
>
> H2b: Black adults are more *vulnerable* than white adults *to the negative effects of childhood adversity* (i.e., interaction effect) *on relationship quality* in adulthood and the racial disparity in this adverse effect is stronger for men than women.
>
> H2c: Stress in adulthood is inversely associated with the quality of relationships in adulthood. Stress in adulthood mediates the negative effect of childhood adversity (i.e., indirect effect) on relationship quality in adulthood and this mediating role is especially pronounced among blacks compared to whites and among men compared to women.

Our final hypothesis describes how racial disparities in childhood adversity contribute to racial disparities in health and how this process is expected to vary by gender:

> H3: The influence of childhood adversity and stress in adulthood on health trajectories operates partly through effects on relationship quality in adulthood (as outlined in H2a-c), which helps explain the racial disparity in health trajectories, especially among men.

DATA AND METHODS

Data are from the Americans' Changing Lives survey, housed at the University of Michigan's Institute for Social Research and funded by the National Institute on Aging (House 2007). This nationally representative panel study collected data in 1986, 1989, 1994, and 2001–2002. Wave 1 (N = 3,617) used a multistage stratified area probability sample of the continental U.S. household population aged 25 and older, with an oversampling of black respondents and adults aged 60 and older. We analyzed data on 3,477 black and white respondents (other races, which had small sample sizes, were excluded from the analysis). Subsequent waves included analytic samples of N = 2,780 in Wave 2; N = 2,331 in Wave 3; and N = 1,646 in Wave 4. We addressed potential bias due to attrition by using the full information maximum likelihood estimator in Mplus (Muthén and Muthén 2007), an approach for addressing missing data that has been shown to minimize bias and maximize efficiency (Schafer and Graham 2002).

Measures

Health status at each wave is assessed with a three-item summed index of subjective health, morbidity, and functional limitation, as developed by Ferraro and Koch (1994). The self-rated health item asks, "How would you rate your health at the present time?" Response categories range from 1 (poor) to 5 (excellent). Respondents were also asked about the presence of 10 chronic conditions, which we top-coded at 6 or more and then reverse-coded

so that higher numbers reflected better health. Respondents also answered the question, "How much are your daily activities limited in any way by your health or health-related problems?" Response categories ranged from 1 (a great deal) to 5 (not at all). Baseline alpha reliability for the index is 0.78, with reliabilities within 0.04 of each other for each race/gender group.

Childhood adversity is measured as the sum of eight dichotomous items from Wave 1 asking if, while growing up, respondents had experienced family economic hardship, parents having marital problems, parents divorcing, never knowing one's father, having at least one parent die, having anyone in the home with mental health problems, having anyone in the home with a serious drinking problem, and having anyone in the home who was violent.

Leading stress researchers emphasize the importance of considering *adult stress burden*, defined as stressful life events and chronic sources of stress, in one measure of cumulative stress burden (Turner, Wheaton and Lloyd 1995). Life events (occurring within the past three years prior to Wave 1 or within the three years between Waves 1 and 2) include experiencing death of a spouse, child, parent, or close friend or relative; divorce; assault; involuntary job loss; robbery or burglary; or any other bad event that deeply upset the respondent (coded 1 if the life event occurred and 0 otherwise, then summed). Chronic stressors include financial stress, job stress, and care provider stress. Financial stress includes three items: difficulty meeting monthly payments on bills, the state of finances at the end of the month, and satisfaction with present financial situation. Job stress refers to the frequency of feeling bothered or upset at work. Care provider stress refers to stress associated with providing or arranging care for an impaired friend or relative. To ensure that the measures are weighted equally (Turner, Wheaton and Lloyd 1995), we standardize and then sum the life event variables and the chronic stress variables. The final adult stress burden measure at Wave 1 and Wave 2 is standardized and has a mean of 0 and a standard deviation of 1 for each wave.

Relationship support and strain indices are based on measures from Waves 1 and 2 (because some were not assessed in Waves 3 or 4) of five types of relationships in adulthood: spouse/partner, children, mother, father, and friends/relatives. The measure of *support* from each type of relationship is based on two questions: "How much does your [type of relationship, e.g., spouse] make you feel loved and cared for?" and "How much is [he/she] willing to listen when you need to talk about your worries or problems?" *Strain* in the relationship with spouse/partner is based on frequency of unpleasant disagreements and how often one is bothered or upset by the relationship. Parental strain is based on satisfaction with being a parent (reverse coded), frequency of feeling upset or bothered as a parent, and degree of happiness with the way children have turned out to this point (reverse coded). Strain with one's mother, father, and friends or relatives is each based on two questions: "How much do you feel [he/she] makes too many demands on you?" and "How much is [he/she] critical of you or what you do?" Response categories for all items range from 0–4, with higher values indicating greater support or strain. We construct each index by taking the average of all items across all relationship domains on which the respondent reported. If respondents are missing any social relationships, their support or strain index scores reflect only the social ties they had. Flag variables for missing on the support and strain indices are controlled.

The following *sociodemographic variables*, measured at Wave 1, are controlled in all analyses: *age* (in years), *race* (1 = black, 0 = white), gender (1 = female, 0 = male), *marital status* (1 = currently married, 0 = not currently married), *education* (continuous measure of highest grade completed), and *family income* from all sources (ranging from less than $5,000 to $80,000+).

