

JOURNAL *of* HEALTH *and* SOCIAL 3 BEHAVIOR

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The American Sociological Association acknowledges with appreciation the facilities and assistance provided by Indiana University.

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ERRATUM

Rita Jing-Ann Chou and Stephanie A. Robert. 2008. "Workplace Support, Role Overload, and Job Satisfaction of Direct Care Workers in Assisted Living." *Journal of Health and Social Behavior* 49: 208–222.

The authors mistakenly wrote on page 213 that "Gender, marital status, and hourly pay were not used as control variables since they were found to be unrelated to job satisfaction in subsequent multivariate models." Instead, the sentence should have been: "Gender, marital status, and hourly pay were not used as control variables since they were found to be unrelated to job satisfaction in preliminary analyses."

The Times They Are a Changin': Marital Status and Health Differentials from 1972 to 2003*

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Journal of Health and Social Behavior 2008, Vol 49 (September): 239–253

Although the meanings and rates of being married, divorced, separated, never-married, and widowed have changed significantly over the past several decades, we know very little about historical trends in the relationship between marital status and health. Our analysis of pooled data from the National Health Interview Survey from 1972 to 2003 shows that the self-rated health of the never-married has improved over the past three decades. Moreover, the gap between the married and the never married has steadily converged over time for men but not for women. In contrast, the self-rated health of the widowed, divorced, and separated worsened over time relative to the married, and the adverse effects of marital dissolution have increased more for women than for men. Our findings highlight the importance of social change in shaping the impact of marital status on self-reported health and challenge long-held assumptions about gender, marital status, and health.

Politicians and scholars emphasize that marriage benefits health and empirical evidence supports the view that the married are healthier than the unmarried (Waite and Gallagher 2000). While a significant body of work establishes the link between marital status and health, previous studies do not consider historical trends in this association. Moreover, past studies often combine the divorced, separated,

widowed, and never-married into one “unmarried” category, and there are both empirical and theoretical reasons to make distinctions among these unmarried groups.

Several factors may contribute to changing patterns in the link between marital status and health. The sociodemographic composition of marital status groups (e.g., socioeconomic status, gender, and race) has changed over time, and these variables are also associated with health. Moreover, the past several decades have witnessed rapid change in the predominant family structures and norms in the United States, and these changes may alter the link between marital status and health. The main objective of the present study is to describe whether and how the association between marital status and health has changed over the past three decades. Documenting these historical trends is an essential first step toward understanding change in the relationship between marital status and health over time. Given long-standing observations about gender and race

* We thank Robert A. Hummer, R. Kelly Raley, Catherine E. Ross, and John Mirowsky for their helpful comments and advice. We are grateful for suggestions from Peggy Thoits, Eliza Pavalko, and the anonymous reviewers of this manuscript. This research was supported by grant RO1AG026613 (Principal Investigator, Debra Umberson) from the National Institute on Aging. An earlier version of this paper was presented at the annual meeting of the Population Association of America, 2006. Address correspondence to Hui Liu, Department of Sociology, 316 Berkey Hall, Michigan State University, East Lansing, MI 48824-1111 (e-mail: hui.liu@prc.utexas.edu).

differences in family and health processes, our second objective is to consider gender and race variation in marital status/health trends. Third, we consider whether health trends by marital status can be attributed to change in family income, often viewed as an explanatory mechanism linking marital status to health.

This study is particularly important for political and scholarly debates about marriage. While some scholars argue that marriage should be encouraged because it is beneficial to health and well-being (Waite and Gallagher 2000), other scholars argue that marriage is not as strongly linked to individual well-being as it was in the past and that alternatives to marriage (e.g., cohabitation, same-sex unions) provide individuals with the same benefits that are provided by marriage (Musick and Bumpass 2006). An analysis of trends in marital status and health over time can shed light on the nature of marital status and health linkages and has important implications for public policy and population health.

BACKGROUND

Most of the recent research on historical trends in health differences by marital status is based on European mortality data (e.g., Martikainen et al. 2005; Van Poppel and Joung 2001), with one study including U.S. data (Hu and Goldman 1990). These studies generally conclude that the excess mortality of the unmarried (never-married, widowed, and divorced) relative to the married has increased over time and that this occurs primarily because of a more pronounced improvement among the married, rather than a worsening situation for the unmarried (Van Poppel and Joung 2001). Mortality improvement among the married may result from cumulative benefits associated with longer marital durations than in the past or stronger selection processes associated with the transition to marriage (Van Poppel and Joung 2001).

While a number of studies have considered historical trends in marital status and mortality, researchers have devoted little attention to historical trends in the link between marital status and *physical health* over time. Linda Waite (2000) conducted the only study we were able to identify that considers marital status trends in self-rated health status over historical time in the United States. Comparing the married to the previously-married and the never-married, she reports a stable rather than chang-

ing marital benefit for self-rated health over the 1972 to 1996 period. Waite (2000) found marginally significant ($p = .076$) evidence for a shrinking health difference between married and never-married men over time, but the change was not evident among women. She classified all of the previously-married categories into one unmarried group without distinguishing among the divorced, separated, and widowed. Yet one would expect health differences across these marital status groups as well as varying patterns of change in those differences over time.

Most research on historical trends in marital status and mortality works from a demographic perspective and analyzes vital statistics. However, most research on marital status and self-rated health works from a social-psychological perspective, relies on panel data, and looks at individual change over shorter periods of time in the life course, particularly as individuals make transitions from one marital status to another. These two literatures are generally consistent with one another in that the married appear to be better off in terms of self-rated health and mortality. However, neither of these literatures informs us about historical trends in the link between marital status and self-rated health.

