

Socioeconomic Status and the Prevalence of Health Problems Among Married Couples in Late Midlife

Sven E. Wilson, PhD

ABSTRACT

Objectives. This study analyzed the association between socioeconomic status (SES) and the prevalence of mutually occurring health problems among married couples in late midlife.

Methods. Data consisted of 4746 married couples aged 51 to 61 years from the 1992 US Health and Retirement Study. Two health measures were used: (1) self-assessed health status and (2) an index of functional limitations and activity restrictions. SES indicators were household income, education, and insurance coverage.

Results. In general, after adjustment for age cohort, a strong association was found between the health of a married individual and the health of his or her spouse. SES was highly associated with the joint occurrence of health problems among marriage partners.

Conclusions. Public health policy should pay particular attention to the interaction between health, SES, and interpersonal relationships. (*Am J Public Health*. 2000;90:XXX-XXX)

Marital status has been shown to be a strong correlate of morbidity and disability in numerous studies.¹⁻⁷ Both married men and married women consistently have better health than their unmarried counterparts. For an individual in poor health, a spouse is the most likely caregiver^{8,9} and can aid in nursing care, facilitate the acquisition of medical care and information, perform household chores, and possibly supplement the household income. In short, a spouse (or other domestic partner) is often the first line of defense in shouldering the burdens of disease and disability.

Obviously, such support does not exist if a spouse is absent, which is a common explanation for the poorer health of unmarried persons. Similar consequences may result, however, if a spouse is present but unable to perform these support roles because he or she also has poor health. The higher the prevalence of the joint occurrence of health problems within marriages, the higher will be the prevalence of families' lacking the crucial informal support that spouses can provide.

Socioeconomic status (SES) also has been shown to be a strong correlate of health and disability,¹⁰⁻¹⁷ although the causal mechanisms are difficult to identify because poor health is both a cause and a consequence of low SES. The goal of this study was to determine how often both individuals in a marriage face health problems and, in particular, highlight differences across SES categories. Households with very low SES are already a public health concern. The mutual occurrence of health problems among both spouses in these households should further amplify this concern.

Methods

Data

All data used in this study were from the 1992 Health and Retirement Study.¹⁸ The target population was all noninstitutionalized adults in the contiguous United States who were born between 1931 and 1941 (aged 51-61 at the time of the survey). The observational unit was a household with at least 1 member in the target age range. Face-to-face interviews were conducted with all age-eligible respondents and their spouses, regardless of whether the spouse was age eligible.

The sample was a multistage area probability sample, but Blacks, Hispanics, and residents of Florida were oversampled. Health and Retirement Study-supplied sampling weights that corrected for the multistage sampling process and oversampling were used throughout this analysis. The complete 1992 Health and Retirement Study sample contained 7608 households with an estimated survey response rate of 80.2% to 82.1%. The data for the current study were restricted to 4746 married couples living together at the time of interview with available data on SES and functional limitations.

Because data were obtained from face-to-face interviews, missing data for most variables were rare. The Health and Retirement Study used standard imputation procedures to replace missing values. Missing values of noneconomic variables, including education and health, were imputed with a stratified hot-deck procedure. The imputation of economic values, including the household income variable discussed later in this report, was based on respondents' responses to a series of bracket questions that were asked when respondents could or would not provide a precise number. These bracket questions greatly improved the ability to impute reasonable values for those that were missing. Because of the Health and Retirement Study imputation procedures, no cases from the analysis had to be dropped because of missing data.

Health Indicators

Numerous methods have been used in previous studies to measure health and disability.¹⁹ For the purpose of this study, 2 health indicators were used. The first is self-assessed health status, sometimes referred to as "global health status." Respondents were asked the following question: "Would you say your health is excellent, very good, good, fair, or poor." This ubiquitous measure has correlated with a

Sven E. Wilson is with the Departments of Political Science and Economics, Brigham Young University, Provo, Utah.

Requests for reprints should be sent to Sven E. Wilson, PhD, Departments of Political Science and Economics, Brigham Young University, 762 SWKT, Provo, UT 84601 (e-mail: sven_wilson@byu.edu).

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variety of other health indicators, including disability, morbidity, and mortality.

