

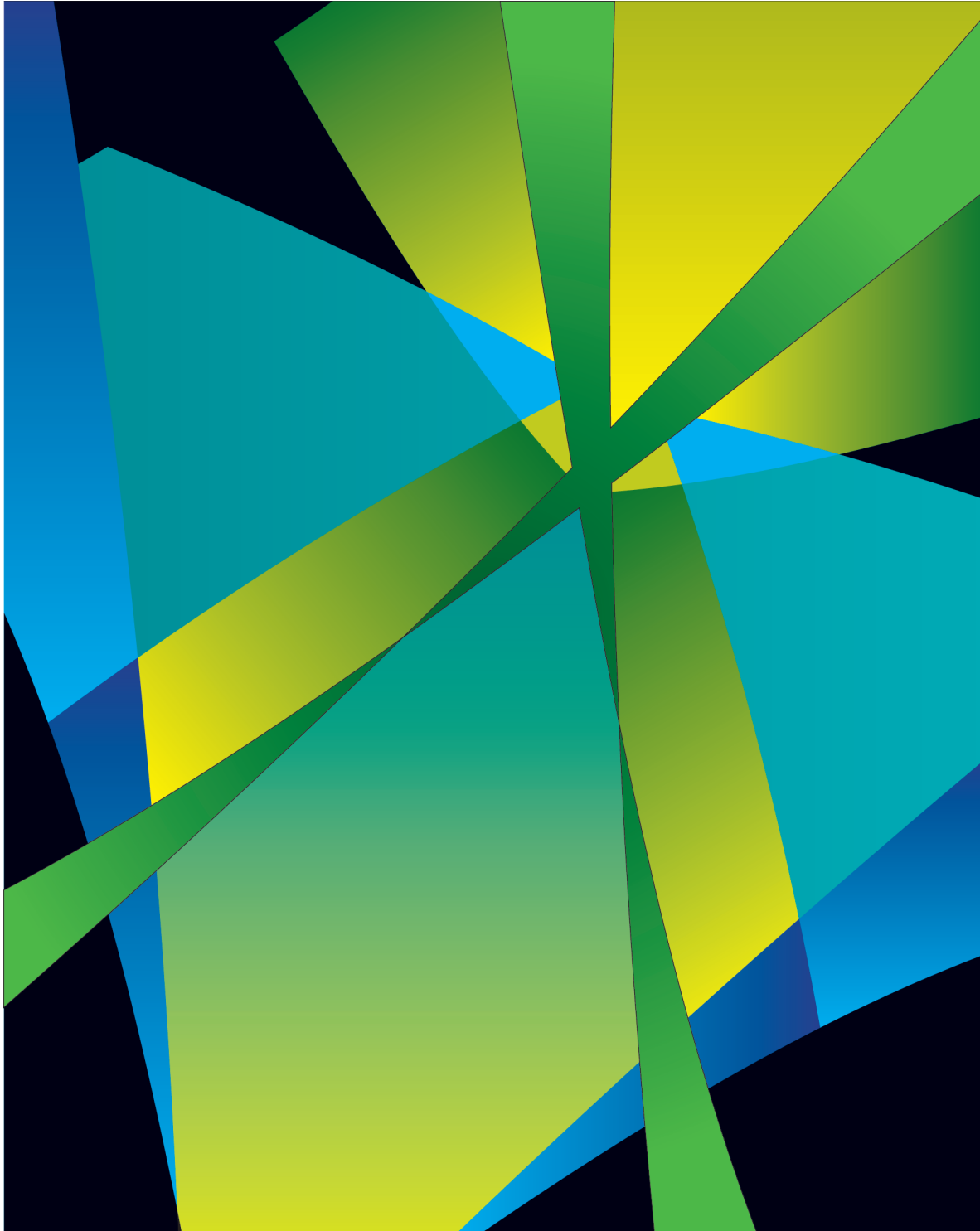
# Health and Health Care of the Older Population in Urban and Rural China: 2000

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# Health and Health Care of the Older Population in Urban and Rural China: 2000

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## EXECUTIVE SUMMARY

China has the largest older population in the world today, and it will age much more rapidly than Western countries in the near future. Along with remarkable socioeconomic transformation and family and lifestyle changes, China has begun the epidemiological transition from the primacy of acute infectious and deficiency diseases to a predominance of non-communicable diseases and chronic conditions commonly associated with an older population. One of the biggest challenges facing the Chinese government will be the expansion and retooling of its health care system to address the needs of its large aging population.

This report presents a descriptive analysis of the health status and health care of China's older population in 2000. Data come from the Sample Survey on Aged Population in Urban/Rural China (SSAPUR) conducted in December 2000. SSAPUR was the first national survey of the older population sponsored solely by the Chinese government, with a national random sample of approximately 20,000 respondents from 20 provinces. A second SSAPUR was fielded in June–August 2006 with a similar sample size and an improved sampling frame and questionnaire design. The 2006 survey included a subsample of 9,380 respondents from the 2000 survey. When the 2006 data

become available, the two SSAPUR surveys will provide a source for studies on trends and changes in older people's health status and health care utilization, and they will permit longitudinal analyses on the dynamics of health status and transitions to and from different health conditions.

This report first examines older people's activity limitations, self-assessed health, chronic disease status, and lifestyle behaviors. In addition to providing information on physical health, SSAPUR results permit study of the mental health of older Chinese, an area that has been unexplored due to a lack of data. This report also examines the utilization of health care services by China's older people, another area that has not been widely researched.

Major findings include the following:

### **Nearly half of the older population in China reported some activity limitation.**

About 45 percent of older people reported at least one limitation in activities of daily living (ADL), mobility, or household activities. Among the three measures of functional disability used in this report, mobility difficulty was the most common (40 percent), followed by instrumental-ADL-like household activity limitations (26 percent) and ADL limitations (19 percent).

### **Women, the unmarried, the less educated, and the poor more commonly reported activity limitations.**

The SSAPUR confirms findings from other countries that activity limitations are more common among women, the unmarried, the less educated, and the poor. Education is strongly associated with functional ability. ADL and mobility limitations were highest among the illiterate (people aged 15 and older who are unable to read) and decreased progressively with each level of education. The largest difference was observed between the illiterate and the primary schooled, indicating that even a few years of education may be associated with better physical functioning at older ages.

### **More than half of older Chinese reported a chronic condition.**

About 55 percent of older Chinese reported a chronic health condition. It is clear that good health is linked to diet, exercise, and lifestyle. While over half of the 60-and-older population in China have never smoked or consumed alcohol, dramatic economic transformations and environmental changes related to urbanization are leading to changes in diet and lifestyle among relatively younger Chinese.

---

**Older Chinese women were more likely than older Chinese men to be satisfied with life.**

Most older people in China (63 percent) said they were satisfied with their life. On the surface, older men and women appeared similar in terms of reported life satisfaction. However, regression analyses controlling for various socioeconomic and demographic variables showed that women were more likely than men to report life satisfaction. These results imply that if older women had the same marital status, education, and money income as older men, they would have reported greater life satisfaction.

**About half of older Chinese worried about financial resources for daily living and health care.**

Financial strains are one of the main causes of stress for older people, who typically do not work for pay. Four of ten SSAPUR respondents stated that they were worried about not having enough financial resources for daily living,

and about half worried that they may not be able to afford medical care when needed. The SSAPUR data also indicate that 63 percent of older Chinese felt themselves to be a burden to their families.

**Urban/rural residence was associated with older people's health care utilization.**

While many demographic and socioeconomic variables (e.g., age, sex, marital status, living arrangement, education, income) were associated with health care utilization, urban/rural residence emerged as the factor that most affected older people's health care. Compared with their urban counterparts, rural older people were less likely to use structured forms of health care, such as visits to doctor's offices and clinics or hospitalization, but more than twice as likely to receive relatively unstructured medical care such as doctor home-visits. About 40 percent of rural residents (compared with 16 percent of urban residents) had doctors visit them in their own

home in 2000. This finding reflects the lower prevalence of doctor's offices and clinics in rural areas than in urban areas, as well as increased physical inconveniences in rural areas, such as longer distances to doctor's offices and difficulty with or lack of transportation.

**Older people themselves paid about half of their medical expenses, with children or other family members covering another third.**

Survey data on medical expense payments by source show that older individuals paid up to half of their medical expenses out of pocket, with another one-third covered by their children or other family members. Just about 10 percent was covered by insurance. Older women had a lower proportion of their medical expense covered by insurance than older men (8 percent compared with about 14 percent) but received more help from children or family than their male counterparts (47 percent and 28 percent, respectively).

# CHAPTER 1. INTRODUCTION

## China's Aging Process

### Growth of China's Older Population

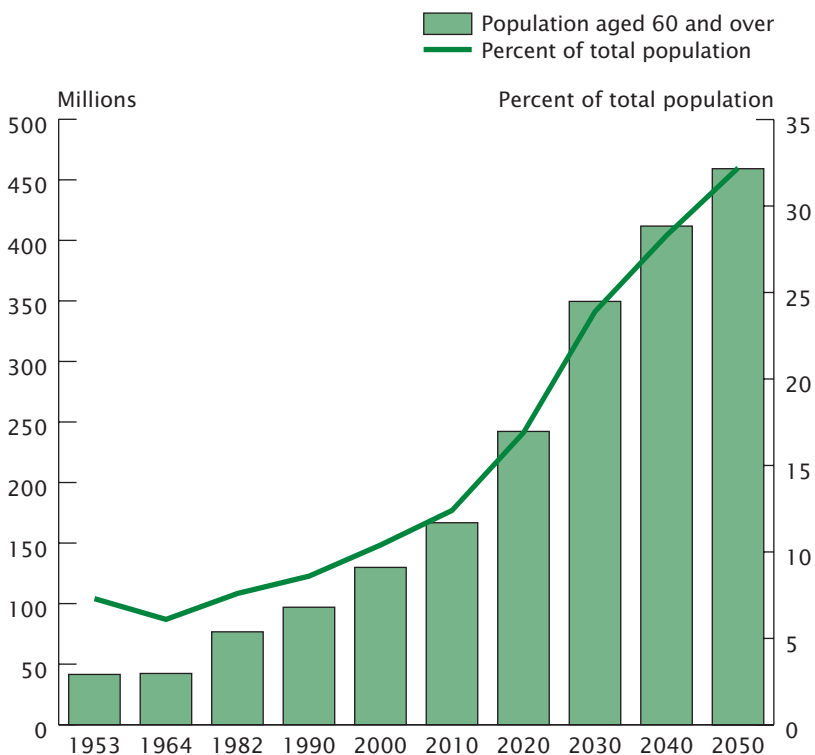
China has the largest older population in the world today.<sup>1</sup> In 2005, 142.4 million Chinese people were aged 60 and over, representing 21.3 percent of the world's total older population. Over the past 50 years, China's older population has increased substantially. The number of people 60 and older has more than tripled, from 41.5 million in 1953, at China's first census, to 130.0 million in 2000, at China's fifth census (Figure 1-1).<sup>2</sup> The older population is expected to more than triple again between 2000 and 2050, based on population projections by the U.S. Census Bureau.<sup>3</sup> By 2030, the older population is projected to reach about 350 million, and it may increase to 459 million in 2050.

<sup>1</sup> In this report, older population is defined as people aged 60 and over.

<sup>2</sup> China conducted censuses in 1953, 1964, 1982, 1990, and 2000.

<sup>3</sup> The Census Bureau constructs population estimates and projections for every country with a population of more than 5,000 in the world, utilizing available demographic data from censuses, vital registrations, demographic and health surveys, and other sources. Published data are adjusted where appropriate and assumptions are made regarding future trends in fertility, mortality, and migration. The resulting population estimates and projections are available in the International Data Base at <[www.census.gov/ipc/idbnew.html](http://www.census.gov/ipc/idbnew.html)>. For more information on the projections, see <[www.census.gov/ipc/www/idbr0210.html](http://www.census.gov/ipc/www/idbr0210.html)>. Unforeseen events can rapidly modify the demographic environment. As with any projection data, uncertainties about the levels and directions of future fertility, mortality, and net migration levels mean that the actual future population is unlikely to be identical to the projected population.

Figure 1-1.  
**Population Aged 60 and Over: 1953 to 2050**



Note: Intervals between the census years of 1953 and 2000 are not even.

Sources: For 1953, 1964, 1982, 1990, and 2000, China State Council and National Bureau of Statistics, 1982, 1985, 1993, and 2002; for 2010 to 2050, U.S. Census Bureau, 2006.

Perhaps more important than the sheer size of the older population is the speed of aging of China's population in the near future. During the past 50 years, the growth of the older population outpaced that of the total population; as a result, older people represented 10.4 percent of the total population in 2000, up from 7.3 percent in 1953 (Figure 1-1). The aging process is projected to

accelerate in the next few decades; growth of the older population will be especially pronounced during the period 2010–2040 (Du and Phillips, 2004). By 2030, it is projected that about 25 percent of the total population will be aged 60 and over; and by 2050, about 32 percent, or nearly 1 in 3 Chinese, will be an older person.

Box 1-1.

## Outline of the Report

This report examines the physical health, mental health, and health care of the older Chinese population, based on data from the nationally representative Sample Survey on Aged Population in Urban/Rural China (SSAPUR), conducted by the China Research Center on Aging (CRCA) in December 2000.

To set the context for discussion of SSAPUR results, Chapter 1 provides an overview of the population aging process in China, followed by general information regarding the health status of the Chinese population and the financing of health care. This chapter also describes the design of the SSAPUR and presents basic demographic (age, sex, marital status) and socioeconomic (education, income, living arrangements) information from the survey.

Chapter 2 investigates older people's ability to perform activities of daily living (ADL) and instrumental activities of daily living (IADL), and looks at mobility limitations as well. The text examines chronic disease status, self-assessed health, and the use of assistive devices and considers several lifestyle behaviors that influence health.

Chapter 3 assesses the mental health status of older people in China. The SSAPUR data do not include measures directly comparable with those commonly used in Western research (e.g., depression scales)

but do contain questions regarding psychological distress. This study examines self-reported life satisfaction and happiness—including measures of social integration and participation—as well as negative mental states associated with loneliness, feelings of being a burden to family and society, and concerns about finances, health care, and informal support in older age.

The final chapter focuses on health care and old-age care, looking at visits to doctor's offices, home-visits by doctors, hospitalization, and assistance with activity limitations. Health-care utilization is examined via a framework that analyzes predisposing factors, enabling or impeding factors, and the need for care. Affordability is a key issue in China's current health-care reform, and the chapter also evaluates older people's financial arrangements for health care by examining sources of medical expense payments.

A majority of older Chinese live in rural areas. Because health status and access to health care often differ considerably between city and countryside, this report differentiates the older population by urban/rural residence. Attention also focuses on health differences by age and gender. Where appropriate, distinctions are drawn by marital status, educational attainment, money income, and living arrangements.

In the international context, China will age more rapidly than many European countries and the United States in the near future. One measure of the speed of aging is the number of years required for the percent of the population aged 65 and over to rise from 7 percent to 14 percent of the total population (Figure 1-2).<sup>4</sup> France completed this process in 1980, taking 115 years. The U.S. older population is

<sup>4</sup> This figure retains the age group 65 and over from the original source.

projected to reach 14 percent in 2014, 70 years after it reached 7 percent. China's 65 and older population is projected to reach 14 percent in 2027, doubling in only 27 years.

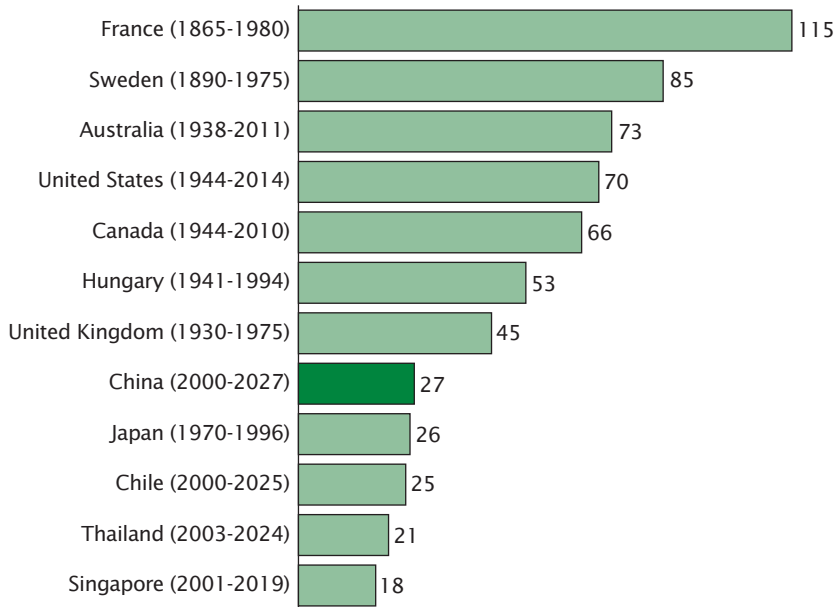
Another important aspect of population aging is the growth of people aged 80 and over (the oldest old). The oldest old are much more likely than the younger old (ages 60 to 79) to need help with daily living, and they utilize medical care and other services and receive government and private transfers out of

proportion to their numbers (Zeng et al., 2002). China's oldest-old population has been increasing at a faster pace than the total older population. In 2000, 12.0 million people aged 80 and over were reported in the census, or 9.2 percent of the older population (Figure 1-3). This percentage was twice as high as in 1953. The number of oldest old will continue to grow and is expected to reach 44.5 million in 2030 and 116.4 million in 2050. By 2050, about 25 percent of older people are projected to be 80 and older.

Figure 1-2.

### Speed of Population Aging, Selected Countries

(Number of years required or expected for percent of population aged 65 and over to rise from 7 percent to 14 percent)



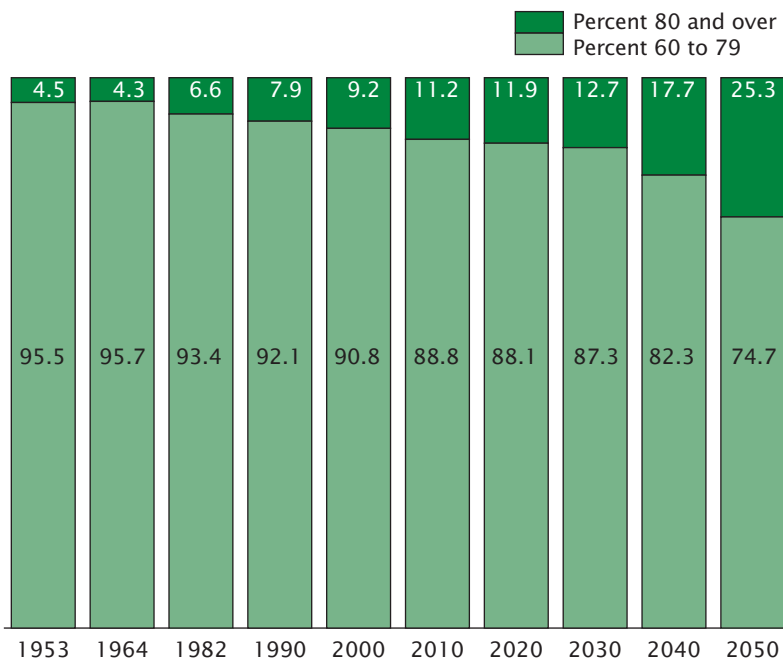
Sources: Kinsella and Velkoff, 2001; U.S. Census Bureau, 2006.

### Decline of Fertility and Mortality Rates

Aging of a population is determined almost entirely by the decline of fertility rates and adult mortality rates. Generally speaking, a population begins to age when people have fewer children and adults live longer, resulting in a society with increasingly smaller cohorts of children and youth and progressively larger cohorts of older people. At the early stages of demographic transition, a decline in infant and childhood mortality results in more children and a younger population.

Figure 1-3.

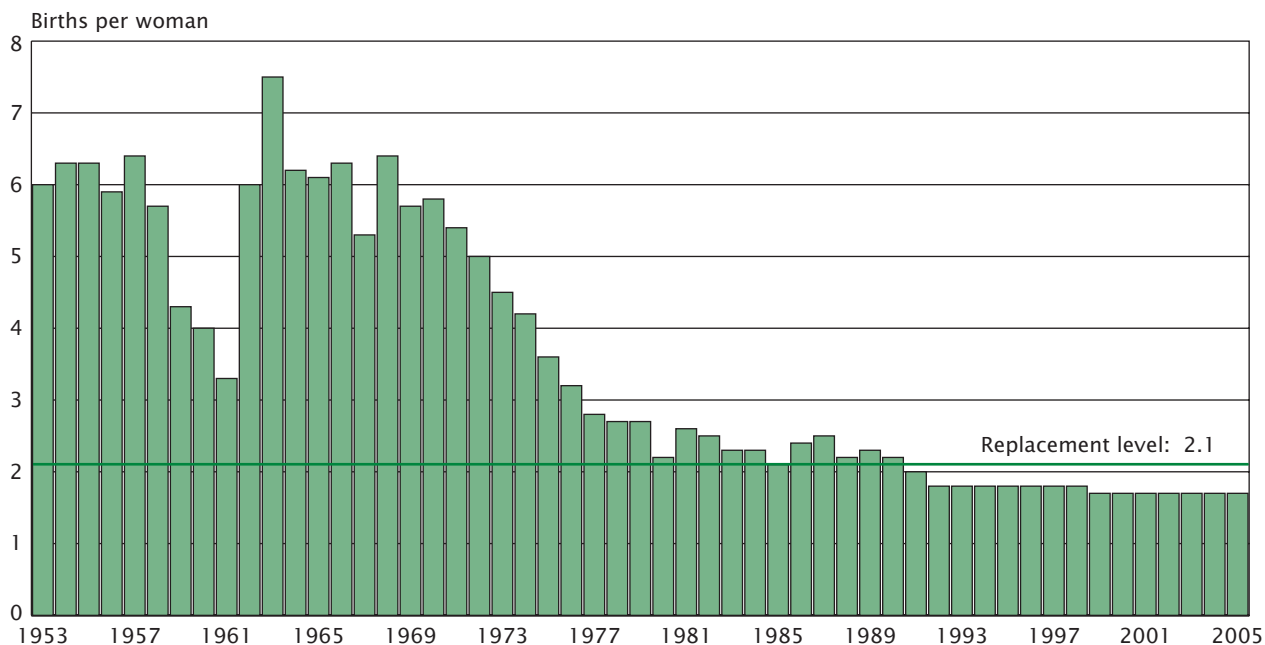
### Percent Distribution of Population Aged 60 and Over: 1953 to 2050



Note: Intervals between the census years of 1953 and 2000 are not even.

Sources: For 1953, 1964, 1982, 1990, and 2000, China State Council and National Bureau of Statistics, 1982, 1985, 1993, and 2002; for 2010 to 2050, U.S. Census Bureau, 2006.

Figure 1-4.  
**Total Fertility Rates: 1953 to 2005**



Note: The sharp drop in the total fertility rate from 1959 to 1961 was due to famine and natural disasters during that period.  
 Sources: For 1953–1989, Banister, 1987 and 1992; for 1990–1995, U.S. Census Bureau, 2004; for 1996–2005, U.S. Census Bureau, 2006.

China launched a fertility reduction effort in the mid 1950s with mass production and distribution of contraceptives, which was followed by a second family planning effort in the early 1960s (Banister, 1987). However, its fertility level did not fall notably until implementation of the nationwide family planning policy in the 1970s.<sup>5</sup> The campaign started with the emphasis on

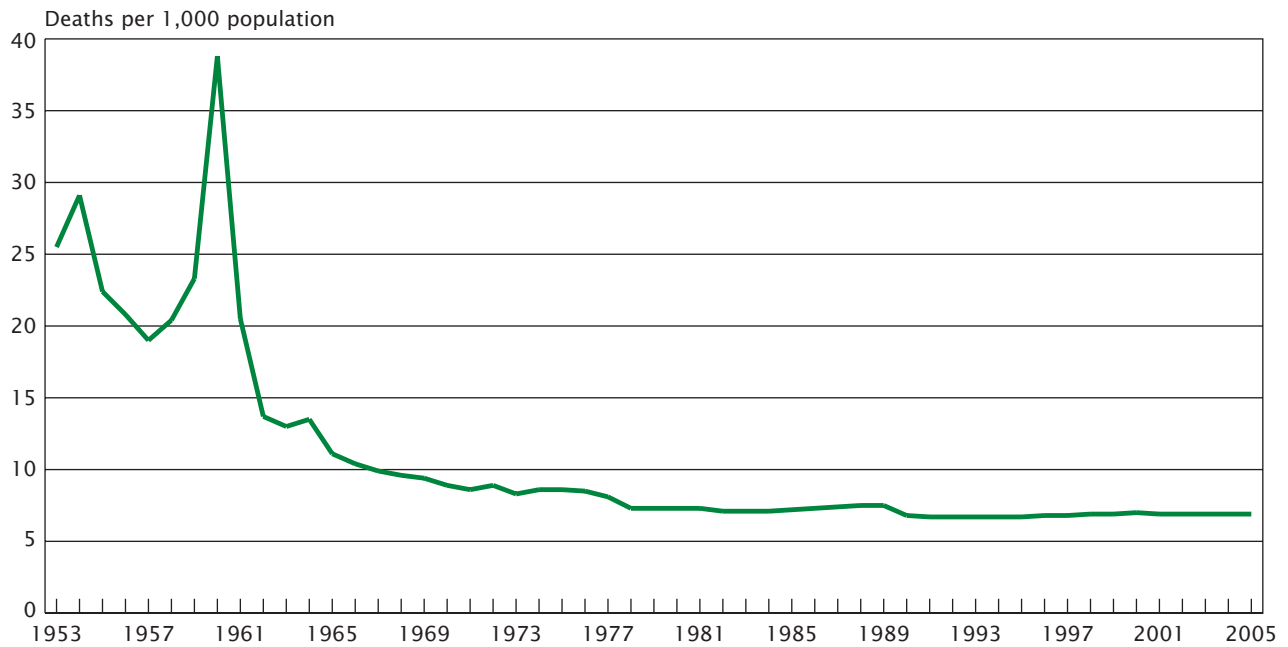
<sup>5</sup> Some have argued that the Chinese fertility decline among the better educated and in more developed urban areas began well before the introduction of major government family planning programs in the 1970s. For examples, see Lavelly and Freedman, 1990 and Coale and Freedman, 1993.

“*wan, xi, shao*”—later marriage, longer intervals between births, and fewer births. By the end of the decade, realizing that the large population was hindering economic development and acting on a desire to improve China’s living standard to the level of Western industrialized societies, the Chinese government began implementing the one-child policy (Lee and Feng, 1999). This initiative was accompanied by rapid socioeconomic development that came with economic reform that started in the early 1980s (Poston, 2000). As a result, China’s total fertility

rate (TFR) dropped from 5.8 in 1950, to 2.7 in 1979, to under the replacement level in 1991 (2.0), and it has remained below replacement since then (Figure 1-4).<sup>6</sup>

<sup>6</sup> TFR is defined as the average number of children that would be born per woman if all women lived to the end of their childbearing years and bore children according to a given set of age-specific fertility rates. The replacement level is the total fertility rate at which women would have only enough children to replace themselves and their partner. The true replacement level will depend upon the level of mortality, especially infant, childhood, and maternal. However, the commonly used replacement level fertility is 2.1 children per woman.

Figure 1-5.  
**Crude Death Rates: 1953 to 2005**



Note: The sudden increase in the mortality rate from 1959 to 1961 was due to famine and natural disasters during that period.  
 Sources: For 1953–1981, Coale, 1984; for 1982–1989, U.S. Census Bureau, 2004; for 1990–2005, U.S. Census Bureau, 2006.

In the early 1950s, the Chinese government launched the first of several public health campaigns to improve environmental sanitation conditions, eradicate parasitic diseases, control infectious diseases, and enhance maternal and child health (Banister, 1987). The

government established networks of hospitals and clinics for medical services and social organizations for public health education (Salaff, 1973). The improved medical and sanitation conditions greatly reduced mortality rates, especially infant mortality rates (Banister and Preston, 1981). The crude death

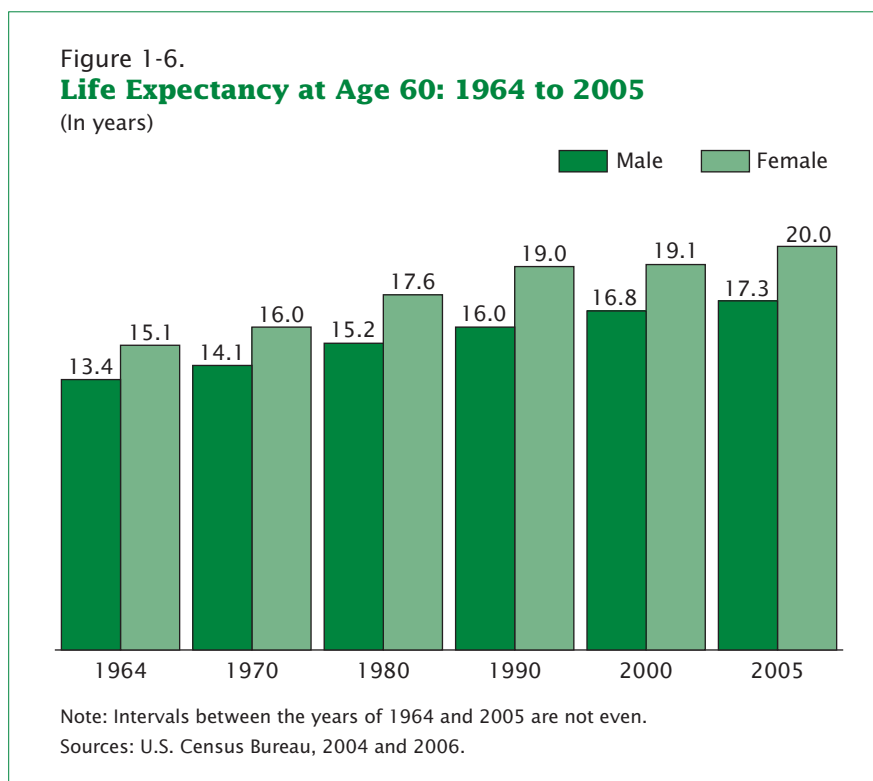
rate in 1954 was 29.<sup>7</sup> It declined steadily (with the exception of the great famine in the late 1950s and early 1960s) to below 10 in 1967 and has remained lower than 10 since then (Figure 1-5).

