Life Satisfaction, Self-rated Health, and Mortality in Taiwanese Elderly

Introduction

This study examines if people's perceptions of their lives and health predict subsequent mortality. Increasing evidence suggests that self-rated health and life satisfaction are important predictors for subsequent health outcomes, quality of life, and the risk of mortality (Koivumaa-Honkanen et al., 2000; Gustafsson, Isacson, and Thorslund, 1998). Both life satisfaction and self-rated health are, thus, recommended to serve as general health risk indicators (Shapiro E., 1982; Koivumaa-Honkanen et. al., 2000). The evidence, nevertheless, has heavily relied upon data collected in Western societies.

The social and cultural context plays an important role in defining what is the meaning of good life and of good health. Subjective evaluations of health and life and the way in which these evaluations are made are culturally sensitive. Cross-cultural comparisons show that cultural variables explain differences in the mean level of subjective well-being; and this is partially due to cultural norms governing appropriate feelings (Diener, Oishi, and Lucas, 2003). A separate qualitative study has also documented that Asian elders have some distinctly different perspectives from Westerners regarding the meaning of psychological well-being (Ingersoll-Dayton et al., 2001). Therefore, testing the hypothesis with data collected from different social and cultural settings is important for generalizing the claim of the importance of subjective well-being for health and mortality. This study aims to test the independent effect of subjective well-being on mortality in a non-Western social and cultural setting, Taiwan.

Both life satisfaction and self-reported health are subjective phenomena. While social norms and cultural notions regarding life and health are important components of these subjective evaluations, a person's cumulative experiences over the life course, as well as current life circumstances are also important. The continuity of subjective personal identity and of personality characteristics may serve as important inputs for these evaluations, as well. In other words, subjective evaluations of life and health may have some stable elements; nonetheless, changes in these feeling at any time during an individual lifetime are also possible. A general belief is that subjective well-being declines as a person advances in age. Social, physical, and psychological losses associated with old age possibly contribute to these declines. This study aims to specify subjective well-being at different points in time to investigate the impact on mortality resulting from changes in subject well-being during later life.

Although the major focus of this study is the influence of these subjective feelings on mortality through a framework of the aging process, we also integrate some explanatory variables from life course perspective. Life course experiences in relating to social change, such as the large-scale expansion of education, during childhood and the earlier years of adulthood are particularly important and have long-lasting influence on individual life (Elder, 1985; Thornton, 1995). Life events and transitions into different

roles are among the central concepts in the study of life course. In this study, we include transition into widowhood in our analysis as one of the predictors for mortality.

Data and Analysis Method

Our data come from a panel survey with a probability sampling design to represent the older population in Taiwan. The Panel Survey of Health and Living Status of the Elderly first interviewed 4,049 men and women aged 60 or older in the spring of 1989 and subsequent interviews were conducted in 1993, 1996, 1999, and 2003. The survey data were collected by the Center for Health and Population Survey under Bureau of Health Promotion in Taiwan. The first four waves of this panel survey provide repeated measures for self-reported life satisfaction, self-rated health, and objective health over ten years. While some of the predictors for mortality are constant over time, such as gender and educational attainment, subjective well-being and objective health are very likely to change as part of the aging process. The repeated observations across different waves provide us an excellent opportunity to examine the effects of time-dependent covariates on mortality. The mortality data come from the death registers provided by the Health Statistic Institute, Department of Health of the Taiwan government. From the spring of 1989 to the end of 2003, the occurrence of death was observed for a maximum period of 177 months.

We apply discrete-time event-history (or hazard) method in this analysis. The analysis pools together the person-months of risk and estimates the effects of the explanatory variables on the probability of death through logistic regression. Rather than using individuals as analysis units, this approach runs logistic regression on person-month data with the dependent variable coded one if the death event occurred in that person-month and zero otherwise. In other words, each discrete time unit for each individual is treated as a separate observation or unit of analysis. It should be noted that when we use one month as the observed time unit, this approach is analogous to a continuous-time hazard model (Allison 1982; Petersen 1991). It provides appropriate estimates of standard errors and tests of statistical significance. This approach also allows straightforward tests for interactions among time-varying covariates.

Measurements for Predictors

Life Satisfaction.
Across the four waves of interview, the respondents were asked if they agree or disagree with the following four statements.
(1) “I have gotten more breaks in life than most of the people I know.”
(2) “As I look back on my life, I am fairly well satisfied.”
(3) “These are the best years of my life.”
(4) “I expect some interesting and pleasant things to happen to me in the future.”
For each statement, we assign one point to the answer of “agree” and zero point to “disagree”. The score of self-reported life satisfaction is the sum of these four items, which ranges from zero to four.

Self-rated Health

The following item is used to measure subjective health:
"How would you rate your health at the present time? Would you say it is excellent, very good, good, fair, or poor?"
A five-point scale ranging from zero to four is used here to indicate the self-rated heath. The higher scores indicate better self-rated health, with four points indicating excellent health and zero indicating poor health.

Objective Health

Measures for objective health in this study include:
(1) The total count of limitations in performing ten functional tasks, which can be classified as ADL, IADL, and general physical functioning activities (Nagi).
(2) The total count of diseases reported by the respondent, from the following list: high blood pressure, diabetes, stroke, and heart problem.
(3) Smoking: if respondent smokes coded as one; otherwise coded as zero.

Other predictors: Gender (female coded as one and male coded as zero); Age; Never Married (one for never-married, zero otherwise); and Widowhood (one for widow or widower, zero otherwise).

Preliminary Results

About half of the sample survived throughout the period examined in this study (from the spring 1989 to the end of 2003) and are considered censored; the total number of surviving cases is 1,998. The total number of death incidents is 2,051. Preliminary results from the event history analysis show that, controlling for objective health measures and other important demographic factors, life satisfaction and self-reported health are important predictors of mortality. Each measure of subjective well-being has a significant negative effect on the risk of mortality. Satisfaction with life reduces the odds of mortality; the estimated odds ratio for life satisfaction is 0.96 (with 95% of confidence interval between .917 and .997). Similarly, better self-rated health is significantly associated with a lower probability of death; the odds ratio estimate for self-rated health is .80 (with 95% of confidence interval between .751 and .844). These findings are consistent with studies in Western societies that have shown important effects of physical and psychological well-being on mortality, over and above the effects of objective health measures.

We also test if the effect of subjective well-being on mortality diminishes as the interval between the measurement of subjective well-being and the time of death increases. The result of this test reveals that the effects of both life satisfaction and self-rated health consistently decline as the interval lengthens. The shorter the follow-up period, the stronger the predictive power of subjective well-being on mortality. The implication of this finding is that treating subjective well-being as constant over an extended period, may result in underestimation of the effect of subjective well-being on mortality. This finding reveals the importance of treating subjective well-being as a time varying variable for the study of mortality.