The second health measure is referred to here as the index of functional limitations and activity restrictions. This is a continuous index of physical health that incorporates both functional limitations (e.g., lifting, walking, carrying) and restrictions on the activities of daily living (ADL). The index of functional limitations and activity restrictions was designed to use as much relevant data from the Health and Retirement Study as feasible. The scaling methodology used in the construction of this index has been used in studies of economic and demographic correlates of work disability²⁰ and employment.²¹ Furthermore, the index of functional limitations and activity restrictions is similar in construction to the Groningen scale,²²⁻²⁴ although the Groningen scale consists of only ADL.

Survey respondents in the Health and Retirement Study were asked if they have difficulty in performing 15 different physical tasks and ADL. Activities queried include the ability to walk several blocks; walk across a room; climb a flight of stairs; climb several flights of stairs; lift 10 pounds; pull or push large objects; pick up a dime from a table; stoop, kneel, or crouch; sit for long periods; get up from a chair; get into or out of bed without help; bathe or shower without help; extend arms above shoulders; eat without help; and dress without help.

A response of “a little difficult” was assigned 1 point, “somewhat difficult” was assigned 2 points, and “very difficult/can’t do” was assigned 3 points. The index of functional limitations and activity restrictions value was calculated by summing these scores and scaling between 0 and 100. The maximum possible score before scaling is 45, which was also the maximum score in the sample. Thus, on the scaled index of functional limitations and activity restrictions, a major difficulty on 1 of the 15 tasks raises the 100-point scale by 6.7, a moderate difficulty by 4.5 points, and a minimal difficulty by 2.3 points.

The mean index value level according to the index of functional limitations and activity restrictions was 8.70 for men (SD=13.51) and 10.83 for women (SD=13.41). The index of functional limitations and activity restrictions increased consistently with age: 6.3 (men) and 9.1 (women) for those 50 years and younger, 7.3 and 10.9 for those aged 51 to 55, 8.9 and 11.6 for those aged 56 to 60, and 10.52 and 12.79 for those 61 and older.

For the analysis that follows, it is useful to apply “health limitation” categories based on index of functional limitations and activity restrictions values. The classification scheme is as follows: an index value between 0 and 4.9

TABLE 1—Association Between Spousal Health Variables Within Age Cohorts

| Husbands Aged 51–55 y | | | | | | |
|------------------------------------|------|----------------------------|-----------|--------|------|------|
| Health Status ^a | N | Wife's Health Status, % | | | | |
| | | Excellent | Very Good | Good | Fair | Poor |
| Excellent | 418 | 43.0 | 28.8 | 21.1 | 4.8 | 2.3 |
| Very good | 508 | 35.5 | 31.0 | 22.2 | 7.9 | 3.5 |
| Good | 455 | 22.9 | 33.2 | 28.2 | 12.7 | 3.0 |
| Fair | 183 | 15.8 | 24.3 | 39.0 | 14.7 | 6.2 |
| Poor | 95 | 17.5 | 24.2 | 21.6 | 23.6 | 13.2 |
| Wife's IFLAR Category, % | | | | | | |
| IFLAR Category ^b | N | No Limitation | Low | Medium | High | |
| No limitation (IFLAR=0–4.9) | 1086 | 58.1 | 30.3 | 9.0 | 2.6 | |
| Low (IFLAR=5–19.9) | 385 | 44.1 | 38.0 | 14.7 | 3.2 | |
| Medium (IFLAR=20–39.9) | 118 | 29.7 | 43.1 | 21.0 | 6.2 | |
| High (IFLAR=≥40) | 70 | 32.9 | 29.1 | 19.6 | 18.4 | |
| Husbands Aged 56–61 y | | | | | | |
| Health Status ^c | N | Wife's Health Status, % | | | | |
| | | Excellent | Very Good | Good | Fair | Poor |
| Excellent | 409 | 38.5 | 33.6 | 19.0 | 6.1 | 2.9 |
| Very good | 513 | 25.9 | 36.6 | 25.9 | 8.2 | 3.5 |
| Good | 566 | 21.2 | 32.3 | 30.4 | 11.7 | 4.5 |
| Fair | 230 | 13.0 | 32.8 | 29.6 | 15.4 | 9.2 |
| Poor | 149 | 12.1 | 24.8 | 24.7 | 22.5 | 16.0 |
| Wife's IFLAR Category, % | | | | | | |
| IFLAR Category ^d | N | No Limitation | Low | Medium | High | |
| No limitation (IFLAR=0–4.9) | 1134 | 51.5 | 34.2 | 10.9 | 3.4 | |
| Low (IFLAR=5–19.9) | 447 | 40.7 | 37.9 | 14.0 | 7.4 | |
| Medium (IFLAR=20–39.9) | 187 | 36.5 | 33.5 | 19.2 | 10.8 | |
| High (IFLAR=≥40) | 99 | 20.1 | 38.1 | 18.4 | 23.4 | |
| Wives Aged 51–55 y | | | | | | |
| Health Status ^e | N | Husband's Health Status, % | | | | |
| | | Excellent | Very Good | Good | Fair | Poor |
| Excellent | 388 | 33.6 | 34.9 | 22.2 | 7.3 | 2.1 |
| Very good | 522 | 23.9 | 31.6 | 29.7 | 10.5 | 4.2 |
| Good | 432 | 20.0 | 24.4 | 34.2 | 15.5 | 5.9 |
| Fair | 216 | 11.2 | 23.6 | 37.7 | 16.4 | 11.1 |
| Poor | 87 | 13.1 | 13.6 | 29.5 | 17.2 | 26.6 |
| Husband's IFLAR Category, % | | | | | | |
| IFLAR Category ^f | N | No Limitation | Low | Medium | High | |
| No limitation (IFLAR=0–4.9) | 763 | 71.0 | 20.7 | 6.2 | 2.0 | |
| Low (IFLAR=5–19.9) | 549 | 62.4 | 25.2 | 8.0 | 4.5 | |
| Medium (IFLAR=20–39.9) | 231 | 50.8 | 27.9 | 13.4 | 7.9 | |
| High (IFLAR=≥40) | 102 | 37.2 | 26.1 | 14.1 | 22.7 | |