<sup>7</sup> The crude death rate is the number of deaths per 1,000 people.

Improvements in infant and childhood mortality have contributed to extended life expectancy. China's life expectancy at birth has improved from 55.9 years in 1964 to 70.7 years in 2005 for males and from 57.4 years in 1964 to 74.1 years in 2005 for females (U.S. Census Bureau, 2004 and 2006). Better health conditions have led to longer lives for older people. Men at age 60 in 1964 could expect to live another 13.4 years and in 2005, 17.3 years; women at that age could expect to live another 15.1 years and 20.0 years, respectively (Figure 1-6). This upward trend is expected to continue, and both older men and women are projected to gain one more year of life expectancy for every decade in the next 50 years.

### Age Structure and Support Ratios

The rapidly falling and sustained low fertility levels and extended life expectancy have changed China's age structure, illustrated in

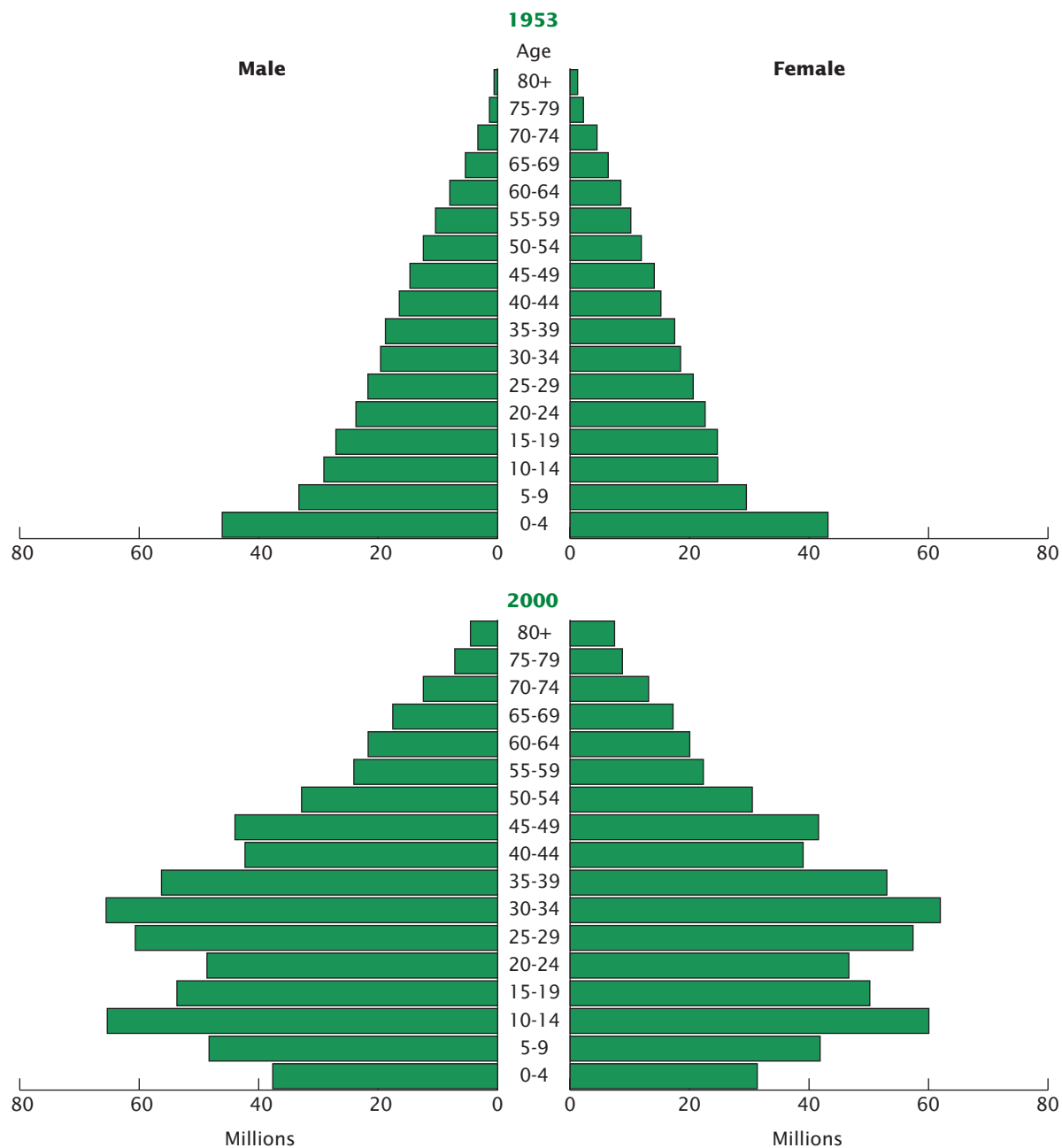


the form of age-sex population pyramids in Figure 1-7. The 1953 population pyramid has the classic shape for a developing country:

the youngest age groups form a broad base and the size of other groups shrinks progressively with increasing age.



Figure 1-7.  
**Population by Age and Sex: 1953 and 2000**



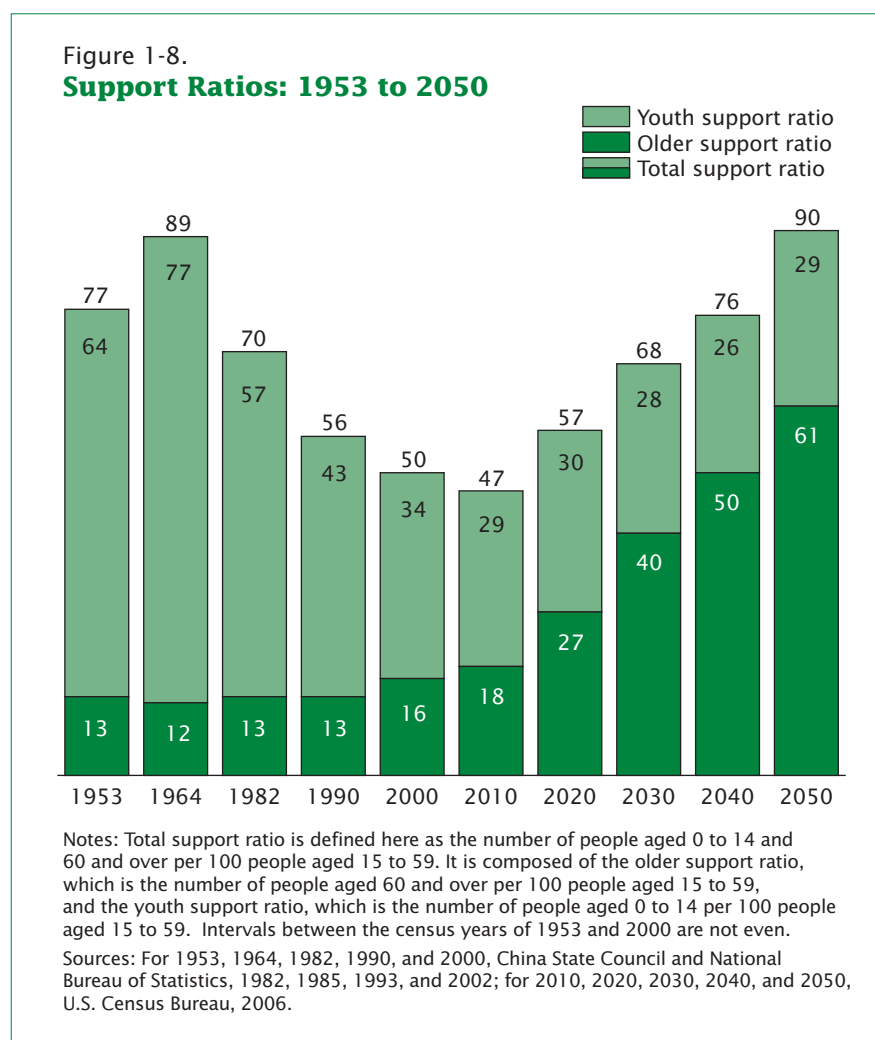
Sources: China State Council and National Bureau of Statistics, 1982 and 2002.

The picture in 2000 is different. It is no longer the typical pyramid shape but somewhat rectangular, and the base is much smaller than the middle age groups. The effects of the fertility restrictions in the 1980s and 1990s can be seen in the jagged shape of the pyramid, especially the abrupt shrinking of the age group 20 to 24 in 2000. The cohort born just before the one-child policy, aged 30 to 34 in 2000, is the largest. Compared with 1953, the older age groups of the 2000 age distribution grew in both absolute numbers and in proportion of the total population, reflecting the combination of low fertility and improvements in longevity.

As a result of the changed age structure, China's societal support ratios have declined. In this report, the total support ratio is defined as the number of young people (aged 0 to 14) and older people (aged 60 and over) for every 100 working-age people (aged 15 to 59). The total support ratio comprises the older support ratio (the number of older people for every 100 working-age people) and the youth support ratio (the number of young people for every 100 working-age people). The total support ratio is a broad indication of the degree to which the economically active population needs to support the young and the old on a societal level, and it has implications for a government's policies on tax, old-age security, and other issues.<sup>8</sup>

As shown in Figure 1-8, China's total support ratios from 1964 to 2050 form a U-shaped curve. The total support ratio fell from a high of 89 in 1964 to 50 in 2000,

<sup>8</sup> This report recognizes that there is debate over the usefulness of the concept of "support ratio," given that the term implies a sense of dependency at certain ages that may not be entirely warranted. For further discussion, see Kinsella and Phillips, 2005.



indicating a relatively low current societal support burden. Total support ratios are projected to rise after 2010, reaching 90 in 2050, when there will be nearly one working-age person supporting each non-working-age person.

Figure 1-8 also demonstrates changes in the composition of the total support ratio. In the 30 years after 1953, the youth support ratio made up more than 80 percent of the total support ratio. Since 1982, as a result of the much-lowered fertility, China's youth support ratios were significantly reduced. Although there were twice as many people of working age as there were old and young combined in 2000, the composition of the

support ratio has changed. The older support ratio made up an increasing proportion of the total support ratio, from 17 percent in 1953 to 32 percent in 2000. If the current low fertility and mortality trends continue, the total support ratio composition will reverse. Between 2020 and 2030, although the total support ratio is projected to remain well below 100, the older component is expected to surpass the youth component for the first time. This pattern is likely to continue into the middle of the twenty-first century.

The changing composition of the total support ratio indicates that fertility policies have limited the size of birth cohorts relative to previous

generations. China may soon face a situation where there are too few working adults to support a rapidly aging population (Kaneda, 2006). The very speed of the fertility transition has given the country little time to develop a nonfamilial old-age support system to replace the traditional family (Poston and Duan, 2000). According to the philosophy embedded in Chinese culture and mandated by China's 1982 Constitution, "children who have come of age have the duty to support and assist their parents" (Shi, 1993: 469). The family and adult children will bear the main responsibility of taking care of older people. Without siblings to share the responsibility, young couples born since the one-child policy often are shouldering the task of taking care of four older parents today. Their children, if the current one-child policy continues to the time of their marriage in 20 years, will possibly be facing the task of taking care of four parents and in some cases even eight grandparents.

## Health Status and Health Care

### Health Status and Health Sector

One of the major concerns about an aging population is the health and health care of older people. The World Health Organization (WHO) reported that China made remarkable gains in health and life expectancy from the 1950s through the 1980s (WHO, 2004a). To provide primary health care to its populace, the health sector established a three-tier health care system in both rural and urban areas: in rural areas, the tiers are village doctors and clinics, township health centers, and general hospitals; in urban areas, they are community health centers, district hospitals, and tertiary hospitals

(Meng et al., 2004). By the end of 2004, there were 296,492 health care institutions in China, including 60,867 hospitals and township hospitals; 207,933 clinics; 3,586 epidemic prevention stations; and other health-care institutions (National Bureau of Statistics of China, 2005).

### Disease Profile

The provision of public health care in the past five decades, especially from the early 1950s to the mid 1980s, resulted in considerable progress in key health indicators and enabled the epidemiological transition to begin.<sup>9</sup> By the 1990s, chronic diseases in middle and older age were the most important health problems in parts of the country (Popkin et al., 1993). There is evidence that now "China's disease profile resembles that of a developed country: 85%–90% of deaths are due to noncommunicable diseases and injuries" (WHO, 2005: 2).

This disease profile has important public health implications now that the population is aging, because the old and the young are affected by different diseases. In general, stroke, cancer, ischemic heart disease, and chronic lung disease account for most of the mortality among middle-aged and older people, while children generally die from a short list of infections, most of which are relatively inexpensive to treat or prevent (World Bank, 1996). The fact that older people are more likely than younger people to have noncommunicable diseases, combined with the rapid growth of the older population, will

<sup>9</sup> Epidemiological transition commonly refers to the general shift from acute infectious and parasitic diseases characteristic of underdevelopment to chronic noncommunicable diseases characteristic of modernization and advanced levels of development (Wahdan, 1996).

result in an increasing number of older people with chronic disease. This will not only affect the older population's quality of life but also result in heavier health care costs for older people and society.

The physical health of older people is likely to affect their mental health status, as disease and physical dysfunction affect emotional well-being and increase depression (Mirowsky and Ross, 1992). WHO defines health as "a state of complete physical, social, and mental well-being, and not merely the absence of disease or infirmity" (WHO, 1998:1). The WHO has estimated that mental health problems in China account for 20 percent of the total disease burden (WHO, 2004b).

### Health Care Costs and Financing

Health care costs are rapidly rising. The World Bank reported that while during the 1960s and 1970s China performed well in providing affordable essential care, in the 1980s it faltered, and in the 1990s, it slipped still further (World Bank, 2005a). The cost of care has risen such that a single hospitalization cost about 4,000 yuan<sup>10</sup> on average in 2003, equivalent to 43 percent of the average national income and nearly 200 percent of the average income for a person in the poorest one-fifth of the population (World Bank, 2005a).

Chinese government spending on health has risen in real terms during the last two decades but slower than the rise in gross domestic product (GDP) and slower than the increase in private health expenditures. Between 1978 and 2003, private health spending increased

<sup>10</sup> From 1995 to 2005, the Chinese government maintained a pegged exchange rate between its currency, the yuan, and the U.S. dollar, with \$1 = 8.28 yuan (United States Congress, 2005).

Box 1-2.

## The Sample Survey on Aged Population in Urban/Rural China

Data in this report, unless otherwise noted, come from the Sample Survey on Aged Population in Urban/Rural China (SSAPUR), conducted by the China Research Center on Aging (CRCA) in December 2000. The SSAPUR was the first national survey of the older population conducted and sponsored solely by the Chinese government. Special provincial offices were created to implement the SSAPUR. Training was conducted for provincial and city/county officials as well as the survey interviewers, and efforts were made to give the survey high visibility at the local government level. Reflecting these efforts, the SSAPUR achieved an extremely high response rate of 99.3 percent.

The survey contained two questionnaires, one for urban residents and one for rural residents. Categories in the two questionnaires were similar—information was collected on personal background, employment and income, housing conditions and household assets, residential community/village elderly services and activities, living arrangements and intergenerational transfers, physical health, health care access and cost, mental health, and religious beliefs. The two questionnaires differ mainly with regard to certain questions about work, retirement, and economic activities, as these variables may have different meanings in urban and rural areas.

A second SSAPUR was fielded by the CRCA in June–August 2006. The 2006 survey has a sample

size similar to that in 2000 (approximately 20,000 respondents) and a sampling frame that includes all 31 provinces. The 2006 survey made improvements in questionnaire design by including detailed categories or measures of some health variables (e.g., chronic diseases and depressive symptoms) and household economic information. When the 2006 data become available, the two SSAPUR surveys will provide a valuable resource for analyzing trends in older people's health status and health care utilization. In addition, 9,380 respondents from the 2000 survey were reinterviewed in 2006. This subsample will permit longitudinal analyses of the same individuals over time, enabling researchers to better understand the dynamics of health status and transitions to and from different health states.

Detailed tabulations from SSAPUR 2000 provide demographic characteristics of China's older population vis-à-vis physical health, mental health, and health care in 2000. Many of the SSAPUR data in this report are shown in figures, text tables, and/or the detailed tables in Appendix A. Other SSAPUR data discussed in this report are available as part of an Internet table package that can be accessed on the Census Bureau's Internet site <[www.census.gov](http://www.census.gov)>. In the site's "Subjects A–Z" area, click on "O," then "Older (55+) Population Data," and then on "Health and Health Care of China's Older Population Data."

from 20 percent of total health spending to nearly 60 percent (World Bank, 2005b). Much of this was a result of the market-oriented reforms that transformed public hospitals and clinics into profit-making enterprises. "With stagnant government subsidies and restrictions on medical service charges, public hospitals maximized revenues through loosely regulated drug sales" (WHO, 2004c: 4).

Health-care costs are particularly heavy for poor and rural residents because, as the World Bank

reported, inequalities have been generated by government spending that largely focused on urban health insurance schemes and on subsidies to city hospitals (World Bank, 2005c). Chinese Minister of Health Gao Qiang acknowledged in August 2005 that, "China has failed to provide adequate health care to most of its citizens" (*China Daily*, 2005:1).<sup>11</sup> Health care reform has

<sup>11</sup> *China Daily*, an official English-language newspaper issued by the Chinese government, is one of the main sources for up-to-date official policies, published documents, and speeches/statements by high-level government officials.

been ongoing in recent years, and one of the government's stated top priorities is to narrow urban-rural disparities. As part of the budget for 2006, the central government will provide almost 5 billion yuan for health insurance for rural residents, compared with less than 1 billion yuan in 2005 (*China Daily*, 2006a).

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## Survey Design and Estimation Procedures

### Sample Design

For the SSAPUR, a stratified multi-stage sample design was used to select the primary sampling units for the 27 provinces included in the sampling frame (for more detailed information on SSAPUR's sampling method, see Appendix B).<sup>12</sup> These provinces were stratified into six regions.<sup>13</sup> Within each region, the sample provinces were

<sup>12</sup> In 2000 when SSAPUR was conducted, there were a total of 31 provinces, autonomous regions, and centrally administered municipalities in China mainland (Taiwan is not included in the SSAPUR), as well as the two special administrative regions of Hong Kong and Macao. SSAPUR did not include the two Special Administrative Regions. The SSAPUR sampling frame excluded four provinces (Nei Mongol, Guangxi, Guizhou, and Xizang) for lack of administrative survey-conducting capability or other reasons. Therefore, SSAPUR is representative of the national population, with the exception of the aforementioned areas. China's 2000 census data show that, all combined, the population aged 60 and over of these four provinces represented about 8 percent of China's total older population in 2000.

<sup>13</sup> The six regions of China are: North (Beijing, Tianjin, Hebei, Shanxi, and Nei Mongol); Northeast (Liaoning, Jilin, and Heilongjiang); East (Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, and Shandong); South Central (Henan, Hubei, Hunan, Guangdong, Guangxi, and Hainan); Southwest (Chongqing, Sichuan, Guizhou, Yunnan, and Xizang); and Northwest (Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang).

selected with probability proportional to size (PPS), where the measure of size was based on the population aged 50 and older from the Fourth China Census (1990) data. Twenty sample provinces were selected from the sampling frame. The PPS sampling methods were used to select four cities and four counties within each sample province, then a random sample of 16 urban blocks from each sample city and 16 rural townships from each sample county. At the next sampling stage, 50 urban residential committees and 50 rural village committees were selected within each province, and a sample of 10 households from each residential committee or village was selected systematically with a random start from the list of all households having members aged 60 and older.

As a final selection step, interviewers randomly selected one eligible person from households with older householders. This resulted in a sample of about 500 urban older people and 500 rural older people in each province, for a total sample of approximately 20,000 older people.

### Estimation Procedures

To obtain correct estimates based on the sample design of SSAPUR,

respondent weights were created. First, basic weights were calculated, taking into account all stages of sample selection. The basic weights were then adjusted using 2000 census data, which have the same reference year as the SSAPUR, for the older population by region, urban/rural stratum, sex, and age. These final weights enabled the weighted distribution of the older population from the SSAPUR data to be close to the 2000 census figures for the older population for each region by urban/rural stratum, sex, and age, and at the same time reflect the different stages of the sample design to provide statistically unbiased survey estimates.

## Basic Demographic and Socioeconomic Characteristics of China's Older Population

Table 1-1 and Table A-1 show general demographic and socioeconomic characteristics of China's population aged 60 and over in 2000 based on the SSAPUR data. These characteristics are used as independent or control variables in this report to examine their association with the health status and health care of China's older population.

Table 1-1.  
**Population Aged 60 and Over by Residence and Selected Characteristics for China: 2000**

Characteristic	Total			Urban			Rural		
	Number (thousands)	Percent		Number (thousands)	Percent		Number (thousands)	Percent	
		Estimate	Margin of error ( $\pm$ ) <sup>1</sup>		Estimate	Margin of error ( $\pm$ ) <sup>1</sup>		Estimate	Margin of error ( $\pm$ ) <sup>1</sup>
<b>Total</b> .....	<b>118,983</b>	<b>100.0</b>	<b>(X)</b>	<b>27,643</b>	<b>100.0</b>	<b>(X)</b>	<b>91,340</b>	<b>100.0</b>	<b>(X)</b>
<b>Age</b>									
60 to 69 .....	69,847	58.7	1.2	16,990	61.5	3.3	52,856	57.9	1.1
70 to 79 .....	38,160	32.1	0.9	8,353	30.2	2.0	29,808	32.6	0.9
80 and over .....	10,977	9.2	0.9	2,300	8.3	1.7	8,676	9.5	0.9
<b>Sex</b>									
Male .....	57,954	48.7	1.6	13,428	48.6	2.4	44,526	48.7	2.0
Female .....	61,030	51.3	1.6	14,216	51.4	2.4	46,814	51.3	2.0
<b>Marital Status</b>									
Currently married <sup>2</sup> .....	78,577	66.0	1.9	20,674	74.8	3.0	57,903	63.4	1.9
Widowed .....	37,396	31.4	1.8	6,498	23.5	2.8	30,898	33.8	1.8
Other <sup>3</sup> .....	3,011	2.5	0.4	472	1.7	0.3	2,539	2.8	0.5
<b>Educational Attainment<sup>4</sup></b>									
Illiterate .....	62,001	52.1	2.4	7,209	26.1	3.0	54,792	60.0	1.8
Primary school <sup>5</sup> .....	40,866	34.3	1.7	9,359	33.9	1.9	31,507	34.5	2.0
Junior high school or above .....	16,116	13.5	1.8	11,075	40.1	2.6	5,041	5.5	1.2
<b>Money Income (in Yuan)<sup>6, 7</sup></b>									
Low .....	35,645	30.0	2.7	8,193	29.6	3.7	31,836	34.9	3.6
Medium .....	48,580	40.8	2.7	10,897	39.4	2.9	39,198	42.9	1.9
High .....	34,759	29.2	2.9	8,554	30.9	3.4	20,306	22.2	3.1
<b>Living Arrangement</b>									
Living alone .....	9,325	7.8	0.9	1,919	6.9	1.3	7,406	7.8	0.9
Living with spouse only .....	36,676	30.8	2.3	9,588	34.7	2.1	27,088	30.8	2.9
Living with children and/or others <sup>8</sup> .....	72,982	61.3	2.8	16,137	58.4	2.0	56,846	61.3	3.5

(X) Not applicable.

<sup>1</sup> The margin of error, when added to and subtracted from the estimate, provides the 90-percent confidence interval around the estimate.

<sup>2</sup> "Currently married" refers to people who were currently married and living with their spouse.

<sup>3</sup> "Other" includes people who were divorced, separated, or never married.

<sup>4</sup> "Illiterate" is defined as people aged 15 and older who are unable to read. Primary school in China is equivalent to elementary school in the United States, and junior high school is equivalent to middle school or junior high school.

<sup>5</sup> "Primary school" includes "primary school" and "old-style private school."

<sup>6</sup> "Money Income" is monthly income in Chinese yuan. In 2000, the exchange rate between the U.S. dollar and the Chinese yuan was \$1 = 8.28 yuan.

<sup>7</sup> In this table, for total China, "Low" monthly money income is less than 50 yuan, "Medium" is 50 to 199 yuan, and "High" is 200 yuan or above. For urban China, "Low" is less than 300 yuan, "Medium" is 300 to 749 yuan, and "High" is 750 yuan or above. For rural China, "Low" is less than 50 yuan, "Medium" is 50 to 149 yuan, and "High" is 150 yuan or above.

<sup>8</sup> "Living with children and/or others" may include spouse, children, grandchildren, parents, or any other family or nonfamily members.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

### Age, Sex, and Urban/Rural Residence

Age in this report is disaggregated into three groups: 60 to 69, 70 to 79, and 80 and older. Among China's overall older population in 2000, more than half (58.7 percent) was young old, aged 60 to 69. The proportion of young old was slightly higher in urban areas (61.5 percent) than in rural areas

(57.9 percent).<sup>14, 15</sup> The oldest old (80 and over) constituted about one in ten older people (9.2 percent) nationwide.

<sup>14</sup> The proportions for total young olds and urban young olds are not statistically different from each other.

<sup>15</sup> The estimates in this report (which may be shown in text, figures, and tables) are based on responses from a sample of the population and may differ from actual values

There were more older women than older men (51.3 percent and 48.7 percent, respectively). The sex ratio (the number of men per

because of sampling variability or other factors. As a result, apparent differences between the estimates for two or more groups may not be statistically significant. All comparative statements have undergone statistical testing and are significant at the 90-percent confidence level unless otherwise noted.

100 women) was 95, reflecting a higher share of older men compared with the United States and many other nations.<sup>16</sup>

The majority of China's older population live in the rural areas. In 2000, there were 27.6 million older urban residents and 91.3 million older rural residents.

### Marital Status

A small proportion (2.5 percent) of China's older people were divorced, separated, or never married in 2000. Most older people were married (66.0 percent) or widowed (31.4 percent).

Women were more likely to experience widowhood. Nearly half of older women (45.9 percent) were widowed, compared with 16.2 percent of older men. The gender difference in marital status is particularly marked among urban residents. Urban men were much less likely to be widowed than were older urban women (7.2 percent and 38.9 percent, respectively), and older urban men were more likely to be married than older urban women (91.3 percent, compared with 59.2 percent). Urban older people, regardless of gender, were more likely than rural older people to be married and less likely to be widowed. One reason for the higher marriage rates of men and urban residents may be that "currently married with spouse" in this report does not distinguish first marriage from remarriage, and men or urban residents may be more likely to remarry after being widowed or divorced.

### Education and Income

People born before 1940 (aged 60 and older in 2000) had received relatively little formal education. About half (52.1 percent) were illiterate,

<sup>16</sup> The sex ratio was 78 for the population aged 60 and over in the United States in 2000 (U.S. Census Bureau, 2001).

and another one-third (34.3 percent) had only primary education.<sup>17</sup> Older women were less educated than older men. A majority of women (71.0 percent) were illiterate, compared with about one-third (32.2 percent) of men.

The urban/rural differential was more striking. Eight in ten (79.6 percent) rural older women could not read, and very few (1.7 percent) had received education after primary school.<sup>18</sup> In comparison, more than half of urban older women had some education—33.7 percent had completed primary school and 23.5 percent went on to junior high school or beyond. Among urban older men, 8.4 percent could not read; among rural older men, the proportion was 39.4 percent.

There was a marked difference in the personal money income of urban and rural older people.<sup>19</sup> In 2000, average annual personal money income for urban older Chinese was 7,480 yuan and for older rural residents, 1,493 yuan. This report therefore groups money income into three categories (low, medium, high) for urban and rural residents separately. The categories were determined based on the percent distribution of money income for total China, urban China, and rural China to present a relatively nonskewed balance.

For total China, 30.0 percent of older people had personal money income of less than 600 yuan (low income as defined in this report),

<sup>17</sup> Illiterate refers to people aged 15 and older who are unable to read (National Bureau of Statistics of China, 2005).

<sup>18</sup> Primary school in China is equivalent to elementary school in the United States, and junior high school is equivalent to middle school or junior high school.

<sup>19</sup> Personal money income in this report includes earnings (wages or agricultural income), pension or retirement income, business income, interest, dividend, rents, government or collective subsidies, social or collective old-age insurance, and money given by children or grandchildren or other relatives or friends.

40.8 percent had 600 to 2,399 yuan (middle income), and 29.2 percent had 2,400 yuan or more (high income) for the year.

For urban China, 29.6 percent of older people had personal money income of less than 3,600 yuan (low urban income), 39.4 percent had 3,600 to 8,999 yuan (middle urban income), and 30.9 percent of older people had 9,000 yuan or more (high urban income) for the year.

In rural areas, about one-third of older people (34.9 percent) had an income of less than 600 yuan (low rural income), 42.9 percent made 600 to 1,799 yuan (middle rural income), and 22.2 percent had income of 1,800 yuan or more (high rural income) for the year.

### Living Arrangements

With whom older people live is an important factor in their health care and old-age care. Coresidence with adult children may provide older people with emotional, financial, and physical support, particularly for those in poor health or with disabilities (DaVanzo and Chan, 1994).

China's older people largely live with their adult children. In 2000, 7.8 percent of older people lived alone, 30.8 percent lived with spouse only, and the majority, 61.3 percent, lived with children and/or others.<sup>20</sup> Older women were more likely than older men to live alone (9.9 percent and 5.7 percent, respectively) and to live with children and/or others (65.2 percent and 57.3 percent). Urban older men were less likely than their rural counterparts to live alone (3.3 percent compared with 6.4 percent), while urban and rural older women had no difference in the likelihood of living alone (around 10 percent).

<sup>20</sup> In this report, "Living with children and/or others" may include spouse, children, grandchildren, parents, or any other family or nonfamily members.

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## CHAPTER 2.

# PHYSICAL HEALTH

With the accelerated growth of its aged population, China will experience an increase in the number of older people with physical health problems, including chronic conditions, functional limitations, and disability. These physical conditions, in turn, are likely to increase the risk of old age dependency, need for care, and hospitalization. In light of increased population aging worldwide, considerable research effort in recent decades has been devoted to creating measures that summarize the health of older people. This chapter seeks to extend our understanding of health at older ages by assessing the health of China's older population. The chapter provides an overview of physical health and functioning among older Chinese and outlines the role of certain behaviors—smoking, drinking, and physical activity—that may promote or protect from chronic conditions and functional limitations.

