

Sex Stratification and Health Lifestyle: Consequences for Men's and Women's Perceived Health

Catherine E. Ross

Ohio State University

Chloe E. Bird

New England Medical Center and Harvard University

A representative national sample of 2,031 adults aged 18 to 90 was interviewed by telephone in 1990. Results showed that men report better health than women, but that the gap closes with age. We argue that a gender difference in labor and lifestyles explains sex differences in perceived health across the life course: gender inequality in paid and unpaid work and the subjective experience of inequality disadvantage women, whereas lifestyle disadvantages men. Women are less likely to be employed, and are more likely to work part-time, have lower incomes and more economic hardship, and to do more unpaid domestic labor than men, all of which except domestic labor are associated with poor health. Domestic labor improves health, up to doing 60 percent of the housework. Women also have more distress and fewer subjective work rewards, both of which are associated with poor health. If women had the same levels of paid work, household income, economic hardship, work rewards, and distress as men, their health would equal that of men's and surpass it by age 59. Although we expected to find an overwhelming male disadvantage in lifestyle, we did not. Men are more likely than women to walk and to exercise strenuously, both of which are associated with good health. If women's labor and leisure-time physical activity equalled men's, women over the age of 54 would experience better health than men. Men's lifestyle disadvantage comes from their greater tendency to smoke and to be overweight, both of which are associated with poor health.

Men report better health than women, but the gap closes with age. What explains the pattern of sex differences in perceived health across the

life course? We expect that sex stratification in paid and unpaid work and the subjective experience of this inequality disadvantages women, while lifestyle disadvantages men. If women held the same positions as men in paid and unpaid work and experienced the same levels of subjective work rewards, personal control, and distress, would women's physical well-being equal

Reprinted from the *Journal of Health and Social Behavior*, vol. 35 (June 1994), pp. 161-78, by permission of the American Sociological Association.

or exceed men's over a larger part of the life course? Alternatively, if men had the same lifestyle as women, would men feel healthier at older ages?

Sociologists study stratification out of an interest in systematic differences in opportunities and quality of life. Although research on sex stratification typically focuses on work-related outcomes such as occupation and earnings, ultimately the impact of inequality extends beyond differences in jobs, earnings, prestige, and power, to the consequences of this inequality for individual well-being. If gender inequality leads to differences in health then it directly affects quality of life. The sex-based division of labor in paid and unpaid work divides men and women into positions with different risks and rewards. In particular, employment may offer economic benefits and the rewards of achieved status, including low levels of distress, subjectively rewarding work, and high personal control, all of which may affect physical well-being. Unpaid domestic labor, on the other hand, may provide the disadvantages of economically and psychologically unrewarded work. We argue that, compared to women, men's relation to the means of production—their paid and unpaid labor—improves their physical well-being.

In contrast, men's and women's relation to the means of consumption, or lifestyle, disadvantages men. Although labor provides a crucial basis for stratification, status groups may differ according to the means of consumption available to them; that is, according to lifestyle—what people eat, where they live, and what they wear. Their leisure time activities, appearance, and possessions are also important. Ironically, men's access to the goods and benefits that come with advantaged position may worsen health, if advantage is accompanied by cigarettes, cars, high-fat foods, and values and norms associated with smoking, weight, or passive leisure-time activities. We argue that the differences in men's and women's relation to two components of

class—labor and lifestyle—explain sex differences in health over the life course.

SEX DIFFERENCES IN HEALTH

Gender and Health over the Life Course

Sex differences in health are paradoxical: women report worse health than men, despite the fact that they live longer (Verbrugge 1985). Women experience more nonfatal illnesses of all kinds throughout life; men experience more life-threatening illnesses that develop with age. Even excluding reproductive conditions, women have more health problems than men (Waldron 1983). Women have more nonfatal chronic conditions (those lasting more than three months) such as varicose veins, hemorrhoids, constipation, gallbladder conditions, colitis, eczema, dermatitis, thyroid conditions, anemias, migraines, and arthritis. Women also have more acute conditions (those lasting less than three months), such as upper respiratory infections, gastroenteritis, and other short-term infectious diseases (Verbrugge 1985). Men's health advantage is smallest in later life when men begin to suffer from fatal conditions. Men have more life-threatening chronic diseases, including coronary heart disease, cancer, cerebrovascular disease, emphysema, cirrhosis of the liver, kidney disease, and atherosclerosis, all of which are leading causes of death (Verbrugge 1985). Of the fifteen leading causes of death, diabetes is the only one for which women's rates even approach men's. Men die about seven years earlier than women: In 1989, life expectancy for women was 78.6, compared to 71.8 for men (National Center for Health Statistics 1992).¹

National health statistics capture male health problems such as heart disease, cancer, and emphysema. Problems which women experience may be minor from a medical viewpoint, but they are not so in women's daily lives. Verbrugge calls this the "iceberg of morbidity": the visible tip of the iceberg is male, but the bulk of it is female (1985).

Implications for Measuring Health

As an indicator of the quality of people's lives, health may be best assessed by the subjective judgment of the individual. Self-assessed health combines the subjective experience of acute and chronic, fatal and nonfatal, disease; and general lack of well-being such as feeling run-down and tired, having backaches and headaches. Thus it is not biased toward inclusion of only "male" or "female" problems. It measures health as defined by the World Health Organization: a state of well-being, not simply the absence of disease. Perceived health is highly correlated with more objective measures such as physicians' assessments, and with measures of morbidity and mortality, and it predicts mortality over and above measures of chronic and acute disease, physician assessment made by clinical exam, physical disability, and health behaviors like smoking (Idler and Kasl 1991; Kaplan 1987; Romelsjo et al. 1992). Self-assessed health is a stronger predictor of mortality than is physician-assessed health (Mossey and Shapiro 1982; Maddox and Douglas 1973) and, unlike measures of health based on physician diagnosis, it is not biased by differential diagnosis of a problem based on the person's gender. We use the term health to mean self-reported, subjective, or perceived health.

EXPLAINING SEX DIFFERENCES IN HEALTH

We first examine the basic pattern of gender and perceived health across age groups. We expect that women report worse health than men, but that the gap closes with age. At what age, if any, does women's physical well-being approach or surpass men's? Next we ask, what explains age-related sex differences in health? Our explanations fall into two categories: 1. gender inequality in paid work and households, and the subjective experience of inequality, and 2. health lifestyle. Broadly speaking, we expect that the first disadvantages women, and the second disadvantages men.