Continued

is “no limitation” (61.4% for men and 46.9% for women), an index value between 5 and 19.9 is “low” (24.5% for men and 34.3% for women), an index value between 20 and 39.9 is “medium” (9.3% for men and 13.7% for women), and, finally, an index value of 40 or greater is “high” (4.9% for men and 5.2% for women). These designations are not meant to be diagnostic in any sense and are used only for classification purposes. Although the specification of these categories is admittedly arbitrary, repeated analyses with different classi-

fications have led to no substantive qualitative differences in the results that follow.

Socioeconomic Status

The Health and Retirement Study contains rich data related to SES. For this study, we selected 4 indicators. The first is household income, which included income from all sources (e.g., wages, disability benefits, social security income) in 1991, the year before the survey. The income measure included pretax, ag-

TABLE 1—Continued

| Health Status ^a | Wives Aged 56–61 y | | | | | |
|-----------------------------|----------------------------|---------------|------|--------|------|------|
| | Husband's Health Status, % | | | | | |
| N | Excellent | Very Good | Good | Fair | Poor | |
| Excellent | 361 | 32.5 | 31.3 | 25.1 | 6.4 | 4.7 |
| Very good | 496 | 21.1 | 32.9 | 30.6 | 11.5 | 4.0 |
| Good | 506 | 14.6 | 28.2 | 36.4 | 13.5 | 7.3 |
| Fair | 229 | 15.6 | 18.1 | 26.2 | 22.8 | 17.3 |
| Poor | 102 | 13.3 | 20.2 | 25.5 | 24.7 | 16.4 |
| IFLAR Category ^h | Husband's IFLAR Category | | | | | |
| | N | No Limitation | Low | Medium | High | |
| No limitation (IFLAR=0–4.9) | 703 | 68.1 | 21.1 | 7.9 | 3.0 | |
| Low (IFLAR=5–19.9) | 631 | 53.8 | 29.5 | 10.7 | 6.0 | |
| Medium (IFLAR=20–39.9) | 250 | 46.8 | 31.4 | 16.2 | 5.7 | |
| High (IFLAR=≥40) | 110 | 30.7 | 31.2 | 23.2 | 14.9 | |

Note. IFLAR=index of functional limitations and activity restrictions (see text for explanation).

Percentages may not total 100 because of rounding.

^aKendall's τ - β = .2143, P < .0001.

^bKendall's τ - β = .1684, P < .0001.

^cKendall's τ - β = .2106, P < .0001.

^dKendall's τ - β = .1833, P < .0001.

^eKendall's τ - β = .2230, P < .0001.

^fKendall's τ - β = .1818, P < .0001.

