

**A Comparison of Self-Assessed Health Expectancy
Among Older Adults in Several Asian Settings**

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Abstract: Self-assessed health has been found to be a strong predictor of changes in health and mortality and has been included in many surveys of health and aging around the world. In this paper, we estimate expectancies in self-assessed health and compare them across older adults in six Asian settings (China, Indonesia, the Philippines, Singapore, Taiwan, and Thailand). All of these societies are undergoing rapid population aging and social and economic change, and there is much concern among policymakers about of the potential implications for future disease burden and associated informal and formal care demands. Yet, very little health expectancy research has been conducted in these settings to date. Data used in the analysis come from national surveys conducted in each setting in the mid 1990s. Self-assessed health is dichotomized into categories reflecting negative health ratings (e.g., poor/not good at all) versus positive or neutral health ratings (excellent to good/average/fair). The Sullivan method is used to estimate years and proportion of remaining life spent in a healthy self-assessed state by age and sex. Results suggest that despite differences in the proportion reporting negative health, patterns of health expectancy by age and sex are similar across the six settings. The patterns are consistent with those from other studies of health expectancy that utilize different health measures and are based in different regions of the world.

Introduction

Health expectancy analysis, which incorporates indicators of both mortality and morbidity, is a useful tool for summarizing the effects of changing health status and mortality conditions in populations. Numerous health expectancy and related studies have been conducted in the U.S. and other more developed countries (e.g., see Bebbington, 1991; Belanger, Martel, Berthelot, and Wilkins, 2002; Cambios and Robine, 2000; Crimmins, Hayward and Saito, 1996; Robine, Jagger and Cambios, 2002; Robine and Ritchie, 1991; Rogers, Rogers and Belanger, 1992). Most of these studies have used measures of disability (most commonly limitation in physical functioning activities) or chronic disease as the basis for calculating health expectancy. On balance, these studies show that healthy life expectancy declines with age, that men tend to spend a greater proportion of life in healthy states in comparison to women, and that several other determinants, including socioeconomic status and social support, are also important. Despite considerable attention to research on health expectancy in the U.S. and Europe, however, such studies are limited in Asia and other less developed regions of the world. This paper is an attempt to begin to fill this gap.

Aims of current study

In this paper, we use data from national surveys of older adults in six Asian settings, Indonesia, China, the Philippines, Singapore, Taiwan, and Thailand, all conducted within a span of several years in the mid 1990s, to estimate self-assessed health expectancy and to compare patterns in health expectancy across settings. The paper has two primary aims: (1) to estimate in a general way the years of life older adults in the six Asian societies can expect to live in self-assessed healthy and unhealthy states, and (2) to assess whether patterns of self-assessed health expectancy by age and sex are similar across the settings.

We consider self-assessed health to be a good place to begin a dialogue on comparative aspects of health of older adults across the diverse societies of Asia. Self-assessments of health, which are typically derived from survey questions such as, "How would you rate your health, very good, good, fair or poor?" appear to be highly subjective measures of health status. However, the measure has been found to

correlate very strongly with more objective measures of physical and mental health in many settings around the world, including those under study (Idler and Benyamini, 1997; Jylha et al., 1998; Larson, 1978; Zimmer et al. 2000). In addition, self-assessed health has been shown to be a strong predictor of mortality, even when controlling for physical health (Idler and Benyamini, 1997). As such, self-assessments of health are thought to encompass a broad range of health problems that are typical in old age, some of which may be subtle and difficult to measure in surveys.

In addition to its substantive appeal, the self-assessed health measure is attractive in another more practical regard in that it is one of the most widely used measures of health in surveys around the world. Although the exact wording of self-assessed health question and response categories may differ across surveys, the response categories tend to be divisible into one group that represents poor health and another that represents better than poor health, and this allows for at least some measure of comparison across very diverse settings.

Benefits and challenges of comparative analyses

Comparative analyses are the basis of much gerontological research on health. Most often comparisons are made across subgroups within a given population. For instance, it is common for researchers to compare health across categories of age, sex, race/ethnicity and other factors that are considered to be important for differentiating across groups. Another type of comparative analysis involves comparisons across countries or cultures, although these are less common in the literature. The value of cross-country or cultural comparisons for understanding the variations in older adult health across socio-demographic characteristics was recognized decades ago (Burgess, 1960; Cowgill, 1972), but the lack of such analyses over time has led to a reemphasis of its importance in a number of more recent publications (Albert and Cattell 1994; Bengtson et al. 2000; Chi, Chappell and Lubben 2001; National Research Council 2001). These have underscored advantages that include enhancing our ability to understand variations in underlying dynamics of aging, improving the sense of generalizability of observations made in specific national and cultural contexts, and raising questions about the universality

and alternatively the uniqueness of the aging experience. Indeed, a number of hypotheses relating to associations between age and gender and on one hand and health on the other, are often assumed to be universal without rigorous testing across settings where social structures differ. In the current study, we examine whether self-assessed health expectancies decline with age, as would be expected with most health measures, whether health expectancies are greater for men or for women, and whether the age and gender patterns are consistent across the different settings. The association between gender and health in particular has been well established in the West (Verbrugge, 1989), but has received surprisingly little attention in developing societies. We generally expect women to live longer than men but to also suffer more frequently from non-fatal physical disabilities that limit capacity to function or cause other types of distress, such as pain.