### Disability and Activity Limitations

Earlier studies have conceptualized and used diverse measures to summarize functional status among older people (Freedman et al., 2002; Fried et al., 2000; Katz et al., 1963; Lawton and Brody, 1969; Murray et al., 2002; Nagi, 1965, 1991; Reuben et al., 2004; Rosow and Breslau, 1966). The Global Burden of Disease Project has combined mortality information and nonfatal health outcomes to measure “disability-adjusted life expectancy” as the expected number of years to be lived in “full health.” In the late 1990s and early 2000s, the World Health Organization (WHO) estimated that China had a healthy life

expectancy at birth of about 65 years for females and 63 years for males. Men and women who had reached age 60 could expect another 13 and 15 years of healthy life, respectively (WHO, 2004d). At age 60, about 35 percent of remaining years would likely be lived with disability.

Although definitions of disability vary, researchers agree that disability in old age is a phenomenon that involves medical, physiological, and psychological changes taking place within the context of one's environment, socioeconomic position, cultural norms, and social support network. The disablement process usually begins with a pathological condition that relates to chronic disease(s) or an injury that inflicts impairment(s) to the body, leading to difficulty in performing basic body movement, resulting further in a functional disability or diminished capacity to perform tasks that are necessary to live an independent life within one's environment. Progression from pathology to a disabled state may be affected and modified by one's physical environment, availability of short-term and long-term medical care, family support, and lifestyle habits (Fried and Guralnik, 1997; Verbrugge and Jette, 1994).

Functional disability typically is measured by various self-reported limitations in activities and more recently by using performance-based evaluations of functioning (Suthers and Seeman, 2003). These include basic personal care activities of daily living (ADL), such as eating, bathing, toileting, transferring in and out of bed, and dressing, and instrumental activities of

daily living (IADL), such as cooking, shopping, and managing money (Katz and Stroud, 1989).

Based on previous research conducted mostly in Western developed countries, and on the availability of comparable and culturally suited measures from the Sample Survey on Aged Population in Urban/Rural China (SSAPUR), this chapter addresses three categories of disability among older Chinese: limitations in ADL, mobility difficulty, and limitations in household activities. The self-reported ADL measures are comparable with those in Western surveys and include difficulty with bathing, eating, toileting, dressing, and transferring in and out of bed. The mobility measures are Nagi-style situation-free limitations, such as lifting, walking, and climbing stairs.<sup>21, 22</sup> Household activities are a combination of IADL-type activities, such as meal preparation and grocery shopping, and other culturally appropriate tasks that are necessary for independently residing within a community, such as sweeping and washing clothes.<sup>23</sup> Among the three measures of functional disability used in this report, mobility difficulty was most commonly reported by older Chinese, followed by household activity limitations and ADL limitations—39.6 percent, 26.0 percent, and 18.9 percent, respectively. Research in the United States has shown similar patterns, indicating that functional ability is lost hierarchically, with ADL limitations being the most severe and experi-

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<sup>21</sup> See Nagi, 1965 for more information on mobility measures.

<sup>22</sup> Limitation in climbing stairs is reported only for urban residents.

<sup>23</sup> Limitation in grocery shopping is reported only for urban residents.



enced by the most disabled (Dunlop et al., 1997).

### Limitations in ADL

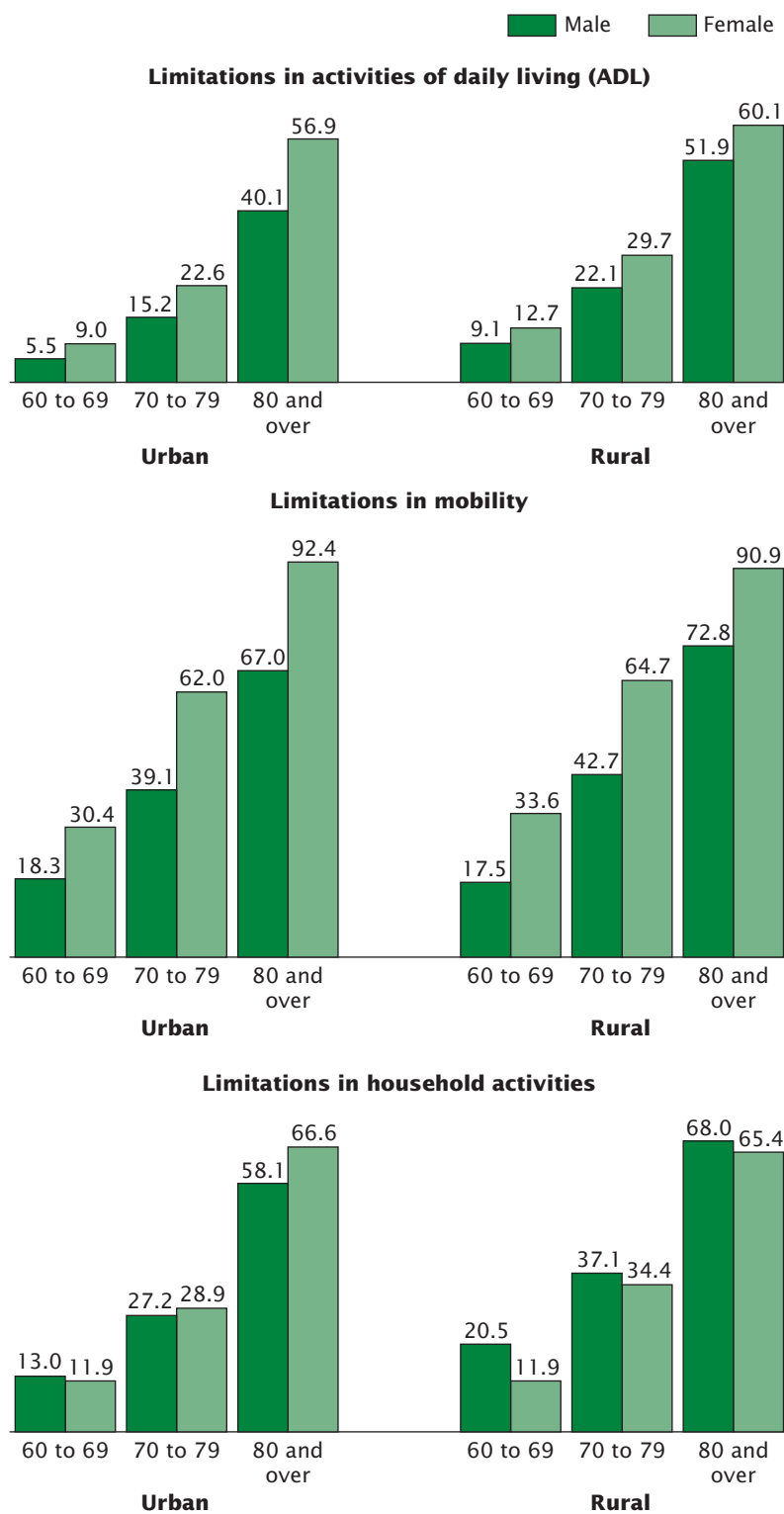
Limitations in ADL often indicate relatively severe forms of disability and are generally considered precursors of long-term care and institutionalization (Guralnik et al., 1995). Evidence from both developed and developing countries indicates that the incidence and prevalence of ADL increase with age, and that the experience and reporting of disability is higher among women than men (Leveille et al., 2000; Rahman and Liu, 2000; Sengupta and Agree, 2002; Wu et al., 1999; Yount and Agree, 2005; Zhang et al., 2005). These studies attribute gender differences to a combination of a higher prevalence of non-life-threatening debilitating illnesses among older women and social disadvantages such as lower income and education that are more common among older women than older men.

Older Chinese women more commonly reported ADL limitations than did older men—15.0 percent of men and 22.5 percent of women reported at least one ADL limitation. ADL limitations were also more common in rural areas than in urban areas—10.7 percent and 17.8 percent of urban men and women, respectively; 16.3 percent and 24.0 percent of rural men and women, respectively.<sup>24</sup> ADL limitations increased with age, with 10.0 percent, 24.6 percent, and 55.6 percent of those in the age groups 60 to 69, 70 to 79, and 80 and older, respectively, reporting difficulty with at least one such activity. Figure 2-1 shows that in both urban and rural areas, in each age

<sup>24</sup> Fifteen percent of men is not statistically significantly different from 16.3 percent of rural men, and 22.5 percent of women is not statistically significantly different from 24.0 percent of rural women.

Figure 2-1.

### Percent of Population Aged 60 and Over With Limitations in Activities of Daily Living, Mobility, and Household Activities: 2000



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

Table 2-1.  
**Percent of Population Aged 60 and Over With Limitations in Activities of Daily Living by Number of Limitations and Selected Characteristics for China: 2000**

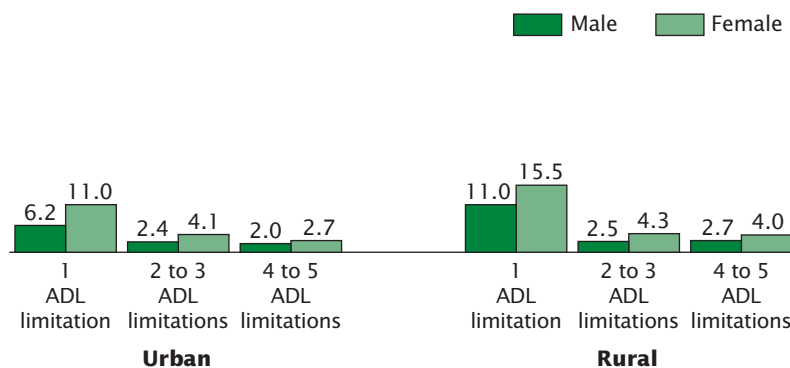
Characteristic	1 ADL limitation	2-3 ADL limitations	4-5 ADL limitations
<b>Total</b> .....	<b>12.2</b>	<b>3.4</b>	<b>3.1</b>
<b>Age</b>			
60 to 69.....	6.9	1.7	1.3
70 to 79.....	16.2	4.2	4.0
80 and over.....	32.7	11.4	11.4
<b>Sex</b>			
Male.....	9.9	2.5	2.5
Female.....	14.4	4.3	3.7
<b>Residence</b>			
Urban.....	8.7	3.3	2.4
Rural.....	13.3	3.5	3.3

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

(Table 2-1).<sup>26</sup> Women were more likely than men to report limitations, regardless of the number of limitations (Figure 2-2).

Among the five ADL limitations addressed in this report, the most commonly reported was trouble with bathing—16.5 percent of older Chinese had difficulty bathing. The prevalence of other limitations was relatively low and they did not differ statistically: eating (4.5 percent), dressing (4.4 percent), toileting (4.9 percent), and getting in and out of bed (4.7 percent). In both urban and rural settings, women were consistently more likely than men to report difficulties (Table 2-2).<sup>27</sup>

Figure 2-2.  
**Percent of Population Aged 60 and Over With One or More Limitations in Activities of Daily Living: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

### Limitations in Mobility-Related Activities

Disability at older ages manifests itself in various and often complex ways, the complete spectrum of which may not be captured by ADL or IADL limitations alone. Unlike ADL measures, which capture the most severe forms of disability, mobility difficulty is more inclusive and related to difficulty in moving the upper or lower body. Mobility difficulty is a common limitation among older people and also an important risk factor for the onset of disability and poor self-rated health (Clark et al., 1998; Guralnik et al., 1993; Jylha et al., 2001; Sengupta and Agree, 2003).

group, women were more likely than men to report ADL limitations.<sup>25</sup>

About 80 percent of older Chinese reported no ADL limitations, about 12 percent had difficulty with one activity, and about 7 percent found it difficult to perform two or more of these tasks. The number of

limitations increased with age. For instance, 6.9 percent, 16.2 percent, and 32.7 percent of those 60 to 69, 70 to 79, and 80 and older, respectively, had one ADL limitation; 1.7 percent, 4.2 percent, and 11.4 percent respectively in the same three successive age groups had two to three ADL limitations; and 1.3 percent, 4.0 percent, and 11.4 percent of older people in these successive age groups had four to five ADL limitations

<sup>25</sup> The male/female difference is not statistically significant for rural residents aged 80 and older.

<sup>26</sup> There are no statistically significant differences between all people aged 60 and older and those who were between the ages of 70 to 79 who had difficulty with either one activity or two to three activities or four to five activities. Among those aged 60 to 69, there are no statistical differences between those who had two to three limitations and those who had four to five limitations. In the 70-to-79 age group, there are no statistical differences between those who had two to three limitations and those who had four to five limitations.

<sup>27</sup> Men and women were not statistically significantly different in rural settings for the limitation of eating.

Table 2-2.

### Percent of Population Aged 60 and Over With Limitations in Various Activities by Residence, Sex, and Type of Activity for China: 2000

Type of activity	Total		Urban		Rural	
	Male	Female	Male	Female	Male	Female
<b>Limitations With Activities of Daily Living</b>						
Eating.....	3.5	5.5	1.9	3.1	3.9	6.2
Dressing .....	3.4	5.4	2.6	3.4	3.6	6.0
Toileting .....	4.0	5.8	3.4	5.1	4.2	6.1
Getting in and out of bed.....	3.8	5.7	3.3	5.4	3.9	5.8
Bathing .....	13.2	19.7	10.0	15.9	14.2	20.8
<b>Limitations With Mobility</b>						
Lifting 10 kilograms or more .....	24.6	45.4	22.7	41.2	25.1	46.7
Walking 1.5 to 2 kilometers.....	22.0	39.0	18.8	35.7	23.0	40.1
Walking indoors .....	3.6	7.0	4.7	5.5	3.3	7.4
Climbing stairs <sup>1</sup> .....	3.4	6.2	14.8	26.8	(NA)	(NA)
<b>Limitations With Household Activities</b>						
Sweeping .....	7.5	10.5	7.1	8.8	7.6	11.0
Cooking .....	2.4	4.1	14.2	16.8	19.9	17.0
Washing .....	18.6	17.0	19.3	21.0	27.5	24.8
Grocery shopping <sup>1</sup> .....	25.6	23.9	10.4	17.7	(NA)	(NA)

(NA) Not available.

<sup>1</sup> Limitations reported only for urban residents.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

Overall, 39.6 percent of the older population reported mobility limitations. Mobility difficulty increased with age—25.0 percent, 53.6 percent, and 83.8 percent of those aged 60 to 69, 70 to 79, and 80 and older. Mobility limitations were more common among older women than older men, with about 30 percent of men and 50 percent of women reporting some difficulty. The gender difference was found in both urban and rural areas (Figure 2-1).

Among mobility-related activities, 35.2 percent of older Chinese reported difficulty with lifting 10 kilograms, 30.8 percent with walking 1.5 to 2 kilometers, 21.0 percent with climbing stairs, and 5.3 percent with walking indoors. Difficulty with lifting and walking were more common in rural than

#### Box 2-1.

### Physical Limitations and Accessibility Issues

Limitations in ADL generally equate with certain health conditions. At the same time, there may be environmental and accessibility barriers to carrying out some self-care activities, especially in rural areas. For example, living in a house without a bathroom may contribute to more limitations on bathing than would otherwise be the case. Difficulties with food preparation and washing may be related to the presence of modern cooking devices and washing machines. The use of assistive devices (Box 2-3) such as eyeglasses and hearing aids likely affects people's perceptions of physical limitation. Reported disability levels, particularly when comparing urban and rural areas, may be influenced by more factors than health alone.

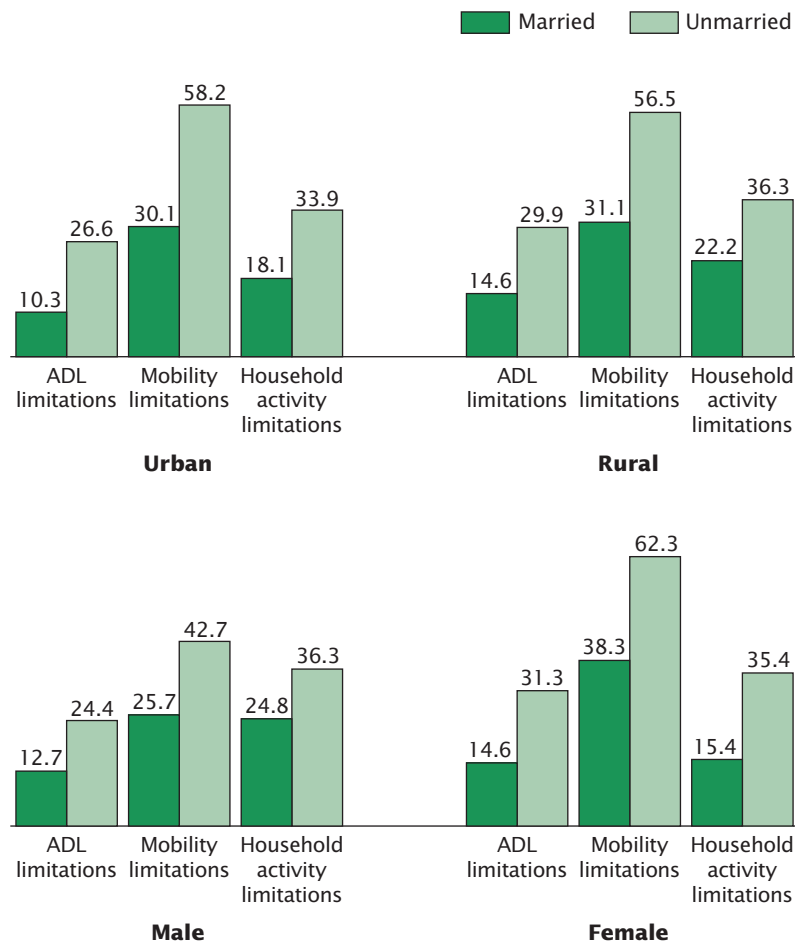
urban areas.<sup>28</sup> More women than men reported difficulty with lifting, walking outdoors, and climbing

stairs. More rural women than men also reported difficulty walking indoors.

<sup>28</sup> There are no statistically significant differences between all older people who report difficulty with lifting weights and those reporting the same difficulty in rural areas. Also, there are no statistically

significant differences between older people reporting difficulty with walking 1.5 to 2 kilometers and those reporting the difficulty with the same activity in rural and urban areas, separately.

Figure 2-3.  
**Percent of Married and Unmarried People Aged 60 and Over With Activity Limitations: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

### Limitations in Household Activities

Household activity limitations used in this study are similar to task-related IADL measures, with no particular hierarchy. Some studies have shown that such limitations are associated with frailty and mortality at older ages, and that women who have IADL limitations are more likely to be frail, have poor cognitive function, and have more frequent falls (Fati et al., 2001; Kawamoto et al., 2006; Keller and Potter, 1994; Schupf et al., 2005). About one-fourth of

older Chinese reported one or more household activity limitations, with no significant difference by gender. Difficulty performing household activities was more common in rural than urban areas, perhaps due to the generally poorer living conditions in rural areas.<sup>29</sup> As with other measures of disability, the percentages of older men and women with household

<sup>29</sup> There is no statistically significant difference between the percentage of the total older population who reported household activity limitations and the percentage of those living in rural areas with household activity limitations.

activity limitations increased markedly with age in both urban and rural settings (Figure 2-1).

The most common limitation involved washing clothes (24.7 percent), followed by cooking (17.8 percent), grocery shopping (14.2 percent), and sweeping (9.0 percent). Older rural residents were more likely than urban residents to report difficulty with cooking (18.4 percent compared with 15.5 percent) and washing (26.1 percent compared with 20.2 percent).<sup>30</sup> In rural China, more women than men reported difficulty with sweeping, while in urban China, more women than men reported difficulty with grocery shopping (Table 2-2). These differences may be related to the gender-specific nature of these activities, and men and women may have reported difficulty with performing those activities that they do not perform routinely.

### Activity Limitations and Marital Status

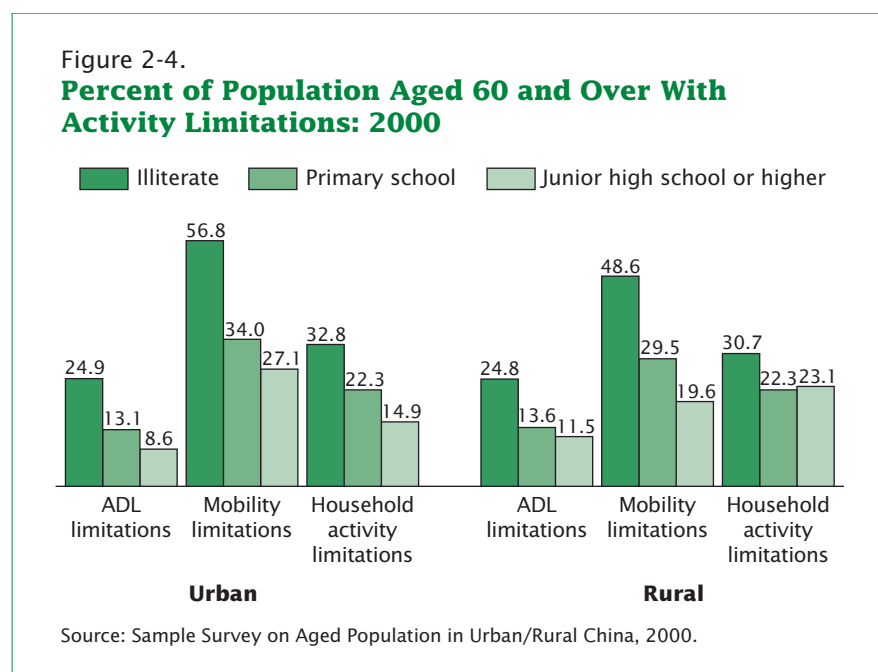
Apart from age and sex, which consistently show an association with disability, earlier studies in different countries have shown a positive association between marital status and health among older people (Goldman et al., 1995; Schoenborn, 2004). The marital advantage is generally attributed either to the selection of healthy people into marriage or to “marital protection” related to sharing of economic resources, less indulgence in negative behavior, and care and support from a spouse.

<sup>30</sup> The percentage of the total older population that had washing limitations is not statistically significantly different from the percentage of older rural residents. The percentage of the total older population that had cooking limitations is not statistically significantly different from that of older rural residents.

In China, fewer married older people than their unmarried counterparts reported limitations with activities. For instance, 30.8 percent of married people reported limitations with mobility-related activities compared with 56.7 percent of unmarried people. Data in Figure 2-3 confirm earlier studies that established a positive relationship between marriage and functioning—older adults in China demonstrate a marital advantage that holds true for all activities in both urban and rural settings.

Although marriage is associated with good health and longevity for both men and women, some studies in Western countries have concluded that since women are more often the primary caregivers for their spouses, not having a spouse is worse for men than for women (Hu and Goldman, 1990; Verbrugge, 1985, 1989). Studies in non-Western settings, however, have suggested that in patriarchal kinship systems, where women often face disadvantages in access to resources and are dependent on their spouses for economic support, not having a spouse may have a stronger link with poor health for women than for men (Kuate-Defo, 2006). Figure 2-3 shows the percentages of older married and unmarried men and women who have activity limitations. These data confirm that both married men and women reported better functional ability than the unmarried.

These data are not appropriate to assess the direction of the relationship between marital status and activity limitations, and it is not clear whether the marital advantage is an artifact of marital selection or protection, as explained above. Given that marriage is nearly universal in China, particularly among older cohorts, it is more likely that the marital advantage



is related to protection rather than selection. Also, due to the small sample size of divorced, separated, and never-married individuals, activity limitations among these groups could not be separately examined.

Older people's functional ability also varied according to their living arrangement. Coresidence with spouse only was associated with lower odds of disability—about 15 percent of those living with their spouse reported ADL limitations, compared with about 21 percent each of those who lived alone or with children and/or others. Similarly, about 33 percent of those living with their spouse reported mobility difficulty, compared with 52 percent of those who lived alone and 41 percent of those who lived with children and/or others.

### Activity Limitations, Education, and Income

A consistent and robust association between socioeconomic status and health at older ages exists in Western societies, while studies in some Asian countries have indi-

cated the same positive relationship but with variations in the strength of the relationship depending on the measures used: education, income, and occupation (De Vos, 2005; Jiang et al., 2002; Matthews et al., 2006; Melzer et al., 2001; Preston and Elo, 1995; Yu et al., 2000; Zimmer and Amornsirisomboon, 2001; Zimmer et al., 2004). Most studies attribute the education advantage to a combination of the economic implications of education (e.g., better jobs and living conditions) and the psychosocial influences of education (related to healthy behavior, nutritional status, and medical-treatment-seeking behavior). Earlier studies in China found that both income and education have an inverse association with certain activity limitations, mobility decline, and disability (Anson and Sun, 2002; Beydoun and Popkin, 2005; Ho et al., 1997; Liang et al., 2001).

Consistent with other findings in China, the SSAPUR shows that activity limitations vary by household income. For instance, 24.4 percent, 19.2 percent, and 12.7 percent of

Box 2-2.

### Gender Differences in Functioning Among Older Chinese

Studies in various countries have shown that older women report higher rates of poor health than do older men. Given that women in China have traditionally experienced socioeconomic and cultural disadvantages throughout their lives, older Chinese women may experience disadvantages in functioning similar to or even larger than those of older women in Western countries. Table 2-3 shows results from logistic regression models that examine the association between gender and health. For the purposes of this analysis, three separate measures of health are used: functional health (ADL/mobility limitations), chronic conditions, and self-assessed health.<sup>31</sup>

Controlling for a host of confounding factors (e.g., age, urban/rural residence, income, educational status, and a combination of marital status and living arrangements), results show that older Chinese women are more likely than older men to report poor health (Figure 2-5). Older women are 1.9 times more likely to report functional disability and 1.3 times more likely to report chronic conditions. Older women are significantly less likely than older men to perceive their health as being good and 1.2 times more likely to assess their health as being poor. Individuals with some education (primary education or higher) were less likely than those illiterate to report any ADL/mobility difficulty. The odds of reporting activity limitations and poor health decreased with increasing income (Table 2-3).

<sup>31</sup> Household activity limitations are excluded since they refer to activities that may be related to gender.

older people who had low, medium, and high income, respectively, reported having at least one ADL limitation. These income-related differences held true in urban and rural settings. Mobility limitations also varied by household income, with those in the highest-income category being least likely to report such limitations.

The prevalence of activity limitations also varied by educational attainment. Overall, ADL and mobility limitations were highest among the illiterate and decreased progressively with each level of education. The largest difference was observed between the illiterate and the primary schooled, indicating that even a few years of education may be associated with better physical functioning at older ages (Figure 2-4). Differences by education were evident for ADL and mobility-related limitations in urban and rural areas.<sup>32</sup>

### Chronic Diseases

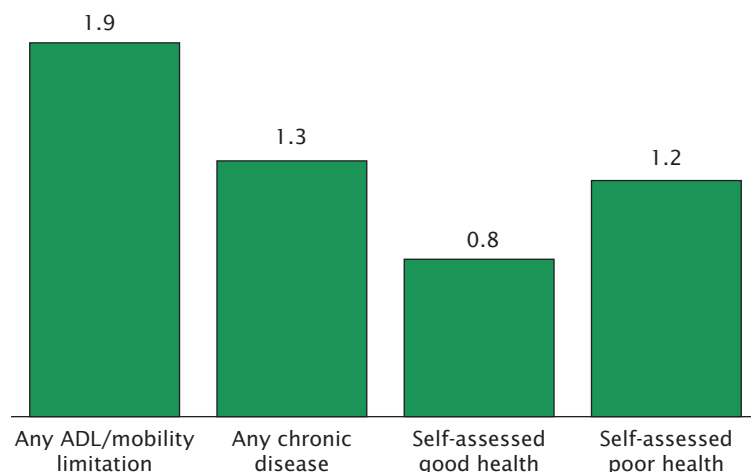
Chronic diseases are primary risk factors for old-age functional limitation and disability. To date, there is a lack of comprehensive data on the incidence and prevalence of chronic diseases among older Chinese. The few studies that have examined chronic conditions suggest an increase in the prevalence of noncommunicable diseases in the general population and a predominance of hypertension, ischemic heart disease, stroke, osteoporosis, and dementia in the older population (Wang et al., 2005). These studies also suggest that noncommunicable diseases account for about 60 percent of the disability among older people.

<sup>32</sup> In rural China, there is no statistically significant difference in ADL limitations among those who have primary school education and those who are educated at the junior high level.

Figure 2-5.

### Association Between Gender and Health Measures for Population Aged 60 and Over: 2000

(Odds that an older woman is more likely than an older man to report measures of health)



Note: Odds ratios from logistic regression models, controlling for confounding factors.  
Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

Among the largest contributors to disability are stroke, dementia, osteoporotic fractures, Parkinson's disease, and diabetes mellitus (Chen et al., 1995).

The SSAPUR provides information about the prevalence of chronic conditions among older Chinese without specifying the type of disease. In 2000, 59.0 percent of older women and 51.7 percent of older men reported having a chronic condition. Also, 24.3 percent reported one or more ADL limitations if they had a chronic condition, compared with 12.2 percent if they did not. Similar patterns were seen for mobility and household activity limitations—more people reported mobility and household activity limitations if they had chronic conditions than those who did not have chronic conditions.

The prevalence of chronic conditions was higher in urban than rural areas—64.1 compared with 47.9 percent among men and 72.2 compared with 55.0 percent among women. Chronic conditions were more commonly reported by those aged 70 and older than by those aged 60 to 69. Surprisingly, older people in the high income group (64.6 percent) reported more chronic conditions than did those in the middle-income or low-income groups (about 51 percent each). These differences may reflect better recognition of symptoms and better diagnosis due to increased use of medical care by older people who have relatively higher income.

### Self-Assessed Health

Self-assessment of health is recognized as a simple, multifaceted, and effective indicator not only of current health and functional ability but also of future health outcomes (Benyamini and Idler, 1999; Ferraro et al., 1997; Idler and Kasl,

Table 2-3.  
**Odds Ratios Predicting the Association Between Health Measures and Gender for Population Aged 60 and Over for China: 2000**

Variable	Any ADL/mobility difficulty	Chronic disease	Self-assessed health	
			Good	Bad
Sex (reference group: Male)				
Female.....	***1.9034	***1.3177	***0.7554	**1.2047
Residence (reference group: Rural)				
Urban.....	0.9188	***0.5236	0.9877	1.0663
Age .....	***1.1364	***1.0124	**0.9850	***1.0381
Income.....	***0.9997	*1.0002	1.0001	*0.9997
Education (reference group: Illiterate) <sup>1</sup>				
Primary school.....	***0.7833	0.9338	1.0771	*0.8321
Junior high school and higher.....	***0.7760	0.9536	0.9663	0.7516
Marital Status and Living Arrangement (reference group: Living alone)				
Currently married and living with spouse only.....	0.9012	0.9049	1.0256	1.1224
Currently unmarried and living with children and/or others <sup>2</sup> .....	***1.2820	*0.7754	0.9670	0.9585
Currently married and living with spouse, children and/or others <sup>3</sup> .....	0.8781	***0.6605	1.2355	0.9094

\* Significant at .05 level. \*\* Significant at .01 level. \*\*\* Significant at .001 level.

