Can Parental Longevity and Self-Rated Life Expectancy Predict Mortality Among Older Persons? Results from an Australian Cohort

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This study examined the effects of parental longevity and self-rated life expectancy on mortality, building upon the established model of self-rated health predicting mortality. A community sample of Australians aged 70 and over was surveyed in 1992 and 1995. The associations of interest were examined separately by sex using weighted multiple logistic regression. Parental ages at death were not associated with mortality for either men or women. In multivariate models, self-rated life expectancy had an independent effect on men's mortality and did not reduce the effect of self-rated health on mortality. Our findings from Australia are consistent with results from many countries; the effect of self-rated health on mortality is stronger for men than for women. We also found that the effect of self-rated life expectancy on mortality is stronger for men than for women. The independent effects of self-rated health and self-rated life expectancy indicate a need for a more detailed search for explanatory mechanisms.

INTRODUCTION

The primary aims of this article are to examine parental longevity and self-rated life expectancy as predictors of mortality. This will be done in conjunction with a re-examination of the role of self-rated health, a well-explored variable in the gerontological literature (Idler & Benyamini, 1997). Although the role of parental longevity has been examined in a few follow-up studies of mortality, the few studies of self-rated life expectancy have only examined its cross-sectional correlates (e.g., Hurd & McGarry, 1995).

Our sequential data analytic strategy reflects the goals of this article. First, as a preliminary goal, we test whether global self-rated health predicts mortality for older Australians, stratified by sex. This is carried out in a multivariate model, adjusting for potential confounders, including sociodemographic variables, health status indicators, and health behaviors. In the next step, we examine whether parental longevity relates to respondents' mortality and whether it diminishes the effect of self-rated health. Finally, we examine self-rated life expectancy, posing the same two questions as for parental longevity.

Overall, our steps in analysis will reveal if these two variables — parental longevity and self-rated life expectancy — are predictors of mortality and if they are independent of the effect of self-rated health.

BACKGROUND

We begin with a brief overview of the major findings from the extensive literature on self-rated health and mortality, recently reviewed by Mossey (1995) and Idler and Benyamini (1997). Then we discuss the few existing studies of parental longevity and self-rated life expectancy.

Studies of self-rated health and mortality have been undertaken with samples from many countries, and follow-up periods have varied widely. Despite comprehensive statistical controls for indicators of health status, self-rated health continues to represent an independent influence — beyond known mortality risks — on current and future health and on mortality (Idler & Benyamini, 1997). This independent effect has been verified in many samples, but the mechanisms explaining it remain unclear.

Only three studies known to us have included measures of family history or longevity in testing for an independent relationship of self-rated health and mortality. Two of these show an independent effect of self-rated health when family history is taken into account (Borawski, Kinney, & Kahana, 1996; Pijls, Feskens, & Kronhout, 1993), whereas one does not (Deeg, van Zonneveld, van der Maas, & Habbema, 1989). In the present study, if persons take their parents' longevity into consideration when assessing global self-rated health, we would expect the effect of self-rated health to be diminished by the longevity measures. However, we realize that the average ages of people in this sample surpass the ages at death of their parents, thus weakening the likelihood of detecting such a relationship. A younger cohort of respondents would be a more appropriate group with which to test the relationship of parental longevity to mortality.

Existing studies of subjective life expectancy suggest that it is highly congruent with actual life-table mortality probabilities. Hurd and McGarry (1995) used the Health and Retirement Study (respondents aged approximately 51 to 61 years at interview) to evaluate the subjective probability distributions of survival to 75 or 85. They found that aggregated subjective probabilities of survival are good approximations to population probabilities: averages of the subjective probabilities behave as survival probabilities calculated from a life table. Second, the probabilities of living to 75 or 85 vary systematically with diseases, socioeconomic status, self-assessed health, and indicators of family longevity. Especially noteworthy for the present research is their finding that respondents appear to be sensitive to parents' mortality experiences and adjust their probabilities of survival to those experiences.
Two other articles, using a small, nonrepresentative sample (Hamermesh, 1985; Hamermesh & Hamermesh, 1983), also found that subjective probabilities of survival (to age 60 or 80) were fairly consistent with life-table probabilities. Also in these studies, the variation with risk factors is similar to what is found in epidemiological data. Given the strength and consistency of the findings linking subjective life expectancy to actual life table mortality probabilities, we expect that self-rated life expectancy will be a significant predictor of mortality in the present study.