One of the reasons for the lack of cross-country research on health and aging in the developing world is that it is rare to find data that are comparable. In particular, surveys that collect information on the health of older adults in developing countries are not abundant. Researchers who are interested in health and aging in developing societies need often rely on surveys that have been conducted at different time points, by separate research organizations, and using different ways of measuring health. In the current study we draw on a set of surveys of older persons in several Asian societies that were conducted at similar points in time, all of which included a measure of self-assessed health. All of these settings, like most places in East and Southeast Asia, are undergoing rapid population aging (Kinsella, 2000), which provides further impetus for health research. The aging of these societies has caused concern among policymakers about of the potential implications for future disease burden and associated informal and formal care demands (Hermalin, 1995; Philipps, 2000). Some estimate that that demand for health care is likely to escalate at an unprecedented pace in countries that are aging most rapidly, placing a burden on the health infrastructure, as well as on government resources and ultimately society (Mayhew, 1999).

Estimates of the years that individuals can expect to spend in healthy and unhealthy states can be valuable for estimating the demands for future care. Although many of the studies of health expectancy

cited above have focused on measures such as physical impairment or disability in functional tasks or presence of a specific chronic disease, self-assessed health, being much more global and subjective in nature, can incorporate a variety of aspects of health including cognitive and emotional as well as physical status, and therefore provide insights into the needs of an aging society. Perceptions of health may be as much, if not more of an impetus for help seeking, be it from a health professional or assistance at home from a relative or friend. Hence, self-assessed health may be a particularly important indicator of the potential demand for health services and long-term care needs of the elderly population.

The comparability of the self-assessed health measure across cultures has not been adequately investigated, and there may well be cultural variation in the interpretation of the question and response categories, as well as in how people evaluate their health (Jylha et al., 1998; Su and Ferraro, 1997; Zimmer et al., 2000). The subjective nature of the measure presents both advantages and disadvantages for cross-country comparisons. On one hand, self-assessed health may be less prone to problems of comparability due to differing levels of knowledge or awareness of specific health conditions than other health measures used in surveys (e.g., reports of chronic conditions, which often require physician diagnosis). On the other hand, the subjective nature of the measure opens up room for differences in question interpretation (what is the meaning of ‘health’ and/or what aspects of health are taken into account in an individual’s rating?), as well as referent groups that are used as the basis for rating one’s own health. Because of this, and because of slight differences in question wording, our focus in this paper is on comparing *patterns* rather than specific levels of self-assessed health across settings.

Methods

Data

The data come from nationally representative, cross-sectional surveys of older adults in each of the six settings. The six settings include the four of the five most populous countries in East and Southeast Asia (Viet Nam being the only other in the top five not represented), and combined represent 81 percent of the total population of East and Southeast Asia and 76 percent of the elderly population (age

60 or over) in the region. Table 1 provides information on the name, interview years and sample sizes (for respondents 60 years of age or older) for each of the surveys. The Philippine, Singapore, Taiwan, and Thailand surveys were designed as part of the project, “Rapid Demographic Change and the Welfare of the Elderly,” which was headed by Albert Hermalin at the University of Michigan, in conjunction with centers in these four countries. The China data come from the China Research Center on Aging’s Survey of Support for the Elderly in China. The Indonesia data come from the Indonesian Family Life Survey conducted by RAND. All of the surveys except the China survey include interviews with respondents under age 60; however, for comparability purposes, we restrict the analysis to those age 60 and older in each setting.

As noted previously, the current analysis uses a survey item for each setting that asked respondents to rate their overall health at present on a scale (either 4-point or 5-point) ranging from excellent or very good to poor. The precise wording and response categories used in each setting differed somewhat. Table 2 shows the English translation of the questions and response categories. For purposes of the present analysis, we dichotomized the self-assessed health measure into two broad categories that we think reflect positive or neutral health ratings (excellent, good, average, fair) versus negative health ratings (not good, poor). (Categories used to define the positive or neutral ratings for each country are highlighted in bold in Table 2.) We hereafter refer to the positive or neutral ratings as healthy self-assessments, and the negative ratings as unhealthy or poor self-assessments.

Analysis

We use the Sullivan method for calculating the years expected to be spent in a self-assessed healthy versus unhealthy state. The Sullivan approach partitions life expectancy into different states of health based on the distributions within a population at a single point in time (Sullivan, 1971). As such, the Sullivan method reflects the current health of a real population adjusted for mortality levels (Jagger, 1999). This method has been used quite extensively for estimations of health expectancy and trends in health expectancy (add refs for some examples).

The Sullivan method requires as input two pieces of information: age and sex-specific life expectancy estimates, and age and sex-specific probabilities of reporting a healthy self-assessment. Life expectancy estimates were obtained from abridged life tables for each setting for the survey year or, in the case of the Philippines, the closest year available (1990). All of the life expectancies were reported separately for males and females. With the exception of Taiwan, the life expectancies provided were for specific ages separated by five years: 60, 65, 70, 75, 80 and 85. To obtain an estimate of life expectancy for a 5-year age group, we used the simple average of the life expectancies for the two ages bordering the age group (e.g., for the 60-64 age group: $e_{60}+e_{65}/2$). For Taiwan we used sex-specific life expectancies for single years of age (60, 61, 62, up through 85). To obtain an estimate of life expectancy for a 5-year age group in Taiwan, we took the simple average of life expectancy for each single age within the age group (e.g., $e_{60}+e_{61}+e_{62}+e_{63}+e_{64}/5$). Finally, to obtain life expectancy for both sexes combined for a given age group, we took the weighted average of the male and female life expectancies for the age group, weighted according to the sex distribution in that age group as observed in the survey sample.