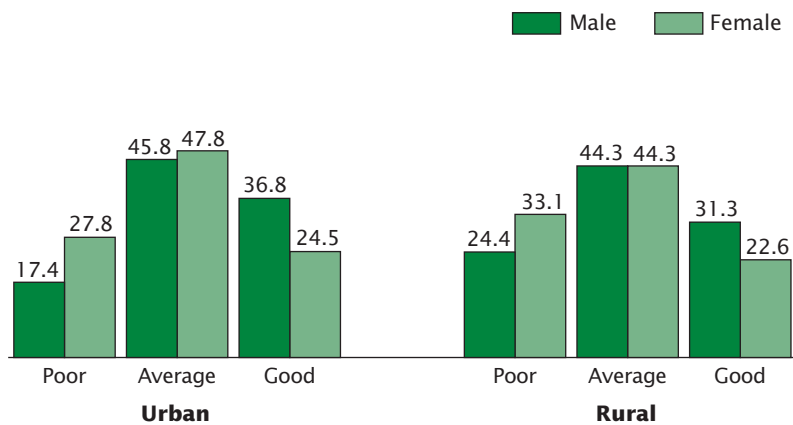
<sup>1</sup> "Illiterate" is defined as people aged 15 and older who are unable to read. Primary school in China is equivalent to elementary school in the United States, and junior high school is equivalent to middle school or junior high school.

<sup>2</sup> "Currently unmarried and living with children and/or others" may include children, grandchildren, parents, or any other family or nonfamily members.

<sup>3</sup> "Currently married and living with children and/or others" may include spouse, children, grandchildren, parents, or any other family or nonfamily members.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

Figure 2-6.  
**Percent of Population Aged 60 and Over by Self-Assessed Health: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

1995; Kaplan et al., 1993; Simon et al., 2005). Self-reported health appears to be significantly associated with measures of physical

performance obtained from standard clinical examinations and may be independent of age and gender effects (Rahman and Barsky, 2003).

About 45 percent of older Chinese reported being in average health, more than those who reported good health or poor health (about 27 percent each). Self-assessed good health declined with age—36.2 percent, 28.0 percent, and 20.6 percent of older men aged 60 to 69, 70 to 79, and 80 and older, respectively, and 25.7 percent, 20.6 percent, and 16.7 percent, respectively, of older women in those age groups.<sup>33</sup> In both urban and rural areas, women were more likely than men to report poor health, while men were more apt than women to consider their health to be good (Figure 2-6). These differences by age and sex mirror findings from other Asian countries as well as the United States (He et al., 2005).

Self-assessed health also varied by socioeconomic factors and by living arrangements. Education and income were associated with good health. For instance, 23.6 percent of illiterate older Chinese reported their health as being good, lower than those who had primary or middle school education (about 32 percent each). Similarly, 23.7 percent of low-income, 27.5 percent of middle-income, and 31.9 percent of high-income older people reported themselves to be in good health. Marriage also was associated with good self-perceived health—30.6 percent of married respondents reported being in good health, compared with 21.9 percent of the unmarried. Those who lived alone were less likely than those who lived with their spouse only or with children and/or others to report good health.

<sup>33</sup> There are no statistically significant differences between men and women reporting good health among those aged 80 and older.

Over half of the 60-and-older population (53.5 percent) considered themselves to be in worse health than in the previous year, 39.9 percent considered their health to be the same as in the previous year, and 6.6 percent reported improvement. The percentage of people who reported worse health than in the previous year was higher in rural than urban areas.

### Lifestyle Behaviors

While genetics and environmental factors influence health and predispose older people to certain chronic conditions, individual behaviors also contribute (U.S. Centers for Disease Control and Prevention, 2005). Risky behaviors, such as smoking and alcohol abuse, can make people vulnerable to the development and progression of chronic diseases, while behaviors such as regular exercise and eating a balanced diet are related to disease prevention.

### Smoking

Worldwide, cigarette smoking is associated with preventable mortality and morbidity (Burns, 2000; Wingo et al., 1999). Smoking is a major risk factor for heart disease, stroke, and chronic lung disease and a causal factor in the development of several types of cancer (Lopez, 1998). In a study on the emerging hazards of tobacco use in China, Liu et al. (1998) reported that smokers experienced a high risk of death from numerous causes. For example, male smokers between the ages of 35 to 69 experienced excess deaths from cancer (51 percent), respiratory illnesses (31 percent), and vascular diseases (15 percent). The study also found that lung cancer deaths among Chinese male and female smokers between the ages of 35 to

69 were three times that of non-smokers.

The SSAPUR provides information about the prevalence of smoking but not the amount smoked in a given time period or the number of years smoked. More than half of older Chinese (54.9 percent) were nonsmokers, 31.8 percent were current smokers, and 13.3 percent had smoked in the past but were no longer smoking at the time of the 2000 survey.<sup>34</sup> Given the relatively recent increase in smoking in China (Liu et al., 1998), it is not surprising that the percentage of people who have never smoked is higher in the oldest age group (63.9 percent) than among those aged 60 to 69 and 70 to 79 (53.1 percent and 55.5 percent, respectively). The percentage of current smokers decreased with increasing age—34.2 percent of those aged 60 to 69, 30.0 percent of those aged 70 to 79, and 22.1 percent of those 80 and older.<sup>35</sup> Figure 2-7 shows that current smoking was most common among rural men (58.2 percent), followed by urban men (39.5 percent). About 10 percent of women in the sample smoked, reflecting gender differences in the cultural acceptance of smoking. Current smoking also was more common among the married than the unmarried.

In terms of current smoking behavior and education, the highest prevalence of smoking (42.3 percent) was observed among people with primary-level education. The

<sup>34</sup> There are no statistically significant differences between an overall 54.9 percent of nonsmokers, 53.1 percent of those between the ages of 60 to 69 years, and 55.5 percent of those between the ages of 70 and 79 years.

<sup>35</sup> There are no statistically significant differences between all current smokers and those between the ages of 60 to 69 or 70 to 79.

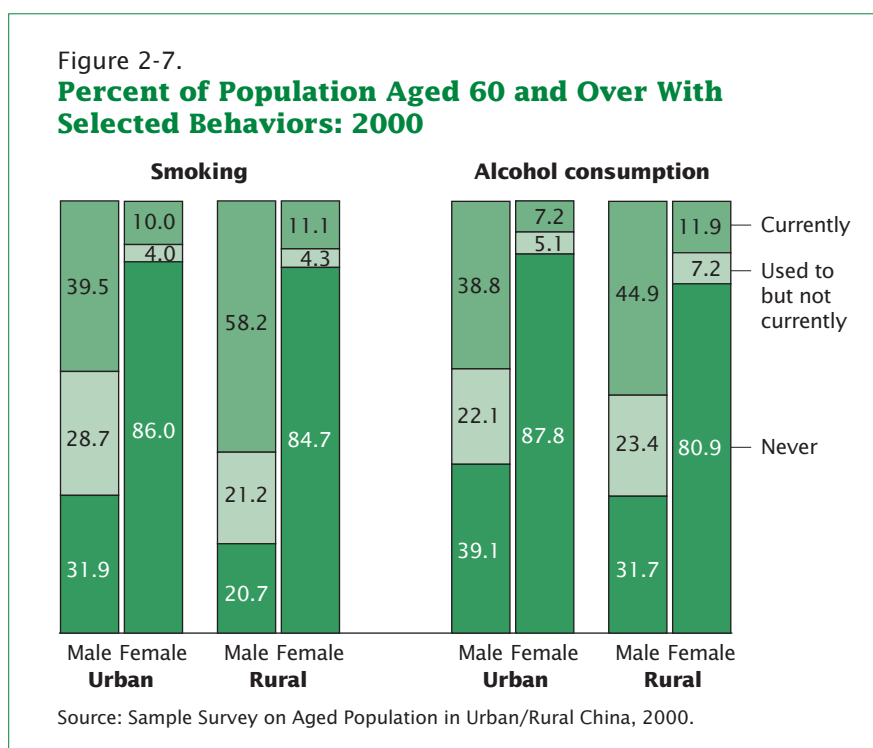


proportion of smokers among illiterate respondents was 24.0 percent, and the proportion among those with junior high school or higher education was 35.0 percent. The percentage of people who had smoked in the past but had given up the habit at the time of the survey was highest among those who were educated at the junior high school or higher levels (20.2 percent, compared with 15.5 percent among those with primary school education and 10.1 percent among those who were illiterate), suggesting that education may have created an awareness about the negative health implications of smoking.

### Alcohol Consumption

Moderate alcohol consumption can be beneficial to health, but over-use, misuse, and the increased sensitivity to alcohol with aging can negatively affect health and cognition at older ages (National Institute on Alcohol Abuse and Alcoholism, 1998). China has a long history of alcohol production and use, and alcohol is a component of traditional medicine. Recently, researchers have issued warnings about a rise in alcohol consumption, dependence, and related health problems in the Chinese population (Cochrane et al., 2003; Hao et al., 2004). Studies have linked chronic gastritis, peptic ulcers, hepatitis, cirrhosis, fatty liver, cognitive impairments, sexually transmitted diseases, traffic accidents, suicides, burns, drowning, and violent crimes to alcohol abuse in the general population (Shen and Wang, 1998; Zhang et al., 2000). However, few studies have addressed alcohol use among older people.

According to the SSAPUR, 26.7 percent of older Chinese reported being alcohol consumers at the time of the survey, 14.7 percent



reported having consumed alcohol in the past, and 58.6 percent had never consumed alcohol. A higher proportion of the oldest old (aged 80 and over) than the young old (aged 60 to 69) had never consumed alcohol. Alcohol consumption varied by age—29.0 percent of those aged 60 to 69 were current consumers, compared with 24.7 percent at ages 70 to 79 and 19.2 percent at ages 80 and over.<sup>36</sup> The SSAPUR data do not document the frequency or amount of alcohol consumed.<sup>37</sup>

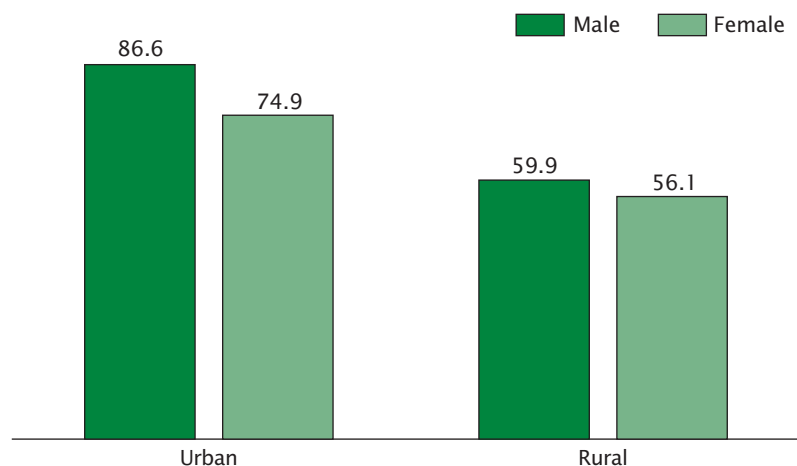
Figure 2-7 shows that, consistent with the traditional acceptance of drinking among men but not among women, a higher

percentage of older women than older men had never consumed alcohol. About 45 percent of rural men and 39 percent of urban men reported being current consumers of alcohol. Older adults who were married reported higher current alcohol consumption rates than those who were unmarried. The measures of current consumption also varied by education—20.3 percent of illiterate older adults compared with about 34 percent each of those with a primary school education and those with a junior high school or higher education.

### Physical Activity

A lifestyle that incorporates regular exercise can help maintain healthy weight and cardiovascular health and reduce the likelihood of many chronic diseases, including diabetes, cancer, and heart disease (U.S. Centers for Disease Control and Prevention, 2005). Chinese medicine has long recognized that physical activities are beneficial for the proper functioning of the body and building resistance to diseases

Figure 2-8.  
**Percent of Population Aged 60 and Over Engaging in Physical Activity: 2000**



Note: Physical activity includes Tai Chi, physical exercise, playing ball, and walking.  
 Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

(Liu, 1995). Studies show that regular leisure-time activity, including balance and coordination exercises such as Tai Chi, increases physical balance, reduces the risk of chronic ADL limitations and falls, and helps to maintain healthy body mass (Hu et al., 2002; Wong et al., 2001).

The SSAPUR asked respondents whether they participated in certain leisure activities. Activities that involved physical movement (for example, Tai Chi, physical exercise, playing ball, and walking) were grouped together to assess the extent to which older people engaged in physical exercise. About

63 percent of older Chinese reported some recreational activities involving physical exercise. People aged 80 and older were less likely to participate in such activities (55.7 percent) than those aged 60 to 69 and 70 to 79 (64.3 percent and 63.4 percent, respectively).<sup>38</sup> Exercise levels were lower for older women than men in urban areas, but in rural settings the rates for men and women were not statistically different (Figure 2-8). The gender difference in urban China may

<sup>38</sup> Among older adults who reported some recreational activities, there are no statistical differences between total older adults, those aged 60 to 69, and those aged 70 to 79.

result from more older men participating in leisure activities after retirement than women, who are mostly homemakers and less likely to experience retirement-related changes in schedules and activities. This difference also underscores the need to include productive activity categories when assessing levels of physical exercise, particularly in traditional societies like China, where the continuity in older women's homemaker status may involve caring for young grandchildren, dependent adult care, and housekeeping, all of which involve physical exercise.

Several sociodemographic factors were seen to be associated with regular exercise. Two-thirds (66.1 percent) of married respondents engaged in leisure-time physical activities, compared with 57.7 percent of the unmarried. Older Chinese educated at the junior high school or higher level were more likely to report such activities (85.0 percent) than were the illiterate (63.1 percent) or those who had completed primary school only (57.7 percent). A similar association is observed between income and regular exercise—77.6 percent of the high income group, and 55.9 percent and 59.2 percent of the middle and low income groups, respectively.<sup>39</sup>

<sup>39</sup> There are no statistically significant differences between the middle and low income groups.

Box 2-3.

## Assistive Devices

Assistive devices are common among older people with functional limitations in Western countries and are used either alone or in combination with other personal care arrangements (Agree and Freedman, 2000; Agree et al., 2004). Intended to reduce disability and slow the process of functional decline while decreasing the need for personal care, these devices run the gamut from simple tools (canes and handrails) to fairly complex machines (computerized wheelchairs). The Sample Survey on Aged Population in Urban/Rural China (SSAPUR) provides information about the use of simple sensory (glasses, hearing aids) and mobility (canes, crutches, wheelchairs) devices among China's older people.

### Sensory Devices

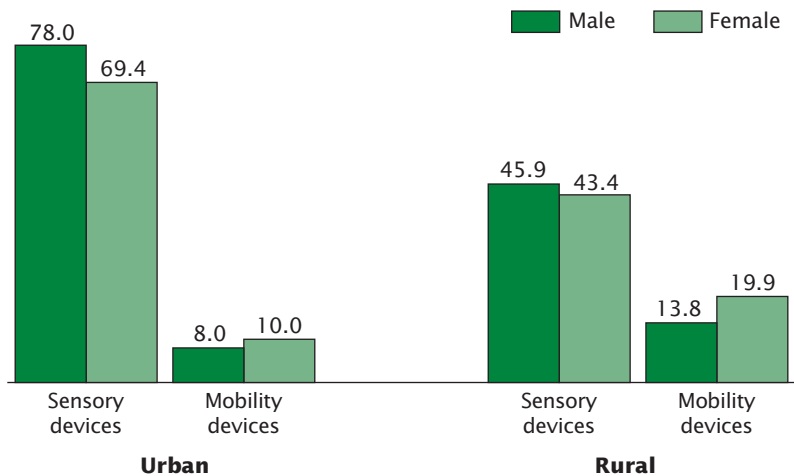
Overall, about half of the older population reported using sensory devices—53.4 percent of older men and 49.4 percent of older women. Use of sensory devices was much more common in urban than rural areas (Figure 2-9) and more common in the youngest age group (aged 60 to 69) than among older respondents. Use of these devices increased with level of education—39.0 percent of the illiterate, 59.8 percent of the primary school educated, and 77.3 percent of the junior high school or higher educated. Use also was more common among married than unmarried older people and among those in the highest income group relative to other groups.

### Mobility Devices

About 15 percent of older Chinese used mobility devices, with use having a sharp age gradient—52.6 percent among those aged 80 and over, 21.0 percent among those aged 70 to 79, and 6.0 percent among people aged 60 to 69. The majority of mobility aids were simple canes and crutches. Mobility devices were most commonly used by rural women (19.9 percent), followed by rural men (13.8 percent), urban women (10.0 percent), and urban men (8.0 percent). Mobility device use decreased with education—20.2 percent among the illiterate, 10.5 percent among the primary schooled, and 7.1 percent among those with education at the junior high school or higher level.

Figure 2-9.

### Percent of Population Aged 60 and Over Using Assistive Devices: 2000



Note: Sensory devices include eyeglasses and hearing aids. Mobility devices include canes, crutches, and wheelchairs.

Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

## CHAPTER 3. MENTAL HEALTH

Mental well-being is an important aspect of older people's health. Aging researchers are paying increasing attention to the concept of successful aging, focusing on the variability of mental health status among older people and the mechanisms that may cause mental distress (Carstensen and Hartel, 2006;

Crosnoe and Elder, 2002; Stern and Carstensen, 2000). This chapter examines older Chinese people's positive mental states, such as life satisfaction, happiness, and socialization, and negative mental states, such as loneliness, burdensome feelings, and financial and old-age care worries. The chapter also

considers the association between mental health and demographic and socioeconomic characteristics.

Life satisfaction or happiness is indicated by positive answers to survey questions on whether the respondent is satisfied with life or feels happy compared with when young, compared with peers, and

Box 3-1.

### Aging and Mental Health

Social research on aging and mental health draws on two main perspectives—a life course perspective and a stress paradigm.<sup>40</sup> A U-shaped age pattern of psychological distress, with depression falling in early adulthood and rising in late life, has been documented by various studies using the life course approach (Miech and Shanahan, 2000; Mirowsky and Ross, 1992; Moen et al., 1995; Schieman et al., 2001). This perspective holds that aging is a life-long process, and each stage of the life cycle provides or loses opportunities that can make one's life happy. Changes in employment, income, marriage, and health have different impacts at different stages of the life course, especially for the very old. Maturity gained from age may buffer but not necessarily cancel the negative effects of aging. Successful adaptation to adverse circumstances is a crucial component of a high quality of life.

The stress paradigm, on the other hand, emphasizes the stress process—stressors, stress mediators, and stress outcomes. In reviewing the stress process, Pearlin (1989) pointed out that measurement of stressors should seek to observe and assess over time constellations of stressors made up of both events and strains. Stress mediators (coping and social support) influence the effects of stressors, and attention to social surroundings is needed when studying the stress process. Pearlin also drew attention to variations in people's mani-

festation of stress and warned that the vulnerability of some groups may be exaggerated if research does not consider multiple outcomes.

Research on aging and stress has identified three main stressor categories: status strains, role strains, and personal resources (Aneshensel et al., 1993; Angel et al., 2003; Ross and Drentea, 1998; Ross and Mirowsky, 2002; Smith et al., 1991; Turner and Lloyd, 1999). Status strains include socioeconomic status, education, employment/retirement, and health. Role strains are typically associated with gender, marital status, and caregiving. Personal resources include factors such as mastery/sense of control and participation in religious activities.

For older people in particular, the role of caregiver may be a major stressor. A spouse is commonly the primary caregiver for his or her mate, often providing almost full-time care. Providing care to people with physical limitations, and especially to those with dementia or Alzheimer's disease, has been shown to adversely affect caregivers' mental health. Anxiety and feelings of hopelessness about the future, as well as "loss of self" or "role engulfment" can occur when the caregiving activities disrupt normal family life and restructure or overwhelm the life of the caregiver (Lieberman and Fisher, 1995; Skaff and Pearlin, 1992). Caregiving can be particularly burdensome for older women because women are more likely than men to provide care and more likely to be under stress because of it (Kramer and Kipnis, 1995).

<sup>40</sup> For more discussion on the two perspectives, see Miech and Shanahan, 2000.

compared with the previous generation. Psychological distress is indicated by various negative feelings and emotional states, including whether the respondent feels lonely or feels like a burden to society or family.<sup>41</sup> This chapter also considers socialization by looking at whether older people enjoy talking with other people and are willing to participate in community recreational activities, and examines stressors for older people such as worries about finance, health care, and old-age care.

## Life Satisfaction and Happiness

### Life Satisfaction

Most of China's older people (62.9 percent) reported they were satisfied with their life (Table 3-1; Figure 3-1), with a higher proportion (64.2 percent) of the young old than the oldest old (58.4 percent) expressing satisfaction.<sup>42, 43</sup>

An urban/rural differential was apparent in older people's life satisfaction, favoring urban residents (70.8 percent of urban older people, compared with 60.5 percent of rural older people).

Research on gender and mental health in Western countries has found gender differences but has yielded mixed conclusions on

Table 3-1.  
**Percent of Population Aged 60 and Over Satisfied With Life by Residence and Selected Characteristics for China: 2000**

Characteristic	Total	Urban	Rural
<b>Total</b> .....	<b>62.9</b>	<b>70.8</b>	<b>60.5</b>
<b>Sex</b>			
Male.....	64.3	72.8	61.8
Female.....	61.6	68.9	59.3
<b>Marital Status</b>			
Currently married <sup>1</sup> .....	65.0	73.3	62.1
Not married <sup>2</sup> .....	58.8	63.3	57.8
<b>Educational Attainment<sup>3</sup></b>			
Illiterate.....	59.2	64.8	58.4
Primary school <sup>4</sup> .....	64.0	65.8	63.4
Junior high school or above.....	74.5	78.8	65.1
<b>Money Income (in Yuan)<sup>5, 6</sup></b>			
Low.....	54.3	58.3	53.8
Medium.....	62.0	66.5	61.8
High.....	72.9	73.6	71.8
<b>Living Arrangement</b>			
Living alone.....	49.2	57.7	47.0
Living with spouse only.....	64.9	72.4	62.3
Living with children and/or others <sup>7</sup> .....	63.6	71.4	61.4
<b>Self-Assessed Health</b>			
Good.....	79.5	81.1	78.9
Poor.....	51.1	60.8	48.7
<b>Activity Limitations</b>			
One or more limitations.....	56.8	66.0	54.4
No limitations.....	67.9	74.0	65.8

<sup>1</sup> "Currently married" refers to people who were currently married and living with their spouse.

<sup>2</sup> "Not married" includes people who were widowed, divorced, separated, or never married.

<sup>3</sup> "Illiterate" is defined as people aged 15 and older who are unable to read. Primary school in China is equivalent to elementary school in the United States, and junior high school is equivalent to middle school or junior high school.

<sup>4</sup> "Primary school" includes "primary school" and "old-style private school."

<sup>5</sup> "Money Income" is monthly income in Chinese yuan. In 2000, the exchange rate between the U.S. dollar and the Chinese yuan was \$1 = 8.28 yuan.

<sup>6</sup> In this table, for total China, "Low" monthly money income is less than 50 yuan, "Medium" is 50 to 199 yuan, and "High" is 200 yuan or above. For urban China, "Low" is less than 300 yuan, "Medium" is 300 to 749 yuan, and "High" is 750 yuan or above. For rural China, "Low" is less than 50 yuan, "Medium" is 50 to 149 yuan, and "High" is 150 yuan or above.

<sup>7</sup> "Living with children and/or others" may include spouse, children, grandchildren, parents, or any other family or nonfamily members.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

which gender is advantaged or more vulnerable to negative life events or role stress. Some studies found that women suffer more distress than men and that this gender gap increases with age (Delbes and Gaymu, 2002; Horwitz et al., 1996; Mirowsky, 1996; Mirowsky and Ross, 1995). Other studies suggested that men are more vulnerable to emotionally distressing events and more affected by undesirable life events (Thierry, 2000; Umberson et al., 1992). Still other

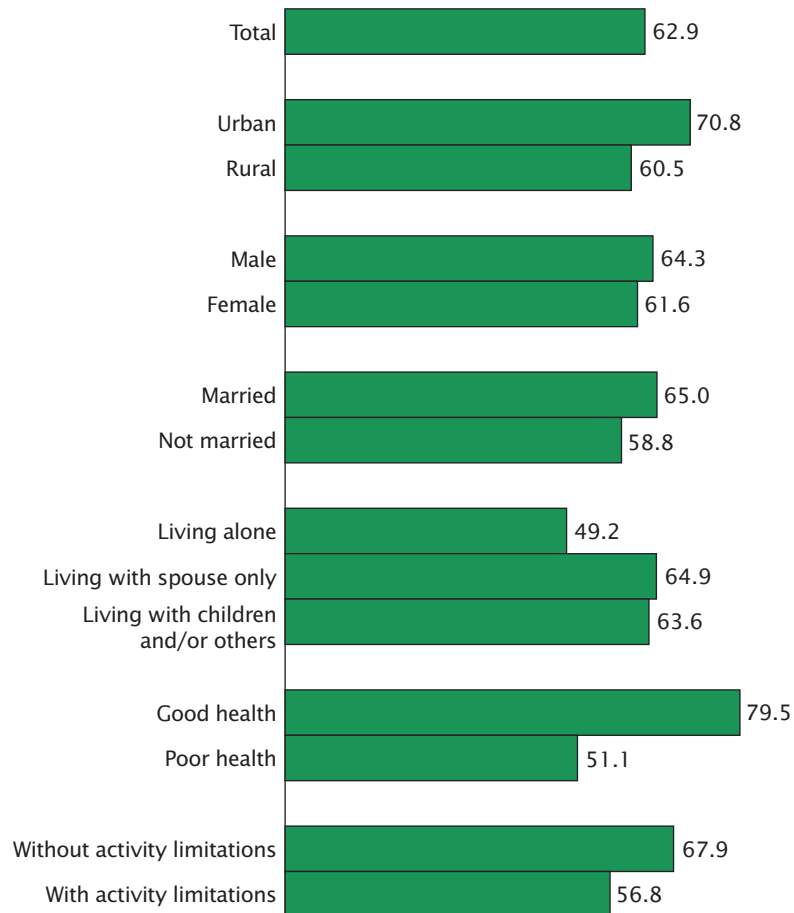
research maintained that gender differences are disorder specific and do not indicate that women and men are different in susceptibility to stress (Aneshensel et al., 1991). Life satisfaction levels did not differ statistically between China's older men and women. This was true in both urban and rural areas, and there also was no gender difference between men and women who reported being "very satisfied" with life (about 14 percent of men and women).

<sup>41</sup> The Sample Survey on Aged Population in Urban/Rural China (SSAPUR) includes some questions on depression comparable to standard questions commonly used in Western countries, but it does not contain measurable scales of depression.

<sup>42</sup> The question on life satisfaction in SSAPUR includes a five-point scale—very dissatisfied, dissatisfied, so so, satisfied, very satisfied. This report collapsed the scales into a yes/no categorical answer, combining "very satisfied" and "satisfied" into "yes" and "so so," "dissatisfied," and "very dissatisfied" into "no."

<sup>43</sup> The percentage aged 70 to 79 satisfied with life is not statistically different from the percentages of the other two age groups (60 to 69, 80 and older).

Figure 3-1.  
**Percent of Population Aged 60 and Over Satisfied With Life: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

A higher percentage (65.0 percent) of married older people were satisfied with life than their unmarried (mostly widowed) counterparts (58.8 percent). Older people living with their spouse or with children and/or others were more likely to be satisfied with life than those living alone.<sup>44</sup> Socioeconomic status (education, income) was positively associated with life satisfaction; the higher the educational attainment or money income, the more

<sup>44</sup> The satisfaction rates of older people living with their spouse and those living with children and/or others are not statistically different.

likely older people were to be satisfied with their life.

Health also was positively associated with older people's life satisfaction. A large majority (79.5 percent) of those who regarded their health as good were satisfied with life, compared with half (51.1 percent) of those who assessed their health as poor. Among those without activity limitations, 67.9 percent were satisfied with life, compared with 56.8 percent of those who had one or more activity limitations.<sup>45</sup>

<sup>45</sup> See Chapter 2 for more information on activity limitations.

Several socioeconomic and demographic variables each showed association with life satisfaction. To better assess the relationship between these variables and life satisfaction, five multivariate logistic regression models were used to control for confounding effects. Model 1 examined whether gender made a difference. Model 2 examined how urban/rural residence affected older people's life satisfaction. Models 3, 4, and 5 were progressive models with various control variables added to the preceding models. Model 3 added age to sex and urban/rural residence, and, after age was controlled, investigated whether sex and urban/rural residence still had the same relationship with life satisfaction as when they were examined alone. Model 4 added other socioeconomic and demographic variables (marital status, education, money income) in addition to urban/rural residence. The full Model 5 included all previous variables and added two health variables—activity limitations and self-assessed health status.<sup>46</sup>

Regression results are presented in Figure 3-2 and Table 3-2. An odds ratio greater than "1" indicates that people were more likely to be satisfied with life than was the reference group and an odds ratio less than "1" indicates the opposite.<sup>47</sup> Models 1 and 2 show that, taken alone, women were 10 percent less

<sup>46</sup> This full model did not include living arrangement because of the small sample size of the segment living alone and possible colinearity between living arrangement and marital status.

<sup>47</sup> The reference category for "sex" is male (i.e., the estimates show women's likelihood to be satisfied with life as compared with men), for "residence" the reference category is rural, for "age" it is 60 to 69 years, for "marital status" it is not married, for "education" it is illiterate, for "money income" it is low income, for "activity limitations" it is no limitation, and for "self-assessed health status" the reference category is good health.

likely than men to be satisfied with life, and urban residents were 60 percent more likely than rural residents to express life satisfaction. These results are consistent with the descriptive findings.