Our explanations, if supported, potentially resolve the paradox of sex differences in health. The negative consequences for health of sex stratification manifest themselves over the adult life span. However, the negative consequences of health behaviors like smoking occur in later life, since most of the chronic diseases that ultimately kill take decades to develop. The disadvantaged statuses of women and the social stressors that stem from inequality worsen physical well-being—they produce acute illness and nonfatal chronic problems throughout life—but do *not* generate fatal disease, while the poorer health lifestyle of men produces life-threatening disease in later life.

Gender Inequality in Paid Work and Households

Men are more likely to engage in paid work than women, and employed men are more likely than women to work full-time. Men's incomes are higher and they experience less economic hardship than do women. In addition, men do less unpaid work at home. We expect that women's disadvantage in the division of paid labor and unpaid domestic labor negatively affects health.

Research indicates that employed women are physically healthier than nonemployed women, and participation in the labor force improves health over time. (Bird and Fremont 1991; Marcus, Seeman, and Telesky 1983; Nathanson 1980; Verbrugge 1983, 1989; Waldron and Jacobs 1988). Follow-up studies of mortality that show substantially lower death rates among employed women than housewives support a causal interpretation (Passannante and Nathanson 1985). When women began entering the labor force at a growing rate, many speculated that women's employment would have a negative impact on their health and that women were better off staying home and avoiding the risks of employment. According to the argument, employment would expose women to work accidents, hazards, and the stress generated by competition and respon-

sibility (Waldron 1983). Researchers discounted positive associations between employment and health as selection of healthier women into the labor force. Accumulating evidence indicates that, compared to not working for pay, employment improves health. Thus we expect that women's lower likelihood of employment negatively affects their health.

Among the employed, men and women are segregated into different kinds of work (Reskin and Hartmann 1986). Women's jobs command lower pay, offer fewer opportunities for advancement, and have lower returns to experience and authority (England et al. 1988). Women who are employed full-time earn two-thirds as much as men (U.S. Bureau of Labor Statistics 1988), an economic disadvantage that may affect health (Bird and Fremont 1991). In addition, women are more than twice as likely to work in part-time jobs (26% of women compared to 10% of men in the employed civilian labor force) (U.S. Bureau of Labor Statistics 1988), which are even more segregated than full-time work, offer less training, lower returns to experience, and fewer benefits (Holden and Hansen 1987). Part-time workers have worse health than full-time workers, but better than housewives (Herold and Waldron 1985).

Households and paid work are linked through household income and economic hardship. It is in the household that the larger social and economic order impinges on individuals, exposing them to varying degrees of hardship, frustration, and struggle. Women experience more economic hardship than men do, in part because they are less likely to be employed, are more likely to work part-time, and they earn less than men. Because unmarried women's earnings typically constitute the total family income, they are the group most likely to be poor (Bianchi and Spain 1986). Even in intact families, women experience more economic hardship than men (Ross and Huber 1985). Wives usually have responsibility for maintaining the budget, doing the shopping, making sure there is food on the table, taking the children to the doctor, and paying the bills

(Huber and Spitze 1983). The stress of trying to pay the bills and to feed and clothe the family on an inadequate income may take its toll in depression, anxiety, and susceptibility to disease (Pearlin et al. 1981; Ross and Huber 1985). Although we know of no research that examines the effect of economic hardship on health, we expect that women feel more economic hardship than men, which, in turn, worsens health.

Sex differences in earnings also affects the household division of labor. The lower an employed woman's earnings compared to her husband's, the more housework she does; women with no earnings do the most housework (Ross 1987). People who do housework describe it as monotonous, routine, isolating work, for which one receives little recognition and few rewards (Gove and Tudor 1973). According to this argument, it is exhausting work, done without pay, vacation, opportunity for advancement, or retirement (Bergmann 1986). Furthermore, lack of shared responsibility for housework produces a sense of inequity (Ross, Mirowsky, and Huber 1983). Few researchers have looked at the effect of housework on physical well-being, although Bird and Fremont find that the greater the number of hours spent in housework, the worse one's self-reported health (1991).

Distress, Sense of Control, and Work Rewards

Women's disadvantaged positions in paid work and households are one likely reason for their high levels of distress—especially depression and anxiety—compared to men (Mirowsky and Ross 1989). Women who are employed have lower levels of psychological distress than housewives, and the greater the responsibility for housework, the greater the distress (Gore and Mangione 1983; Gove 1984; Kessler and McRae 1982; Ross et al. 1983). Psychological distress, in turn, is associated with poor health (Gove and Hughes 1979). People who are depressed lack motivation and energy; they are less likely to quit smoking, to exercise, or to eat right, and

they are more likely to drink heavily (Aneshensel and Huba 1983). Thus distress has indirect effects on health, mediated by health behaviors. Distress also has direct physiological effects. For example, the fight or flight reaction triggered by anxiety can lead to ulcers and high blood pressure (Selye 1985). The helplessness of depression weakens the body's immune system, making it less able to fight off disease (Jemmott and Locke 1984). Consequently, psychological distress increases mortality (Somervell et al. 1989). We expect that elevated levels of psychological distress among women in part mediate the hypothesized link between sex and health (Gove and Hughes 1979).

We expect that men have a greater sense of control over their lives, due to their higher objective levels of control, opportunities, and rewards, and lower levels of dependency. Women are less likely than men to be paid for their work. Working for pay produces a cognitive connection between efforts and outcomes. Employment is associated with status, power, economic independence, and noneconomic rewards—for both men and women. In comparison, domestic work is done without economic rewards, and often without symbolic rewards, like recognition for a job well done (Bird and Ross 1993; Gove and Tudor 1973). Theoretically, the rewards associated with paid work and the cognitive connection between efforts and rewards increase the sense of control. Furthermore, among the employed, men's jobs confer more autonomy, flexibility, economic rewards, advancement opportunities, and nonrepetitive work than do women's jobs (Wolf and Fligstein 1979)—qualities that increase the sense of control (Kohn and Schooler 1982; Wheaton 1980). Early research based on samples containing large numbers of Hispanics and nonemployed women found a significantly lower sense of control among women (Mirowsky and Ross 1984), although more recent research does not (Ross and Mirowsky 1989). We expect that women have a lower sense of control than men, which,

in turn, affects health. People with a high sense of control know about their health, initiate preventive behaviors like quitting smoking, avoid dependence on doctors, and feel healthier than those with a low sense of control (Seeman and Seeman 1983).