Age is collapsed into 5-year groups from age 60-64 through the top category of 85+. We smoothed the age-specific probabilities of reporting healthy self-assessments by predicting self-assessed health as a linear function of the 5-year age groups, first for the total population, then separately for males and females. Age heaping is a problem in Indonesia, with heaping at decade and mid-decade years. The use of 5-year age groups helps alleviate this problem, but the age patterns in Indonesia may still be slightly underestimated as a result. For all analyses, the samples are weighted to be representative of the total elderly population in each setting at the time of the survey. Finally, many of our results are presented in figures, and these use midpoints of age groups for plotting the point estimates. █

Results

Self-assessed health reporting across settings

Table 3 presents the percent of respondents who report negative self-assessed health ratings for each sample by age and sex. Overall, there is a fair degree of difference in levels across the settings, with

the percent reporting poor self-assessed health ranging from 15 to 35 percent for the total sample. Older adults are least likely to report poor self-assessed health in the Philippines and Singapore, while they are most likely in Thailand and Taiwan. There are strong associations with age in each setting, with the oldest-old (age 80+) being most likely to report poor health ratings. The slope of the age pattern differs across countries, however. The largest age differentials occur in the Philippines and in Singapore, and among men in Thailand, where those age 80 and older are more than twice as likely to report poor self-assessed health than are those age 60 to 69. In addition, China, Indonesia, Taiwan and Thailand show sharp increases between the two younger age groups in the percent reporting negative health ratings, but less pronounced increases between the two oldest age groups. In contrast, in the Philippines and Singapore, the increase is quite linear. The only age difference that is not statistically significant at a .05 level is among men in Taiwan, for whom there is some increase between age 60-69 and age 70-79 and then a slight decline.

Self-assessed health also differs by gender in the expected direction. Women are more likely than men to report poor self-assessed health in most settings, and these differences generally hold across age groups. Two exceptions to this pattern are Indonesia, where there is essentially no gender difference, and the Philippines, where the proportion reporting poor health is slightly higher for women than men, but the difference is not statistically significant.

Life and health expectancies across settings

Figure 1 compares life and health expectancies based on the Sullivan estimates. Life expectancies at age 60 across the four settings range between 15 and 18 years for those aged 60, with the highest expectancies occurring in Singapore and Taiwan. Despite differences in the proportion reporting unhealthy self-assessed health across settings (as shown in the previous table), there is a great deal of similarity in age patterns of health expectancy. In all countries, healthy life expectancy at age 60 far outweighs unhealthy life expectancy, but the two converge or nearly converge by age 85. Healthy life expectancy declines steadily with age in each setting, whereas unhealthy life expectancy remains fairly

stable in China, the Philippines and Singapore and declines very slightly in Indonesia, Taiwan and Thailand. The result is that in each setting, those who live to about age 85 or older can expect to live almost equal amounts of time in healthy and unhealthy self-assessed states. These patterns are quite similar to those observed in previous studies using measures of physical functioning and disability (Lamb, 1999; add other refs).

Age and gender comparisons

Figure 2 compares the years of healthy life remaining for males and females by age across settings. There is a small amount of variation in healthy years across settings at age 60, ranging from about 11 to 15 for males and from about 12 to 16 for females. The declines in healthy years by age are quite consistent across settings, and by age 85 there is little variation in the number of healthy years of remaining life. At age 85, the expectation is between 2 and 3 years of self-assessed healthy life for both men and women in all settings. Reflecting their tendency to report more negative health ratings as shown in Table 3, Thai elders consistently have the fewest healthy years remaining at each age. Those in Singapore start out with the highest number of healthy years at age 60 but converge with the others at older ages.

Figure 3 shows the percent of remaining life that is expected to be spent in a healthy self-assessed state. In all settings, both men and women exhibit declines by age such that older people spend a smaller fraction of their remaining life in a healthy self-assessed state than is the case for younger people. The declines are fairly steady across the settings, except for men in Thailand, who display a much sharper decline by age, and men and women in China, who display somewhat less decline. The percent of time spent healthy ranges from about 80 to 90 percent for men at age 60 and falls by approximately 15 to 20 percent up to age 85, except for Thailand where the decline is about 35 percent. For women, the percent of time ranges from about 65 to 90 percent, and the decline is also between about 15 and 20 percent up to age 85. Put another way, overall, for each year of age the percent of remaining time spent in a self-assessed healthy state declines by about 0.5 percent, with some variation across settings.

Thus far our results have echoed the expected associations of healthy life expectancy with age. In order to compare life expectancy, healthy life expectancy, and the percent of life spent healthy by gender in a more direct way, Table 4 presents female to male ratios for these statistics. Ratios over 1.0 indicate a female advantage in life or health expectancy, ratios under 1.0 indicate a male advantage, and ratios of 1.0 imply no gender difference. Because women tend to live longer than men in these settings, life expectancy ratios are greater than 1.0 at all ages. The ratio is about 1.1 to 1.2, indicating that life expectancy is 10 to 20 percent higher for women than for men. China stands out as having higher ratios than elsewhere (1.2 to 1.3).