Analytic strategy

Because the relationship strain and support measures are available in only the first two waves, we present two sets of standard ordinary least-squares regressions to examine the impact of race and gender on baseline and change, respectively, in relationship strain and support. The analysis of change in relationship strain and support is based on lagged dependent variable models (i.e., predicting Wave 2 strain/support, controlling for Wave 1 strain/support). We use a similar approach for childhood adversity (Wave 1 only) and adult stress burden. Although we tested race by gender interactions in all models, final presented models include only those interaction terms that were significant. To take advantage of four waves of longitudinal data for health status, and in keeping with a life course approach, we use linear growth curve models to estimate the effects of childhood adversity and global relationship strain and support in adulthood on initial level and change in health status over time. An important advantage of growth curve models is the ability to distinguish within-individual from between-individual heterogeneity in estimating health changes shaped by other variables. Models account for systematic variation in growth parameters (i.e., latent intercept and slope) attributable to support, strain, and other covariates, as well as heterogeneity in health trajectories across individuals. The linear growth curve model can be specified using the following equations.

$$y_{it}=\eta_{0i}+\eta_{1i}T_{it}+\varepsilon_{it} \quad (1)$$

$$\eta_{0i}=\alpha_0+X_0{}'B_0+\zeta_{0i} \quad (2a)$$

$$\eta_{1i}=\alpha_1+X_1{}'B_1+\zeta_{1i} \quad (2b)$$

Equation 1 represents within-individual change over time. Equations 2a and 2b represent between-individual change over time. The outcome variable is y_{it} (i.e., health status of individual *i* at wave *t*); η_{0i} is the latent intercept; η_{1i} is the latent slope; T_{it} is the time score (reflecting the number of years since Wave 1); X_0 and X_1 represent the vectors of other Wave 1 covariates to predict the latent intercept and slope respectively; and B_0 and B_1 are the corresponding vectors of coefficient. α_0 and α_1 are level 2 intercepts (i.e., fixed effects). Residuals are represented by ε_{it}, ζ_{0i}, and ζ_{1i}.

RESULTS

Table 1 displays descriptive statistics of the Wave 1 values of analyzed variables by race and gender. Black men report significantly more childhood adversity, more adult stress burden, and more relationship strain in adulthood than white men. Black women have more adult

stress burden and more strain and less support in their adult relationships than white women, but there are no racial differences in childhood adversity among women. We observe several gendered differences within race. Within both racial groups, men have higher levels of strain and lower levels of support than women. However, white men report lower levels of childhood adversity than white women, which supplementary analysis indicates is largely due to white men being less likely to report parental marital problems while growing up or to have grown up with a parent who had a mental health problem.

Table 1 shows that black men and women report worse health than their white counterparts, and black and white women have worse health than black and white men, respectively, which is consistent with prior research.

Hypothesis 1

We test our first set of hypotheses about racial disparities in exposure to childhood adversity, adult stress burden (apart from relationship stress), and relationship quality in adulthood and how these disparities are expected to vary by gender with the multivariate analysis presented in Table 2. Because two waves of data are available for the measures of adult stress burden and relationship strain and support, we estimate models that predict Wave 1 levels of each of these variables and Wave 2 levels, controlling for Wave 1, respectively. Models predicting childhood adversity control only for age because other controls occur in adulthood after the experience of adversity in childhood. Models predicting the adult outcomes control for age, income, education, and marital status, although we note if results differ without controls for adult socioeconomic and marital statuses.

Models 1 and 2 provide an elaboration of Hypothesis 1a. Prior research and theory led us to expect that black adults would report greater childhood adversity than white adults and, but we do not find support for this hypothesis in Model 1. Although not a theoretically derived hypothesis, we tested the race*gender interaction in predicting childhood adversity to delve more deeply into the relationship of race and childhood adversity (Model 2). This interaction term is significant and indicates that black men report significantly more childhood adversity than white men (0.219); however, this difference is not significant among women (0.219 − 0.237 = −0.018). In Models 3 and 4, we find support for the hypothesized race difference in adult stress burden (H1b). Black men and women report higher levels of adult stress burden at Wave 1 and greater increases in adult stress burden between Waves 1 and 2 (i.e., Wave 2, controlling for Wave 1) than their white counterparts. Supplementary analysis (available upon request) indicated no significant race*gender interaction in predicting adult stress burden).

Models 5-6 test Hypothesis H1c that black adults experience more strain and less support in their relationships compared to white people and that this disparity is stronger for men than women. The results in Model 5 support this hypothesis. Black men report significantly more adult relationship strain than white men (0.132), but this race difference is smaller among women (−0.100) and the difference is not significantly different from 0 (0.132 − 0.100 = 0.032). A slightly different pattern is observed for change in relationship strain in adulthood between Waves 1 and 2 (Model 6). Controlling for Wave 1 relationship strain, black respondents report more Wave 2 relationship strain in adulthood than their white

counterparts, and this does not differ by gender. Finally, we find no support for hypothesized race or race*gender differences in relationship support in adulthood in Models 7 and 8. However, consistent with prior research, compared to men, women report higher Wave 1 values of relationship support and greater increases in relationship support over time (Wave 2, controlling for Wave 1).