Change in Family Structures and Norms: Implications for Marital Status and Health Trends

During the past half century, the United States has experienced tremendous change in marriage. Median age at first marriage increased, the proportion of never-married (especially for African Americans) increased, and cohabitation and marital dissolution rose dramatically (Teachman, Tedrow, and Crowder 2000). Some family scholars argue that these changes provide evidence that marriage has become less popular and less valued among Americans (Thornton 1989). Happiness associated with marriage seems to have waned from 1972 to 1986 (Glenn and Weaver 1988), suggesting that the benefits of marriage may have lessened over time. As the proportion of individuals who divorce and never marry increases, these statuses also become more normative and less stigmatized (Thornton 1989). As a result, these statuses may be less stressful and more rewarding than in the past and in relation to being married. Research on the links between marriage and health provides a foun-

dition for predicting the specific direction of change in marital status and health that one might expect to see over time.

Why the Married are Healthier—Predicting the Direction of Change

A substantial literature establishes an empirical relationship between marital status and self-rated health and focuses on identifying and understanding key reasons for the association between marital status and health (Waite and Gallagher 2000). Although some studies emphasize the possibility of selection effects, suggesting that individuals in better health or with more favorable health characteristics are more likely to get and stay married (Joung et al. 1998), most researchers emphasize one of two models to explain why marital status has a causal effect on health: the marital resource model and the marital dissolution/stress model.

The marital resource model. According to the marital resource model, marriage provides social, psychological, and economic resources that in turn promote physical health and longevity (Ross, Mirowsky, and Goldstein 1990). Linda Waite (Waite and Gallagher 2000) argues that marriage offers unique institutional, economic, and psychosocial benefits that cannot be obtained from other types of relationships (such as cohabitation). Yet some indirect evidence suggests that access to these resources has changed over time for the married as well as the unmarried.

Many scholars point to economic benefits as a key reason for better health among the married. Gary Becker (1981) argues that marriage leads to an increase in economic resources through specialization, economies of scale, and the pooling of wealth. Economic resources may enhance health by improving nutrition, providing care in the event of illness, allowing the purchase of medical care or other health enhancing resources, and increasing the probability of access to health insurance (Ross et al. 1990).

Becker's (1981) influential work attributes recent declines in the propensity to get and stay married to a decline in the economic benefits of marriage. He contends that, as the division of household labor decreases with increases in women's education and employment, specialization between the husband and wife declines and economic gains from marriage diminish. In turn, marriage becomes less valued as a

source of economic stability (Teachman et al. 2000) and individuals are less inclined to get and stay married. If the economic resources associated with marriage have declined over time, then any positive effects of marriage on health should decrease over time. While Becker's arguments are widely cited and supported from cross-sectional aggregate-level evidence, longitudinal analysis of individual-level data fails to support his hypothesis (see a review in Oppenheimer 1997).

Marriage may benefit health by increasing access to social support and social control and enhancing a sense of personal control (Ross et al. 1990). Social support is defined as "the commitment, caring, advice and aid provided in personal relationships" (Ross et al. 1990:1062). In turn, social support from marriage may benefit mental health, and mental health is positively correlated with physical health (Bloom 1990). Social control refers to the deliberate efforts of others to control one's health and health behaviors (Umberson 1987). Personal control refers to the sense that one has mastery over his or her social environment and can influence personal outcomes, including health (Mirowsky and Ross 2003). Marriage is associated with higher levels of social support, social control, and personal control, and all of these resources are positively associated with health (Umberson 1987).

Empirical evidence on change in social and psychological resources (e.g., social support) is not as well documented as change in economic gains from marriage, but some indirect evidence is suggestive. For example, increasing labor force participation of women over time may mean that partners, especially wives, have less time and energy to provide these resources to one another (Bianchi et al. 2000). At the same time, alternatives to marriage such as cohabitation, committed same-sex relationships, and a larger population of unmarried persons (providing a larger pool of potential friends) may all contribute to greater access to social resources for the unmarried (Musick and Bumpass 2006). These trends suggest the possibility of a closing gap in health between the married and the unmarried.

On the other hand, in the context of increasing geographic mobility, marriage may have become more important as a source of support and of network connection (McPherson, Smith-Lovin, and Brashears 2006). In this sense, marriage could have become even more

important for health over time, leading to an increasing gap between the health of the married and the unmarried. This could help explain findings from mortality studies showing that mortality rates of the married, relative to the unmarried, have actually declined over time.

The stress model. The stress model (also referred to as the “crisis” model) focuses more on the event of marital dissolution rather than on marital status per se. The crisis model suggests that the strains of marital dissolution undermine the health of the divorced, the separated, and the widowed, which in turn leads to marital status differences in health (Williams and Umberson 2004). In this view, the stress of marital dissolution rather than marriage, per se, is responsible for the health gap between the married and the unmarried. However, divorce and separation have become more acceptable over time (Thornton 1989) and this may have reduced the stress of divorce and may be reflected in the improved health status of the divorced relative to the married. These aspects of the stress model suggest that the health gap between the married and previously-married would decrease over time. Moreover, the never-married are relatively immune to any apparent disadvantage associated with the stress of marital dissolution. A stress model, then, suggests that the gap between the married and the never-married will be smaller than the gap between the married and the previously-married throughout the study period.

In sum, a long sociological tradition contends that marriage benefits health, and recent research on mortality and marriage (e.g., Martikainen et al. 2005) suggests a “divergence” hypothesis—that the marital advantage in health has increased over time. Other recent work suggests that the marital advantage in health should at least be sustained over time (Waite 2000). In contrast, recent research on the stress of marital dissolution (e.g., Williams 2003) and many of the sociodemographic trends reviewed above (e.g., rising divorce and never-married rates, a possible decline in economic benefits from marriage) point to a “convergence” hypothesis: that is, health differentials between the married and other marital groups have narrowed since the early 1970s. We test these competing hypotheses with national data collected over the past three decades in the United States. Our primary goal is to document the nature of historical trends in the association of marital status with health. It is

beyond the scope of the present paper (and our data) to test a full range of explanations for change in the marital status/health association over time. However, we do analyze family income—the mechanism that is most often cited as an explanation for the marital advantage in health.