On balance, sex ratios for healthy life expectancy are lower than those for life expectancy. For instance, in China, life expectancy at age 60 to 64 is 1.2 times greater for women than for men, while health expectancy is 1.12 times greater. Thus, older women in China still have an advantage with respect to years of healthy life, but their advantage is not as large as for years of total life remaining. The net result is that, although women in these Asian settings live longer than men and they tend to live longer in a healthy self-assessed state than men (with some key exceptions as noted below), the percentage of their remaining life that is spent in a healthy state is lower than that for men. This is shown in the third set of ratios. For example, in both China and Singapore, women aged 60 to 64 spend .94 times the amount of remaining life in a self-assessed healthy state in comparison to men, or about 6 percent less time. This gap narrows as age increases, such that by age 85 the percent of remaining life spent healthy is nearly equal (China) or higher (Singapore) for women compared to men. The male advantage in terms of percent of healthy life is most apparent in Taiwan, and for the younger age groups in Thailand. These are also the countries for which there is little or no female advantage in terms of years of healthy life (shown in the second panel). In the Philippines, women are somewhat advantaged with respect to both total life expectancy and healthy life expectancy, but there is essentially no gender difference in the percent of remaining life spent healthy at any age.

Conclusion

The main purpose of this paper was to compare age and gender patterns of self-assessed health expectancy among older adults in six Asian settings. We chose to focus on self-assessed health as a measure of health expectancy because it has been shown to be a powerful measure of health, encompassing many different dimensions, and it is available in many surveys around the world.

Despite observed differences in underlying levels of self-assessed health across the settings, patterns in health expectancy by age and sex are quite similar and are consistent with findings from other studies that have used different health measures. The number and percent of years spent in a healthy self-assessed state decline substantially with age, whereas the number of years spent in an unhealthy state is quite stable over the age range. The net result is a convergence of healthy and unhealthy life, so that by age 85 the amount of time spent in each state is more equal.

There are some noteworthy differences in the slope of the age pattern, however, including the more pronounced declines in health expectancy among Thai men and Indonesian women, and the much more gradual declines among Chinese men and women. The reasons for these differences are unclear. In the case of Thailand, we have examined a number of other health indicators, including prevalence of debilitating and life-threatening diseases, and limitation in Activities of Daily Living, and we do not observe the same rate of decline by age for men, nor do we find divergence in age patterns for Thai men and women.

With regard to sex differences, in general our findings echo those from other studies of health expectancy that find that women live longer but less healthy lives. Here again there were some interesting differences, however, namely the lack of female advantage with respect to healthy life expectancy in Taiwan, and the apparent cross-over for men and women in Thailand.

An important limitation of this work relates to the differences in question wording and response categories and potential cultural variation in the way health is viewed across settings, both of which make comparisons of the *level* of health expectancy problematic and make it difficult to speculate on reasons for differences in patterns. As a next step in our research on health expectancy, we plan to utilize more

typical measures of health expectancy (functional limitation, presence of chronic conditions), and examine how age and sex patterns of health expectancy based on those measures compare to those derived from self-assessed health. Those analyses may lend insight into the different age and sex patterns we found in this study.

References

- Albert, Stephen M. and Maria G. Cattell. 1994. "Family relationships of the elderly: Living arrangements." Pp. 85-107 in *Old Age in Global Perspective: Cross-Cultural and Cross-National Views*. New York, NY: G.K. Hall & Co.
- Bebbington, A. C. 1991. "The expectation of life without disability in England and Wales: 1976-88." *Population Trends* 66:26-29.
- Belanger, A., Martel, L., Berthelot, J.M., and Wilkins, R. 2002. "Gender differences in disability-free life expectancy for selected risk factors and chronic conditions in Canada." *Journal of Women and Aging* 14(1-2): 61-83.
- Bengtson, Vern L., Kyong-Dong Kim, George C. Myers, and Ki-Soo Eun (Eds.). 2000. *Aging in East and West: Families, States, and the Elderly*. New York, NY: Springer Publishing Company.
- Burgess, Ernest W. 1960. "Aging in Western Societies." Chicago: University of Chicago Press.
- Cambois, E. and J.M. Robine. 2000. "Social inequalities in disability-free life expectancy in France: Results and methodological issues." *Medicine Sciences* 16(11): 1218-1224.
- Chi, Iris, Neena L. Chappell, and James Lubben (Eds.). 2001. *Elderly Chinese in Pacific Rim Countries: Social Support and Integration*. Hong Kong: Hong Kong University Press
- Cowgill, Donald O. 1972. "A theory of aging in cross-cultural perspective." in *Aging and Modernization*, edited by D. O. Cowgill and L. D. Holmes. New York: Meredith Corporation.
- Crimmins, Eileen M., Hayward, Mark D., and Saito, Yasuhiko. 1996. "Differentials in active life expectancy in the older population of the United States." *Journal of Gerontology: Social Sciences* 51B:S111-S120.
- Hermalin, Albert I. 1995. "Aging in Asia: Setting the research foundation. Asia-Pacific Population Research Reports, No. 4." East-West Center.
- Idler, Ellen L. and Yael Benyamini. 1997. "Self-rated health and mortality: A review of twenty-seven community studies." *Journal of Health and Social Behavior* 38:21-37.
- Kinsella, Kevin. 2000. "Demographic dimensions of ageing in East and Southeast Asia." Pp. 35-50 in *Ageing in the Asia-Pacific Region*, edited by D. R. Phillips. New York, NY: Routledge.