Hypothesis 2

Table 3 presents results for our second set of hypotheses, which describe the process through which racial disparities in exposure and vulnerability to childhood adversity lead to racial disparities in the quality of relationship in adulthood, with gender differences in these processes. Note that Panels A, B, and C of Table 3 do not include controls for adult socioeconomic and marital statuses. Our aim was to estimate the gross effect of childhood adversity on adult relationship strain, and because adult marital and socioeconomic statuses are likely mechanisms through which childhood adversity influences adult relationship strain, we entered these controls in later models. In Panel A, we replicate models predicting relationship strain and support in adulthood from Table 2, but without controls for adult socioeconomic and marital statuses. We see the same pattern as in Table 2.

In Panel B, we enter a control for childhood adversity. In support of Hypothesis H2a, childhood adversity is strongly and consistently associated with higher initial levels of relationship strain (Model 1) and lower initial levels of relationship support (Model 3) in adulthood and with increases in relationship strain (Model 2) and declines in relationship support (Model 4) in adulthood over time. We also find some evidence that greater exposure to childhood adversity explains the higher levels of Wave 1 relationship strain in adulthood reported by black men compared with white men, as well as the greater increases in relationship strain over time reported by black men and women compared with white respondents. A comparison of coefficients for race in Panels A and B (Model 1) indicates that childhood adversity explains only about 8 percent ((0.104 − 0.113) / 0.113) of the higher relationship strain experienced by black men compared with white men in adulthood and, in Model 2, about 8.3 percent of the greater increase in relationship strain experienced by black respondents, compared with white respondents, in adulthood. In support of our hypothesis, Sobel tests indicate that childhood adversity is a significant ($p<0.05$) mediator of these observed disparities by race in exposure to relationship strain in adulthood.

Panel C of Table 3 shows the results of our test of Hypothesis H2b that black respondents, particularly men, are more vulnerable than white respondents to the negative effects of childhood adversity on adult relationship quality. The significant race*childhood adversity interaction in Models 1 and 2 supports this hypothesis. These interactions are depicted graphically in Figures 1 and 2. As expected, childhood adversity is more strongly and positively associated with Wave 1 adult relationship strain and with increases in adult relationship strain over time for black respondents, compared with white respondents. In fact, among whites, childhood adversity is not significantly associated with either baseline or change in relationship strain in adulthood between Wave 1 and Wave 2. However, contrary to our hypothesis, neither these race differences nor the overall effect of childhood adversity on relationship quality varies by gender (supplementary models showing the

nonsignificant gender*childhood adversity and gender*race*childhood adversity interaction are available upon request). Model 3 shows that childhood adversity is associated with lower levels of relationship support in adulthood, and this does not differ by race and gender. However, Model 4 indicates the estimated negative effect of childhood adversity on change in relationship support is greater for black respondents than for white respondents. Although childhood adversity is not associated with change in relationship support in adulthood between Wave 1 and Wave 2 among whites, childhood adversity is linked to a decline in relationship support among black adults (−0.048 + −0.011 = −0.059).

Taken together, the results in Table 3 suggest that not only are black men exposed to more childhood adversity than white men, but black men and women are also more vulnerable than whites to the effects of childhood adversity on increased strain and diminished support in relationships in adulthood. As a result, childhood adversity partly explains black men's higher levels of relationship strain compared with white men, and the greater increases in relationship strain over time among black respondents, compared with white respondents. Consistent with this, Panel C, Model 1, and Figure 1 show that among those who report no childhood adversity, there are very small and only marginally significant differences by race in adult relationship strain among men (0.055). It is only at higher levels of childhood adversity that the greater adult relationship strain of black men compared with white men (and women) becomes pronounced.

In Panel D of Table 3, we demonstrate that the estimated effect of childhood adversity on the quality of relationships in adulthood, by race, is robust to controls for adult socioeconomic and marital statuses. The magnitude of the coefficients for childhood adversity and black*childhood adversity in Models 1 through 4 are very similar across Panels C and D, and Sobel tests indicate no significant mediating effect of adult socioeconomic and marital statuses.

In Panel E of Table 3, we test Hypothesis H2c that stress in adulthood mediates the negative effect of childhood adversity on relationship quality in adulthood (which was shown in Panel D), particularly among black people compared to white people and among men compared to women. We find only partial support for this hypothesis. Although adult stress burden is positively associated with relationship strain at Wave 1 and Wave 2 and negatively associated with support at Wave 1 in adult relationships, the role of adult stress burden in mediating the effect of childhood adversity on relationship quality is limited to whites. The estimated effect of childhood adversity on Wave 1 adult relationship strain among whites is reduced by 23 percent (0.020 − 0.026 / 0.026) after controlling for adult stress burden, but is reduced by only 9.8 percent among black respondents ((0.020+0.054) − (0.026+0.056) / (0.026+0.056)). Sobel tests indicate that adult stress burden significantly ($p<0.05$) mediates the effect of childhood adversity on Wave 1 relationship strain among white respondents but not black respondents. We found no evidence of gender differences in the estimated effect of childhood adversity on adult relationship quality or in the mediating role of adult stress burden in this association.

Hypothesis 3

Table 4 presents results of latent growth curve models that test our final Hypothesis 3 describing a process in which racial disparities in childhood adversity contribute to racial disparities in health, with differences between men and women. Model 1 replicates well-established differences by race and gender in health. Black men report lower levels of health than white men (−0.391) and the racial disparity in health is especially pronounced among women (−0.391 + −0.431 = −0.822). Both black and white women report significantly worse health than their male counterparts (−0.279 for white respondents and −0.431 + −0.279 = −0.710 for black respondents).