Gender and Race Variation

A long-standing sociological tenet is that marriage enhances the health of men more than women and the adverse effects of marital dissolution on health are greater for men (Williams and Umberson 2004). Moreover, marriage may benefit health in different ways depending on gender. Compared to men, women tend to obtain more economic resources from marriage. In contrast, marriage tends to provide men with more social support and social control of health behavior (Ross et al. 1990). If economic resources associated with marriage play a more important role in accounting for the marital advantage in health for women (Lillard and Waite 1995), an historic decline in economic benefits from marriage may reduce the marital advantage in health for women more than for men. Furthermore, norms and attitudes about non-married statuses have changed more over time for women than for men because of women’s greater improvement in social and financial status (Thornton 1989). Taken together, research literature leads us to hypothesize that, compared to men, women are more likely to experience a convergence in health by marital status over time.

Marriage patterns and experiences also differ for African Americans and whites. African American status is associated with a higher risk of marital dissolution (Raley and Bumpass 2003) as well as lower marriage rates in general (Oppenheimer 1997), and these patterns have become stronger over time (Raley and Bumpass 2003). Among whites, declines in marriage rates largely represent delays in marriage, whereas, among African Americans, declines reflect both delays and decreased probability of ever marrying (Oppenheimer 1997). Indeed, in terms of economic benefits, African American women gain significantly less from marriage than do white women (Farley 1988). African Americans also report higher levels of marital strain, which in turn reduces the benefits of marriage for health (Umberson et al. 2005). The more common occurrence of di-

orce, separation, cohabiting, and never-married status among African Americans, compared to whites, also suggests that being unmarried may be more normative and socially accepted in African American communities (Bennet, Bloom, and Craig 1989). If this is the case, unmarried statuses may be less detrimental to health among African Americans compared to whites. We hypothesize, then, that health differentials by marital status are more likely to narrow among African Americans than whites over the 1972 to 2003 period.

DATA, MEASURES, AND ANALYTIC APPROACH

Data

We use repeated cross-sectional data from the National Health Interview Survey (NHIS) from 1972 to 2003 to analyze historical trends in marital status differentials in health. The NHIS is a multistage probability survey conducted annually by the National Center for Health Statistics and is representative of the civilian noninstitutionalized population of the United States (U.S. Department of Health and Human Services, National Center for Health Statistics 2000). All analyses presented here are weighted to adjust for the multistage sampling design, and robust standard errors are used for tests of significance.

In this study, we include only those who are non-Hispanic white or African American and between the ages of 25 and 80 when the surveys were conducted. In total, we eliminated 242,985 Hispanics and 93,800 participants identified in other race-ethnicity groups from the sample because of their tremendous heterogeneity and because of limited information on within-group differences in the earlier years of the NHIS. The National Health Interview Survey collects health information for all family members, but information on each family member is reported by one primary respondent. Due to concerns about validity and reliability of proxy reports on health status, our analyses are limited to the primary respondents' reports on their own health status, and no couples are included in the sample. We exclude cohabiting respondents from the analysis (.7% of the sample) because the NHIS did not collect information on cohabiting status prior to 1997. We conducted sensitivity tests for cohabitation cases and found that including cohabitators in the married category does not modify results. In addition, including cohabitators as

a separate group results in no change in the results for other marital status groups and reveals a similar level and change in self-rated health for cohabitators and the married over time. Individuals with missing data on health or marital status were dropped from the analysis (about 1% of the sample). In total, 1,119,266 observations are included in the analysis.

Measures

Health. Self-rated health is the primary outcome variable in our analyses. Between 1972 and 1981, response options for self-rated health included four categories: (1) excellent, (2) good, (3) fair, and (4) poor. Between 1982 and 2003, response options included five categories: (1) excellent, (2) very good, (3) good, (4) fair, and (5) poor. For the 1982–2003 data, we combine “very good” and “excellent” into one category so that response categories are comparable to those used between 1972 and 1981. Final statistical models include a dummy variable to indicate whether self-rated health was recoded from the five- to the four-category response format (1 = recoded; 0 = not recoded). Self-rated health is reverse coded so that higher values represent better health. The reliability and validity of the self-rated health measure is well-established (Idler and Benyamini 1997).

Marital status. Our measure of marital status is based on the survey question, “Are you now married, widowed, divorced, separated or never-married?” We consider five categories of marital status: married, widowed, divorced, separated, and never-married, with the married as the reference group in regression models.

Period time. Time is indicated by a variable identifying the survey year from 1972 (coded as 0) to 2003 (coded as 31).

Other sociodemographic covariates. We also include measures of gender (female = 1, male = 0), race (non-Hispanic African American = 1, non-Hispanic white = 0), age (centered at mean age of 48), education (no high school diploma, high school graduate, some college, and college graduate, with the last category as the reference) and interaction terms between age and marital status. About 1 percent of observations have missing information on education, and for those cases we substituted the mean value of education for the given survey year. In the remainder of the article we refer to non-Hispanic whites as “whites” and to non-

Hispanic African Americans as “African Americans.”

Family income. Because of the endogenous relationship between income and marital status (Becker 1981), we add family income into the analyses in order to examine if and how changes in economic resources mediate the pattern of change in health differences by marital status over time. The NHIS measure of family income is not consistent across survey year in that both the cut points and the total number of categories were modified over time. We use the midpoint of each income category and then convert it into 2003 U.S. dollars using the consumer price index as a standard. The median family income in the total sample is \$40,422 based on the 2003 U.S. dollar. We then use the logarithmic transformation of family income to address the skewed distribution. Table 1 presents summary statistics for other variables in the analysis.