We expect that men find their work more subjectively rewarding than do women, and that subjectively rewarding work is associated with good health. We know of no research that looks at subjective work rewards of the everyday labor done by men and women—both paid and unpaid. Among the employed, men report more intrinsic gratification from work and more work rewards than do women, although the health effects are small and inconsistent (Bokemeier and Lacy 1986; Hibbard and Pope 1987).

Health Lifestyle

Certain lifestyles reduce the risk of disease, even though lifestyles are not necessarily motivated by health concerns. We expect that women's lifestyles protect health; men's put their health at risk.

Of all the practices that affect health, smoking has the most consequences. Men are more likely to smoke than women, although the gap is closing (Waldron 1983; Wingard 1982; Verbrugge 1989). Smoking increases the risk of coronary heart disease, stroke, lung cancer, cancers at other sites (including esophagus, pancreas, bladder, larynx, and cervix), emphysema, pneumonia and other respiratory infections, aneurysms, bronchitis, atherosclerosis, liver disease, and burns; and it is associated with poor self-reported health (NCHS 1989; Rogers and Powell-Griner 1991; Segovia, Bartlett, and Edwards 1989; Surgeon General 1982). Heart disease, cancer, stroke, and emphysema alone account for approximately 65 percent of all deaths (NCHS 1992).

Other than smoking, fitness has the most health consequences. We examine three aspects of fitness: walking, strenuous exercise, and weight. (Walking, a moderate, non-aerobic exer-

cise, is the most common physical activity, reported by about 20% of Americans [U.S. Bureau of the Census 1985].) Exercise and relative weight are linked because one of the ways in which exercise affects health is by decreasing or maintaining weight. Like smoking, lack of physical activity and its consequences for weight affect many health outcomes.²

Few studies have examined sex differences in walking, but some evidence indicates that women walk more than men (Ross and Hayes 1988). Compared to the inactivity of a sedentary lifestyle, any physical activity, aerobic or not, reduces mortality (Berkman and Breslow 1983). Walking reduces cardiovascular risk, back pain, osteoporosis, obesity, high blood pressure, constipation, varicose veins, and adult onset diabetes, and improves subjective health (Duncan, Gordon, and Scott 1991; Magnus, Matroos, and Strackee 1979; U.S. Preventive Task Force 1989).

Recent evidence indicates that men are more likely to be overweight than women (Verbrugge 1989). This is especially true in the middle and higher social classes and among non-Hispanic Whites, where women are much less overweight than men (Ross and Mirowsky 1983). Women's concern with their weight may be part of the reason they stay thinner than men. Women are more concerned with their appearance, are more likely to eat foods low in calories and fat, are more likely to eat fruits and vegetables, and are more likely to go on a diet than men (Hayes and Ross 1987). Being overweight is associated with poor perceived health, overall mortality, coronary heart disease, adult onset diabetes, hypertension, and lower back pain (Feinleib 1985; Manson et al. 1987; Segovia et al. 1989; Van Itallie 1985).

Strenuous exercise is an exception to the general prediction that men have a worse health lifestyle than women. Men engage in more strenuous physical activities—running, tennis, softball, basketball, and so on (Verbrugge 1989; Ross and Hayes 1988). Strenuous physical activity improves perceived health, and it reduces the risk of coronary heart disease, stroke, hypertension, athero-

sclerosis, colon cancer, osteoporosis, lower back pain, and adult onset diabetes (Berkman and Breslow 1983; Blair et al. 1984; Paffenbarger et al. 1993; Verbrugge 1989; Wingard 1982).

Acquired Risks versus Other Explanations

Our theoretical explanations fall under the general heading of "acquired risks" (Verbrugge 1985, 1989). In contrast to our view that sex stratification and lifestyle affect health, some researchers have argued that sex differences in health are an artifact of reporting, evaluating, and seeking help for symptoms. If health is measured as utilization of physician services, or as the probability of receiving a diagnosis from a physician, help-seeking tendencies could bias results. Doctor visits are a problematic measure of health because they are confounded with factors such as inclination to seek help, time, income, and insurance. Thus, we measure health as self-reports of physical well-being. Although sex differences in evaluating and reporting symptoms affect self-reports, there is little evidence for the ideas that women evaluate symptoms more negatively, are more aware of symptoms, complain more, or are more likely to report them than men. Gove and Hughes (1979) find that reported sex differences in health reflect real differences, rather than greater willingness among women to report illness, or to adopt the sick role.

METHODS

Analysis

Our goal is to explain the effect of sex on perceived health across age groups. First, we expect to find a significant, negative interaction between being male and age, indicating that men's health advantage diminishes with age. Second, we expect to find a crossover point: an age at which men's health advantage diminishes to zero and women's health equals men's. We then attempt to explain

age-based sex differences in health by adjusting for sets of variables indicating sex stratification and its subjective experience, and health lifestyle. We develop a modification of the basic method of attempting to explain a total effect of sex on health. In the basic method, the goal is to decrease the regression coefficient associated with sex to insignificance, thus "explaining" the effect of sex on health. Here we are attempting to move the crossover point—the point at which women's health equals men's.

We examine the age at which women's health equals men's in the unadjusted equation, and then in the equation adjusting only for sociodemographic controls. Then we add sets of explanatory variables. First we add variables indicating sex stratification in paid work and households (employment, income, economic hardship, and housework). Next we add the social psychological experience of sex stratification (subjective work rewards, distress, and a sense of control). Next we add health practices (walking, strenuous exercise, overweight, and smoking). At each step we solve for the age at which women's health equals men's. This will allow us to answer questions such as, "If women had the same levels of paid employment, income, economic hardship, and household work as men, at what age would women's health equal men's?" By adjusting for objective conditions and their subjective perceptions that disadvantage women, we expect to shift the crossover point to the left—to younger ages at which women's health would equal men's if women had the same advantages as men. By adjusting for lifestyles that disadvantage men, we expect to shift the crossover point back up.