One article examining the role of a related concept, subjective age, in the relationship between self-rated health and mortality (Markides & Pappas, 1982) found that self-rated health did not independently predict mortality for any sociodemographic subgroup. However, older subjective age predicted mortality better than did age or objective health in the sample of primarily Mexican Americans. The protective effects of youthful age perceptions suggest that optimism about one's life expectancy also is likely to be protective. However, given the lack of research that simultaneously evaluates these concepts, it is difficult to precisely predict whether the effect of self-rated life expectancy will eliminate the effect of self-rated health. Later, we discuss the conceptual and methodological similarities and differences of these two self-ratings.

In this study, if the effect of self-rated health is eliminated when self-rated life expectancy is added, controlling for confounders, the relationship between self-rated health and mortality would be understandable in terms of self-assessed longevity, though this new relationship would need its own explanation. If the effect of self-rated health is not diminished by the addition of self-rated life expectancy, then we can conclude that the two items represent truly independent effects on mortality.

SEX DIFFERENCES
Most often, the effect of self-rated health on mortality is more evident for men than for women. The vast majority of self-rated health and mortality studies either controlled for sex or analyzed data separately by sex and found stronger effects for men. Often, these differences are attributed to women's more "accurate" reporting of health conditions, which precludes the predictive power of self-rated health on mortality after these health conditions are controlled. However, the one article we are aware of that has examined self-rated health and mortality in Australia (albeit in Sydney rather than Adelaide) found anomalous sex differences (McCallum, Shadbolt, & Wang, 1994). We expect to find results that are consistent with the bulk of the literature (i.e., that self-rated health will be a better predictor of men's mortality than women's).

We also anticipate that the effects of parental longevity, although likely to be weak, may show a sex effect (i.e., a man may consider his father's longevity more strongly than his mother's). Similarly for women, we expect mother's longevity to have a stronger effect on mortality than father's longevity. Thus, the diminution of self-rated health is likely to be stronger when the same-sex parent's longevity is taken into account. Further, we hypothesize that self-rated life expectancy will have a stronger effect on mortality for men, given the consistently stronger effects of self-rated health on mortality for men. We conduct all present analyses separately by sex to test for the consistency of our findings with those of other studies.

METHODS
Design and Sample
The data for the Australian Longitudinal Study of Ageing (ALSA) were collected by the Centre for Ageing Studies at Flinders University of South Australia in Science Park, Adelaide, Australia, in collaboration with the Center for Demographic Studies, Duke University, North Carolina, USA. The target population was all persons aged 70 years and over in the Adelaide Statistical Division, including older persons residing in the community and in special accommodations. Sample selection was undertaken with the assistance of the Australian Bureau of Statistics (ABS).

The sample was randomly selected from the State Electoral Data Base. In Australia, voting is compulsory for anyone on the Electoral Roll; to be included, one must be at least 18 years of age, a citizen, or a British subject who was on the Commonwealth Electoral Roll on January 25, 1984. The rate at which respondents were drawn into the sample varied by their sex, age, and region of residence. Men were oversampled to include enough to follow longitudinally. The complex sample design of ALSA necessitated in analysis the inclusion of a weighting factor based on the differing sampling fractions for local government area, age, and sex. This makes the sample more closely representative of the Adelaide population, because voter registration is mandatory.

In addition to the specified person, spouses (aged 65 years and over) of specified persons were also included in the sample. Other household members aged 70 years and over were also included, but these are negligible in number.