Analytic Design

We use ordered logistic regression models to estimate trends in self-rated health by marital status. The model is specified in the following way:

$$\log \frac{P(y \geq k \mid X_p, M_p, T)}{P(y < k \mid X_p, M_p, T)} = \tau_k + \alpha T + \sum \beta_j M_j + \sum \gamma_j M_j T + \sum \pi_i X_i$$

where y represents the self-rated health status; k represents the category of health status; τ_k represents the intercept corresponding to the k th health category; T is the period time variable and α is the coefficient; M_j represents the set of marital status dummy variables and β_j represents the corresponding coefficients (“married” is the reference group); γ_j represents the corresponding coefficients for the set of interaction terms between marital status and time; and X_i stands for the other covariates included in the model and π_i for the corresponding coefficients. The γ_j term is of the most interest for this study, as it reflects trends in health differences by marital status.

We estimate two models. In the first model, we examine health trends by marital status, controlling only the basic sociodemographic covariates (i.e., age, gender, race, education, and age \times marital status interaction terms). Results from model 1 reflect the overall trend

in the association between marital status and health. We add family income in the second model to see how income may modify health trends by marital status. A reduction in significance levels from model 1 to model 2 would suggest that family income plays a role in explaining trends in marital status and health. In both models, we include a dummy variable indicating the 1982 NHIS change in self-rated health categories. We run parallel regressions for women, men, African Americans, and whites to determine if trends differ on the basis of gender and race. We conducted two-tailed t -tests to consider whether the differences in trends between subgroups are statistically significant.

RESULTS

Estimated Trends for Total Sample

Tables 2 through 4 show the regression coefficients for trends in self-rated health by marital status from the ordered logistic regression models. For interpretation, the odds ratios can be derived from the reported coefficients by exponentiation. Table 2 shows self-rated health trends by marital status for the total sample over the 1972 to 2003 period. Tables 3 and 4 indicate that there is significant gender and race variation in trends; we will discuss those in a later section. The first set of covariates in

TABLE 1. Weighted Percentages for Variables Analyzed (Pooled NHIS 1972–2003), $N = 1,119,266$

<i>Marital status</i>	
Married	67.18
Widowed	10.58
Divorced	9.31
Separated	3.04
Never married	9.89
<i>Health status</i>	
Excellent	48.12
Good	34.87
Fair	12.61
Poor	4.40
<i>Gender</i>	
Women	64.83
Men	35.17
<i>Race</i>	
African Americans	11.11
Whites	88.89
<i>Education</i>	
No high school diploma	29.11
High school graduate	36.53
Some college	17.14
College graduate	17.22

Tables 2–4 (i.e., year × marital status) are of the greatest interest for this study because they reflect trends in self-rated health by marital status. The main effect of year indicates the trend for the married. For example, the coefficient of .003 for year in model 1 of Table 2 can be interpreted as follows: The odds of reporting excellent/good health (hereafter “good health”) increased .30 percent (i.e., $[\exp(.003) - 1] \times 100$) each year for the married. The interaction terms of year with other marital statuses represent the differences in self-rated health trends between each specific marital group and the married. For example, the coefficient of $-.023$ for year × widowed in model 1 of Table 2 indicates that the odds of reporting good health decreases 2.27 percent (i.e., $[1 - \exp(-.023)] \times 100$) more for the widowed than for the married each year. The main effects of the marital status variables in Tables 2–4 reflect the baseline level (i.e., in 1972) of the health difference between specific marital groups and the married. Other covariates can be interpreted in the

same way that coefficients in conventional ordered logistic regression models are interpreted. Exponentiation of the values for intercept 1–3 represents odds of reporting different levels of health status for the reference group.

Estimated effects of all of the covariates are in the expected direction. Specifically, the odds of reporting good health decline with age, and they are smaller for African Americans and women compared to whites and men. In comparison to college graduates, each of the lower education groups exhibits lower odds of reporting good health.

Table 2 shows the estimated trends in self-rated health differences by marital status for the total sample over the 1972 to 2003 period, net of the effects of age, age × marital status, gender, race, and education. We calculate the probability of reporting good health based on the results in Table 2, and we illustrate the overall pattern of these results in Figure 1. These results indicate that, over the 1972 to 2003 period, the probability of reporting good health increased modestly among the married while it increased at a fairly rapid rate among the never-married, leading to a narrowing gap in self-rated health between the never-married and married over time.

In contrast, over the past three decades, the probability of reporting good health declined among the divorced, separated, and, especially, the widowed. Therefore, the self-rated health difference between the married and the widowed/divorced/separated widened over the 1972 to 2003 period. The gap in self-rated health between the married and formerly-married increased most for the widowed. Net of sociodemographic characteristics, the widowed and the married reported similar levels of health in the early 1970s, but as the years passed, the self-rated health of the widowed decreased more rapidly than for any other marital status group.

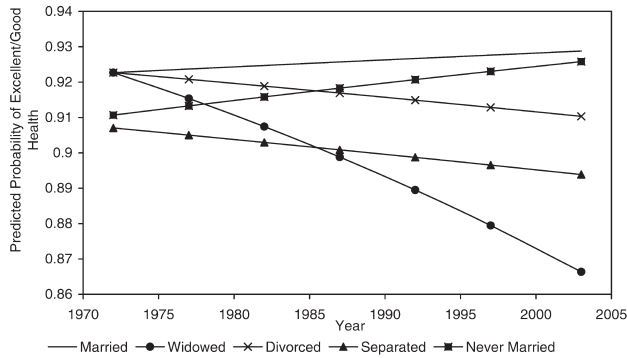
We add family income as an additional covariate in model 2 of Table 2 to see if and how family income contributes to trends in self-rated health between marital status groups. A comparison of models 1 and 2 shows that controlling for family income results in little change in self-rated health trends by marital status. These results suggest that marital status differences in family income do not explain either the convergence between the married and never-married or the divergence between the