The equation modeling the age-related effect of sex on health is:

$$y = b_0 + b_1(\text{male}) + b_2(\text{age}) + b_3(\text{age} \times \text{male}) \quad (1)$$

Solving for males:

$$y_M = (b_0 + b_1) + (b_2 + b_3) \text{ age} \quad (2)$$

Solving for females:

$$y_F = b_0 + b_2(\text{age}) \quad (3)$$

To solve for the age at which women's health equals men's, we set equations for men and women equal:

$$\begin{aligned} b_0 + b_2(\text{age}) &= (b_0 + b_1) \\ &+ (b_2 + b_3) \text{ age}, \\ b_0 - b_0 - b_1 & \\ &= (b_2 + b_3) \text{ age} - b_2 \text{ age}, \\ -b_1 &= b_3(\text{age}) \\ -b_1/b_3 &= \text{age} \end{aligned} \quad (4)$$

This is the crossover point: the age at which women's health equals men's and after which women's health exceeds men's, assuming the results show that b_1 is positive, b_2 is negative, and b_3 is negative (Aiken and West 1991). (In the regression equations age is measured as (age - 18) so that the intercept is the prediction at age 18, rather than zero. Thus $-b_1/b_3 = \text{age} - 18$, and $(-b_1/b_3) + 18 = \text{age}$).

Ultimately, we are interested in the ways in which health changes with age for men and women. However, we are limited at this time to studying the cross-sectional variation in health across age groups. Longitudinal data are necessary to confirm whether sex differences in health across age groups reflect patterns of aging for men and women. Further, because the data are cross-sectional, they cannot be used to demonstrate the validity of causal order assumptions, nor are the processes we postulate meant to deny that there may be reciprocal effects. For example, distress and poor health may have reciprocal effects. The data, in combination with the assumptions, test the theory; that is, the data could fail to support the theory if, given our assumptions, we fail to find the hypothesized effects.

Sample

This research is based on a 1990 telephone survey of a national probability sample of U.S. households. Random digit dialing was used to

ensure the inclusion of unlisted numbers (Waksberg 1978). Within each household, the person eighteen years or older with the most recent birthday was selected as respondent. (This is an efficient method to randomly select a respondent within the household [O'Rourke and Blair 1983].) A response rate of 82.3 percent yielded a total of 2,031 respondents, ranging in age from 18 to 90.

Measurement

Health is measured as the person's subjective assessment of general health. This self-report of health is coded very poor (0), poor (1), satisfactory (2), good (3), or very good (4). Self-reported health measures general physical well-being rather than simply the absence of morbidity, and is a valid and reliable measure (Davies and Ware 1981).

Sex is coded one for males. *Age* is coded in number of years. Control variables include *minority status* (coded one for non-Whites and Hispanics); *education* (coded in number of years of formal education completed), *marital status* (coded one for persons who are married or living together as married), and number of *children* (coded as the number of children under age 18 living in the household).

Employment status is measured with three categorical variables: employed full-time, employed part-time, and not employed for pay (the comparison group in the regression analyses). *Household income* is coded in thousands of dollars per year. *Economic hardship* is measured as the response to three questions, "During the past twelve months, how often did it happen that you" (1) . . . did not have enough money to buy food, clothes, or other things your household needed?, (2) . . . did not have enough money to pay for medical care?, and (3) . . . had trouble paying the bills?" Would you say never (0), not very often (1), fairly often (2), or very often (3)? The economic hardship index is the mean response to the three questions and had a reliability of .82.

Housework is measured as the percentage of household work a person does, coded from 0

to 100. Respondents were told, "Think of all the things that have to be done for your household: cooking, shopping, housework, laundry, repairs, dish washing, budgeting and paying the bills, making arrangements such as doctor's appointments, and child care. What percentage do you do?"

Subjective work rewards include work fulfillment and recognition from others. We asked parallel questions of employed and nonemployed persons. Everyone was asked to describe the work, tasks, or activities they usually do during the day, and to report the subjective rewards of their primary daily work. Paid work is the primary daily work of people working for pay twenty hours or more a week. Unpaid work includes reported activities such as housework, child care, care for an ill or elderly family member, volunteer work, gardening and home repair, looking for work, and so on. Work fulfillment, or intrinsic gratification from work, includes pride in one's work, enjoyment of work, and the sense of learning and developing as a person through work. In addition to these intrinsic qualities of work, extrinsic symbolic rewards, measured as recognition from others, are assessed. Subjective work rewards are measured by the response to four questions: (1) "How often do you finish your work/daily activities with a good feeling that you have done something especially well?" (Coded never (-2), once in a while (-1), no opinion (0), pretty often (1), or very often (2).) (2) "How much do you agree with the following statements: (2) My work (these tasks) gives me a chance to do things I enjoy; (3) My work (these tasks) gives me a chance to develop and to learn new things; and (4) My work (these tasks) gives me an opportunity to get recognition from others." (These were coded strongly disagree (-2), disagree (-1), don't know (0), agree (1), or strongly agree (2).) The index is the average response to the four questions and has an alpha reliability of .67.

Perceived control is the belief that one can and does master, control, and shape one's own life. Perceived lack of control, the opposite, is

the expectation that one's behavior does not affect outcomes. Perceived control is measured by a 2×2 index that balances statements claiming or denying control over good or bad outcomes (Mirowsky and Ross 1991). Amount of agreement with each of the following statements was assessed. Statements (1) and (2) claim control over good outcomes: (1) "I am responsible for my own successes"; (2) "I can do just about anything I really set my mind to." Statements (3) and (4) claim control over bad outcomes: (3) "My misfortunes are the result of mistakes I have made"; (4) "I am responsible for my failures." Statements (5) and (6) deny control over good outcomes: (5) "The really good things that happen to me are mostly luck"; (6) "There's no sense planning a lot—if something good is going to happen, it will." Statements (7) and (8) deny control over bad outcomes: (7) "Most of my problems are due to bad breaks"; (8) "I have little control over the bad things that happen to me." Responses to the perceived control questions (1 through 4) are coded strongly disagree (-2), disagree (-1), neutral (0), agree (1), or strongly agree (2), and responses to lack of control questions (5 through 8) are coded strongly disagree (2), disagree (1), neutral (0), agree (-1), or strongly agree (-2). From these responses, a mean score perceived control index was created, coded from low perceived control (-2) to high perceived control (2). Alpha reliability is .68.