Given that the primary random sampling was of individuals and that spouses were added secondarily via contact with the originally selected respondent, we included only primary respondents in our analyses. In addition, those respondents who were alone in their age/sex/local government area strata (N = 9) had a weight of zero and therefore were removed from the sample, leaving a sample of 1,468 (542 women and 926 men).

Baseline data collection took place in the Fall of 1992. The first wave of the study yielded 2,705 eligible respondents (of the 3,262 originally selected). Of these eligible respondents, 1,477 (55%) primary participants responded. Reasons for nonresponse were illness of self (14%) or illness of someone else (2%), bereavement (<1%), and refusal (29%). For the most part, a telephone refusal meant that the case was not pursued further. The second wave of data was collected in 1993 by telephone (response rate = 91% of baseline), the third wave of data in the Fall of 1994 in person (response rate = 91%), and the fourth in 1995 by telephone. Vital status was cross-checked with death certificate data for all baseline respondents, regardless of current response status.

Measures
In this report, the dependent variable is death from any cause during the 3-year time period of 1992 to 1995. There was a total of 324 deaths to primary respondents during this period in the ALSA, 195 men (21.1%) and 72 women (13.3%).
The categories, codings, and unweighted marginal distributions for all variables used in the analyses are presented in Table 1.

The wording of the self-evaluated health status was "How would you rate your overall health at the present time?" (excellent, very good, good, fair, poor); it is entered into the model as a continuous variable. Parental ages at death are reported by respondents, and few respondents reported having a living parent at the time of the survey. In cases of respondents having living parents, current parental ages were used. Self-assessed life expectancy is based on the question, "How likely do you think it is that you will live for another ten years?" The four ordered response categories were very likely, likely, unlikely, and very unlikely, and self-rated life expectancy was also entered as a continuous variable. Approximately 7% of women and 12% of men were missing data on self-rated life expectancy for unknown reasons. Fisher's Exact test indicated that there were no differences between the missing and nonmissing groups on sociodemographic and health status factors. Fisher's Exact test yielded the same results (no significant differences between groups) between those 5% of respondents missing data on parental ages at death and those respondents with complete data.

We compared models containing only those persons with complete data and after imputing the age-adjusted mean for those missing life expectancy and the mean for those missing parental ages at death. The results with and without these groups are nearly identical. Therefore, to avoid deleting cases, a dummy variable was included for each measure to indicate missing status. These indicator variables were nonsignificant in all models, as expected based on preliminary results.

### Analysis

We follow the analytical model of Idler, Kasl and Lemke (1990), who examined the bivariate contribution to mortality for all available health status indicators and adjusted only for those that individually and independently related to mortality.

Controls for age (in years) were included. Age is known to be a very strong predictor of mortality for men and women, though its association with self-rated health is only modest.

Income-based measures of class among older persons are affected by the flat-rate Australian retirement income system and provide poor indications of lifelong advantages. The income measures available to us did not prove important after model building was complete. The education measure was age at leaving school, but we found that it did not relate to mortality for either men or women and therefore was not included in the analyses shown here.

Additional measures were included in models to control for confounding effects on self-rated health and mortality. First, health status indicators were included: pain in joints ("Have you had pain or aching in any joints on most days for at least a month in the past 12 months?"), self-report of diabetes and hypertension ("I want you to tell me which of these medical conditions you have ever suffered from"), and use of feet or legs ("Do you have full use of your feet and legs?").

Functioning was measured with a count of Activities of Daily Living (ADLs): "Please tell me if you had any difficulties or limitation or device in doing any of these activities in the last 12 months apart from when you may have been in a hospital or a nursing home"). A count of Instrumental Activities of Daily Living (IADLs) was similarly measured.