We first established in Model 2 that childhood adversity is strongly and negatively associated with adult health (the intercept). Note that adult socioeconomic and marital statuses are not controlled in Model 2 in order to show the gross effect of childhood adversity on health before it is potentially mediated by adult socioeconomic status and marital status. Moreover, a comparison of the coefficients for black status (which indicates differences by race among men in the interaction model) in Models 1 and 2 suggests that childhood adversity plays an important role in producing racial disparities in health among men. For men, the coefficient estimating the racial disparity in Wave 1 health declines by 15.3 percent ((−0.331 + 0.391) / −0.391) after controlling for childhood adversity, and a Sobel test indicates that childhood adversity is a significant mediator of the racial disparity in health among men ($p<0.05$). The sums of the coefficients estimating the racial disparity in health among women, however, remain nearly unchanged (−0.331+ −0.500= −0.831 vs. 0.391+ −0.431= −0.822). This provides support for Hypothesis 3.

In Model 3, we show that controlling for socioeconomic status and marital status in adulthood further reduce the racial disparity in health for both men and women. The racial difference is reduced to nonsignificance for men and by approximately 65 percent (−0.292 +0.831) / −0.831) for women, both of which are evidence of significant mediation. Further, part of the effect of childhood adversity on health is mediated by adult socioeconomic and marital statuses, which together explain approximately 21 percent of the effect of childhood adversity on adult health status.

We find moderate support for our expectation in Hypothesis H3 that relationship quality in adulthood mediates the association of childhood adversity with health. Controlling for relationship strain in adulthood (Model 4) reduces the estimated effect of childhood adversity on health not explained by marital and socioeconomic statuses by an additional 13.6 percent, and the Sobel test suggests that relationship strain is a significant mediator ($p<0.05$). However, the Sobel test shows that relationship support in adulthood (Model 5) is not a significant mediator. Thus, greater exposure to childhood adversity partly explains why black men have worse health than white men, and some of this effect appears to operate through the enduring influence of childhood adversity on higher levels of relationship strain and more disadvantaged socioeconomic and marital statuses in adulthood.

This process appears to differ substantially by gender. Neither childhood adversity nor strain and support in adult relationships significantly explain black women’s poorer health relative to white women, although adult marital and socioeconomic statuses explain a substantial

portion (~65 percent). In Model 6, we examine the role of a broader indicator of adult stress burden that includes stress related to poor-quality relationships in contributing to black women's poorer health. Comparing the summed coefficients for race and race*gender in Model 3 and Model 6 indicate that adult stress burden explains an additional 23 percent (−0.224 + 0.292 / −0.292) of the remaining racial disparity in health among women after controlling for childhood adversity and adult socioeconomic and marital statuses. Finally, Model 7 indicates that childhood adversity, adult relationship strain, and adult stress burden remain strong predictors of health when included simultaneously, but the estimated effect of adult relationship support is no longer significantly different from 0.

DISCUSSION

National headlines point to evidence that "the plight deepens for black men" in America (Eckholm 2006). Compared to white Americans, black Americans, particularly black men, face higher rates of unemployment and imprisonment, worse health, and dramatically lower life expectancy (Alexander 2012; Greenman and Xie 2008; Hummer and Chinn 2011; Pettit 2012). Ongoing debates about racial profiling, police brutality, and violence against young black men demand a closer look at the experience of being black in America and how these experiences differ for black men and women. We emphasize that black women also face high levels of stress throughout their lives and black women are in particularly poor health relative to other race/gender groups (Read and Gorman 2006), but our findings suggest different social pathways linking stress to health disparities for black men and women. The stress that black men experience throughout their lives appears to take a particularly large toll on their social relationships and this, in turn, undermines their health.

We utilize a life course perspective emphasizing processes of social disadvantage originating in childhood with cumulative effects on health over time (Ben-Shlomo and Kuh 2002; Hatch 2005; O'Rand 2006; Warner and Hayward 2006). We argue that understanding race and gender disparities in adult health requires a focus on chains of race/gender disadvantage that begin in childhood and, in turn, shape the quality of adult social ties that then contribute to disparities in adult health. We hypothesized that chains of disadvantage associated with childhood adversity would be linked to more strained/less supportive relationships in adulthood, and, in turn, relationship quality would be a key pathway linking childhood adversity to health disparities by race, particularly for men. The quality of social relationships is a key factor in health consequences; while emotionally supportive relationships benefit health, stress in relationships undermines health (Thoits 2010; Thoits 2011).

We draw on prior work on gender and stress to suggest reasons to expect gendered effects of race on relationships that, in turn, shape race/gender disparities in health trajectories throughout life. Gender theory suggests that men enact masculinity in their daily lives in ways that limit opportunities for close social relationships and that this enactment is exaggerated for black men relative to white men (Connell and Messerschmidt 2005; Courtenay 2000). Further, the literature on gender and stress suggests that men and women respond to stress in different ways that potentially strengthen women's social ties but undermine men's social ties (Taylor et al. 2000); given than black men experience more

stress than white men (Williams 2003; Williams and Mohammed 2009), the relationships of black men may be more adversely affected than are the relationships of white men.