- Jagger, Carol. 1999. "Health expectancy calculations by the Sullivan method: A practical guide." Nihon University Population Research Institute Research Paper Series No. 68, Tokyo, Japan.
- Jylha, Marja, Jack M. Guralnik, Luigi Ferrucci, Jukka Jokela, and Eino Heikkinen. 1998. "Is self-rated health comparable across cultures and genders?" *Journal of Gerontology* 53B:S144-S15
- Lamb, Vicki L. 1999. "Active life expectancy of the elderly in selected Asian countries." Nihon University Population Research Institute Research Paper Series No. 69, Tokyo, Japan.
- Larson, R. 1978. "Thirty years of research on the subjective well-being of older Americans." *Journal of Gerontology* 33(1):109-125.
- Mayhew, Leslie. 1999. "Health and welfare services expenditure in an aging world." in *Interim Report. International Institute for Applied Systems Analysis: IR-99-035/September*.
- National Research Council. 2001. *Preparing for an Aging World: The Case for Cross-National Research*. Washington, DC: National Academy Press.
- Phillips, David R. 2000. "Ageing in the Asia-Pacific region: Issues, policies and contexts." Pp. 1-34 in *Ageing in the Asia-Pacific Region: Issues, Policies and Future Trends*, edited by D. R. Phillips. New York: Routledge.
- Robine, Jean M., Jagger, Carol, and Cambois, E. 1991. "European perspectives on healthy aging in women." *Journal of Women and Aging* 14(1-2): 119-133.
- Robine, Jean M., and Ritchie, Karen. 1991. "Healthy life expectancy: Evaluation of global indicator of change in population health." *British Medical Journal* 302:457-460.
- Rogers R., Rogers, A., and Belanger, A. 1992. "Disability-free life among the elderly in the United States." *Journal of Aging and Health* 4:19-42.
- Su, Ya-Ping and Kenneth F. Ferraro. 1997. "Social relations and health assessments among older people: Do the effects of integration and social contributions vary cross-culturally?" *Journal of Gerontology* 52B:S27-S36.
- Sullivan, Daniel F. 1971. "A single index of mortality and morbidity." *American Journal of Public Health* 86:347-354.
- Verbrugge, Lois M. 1989. "The Twain meet: Empirical explanation of sex differences in health and morbidity." *Journal of Health and Social Behavior* 30:282-304.
- Zimmer, Zachary, Josefina N. Natividad, Hui-Sheng Lin, and Napaporn Chayovan. 2000. "A cross-national examination of the determinants of self-assessed health." *Journal of Health and Social Behavior* 41:465-481.

Table 1. Data sources

Country	Survey Name	Interview year	Sample size (age 60+)
China	Survey of Support for the Elderly in China	1992	20083
Indonesia	Indonesian Family Life Survey	1993	1910
Philippines	Philippine Survey of the Near Elderly and Elderly	1996	1311
Singapore	National Survey of Senior Citizens in Singapore	1995	4001
Taiwan	Survey of Health and Living Status of the Middle-Aged and Elderly	1996	3605
Thailand	Social Welfare of the Elderly in Thailand	1995	4486

Table 2. Self-assessed health question and response wording

Country	Question text	Response categories
China	Do you feel healthy?	1=Healthy 2=Fair 3=Unhealthy
Indonesia	In general, how is your health at this time?	1=Very healthy 2=Somewhat healthy 3=Somewhat unhealthy 4=Unhealthy
Philippines	How would you rate your health at the present time? Would you say it is:	1=Excellent 2=Very good 3=Good 4=Fair 5=Poor
Singapore	How would you rate the state of your health at present? Would you say it is:	1=Very good 2=Good 3=Not too good 4=Poor
Taiwan	Regarding the state of your health, would you say it is:	1=Excellent 2=Good 3=Average 4=Not so good 5=Poor
Thailand	How do you feel about your health in general?	1=Very healthy 2=Rather healthy 3=Moderate 4=Rather weak 5=Weak

Table 3. Percent reporting negative health ratings by age, sex and country

	China	Indonesia	Philippines	Singapore	Taiwan	Thailand
Total	21.2	25.5	15.2	16.6	31.8	35.3
Age 60-69	19.3	22.5	11.6	12.6	28.6	29.8
70-79	24.0	31.6	17.6	20.4	36.2	42.8
80+	26.1	35.5	26.7	27.0	39.0	47.8
Chi-square (p-value)	79.1 (.000)	26.6 (.000)	22.7 (.000)	62.6 (.000)	21.4 (.000)	99.3 (.000)
Male	18.8	25.2	14.2	14.1	27.0	28.9
Female	23.4	25.9	15.9	18.8	37.7	40.6
Chi-square (p-value)	62.4 (.000)	0.3 (.796)	0.7 (.397)	13.1 (.000)	37.4 (.000)	66.1 (.000)
Males						
Age 60-69	16.9	22.0	10.3	9.7	24.8	21.7
70-79	22.0	32.4	16.9	20.4	30.5	40.4
80+	25.2	31.5	32.0	23.0	28.7	46.2
Chi-square (p-value)	47.8 (.000)	11.4 (.003)	17.7 (.000)	39.6 (.000)	5.6 (.061)	94.8 (.000)
Females						
Age 60-69	21.6	23.1	13.0	15.3	33.1	37.0
70-79	25.7	30.7	18.1	20.4	43.3	44.6
80+	26.6	39.2	24.4	29.3	49.5	48.8
Chi-square (p-value)	25.7 (.000)	17.4 (.001)	8.1 (.017)	25.6 (.000)	18.4 (.000)	20.5 (.000)
N*	20,083	1,905	1,307	4,001	3,332	4,479

* These sample sizes reflect the unweighted number of respondents who had non-missing data on age, sex and self-assessed health, on which all analyses are based.