Psychological distress refers to depressed and anxious mood and the absence of positive emotions. We include only the mood components of depression and anxiety so as not to confound psychological distress with physical health. Thus, we exclude symptoms of malaise such as trouble sleeping, feeling tired, run-down, and listless. Depression and anxiety are highly correlated, and, as the two most common types of psychological problem which are experienced by everyone to some degree at some time, they are sensitive psychological barometers of life strains (Mirowsky and Ross 1989; Pearlin and Johnson 1977). The inclusion of positive psychological states (coded in reverse) results in an index ranging from psycho-

logical well-being at one end of the continuum to distress at the other. At the well-being end of the continuum, people usually feel happy and hopeful about the future; at the distress end, they feel sad and anxious. Respondents were asked, "On how many days in the past week have you: (1) worried a lot about little things; (2) felt tense or anxious; (3) felt restless; (4) felt sad; (5) felt lonely; (6) felt you couldn't shake the blues; (7) enjoyed life; (8) felt hopeful about the future; and (9) felt happy?" Items one through six are coded from 0 (never) to 7 (every day), and items seven through nine are coded in reverse. The index is the mean response to the nine items and has an alpha reliability of .85.

Walking is measured by asking respondents, "How often do you take a walk? Would you say ... never (0), once a month or less (1), about twice a month (2), about once a week (3), twice a week (4), three times a week (5), more than three times a week (6), or every day (7)?" *Strenuous exercise* is measured by asking respondents, "How often do you do strenuous exercise such as running, basketball, aerobics, tennis, swimming, biking, and so on?" Responses are coded in the same way as walking, with the exception that more than three times a week is the highest code.

Smoking is coded zero for non-smokers, one for persons who have ever smoked seven or more cigarettes a week but do not currently smoke, and two for persons who currently smoke seven or more cigarettes a week. Degree of *overweight* is measured by the Quetelet index (kg/m^2). Of the various weight-relative-to-height measures, $\text{weight}/\text{height}^2$ is the most adequate because it is the least correlated with height and is highly correlated with skinfold measures indicating body fat (Roche et al. 1981).

RESULTS AND DISCUSSION

Overall, men report significantly better health than women, as shown in Table 1. Men are significantly more likely to be employed than women, and, if employed, to work full-time; men have signifi-

TABLE 1 Means and Standard Deviations (in parentheses) for Total Sample, Women, and Men

	<i>Female</i>	<i>Male</i>	<i>Total</i>
Health	3.112 (.904)	3.272*** (.853)	3.171 (.888)
Age	44.450 (17.174)	42.004*** (16.961)	43.548 (17.133)
Minority	.169 (.375)	.184 (.338)	.175 (.380)
Education	13.134 (2.505)	13.373* (2.732)	13.222 (2.593)
Married	.611 (.488)	.597 (.491)	.606 (.489)
Children	.817 (1.115)	.628*** (1.006)	.747 (1.080)
Family Income	36.713 (23.977)	41.917*** (29.968)	38.632 (26.458)
Economic Hardship	.509 (.729)	.346*** (.585)	.449 (.684)
Employed Full-time	.436 (.496)	.681*** (.466)	.526 (.499)
Employed Part-time	.135 (.342)	.058*** (.235)	.107 (.309)
Not Employed	.429 (.495)	.260*** (.439)	.367 (.482)
Housework	76.869 (21.591)	58.110*** (27.362)	69.944 (25.537)
Work Rewards	.873 (.707)	.938* (.725)	.897 (.714)
Sense of Control	.651 (.486)	.682 (.516)	.662 (.497)
Distress	1.812 (1.614)	1.500*** (1.509)	1.696 (1.583)
Walking	4.213 (2.576)	4.417* (2.679)	4.288 (2.616)
Strenuous Exercise	1.671 (2.211)	2.587*** (2.360)	2.009 (2.310)
Smoking	.705 (.833)	.847*** (.820)	.757 (.831)
Overweight	24.249 (4.943)	25.318*** (3.841)	24.651 (4.589)
N	1282	749	2031

Significance of sex difference, 1-tailed test.

* $p < .05$; ** $p < .01$; *** $p < .001$.

cantly higher household incomes and experience less economic hardship; and men do a significantly lower proportion of household labor than do women. Men's objective advantages in paid work and households are reflected in their subjective experience. Men find their work signifi-

cantly more rewarding than do women, and men have significantly lower distress levels than women. Although men's sense of control over their lives is higher than women's, the difference is not significant. Women are disadvantaged in objective positions in paid work and households,

and only in the sense of control do women's subjective experiences approach men's. Thus, our hypothesis is largely supported.

Men are significantly more likely to smoke than women and are significantly more likely to be overweight. On the other hand, women are significantly less likely to walk or to engage in strenuous exercise than are men (see Table 1). Thus, our hypothesis that men face a disadvantage in health lifestyle is only partially supported. We expected that women would be more likely to engage in the moderate exercise of walking, but this is not the case.

The regression analysis in Table 2 shows the effect of sex on perceived health at different ages and how this effect changes when explanatory variables are added. Equation 1 of Table 2 (graphed in the top panel of Figure 1) shows that men report significantly better health than women, but that men's advantage decreases with age, as indicated by the significant positive coefficient associated with being male [b_1], and the significant negative coefficients associated with age [b_2] and the age-by-sex interaction [b_3]. Solving for the age at which women's health equals men's produces a crossover point of 67.918 ($-b_1/b_3 + 18$).³

Gender inequality in paid work and households is added in Equation 2 of Table 2. High household income is significantly associated with good health, and economic hardship with poor health. The direct effect of income on health, controlling for economic hardship, indicates that household income affects health both by way of economic hardship and in other ways. Possibly, high income symbolizes success and achievement and increases self-esteem, over and above its economic importance to paying the bills and buying food, clothes, and medical care for one's family. Compared to people who do not work for pay, full-time employment and part-time employment are both significantly associated with feeling healthy. People who are employed full-time report the best health, followed by those who are employed part-time; people who are not employed report the worst health.

The effect of housework was unexpected. In a linear specification we found that high levels of household labor were associated with good health. Because this was unanticipated, we then asked whether housework's positive effects were unlimited, or whether the positive effect diminished at high levels. Specifying a declining improvement in health with increasing amounts of housework (modeled as housework + housework²) proved significantly better than a linear specification. Housework is associated with good health up to a point (about 60% of the household labor), at which the positive effect levels off and then decreases somewhat. Whereas housework has negative effects on psychological well-being (Ross et al. 1983; Kessler and McRae 1982), we find that it has diminishing positive effects on physical well-being. Doing a large proportion of the housework could indicate involvement in unrewarding, onerous, and menial work, and inequity in the division of unpaid work at home, both of which probably worsen health. However, housework is also physical activity. Since, compared to being sedentary, any physical activity is good for health, this aspect of housework might improve health. Cleaning windows, mopping floors, vacuuming, and pushing a light power mower expend the same amount of energy as walking three miles per hour (Fox, Naughton, and Gorman 1972), and doing some unpaid work at home may be better for health than doing no work. Thus, housework could have trade-offs for physical health, improving it up to the point at which the psychologically negative aspects outweigh the physically positive ones. Since our results indicate that the positive effects of housework do not extend past doing about 60 percent of the housework, this is plausible. It is only after a person is doing the majority of the housework that the sense of inequity surfaces.