Childhood Adversity, Relationships, and Health: Patterns by Race and Gender

Our results generally support our major hypotheses and suggest that childhood adversity contributes to poor health in adulthood—*especially* for black men. We find that black men experience higher levels of childhood adversity than white men, and that black men appear to be particularly vulnerable to the negative effects of these experiences on relationship strain in adulthood. The pathways through which this process operates are complex and include the apparent effect of childhood adversity on adult relationship strain as well as adult socioeconomic and marital statuses. Taken together, our findings suggest that the quality of adult relationships is a mechanism that partially explains the strong association of childhood adversity with health decades later—but this disadvantage primarily affects black men. These results add to recent studies showing that marital status (along with other social conditions) explains more of the race gap in mortality (Geruso 2012) and functional limitations (Warner and Brown 2011) for men than for women. By constraining black men's access to supportive intimate ties like marriage, childhood adversity is likely a more distal cause of this process, undermining relationships and, in turn, health over a lifetime.

While our study sheds more light on the link of social relationships to racial disparities in health for men than for women, we must also direct attention to the particularly poor health status of black women. Our findings are consistent with prior work (Read and Gorman 2006) showing that black women are in worse health than black men, white men, and white women. In our study, neither childhood adversity nor the quality of adult relationships contributes much toward explaining the racial disparity in health among women. Rather, the primary factors that shape the racial disparity in health among women are adult socioeconomic and marital status and, to some extent, adult stress burden. It is likely, however, that chains of disadvantage for black men are interwoven with those for black women. If childhood adversity contributes to a tendency to experience adult relationship strain for men, men may respond to this strain in ways that impose stress on the women with whom they are involved (Cichy, Stawski and Almeida 2012). Research indicates that supportive relationships can ameliorate the adverse effects of childhood adversity on children's health (Shonkoff, Boyce and McEwen 2009). A similar process might occur in adulthood such that adults' supportive relationships ameliorate the effects of childhood adversity on their health later in life, perhaps especially for black women. Future research should consider the possibility that relationships with friends and family in adulthood play a protective role for the health of black women, buffering them from experiencing even poorer health than they currently experience.

Certainly, many studies have shown that socioeconomic and marital statuses help to explain racial disparities in health. The present study extends this literature to show that, in part, these disparities among men are more fundamentally shaped by childhood adversity, which appears to affect not only later socioeconomic status but also the amount of strain experienced in adult relationships. All of these factors seem to work together to help explain racial differences in health among men in the present study. Our findings add two important

stepping stones in the causal pathway through which race operates as a fundamental cause of health for men (Link and Phelan 1995): childhood adversity as a distal factor and relationship stress in adulthood as a proximal one. Our observation of distinct patterns of disadvantage for black men raises questions about the underlying processes that give rise to these patterns, an important area for future research to address. In particular, we call for future research to elucidate the causal pathways through which biological responses and/or health behavior might shape the effect of early life disadvantage on adult relationships or the influence of adult relationships on health. As described earlier, a substantial literature suggests that experiences of childhood adversity lead to heightened psychological and physiological arousal in response to stress and this heightened arousal makes individuals vulnerable to stress-related disease throughout life (Miller, Chen and Parker 2011; Shonkoff, Boyce and McEwen 2009). Heightened arousal in response to stress may also lead individuals to engage in risky health behaviors in an effort to cope with and reduce the arousal they feel in response to stress (Umberson, Liu and Reczek 2008). Past work shows gender and race variation in the link of stress to health behavior (Jackson, Knight and Rafferty 2010; Umberson, Liu and Reczek 2008). Factor et al. (2011) further suggest that risky health behaviors represent a form of social resistance for minority populations and that this form of resistance may vary by gender (also see Courtenay 2000; Ferguson 2000). In turn, certain health behaviors (e.g., alcohol and drug use) may undermine social relationships as well as health.

A challenge for future theoretical and empirical work is to blend possible life course explanations involving stress, biology, and health behavior for the pattern of results we find in childhood adversity/relationship/health linkages by race and gender. Since research shows that supportive relationships can ameliorate the adverse effects of extreme stress in childhood (O'Rand and Hamil-Luker 2005; Shonkoff, Boyce and McEwen 2009), future research should also consider causal pathways that might ameliorate the adverse effects of childhood adversity on adult relationships and, in turn, health, and how these pathways might vary by race and gender.

Constrained Choice

We emphasize that the higher levels of strain in relationships among black men and women reflect an underlying system of structural disadvantage. Bird and Rieker's (2008) model of "constrained choice" emphasizes that individual choices and health are heavily constrained by structural forces, including public policy, community ties, neighborhood contexts, and family and work relationships (also see Palloni 2006; Williams and Collins 2001). Compared to whites, black Americans face more environmental adversity, including individual and institutional racism, stigma, and discrimination—with adverse effects on health (Kessler, Mickelson and Williams 1999; Williams 2003; Williams and Sternthal 2010). These ongoing strains shape all manner of daily experiences and impose strains on personal relationships. Our results illustrate how constrained choices associated with race can have cumulative and differential effects on men and women's health over the life course. Conditions of childhood differ for black and white Americans in ways that, over time, limit options and opportunities for men and women to develop positive relationships and accumulate socioeconomic resources. In turn, high levels of stress and inadequate

resources for managing acute and chronic stress (much of which is related to discrimination) undermine health throughout the life course.

Limitations

The measure of childhood adversity analyzed for this study has several limitations. First, this measure relies on adults' retrospective reports, which may suffer from issues of accurate recall (Kessler and Wethington 1991) and present-state bias (Schraedley, Turner and Gotlib 2002). Substantial evidence indicates that, compared to men, women are more attuned to and more accurately recall emotionally-laden events (Seidlitz and Diener 1998), including events experienced in childhood (Davis 1999). Our unexpected observation of lower levels of childhood adversity among white men compared to white women may partly reflect such a process. Second, because our measure is a summary of the number of adverse childhood experiences, we cannot assess the intensity of childhood adversity, which may differ by race and gender. Third, our measure of childhood adversity does not include sources of adversity that may differ by race, such as discrimination and racism, and this exclusion may have led us to underestimate the linkages between childhood adversity, adult stress, relationship quality, and health among black adults.