Figure 1. Total life expectancy, self-assessed healthy life expectancy, and self-assessed unhealthy life expectancy across Asian settings

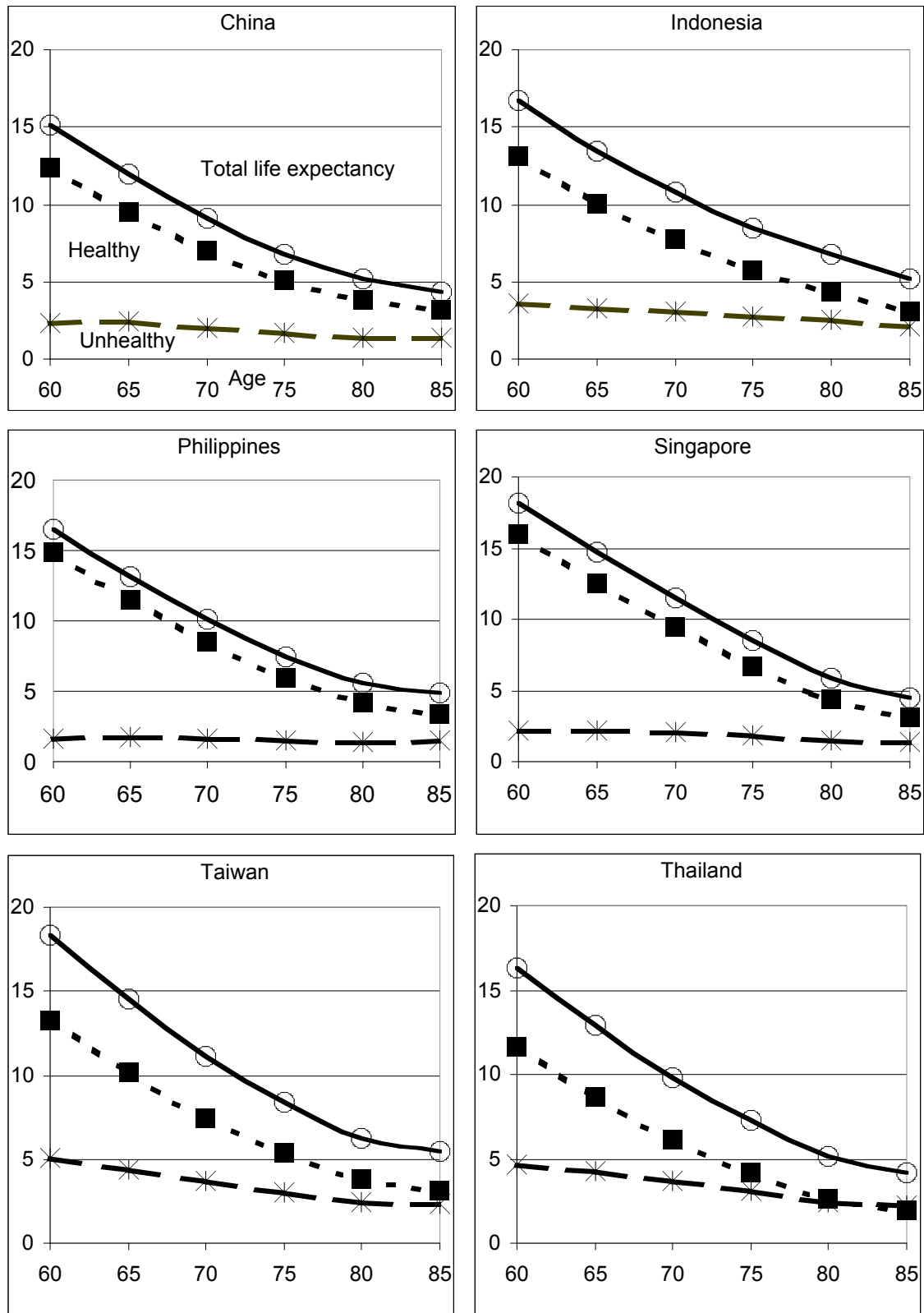


Figure 2: Expected self-assessed healthy years of life remaining across Asian settings by age and gender