Women's lower average household incomes and level of paid work, as well as their higher levels of economic hardship explain some of the negative effects of being female on health. Women's higher levels of household labor do

TABLE 2 Regression of Perceived Health on Sex, Age, and Their Interaction (Controlling for Sociodemographics) (Equation 1), Gender Inequality in Paid Work and Households (Equation 2), Subjective Experience of Gender Inequality (Equation 3), and Health Lifestyles (Equations 4 and 5). Unstandardized regression coefficients with standard errors in parentheses are shown. The last column shows the standardized coefficients in the final equation.

	<i>Eq. 1</i>	<i>Eq. 2</i>	<i>Eq. 3</i>	<i>Eq. 4</i>	<i>Eq. 5</i>	
Sex (male = 1)	.230*** (.069)	.215*** (.068)	.215*** (.068)	.181** (.068)	.217** (.068)	.049
Age ^a	-.011*** (.001)	-.010*** (.002)	-.010*** (.001)	-.009*** (.001)	-.009*** (.002)	-.208
Sex × Age	-.005* (.002)	-.004* (.002)	-.005** (.002)	-.005** (.002)	-.005** (.002)	
Minority	-.142** (.050)	-.114** (.048)	-.119* (.047)	-.124** (.047)	-.134** (.047)	-.057
Education	.076*** (.007)	.051*** (.008)	.039*** (.008)	.037*** (.008)	.033*** (.008)	.095
Married	.123** (.040)	.062 (.043)	.027 (.042)	.037 (.042)	.051 (.042)	.028
Children	.001 (0.19)	.023 (.019)	.025 (.018)	.029 (.018)	.033* (.018)	.040
Family Income		.002** (.000)	.002** (.001)	.002* (.001)	.002* (.001)	.045
Economic Hardship		-.220*** (.029)	-.138*** (.029)	-.134*** (.028)	-.119*** (.028)	-.091
Employed Full-time ^b		.262*** (.045)	.218*** (.043)	.231*** (.043)	.238*** (.043)	.134
Employed Part-time ^b		.193** (.065)	.174** (.063)	.178** (.063)	.160** (.062)	.055
Housework		.012*** (.004)	.011** (.004)	.011** (.004)	.010** (.004)	.107
Housework squared		-6.6E-5** (2.9E-5)	-6.2E-5* (2.8E-5)	-5.8E-5* (2.9E-5)	-5.1E-5* (2.9E-5)	
Work Rewards			.110*** (.026)	.101*** (.026)	.101*** (.025)	.081
Sense of Control			.104** (.038)	.085* (.038)	.094** (.038)	.053
Distress			-.115*** (.012)	-.113*** (.012)	-.109*** (.012)	-.195
Walking				.018** (.007)	.017** (.007)	.051
Strenuous Exercise				.030*** (.008)	.024*** (.008)	.063
Smoking					-.080*** (.021)	-.075
Overweight					-.016*** (.004)	-.082
Constant	2.356	2.069	2.303	2.213	2.690	
Cross-over age ^c	67.918	66.903	58.945	54.134	62.731	
R ²	.149	.204	.261	.270	.280	

^aAge = (age - 18).

^bComparison group is nonemployed.

^c $(-b_1/b_2 + 18)$. Crossover age calculations are based on coefficients of 6 decimal points (not the rounded coefficients shown above):

Eq. 1: $(-.229625/-.004600) + 18 = 67.918$

Eq. 2: $(-.214929/-.004395) + 18 = 66.903$

Eq. 3: $(-.215045/-.005252) + 18 = 58.945$

Eq. 4: $(-.180889/-.005006) + 18 = 54.134$

Eq. 5: $(-.217391/-.004860) + 18 = 62.731$

$p < .05$, 1-tailed test ($p < .10$, 2-tailed test); ** $p < .01$, 1-tailed test ($p < .02$, 2-tailed test); *** $p < .001$, 1-tailed test ($p < .002$, 2-tailed test).

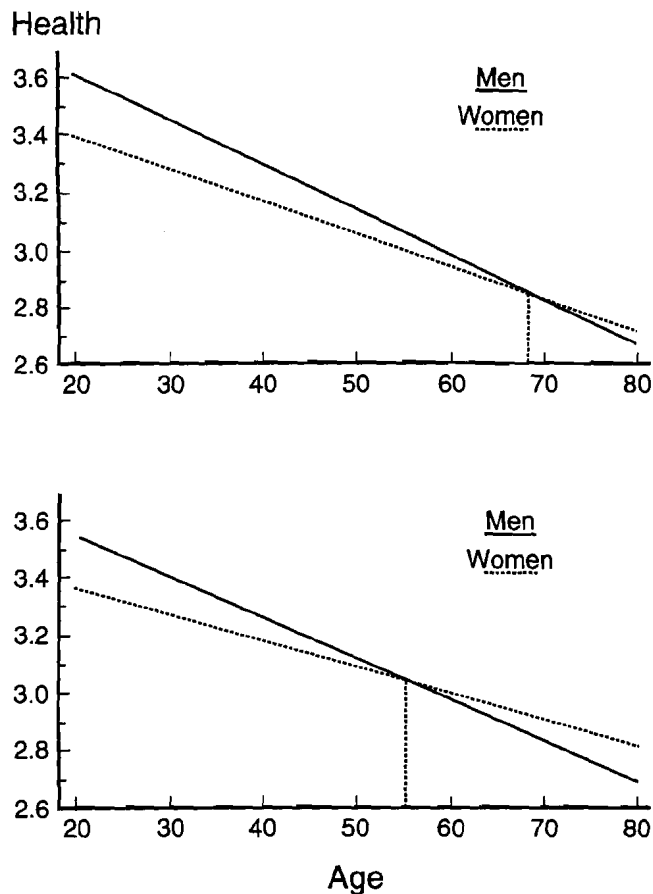


FIGURE 1 Men's and women's perceived health across age groups.