Other indicators of health status include the number of medications respondent is currently taking (total number of prescriptions and nonprescriptions), and hospitalization ("In the last 12 months, have you been in a hospital at least overnight because of illness or an accident?" Yes or No). Health risk behaviors, including cigarette smoking status (current-, past-, or former-smoker), frequency of alcohol consumption, and the Quetelet body mass index, were examined in bivariate analyses, but only smoking remained significant. ALSA also included household survey questionnaires and clinical examinations that were conducted separately in the home at baseline and at 24 months. The clinical exams, however, were only conducted on a subgroup of respondents; thus...
it was impossible to utilize the body mass index (Quetelet ratio) for the entire sample. Parallel analyses were conducted on the subgroup of clinical respondents, with and without the Quetelet ratio. Results were comparable to those of the full sample when the Quetelet ratio was not utilized, and the ratio did not contribute to the model once age was entered. Although other health status measures were available (e.g., other chronic conditions, incontinence), none was significantly related to mortality.

The association of self-rated health and mortality was examined by means of weighted multiple logistic regression using the SUDAAN software package (Shah, Barnwell, Hunt, & LaVange, 1991). The numerical value of the design effect in our models was large enough to support the need for weighted analyses, especially for men. In unweighted analyses, which we conducted earlier using SAS, the standard errors were inappropriately small. Significance tests for the resulting parameter estimates are based on standard errors that take design effects into account. Odds ratios and confidence intervals for the effects of self-rated health, parental longevity, and self-rated life expectancy on mortality were constructed separately for men and women. This was done in a series of hierarchical steps: (a) with self-rated health only; (b) with controls for physical health status, age, and cigarette smoking; (c) with parental longevity; and (d) with self-rated life expectancy. Odds ratios are derived from estimated logistic coefficients in trimmed models containing only the accumulated significant sociodemographic and health variables. A $p$ value of less than .05 and a confidence interval that does not include 1.00 is used to determine significance.

**RESULTS**

**Men**

**Self-rated health and mortality.** — Table 3 presents the models for men’s 3-year mortality. In Model 1, the preliminary model examining only self-rated health is introduced. Men who rate their health more negatively are far more likely to have died by the 3-year follow-up than those who rated their health more positively. This significant effect is sustained in all subsequent models for men’s mortality.

Model 2 introduces health and functioning variables, age, and smoking behavior. Joint pain is associated with a decreased risk of death, whereas number of medications, problem with the use of feet and legs, hospitalization, and IADL problems are significantly associated with an increased mortality risk. The effect of self-rated health is slightly attenuated but remains significant with the addition of these health status indicators. As expected, younger age is protective. In separate analyses (not shown), we found that the addition of age to the model very slightly strengthens the effect of self-rated health. Men who smoked, at baseline are over two and one-half times more likely to have died as those who did not smoke.

At this point, we can say that our findings regarding self-rated health and mortality in men are commensurate with findings of similar studies. Self-rated health predicts mortality net of health status indicators, age, and health behaviors. Whereas health and functioning variables slightly reduce the effect of self-rated health, the independent contribution remains and our preliminary hypothesis is supported.

**Parental longevity.** — In order to test the effect of parental longevity on mortality, ages of parents at death were included in the next model (Model 3). While we tested both parents’ ages at death individually for both men and women, we only show the model for men with father’s age at death and for women with mother’s age at death. The effect of parental longevity was not significant, nor was the self-rated health effect altered. Further, there was no sex-specific effect (i.e., men did not consider father’s age at death more strongly than mother’s age at death). Given that men were on average 8 years older at the time of the survey than their fathers were at the time of death, and 4 years older than their mothers at the time of death, this finding is not surprising. One would not expect respondents who had already lived beyond the age of their parents to be influenced strongly by age at death of parents alone.

**Self-rated life expectancy.** — Self-rated life expectancy is added in Model 4. Negative ratings of life expectancy increase the mortality risk for men but only slightly diminish the power of self-rated health.

The overall trend is associated with an odds ratio of 1.52 and a 95% confidence interval of 1.12 to 2.05, confirming that self-rated life expectancy has an independent effect on mortality.

This model replicates the analyses of other studies involving self-rated health and mortality, adding self-rated life expectancy to test for an effect that is independent of self-rated health on mortality. This affirms that for men, self-rated life expectancy appears to add still new information, with an independent contribution of its own, while parental longevity is not predictive of mortality in this sample.