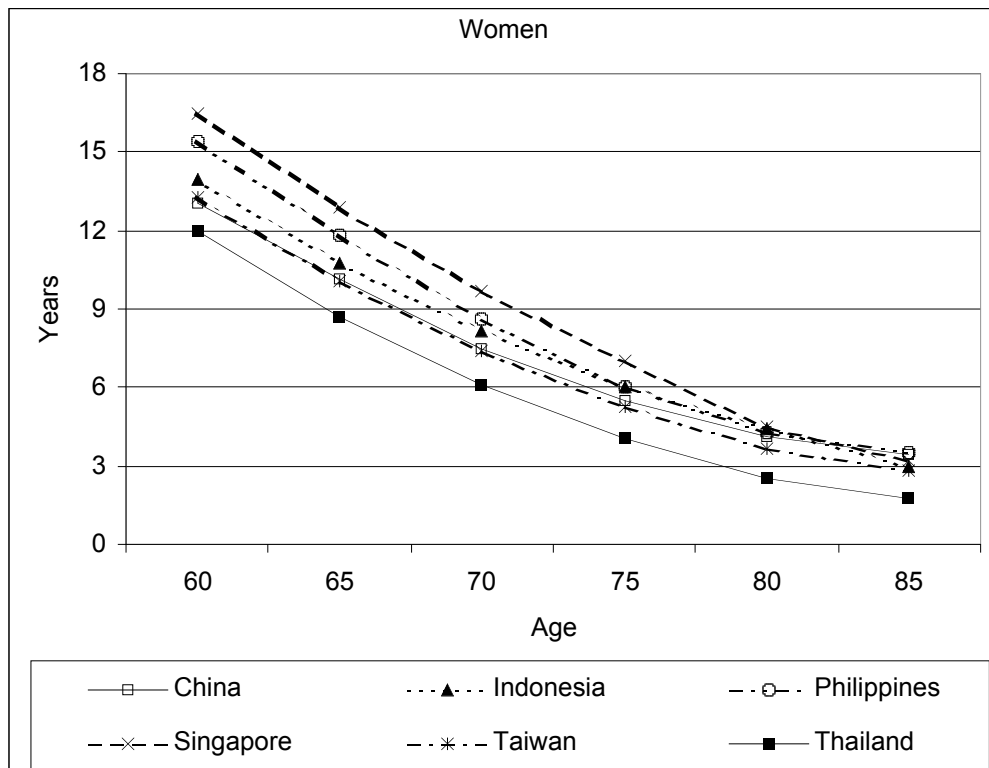
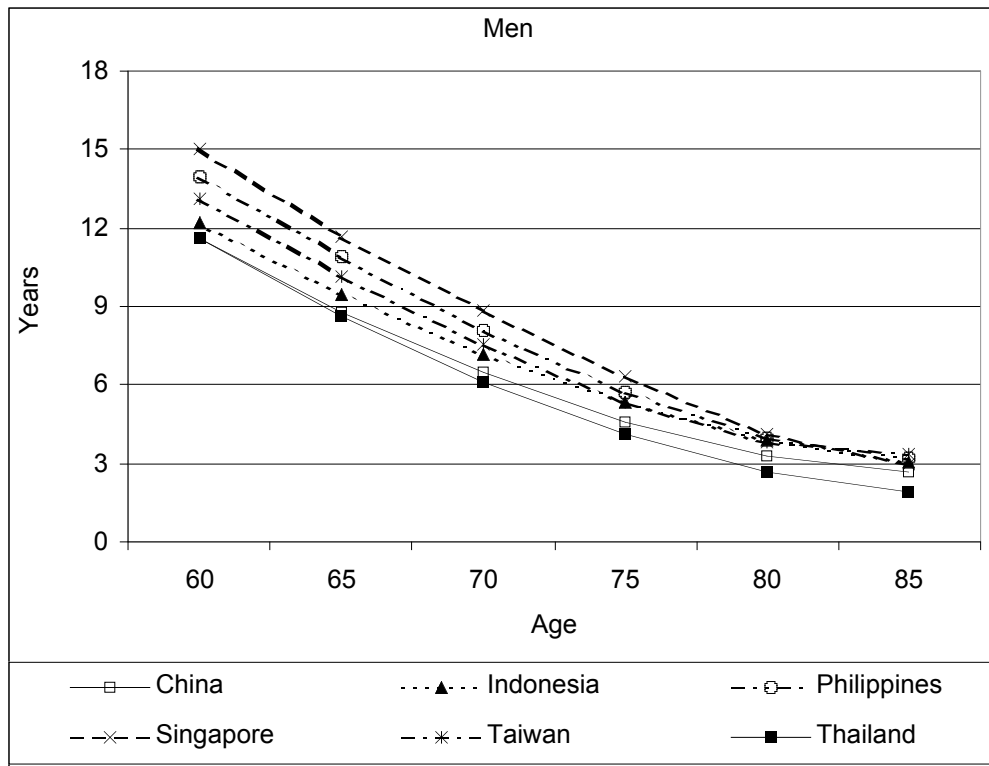


Figure 3: Percent of life remaining in a self-assessed healthy state across Asian settings by age and gender