Additional study limitations relate to issues of causal order and selection. Although we operate from the perspective that social relationships influence health, in some cases poor health could lead to poor quality relationships. Finally, premature mortality along with high levels of incarceration for black men, as well as other processes of selection (including an overrepresentation of married black men and older widowed black women in the ACL) and attrition, means that the black men who may be most at-risk in terms of childhood adversity and poor health are underrepresented in the data analyzed for this study (Pettit 2012). The most likely consequence of these limitations is underestimation of the effects of childhood adversity on the relationships and health of black men.

CONCLUSION

Current and historical structural disadvantages associated with the social status of race in the United States pull at the fabric of social ties to create stress that persists across time, with implications for health (Shuey and Willson 2008; Warner and Hayward 2006). Our findings point to race and gender variation in disadvantage associated with social relationships. Black Americans are disadvantaged relative to whites, and this disadvantage further depends on gender, with more strained relationships for black men than black women. This chain of disadvantage begins in childhood and links are added to the chain throughout life. Thus, social relationships are yet another social resource for health where we see inequality and an accumulation of disadvantage over time, particularly for black men.

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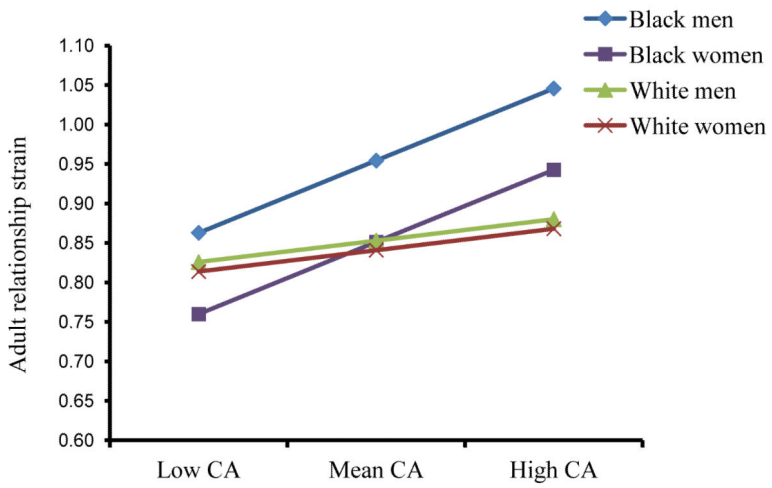

Figure 1. Effect of Childhood Adversity (CA) on Baseline Adult Relationship Strain, by Race and Gender

Note: Low CA and high CA represent one standard deviation below and above the mean of childhood adversity, respectively.

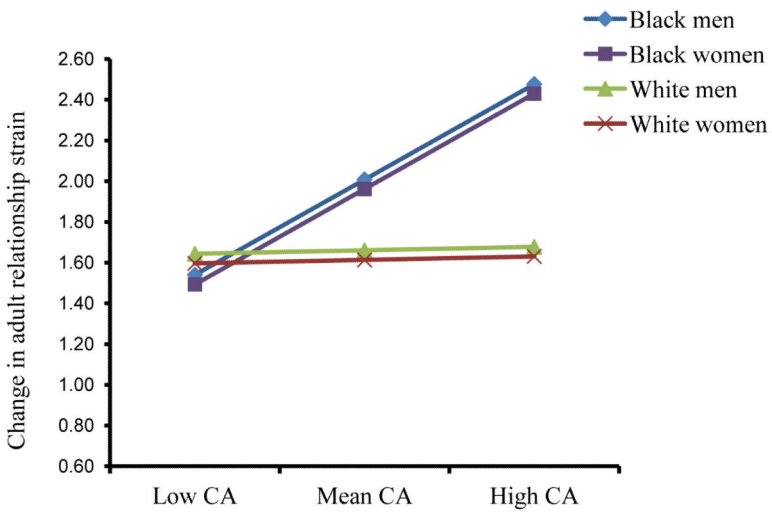

Figure 2. Effect of Childhood Adversity (CA) on Change in Adult Relationship Strain from Wave 1 to Wave 2, by Race and Gender

Note: Low CA and high CA represent one standard deviation below and above the mean of childhood adversity, respectively.

Table 1

Descriptive Results: Wave 1 Means/Percentages, by Race and Gender

	Men		Women	
Variables	**Black**	**White**	**Black**	**White**
Childhood adversity (0–6)	0.91 [a]	0.71 [b]	0.85	0.84
Adult stress burden (−1.63–4.64)	0.15 [a]	−0.15	0.28 [a]	−0.06
Adult relationship strain index (0–4)	1.00 [a, b]	0.89 [b]	0.89 [a]	0.82
Adult relationship support index (0–4)	3.02 [b]	3.07 [b]	3.12 [a]	3.19
Health index (3–17)	13.83 [a, b]	14.18 [b]	12.98 [a]	13.50
Sociodemographic variables				
Age (25–95)	51.39	51.76 [b]	52.69 [a]	56.50
Currently Married, %	54.57 [a, b]	69.92 [b]	31.61 [a]	57.66
Income	$17,500 [a, b]	$22,500 [b]	$12,500 [a]	$17,500
Education	10.40 [a]	12.35 [b]	10.44 [a]	11.86
Total (N = 3,477)	N = 394	N = 901	N = 772	N = 1,410

Note: Ranges in parentheses.