To examine the contribution of self-rated life expectancy further, we tested a set of models with self-rated life expectancy in place of self-rated health (i.e., entered first into an unadjusted model, followed by an adjusted model). We found a strong relationship between self-rated life expectancy and mortality that was only somewhat attenuated with the addition of health status variables, age, and health behaviors. The final model is identical to Model 4 in the reverse analyses.

When self-rated health is added to the model, self-rated life expectancy is moderately attenuated. In the reverse case (Table 2, Model 4), the attenuation is only very slight.

**Women**

**Self-rated health and mortality.** — In Table 3, the models for women’s mortality are presented. In Model 1, the measure of self-rated health is introduced. The trend suggests that, in this unadjusted model, women with poorer self-ratings of health do have an elevated mortality risk relative to those with more positive ratings. However, it should be noted that the statistical power is lower for women, as the sample size and number of deaths are lower for women. Model 2 introduces the group of health and functioning variables, age, and smoking behavior. Taking a higher number of medications is significantly associated with an increased risk of death. Also, as expected, younger age is protective. Women who smoked at baseline are over two and one-half times more likely to have died as those who did not smoke. Though the diminution of the odds ratio for self-rated health
### Table 2. Weighted Logistic Regression Models for 3-Year Mortality of the Australian Longitudinal Study of Ageing, Men (N = 926)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Model 1: Self-Rated Health</th>
<th>Model 2: Health Status</th>
<th>Model 3: Parental Longevity</th>
<th>Model 4: Life Expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-rated health</td>
<td>1.90 (1.59, 2.28)***</td>
<td>1.55 (1.24, 1.93)***</td>
<td>1.55 (1.24, 1.94)***</td>
<td>1.45 (1.15, 1.83)**</td>
</tr>
<tr>
<td>Health status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint pain</td>
<td>0.52 (0.33, 0.83)**</td>
<td>0.53 (0.33, 0.83)*</td>
<td>0.52 (0.33, 0.82)**</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.33 (0.74, 2.39)</td>
<td>1.30 (0.72, 2.35)</td>
<td>1.36 (0.75, 2.47)</td>
<td></td>
</tr>
<tr>
<td>Medications</td>
<td>1.14 (1.02, 1.27)*</td>
<td>1.14 (1.02, 1.27)*</td>
<td>1.11 (1.00, 1.23)*</td>
<td></td>
</tr>
<tr>
<td>Feet/Legs</td>
<td>2.36 (1.49, 3.74)***</td>
<td>2.39 (1.52, 3.77)***</td>
<td>2.36 (1.49, 3.73)***</td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>1.71 (1.02, 2.85)*</td>
<td>1.69 (1.01, 2.81)*</td>
<td>1.71 (1.03, 2.84)*</td>
<td></td>
</tr>
<tr>
<td>ADL problems</td>
<td>0.98 (0.80, 1.20)</td>
<td>0.98 (0.80, 1.19)</td>
<td>0.98 (0.80, 1.20)</td>
<td></td>
</tr>
<tr>
<td>IADL problems</td>
<td>1.11 (0.97, 1.28)</td>
<td>1.11 (0.97, 1.28)</td>
<td>1.11 (0.96, 1.27)</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>0.76 (0.39, 1.47)</td>
<td>0.76 (0.40, 1.46)</td>
<td>0.74 (0.38, 1.43)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1.08 (1.05, 1.12)***</td>
<td>1.08 (1.05, 1.12)***</td>
<td>1.07 (1.04, 1.11)**</td>
<td></td>
</tr>
<tr>
<td>Currently smoke</td>
<td>2.65 (1.21, 5.81)*</td>
<td>2.67 (1.23, 5.81)*</td>
<td>2.62 (1.19, 5.80)*</td>
<td></td>
</tr>
<tr>
<td>Father's age at death (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Missing father's age at death</td>
<td></td>
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<tr>
<td>Self-rated likelihood of living 10 years (1 = very likely, 4 = very unlikely)</td>
<td></td>
<td></td>
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<tr>
<td>Missing life expectancy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>–2 Log Likelihood (df)</td>
<td>61.63 (1)**</td>
<td>147.66 (11)**</td>
<td>148.29 (13)</td>
<td>159.91 (13)**</td>
</tr>
</tbody>
</table>

*Note. ADL = Activities of Daily Living; IADL = Instrumental Activities of Daily Living. *p < .05; **p < .01; ***p < .001, based on SUDAAN logistic models.