The top panel adjusts for sociodemographic controls only (Equation 1 of Table 2). The bottom panel adjusts for men's advantages in labor and in leisure-time physical activity (Equation 4 of Table 2). Equations 1 and 4 of Table 2 are graphed at the mean level of all control variables.

not explain any of this effect. Although women perform significantly more household labor than men do, housework is not associated with poor health. Because of this, we do not move the crossover point at which women's health equals men's—at least not much.

Work rewards, distress, and the sense of control are conceptualized as the subjective correlates of objective positions in paid work and households, and significant correlations generally support this view. Personal control correlates positively with full-time employment and high income, and negatively with economic hardship and housework ($r = .159, .192, -.083, -.074$, respectively). Distress

correlates negatively with income and positively with economic hardship and household labor ($r = -.100, .309$, and $.071$). Subjective work rewards correlate positively with full-time employment and high income ($r = .166$ and $.129$), but are not associated with household labor.

Subjective experiences of inequality affect health, as shown in Equation 3 of Table 2. Compared to people who report that their everyday work is unrewarding, people whose work gives them a chance to develop and learn new things, who feel good about their work, who enjoy their work, and who get recognition from others report significantly better health. Women report fewer subjective rewards from their everyday work than do men. Unrewarding work, in turn, is associated with reporting poor health; rewarding work, with good health.

Compared to people who have low levels of psychological distress, those with high distress report significantly worse health. Women have significantly higher levels of psychological distress than men, and distress, in turn, is associated with poor health.

People who feel in control of their lives report significantly better health than those who feel their lives are not in their control. However, men do not have a much higher sense of personal control than do women. Because the sense of control is not highly correlated with sex, it cannot explain much of the effect of sex on health.

Together gender inequality in paid work and households and its social psychological correlates explain a significant part of men's advantage in health over the life course. If women had the same levels of paid work, household income, economic hardship, subjective work rewards, and psychological well-being as men, their perceived health would equal men's at a much younger age. Adjusting for gender inequality and its subjective experience moves the crossover point at which women's health equals (and then surpasses) men's from 67.918 in Equation 1 to 58.945 in Equation 3. If women's positions in the stratification system and the subjective correlates

of those positions equaled men's, women would experience better health than men for much of the late middle and later years.

Health lifestyle variables are added in two steps: those that advantage men (walking and strenuous exercise), and those that disadvantage men (smoking and overweight). Equation 4 of Table 2 adds walking and strenuous exercise. Although some had speculated that only strenuous exercise improves health, we find significant beneficial effects of walking, over and above the positive effect of strenuous exercise. Adding the exercise variables to the equation shifts the age at which women's health equals men's to 54.13 (as shown in Equation 4 of Table 2 and graphed in the bottom panel of Figure 1). If women had the same positions as men in paid work, households, and their subjective correlates, and if they exercised as much as men, their health would equal and then surpass men's for most of middle and older age. Since these are the years when most health problems and health concerns emerge, women's equality in labor and in leisure time physical activity would produce better health over most of the years in which health is a concern. By age 54, women's health would surpass men's.

In contrast to men's other advantages, they face a disadvantage in two lifestyle characteristics: smoking and overweight. Men are more likely to smoke and to be overweight than women, and these tendencies significantly worsen health. (See Equation 5 of Table 2). This lifestyle disadvantage is so great that it shifts the crossover point back up to 62.731. Men would maintain their advantage in health even longer in the life course if their levels of smoking and overweight equalled women's. Stated the other way, if women smoked as much and were as overweight as men they would lose most of what they could gain with equality in labor and leisure-time physical activity. The fact that this loss would offset much of the other gains is especially troubling since the hypothetical scenario is occurring: women's smoking levels are approaching men's. Women may well offset any

gains they make in employment levels, earnings, and economic well-being if with these gains they increase their smoking.

Other findings deserve mention. *Marriage* is positively associated with health in Equation 1. When household income and economic hardship are added in Equation 2, the effect becomes insignificant. This indicates that much of the positive effect of marriage on health is due to the higher household incomes and lower levels of economic hardship among the married. The fact that the number of *children* in the household has no effect on health until all explanatory variables are added in Equation 5, at which point children are positively associated with health, also deserves mention. Although we cannot specify this effect here, it indicates that children have both positive and negative effects on health, improving it in some ways and worsening it in others. For example, children increase economic hardship and they decrease the ability to take walks, thereby worsening health, but if parents maintain their economic well-being and opportunities to exercise, children have positive effects on parents' physical well-being. *Education* positively affects health. The advantage that the well-educated have in paid work and households and in the subjective experience of this advantage for work rewards, personal control, and distress, and in their health lifestyle, explains most, but not all, of the health advantage of the well-educated. Almost 57 percent of the positive effect of education is explained, but a significant effect remains. Like the well-educated, majority group members report better health than *minorities*, even adjusting for all explanatory variables. Possibly because of discrimination, any given level of achievement requires greater effort and provides fewer opportunities for members of minority groups.

Because sex differences in self-reported health could be due to *response tendencies*, we next adjust for them. Response tendencies are measured in two ways: as the tendency to keep emotions to oneself rather than to express them; and as responsiveness, measured as the ten-

dency to report both positive and negative mood. The first is measured as the amount of agreement with the statement "I keep my emotions to myself," coded strongly disagree (-2), disagree (-1), don't know (0), agree (1), or strongly agree (2). The second is measured as reporting both positive mood and depressed mood. People who score high on responsiveness report feeling sad, lonely, blue, *and* happy, hopeful, and enjoying life. Responsiveness is scored as the mean response to the six items, 0 to 7. Women are significantly more responsive than men ($\bar{x} = 3.376$ compared to 3.232), and significantly less likely to report that they keep their emotions to themselves ($\bar{x} = .008$ compared to .446). However, response tendencies do not account for age-based sex differences in self-reported health. Results are substantively the same with adjustment for response tendencies.⁴

Finally, we tested *interactions* of all theoretically relevant variables with sex. All interaction terms significant at $p < .15$ were added to Equation 5. None were significant at $p < .10$. However, the interaction of sex with part-time employment ($b = .232$) was significant—at $p = .12$, indicating that part-time work may have a larger positive effect on men's health than on women's. The interaction of sex with being overweight ($b = .014$) was significant at $p = .11$, indicating that overweight's effect on health (as measured by the Quetelet index) may be less negative for men. Nonetheless, the general conclusion of this analysis is that women and men are exposed to different work and household situations and lifestyles, and it is this differential "exposure," not sex differences in response, that affects health.