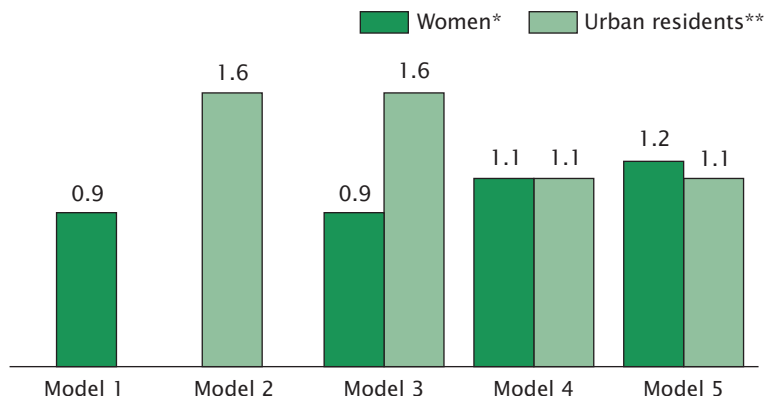
Age was negatively associated with life satisfaction (Model 3, Table 3-2). The older age groups (70 to 79 years and 80 and older) were less likely than the young old (60 to 69 years) to be satisfied with life, with the strongest negative effects among the oldest old. Age did not change the direction of the relationship of gender or urban/rural residence with Chinese older people's likelihood of being satisfied with life.

Model 4 shows that money income had a strong positive association with life satisfaction, as people with high income were twice as likely as people with low income to be satisfied with life. Results controlling for marital status and education are also consistent with descriptive findings, i.e., that married and/or literate older people were more likely to be satisfied with life than were unmarried and/or illiterate people.

The two health-related variables in the full model (Model 5) reversed the negative relationship between age and life satisfaction in Models 3 and 4. In Model 5, the older a person, the more likely he or she was to be satisfied with life. This reversal of direction indicates that people in older age groups were more likely than the young old to have health concerns. After health status is controlled, i.e., if older respondents had the same health status as the young old, the former would have been more satisfied with life than their younger counterparts.

Figure 3-2.  
**Association Between Gender or Urban/Rural Residence and Life Satisfaction for Population Aged 60 and Over: 2000**

(Odds that an older woman or an older urban resident is more likely than their reference group to be satisfied with life)



\* The reference group is men. \*\* The reference group is rural residents.

Note: Model 1 controls for sex.

Model 2 controls for urban/rural residence.

Model 3 controls for sex, urban/rural residence, and for age.

Model 4 controls for the same factors as Model 3 and also for marital status, education, and money income.

Model 5 controls for the same factors as Model 4 and also for activity limitations and self-assessed health status.

Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

Table 3-2.  
**Odds Ratios Predicting Likelihood to Be Satisfied With Life for Population Aged 60 and Over for China: 2000**

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Sex (reference group: Male) . . . . .	0.8886		0.8965	1.0752	1.1598
Residence (reference group: Rural) . . . . .		1.5824	1.5766	1.1028	1.0964
Age (reference group: 60 to 69)					
70 to 79 . . . . .			0.9146	0.9970	1.1106
80 and over . . . . .			0.8056	0.9492	1.1628
Marital status (reference group: Not married) . . . . .				1.1871	1.1463
Educational attainment (reference group: Illiterate) <sup>1</sup> . . . . .				1.1484	1.0967
Money income (reference group: Low)					
Medium . . . . .				1.3752	1.3424
High . . . . .				2.0255	1.9567
Activity limitations (reference group: No limitation) . . . . .					0.8650
Self-assessed health status (reference group: Good)					
Average . . . . .					0.3980
Bad . . . . .					0.3036

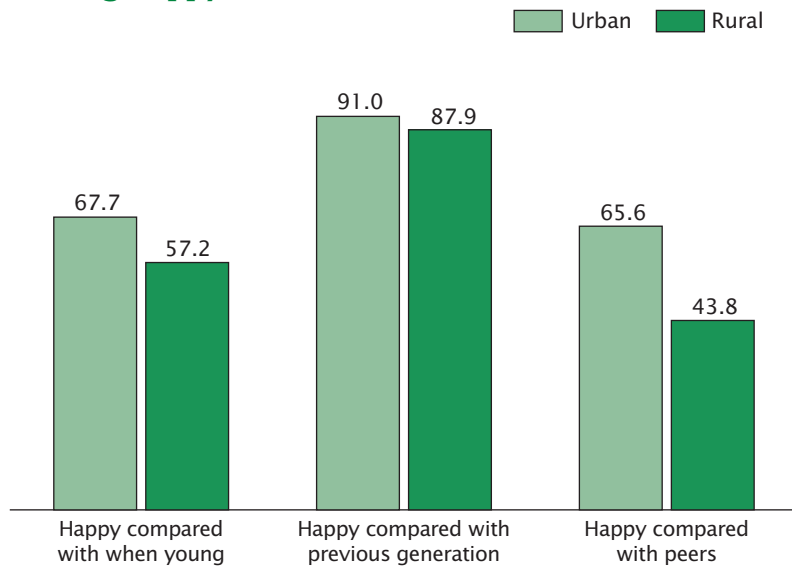
<sup>1</sup> "Illiterate" is defined as people aged 15 and older who are unable to read.

Notes: All odds ratios significant at .001 level.

Odds ratios greater than "1" indicate that these people are more likely to be satisfied with life compared with the reference group; e.g., the reference category for "sex" is male, therefore the odds ratio of 0.8886 indicates that women are less likely to be satisfied with their life than men.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

Figure 3-3.  
**Percent of Population Aged 60 and Over  
 Feeling Happy: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

When socioeconomic and demographic variables were controlled (Model 4), women were seen to be more likely than men to be satisfied with life. This indicates that the gender difference in life satisfaction may largely be explained away by other factors. Had older women had the same marital status, education, and money income as older men, they might have reported greater life satisfaction. The health variables in Model 5 further increased the likelihood of older Chinese women being more satisfied than their male counterparts.

In contrast to the gender difference, the direction of the urban/rural difference in life satisfaction remained statistically unchanged after age, socioeconomic status, and health variables were controlled. Urban older people still were more likely than rural older people to be satisfied with life. Model 3 shows that age did not change the direction of the relationship between urban/rural

residence and life satisfaction. Model 4 reveals that the differential in socioeconomic and demographic characteristics between urban and rural older people accounted for much of the difference in life satisfaction; while urban residents were still more likely than rural residents to be satisfied with life, the difference was to a lesser degree (from 1.6 times more likely to 1.1). With the addition of the health variables in the full model (Model 5), urban residents were still more likely than rural residents to be satisfied with life, although to an even lesser degree than in Model 3 or Model 4.

### Happiness

Another indication of life satisfaction for older people is that they feel happy compared with when they were young, with their parents' generation, or with their peers. Most older Chinese (59.7 percent) felt they were happier than when they were young. There was no statistically

significant gender difference, but urban older people were more likely than rural older people to report they were happier than when they were young (Figure 3-3). Compared with the previous generation, the majority of older people believed that they were happier than their parents' generation. When compared with their peers, about two-thirds of older urban residents felt their lives were happier, but less than half of older rural residents felt the same way.

That rural older people were less happy than urban older people in all three comparisons supports the Chinese media's reporting that older people in rural areas often feel that their life is unsatisfactory. This may partly stem from urban-rural differences in economic well-being. It has been argued (Yang, 1999) that the widening rural-urban income differentials have been the driving factor behind rising overall inequality in China, and that government financial transfer programs for state enterprises as well as for urban residents have contributed to this growing disparity. Yang (1999) also reported that there could be an increasing differential within rural areas as a consequence of rural economic reforms.

### Socialization

Enjoying talking with people and participating in community recreational activities were the measures used to indicate whether older people were engaged in social networks. In order to help older people be better connected with their community and have a richer social life, the Chinese government in recent years has built community centers for older people that provide activities such as reading, fitness exercises, playing cards, painting pictures, calligraphy, and courses targeted to older people.



Most older Chinese said they enjoyed talking with people, and there was no urban/rural or gender difference (Figure 3-4). However, men and women were quite different in their willingness to participate in community recreational activities. Older men were more interested in going out and joining community activities. In rural areas, 63.0 percent of men compared with 44.9 percent of women reported being willing to participate in community activities.<sup>48</sup> This might be a consequence of traditional cultural norms, particularly in rural areas, that say a woman's place is at home and discourage female participation in public activities.

## Psychological Distress

### Feeling Lonely

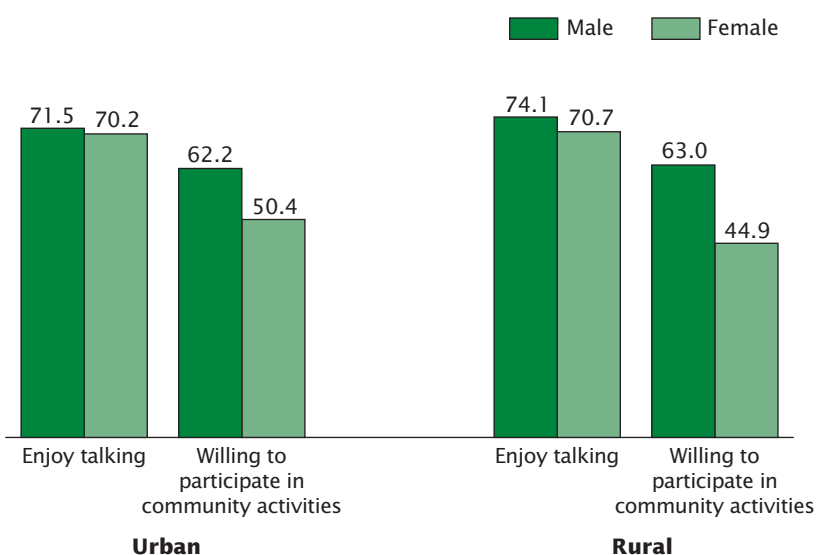
In 2000, 29.7 percent of older Chinese reported feeling lonely and this proportion rose with age. A smaller proportion of the young old (60 to 69 years) felt lonely (25.9 percent) compared with those aged 70 to 79 (34.4 percent) or those aged 80 and older (38.0 percent). The same age pattern could be found regardless of gender or urban/rural residence (Figure 3-5).<sup>49</sup> Consistent with results mentioned earlier, marriage had a protective effect against loneliness; married older Chinese were significantly less likely than the unmarried to feel lonely (22.3 percent of married and 44.2 percent of unmarried). This was true

<sup>48</sup> The gender differences in willingness to participate in community activities between urban and rural areas are not statistically different.

<sup>49</sup> The percentage of people aged 70 to 79 feeling lonely is not statistically different from the percentage of people 80 and older feeling lonely within urban, rural, male, and female subgroups.

Figure 3-4.

### Percent of Population Aged 60 and Over Enjoying Talking With People and Willing to Participate in Community Recreational Activities: 2000



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

in both urban and rural areas and for both men and women.

Research on gender and loneliness has generated mixed findings. Some have concluded that loneliness is associated with being female because women are more likely to be widowed and to live alone (Chen et al., 2004; Li and Zhang, 1997). Other research counters the “double jeopardy” hypothesis that being female and old makes older women particularly disadvantaged, arguing instead that in some settings (especially multigenerational households) older women may be more valued than nonworking elderly men. Men may be more likely to feel rejection or reduced self-esteem when they are no longer able to earn a living (Knodel and Ofstedal, 2003). In China, SSAPUR data showed a slight gender difference in experiencing loneliness; women (31.9 percent) were more likely than men

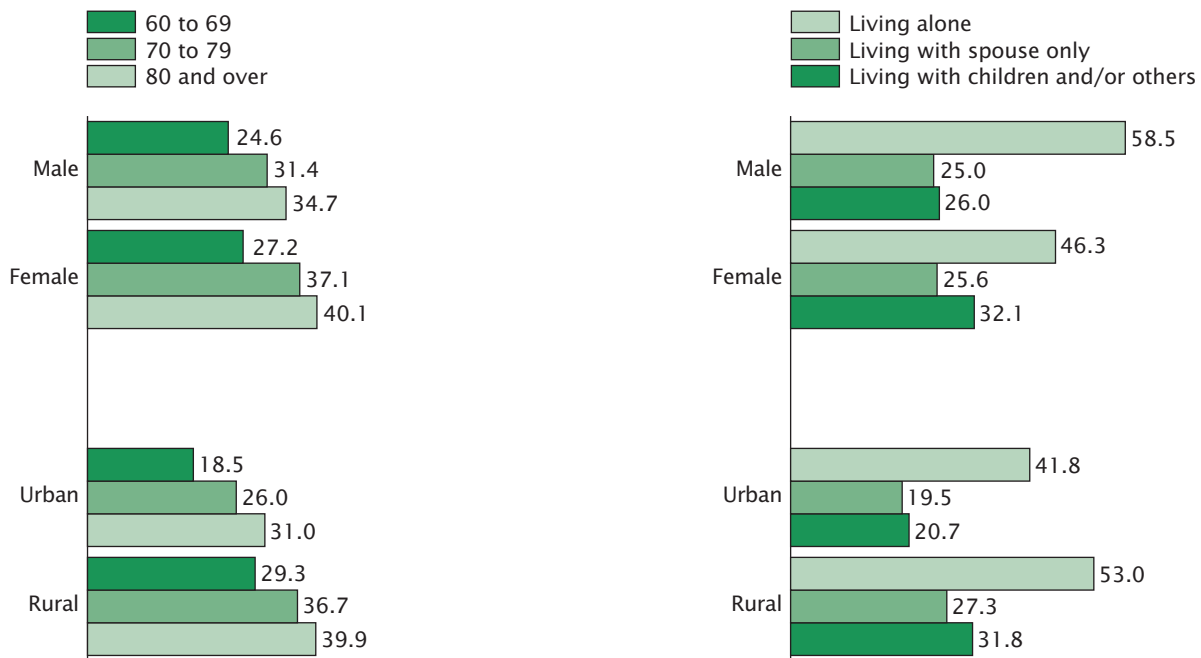
(27.5 percent) to report feeling lonely.

Not surprisingly, living with one's spouse or with children and/or others was found to reduce the feeling of isolation compared with living alone.<sup>50</sup> Half of older Chinese who lived alone in 2000 felt lonely, compared with about one-quarter of those living with their spouse or with children and/or others. A higher percentage of older men (58.5 percent) than older women living alone (46.3 percent) reported feeling lonely (Figure 3-5), suggesting that older men may be more vulnerable than women when dealing with emotional isolation. As China ages and millions of older people find themselves to be “empty nesters,” loneliness may become more common.

<sup>50</sup> A feeling of loneliness when living with one's spouse only is not statistically different from when living with children and/or others.

Figure 3-5.

### Percent of Population Aged 60 and Over Feeling Lonely: 2000



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

Box 3-2.

### Chinese Culture and Psychological Distress

Researchers studying Chinese psychological well-being and mental health have warned of possible underreporting of emotional states. A combination of (1) Chinese thinking that tends to link psychological symptoms to physical elements, (2) cultural norms that emphasize emotional self-control, and (3) the tendency to express feelings only to people within the close-knit circle of family and friends may make people reluctant to report their psychological well-being in general and distress in particular (Lai, 1995).<sup>51</sup> Studies have found that although Asians (including Chinese) may have lower levels of control over their personal lives than non-Asians, the negative relationship between personal control and psychological distress is less for Asians than for

<sup>51</sup> For more detailed discussions of how Chinese culture determines and affects emotionality, see Sun, 1991.

non-Asians (Sastry and Ross, 1998). In a collectivist culture (e.g., China), it is viewed as violating norms if one pursues individual happiness and self-interests.

In urban China, Western-type ideas about the effects of psychosocial stress are gradually changing people's understanding of psychological disorders and the accompanying stigma (Phillips, 1998). Rural Chinese, however, may not be readily willing to report their feelings to people outside their family. SSAPUR interviewers reported that in some rural sample areas, local custom mandated that older women not talk to strangers without the presence of their husband or another male member of the family. When interpreting the assessment of psychological well-being of older Chinese in this report, especially of rural older women, cultural effects should be considered.

Among those living with children and/or others, women (32.1 percent) were more likely than men (26.0 percent) to feel lonely. Multigenerational living arrangements may be a stressor for some older people in China because of intergenerational conflict related to decision-making authority, and it may affect women more than men.

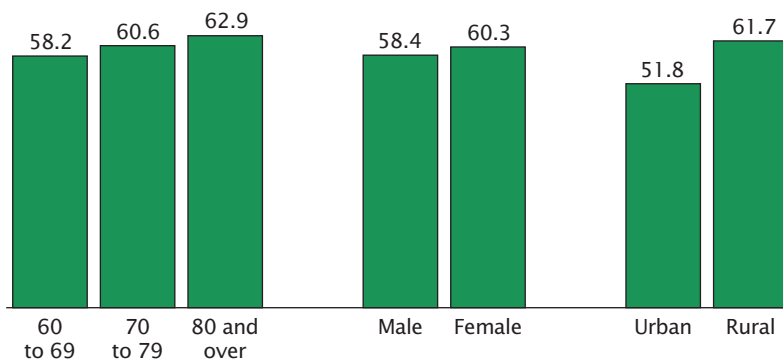
### Feeling Like a Burden to Society or Family

Feeling like a burden to society or family is another stressor for older people. About 6 in 10 (59.4 percent) of China's older people reported feeling like a burden to society. A slightly higher share of the oldest old (62.9 percent) than the young old (58.2 percent) felt that way. There was no statistical difference between older men and women, but rural older people were more likely than those in urban settings to feel like a burden to society (61.7 percent and 51.8 percent, respectively) (Figure 3-6).

Slightly more than 6 in 10 (62.8 percent) of China's older people felt like a burden to their family, with no difference by gender or by marital status. A higher proportion of rural (67.3 percent) than urban (48.2 percent) older people felt burdensome to their family. Rural married people (68.0 percent) felt they were a burden more commonly than urban married people (43.8 percent). Among people with one or more activity limitations, feeling like a burden to family was more common in rural (68.4 percent) than urban (56.9 percent) areas, suggesting that the rural old rely more heavily on family for health care and/or old-age care.

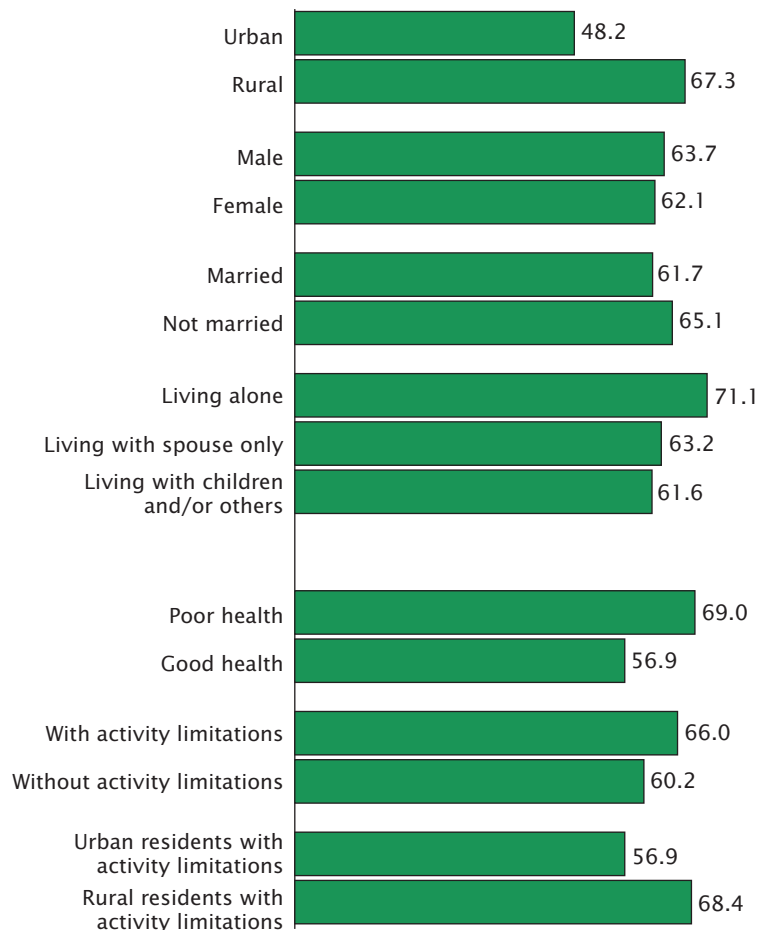
SSAPUR living arrangement data revealed that older people living alone felt more burdensome to their family than those living with

Figure 3-6.  
**Percent of Population Aged 60 and Over Feeling Like a Burden to Society: 2000**



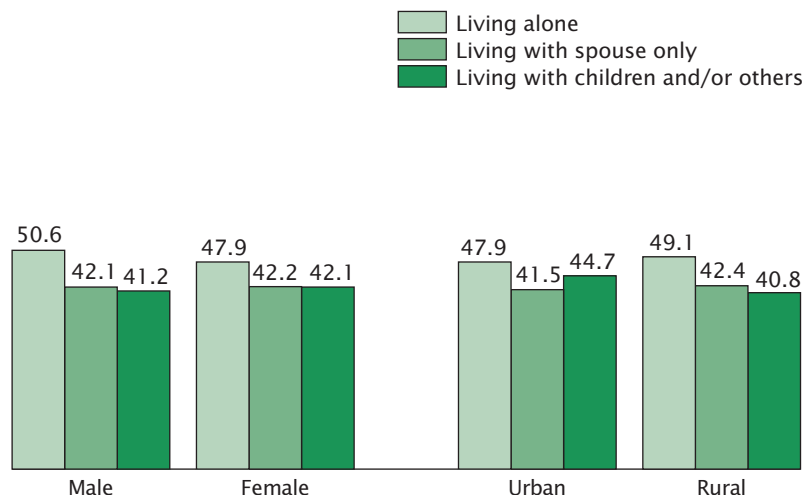
Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

Figure 3-7.  
**Percent of Population Aged 60 and Over Feeling Like a Burden to Family: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

Figure 3-8.  
**Percent of Population Aged 60 and Over Worrying  
 About Financial Resources for Daily Living: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

their spouse or with their children and/or others (Figure 3-7).<sup>52</sup> Other research on aging in developing countries (including urban China) has shown that older people (especially women) who live alone often have adult children living in adjacent dwellings or nearby, and that these children typically provide some degree of physical assistance or in-kind financial contributions (Bian et al., 1998; Knodel and Ofstedal, 2003). It may be that older Chinese who live alone require more help from their family than do their peers who live with their spouse and/or children. Older people who live with their spouse and/or children often help with housework and other chores (Whyte, 1997), and they may feel that their relationship with their adult children is one of reciprocity

<sup>52</sup> The percentage of those living with their spouse only who felt burdensome to their family is not statistically different from those living with their children and/or others.

(Ng et al., 2002) rather than a burden.

Figure 3-7 also shows that 69.0 percent of SSAPUR respondents with poor self-assessed health felt they were a burden to their family, compared with 56.9 percent of older people in good health. The presence or absence of activity limitations did not make a large difference in feeling burdensome—66.0 percent of individuals with one or more limitations viewed themselves as a burden, compared with 60.2 percent of those without a limitation. A larger proportion of rural older people with activity limitations felt burdensome to their family than did their urban counterparts.

### Old-Age Worries

The concept “old-age worries” refers to people’s negative feelings about being old and their concerns about problems that grow more salient as one ages. The two main types of worries involve financial strains, as older people typically no

longer work for pay, and old-age care needs, especially for those with health concerns or activity limitations. The association between financial strain and poor health on the one hand, and depression, impaired cognitive capacity, and lowered self-esteem on the other, has been documented (e.g., Angel et al., 2003). Research also has shown that older disabled people have relatively low levels of control over their activities, and that long-term disabilities are chronic sources of stress for older people (Schieman and Turner, 1998).

*Resources for Daily Living.* When asked if they worry about not having enough resources for daily living, 4 in 10 older Chinese answered affirmatively, with no significant differences by age, sex, or urban/rural residence. This major financial worry was more pronounced among older people who lived alone. About half of those living alone (48.8 percent) worried about not having enough money for daily needs, higher than those who lived with their spouse only (42.2 percent) or who lived with children and/or others (41.7 percent). The same pattern was seen among older men and women, and in urban and rural areas (Figure 3-8).<sup>53</sup> The vast majority (86 percent) of older people living alone in 2000 were widowed, and most widows/widowers have at most one direct income (their own) to live on since there are no widows’ pensions in China.

<sup>53</sup> The percentage with financial worries for those living with their spouse only is not statistically significantly different than for those living with their children and/or others among the total older population, as well as among urban, rural, male, and female subgroups. In addition, for the urban older population, the percent living alone with financial worries is not statistically different from those living with children and/or others.

### Affordability of Health Care.

Another financial worry for older people is whether they will have money to pay for medical care if they get sick. About half of men and women alike worried that they would not have the financial ability to cover their medical needs. People with perceived poor health were much more worried about not being able to afford health care than those who were in good health (61.4 compared with 36.0 percent).

The young old (aged 60 to 69) were more likely than the older old (aged 70 to 79) to worry about their ability to pay for health care; this was particularly true for urban residents (58.5 percent of those aged 60 to 69, 52.2 percent aged 70 to 79, and 46.7 percent aged 80 and over).<sup>54</sup> This may be attributed partly to differences in old-age security resulting from recent pension reforms that, in urban areas, eliminated the original pension scheme and established a three-pillar old-age insurance system, and in rural areas, replaced the commune system with minimal social safety net transfers.<sup>55</sup> The urban older old, who retired before the new system began, continue to enjoy full pension benefits under the prior system, while the young old, who were not retired, were caught in the transition and had to start contributing to their individual savings accounts at a much older age than others in the work force.

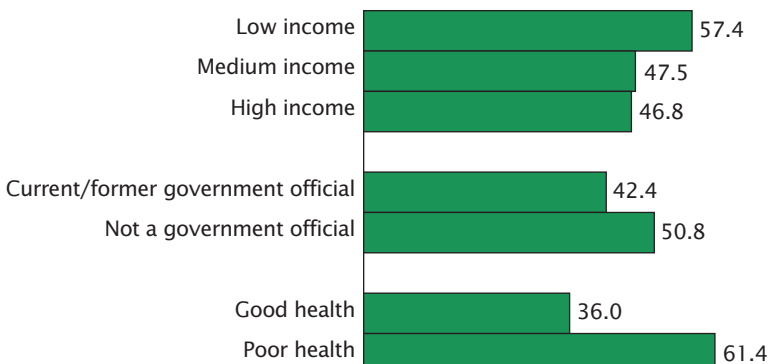
The urban young old (58.5 percent) were more likely than rural young old (49.9 percent) to worry about the affordability of medical care. Urban older women were more

<sup>54</sup> The percentage of older old that worry about their ability to pay for health care is not statistically significantly different than the percentage of oldest old, for the total older population as well as urban older population.

<sup>55</sup> For more information on China's pension reform and old-age insurance system, see Heller, 2006, and Sin, 2005.

Figure 3-9.

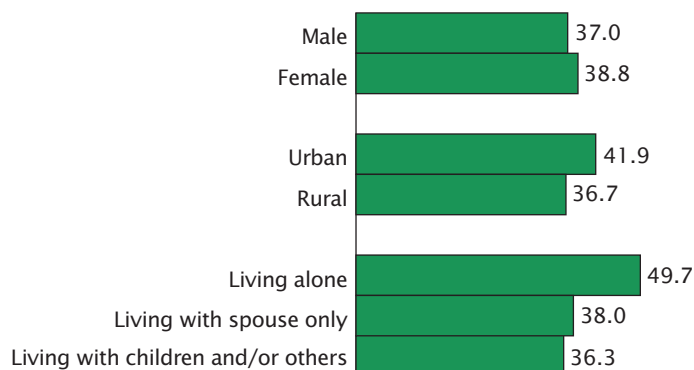
### Percent of Population Aged 60 and Over Worrying About Not Having Money for Medical Care: 2000



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

Figure 3-10.

### Percent of Population Aged 60 and Over Worrying About Not Getting Care When Needed: 2000



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

likely to have this concern (59.3 percent) than were urban older men (51.7 percent) or rural older women (48.9 percent). Medical care is more expensive in urban than in rural areas.

People with low income (57.4 percent) were more likely to worry about the affordability of health care than were people with medium income (47.5 percent) or high income (46.8 percent) (Figure 3-9). In urban areas, 61.1 percent of

older people with low income were concerned about having enough money to pay for medical care, compared with 42.0 percent of those with high income. The respective figures in rural areas were 56.7 and 35.8 percent.<sup>56</sup>

<sup>56</sup> Among people who worry about the affordability of health care, there are no statistical differences between the percentages for those with median income and those with high income. Also, there are no statistical differences between the percentages for urban residents with low income and rural residents with low income.

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SSAPUR data show that fewer current/retired government officials (42.4 percent) worried about getting medical care than those who were not or had never been government officials (50.8 percent). This finding may reflect the fact that in China, retired government officials enjoy certain benefits that came with their previous positions.

**Ability to Get Care When Needed.** About 4 in 10 older people (37.9 percent) were worried that there may not be anyone to take care of them when needed. Urban residents (41.9 percent) were more concerned than rural residents (36.7 percent) about old-age care (Figure 3-10). More of those who lived alone (49.7 percent) worried about getting care than did those who lived with their spouse (38.0 percent) or their children and/or others (36.3 percent).<sup>57</sup> While there

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<sup>57</sup> The percentage living with their spouse only who worried about getting care is not statistically different from those living with their children and/or others.

was no overall gender difference in worrying about care, older men who lived alone were more likely than older women living alone to have old-age care concerns (57.7 percent and 45.3 percent, respectively).

**Filial Piety.** Concerns about care in old age are influenced by whether people think that they can depend on their children. Traditional Chinese culture emphasizes filial piety and mandates that adult children take care of older parents.<sup>58</sup> This traditional filial obligation has been substantially weakened due to economic development and modernization. In present-day China, influences from Western culture and a trend toward small nuclear families are said to have

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<sup>58</sup> The concept of filial piety does not dictate a one-way flow from children to parents, but rather embraces reciprocal arrangements. The parental and child reciprocity is found in some Asian countries where an increasing reevaluation of filial piety is evident (Phillips, 2000).

changed the primary focus of Chinese family life from children's obligations to their parents to the husband-wife bond (Ng et al., 2002; Whyte, 1997).

When asked whether they were concerned that their children lack filial piety, 30.9 percent of the SSAPUR respondents said "yes." Sociodemographic characteristics (age, sex, marital status, urban/rural residence, living arrangements) did not affect older people's views of filial piety.<sup>59</sup> While rural older people were considerably more likely than urban older people to feel like a burden to society and family, they were no more likely than urban people to express a negative view of their children's loyalty.