### Table 3. Weighted Logistic Regression Models for 3-Year Mortality of the Australian Longitudinal Study of Ageing, Women (N = 542)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Model 1: Self-Rated Health</th>
<th>Model 2: Health Status</th>
<th>Model 3: Parental Longevity</th>
<th>Model 4: Life Expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-rated health</td>
<td>1.39 (1.05, 1.84)*</td>
<td>1.29 (0.96, 1.73)</td>
<td>1.29 (0.95, 1.76)</td>
<td>1.25 (0.92, 1.71)</td>
</tr>
<tr>
<td>Health status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint pain</td>
<td>0.56 (0.28, 1.13)</td>
<td>0.56 (0.28, 1.12)</td>
<td>0.57 (0.29, 1.13)</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>0.48 (0.14, 1.71)</td>
<td>0.48 (0.13, 1.76)</td>
<td>0.49 (0.14, 1.74)</td>
<td></td>
</tr>
<tr>
<td>Medications</td>
<td>1.19 (1.06, 1.35)**</td>
<td>1.19 (1.05, 1.35)**</td>
<td>1.19 (1.06, 1.34)**</td>
<td></td>
</tr>
<tr>
<td>Feet/Legs</td>
<td>1.68 (0.77, 3.67)</td>
<td>1.68 (0.78, 3.61)</td>
<td>1.64 (0.77, 3.46)</td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>1.12 (0.59, 2.14)</td>
<td>1.11 (0.58, 2.14)</td>
<td>1.11 (0.57, 2.15)</td>
<td></td>
</tr>
<tr>
<td>ADL problems</td>
<td>0.92 (0.70, 1.20)</td>
<td>0.92 (0.71, 1.21)</td>
<td>0.92 (0.71, 1.20)</td>
<td></td>
</tr>
<tr>
<td>IADL problems</td>
<td>1.09 (0.94, 1.27)</td>
<td>1.09 (0.94, 1.27)</td>
<td>1.09 (0.94, 1.26)</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>0.55 (0.27, 1.12)</td>
<td>0.55 (0.27, 1.11)</td>
<td>0.55 (0.27, 1.11)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1.10 (1.05, 1.15)***</td>
<td>1.10 (1.05, 1.15)***</td>
<td>1.10 (1.05, 1.15)***</td>
<td></td>
</tr>
<tr>
<td>Currently smoke</td>
<td>2.51 (1.05, 5.97)*</td>
<td>2.54 (1.06, 6.06)*</td>
<td>2.48 (1.04, 5.89)*</td>
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</tr>
<tr>
<td>Mother's age at death (years)</td>
<td></td>
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<tr>
<td>Missing mother's age at death</td>
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<td>Missing life expectancy</td>
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<td></td>
</tr>
<tr>
<td>–2 Log Likelihood (df)</td>
<td>61.63 (1)**</td>
<td>58.10 (1)**</td>
<td>58.33 (13)</td>
<td>58.52 (13)</td>
</tr>
</tbody>
</table>

*Note. ADL = Activities of Daily Living; IADL = Instrumental Activities of Daily Living. *p < .05; **p < .01; ***p < .001, based on SUDAAN logistic models.
is small from Model 1 to Model 2, given the low power, the effect becomes nonsignificant.

**Parental longevity.** — In order to test the effect of parental longevity on mortality, mother’s age at death was included in Model 3, without an effect. As for men, there was no sex-specific effect (i.e., women did not consider mother’s age at death more strongly than father’s age at death). Given that women were on average 6.5 years older at the time of the survey than their mothers at the time of death and 9 years older than their fathers were at the time of death, this finding also is not surprising.