^gKendall's τ - β = .2191, P < .0001.

^hKendall's τ - β = .1900, P < .0001.

gregated income of all household members. Note that because of the sampling design, the actual number of respondents in each quintile declined as the income level increased.

The 3 remaining SES indicators are education level of each spouse and health insurance. The education variable was defined for both the husband and the wife as the highest grade completed. Finally, a binary indicator of whether either spouse had health insurance was used. "No insurance" indicates that neither partner had public or private health insurance.

Analyses

The first stage of the analysis was to measure the association between the health of spouses based on the indicators of self-assessed health status and index of functional limitations and activity restrictions. This was done by cross-tabulating the husband's and wife's health variables, calculated within age cohorts. The Health and Retirement Study allowed for 2 age cohorts: 51 to 55 and 56 to 61. The latter cohort is 6 years because the Health and Retirement Study sampled individuals aged 51 to 61.

The second analysis consisted of calculating the prevalence of jointly occurring health problems (meaning that *both* spouses have poor health). "Poor health" is classified for each of the 2 health indicators. In the case of self-as-

sessed health status, health was classified as poor if the respondent answered "fair" or "poor." In the case of the index of functional limitations and activity restrictions, health was classified as poor if the index value was greater than 20, meaning that their limitation falls into the medium or high categories, as discussed earlier in this report.

For each SES category, point prevalence proportions for poor health were calculated for both husbands and wives individually and jointly. Odds ratios for the joint prevalence, relative to the highest SES category, also were determined. The actual joint prevalence was compared with the expected joint prevalence, which is simply the product of the individual proportions. (For example, if, within a given SES category, husbands have a prevalence of 0.15 and wives have a prevalence of 0.20, then the expected codisability rate for that SES category is $0.15 \times 0.20 = 0.03$.) A difference between the actual and the expected codisability rates indicates that other variables present within marriages affect the joint occurrence of health status beyond the effect on individual health.

Finally, a concentration value was calculated for all of the categories within each SES variable. Concentration represents the proportion of all couples in which both partners have poor health within the given SES level. For example, a concentration of 0.5 for the lowest SES level indicates that 50% of all couples with a joint occurrence of poor

health are concentrated in the lowest SES level.

Results

Table 1 gives the association between spousal health variables within age cohorts for the self-assessed health status and index of functional limitations and activity restrictions health indicators. Results indicated a strong association in both age cohorts and for both health indicators. In general, lower health levels for the husband were associated with lower health levels for the wife (Kendall τ - β , a measure of association for ordinal data, is provided in Table 1 and is highly significant). For example, Table 1 shows that only 2.3% of the men aged 51 to 55 who reported that they had "excellent" health had a spouse in "poor" health. In contrast, 13.2% of the men in the same age group who had poor health had wives who also had poor health. The results were similar for men aged 56 to 61, although the proportion of wives in poor health was uniformly higher, likely because of the increase in age. The same association was found, but was even more pronounced, with the index of functional limitations and activity restrictions indicator.

Table 2 shows the differences in codisability across SES levels for the variables discussed above. First, household income was strongly associated with both individual health status and the joint occurrence of poor health within marriage partnerships. The odds ratio for those in the lowest income quintile (relative to the highest) was a striking 11.24 for self-assessed health status and 17.25 for index of functional limitations and activity restrictions. In the case of index of functional limitations and activity restrictions, for example, in 12.5% of the households in the bottom income quintile, both spouses had poor health, as opposed to only 0.7% of the households in the top quintile. The confidence intervals indicate that these differences are highly statistically significant. The other SES indicators consistently showed the same pattern. In terms of education of both husbands and wives, those lacking a high school education were particularly at risk for living in a household in which both spouses had poor health.