TABLE 2. Regression Coefficients for Trends in Self-Rated Health by Marital Status from Ordered Logistic Regression Models, 1972–2003

	Model 1	Model 2
<i>Year × marital status (0 = married)</i>		
Year	.003***	.009***
Year × widowed	-.023***	-.028***
Year × divorced	-.008***	-.012***
Year × separated	-.008***	-.010***
Year × never married	.004***	.002*
<i>Marital status (0 = married)</i>		
Widowed	-.013	.250***
Divorced	-.026	.269***
Separated	-.202***	.110***
Never married	-.158**	.138***
<i>Basic demographic variables</i>		
Age	-.029***	-.026***
Age × widowed	.023***	.025***
Age × divorced	.004***	.003***
Age × separated	.002	-.001
Age × never married	.008***	.005***
Women	-.041***	-.009
African American	-.576***	-.476***
<i>Education (0 = college graduate)</i>		
No high school diploma	-1.514***	-1.224***
High school graduate	-.779***	-.636***
Some college	-.429***	-.348***
Health measure recoded (0 = no)	.555***	.497***
Log of family income		.474***
Intercept 1	-4.077	1.131
Intercept 2	-2.480	2.759
Intercept 3	-.572	4.705
Pseudo R ²	.081	.091
N	1119266	

Two-tailed tests: *** $p < .001$; ** $p < .01$; * $p < .05$.

FIGURE 1. Estimated Trends in Self-Rated Health by Marital Status, 1972–2003



married and each of the formerly-married groups over time.

Gender and Race Variation

Tables 3 and 4 present the estimated trends in self-rated health differences by marital sta-

tus from the ordered logistic regression models for separate social groups. Results from two-tailed *t*-tests for group differences are presented in each table.

Gender. Table 3 shows the estimated trends in self-rated health from 1972 to 2003 by marital status separately for women and men.

TABLE 3. Regression Coefficients for Trends in Self-Rated Health by Marital Status and Gender from Ordered Logistic Regression Models, 1972–2003

	Model 1			Model 2		
	Women	Men	m≠w ^a	Women	Men	m≠w ^a
<i>Year × marital status (0 = married)</i>						
Year	.005***	-.001	†††	.012***	.004***	†††
Year × widowed	-.024***	-.019***	††	-.030***	-.023***	†††
Year × divorced	-.010***	-.005***	††	-.014***	-.006***	†††
Year × separated	-.008***	-.007**		-.011***	-.008***	
Year × never married	.000	.009***	†††	-.002	.008***	†††
<i>Marital status (0 = married)</i>						
Widowed	.016	-.092*	††	.295***	.060	†††
Divorced	.011	-.091***	†††	.339***	.128***	†††
Separated	-.255***	-.081*	†††	.083**	.158***	
Never married	-.052**	-.315***	†††	.249***	-.027	†††
<i>Basic demographic variables</i>						
Age	-.029***	-.030***	†††	-.026***	-.027***	††
Age × widowed	.023***	.021***		.025***	.026***	
Age × divorced	.007***	-.001	†††	.005***	.000	†††
Age × separated	.004**	-.006***	†††	.000	-.005**	†
Age × never married	.011***	.003***	†††	.008***	.001	†††
African American	-.695***	-.351***	†††	-.599***	-.251***	†††
<i>Education (0 = college graduate)</i>						
No high school diploma	-1.550***	-1.433***	†††	-1.261***	-1.137***	†††
High school graduate	-.770***	-.796***		-.623***	-.653***	†
Some college	-.409***	-.464***	†††	-.329***	-.377***	††
Health measure recorded (0 = no)	.538***	.586***	††	.478***	.534***	†††
<i>Log of family income</i>						
Intercept 1	-4.184	-3.838		.790	1.740	
Intercept 2	-2.475	-2.413		2.526	3.201	
Intercept 3	-.503	-.618		4.533	5.038	
Pseudo R ²	.080***	.083		.090	.096	
N	722695	396571		722695	396571	

Notes: Two-tailed tests: *** *p* < .001; ** *p* < .01; * *p* < .05.
 Two-tailed tests for group differences: ††† *p* < .001; †† *p* < .01; † *p* < .05.
^a “m≠w” indicates the tests for group differences between men and women.

Results from model 1 of Table 3 are illustrated in Figure 2 and show that the probability of reporting good health increases over historical time for married women while the probability remains stable for married men. Notably, the married remain more likely than any other marital status group to report good health for both men and women over the entire study period.

Never-married men and women became increasingly more likely to report good health over time. Furthermore, because the probability of reporting good health remains stable for married men, there is a trend toward convergence in self-rated health for married and never-married men over time. In contrast, the gap between married and never-married women remained stable from 1972 to 2003, suggesting that, contrary to our predictions, the difference in self-rated health between the married and never-married has narrowed for men *but not for women* over the past three decades.

Formerly-married men and women—the separated, divorced, and widowed—exhibit a decline in self-rated health over time relative to the married. Two-tailed *t*-tests show that divergence between the married and widowed/divorced is more pronounced for women than for men. Indeed, over the 32-year period, the gap between the separated and the divorced is always larger for women than for men, with separated women less likely than divorced women to report good health at any time point. This finding supports a stress model interpretation in that the process and dynamics of separation

may be more stressful and detrimental to health than divorce for women whereas, among men, it appears that separation and divorce are more similar in their association with self-rated health.

In model 2 of Table 3, we add family income as an additional covariate. This results in little change in the estimated trends for either women or men.