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<sup>59</sup> Older people living alone (33.7 percent) were more likely than those living with their spouse (28.9 percent) to worry that their children lack filial piety.

## CHAPTER 4. HEALTH CARE

Available and affordable health care is essential to older people's quality of life. This chapter examines several aspects of health care—formal medical care (visits to doctor's offices, home-visits by doctors, hospitalization), informal care, health service utilization, and health care financing. While China's health care reform is well under way, utilization of health care services by older people has not been widely researched. The Sample Survey on Aged Population in Urban/Rural China (SSAPUR) data contribute to our empirical knowledge regarding the characteristics of older people who use various types of health care and the determinants of health care service utilization.

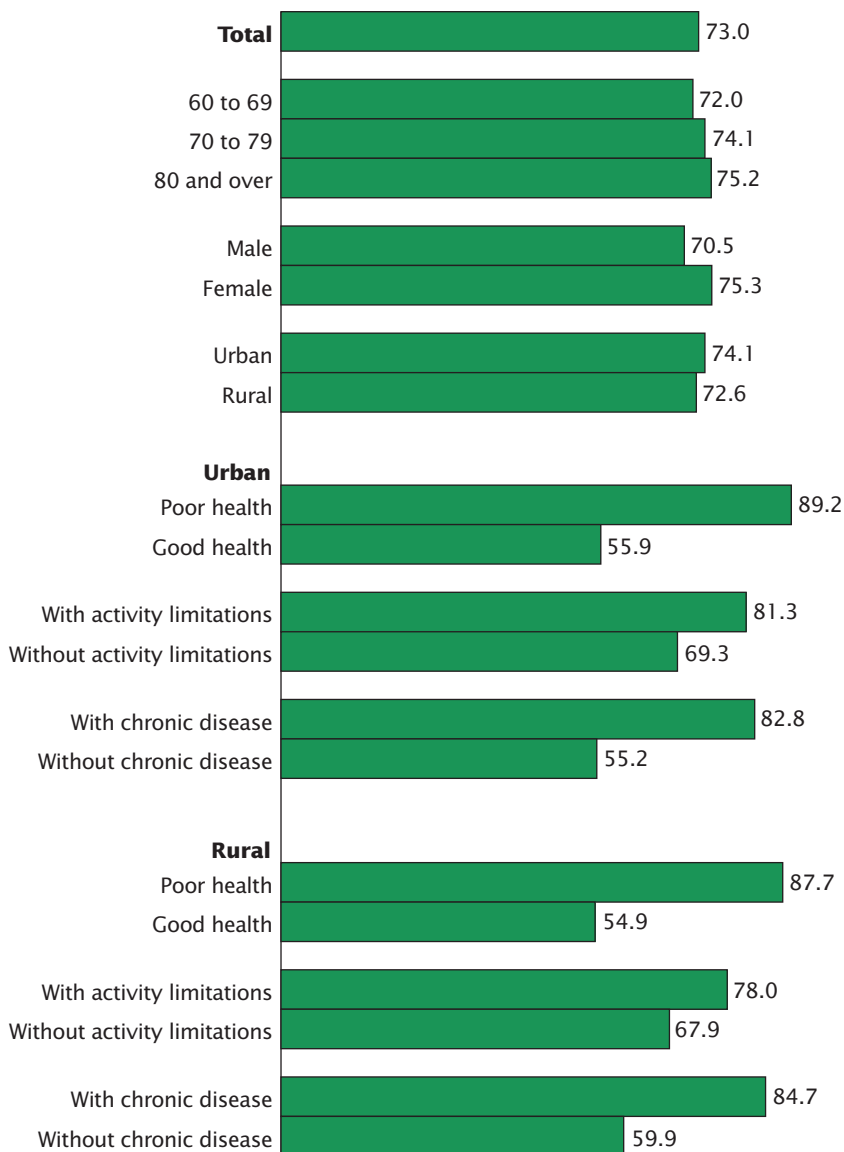
### Medical Care

#### Visits to Doctor's Offices

Doctor-office visits in this report include visits to outpatient offices in hospitals, clinics, and elsewhere.<sup>60</sup> In 2000, 73.0 percent of older people made one or more visits to a doctor in the last year (Figure 4-1). The younger old and oldest old did not differ in their propensities to visit a doctor, though older women (75.3 percent) were somewhat more likely than older men (70.5 percent) to see doctors. There was no statistically significant difference by urban/rural residence.

<sup>60</sup> In China, doctor's offices are mostly located in various hospital departments. In this report, "doctors" refer to any medical practitioners and are not restricted to those trained in medical schools.

Figure 4-1.  
**Percent of Population Aged 60 and Over Visiting a Doctor's Office in the Last Year: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

Among people with self-assessed poor health, 88.0 percent saw a doctor at least once in 2000, compared with 55.1 percent of those who regarded themselves in good health. A larger proportion of older people with at least one activity limitation (78.7 percent) visited a doctor's office than did those with no difficulty in activities (68.3 percent). Among those who had any chronic disease, 84.2 percent visited a doctor's office at least once in 2000, compared with 59.1 percent of those without chronic disease. Similar patterns were seen in urban and rural areas (Figure 4-1).<sup>61</sup>

The average number of visits to a doctor's office is another measure of formal health care utilization. Chinese people aged 60 and older made an average of 5.1 visits to a doctor's office in 2000 (Table 4-1). Urban or rural residence affected the frequency with which older people saw a doctor—7.3 average visits for urban respondents compared with 4.4 for rural respondents.

Education and money income affected older people's likelihood of visiting doctors. Older people with junior high school education or above visited doctors 7.0 times in 2000, compared with 4.7 times by those with primary school education and 4.9 times by the illiterate.<sup>62</sup> Similarly, the higher the money income, the more doctor visits (6.7 visits for those with high income, 4.8 visits for medium income, and 3.9 visits for low income). Current or former government officials (11.3 visits) were more than twice as

<sup>61</sup> A person may have one or more health conditions, and therefore, the percentages of people with different health conditions seeking health care are not mutually exclusive. For example, a person may report having activity limitations and also a chronic disease.

<sup>62</sup> The average number of visits to a doctor's office for people with primary school education (4.7 times) and illiterate people (4.9 times) are not statistically different from each other.

Table 4-1.  
**Average Number of Visits to Doctor's Office Last Year for Population Aged 60 and Over by Residence and Selected Characteristics for China: 2000**

Characteristic	Total	Urban	Rural
<b>Total</b> .....	<b>5.1</b>	<b>7.3</b>	<b>4.4</b>
<b>Sex</b>			
Male.....	4.9	7.5	4.1
Female.....	5.3	7.0	4.8
<b>Age</b>			
60 to 69.....	5.1	7.3	4.4
70 to 79.....	5.3	7.9	4.6
80 and over.....	4.3	4.5	4.3
<b>Marital Status</b>			
Currently married <sup>1</sup> .....	5.0	7.6	4.1
Not married <sup>2</sup> .....	5.2	6.2	5.0
<b>Educational Attainment<sup>3</sup></b>			
Illiterate.....	4.9	6.0	4.7
Primary school <sup>4</sup> .....	4.7	7.3	3.9
Junior high school or above.....	7.0	8.0	4.7
<b>Money Income (in Yuan)<sup>5, 6</sup></b>			
Low.....	3.9	5.1	3.8
Medium.....	4.8	5.3	4.7
High.....	6.7	7.9	5.0
<b>Living Arrangement</b>			
Living alone.....	5.5	6.1	5.3
Living with spouse only.....	5.4	8.3	4.4
Living with children and/or others <sup>7</sup> .....	4.9	6.8	4.4
<b>Government Official Status</b>			
Yes.....	11.3	11.9	10.2
No.....	4.8	6.5	4.3

<sup>1</sup> "Currently married" refers to people who were currently married and living with their spouse.

<sup>2</sup> "Not married" includes people who were widowed, divorced, separated, or never married.

<sup>3</sup> "Illiterate" is defined as people aged 15 and older who are unable to read. Primary school in China is equivalent to elementary school in the United States, and junior high school is equivalent to middle school or junior high school.

<sup>4</sup> "Primary school" includes "primary school" and "old-style private school."

<sup>5</sup> "Money Income" is monthly income in Chinese yuan. In 2000, the exchange rate between the U.S. dollar and the Chinese yuan was \$1 = 8.28 yuan.

<sup>6</sup> In this table, for total China, "Low" monthly money income is less than 50 yuan, "Medium" is 50 to 199 yuan, and "High" is 200 yuan or above. For urban China, "Low" is less than 300 yuan, "Medium" is 300 to 749 yuan, and "High" is 750 yuan or above. For rural China, "Low" is less than 50 yuan, "Medium" is 50 to 149 yuan, and "High" is 150 yuan or above.

<sup>7</sup> "Living with children and/or others" may include spouse, children, grandchildren, parents, or any other family or nonfamily members.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

likely as other older people (4.8 visits) to visit doctors.

### Home-Visits by Doctors

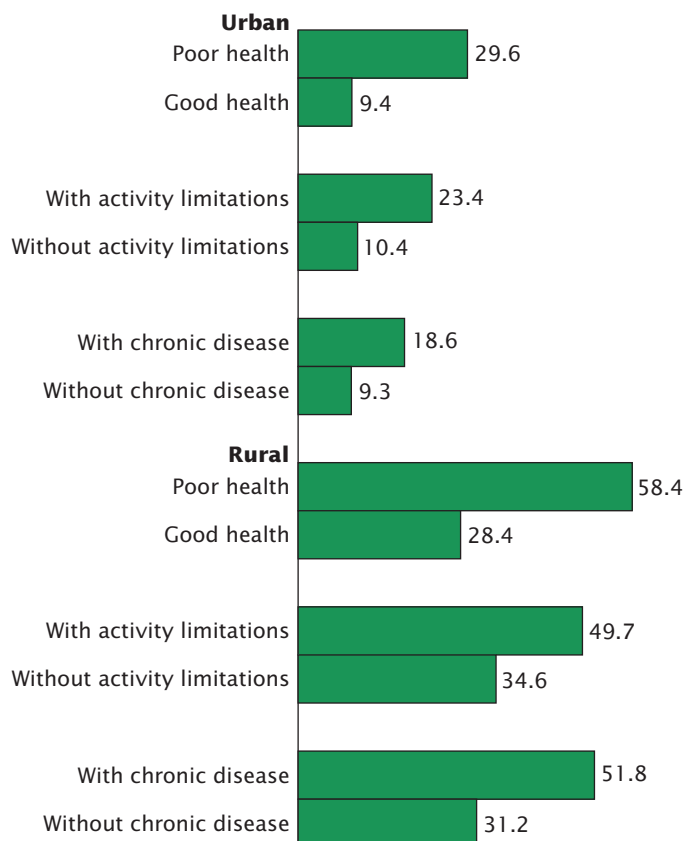
Doctors in China often come to older people's homes to provide medical examinations or treatment. In 2000, about one-third (35.7 percent) of older people had doctors visit them at least once at home. The oldest old were the most likely to have doctors treat them at home

(46.6 percent), followed by those aged 70 to 79 (39.4 percent) and people aged 60 to 69 (31.9 percent).

Regardless of health status, rural older people were much more likely than urban older people to have doctors visit them at home (41.7 percent and 15.6 percent, respectively). Among people reporting poor health, about 6 in 10 (58.4 percent) rural residents had doctor home-visits, compared



Figure 4-2.  
**Percent of Population Aged 60 and Over Visited by a Doctor at Home in the Last Year: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

with nearly 3 in 10 (29.6 percent) urban residents. Similar patterns were seen among people with activity limitations and chronic diseases (Figure 4-2).

The popularity of doctor home-visits in rural areas at least partly reflects access barriers—distances to doctor's offices, transportation difficulties, and other physical inconveniences—that are less severe in urban areas. Given that doctor home-visits are a common form of health care for rural older people, it is important to ensure the quality of the medical staff and the accessibility of medical supplies in rural areas. Research has indicated that rural doctors, many of them village medical practitioners, receive little supervision and professional training (Liu, 2004).

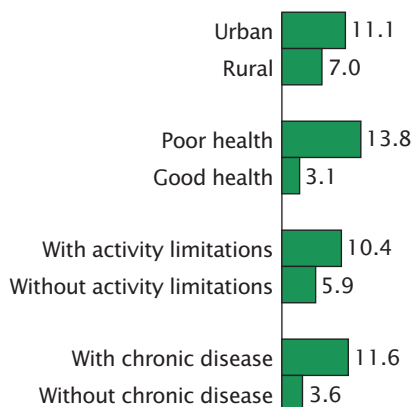
### Hospitalization

In 2000, 8.0 percent of China's older people were hospitalized at least once. Urban residents (11.1 percent) were more likely than rural residents (7.0 percent) to be hospitalized (Figure 4-3). Sex or age did not affect older people's likelihood of being hospitalized. People with any chronic disease were about three times as likely as those without chronic disease to be hospitalized (11.6 percent and 3.6 percent, respectively).

### Informal Care

Informal care for older people involves assistance with various activities at home, including activities of daily living (ADL), mobility activities, and household activities.<sup>63</sup> In 2000, 13.6 percent of older peo-

Figure 4-3.  
**Percent of Population Aged 60 and Over Hospitalized in the Last Year: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

<sup>63</sup> The time frame for receiving assistance with activity limitations was not clearly specified in the SSAPUR 2000 questionnaire. Therefore, this study is not able to examine the sources of assistance because some spouses may have provided assistance in the past but were deceased at the time of the survey. SSAPUR 2006 has corrected this data shortcoming.

ple with activity limitations said that they received assistance. As expected, the oldest old were much more likely to receive assistance (24.5 percent) than were people aged 60 to 69 (9.3 percent) and aged 70 to 79 (13.0 percent). Assistance was more common in urban than rural areas (Figure 4-4).

The fact that 6 out of 7 survey respondents with activity limitations did not receive any kind of assistance implies unmet need among China's older population.<sup>64</sup> The relatively low proportion of SSAPUR respondents receiving assistance for activity limitations may partly be due to the wording of the survey question.<sup>65</sup>

## Health Service Utilization

### Easy Access to Medical Care

Easy access to medical care facilitates utilization of health services, and service availability is an important factor in health care systems. SSAPUR asked respondents whether it was convenient for them to see doctors, and most (74.5 percent) said that they had easy access to medical care. About 1 in 10 (10.8 percent) stated that it was not convenient for them to see doctors.<sup>66</sup>

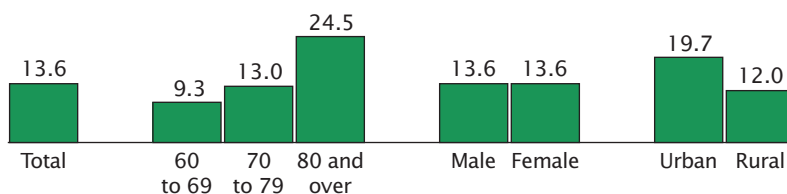
The oldest old were somewhat less likely than the young old to report easy access to medical care (Figure 4-5) and more likely than younger respondents to say that it

<sup>64</sup> According to various studies, the majority (80 to 90 percent) of older people with activity limitations in the United States receive some type of assistance. For more information, see Desai et al., 2001 and Verbrugge and Sevak, 2002.

<sup>65</sup> The SSAPUR question on receiving assistance, following a series of questions on activity limitations, was: "Have you ever had someone *fu si* you with daily activities?" A literal translation of the Chinese word "*fu si*" is "wait upon/attend" and sounds stronger than "assist." This may make the respondent less likely to answer "yes" to the question.

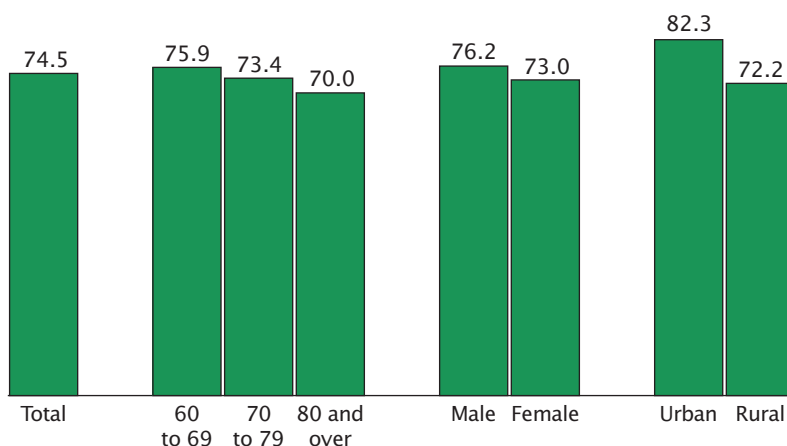
<sup>66</sup> The other 14.7 percent answered "so so" to the survey question.

Figure 4-4.  
**Percent of Population Aged 60 and Over With Activity Limitations and Receiving Assistance: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

Figure 4-5.  
**Percent of Population Aged 60 and Over Having Easy Access to Medical Care: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

was inconvenient to see a doctor (14.8 percent, compared with 10.7 percent among those aged 70 to 79 and 10.3 percent among those aged 60 to 69).<sup>67, 68</sup>

<sup>67</sup> The SSAPUR question on easy access was, "Do you think it's convenient for you to see doctors?" and it was asked prior to questions about types of health care. The access question did not differentiate between doctor's office visits and home visits, and it is unclear whether respondents referred to both types or just doctor's office visits.

<sup>68</sup> The percent reporting inconvenience among those aged 70 to 79 is not statistically different from that of people aged 60 to 69.

China's Ministry of Health has stated that the difficulty rural people have when seeking medical care, especially people in remote or poor areas, is one of the main reasons for unmet need (China Ministry of Health, 2004). SSAPUR data showed a 10 percentage-point difference in easy access according to residence—72 percent of rural older people said that medical care was convenient, lower than the 82 percent among urban dwellers.

Box 4-1.

### Andersen's Framework

The Behavioral Model of Health Services Use was designed initially in 1968.<sup>69</sup> The model suggested that “people’s use of health services is a function of their predisposition to use services, factors which enable or impede use, and their need for care” (Andersen, 1995: 1). Predisposing characteristics include demographic factors such as age and gender; social structural factors such as education, occupation, and ethnicity; and health beliefs such as people’s attitudes and knowledge about health and health services. Enabling resources include availability of health personnel, facilities, and other sources of care; personal income; and health insurance coverage. The need for health service is indicated by self-assessed health, functional state, and illness symptoms.

<sup>69</sup> See Andersen, 1995, for a comprehensive discussion of the original Behavioral Model of Health Services Use and its evolution.

The initial model has gone through two major revisions. In the 1970s, growing recognition of the importance of national health policy as a determinant of service use led Andersen and his colleagues to add the health care system to the model. A consumer satisfaction component also was added during this Phase 2 revision. Phase 3 evolved during the 1980s and 1990s. Personal health practices such as diet, exercise, and self care were added to the health behavior component, and perceived and evaluated health status were added to the health outcomes. Andersen’s framework has been applied, tested, and expanded by various studies of health service utilization (Institute of Medicine, 2001; Coulton and Frost, 1982; Lix et al., 2005; Wolinsky et al., 1983).

### Utilization of Health Services

The use of health care services by older people in China has not been widely studied. To facilitate understanding of the situation, we applied multivariate regression analysis to examine the determinants of health service utilization. The analyses in this report apply a commonly used framework for studying health service utilization—Andersen’s Behavioral Model of Health Services Use (Box 4-1).

Health service utilization is measured by visits to doctor’s offices, home-visits by doctors, and hospitalization. Independent variables are grouped into three categories—predisposing characteristics, enabling resources, and need. Predisposing characteristics include age, sex, urban/rural residence, marital status, and educational attainment.<sup>70</sup> Enabling resources include money income, government-official status,

<sup>70</sup> Living arrangement is not included in the regression models because of its collinearity with marital status.

health insurance coverage, and easy access to health care. Need is measured by chronic disease, self-assessed health status, ADL limitations, and mobility limitations.

Table 4-2 shows results from the multivariate analysis of the dependent variables—doctor’s office visits, home-visits by doctors, and hospitalization. Most predisposing and enabling variables have an opposite effect on visits to doctor’s offices than they do on doctor home-visits. Gender has a small effect on the probability of seeking medical treatment. The regression results support the descriptive findings that urban older people are more likely than their rural counterparts to go to doctor’s offices but less likely to have in-home medical care.

Some enabling variables are strong determinants of doctor’s office visits. Older Chinese who are current or former government officials are most likely to visit a doctor. Having easy access to health care enhances the probability of both visiting a

doctor and having a doctor home-visit. Health insurance coverage is positively associated with visits to doctor’s offices but negatively related to home visits. After controlling all other factors, income is a weak predictor, with only minimal impact on older people’s probability of utilizing health services.

Most health-related variables (except for ADL limitations) have positive predictive power both for visits to doctor’s offices and doctor home-visits. Among the need measures, chronic disease and self-assessed health status have the largest impact on the probability of utilizing health services.

Those most likely to have home visits by doctors are older, rural, poorer, and/or without health insurance coverage. Health conditions predetermine the probability of health service utilization, and these SSAPUR results imply that underprivileged older people with poor health status need structured health care.

Table 4-2.

## Regression Coefficients of Health Service Utilization for Population Aged 60 and Over for China: 2000

Variable	Visits to doctor's office		Doctor's home-visits		Hospitalization	
	B	SE	B	SE	B	SE
<b>Predisposing Characteristics</b>						
Age	-0.0900	0.0002	0.0129	0.0000	-0.0012	0.0000
Sex (reference group: Male)	0.0225	0.0022	-0.0656	0.0005	-0.0264	0.0001
Area of residence (reference group: Rural)	0.7331	0.0034	-1.4173	0.0009	0.0521	0.0002
Marital status (reference group: Currently married)	0.4844	0.0022	-0.0841	0.0005	-0.0275	0.0001
Educational attainment (reference group: illiterate) <sup>1</sup>	-0.2655	0.0022	0.0038	0.0005	0.0043	0.0001
<b>Enabling Resources</b>						
Money income (reference group: Low)	0.0010	0.0000	-0.0004	0.0000	0.0000	0.0000
Government official status (reference group: No)	5.0809	0.0046	0.4086	0.0011	0.0335	0.0003
Health insurance (reference group: No)	1.5466	0.0030	-0.0591	0.0007	0.0108	0.0002
Easy access to medical care (reference group: No)	0.7086	0.0030	0.3356	0.0007	-0.1104	0.0002
<b>Need</b>						
Chronic disease (reference group: No)	3.0032	0.0022	0.5660	0.0005	0.0665	0.0001
Self-assessed health status (reference group: Good)	2.1817	0.0016	0.3647	0.0003	0.0487	0.0001
Limitations in activities of daily living (reference group: No)	-0.2568	0.0029	0.3958	0.0006	0.0479	0.0002
Mobility limitations (reference group: No)	1.1510	0.0025	0.2084	0.0005	0.0331	0.0001
Constant	3.9464		-4.0539		0.1865	
df.	13		13		13	
R <sup>2</sup>	0.104		0.125		0.029	

<sup>1</sup> "Illiterate" is defined as people aged 15 and older who are unable to read.

Note: All variables significant at .001 level.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

## Financing Health Care

### Public Expenditure on Health

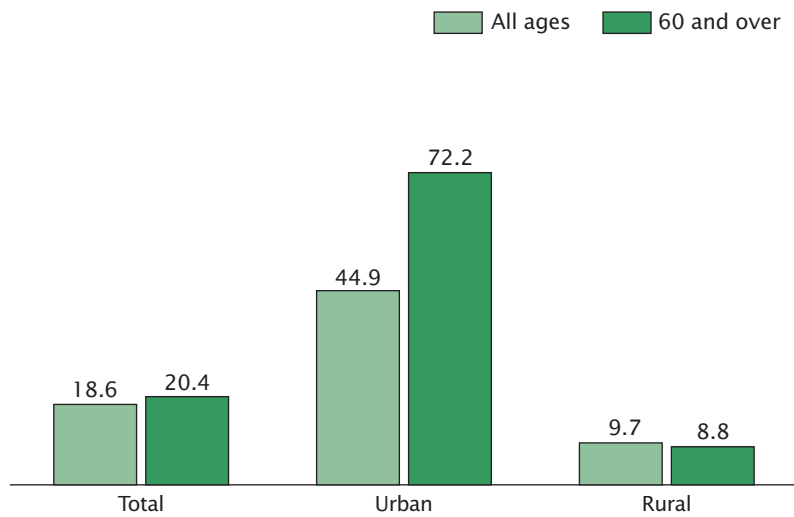
With health care costs increasing rapidly and expanded publicity about health care system deficiencies in recent years, health care reform has become one of the Chinese government's current policy foci and a much-debated topic in China (World Bank, 2005c). Government health expenditure as a share of gross domestic product (GDP) has been increasing. In 1980, total government health expenditure accounted for 3.2 percent of GDP. It rose to 4.0 percent in 1990, 5.1 percent in 2000, and 5.6 percent in 2004 (China Ministry

of Health, 2006). Private spending on health grew at an annual rate of 20 percent during the 1990s (World Bank, 2005a).

As China's economic reform unfolded in the 1980s, the government made major changes in health care policy. Analysts have noted that, while it faced a budget drain resulting from large losses by state enterprises, the government severely limited public funds available for health care and took a hands-off approach to the development of private medical care (Hsiao, 1995). The government allowed an unrestrained private health care market in rural areas—fee-for-service private practitioners

provided most rural health services, and patients' ability to pay determined supply and demand. The government also gave hospitals and township health centers a large degree of financing independence, cut financing to cover only basic personnel wages and new capital investments, and left hospitals to generate their own operating revenues from user fees. As reported in the *China Daily*, Health Minister Gao Qiang stated in August 2005 that medical fees paid by patients were covering not only the cost of services and medicines, but also the cost of new apparatuses and hospital facilities (*China Daily*, 2005).

Figure 4-6.  
**Percent of Population With Health Insurance Coverage: 1998/2000**



Note: Data for all ages refer to 1998; data for ages 60 and over refer to 2000.  
 Sources: For all ages, China Ministry of Health, 2006; for ages 60 and over, Sample Survey on Aged Population in Urban/Rural China, 2000.

In recent years, the government has increased spending on health care, especially on rural health care. Since 2003, the central government has directed 3 billion yuan toward the establishment of rural health clinics in the central and western regions of the country, and Premier Wen Jiabao has said that China will spend more than 20 billion yuan over the next 5 years on renovating township hospital buildings and upgrading equipment (*China Daily*, 2006b). He also announced that the central government would double the allowance to each farmer participating in the rural cooperative medical care system.

### Health Insurance Coverage

Figure 4-6 shows health insurance coverage by age and urban/rural residence in 1998–2000.<sup>71</sup> In 1998, 8 of 10 people in China did not have health insurance coverage. This proportion did not differ statistically from the proportion of older people (79.6 percent) in 2000

<sup>71</sup> Data for “all ages” come from the second National Health Survey, conducted in 1998. These data are comparable with those for people aged 60 and over from the SSAPUR because health insurance schemes were similar when the two sets of data were collected. A third National Health Survey was conducted in 2003, but the data are less comparable because most cities by then had adopted the new Basic Medical Insurance Scheme.

without health insurance coverage. Urban or rural residence made a large difference in the likelihood of having health insurance. While most urban older people were covered by one or more health insurance schemes, 8.8 percent of rural older people had any type of formal coverage. Within urban areas, the coverage rate for older people was 72.2 percent, while for people of all ages it was 44.9 percent.<sup>72</sup> This difference may appear because retired people were covered under two main health schemes that were still largely in place in 2000 (Box 4-2).

### Medical Expense Payment

The affordability of medical care affects a patient’s likelihood to seek care when needed. The Ministry of Health has reported that health care expense has risen rapidly and is now the third major expenditure for families, after food and education. China’s 2003 National Health Survey found that financial difficulty discouraged medical care—38.2 percent of outpatients did not follow up with treatment, and 70.0 percent of patients did not seek hospitalization when recommended (China Ministry of Health, 2004).

<sup>72</sup> A statistical significance testing between the 72.2 percent and the 44.9 percent was not available since data for people of all ages were obtained from a table published by the China Ministry of Health.

Box 4-2.

## China's Health Insurance Schemes

During the 1960s and 1970s, China was regarded as an innovator in the health sector, coupling universal insurance coverage with a delivery system tailored to local needs (World Bank, 2005c). There were two major public health insurance plans in urban areas, the Government Insurance Scheme (GIS) and the Labor Insurance Scheme (LIS), and one broad plan in rural areas, the Cooperative Medical System (CMS).<sup>73</sup> The GIS covered employees, retirees, and their dependents in public sector and government agencies, as well as disabled veterans and university teachers and students. The LIS covered employees, retirees, and their dependents in state-owned and collective-owned enterprises. The CMS covered rural residents.

The GIS and the LIS were established in the 1950s and were centrally managed. Current and retired employees were offered the option of reimbursement of a portion of their medical expenses or a lump-sum payment. Since the 1980s, along with changes toward a market economy, these two urban health insurance schemes also changed to include copayments and other associated costs borne by patients themselves. Health insurance coverage in urban areas fell; by 1998, about half of urban residents did not have health insurance (World Bank, 2005d).