The columns in Table 2 labeled "concentration" show that the joint occurrence of poor health was highly concentrated in the bottom categories of SES. Approximately half of all the couples in which both spouses were in poor health were in the lowest SES categories for both income and education measures, and most of the remaining couples were in the next-to-lowest category. Conversely,

TABLE 2—Individual and Joint Prevalence of Poor Health Among Married Couples, With Concentration Values

| SES Indicator | SAHS = Fair/Poor | | | | | | Expected Joint Prevalence | Ratio of Actual-Expected Prevalence | Concentration, % |
|-------------------------------|------------------|---------|-------|--------------------|-------|----------------|---------------------------|-------------------------------------|------------------|
| | Prevalence | | | | | | | | |
| | N | Husband | Wife | Joint ^a | OR | 95% CI | | | |
| Husband's education, y | | | | | | | | | |
| 0-11 | 1387 | 0.349 | 0.296 | 0.138 | 9.69 | (8.42, 10.97) | 0.103 | 1.339 | 62.4 |
| 12 | 1528 | 0.184 | 0.133 | 0.040 | 2.82 | (2.13, 3.52) | 0.024 | 1.645 | 23.1 |
| 13-15 | 821 | 0.121 | 0.139 | 0.027 | 1.93 | (1.14, 2.71) | 0.017 | 1.633 | 8.8 |
| ≥16 | 1010 | 0.071 | 0.067 | 0.014 | 1.00 | | 0.005 | 3.010 | 6.0 |
| Wife's education, y | | | | | | | | | |
| 0-11 | 1177 | 0.321 | 0.336 | 0.156 | 9.43 | (8.18, 10.69) | 0.108 | 1.446 | 59.9 |
| 12 | 1927 | 0.187 | 0.141 | 0.040 | 2.40 | (1.88, 2.93) | 0.026 | 1.506 | 29.2 |
| 13-15 | 942 | 0.117 | 0.099 | 0.017 | 1.05 | (0.54, 1.55) | 0.012 | 1.499 | 6.2 |
| ≥16 | 700 | 0.100 | 0.047 | 0.017 | 1.00 | | 0.005 | 3.551 | 4.6 |
| Household income | | | | | | | | | |
| 1st Quintile | 1052 | 0.355 | 0.306 | 0.140 | 11.24 | (9.56, 12.93) | 0.109 | 1.291 | 49.2 |
| 2nd Quintile | 986 | 0.245 | 0.204 | 0.070 | 5.64 | (4.35, 6.92) | 0.050 | 1.410 | 24.8 |
| 3rd Quintile | 946 | 0.155 | 0.141 | 0.041 | 3.30 | (2.28, 4.32) | 0.022 | 1.879 | 14.4 |
| 4th Quintile | 926 | 0.130 | 0.096 | 0.021 | 1.65 | (0.92, 2.38) | 0.012 | 1.654 | 7.3 |
| 5th Quintile | 836 | 0.055 | 0.055 | 0.012 | 1.00 | | 0.003 | 4.142 | 4.4 |
| Insurance status | | | | | | | | | |
| None | 790 | 0.372 | 0.333 | 0.177 | 4.81 | (4.09, 5.54) | 0.124 | 1.425 | 44.9 |
| Insured | 3956 | 0.157 | 0.131 | 0.037 | 1.00 | | 0.021 | 1.784 | 55.1 |
| IFLAR > 20 | | | | | | | | | |
| SES Indicator | Prevalence | | | | | 95% CI | Expected Joint Prevalence | Ratio of Actual-Expected Prevalence | Concentration, % |
| | N | Husband | Wife | Joint ^a | OR | | | | |
| Husband's education, y | | | | | | | | | |
| 0-11 | 1387 | 0.233 | 0.296 | 0.105 | 7.19 | (6.08, 8.30) | 0.069 | 1.516 | 55.1 |
| 12 | 1528 | 0.149 | 0.181 | 0.045 | 3.07 | (2.36, 3.78) | 0.027 | 1.655 | 29.9 |
| 13-15 | 821 | 0.113 | 0.165 | 0.022 | 1.50 | (0.81, 2.19) | 0.019 | 1.164 | 8.0 |
| ≥16 | 1010 | 0.055 | 0.101 | 0.015 | 1.00 | | 0.006 | 2.595 | 7.1 |
| Wife's education, y | | | | | | | | | |
| 0-11 | 1177 | 0.229 | 0.317 | 0.108 | 9.18 | (7.67, 10.69) | 0.073 | 1.489 | 48.4 |
| 12 | 1927 | 0.140 | 0.189 | 0.045 | 3.79 | (3.00, 4.57) | 0.026 | 1.689 | 38.2 |
| 13-15 | 942 | 0.105 | 0.122 | 0.023 | 1.94 | (1.13, 2.76) | 0.013 | 1.789 | 9.6 |
| ≥16 | 700 | 0.075 | 0.099 | 0.012 | 1.00 | | 0.007 | 1.580 | 3.8 |
| Household income | | | | | | | | | |
| 1st Quintile | 1052 | 0.304 | 0.309 | 0.125 | 17.25 | (14.51, 20.02) | 0.094 | 1.336 | 51.4 |
| 2nd Quintile | 986 | 0.162 | 0.233 | 0.051 | 7.08 | (5.18, 8.98) | 0.038 | 1.357 | 21.2 |
| 3rd Quintile | 946 | 0.113 | 0.182 | 0.039 | 5.35 | (3.65, 7.05) | 0.021 | 1.897 | 15.9 |
| 4th Quintile | 926 | 0.089 | 0.131 | 0.021 | 2.85 | (1.59, 4.12) | 0.012 | 1.789 | 8.5 |
| 5th Quintile | 836 | 0.041 | 0.089 | 0.007 | 1.00 | | 0.004 | 1.983 | 3.0 |
| Insurance status | | | | | | | | | |
| None | 790 | 0.381 | 0.493 | 0.130 | 3.73 | (3.06, 4.41) | 0.188 | 0.695 | 38.7 |
| Insured | 3956 | 0.117 | 0.167 | 0.035 | 1.00 | | 0.020 | 1.782 | 61.3 |