Race. Table 4 compares the estimated trends in self-rated health by marital status for whites and African Americans. Overall, African Americans are less likely than whites to report being in good health. However, over time, the probability of reporting good health was more likely to increase for African Americans relative to whites.¹

Trends in self-rated health by marital status follow very different patterns for African Americans compared to whites. The general pattern of race differences (from Table 4, model 1) can be seen in Figure 3, which shows the probability of reporting good health by race and marital status over time. Married African Americans exhibit a dramatic increase in the probability of reporting good health over the 32-year period, while improvement in self-rated health over time occurs at a much slower rate for married whites. The gap in self-rated health between married whites and married African Americans narrowed significantly over the thirty year period. This narrowing race gap in self-rated health is also seen for the never-married and the divorced/separated, but not for the widowed.

FIGURE 2. Estimated Trends in Self-Rated Health by Marital Status and Gender, 1972–2003

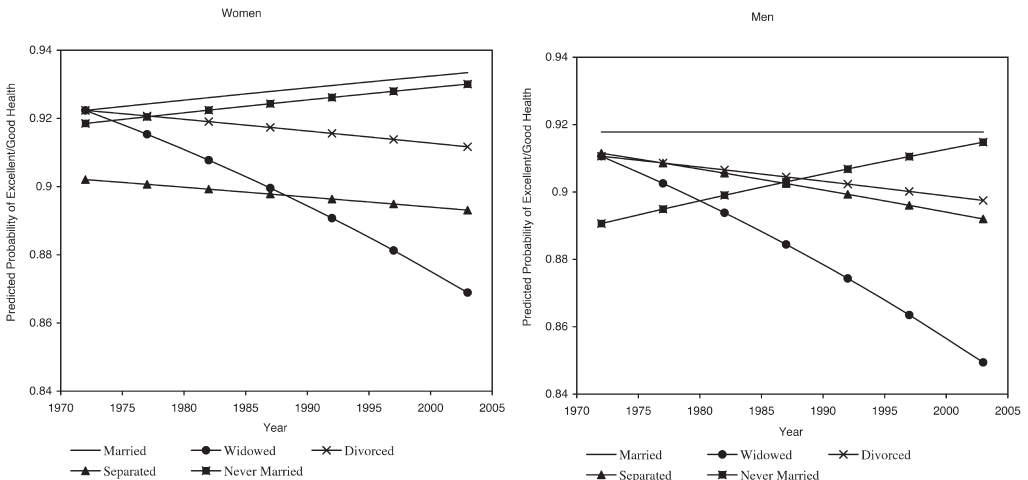


TABLE 4. Regression Coefficients for Trends in Self-Rated Health by Marital Status and Race from Ordered Logistic Regression Models, 1972–2003

	Model 1			Model 2		
	African American	White	w≠aa ^a	African American	White	w≠aa ^a
<i>Year × marital status (0 = married)</i>						
Year	.011***	.002**	†††	.014***	.008***	†††
Year × widowed	-.023***	-.022***		-.028***	-.027***	
Year × divorced	-.005**	-.008***		-.008***	-.012***	
Year × separated	-.004	-.009***		-.005*	-.011***	
Year × never married	.008***	.003**	†	.007***	.001	††
<i>Marital status (0 = married)</i>						
Widowed	-.030	.004		.206***	.266***	
Divorced	.003	-.028		.234***	.279***	
Separated	-.222***	-.186***		.022	.134***	
Never married	-.247***	-.149***	†	.004	.151***	†††
<i>Basic demographic variables</i>						
Age	-.033***	-.029***	†††	-.031***	-.026***	†††
Age × widowed	.028***	.022***	††	.030***	.024***	†
Age × divorced	.008***	.004***	††	.008***	.002**	†††
Age × separated	.004*	.001		.003	-.002	
Age × never married	.002	.009***	†††	.000	.006***	†††
Women	-.330***	-.002	†††	-.282***	.027***	†††
<i>Education (0 = college graduate)</i>						
No high school diploma	-1.358***	-1.542***	†††	-1.045***	-1.252***	†††
High school graduate	-.804***	-.784***		-.611***	-.644***	
Some college	-.447***	-.433***		-.335***	-.353***	
Health measure recoded (0 = no)	.333***	.587***	†††	.315***	.522***	†††
<i>Log of family income</i>						
Intercept 1	-3.534	-4.083		.690	1.302	
Intercept 2	-1.910	-2.488		2.343	2.926	
Intercept 3	-.182	-.551		4.101	4.903	
Pseudo R ²	.069	.078		.078	.088	
N	144044	975222		144044	975222	

Notes: Two-tailed tests: *** $p < .001$; ** $p < .01$; * $p < .05$.

Two-tailed tests for group differences: ††† $p < .001$; †† $p < .01$; † $p < .05$.

^a w≠aa indicates the tests for group differences between whites and African Americans.

Consistent with our hypothesis about race differences, Figure 3 also illustrates a strong convergence between the never-married and married in the probability of reporting good health for African Americans, but this trend is much less pronounced among whites. The two-tailed t -test (shown in model 1 of Table 4) shows that this race difference between the never-married and the married is statistically significant.