[a] Difference between black and white respondents, within gender, is significant at $p < .05$ (2-tailed test).

[b] Difference between men and women, within race, is significant at $p < .05$ (2-tailed test).

Table 2

Hypothesis 1: Ordinary Least-Squares Models Estimating Race and Gender Differences in Stress over the Life Course and Adult Relationship Strain and Support (N = 3,477)

	Childhood adversity		Adult stress burden		Relationship strain in adulthood		Relationship support in adulthood	
Variables	**Wave 1 (1)**	**Wave 1 (2)**	**Wave 1 (3)**	**Wave 2 (4)**	**Wave 1 (5)**	**Wave 2 (6)**	**Wave 1 (7)**	**Wave 2 (8)**
Female	0.115* (0.045)	0.181** (0.053)	0.062 (0.037)	0.060 (0.040)	−0.001 (0.024)	−0.042* (0.023)	0.120*** (0.024)	0.098*** (0.026)
Black	0.061 (0.046)	0.219** (0.080)	0.161*** (0.041)	0.233*** (0.046)	0.132*** (0.035)	0.059** (0.034)	−0.025 (0.026)	0.050 (0.028)
Relationship strain in adulthood (W1)	—	—	—	—	—	0.546*** (0.016)	—	—
Relationship support in adulthood (W1)	—	—	—	—	—	—	—	0.468*** (0.018)
Adult stress burden (W1)	—	—	—	0.362*** (0.022)	—	—	—	
Female*black	—	−0.237* (0.098)	—	—	−0.100* (0.043)	—	—	—
R^2	0.02	0.04	0.16	0.22	0.12	0.41	0.03	0.32

Note: Age controlled when predicting childhood adversity. Age, income, education, and marital status controlled for all other models. Flags for number of missing relationships are also controlled in models predicting adult relationship strain and support. W1, wave 1. Unstandardized coefficients. Standard errors in parentheses.

* $p < .05$;

** $p < .01$;

*** $p < .001$ (2-tailed test).

Table 3

Hypothesis 2: Ordinary Least-Squares Models Estimating the Effect of Childhood Adversity and Adult Stress Burden on Adult Relationship Strain and Adult Relationship Support, by Race and Gender (*N*=3,477)

	Relationship strain in adulthood		Relationship support in adulthood	
	Wave 1 (1)	Wave 2 (2)	Wave 1 (3)	Wave 2 (4)
Panel A: Base model				
Female	−0.007 (0.024)	−0.045* (0.019)	0.125*** (0.024)	0.098*** (0.025)
Black	0.113** (0.034)	0.058** (0.019)	−0.046 (0.024)	0.050 (0.026)
Relationship strain in adulthood (W1)	—	0.547*** (0.016)	—	—
Relationship support in adulthood (W1)	—		—	0.469*** (0.018)
Female*black	−0.102* (−0.102)	—	—	—
R^2	0.14	0.40	0.03	0.39
Panel B: Control for childhood adversity				
Female	−0.014 (0.024)	−0.048* (0.019)	0.131*** (0.024)	0.101*** (0.026)
Black	0.104** (0.034)	0.057** (0.019)	−0.041 (0.024)	0.050 (0.026)
Relationship strain in adulthood (W1)	—	0.543*** (0.016)	—	—
Relationship support in adulthood (W1)	—	—	—	0.466*** (0.019)
Female*black	−0.091* (0.043)	—	—	—
Childhood adversity	0.039*** (0.010)	0.025** (0.008)	−0.066*** (0.012)	−0.024* (0.011)
R^2	0.12	0.39	0.03	0.32
Panel C: Interaction of childhood adversity with race				
Female	−0.012 (0.024)	−0.047* (0.019)	0.130*** (0.024)	0.099*** (0.026)
Black	0.055 (0.039)	0.023 (0.024)	−0.030 (0.033)	0−.091** (0.033)
Relationship strain in adulthood (W1)	—	0.541*** (0.016)	—	—
Relationship support in adulthood (W1)	—	—	—	0.465*** (0.018)