Note. SAHS = self-assessed health status; SES = socioeconomic status; OR = odds ratio; CI = confidence interval; IFLAR = index of functional limitations and activity restrictions (see text for explanation). Percentages may not total 100 because of rounding.

^aHouseholds in which both husband and wife were in poor health.

fewer than 10% of these couples were in the highest education and income categories. Likewise, the proportion of such couples without health insurance was 44.9% according to self-assessed health status and 38.7% according to the index of functional limitations and activity restrictions. In comparison, only 14.5% of all the couples in the sample had no form of health insurance.

Finally, Table 2 gives the expected joint prevalence of poor health among married couples. The expected prevalence was consistently lower than the actual prevalence across all SES

categories. This result indicated that although SES plays a significant role in the health status of the couple, other important variables may underlie this phenomenon.

Discussion

When people fall into poor health, they face an array of challenges, including medical costs, employment disruptions, pain and suffering, and, in some cases, disability and its associated burdens. This report highlights a pub-

lic health concern that has not received adequate attention in the literature—namely, that people in poor health often have a spouse who is in poor health as well. When the 2 unhealthy persons are married to each other, both lack the support a healthy spouse provides, and both face the additional burden of having a disabled partner. Couples in which both spouses are in poor health may face higher rates of institutionalization, which is very costly both for families and for the public.

This study has shown that the association between spousal health variables is strong and

highly significant. Furthermore, this association exists across 2 different health measures. Self-assessed health status reflects an overall perception of health that may arise from a variety of physical and mental conditions, whereas the index of functional limitations and activity restrictions captures the physical limitations people may have without being as narrow as typical disability measures, which are usually restricted to ADL.

Paying attention to couples in which both spouses are unhealthy is important, among other reasons, because such couples are highly concentrated in households with low SES, as reported earlier in this report. In terms of household income, for example, about three quarters of all such couples are in the bottom 2 income quintiles, a problem that is further exacerbated by the lack of any health insurance in almost half of these couples. These couples also face problems because very few of them have more than a high school education, which may lead to poor health-related choices and an underutilization of health care services.

The ratios between the actual and expected joint prevalence proportions shown in Table 2 suggest that other variables may explain the joint prevalence of health problems among married couples, although the strong association between health and education (which is usually completed long before the onset of health problems) suggests that such an analysis will show a significant causal role for SES. Confounding variables such as race/ethnicity or occupation may indeed exist, but the purpose here is to illustrate the association between health and SES, not to explain the causal pathways. Causal mechanisms are best addressed with a prospective, longitudinal study incorporating other risk factors in a regression context.

This study, of course, had other limitations and raises several questions for further analysis. For instance, an important extension would be to investigate couples who cohabit but are not legally married. Another avenue of research would be to investigate other personal relationships that might mitigate the effects of poor health (such as children living at home) and identify the role these relationships play in dealing with the mutual occurrence of poor health among couples.

Understanding the linkages between health and SES is a prominent, important, and, as yet, largely unfulfilled research agenda. Any satisfactory understanding of these complex processes surely must incorporate important interpersonal relationships such as marriage if we are to make sensible public health policies. □

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