While the probability of reporting good health increased for divorced/separated African Americans over the 32-year period, it decreased for divorced/separated whites. For both African Americans and whites, the widowed became less likely to report good health over time. Furthermore, for both whites and African Americans, there is a widening gap in self-rated health between the married and widowed/divorced from 1972 to 2003. Two-tailed t -tests show that those race differences in changes in the self-rated health gap between

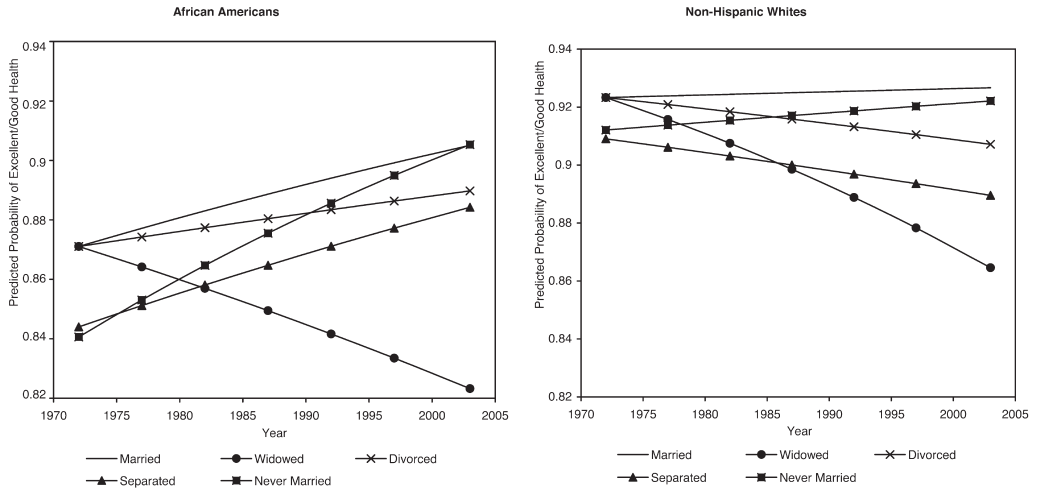
the married and each of the formerly-married are not statistically significant.

Results from model 2 of Table 4 show that the modest convergence between the never-married and married among whites is explained by change in family income. As shown in model 2 of Table 4, if never-married whites had the same family income as married whites, there would be a stable gap between never-married and married whites in self-rated health over time, but family income does not explain changing trends in the self-rated health gap of married and never-married African Americans.

DISCUSSION

In the context of rapid family change, one would expect change in the costs and benefits of marriage, yet the research literature reveals surprisingly little about how the association between marital status and health has changed over time. Our analysis, based on pooled data from the NHIS 1972–2003, shows that differ-

FIGURE 3. Estimated Trends in Self-Rated Health by Marital Status and Race, 1972–2003



ences in self-rated health by marital status have changed substantially over the past 32 years. These findings suggest that the relative advantage of the married over the never-married has decreased for men but not for women, while the relative advantage in self-rated health of the married over the formerly-married (the divorced, separated, and widowed) has increased.

Better health for the never-married. For each race and gender group examined, we find that the self-rated health of the never-married improved over the past three decades. Moreover, the gap between the married and the never-married has steadily converged over time for men but not for women, primarily because never-married men report better health over time. Our analysis further suggests that convergence in self-rated health between the never-married and married resulted, in part, from a relative decline in family income among the married compared to the never-married for whites but not for African Americans. In the NHIS sample, the ratio of median family income of married whites relative to never-married whites decreased from 1.47 in 1972 to 1.33 in 2003. This is consistent with the convergence hypothesis, which is partially based on an argument about a decline in the economic benefits from marriage.

One of the traditional explanations (resource model) for the benefits of marriage for health is that marriage enhances mental health, which then has positive effects on physical health (Waite 1995). Future research should examine whether improvement in the self-rated health

status of the never-married partly reflects improvement in the mental health of the never-married relative to the married (Glenn and Weaver 1988). We were unable to test this possibility with the NHIS data (no consistent measure of mental health in the NHIS from 1972 to 2003), but this is an important question for future research seeking to explain changing trends in marital status and health over time. Future research should also consider the influence of changes in the *social meaning* of the never-married status (perhaps more normative and less stigmatizing over time), more access to *social resources* (potential friends and support networks) of the never-married as the ranks of the never-married have grown, and changing *selection* processes for individuals who remain in the never-married status.

Worse health for the previously-married. The growing divergence in self-rated health between the married and formerly-married is primarily due to declines in self-rated health among the formerly-married, and this decline, especially among the widowed, is dramatic. Consistent with previous studies on mortality trends (e.g., Van Poppel and Joung 2001), we find that the widowed exhibit the most precipitous declines in self-rated health over the 1972 to 2003 study period. The widowed were about as likely as the married to report being in good health in 1972, but the widowed were about 7 percent less likely than the married to report being in good health in 2003. Although the sickest divorced and widowed individuals are least likely to remarry (Joung et al. 1998), re-

marriage rates declined from 1970 to 1990 (U.S. Census Bureau 1999), thus one would expect that selection of the least healthy individuals staying in divorce/widowhood (rather than remarrying) would have diminished over time. If this is the case, it is unlikely that selection of the least healthy divorced/widowed individuals away from remarriage would explain the historic decline in health for the divorced or widowed, although this selection process may be relevant in explaining the relative improvement in health for the remarried. One possibility is that the widowed who are in poor health, with serious chronic conditions and disabilities, are living longer than ever before, and that this is a type of selection effect. Even if this is the case, it may be that the stress of widowhood leads to greater health problems (then sustained over time) for the widowed relative to their married peers.

Recent research (Williams and Umberson 2004) suggests that the stress associated with the transition out of marriage is primarily responsible for health declines among the formerly-married, but it is not clear why marital dissolution (reflected in marital status in the present study rather than as a transition event) would be more detrimental to self-rated health (that is, more of a stressor) now than in the past. The growing gap in self-reported health of the married and the formerly-married is unexpected, based on predictions from the stress model. Identifying the reasons for the growing gap between the formerly-married and the married is a research agenda that should be actively pursued because the implications for population health are potentially serious. Self-reported health is associated with morbidity, disability, and mortality, and the present findings suggest growing disparities between the married and the formerly-married, especially for the widowed and for women.

Gender

We find three noteworthy gender differences in marital status/health trends that challenge some long-held assumptions about gender and the benefits of marriage for health. First, our findings suggest that the self-rated health of the married remained stable for men from 1972 to 2003 while it appears to have improved for women. Second, while the apparent advantage of the married over the never-married remained stable for women over time, this advantage diminished for men. Third, the grow-

ing gap between the married and previously-married in self-reports of health is even more pronounced for women than men.