CONCLUSION

Throughout most of life men feel healthier than women, but men's health advantage decreases with age. In order to explain age-based sex differences in health, we examined gender inequality in paid and unpaid work, the subjective experi-

ence of inequality, and health lifestyle. Compared to men, women are less likely to work for pay, are more likely to work part-time rather than full-time, have lower household incomes, more economic hardship, lower subjective work rewards, and higher levels of distress. (Women's lower sense of control over their lives is not significantly different from men's.) These indicators of gender inequality and its social psychological correlates negatively affect health. Sex differences in lifestyles also affect health. Men exercise more than women, which is associated with good health. Together, sex differences in labor and in leisure-time physical activity explain a large part of women's worse health over the life course. Adjusting for these factors shifts the point at which women's health equals men's from 68 to 54. (Compare the top and bottom panels of Figure 1.) If women had the same levels of paid work, household income, economic hardship, work rewards, distress, and leisure-time physical activity as men, their perceived health would equal and then surpass men's by late middle-age. After age 54, women would experience better health than men. Thus, we conclude that women's equality in labor and in leisure time physical activity would produce better health over most of late middle and older age, the years in which health is of the greatest concern (Verbrugge 1986).

Women's potential health advantage in older age groups may be underestimated due to selection. Men have higher mortality rates than women. If the sickest men in the older age groups have died, this leaves a "residue" of healthier men in our sample. Since these are the ages in which women's health advantage appears (see bottom panel of Figure 1), women's health advantage would be even greater if these sickest men were still in the sample.

Nonetheless, men's health advantage persists in our model throughout the younger years. This could be due to biological differences; however, we know of no biological theory that implies that women's inherent advantage would appear in later life, while men would have the advan-

age in younger groups. If anything, the inherent advantage of women should be most apparent among women of childbearing years, since the argument for women's resilience is that women need to be strong and healthy because they are the ones who give birth.

Unexplained sex differences could also be due to unreliability in our explanatory variables, or to other social factors not included in the model. These factors could include attitudes and values that modify the effect of employment or housework on health, characteristics of men's and women's jobs not captured by work rewards, or other lifestyle characteristics such as drinking and drug use.

Our conclusions are based on cross-sectional data using self-reports of health. Although self-reports are highly correlated with morbidity and mortality for both men and women, there may be sex differences in the meaning, interpretation, and awareness of health and illness that affect self-reports. We have adjusted for two types of potential response bias in self-reports of health, but we have not been exhaustive in our controls for response tendencies. We are also limited to studying cross-sectional variations in men's and women's health across age groups. Longitudinal data are necessary to confirm whether sex differences in health across age groups (and the predicted crossover points in men's and women's health) reflect patterns of aging for men and women.

We find that women are much more likely than men to do unpaid domestic work. However, domestic work does not have a negative effect on health, and therefore cannot explain women's poorer health. Increases in household work, up to about 60 percent of the total work done in a household, improve health. Perhaps the physical activity involved improves health up to the point at which the psychologically negative aspects of housework outweigh the physically positive ones. Housework increases women's depression levels (whether they are employed or not), but it does not affect men's.

Because women's housework varies between half and all of the housework, but men's varies between none and half, it may be that housework is not intrinsically ungratifying, but that a lack of shared responsibility increases the sense of inequity (Ross et al. 1983). Shared housework, which here means less than 60 percent, is not psychologically damaging and may have the health benefits of all types of physical activity. Since few studies have looked at the effect of housework on physical health, this finding should be considered tentative until replicated, especially since Bird and Fremont (1991) found that hours spent in housework worsened health. Research is needed to examine the independent health effects of the proportion of housework performed and the time spent doing it.

Research to date on sex differences in health has focused on utilization of physician services, reporting differences, methodological artifacts, symptom awareness, and acquired risks associated with social roles—in particular nurturant role obligations—concluding that social roles, more than anything else examined, affect sex differences in health (Gove and Hughes 1979; Verbrugge 1985). However, nurturant role obligations, usually operationalized as being married and having children, cannot explain much of the sex difference in health, since marriage, and to a lesser extent children, are associated with good health, for both men and women. Nurturant role obligations also cannot explain the consistent positive effect of employment on health, for both men and women, even when combining the work role with other roles such as parenthood, which might indicate role overload (Verbrugge 1983, 1989; Waldron and Jacobs 1988).

We find that sex differences in two components of class—labor and lifestyle—explain much, but not all, of the effect of sex on health over the life course. If women's paid labor (and its economic and psychological correlates) and women's leisure-time physical activity equalled men's, women over the age of 54 would feel healthier than men.

NOTES

1. As Verbrugge (1985, 1989) points out, the paradox is not simply that women have excess morbidity and men excess mortality. The excess mortality results from excess morbidity for life-threatening diseases.

2. By comparison, drinking is a risk factor for only one of the five leading causes of death—car accidents. It increases the risk of four of the fifteen leading causes of death: car accidents, cirrhosis, suicide, and homicide. The latter two, although they are the eighth and tenth leading causes of death, respectively, will not show up in a health survey. Only cirrhosis and injuries from car accidents will affect self-reported health, making drinking far less ubiquitous in its health consequences than smoking or fitness. Furthermore, moderate drinking, as compared to abstinence, is associated with lower risk of coronary heart disease, stroke, and hypertension, whereas very heavy drinking is associated with higher risk (Gill et al. 1986; Stampfer et al. 1988). Since most of the variation in drinking among adults is at the low to moderate end of the scale, drinking may not significantly worsen health (Verbrugge 1989).

3. With no adjustments, men report better health until age 80. We also tested a non-linear specification $(age - 18)^2$ that models a steeper decline in health at older ages than younger. In Equation 1, this specification produces an R^2 of .1480 and a t -test associated with the age coefficient of -7.78 which, although very significant, fit no better than the linear model ($R^2 = .1492$; $t = -7.70$).

4. The unstandardized regression coefficients associated with sex, age, and their interaction with adjustment for response tendencies follow (all are significant). Eq. 1: .249, $-.011$, $-.005$; Eq. 2: .236, $-.010$, $-.004$; Eq. 3: .219, $-.010$, $-.005$; Eq. 4: .183, $-.009$, $-.005$; Eq. 5: .220, $-.009$, $-.005$. Comparison with Table 2 shows the similarity. All other results are substantively the same. (Analysis available on request.)

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