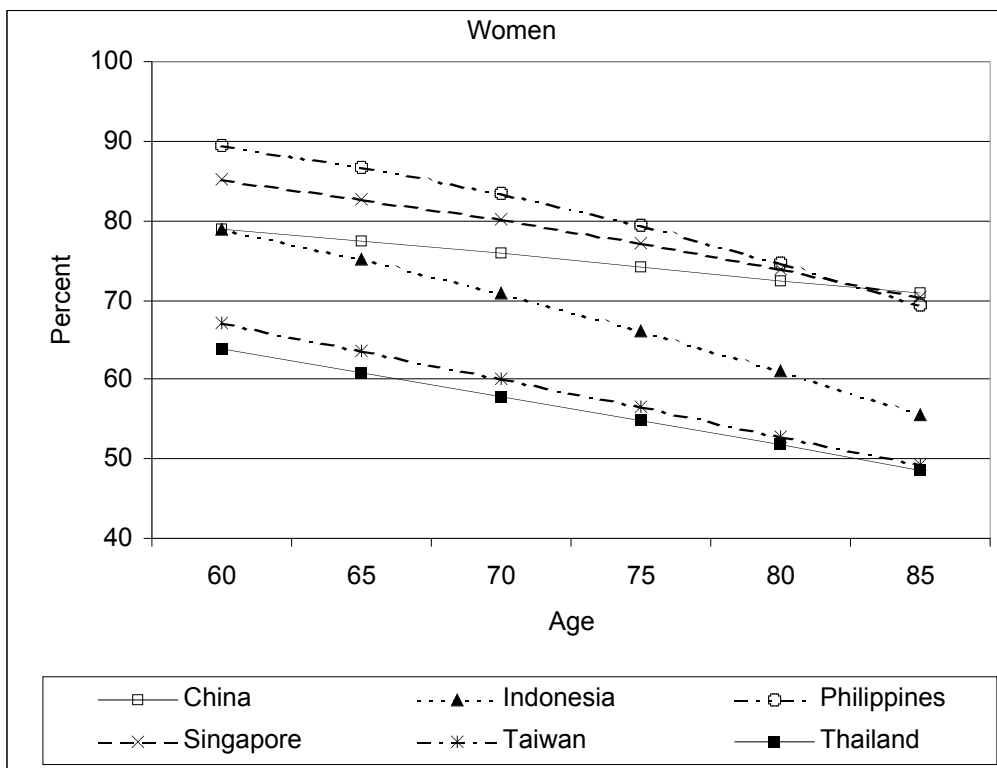
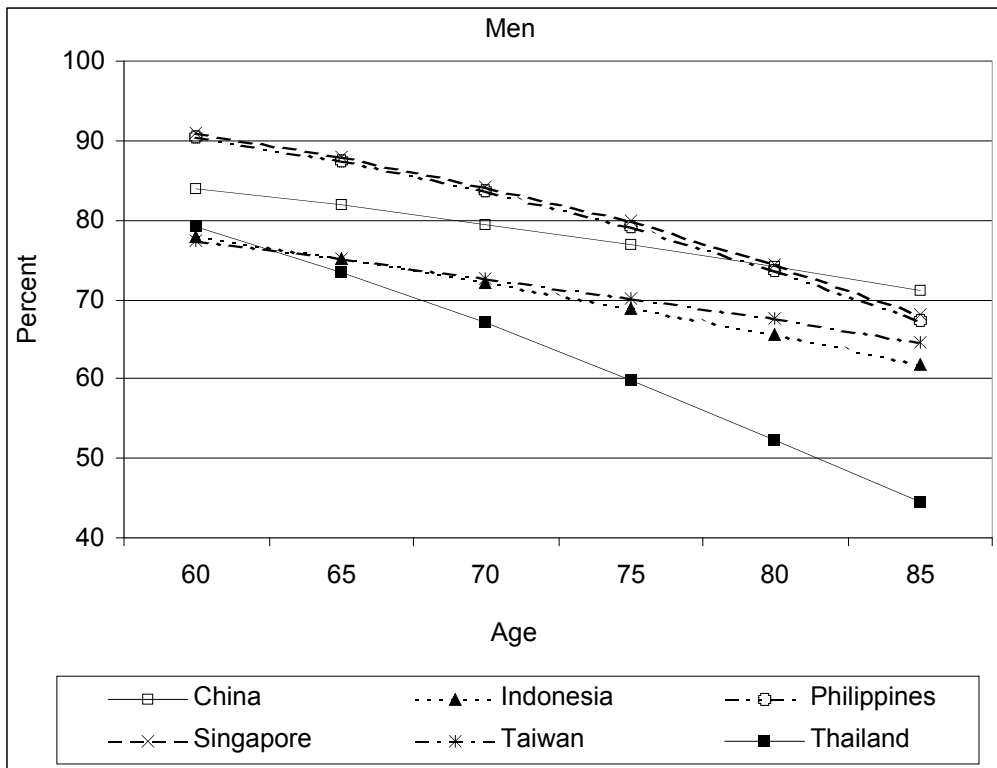


Table 4. Female to male ratios: Total life expectancy, healthy self-assessed life expectancy, and percent of remaining years in self-assessed healthy state

Measure Setting	Age Group					
	60-64	65-69	70-74	75-79	80-84	85+
Total life expectancy						
China	1.20	1.22	1.22	1.23	1.30	1.30
Indonesia	1.13	1.14	1.16	1.19	1.22	1.10
Philippines	1.11	1.09	1.07	1.05	1.05	1.07
Singapore	1.17	1.17	1.16	1.15	1.10	1.05
Taiwan	1.16	1.17	1.19	1.22	1.21	1.12
Thailand	1.14	1.14	1.13	1.12	1.11	1.10
Self-assessed healthy life expectancy						
China	1.12	1.15	1.16	1.19	1.27	1.30
Indonesia	1.14	1.14	1.13	1.14	1.13	0.99
Philippines	1.10	1.08	1.06	1.05	1.07	1.10
Singapore	1.10	1.10	1.10	1.11	1.09	1.08
Taiwan	1.01	0.99	0.99	0.98	0.95	0.85
Thailand	1.03	1.01	1.00	0.98	0.94	0.90
Percent of remaining years in self-assessed healthy state						
China	0.94	0.94	0.95	0.96	0.98	0.99
Indonesia	1.00	1.00	0.98	0.96	0.93	0.90
Philippines	0.99	0.99	1.00	1.00	1.01	1.03
Singapore	0.94	0.94	0.95	0.97	0.99	1.03
Taiwan	0.87	0.85	0.83	0.81	0.78	0.76
Thailand	0.81	0.83	0.86	0.91	0.99	1.09