Since the early 1970s, sociologists have emphasized that marriage benefits the health of men more than women and that marital dissolution undermines the health of men more than women (Bernard 1972). We do not find that men benefit more from marriage than do women over time. We did find a wide gap between married and never-married men on self-reported health in the 1970s. However, this gap narrowed greatly over time, primarily because of improvements in self-rated health among never-married men—with relative stability in self-reports of health among married men. On the other hand, we find improvements in self-reported health among married and never-married women over the past 32 years, with a stable gap between the two groups. Moreover, although marital dissolution appears to be more strongly associated with lower self-reported health for men than women in the 1970s, this gender difference has diminished over time. A similar conclusion is reached in research showing that marriage benefits *mental* health equally for men and women in recent data sets (Williams 2003).

Family scholars argue that women benefit more from the material well-being offered by marriage whereas men benefit more from the social and emotional support and health regulation offered by marriage (Waite 1995). Future research should consider the possibility that never-married men have greater access to social resources and support that were, in the past, found primarily in a spouse, or that previously-married women may have experienced a greater decline in material well-being other than family income (e.g., wealth, health insurance). Indeed, the economic cost of marital dissolution for women has not lessened in spite of increased opportunities for women outside of marriage (Smock 1993).

Race

Among African Americans, all marital status groups except for the widowed are more likely to report being in good health over time. Our results show that improvements in self-rated health among African Americans largely reflect general advances in health among African Americans in the United States over the past few decades, even though overall levels of self-rated health remain lower for African

Americans than for whites. The most noteworthy race difference in marital status/health patterns is that the convergence in self-rated health of the never-married and married over time is much more dramatic for African Americans than for whites. Moreover, a relative decline in family income of the married explains the modest convergence in self-rated health between the married and never-married for whites but not for African Americans.

Limitations

The repeated cross-sectional data that we use in this study are a valuable resource for analyzing historical trends in the association between marital status and health. These data include substantial numbers of individuals in each marital status and cover a 32-year period. However, these data are limited in important ways, particularly in the absence of measures that would allow us to test a range of mechanisms that might help to explain the historical trends that we identify. We were able to empirically explore only one of the potential explanations—economic resources—for changing trends in the association of marital status and health. While economic resources are probably the most frequently cited factor to explain the benefits of marriage for health, we did not find evidence that economic resources, at least as measured in family income, provide much in the way of explanation for changing marital status and health trends. We caution, however, that the measure of income in the NHIS is limited in important ways due to substantial coding changes (e.g., cut points and the total number of categories) from 1972 to 2003; and that future research should further explore the role of economic resources in explaining marital status and health trends. Moreover, future research should use other data sets that include measures of socialpsychological factors such as social support, mental health, marital quality, and marital status duration to assess the relative importance of other potential explanations for changing trends in the link between marital status and self-rated health over significant periods of time. Indeed, recent studies suggest that marriage has become more important as a source of support and network connection (McPherson et al. 2006).

Although we control for sociodemographic characteristics in the analysis, we cannot rule out the possibility that selection processes play a role in marital status/self-rated health trends.

In the context of rapid social change, the relative number of individuals selected into or out of marriage changes, suggesting that selection criteria may have changed over the past three decades, and this may partly explain some of the trends in health differences by marital status. In fact, given the high probability of divorce and the growing acceptance of divorce, those who get and remain married (or remarried) may be in better-quality marriages now than in the past. This intensified process of *selection into marriage* could be of relevance in explaining the improved health of the married, especially for African Americans and women.

Finally, the measure of self-rated health status may pose unique problems for an analysis of historical trends. Historical improvements in medical technology, public health campaigns, and personal knowledge about health may have led individuals to be better informed about their health status and, thus, provide more accurate reports of health over time. The standards for classifying oneself as in good or bad health may also have changed over time. Despite these limitations, self-rated health is a reliable and valid measure of health status (Idler and Benyamini 1997), and our study is valuable in informing us about changes in the relationships between marital status and self-rated health over time. In addition, it is unclear why historical change in self-assessments of health would vary systematically by marital status. We are now examining trends in mortality and activity limitations by marital status in an effort to broaden our assessment of historical change in marital status and a range of health outcomes.

CONCLUSION

Politicians and scholars continue to debate the value of marriage for Americans, with some going so far as to establish social programs and policies to encourage marriage among those social groups less inclined to marry, particularly the poor and minorities. Our findings highlight the complexity of this issue. We find that self-rated health of never-married men became increasingly similar to that of the married men over time, suggesting more minimal benefits of marriage for men's health now than ever before, at least relative to never marrying. In contrast, the self-rated health of the widowed, divorced, and separated worsened over time, relative to the married, indicating growing social disparities between the

married and the formerly-married, especially for women. It behooves scholars and politicians to consider the growing gap between the previously-married, especially the widowed, and the married in efforts to promote population health. Moreover, convergence in self-rated health between the never-married and married (especially for men) has important implications for current policies designed to encourage marriage. These policies are based, in part, on the assumption that marriage provides a "haven in a heartless world," a haven that protects health in our mobile society (Lasch 1977; Waite and Gallagher 2000). However, our results show that the self-rated health status of the never-married has improved for all race and gender groups examined, and it is more similar to the married for men now than ever before, which suggests that encouraging marriage in order to promote health may be misguided. In fact, getting married increases one's risk for eventual marital dissolution, and marital dissolution seems to be worse for self-rated health now than at any point in the past three decades.

NOTE

1. The more rapid improvement in self-rated health among African Americans compared to whites may have occurred because the probability of reporting good health was already high for whites at the beginning of the study period and there was not much room for improvement. This ceiling effect is especially likely among married whites.

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