**Self-rated life expectancy.** — In Model 4, self-rated life expectancy is added to the model. In a test for trend in the relationship between self-rated life expectancy and mortality, we found no evidence to support the relationship, just as we expected based on the lack of effects in the above analyses (Odds Ratio: 1.12, 95% Confidence Interval: 0.74, 1.71).

To examine the related question of the relationship between self-rated life expectancy and mortality, we ran a set of models with self-rated life expectancy in the place of self-rated health (akin to Models 1–4). We found a strong relationship between self-rated life expectancy and mortality in the unadjusted model that was largely attenuated with the addition of health status variables, age, and health behaviors. This finding indicates a less robust effect of self-rated life expectancy for women than for men, as we expected based on evidence from self-rated health and mortality.

**DISCUSSION**

We found a significant and independent effect of self-rated health on mortality for men. Once this well-established relationship was verified in our sample, we tested the effect of parental longevity on mortality. We were interested in whether parental longevity had an effect on mortality and, if so, whether this effect was independent of self-rated health. Contrary to our expectations, we found no effect of parents’ longevity on mortality. Concomitantly, the effect of self-rated health did not diminish when parental longevity was added to the model for men or women.

A significant and independent effect was found for self-rated life expectancy on mortality (the likelihood of living 10 years from the time of the baseline survey). Self-rated life expectancy predicted mortality in its own right, and self-rated health remained independently predictive of mortality once self-rated life expectancy was added to the model for men.

For women, the results were weaker at every stage. The initial effect of self-rated health on mortality in the unadjusted model was reduced when health variables were added in the second model. Also, we found no effects of parental longevity or self-rated life expectancy on mortality in women’s adjusted models. We hypothesized that our results would be consistent with most of the literature (i.e., that the effects of self-rated health on mortality would be more apparent for men, and this is what we found). In this community sample of Australian elderly persons, the relationship of self-rated health and mortality is similar to that found in past studies from many other countries.

Given the sex differences that we found, the information that women use to develop their self-ratings of health and of life expectancy appears to differ from that used by men. It seems reasonable to conclude that if self-rated health is consistently a much better predictor of men’s mortality than women’s, then a conceptually similar measure such as self-rated life expectancy would also be subject to different cognitive processes by sex.

The correlation coefficient of $r = .39$ for men in our sample indicates that there is some empirical overlap as well between self-rated health and self-rated life expectancy. The conceptual similarity is intuitive, but the unique variance suggests an empirically independent effect. Our findings suggest that men in this sample evaluate self-rated health and self-rated life expectancy sufficiently differently, and that both items predict 3-year mortality, net of health status, sociodemographic, and health behavior indicators and of each other. Thus, we may say that these two concepts tap different aspects of perhaps the same but broader concept.

There are many proposed mechanisms to explain the relationship of self-rated health and mortality. We are interested here in proposing that related mechanisms may explain the relationship between self-rated life expectancy and mortality. However, given the fact that self-rated life expectancy is a new area of inquiry, this discussion is somewhat speculative.

First, self-rated health may measure not only current level of health but also changes in health and health perception. It is reasonable to speculate that a person’s formulation of his or her life expectancy may also be shaped by past or anticipated changes in health.

Second, self-rated health could influence behaviors that subsequently affect health status, including preventive measures and treatment adherence. Again, it is reasonable to suggest that one’s own expectation of longevity could influence the types of health behaviors that are maintained, adopted, or abandoned. For instance, if a person feels that he or she is likely to die soon, there may be little motivation to engage in positive health behaviors, if the belief is that such behaviors will be futile in affecting future health status. Alternatively, someone who takes into account his or her positive or negative health behaviors may formulate self-rated life expectancy by taking these behaviors into consideration, perceiving a sense of control over lengthening or shortening one’s life.

Next, self-rated health may reflect the presence or absence of resources that can attenuate decline in health, especially the perceived adequacy of tangible resources, social resources, and within-person resources. It is possible that self-rated life expectancy may be influenced by the perception that one can or cannot handle additional years of life, based on an assessment of personal, social, and/or financial resources.