	Relationship strain in adulthood		Relationship support in adulthood	
	Wave 1 (1)	Wave 2 (2)	Wave 1 (3)	Wave 2 (4)
Female*black	−0.091* (0.043)	—	—	—
Childhood adversity	0.024 (0.011)	0.015 (0.009)	−0.063*** (0.014)	−0.011 (0.013)
Black* childhood adversity	0.057** (0.022)	0.040* (0.018)	−0.012 (0.026)	−0.048* (0.024)
R^2	0.12	0.39	0.03	0.32
Panel D: Control for adult socioeconomic and marital status				
Female	−0.007 (0.024)	−0.044* (0.019)	0.125*** (0.024)	0.099*** (0.026)
Black	0.077+ (0.039)	0.025 (0.026)	−0.015 (0.034)	0.090* (0.028)
Relationship strain in adulthood (W1)	—	0.540***	—	—
Relationship support in adulthood (W1)	—	—	—	0.464*** (0.018)
Female*black	−0.089* (0.042)	—	—	—
Childhood adversity	0.026* (0.011)	0.014 (0.009)	−0.058*** (0.014)	−0.011 (−0.048)
Black* childhood adversity	0.056* (0.022)	0.040* (0.018)	−0.012 (0.026)	−0.048+ (0.024)
R^2	0.13	0.39	0.04	0.32
Panel E: Control for adult stress burden				
Female	−0.013 (0.024)	−0.045* (0.019)	0.129*** (0.024)	0.099*** (0.026)
Black	0.062 (0.039)	0.022 (0.026)	−0.005 (0.034)	0.090* (0.035)
Relationship strain in adulthood (W1)	—	0.533*** (0.016)	—	—
Relationship support in adulthood (W1)	—	—	—	0.464*** (0.019)
Female*black	−0.087* (0.042)	—	—	—
Childhood adversity	0.020 (0.011)	0.013 (0.009)	−0.054*** (0.014)	−0.011 (0.013)
Black*childhood adversity	0.054* (0.022)	0.040* (0.018)	−0.010 (0.026)	−0.048+ (0.024)
Adult stress burden	0.093*** (0.012)	0.028* (0.011)	−0.070*** (0.014)	0.000 (0.015)
R^2	0.15	0.39	0.05	0.33

Note: All models control for age and number of missing relationships. Panels D and E also control for income, education, and marital status. Unstandardized coefficients. Standard errors in parentheses. W1, wave 1.

$^{+}p = .10$;

$^{*}p < .05$;

$^{**}p < .01$;

$^{***}p < .001$ (2-tailed test).

Table 4

Hypothesis 3: Latent Growth Curve Estimates of the Effects of Childhood Adversity, Relationship Strain, and Relationship Support on Adulthood Health Status (N = 3,477)

	Health Status					
	Model 1		Model 2 (Childhood adversity)		Model 3 (Controls for SES)	
Variables	**Intercept**	**Slope**	**Intercept**	**Slope**	**Intercept**	**Slope**
Female	−0.279* (0.105)	−0.005 (0.008)	−0.228* (0.105)	−0.005 (0.008)	−0.101 (0.101)	−0.004 (0.008)
Black	−0.391** (0.145)	−0.008 (0.009)	−0.331* (0.144)	−0.008 (0.009)	0.133 (0.141)	−0.011 (0.009)
Female*black	−0.431* (0.176)	—	−0.500** (0.175)	—	−0.425* (0.167)	—
Childhood Adversity	—	—	−0.262*** (0.042)	−0.002 (0.003)	−0.206*** (0.042)	−0.002 (0.004)
Mean	18.239*** (0.150)	−0.064*** (0.013)	18.545*** (0.157)	−0.062*** (0.014)	15.016*** (0.277)	−0.046 (0.027)
Variance	4.944*** (0.160)	0.015*** (0.002)	4.861*** (0.159)	0.015*** (0.002)	4.353*** (0.147)	0.015*** (0.002)
Model fit index	CFI=.996, RMSEA=.023		CFI=.996, RMSEA=.021		CFI=.996, RMSEA=.017	

	Model 4 (Relationship stress)		Model 5 (Relationship support)		Model 6 (Adult stress burden)		Model 7 (Relationship stress and support, and adult stress burden)	
Variables	**Intercept**	**Slope**	**Intercept**	**Slope**	**Intercept**	**Slope**	**Intercept**	**Slope**
Female	−0.116 (0.100)	−0.004 (0.008)	−0.142 (0.101)	−0.005 (0.008)	−0.072 (0.100)	−0.005 (0.008)	−0.104 (0.100)	−0.005 (0.008)
Black	0.187 (0.140)	−0.011 (0.009)	0.127 (0.140)	−0.011 (0.009)	0.211 (0.139)	−0.012 (0.009)	0.237 (0.138)	−0.012 (0.009)
Female*black	−0.465** (0.165)	—	−0.409* (0.180)	—	−0.435** (0.165)	—	−0.456** (0.163)	—
Childhood Adversity	−0.178*** (0.042)	−0.002 (0.004)	−0.187*** (0.042)	−0.002 (0.004)	−0.175*** (0.041)	−0.002 (0.004)	−0.152*** (0.041)	−0.002 (0.004)
Adult relationship strain (W1)	−0.508*** (0.072)	−0.004 (0.007)	—	—	—	—	−0.372*** (0.076)	−0.002 (0.008)
Adult relationship support (W1)	—	—	0.256*** (0.061)	0.007 (0.006)	—	—	0.096 (0.063)	0.007 (0.007)
Adult stress burden					−0.428*** (0.052)	0.003 (0.005)	−0.381*** (0.053)	0.003 (0.005)
Mean								
Variance	15.705*** (0.289)	−0.044 (0.029)	14.330*** (0.340)	−0.072 (0.034)	15.594*** (0.283)	−0.051 (0.028)	15.613*** (0.380)	−0.067 (0.039)
Model Fit Index	CFI=.997, RMSEA=.015		CFI=.997, RMSEA=.016		CFI=.996, RMSEA=.017		CFI=.997, RMSEA=.014	

Notes: Models 1 and 2 control for age. Models 3-6 control for age, income, education, and marital status. Flags for number of missing relationships are controlled when adult strain or support is included in the model. Unstandardized coefficients. Standard errors in parentheses. CFI, Comparative Fit Index; RMSEA, Root Mean Square Error of Approximation; SES, socioeconomic status; W1, wave 1.

* $p < .05$;

** $p < .01$;

*** $p < .001$ (2-tailed test).