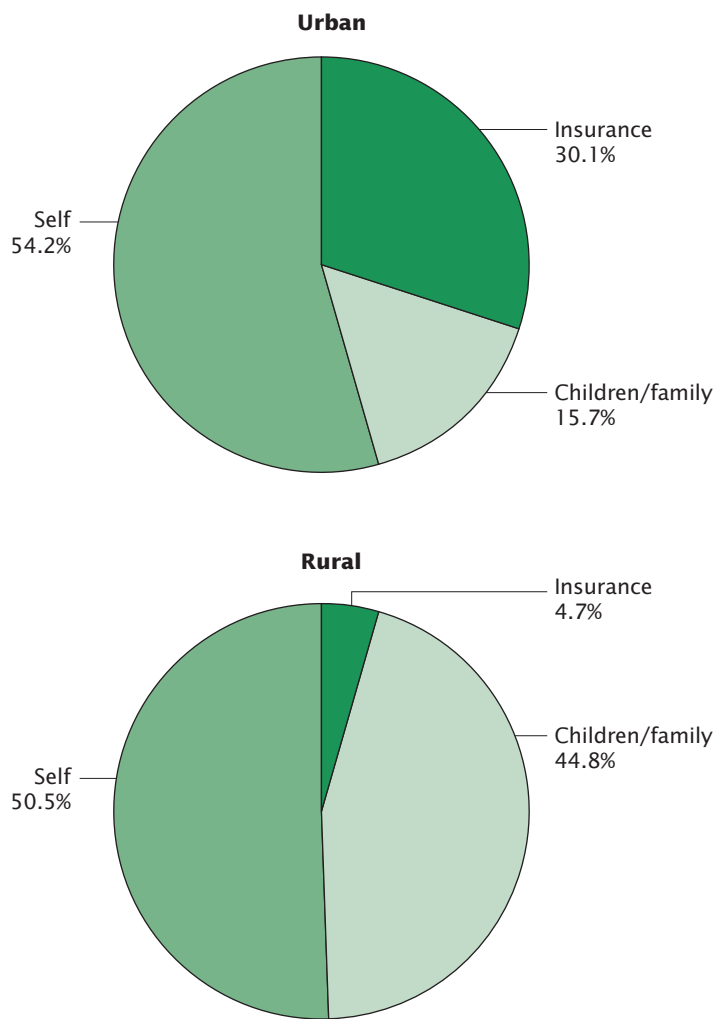
<sup>73</sup> While the term "insurance" is used when speaking of China's public health schemes, there were no commercial insurance companies or other insurers. The system was employer funded. The cost of the GIS was considered to be an operating expense and included as a budget item; the LIS was financed by a government-mandated premium equivalent to 7.0 percent of basic wages paid by the employer and maintained as a separate fund by each enterprise (Hsiao, 1995). For more detailed information about China's health insurance types and coverage before and since the health care reform, see Gao et al., 2001; Liu, 2004; World Bank, 2005a; and Yip et al., 1998.

In contrast to the publicly funded urban health insurance plans, the CMS was financed by voluntary contributions from villages. The nationwide rural health insurance system was developed in the 1970s and contributed to China's remarkable success in improving overall public health during that decade. The World Bank has reported that beginning in the 1980s, when the rural agricultural collectives system transitioned to a household responsibility system as part of general economic reform, the financial base of the CMS weakened and in the early 1990s it collapsed (World Bank, 2004).

The Chinese government has recognized the unintended effects of its economic and health policies and in 1996 held the First National Health Conference to guide development of a health care system for the twenty-first century (Gao et al., 2002). Several system changes have since been introduced, including the Basic Medical Insurance (BMI) scheme that consists of individual medical savings accounts and a social pooling account in urban areas. By the end of 2003, most large cities had implemented the BMI (World Bank, 2005d). A New Cooperative Medical Scheme, under which farmers pay premiums and the government contributes matching funds, began as a pilot project in 2004 and is scheduled to roll out nationally in 2008 (*China Daily*, 2004; World Bank, 2005d).

Insured people have a strong sense of entitlement to medical care, while younger workers, rural-urban migrants, and workers outside the cities have a different perspective (Bloom et al., 2002). The young and healthy will likely need to contribute to health care systems that, at least in the medium term, may benefit older people disproportionately.

Figure 4-7.  
**Sources of Medical Expense Payment for  
 Population Aged 60 and Over: 2000**



Source: Sample Survey on Aged Population in Urban/Rural China, 2000.

There are three main sources of medical expense coverage—insurance, children/family, and patients themselves. In 2000, the average annual medical expense for an older person in China was 654 yuan. Older people themselves paid about half (51.4 percent) of their medical expenses, children or other family members covered 38 percent, and insurance covered about 11 percent (Table 4-3).

Insurance coverage and family support for medical expenses differed according to urban/rural residence. For urban older people, insurance policies covered 30.1 percent of medical expenses, compared with about 5 percent for rural older people (Figure 4-7). While the out-of-pocket share was slightly higher for older people in urban areas, they received less help from children and/or others (15.7 percent) than did their rural counterparts (44.8 percent). The oldest old relied more on their children or family than did younger older people.

Gender differences in sources of medical expense payments also were evident. Insurance covered a higher percentage of older men's expenses (13.5 percent) than those of older women (8.0 percent), and men were more likely to pay for their own expenses (58.8 percent compared with 44.6 percent). Older women received more help from their children and/or others than men did (47.4 percent and 27.6 percent, respectively). The gender differences result at least in part from lower health insurance coverage and social security coverage for older women and also from lower amounts of savings. Older urban women typically were unlikely to work for pay when younger. In rural areas, traditional cultural norms—that men be in charge of outside-of-home activities and women be responsible for household activities—meant that older women rarely accumulated large amounts of economic capital.

Table 4-3 indicates that, for older people with health problems, most of their medical expense was paid by themselves or their children

and/or family. Older people with health problems (activity limitations, chronic disease, and/or poor self-assessed health) incurred an

average of 845 yuan in medical expenses in 2000, compared with 654 yuan for the total older population regardless of health status.

Table 4-3.

**Sources of Medical Expense Payment for Population Aged 60 and Over by Selected Characteristics for China: 2000**

(In percent)

Characteristic	Insurance	Children/family	Self
<b>Total.....</b>	<b>10.6</b>	<b>38.0</b>	<b>51.4</b>
<b>Sex</b>			
Male.....	13.5	27.6	58.8
Female.....	8.0	47.4	44.6
<b>Age</b>			
60 to 69.....	9.7	30.6	59.8
70 to 79.....	11.8	43.6	44.6
80 and over.....	12.4	64.1	23.5
<b>Residence</b>			
Urban.....	30.1	15.7	54.2
Rural.....	4.7	44.8	50.5
<b>Chronic Disease</b>			
Yes.....	12.3	38.5	49.2
No.....	7.6	37.3	55.1
<b>Activity Limitations</b>			
Yes.....	10.0	49.2	40.8
No.....	11.2	27.3	61.5
<b>Self-Assessed Health</b>			
Poor.....	9.5	47.7	42.8
Good.....	11.9	29.8	58.3

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.



## REFERENCES

- Agree, Emily M. and Vicki A. Freedman. 2000. "Incorporating Assistive Devices into Community-Based Long-Term Care: An Analysis of the Potential for Substitution and Supplementation." *Journal of Aging and Health* 12/3:426–50.
- Agree, Emily M., Vicki A. Freedman, and Manisha Sengupta. 2004. "Factors Influencing the Use of Mobility Technology in Community-Based Long-Term Care." *Journal of Aging and Health* 16/2:267–307.
- Andersen, Ronald M. 1995. "Revisiting the Behavioral Model and Access to Medical Care: Does It Matter?" *Journal of Health and Social Behavior* 36:1–10.
- Aneshensel, Carol S., Carolyn M. Rutter, and Peter A. Lachenbruch. 1991. "Social Structure, Stress, and Mental Health: Competing Conceptual and Analytic Models." *American Sociological Review* 56:166–78.
- Aneshensel, Carol S., Leonard I. Pearlin, and Roberleigh H. Schuler. 1993. "Stress, Role Captivity, and the Cessation of Caregiving." *Journal of Health and Social Behavior* 34:54–70.
- Angel, Ronald J., Michelle Frisco, Jacqueline L. Angel, and David A. Chiriboga. 2003. "Financial Strain and Health Among Elderly Mexican-Origin Individuals." *Journal of Health and Social Behavior* 44:536–51.
- Anson, Ofra and Shifang Sun. 2002. "Gender and Health in Rural China: Evidence From Hebei Province." *Social Science and Medicine* 55/6:1039–54.
- Banister, Judith. 1987. *China's Changing Population*. Stanford: Stanford University Press.
- \_\_\_\_\_. 1992. "Implications and Quality of China's 1990 Census Data." In China State Council and National Bureau of Statistics (ed.), *1990 Population Census of China—Proceedings of International Seminar*. Beijing: China Statistics Press.
- Banister, Judith and Samuel H. Preston. 1981. "Mortality in China." *Population and Development Review* 7/1:98–110.
- Benyamini, Yael and Ellen L. Idler. 1999. "Community Studies Reporting Associations Between Self-Rated Health and Mortality: Additional Studies, 1995 to 1998." *Research on Aging* 21/3:392–401.
- Beydoun, May A. and Barry M. Popkin. 2005. "The Impact of Socio-Economic Factors on Functional Status Decline Among Community-Dwelling Older Adults in China." *Social Science and Medicine* 60:2045–57.
- Bian, Fuqin, John R. Logan, and Yanjie Bian. 1998. "Intergenerational Relations in Urban China: Proximity, Contact, and Help to Parents." *Demography* 35/1:115–24.
- Bloom, Gerald, Yuelai Lu, and Jiaying Chen. 2002. "Financing Health Care in China's Cities: Balancing Needs and Entitlements During Rapid Change." IDS Working Paper 176. Brighton, England: Institute of Development Studies.
- Burns, David M. 2000. "Cigarette Smoking Among the Elderly: Disease Consequences and the Benefits of Cessation." *American Journal of Health Promotion*, 14/6:357–61.
- Carstensen, Laura L. and Christine R. Hartel, (eds.), 2006. *When I'm 64*. Washington, DC: National Academies Press.
- Chen Peijun, E. S. Yu, Mingyuan Zhang, W. T. Liu, R. Hill, and Robert Katzman. 1995. "ADL Dependence and Medical Conditions in Chinese Older Persons: A Population-Based Survey in Shanghai, China." *Journal of American Geriatrics Society* 4/4:378–83.
- Chen, Ruoling, Li Wei, Zhi Hu, Xia Qin, John R. M. Copeland, and Harry Hemingway. 2004. "Depression in Older People—Lessons From Rural China." Paper presented at the Annual Meeting of the American Public Health Association, Washington, DC, Nov. 6–10, 2004.
- China Daily. 2004. "Medicare System Benefits Farmers." November 6, 2004.
- \_\_\_\_\_. 2005. "Minister: Health System in Poor State." August 7, 2005.
- \_\_\_\_\_. 2006a. "China to Switch Urban Spending to Countryside." May 10, 2006.
- \_\_\_\_\_. 2006b. "China to Improve Medicare System for Farmers." March 10, 2006.
- China Ministry of Health. 2004. "Main Findings From the Third National Health Survey." Available at <www.moh.gov.cn>.

- \_\_\_\_\_. 2006. Health Statistics of China in 2006. Available at <www.moh.gov.cn>.
- China State Council and National Bureau of Statistics. 1982. *The 1982 Population Census of China (major figures)*. Hong Kong: Economic Information and Agency.
- \_\_\_\_\_. 1985. *1982 Population Census of China (results of computer tabulation)*. Beijing: China Statistics Press.
- \_\_\_\_\_. 1993. *Tabulation on the 1990 Population Census of the People's Republic of China*. Beijing: China Statistics Press.
- \_\_\_\_\_. 2002. *Tabulation on the 2000 Population Census of the People's Republic of China*. Beijing: China Statistics Press.
- Clark, Daniel O., Timothy E. Stump, Siu L. Hui, and Fredric D. Wolinsky. 1998. "Predictors of Mobility and Basic ADL Difficulty Among Adults Aged 70 Years and Older." *Journal of Aging and Health* 10/4:422-40.
- Coale, Ansley J. 1984. *Rapid Population Change in China, 1952-1982*. Washington, DC: National Academy Press.
- Coale, Ansley J. and Ronald Freedman. 1993. "Similarities in the Fertility Transition in China and Three Other East Asian Populations." In Richard Leete and Iqbal Alam (eds.), *The Revolution in Asian Fertility. Dimensions, Causes, and Implications*. Oxford: Clarendon Press.
- Cochrane, Johanne, Hanhui Chen, Katherine M. Conigrave, and Wei Hao. 2003. "Alcohol Use in China." *Alcohol and Alcoholism* 38/6:537-42.
- Coulton, Claudia and Abbie K. Frost. 1982. "Use of Social and Health Services by the Elderly." *Journal of Health and Social Behavior* 23:330-39.
- Crosnoe, Robert and Glen H. Elder, Jr. 2002. "Successful Adaptation in the Later Years: A Life Course Approach to Aging." *Social Psychology Quarterly* 65/4: 309-28.
- DaVanzo, Julie and Angelique Chan. 1994. "Living Arrangements of Older Malaysians: Who Coresides With Their Adult Children?" *Demography* 31/1:95-113.
- De Vos, Susan. 2005. "Indicating Socioeconomic Status Among Elderly People in Developing Societies: An Example From Brazil." *Social Indicators Research* 73:87-108.
- Delbes, Christiane and Joelle Gaymu. 2002. "The Shock of Widowhood on the Eve of Old Age: Male and Female Experiences." *Population-E* 57/6:885-914.
- Desai, Mayur M., Harold R. Lentzner, and Julie Dawson Weeks. 2001. "Unmet Need for Personal Assistance With Activities of Daily Living Among Older Adults." *The Gerontologist* 41/1:82-88.
- Du, Peng and David R. Phillips. 2004. "Consequences of Population Ageing for China's Social Development." In Peter Lloyd-Sherlock (ed.), *Living Longer*. London: Zed Books.
- Dunlop, Dorothy D., Susan L. Hughes, and Larry M. Manheim. 1997. "Disability in Activities of Daily Living: Patterns of Change and a Hierarchy of Disability." *American Journal of Public Health* 87:378-383.
- Ferraro, Kenneth F., Melissa M. Farmer, and John A. Wybraniec. 1997. "Health Trajectories: Long-term Dynamics Among Black and White Adults." *Journal of Health and Social Behavior* 38:38-54.
- Freedman, Vicki A., Linda G. Martin, and Robert F. Schoeni. 2002. "Recent Trends in Disability and Functioning Among Older Adults in the United States." *Journal of the American Medical Association* 288/24:3137-46.
- Fried, Linda P. and Jack M. Guralnik. 1997. "Disability in Older Adults: Evidence Regarding Significance, Etiology, and Risk." *Journal of the American Geriatrics Society* 45:92-100.
- Fried, Linda P., K. Brandeen-Roche, P.H. Chaves, and B.A. Johnson. 2000. "Preclinical Mobility Disability Predicts Incident Mobility Disability in Older Women." *Journal of Gerontology: Medical Sciences* 55A:M43-52.
- Gao, Jun, Shenglan Tang, Rachel Tolhurst, and Keqing Rao. 2001. "Changing Access to Health Services in Urban China: Implications for Equity." *Health Policy and Planning* 16:302-12.
- Gao, Jun, Juncheng Qian, Shenglan Tang, Bo Eriksson, and Erik Blas. 2002. "Health Equity in Transition From Planned to Market Economy in China." *Health Policy and Planning* 17:20-29.
- Goldman, Noreen, Sanders Koreman, and Rachel Weinstein. 1995. "Marital Status and Health Among the Elderly." *Social Science and Medicine* 40/12:1717-30.

- Guralnik, Jack M., Kenneth C. Land, Dan Blazer, Gerda G. Fillenbaum, and Laurence G. Branch. 1993. "Educational Status and Active Life Expectancy Among Older Blacks and Whites." *The New England Journal of Medicine* 329/2:110-16.
- Gurlanik, Jack M., Luigi Ferrucci, Eleanor M. Simonsick, Marcel E. Salive, and Robert B. Wallace. 1995. "Lower-Extremity Function in Persons Over the Age of 70 Years as a Predictor of Subsequent Disability." *The New England Journal of Medicine* 332/9:556-61.
- Hao, Wei, Zhonghua Su, Binglun Liu, Kui Zhang, Hanqing Yang, Shaozhong Chen, Meizi Biao, and Chun Cui. 2004. "Drinking and Drinking Patterns and Health Status in the General Areas of China." *Alcohol and Alcoholism* 39:43-52.
- He, Wan, Manisha Sengupta, Victoria A. Velkoff, and Kimberly Debarros. 2005. *65+ in the United States: 2005*. U.S. Census Bureau P23-209. Washington, DC: U.S. Government Printing Office.
- Heller, Peter S. 2006. "Asia: Ready or Not." *Finance and Development* 43/3.
- Ho, S.C., J. Woo, Y. K. Yuen, A. Sham, and S.G. Chan. 1997. "Predictors of Mobility Decline: the Hong Kong Old-old Study." *Journal of Gerontology: Medical Sciences* 52/6:M356-62.
- Horwitz, Allan V., Helene Raskin White, and Sandra Howell-White. 1996. "The Use of Multiple Outcomes in Stress Research: A Case Study of Gender Differences in Responses to Marital Dissolution." *Journal of Health and Social Behavior* 37:278-91.
- Hsiao, William C. L. 1995. "The Chinese Health Care System: Lessons for Other Nations." *Social Science and Medicine* 41/8:1047-55.
- Hu, Gand, Heikki Pekkarinen, Osmo Hanninen, Shijie Yu, Zeyu Guo, and Huiguang Tian. 2002. "Commuting, Leisure-Time Physical Activity, and Cardiovascular Risk Factors in China." *Medicine and Science in Sports and Exercise*. 34/2:234-38.
- Hu, Yarreng and Noreen Goldman. 1990. "Mortality Differences by Marital Status: An International Comparison." *Demography* 27/2:233-50.
- Idler, Ellen L. and Stanislav V. Kasl. 1995. "Self-Ratings of Health: Do They Also Predict Change in Functional Ability?" *Journal of Gerontology: Social Sciences* 50/6:S344-53.
- Institute of Medicine. 2001. *Coverage Matters: Insurance and Health Care*. Washington, DC: National Academy Press.
- Jiang, Jingmei, Zhe Tang, Xiang Jun Meng, and Makoto Futatsuka. 2002. "Demographic Determinants for Change in Activities of Daily Living: A Cohort Study of Elderly People in Beijing." *Journal of Epidemiology* 12:280-86.
- Jylha, Marja, Jack M. Guralnik, Jennifer Balfour, and Linda P. Fried. 2001. "Walking Difficulty, Walking Speed, and Age as Predictors of Self-Rated Health." *Journal of Gerontology: Medical Sciences* 56:M609-17.
- Kaneda, Toshiko. 2006. "China's Concern Over Population Aging and Health." Population Reference Bureau. Available at <www.prb.org>.
- Kaplan, George A., William J. Strawbridge, Terry Camacho, and Richard D. Cohen. 1993. "Factors Associated With Change in Physical Functioning in the Elderly: A Six-year Prospective Study." *Journal of Aging and Health* 5/1:140-53.
- Katz, Steven J., A.B. Ford, R.W. Moskowitz, B.A. Jackson, and M.W. Jaffe. 1963. "Studies of Illness in the Aged. The Index of ADL: A Standardized Measure of Biological and Psychosocial Function." *Journal of the American Medical Association*, 185:914-919.
- Katz, Steven J. and M. W. Stroud. 1989. "Functional Assessment in Geriatrics: A Review of Progress and Directions." *Journal of the American Geriatrics Society* 37:267-71.
- Kawamoto, Ryuichi, Hitomi Tomita, Yuichiro Oka, and Nobuyuki Ohtsuka. 2006. "Predictors of Functional Status in Japanese Community-Dwelling Older Persons During a 2-Year Follow-Up." *Geriatrics and Gerontology International* 6/2:116-23.
- Keller, B.K. and J.F. Potter. 1994. "Predictors of Mortality in Outpatient Geriatric Evaluation and Management Clinic Patients." *Journal of Gerontology: Medical Sciences* 49/6:M246-51.
- Kinsella, Kevin and David R. Phillips. 2005. *Global Aging: The Challenge of Success*. Washington, DC: Population Reference Bureau.
- Kinsella, Kevin and Victoria A. Velkoff. 2001. *An Aging World: 2001*. U.S. Census Bureau P95/01-1. Washington, DC: U.S. Government Printing Office.

- Knodel, John and Mary Beth Ofstedal. 2003. "Gender and Aging in the Developing World: Where Are the Men?" *Population and Development Review* 29/4:677–98.
- Kramer, Betty J. and Stuart Kipnis. 1995. "Eldercare and Work-Role Conflict: Toward an Understanding of Gender Differences in Caregiver Burden." *The Gerontologist* 35/3:340–48.
- Kuate-Defo, Barthelemy. 2006. "Interactions Between Socioeconomic Status and Living Arrangements in Predicting Gender-Specific Health Status Among the Elderly in Cameroon." In Barney Cohen and Jane Menken (eds.), *Aging in Sub-Saharan Africa: Recommendations for Furthering Research*. Washington, DC: National Academies Press.
- Lai, Gina. 1995. "Work and Family Roles and Psychological Well-Being in Urban China." *Journal of Health and Social Behavior* 36:11–37.
- Lavelly, William and Ronald Freedman. 1990. "The Origins of the Chinese Fertility Decline." *Demography* 27/3:357–67.
- Lawton, M. Powell and Elaine M. Brody. 1969. "Assessment of Older People: Self-Maintaining and Instrumental Activities of Daily Living." *The Gerontologist* 9:179–86.
- Lee, James and Wang Feng. 1999. "Malthusian Models and Chinese Realities: The Chinese Demographic System 1700–2000." *Population and Development Review* 25/1: 33–65.
- Leveille, Suzanne G., Brenda W.J.H. Peninx, David Melzer, Grant Izmirlian, and Jack M. Guralnik. 2000. "Sex Differences in the Prevalence of Mobility Disability in Old Age: The Dynamics of Incidence, Recovery, and Mortality." *Journal of Gerontology: Social Sciences* 55/1:S41–50.
- Li, Jianxin and Zhang Fengyu. 1997. "A Study on the Mental Health of the Elderly in Urban Areas and Its Related Factors." *Chinese Journal of Population Science* 9/4:288–297.
- Liang, Jersey, Xian Liu, and Shengzu Gu. 2001. "Transitions in Functional Status Among Older People in Wuhan, China: Socioeconomic Differentials." *Journal of Clinical Epidemiology* 54/11:1126–38.
- Lieberman, Morton A. and Lawrence Fisher. 1995. "The Impact of Chronic Illness on the Health and Well-Being of Family Members" *The Gerontologist* 35/1:94–102.
- Liu, Bo-Qi, Richard Peto, Zheng-Ming Chen, Jillian Borehan, Ya-Ping Wu, Jun-Yao Li, T. Colin Campbell, and Jun-Shi Chen. 1998. "Emerging Tobacco Hazards in China: 1. Retrospective Proportional Mortality Study of One Million Deaths." *British Medical Journal* 317:1411–22.
- Liu, Yanchi. 1995. *The Essential Book of Traditional Chinese Medicine*. New York: Columbia University Press.
- \_\_\_\_\_. 2004. "Development of the Rural Health Insurance System in China." *Health Policy and Planning* 19:159–65.
- Lix, Lisa, Greg Finlayson, Marina Yogendran, Ruth Bond, Jennifer Bodnarchuk, and Ruth-Ann Soodeen. 2005. *Primary Prevention: An Examination of Data Capabilities in Manitoba*. Manitoba: University of Manitoba Centre for Health Policy.
- Lopez, Alan D. 1998. "Counting the Dead in China." *British Medical Journal* 317:1399–1400.
- Matthews, Ruth J., Carol Jagger, and Ruth M. Hancock. 2006. "Does Socioeconomic Advantage Lead to a Longer, Healthier Old Age?" *Social Science and Medicine* 62/10:2489–99.
- Melzer, David, Grant Izmirlian, Suzanne G. Leveille, and Jack M. Guralnik. 2001. "Educational Differences in the Prevalence of Mobility Disability in Old Age: The Dynamics of Incidence, Mortality, and Recovery." *Journal of Gerontology: Social Sciences* 56/5:S294–301.
- Meng, Qingyue, Shi Guang, Yang Hongwei, Miguel A. Gonzalez-Block, and Erik Blas. 2004. *Health Policy and Systems Research in China*. Special Programme for Research and Training in Tropical Diseases (TDR). Geneva: World Health Organization.
- Miech, Richard Allen and Michael J. Shanahan. 2000. "Socioeconomic Status and Depression Over the Life Course." *Journal of Health and Social Behavior* 41:162–76.
- Mirowsky, John. 1996. "Age and the Gender Gap in Depression." *Journal of Health and Social Behavior* 37:362–80.
- Mirowsky, John and Catherine E. Ross. 1992. "Age and Depression." *Journal of Health and Social Behavior* 33:187–205.
- \_\_\_\_\_. 1995. "Sex Differences in Distress: Real or Artifact?" *American Sociological Review* 60:449–68.
- Moen, Phyllis, Julie Robison, and Donna Dempster-McClain. 1995. "Caregiving and Women's Well-Being: A Life Course Approach." *Journal of Health and Social Behavior* 36:259–73.

- Murray, Christopher J.L., Joshua A. Salomon, Colin D. Mathers, and Alan D. Lopez. 2002. "New Approaches to Enhance Cross-Population Comparability of Survey Results." In Murray, Christopher J.L., Joshua A. Salomon, Colin D. Mathers, and Alan D. Lopez (eds.), *Summary Measures of Population Health: Concepts, Ethics, Measurement and Applications*. Geneva: World Health Organization.
- Nagi, Saad Z. 1965. "Some Conceptual Issues in Disability and Rehabilitation." In M.B. Sussman (ed.), *Sociology and Rehabilitation*. Washington, DC: American Sociological Association.
- \_\_\_\_\_. 1991. "Disability Concepts Revisited: Implications for Prevention." In A.M. Pope and A. R. Tarlov (eds.), *Disability in America: Toward a National Agenda for Prevention*. Washington, DC: National Academy Press.
- National Bureau of Statistics of China. 2005. *China Statistical Yearbook—2005*. Beijing: China Statistics Press.
- National Institute on Alcohol Abuse and Alcoholism. 1998. *Alcohol Alert*: No. 40, April. Available at <[www.niaaa.nih.gov](http://www.niaaa.nih.gov)>.
- Ng, Anita Ching Ying, David R. Phillips, and William Keng-mun Lee. 2002. "Persistence and Challenges to Filial Piety and Informal Support of Older Persons in a Modern Chinese Society: A Case Study in Tuen Mun, Hong Kong." *Journal of Aging Studies* 16:135–53.
- Nourhashemi, Fati, Sandrine Andrieu, Sophie Gillette-Guyonnet, Bruno Vellas, Jean Louis Albaredo, and Helene Grandjean. 2001. "Instrumental Activities of Daily Living as a Potential Marker of Frailty." *Journal of Gerontology: Medical Sciences* 56:M448–53.
- Pearlin, Leonard I. 1989. "The Sociological Study of Stress." *Journal of Health and Social Behavior* 30:241–56.
- Phillips, David R. 2000. "Ageing in the Asia-Pacific Region: Issues, Policies and Contexts." In D.R. Phillips, ed., *Ageing in the Asia-Pacific Region: Issues, Policies and Future Trends*. London and New York: Routledge.
- Phillips, Michael R. 1998. "The Transformation of China's Mental Health Services." *The China Journal* 39:1–36.
- Popkin, Barry M., G. Keyou, Zhai Fengying, Xuguang Guo, Ma Haijiang, and Namvar Zohoori. 1993. "The Nutrition Transition in China: A Cross-Sectional Analysis." *European Journal of Clinical Nutrition* 47:333–46.
- Poston, Dudley L. 2000. "Social and Economic Development and the Fertility Transitions in Mainland China and Taiwan." *Population and Development Review* 26(Supplement):40–60.
- Poston, Dudley L. and Chengrong Charles Duan. 2000. "The Current and Projected Distribution of the Elderly and Eldercare in the People's Republic of China." *Journal of Family Issues* 21/6:714–32.
- Preston, Samuel and Irma Elo. 1995. "Are Educational Differentials in Adult Mortality Increasing in the United States?" *Journal of Aging and Health* 7:476–96.
- Rahman, M. Omar and Ji-hong Liu. 2000. "Gender Differences in Functioning for Older Adults in Rural Bangladesh. The Impact of Differential Reporting?" *Journal of Gerontology: Medical Sciences* 55/1:M28–33.
- Rahman, M. Omar and Arthur J. Barsky. 2003. "Self-Reported Health Among Older Bangladeshis: How Good a Health Indicator Is It?" *The Gerontologist* 43:856–63.
- Reuben, David B., Teresa E. Seeman, Emmett Keeler, Risa P. Hayes, Lee Bowman, Ase Sewall, Susan H. Hirsch, Robert B. Wallace, and Jack M. Guralnik. 2004. "Refining the Categorization of Physical Functional Status: The Added Value of Combining Self-Reported and Performance-Based Measures." *Journal of Gerontology: Medical Sciences* 59:M1056–61.
- Rosow, I. and N. Breslau. 1966. "A Guttman Health Scale for the Aged." *Journal of Gerontology* 21:556–59.
- Ross, Catherine E. and Patricia Drentea. 1998. "Consequence of Retirement Activities for Distress and the Sense of Personal Control." *Journal of Health and Social Behavior* 39:317–34.
- Ross, Catherine E. and John Mirowsky. 2002. "Age and the Gender Gap in the Sense of Personal Control." *Social Psychology Quarterly* 65/2: 125–45.
- Salaff, Janet W. 1973. "Mortality Decline in the People's Republic of China and the United States." *Population Studies* 27/3:551–76.