Also relevant to the present study is a fourth proposed explanation: that self-rated health may be a more inclusive and accurate measure of health status and health risk factors than the covariates used. These potential covariates include preclinical disease, illness severity, and family history. In regard to the last point, Idler and Benyamini (1997) note that a person’s estimate of longevity may be based on knowledge of familial risk factors. The parental longevity measure that we test here is in this category. The authors note, however, that the effect of family history through self-rated health would probably not be based directly on the age parents died or the illness they died.
from but some interaction of these and other health factors. We did not have available additional information about parental cause of death or other more specific information. However, we did test interactions of the health status variables and parental age at death, but none was significant.

Finally, there may be a “direct” influence of self-rated health on mortality. Self-rated health may represent optimistic expectations about health outcomes and about coping with health crises that may positively affect health status through still unknown mechanisms (e.g., Scheier & Carver, 1992). Certainly, self-rated life expectancy explicitly refers to expectations about future health and survival that likely include some measure of optimism or pessimism. Given that we found independent effects of self-rated health and self-rated life expectancy on mortality, we know that there are empirical differences between the two measures.

The obvious conceptual difference between these two self-ratings is the explicit reference to age in self-rated life expectancy that is not contained in the self-rated health measure. This reference has implications for measurement and design issues and for consideration of possible explanatory mechanisms. First, as noted earlier, the question “How likely do you think it is that you will live for another ten years?” is obviously more appropriate to ask persons in an elderly sample than a younger one. Should this idea be included in a sample of younger people, the wording would necessarily be altered to something similar to that in the Health and Retirement Survey (Hurd & McGarry, 1995): “Using any number from zero to ten where 0 equals absolutely no chance and 10 equals absolutely certain, what do you think are the chances you will live to be 75 or more?” “85 or more?” Alternatively, younger persons could be asked how likely they think it is that they will surpass the average life expectancy for persons their age.

Whereas there is evidence that self-rated health is a good predictor of mortality for young (Kaplan & Camacho, 1983; Krzyzanowski & Wysocki, 1986) and old (Mossey & Shapiro, 1982; Idler, Kasl, & Lemke, 1990) samples, it is possible that self-rated life expectancy is a better predictor of mortality among the old than the young. Conceptually, thinking about death is very likely more relevant to the lives of older persons who are experiencing losses of friends and relatives more frequently than are younger persons. This may also mean that self-rated life expectancy is a more relevant concept for them, whereas self-rated health may have age-independent effects. In considering explanatory mechanisms that may differ for the two measures, age is again the major point of distinction. We expect that a good measure of the interaction between family longevity and health indicators, tested on a somewhat younger sample, would be likely to attenuate the effect of self-rated life expectancy more than it would attenuate the effect of self-rated health on mortality.

In the present study, we have begun to establish that self-rated life expectancy is an independent predictor of mortality among men in this sample. We have also suggested possible reasons for this relationship that may overlap with the explanations for the relationship between self-rated health and mortality. Our results suggest that self-rated perceptions of health and life expectancy are powerful predictors of mortality, especially for men, and that family longevity is not a strong influence. Future data collection should be targeted to test the interpretations given above, in order to clarify why self-rated health and self-rated life expectancy are robust and independent predictors of mortality among elderly men.

ACKNOWLEDGMENTS
Preparation of this article was supported by the National Institute on Aging Grant 5T32-AG-00153 and was carried out at the Department of Epidemiology and Public Health, Yale University School of Medicine. The Australian Longitudinal Study of Ageing is a collaborative effort of the Centre for Ageing Studies, Flinders University of South Australia (Dr. Gary Andrews, Director) and the Center for Demographic Studies, Duke University, North Carolina (Dr. George Myers, Past Director). Data collection for the ALSA was supported by NIA Grant AG 08523. We are very grateful to George Myers and Gary Andrews for allowing our continuing use of the data.

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Received December 23, 1996
Accepted August 18, 1997