- Sastry, Jaya and Catherine E. Ross. 1998. "Asian Ethnicity and the Sense of Personal Control." *Social Psychology Quarterly* 61/2:101–20.
- Schieman, Scott and Heather A. Turner. 1998. "Age, Disability, and the Sense of Mastery." *Journal of Health and Social Behavior* 39:169–86.
- Schieman, Scott, Karen van Gundy, and John Taylor. 2001. "Status, Role, and Resource Explanations for Age Patterns in Psychological Distress." *Journal of Health and Social Behavior* 42:80–96.
- Schoenborn, Charlotte A. 2004. "Marital Status and Health: United States, 1999–2002." *Advance Data From Vital and Health Statistics* 351. Hyattsville, Maryland: National Center for Health Statistics.
- Schupf, Nicole, M-X Tang, S. M. Albert, R. Costa, H. Andrews, Joseph H. Lee, and Richard Mayeux. 2005. "Decline in Cognitive and Functional Skills Increases Mortality Risk in Nondemented Elderly." *Neurology* 65:1218–26.
- Sengupta, Manisha and Emily M. Agree. 2002. "Gender and Disability Among Older Adults in North and South India: Differences Associated with Coresidence and Marriage." *Journal of Cross-Cultural Gerontology* 17:313–36.
- \_\_\_\_\_. 2003. "Gender, Health, Marriage, and Mobility Difficulty Among Older Adults in India." *Asia-Pacific Population Journal* 18/4:53–65.
- Shen, Yucun and Zuxin Wang. 1998. "China." In Marcus Grant ed., *Alcohol and Emerging Markets*. Philadelphia, PA: International Center for Alcohol Policies.
- Shi, Leiyou. 1993. "Family Financial and Household Support Exchange Between Generations: A Survey of Chinese Rural Elderly." *The Gerontologist* 33/4:468–80.
- Simon, J.G., J.B. De Boer, I.M.A. Joung, H. Bosma, and J.P. Mackenbach. 2005. "How Is Your Health in General? A Qualitative Study on Self-Assessed Health." *The European Journal of Public Health* 15/2:200–08.
- Sin, Yvonne. 2005. *China: Pension Liabilities and Reform Options for Old Age Insurance*. World Bank Working Paper No. 2005-1. Washington, DC: The World Bank.
- Skaff, Marilyn M. and Leonard I. Pearlin. 1992. "Caregiving: Role Engulfment and the Loss of Self." *The Gerontologist* 32/5:656–64.
- Smith, Ken R., Cathleen D. Zick, and Greg J. Duncan. 1991. "Remarriage Patterns Among Recent Widows and Widowers." *Demography* 28/3:361–74.
- Stern, Paul C. and Laura L. Carstensen, eds. 2000. *The Aging Mind: Opportunities in Cognitive Research*. Washington, DC: National Academies Press.
- Sun, Lung-kee. 1991. "Contemporary Chinese Culture: Structure and Emotionality." *The Australian Journal of Chinese Affairs* 26:1–41.
- Suthers, Kristen and Teresa Seeman. 2003. "The Measurement of Physical Functioning in Older Adult Populations." Report of a Meeting on Physical Performance Measures, National Institute on Aging Behavioral and Social Research Program, Washington, DC.
- Thierry, Xavier. 2000. "Risks of Mortality and Excess Mortality during the First Ten Years of Widowhood." *Population: An English Selection* 12:81–100.
- Turner, R. Jay and Donald A. Lloyd. 1999. "The Stress Process and the Social Distribution of Depression." *Journal of Health and Social Behavior*. 40:374–404.
- Umberson, Debra, Camille B. Wortman, and Ronald C. Kessler. 1992. "Widowhood and Depression: Explaining Long-Term Gender Differences in Vulnerability." *Journal of Health and Social Behavior* 33:10–24.
- U.S. Census Bureau. 2001. The Older Population in the United States: March 2000, Detailed Tables (PPL-147). Available at <www.census.gov>.
- \_\_\_\_\_. 2004. International Programs Center, special tabulations.
- \_\_\_\_\_. 2006. International Data Base. Available at <www.census.gov/ipc/www/idbnew.html>.
- U.S. Centers for Disease Control and Prevention. 2005. Chronic Disease Overview. Available at <www.cdc.gov>.
- United States Congress, Joint Economic Committee. 2005. *PRC's Pegged Exchange Rate Contributes to Global Imbalances*. Available at <www.house.gov/jec>.
- Verbrugge, Lois M. 1985. "Gender and Health: An Update on Hypotheses and Evidence." *Journal of Health and Social Behavior* 26/3:156–82.
- \_\_\_\_\_. 1989. "The Twain Meet: Empirical Explanations of Sex Differences in Health and Mortality." *Journal of Health and Social Behavior* 30/3:282–304.

- Verbrugge, Lois M. and Alan M. Jette. 1994. "The Disablement Process." *Social Science and Medicine* 38/1:1–14.
- Verbrugge, Lois M. and Purvi Sevak. 2002. "Use, Type, and Efficacy of Assistance for Disability." *Journal of Gerontology: Social Sciences* 57/6:S366–79.
- Wahdan, M.H. 1996. "The Epidemiological Transition." *Eastern Mediterranean Health Journal* 2/1: 8–20.
- Wang, Longde, Lingzhi Kong, Fan Wu, Yamin Bai, and Robert Burton. 2005. "Preventing Chronic Diseases in China." *The Lancet* 366:1821–24.
- Whyte, Martin King. 1997. "The Fate of Filial Obligations in Urban China." *The China Journal* 38:1–31.
- Wingo, Phyllis A., Lynn A. Ries, Gary A. Giovino, Daniel S. Miller, Harry M. Rosenberg, Donald R. Shopland, Michael J. Thun, and Brenda K. Edwards. 1999. "Annual Report to the Nation on the Status of Cancer, 1973–1996, With a Special Section on Lung Cancer and Tobacco Smoking." *Journal of the National Cancer Institute* 91:675–90.
- Wolinsky, Fredric D., Rodney M. Coe, Douglas K. Miller, John M. Prendergast, Myra J. Creel, and M. Noel Chavez. 1983. "Health Services Utilization Among the Noninstitutionalized Elderly." *Journal of Health and Social Behavior* 24:325–37.
- Wong, Alice M., Yin-Chou Lin, Shih-Wei Chou, Fuk-Tan Tang, and Pong-Yeun Wong. 2001. "Coordination Exercise and Postural Stability in Elderly People: Effect of Tai Chi Chuan." *Archives of Physical Medical Rehabilitation* 82:608–12.
- World Bank. 1996. *China: Issues and Options in Health Financing*. Washington, DC: The World Bank.
- \_\_\_\_\_. 2004. *Taking Stock of China's Rural Health Challenges*. Briefing Note 1. Washington, DC: The World Bank.
- \_\_\_\_\_. 2005a. *China's Health Sector—Why Reform is Needed*, Briefing Note 3. Washington, DC: The World Bank.
- \_\_\_\_\_. 2005b. *Public Expenditure and the Role of Government in the Chinese Health Sector*. Briefing Note 5. Washington, DC: The World Bank.
- \_\_\_\_\_. 2005c. *Quarterly Update—Special Focus: Reforming China's Health System*. Washington, DC: The World Bank.
- \_\_\_\_\_. 2005d. *Rural Health Insurance—Rising to the Challenge*. Briefing Note 6. Washington, DC: The World Bank.
- World Health Organization (WHO). 1998. *Health Promotion Glossary*. Geneva: World Health Organization.
- \_\_\_\_\_. 2004a. *A Review of Evidence: China's Path to Better Health and Development*. Geneva: World Health Organization.
- \_\_\_\_\_. 2004b. *Mental Health*. Geneva: World Health Organization.
- \_\_\_\_\_. 2004c. *Country Health Information Profile 2004: China, People's Republic of*. Geneva: World Health Organization.
- \_\_\_\_\_. 2004d. *World Health Report*. Geneva: World Health Organization.
- \_\_\_\_\_. 2005. *China: Demographics, Gender and Poverty*. Geneva: World Health Organization.
- Wu, S.C., S.Y. Leu, and C. Y. Li. 1999. "Incidence of and Predictors of Chronic Disability in Activities of Daily Living Among Older People in Taiwan." *Journal of the American Geriatrics Society* 47/9:1082–86.
- Yang, Dennis Tao. 1999. "Urban-Biased Policies and Rising Income Inequality in China." *The American Economic Review* 89/2:306–10.
- Yip, Winnie C., Hong Wang, and Yuanli Liu. 1998. "Determinants of Patient Choice of Medical Provider: A Case Study in Rural China." *Health Policy and Planning* 13:311–22.
- Yount, Kathryn M. and Emily M. Agree. 2005. "Differences in Disability Between Older Women and Men in Egypt and Tunisia." *Demography* 42/1:169–87.
- Yu, Z., A. Nissinen, E. Vartiainen, G. Song, Z. Guo, G. Zheng, J. Tuomilehto, and H. Tian. 2000. "Associations Between Socioeconomic Status and Cardiovascular Risk Factors in an Urban Population in China." *Bulletin of the World Health Organization* 78/11:1296–1305.

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- Zeng, Yi, James W. Vaupel, Xiao Zhenyu, Zhang Chunyuan, and Liu Yuzhi. 2002. "Sociodemographic and Health Profiles of the Oldest Old in China." *Population and Development Review* 28:251–73.
- Zhang, L., J. Welte, and W. Wieczotek. 2000. "Alcohol and Crime in China." *Substance Abuse and Misuse* 35:265–79.
- Zhang, Wenjuan, Shuzhuo Li, and Marcus W. Feldman. 2005. "Gender Differences in Activity of Daily Living of the Elderly in Rural China: Evidence From Chaohu." *Journal of Women and Aging* 17/3:73–89.
- Zimmer, Zachary and P. Amornsirisomboon. 2001. "Socioeconomic Status and Health Among Older Adults in Thailand: An Examination Using Multiple Indicators." *Social Science and Medicine* 52/8:1297–1311.
- Zimmer, Zachary, Napaporn Chayovan, Hui-Sheng Lin, and Josefina Natividad. 2004. "How Indicators of Socioeconomic Status Relate to Physical Functioning of Older Adults in Three Asian Societies." *Research on Aging* 26/2:224–58.



## APPENDIX A. DETAILED TABLES

Table A-1.  
**Population Aged 60 and Over by Sex, Residence, and Selected Characteristics for China: 2000**

(Numbers in thousands)

Characteristic	Both sexes		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
<b>TOTAL POPULATION</b> .....	<b>118,983</b>	<b>100.0</b>	<b>57,954</b>	<b>100.0</b>	<b>61,030</b>	<b>100.0</b>
<b>Age</b>						
60 to 69 .....	69,847	58.7	35,790	61.8	34,057	55.8
70 to 79 .....	38,160	32.1	18,001	31.1	20,159	33.0
80 and over .....	10,977	9.2	4,163	7.2	6,814	11.2
<b>Marital Status</b>						
Currently married <sup>1</sup> .....	78,577	66.0	46,530	80.3	32,046	52.5
Widowed .....	37,396	31.4	9,372	16.2	28,024	45.9
Other <sup>2</sup> .....	3,011	2.5	2,051	3.5	960	1.6
<b>Educational Attainment<sup>3</sup></b>						
Illiterate .....	62,001	52.1	18,648	32.2	43,353	71.0
Primary school <sup>4</sup> .....	40,866	34.3	27,333	47.2	13,533	22.2
Junior high school or above .....	16,116	13.5	11,972	20.7	4,144	6.8
<b>Money Income (in Yuan)<sup>5, 6</sup></b>						
Low .....	35,645	30.0	14,035	24.2	21,609	35.4
Medium .....	48,580	40.8	22,874	39.5	25,705	42.1
High .....	34,759	29.2	21,044	36.3	13,715	22.5
<b>Living Arrangement</b>						
Living alone .....	9,325	7.8	3,306	5.7	6,019	9.9
Living with spouse only .....	36,676	30.8	21,458	37.0	15,218	24.9
Living with children and/or others <sup>7</sup> .....	72,982	61.3	33,190	57.3	39,793	65.2
<b>URBAN POPULATION</b> .....	<b>27,643</b>	<b>100.0</b>	<b>13,428</b>	<b>100.0</b>	<b>14,216</b>	<b>100.0</b>
<b>Age</b>						
60 to 69 .....	16,990	61.5	8,451	62.9	8,540	60.1
70 to 79 .....	8,353	30.2	4,071	30.3	4,282	30.1
80 and over .....	2,300	8.3	906	6.8	1,394	9.8
<b>Marital Status</b>						
Currently married <sup>1</sup> .....	20,674	74.8	12,255	91.3	8,418	59.2
Widowed .....	6,498	23.5	966	7.2	5,532	38.9
Other <sup>2</sup> .....	472	1.7	206	1.5	266	1.9
<b>Educational Attainment<sup>3</sup></b>						
Illiterate .....	7,209	26.1	1,127	8.4	6,082	42.8
Primary school <sup>4</sup> .....	9,359	33.9	4,568	34.0	4,791	33.7
Junior high school or above .....	11,075	40.1	7,732	57.6	3,343	23.5
<b>Money Income (in Yuan)<sup>5, 6</sup></b>						
Low .....	8,193	29.6	1,492	11.1	6,701	47.1
Medium .....	10,897	39.4	5,605	41.7	5,291	37.2
High .....	8,554	30.9	6,331	47.1	2,223	15.6
<b>Living Arrangement</b>						
Living alone .....	1,919	6.9	437	3.3	1,482	10.4
Living with spouse only .....	9,588	34.7	5,767	43.0	3,820	26.9
Living with children and/or others <sup>7</sup> .....	16,137	58.4	7,223	53.8	8,913	62.7

See footnotes at end of table.

Table A-1.  
**Population Aged 60 and Over by Sex, Residence, and Selected Characteristics for China: 2000—Con.**

(Numbers in thousands)

Characteristic	Both sexes		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
<b>RURAL POPULATION</b> .....	<b>91,340</b>	<b>100.0</b>	<b>44,526</b>	<b>100.0</b>	<b>46,814</b>	<b>100.0</b>
<b>Age</b>						
60 to 69 .....	52,856	57.9	27,339	61.4	25,517	54.5
70 to 79 .....	29,808	32.6	13,930	31.3	15,877	33.9
80 and over .....	8,676	9.5	3,256	7.3	5,420	11.6
<b>Marital Status</b>						
Currently married <sup>1</sup> .....	57,903	63.4	34,275	77.0	23,628	50.5
Widowed .....	30,898	33.8	8,406	18.9	22,492	48.0
Other <sup>2</sup> .....	2,539	2.8	1,845	4.1	694	1.5
<b>Educational Attainment<sup>3</sup></b>						
Illiterate .....	54,792	60.0	17,521	39.4	37,271	79.6
Primary school <sup>4</sup> .....	31,507	34.5	22,765	51.1	8,742	18.7
Junior high school or above .....	5,041	5.5	4,240	9.5	801	1.7
<b>Money Income (in Yuan)<sup>5, 6</sup></b>						
Low .....	31,836	34.9	13,519	30.4	18,317	39.1
Medium .....	39,198	42.9	18,874	42.4	20,325	43.4
High .....	20,306	22.2	12,133	27.3	8,172	17.5
<b>Living Arrangement</b>						
Living alone .....	7,406	7.8	2,869	6.4	4,537	9.7
Living with spouse only .....	27,088	30.8	15,690	35.2	11,398	24.3
Living with children and/or others <sup>7</sup> .....	56,846	61.3	25,966	58.3	30,879	65.9

<sup>1</sup> "Currently married" refers to people who were currently married and living with their spouse.

<sup>2</sup> "Other" in this table includes people who were divorced, separated, or never married.

<sup>3</sup> "Illiterate" refers to people aged 15 and older who are unable to read. Primary school in China is equivalent to elementary school in the United States, and junior high school is equivalent to middle school or junior high school.

<sup>4</sup> "Primary school" includes primary school and old-style private school.

<sup>5</sup> "Money income" is monthly income, in Chinese currency yuan. In 2000, the exchange rate between the U.S. dollar and the Chinese yuan was \$1 = 8.28 yuan.

<sup>6</sup> In this table, for total China, "Low" monthly money income is less than 50 yuan, "Medium" is 50 to 199 yuan, and "High" is 200 yuan or above. For urban China, "Low" is less than 300 yuan, "Medium" is 300 to 749 yuan, and "High" is 750 yuan or above. For rural China, "Low" is less than 50 yuan, "Medium" is 50 to 149 yuan, and "High" is 150 yuan or above.

<sup>7</sup> "Living with children and/or others" may include spouse, children, grandchildren, parents, or any other family or nonfamily members.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

Table A-2.  
**Population Aged 60 and Over With Limitations in Activities of Daily Living by Sex, Type of Limitation, Residence, and Selected Characteristics for China: 2000**

(Numbers in thousands)

Characteristic	Both sexes						Male						Female					
	Any ADL	Eating	Dressing	Toileting	Getting in/out of bed	Bathing	Any ADL	Eating	Dressing	Toileting	Getting in/out of bed	Bathing	Any ADL	Eating	Dressing	Toileting	Getting in/out of bed	Bathing
<b>TOTAL POPULATION<sup>1</sup></b> . . . . .	<b>118,626</b>	<b>118,890</b>	<b>118,890</b>	<b>118,894</b>	<b>118,870</b>	<b>118,542</b>	<b>57,775</b>	<b>57,918</b>	<b>57,920</b>	<b>57,922</b>	<b>57,917</b>	<b>57,754</b>	<b>60,851</b>	<b>60,972</b>	<b>60,970</b>	<b>60,972</b>	<b>60,953</b>	<b>60,788</b>
<b>Number</b>																		
<b>Having ADL Limitation</b>																		
Total . . . . .	22,361	5,329	5,235	5,869	5,623	19,578	8,654	2,001	1,945	2,310	2,171	7,618	13,707	3,328	3,289	3,559	3,452	11,960
<b>Age</b>																		
60 to 69 . . . . .	6,952	1,894	1,354	1,420	1,540	5,618	2,942	651	563	685	767	2,528	4,010	1,243	791	734	773	3,090
70 to 79 . . . . .	9,352	2,087	2,250	2,432	2,380	8,231	3,682	869	796	961	849	3,214	5,670	1,217	1,453	1,471	1,531	5,017
80 and over . . . . .	6,058	1,348	1,631	2,018	1,703	5,728	2,030	481	586	664	555	1,876	4,028	868	1,045	1,354	1,148	3,852
<b>Marital Status</b>																		
Currently married <sup>2</sup> . . . . .	10,555	2,813	2,449	2,513	2,473	9,000	5,886	1,500	1,374	1,624	1,492	5,138	4,669	1,313	1,075	889	981	3,861
Other <sup>3</sup> . . . . .	11,806	2,516	2,786	3,356	3,150	10,579	2,768	501	571	686	679	2,480	9,038	2,015	2,214	2,670	2,471	8,099
<b>Educational Attainment<sup>4</sup></b>																		
Illiterate . . . . .	15,342	3,738	3,845	3,949	3,747	13,431	4,016	989	947	994	942	3,571	11,326	2,748	2,898	2,955	2,806	9,860
Primary school <sup>5</sup> . . . . .	5,496	1,304	1,157	1,557	1,536	4,751	3,461	765	811	1,036	971	2,964	2,034	540	345	521	565	1,787
Junior high school or above . . . . .	1,524	287	233	363	340	1,396	1,177	247	187	280	259	1,083	347	40	46	83	82	313
<b>Money Income (in Yuan)<sup>6, 7</sup></b>																		
Low . . . . .	8,660	2,214	1,800	2,064	2,100	7,538	2,955	821	576	677	675	2,502	5,705	1,393	1,224	1,387	1,425	5,036
Medium . . . . .	9,305	2,126	2,356	2,379	2,115	8,191	3,633	683	855	917	797	3,367	5,672	1,442	1,501	1,463	1,318	4,824
High . . . . .	4,397	989	1,079	1,425	1,408	3,850	2,066	496	514	717	698	1,749	2,331	493	565	709	710	2,100
<b>Living Arrangement</b>																		
Living alone . . . . .	1,957	426	519	543	510	1,649	531	119	127	164	183	449	1,426	307	391	379	328	1,200
Living with spouse only . . . . .	5,481	1,198	1,341	1,314	1,376	4,717	2,845	631	620	753	751	2,527	2,636	567	720	561	625	2,190
Living with children and/or others <sup>8</sup> . . . . .	14,923	3,705	3,375	4,012	3,736	13,212	5,277	1,251	1,198	1,393	1,237	4,642	9,646	2,454	2,178	2,619	2,499	8,570
<b>Percent</b>																		
<b>Having ADL Limitation</b>																		
Total . . . . .	18.9	4.5	4.4	4.9	4.7	16.5	15.0	3.5	3.4	4.0	3.8	13.2	22.5	5.5	5.4	5.8	5.7	19.7
<b>Age</b>																		
60 to 69 . . . . .	10.0	2.7	1.9	2.0	2.2	8.1	8.2	1.8	1.6	1.9	2.1	7.1	11.8	3.7	2.3	2.2	2.3	9.1
70 to 79 . . . . .	24.6	5.5	5.9	6.4	6.3	21.7	20.5	4.9	4.4	5.4	4.7	17.9	28.2	6.1	7.2	7.3	7.6	25.0
80 and over . . . . .	55.6	12.4	15.0	18.5	15.6	52.5	49.3	11.7	14.2	16.1	13.5	45.5	59.4	12.8	15.4	20.0	16.9	56.8
<b>Marital Status</b>																		
Currently married <sup>2</sup> . . . . .	13.5	3.6	3.1	3.2	3.2	11.5	12.7	3.2	3.0	3.5	3.2	11.1	14.6	4.1	3.4	2.8	3.1	12.1
Other <sup>3</sup> . . . . .	29.4	6.3	6.9	8.3	7.8	26.3	24.4	4.4	5.0	6.0	6.0	21.8	31.3	7.0	7.7	9.2	8.6	28.1
<b>Educational Attainment<sup>4</sup></b>																		
Illiterate . . . . .	24.8	6.1	6.2	6.4	6.1	21.7	21.6	5.3	5.1	5.4	5.1	19.3	26.2	6.4	6.7	6.8	6.5	22.8
Primary school <sup>5</sup> . . . . .	13.5	3.2	2.8	3.8	3.8	11.7	12.7	2.8	3.0	3.8	3.6	10.9	15.1	4.0	2.6	3.9	4.2	13.2
Junior high school or above . . . . .	9.5	1.8	1.4	2.3	2.1	8.7	9.9	2.1	1.6	2.3	2.2	9.1	8.4	1.0	1.1	2.0	2.0	7.6
<b>Money Income (in Yuan)<sup>6, 7</sup></b>																		
Low . . . . .	24.4	6.2	5.1	5.8	5.9	21.3	21.2	5.9	4.1	4.8	4.8	17.9	26.5	6.5	5.7	6.5	6.6	23.4
Medium . . . . .	19.2	4.4	4.9	4.9	4.4	16.9	15.9	3.0	3.8	4.0	3.5	14.8	22.1	5.6	5.8	5.7	5.1	18.8
High . . . . .	12.7	2.8	3.1	4.1	4.1	11.1	9.8	2.4	2.4	3.4	3.3	8.3	17.0	3.6	4.1	5.2	5.2	15.3
<b>Living Arrangement</b>																		
Living alone . . . . .	21.1	4.6	5.6	5.8	5.5	17.7	16.1	3.6	3.9	5.0	5.6	13.6	23.8	5.1	6.5	6.3	5.5	20.0
Living with spouse only . . . . .	15.0	3.3	3.7	3.6	3.8	12.9	13.3	2.9	2.9	3.5	3.5	11.8	17.4	3.7	4.7	3.7	4.1	14.4
Living with children and/or others <sup>8</sup> . . . . .	20.5	5.1	4.6	5.5	5.1	18.2	16.0	3.8	3.6	4.2	3.7	14.0	24.3	6.2	5.5	6.6	6.3	21.6

See footnotes at end of table.

Table A-2.

**Population Aged 60 and Over With Limitations in Activities of Daily Living by Sex, Type of Limitation, Residence, and Selected Characteristics for China: 2000—Con.**

(Numbers in thousands)

Characteristic	Both sexes						Male						Female						
	Any ADL	Eating	Dressing	Toileting	Getting in/out of bed	Bathing	Any ADL	Eating	Dressing	Toileting	Getting in/out of bed	Bathing	Any ADL	Eating	Dressing	Toileting	Getting in/out of bed	Bathing	
<b>URBAN POPULATION<sup>1</sup> . . . . .</b>	<b>27,565</b>	<b>27,609</b>	<b>27,607</b>	<b>27,607</b>	<b>27,599</b>	<b>27,573</b>	<b>13,414</b>	<b>13,425</b>	<b>13,424</b>	<b>13,424</b>	<b>13,420</b>	<b>13,414</b>	<b>14,151</b>	<b>14,184</b>	<b>14,183</b>	<b>14,183</b>	<b>14,179</b>	<b>14,159</b>	
<b>Number</b>																			
<b>Having ADL Limitation</b>																			
Total . . . . .	3,959	702	839	1,176	1,203	3,592	1,439	259	351	455	441	1,335	2,520	443	488	720	762	2,256	
<b>Age</b>																			
60 to 69 . . . . .	1,228	230	248	370	500	1,088	460	96	115	141	160	437	768	134	132	229	340	651	
70 to 79 . . . . .	1,576	248	318	438	399	1,424	615	118	161	219	177	542	961	130	157	219	221	882	
80 and over . . . . .	1,155	224	273	367	304	1,080	364	45	75	95	103	357	791	179	198	273	201	723	
<b>Marital Status</b>																			
Currently married <sup>2</sup> . . . . .	2,113	404	486	603	757	1,888	1,167	210	311	364	353	1,089	946	194	174	239	404	799	
Other <sup>3</sup> . . . . .	1,846	298	354	573	446	1,703	272	49	40	91	88	246	1,573	249	314	481	358	1,457	
<b>Educational Attainment<sup>4</sup></b>																			
Illiterate . . . . .	1,786	308	381	545	463	1,587	253	53	55	84	83	221	1,532	256	326	461	379	1,366	
Primary school <sup>5</sup> . . . . .	1,227	268	292	363	504	1,108	499	120	176	187	201	443	728	148	116	177	302	665	
Junior high school or above . . . . .	946	126	166	268	237	897	687	87	120	185	156	672	259	40	46	83	81	225	
<b>Money Income (in Yuan)<sup>6, 7</sup></b>																			
Low . . . . .	1,760	214	324	473	583	1,623	223	35	58	52	94	212	1,537	179	265	420	489	1,411	
Medium . . . . .	1,445	306	328	478	437	1,321	691	128	155	233	214	630	754	178	173	245	223	692	
High . . . . .	754	182	188	225	183	647	525	96	138	170	132	493	229	86	50	55	50	154	
<b>Living Arrangement</b>																			
Living alone . . . . .	417	75	56	114	76	362	79	24	10	29	11	67	338	51	46	85	64	295	
Living with spouse only . . . . .	1,206	185	250	296	450	1,101	682	128	175	189	191	643	524	57	76	107	259	458	
Living with children and/or others <sup>8</sup> . . . . .	2,336	442	533	766	678	2,129	679	108	167	237	239	625	1,657	335	366	529	439	1,504	
<b>Percent</b>																			
<b>Having ADL Limitation</b>																			
Total . . . . .	14.4	2.5	3.0	4.3	4.4	13.0	10.7	1.9	2.6	3.4	3.3	10.0	17.8	3.1	3.4	5.1	5.4	15.9	
<b>Age</b>																			
60 to 69 . . . . .	7.2	1.4	1.5	2.2	2.9	6.4	5.4	1.1	1.4	1.7	1.9	5.2	9.0	1.6	1.6	2.7	4.0	7.6	
70 to 79 . . . . .	19.0	3.0	3.8	5.3	4.8	17.2	15.2	2.9	4.0	5.4	4.4	13.3	22.6	3.1	3.7	5.2	5.2	20.8	
80 and over . . . . .	50.3	9.8	11.9	16.0	13.2	47.0	40.1	5.0	8.2	10.5	11.4	39.4	56.8	12.9	14.3	19.6	14.4	51.9	
<b>Marital Status</b>																			
Currently married <sup>2</sup> . . . . .	10.2	2.0	2.4	2.9	3.7	9.2	9.5	1.7	2.5	3.0	2.9	8.9	11.3	2.3	2.1	2.9	4.8	9.5	
Other <sup>3</sup> . . . . .	26.6	4.3	5.1	8.2	6.4	24.5	23.3	4.2	3.4	7.8	7.5	21.0	27.3	4.3	5.4	8.3	6.2	25.2	
<b>Educational Attainment<sup>4</sup></b>																			
Illiterate . . . . .	24.9	4.3	5.3	7.6	6.5	22.1	22.5	4.7	4.9	7.4	7.4	19.6	25.4	4.2	5.4	7.6	6.3	22.6	
Primary school <sup>5</sup> . . . . .	13.1	2.9	3.1	3.9	5.4	11.9	10.9	2.6	3.9	4.1	4.4	9.7	15.2	3.1	2.4	3.7	6.3	13.9	
Junior high school or above . . . . .	8.6	1.1	1.5	2.4	2.1	8.1	8.9	1.1	1.6	2.4	2.0	8.7	7.8	1.2	1.4	2.5	2.4	6.8	
<b>Money Income (in Yuan)<sup>6, 7</sup></b>																			
Low . . . . .	21.5	2.6	4.0	5.8	7.1	19.8	14.9	2.3	3.9	3.5	6.3	14.2	22.9	2.7	4.0	6.3	7.3	21.1	
Medium . . . . .	13.3	2.8	3.0	4.4	4.0	12.1	12.3	2.3	2.8	4.2	3.8	11.2	14.2	3.4	3.3	4.6	4.2	13.1	
High . . . . .	8.8	2.1	2.2	2.6	2.1	7.6	8.3	1.5	2.2	2.7	2.1	7.8	10.3	3.9	2.2	2.5	2.3	6.9	
<b>Living Arrangement</b>																			
Living alone . . . . .	21.8	3.9	2.9	5.9	3.9	18.9	18.1	5.4	2.3	6.7	2.6	15.4	22.8	3.5	3.1	5.7	4.3	19.9	
Living with spouse only . . . . .	12.6	1.9	2.6	3.1	4.7	11.5	11.8	2.2	3.0	3.3	3.3	11.2	13.8	1.5	2.0	2.8	6.8	12.0	
Living with children and/or others <sup>8</sup> . . . . .	14.5	2.7	3.3	4.8	4.2	13.2	9.4	1.5	2.3	3.3	3.3	8.7	18.7	3.8	4.1	6.0	5.0	17.0	

See footnotes at end of table.

Table A-2.  
**Population Aged 60 and Over With Limitations in Activities of Daily Living by Sex, Type of Limitation, Residence, and Selected Characteristics for China: 2000—Con.**

(Numbers in thousands)

Characteristic	Both sexes						Male						Female					
	Any ADL	Eating	Dressing	Toileting	Getting in/out of bed	Bathing	Any ADL	Eating	Dressing	Toileting	Getting in/out of bed	Bathing	Any ADL	Eating	Dressing	Toileting	Getting in/out of bed	Bathing
<b>RURAL POPULATION<sup>1</sup> . . . . .</b>	<b>91,061</b>	<b>91,282</b>	<b>91,284</b>	<b>91,287</b>	<b>91,270</b>	<b>90,969</b>	<b>44,360</b>	<b>44,493</b>	<b>44,496</b>	<b>44,498</b>	<b>44,496</b>	<b>44,341</b>	<b>46,701</b>	<b>46,789</b>	<b>46,788</b>	<b>46,789</b>	<b>46,774</b>	<b>46,628</b>
<b>Number</b>																		
<b>Having ADL Limitation</b>																		
Total . . . . .	18,402	4,627	4,395	4,693	4,420	15,987	7,215	1,742	1,594	1,855	1,730	6,283	11,188	2,885	2,802	2,839	2,690	9,703
<b>Age</b>																		
60 to 69 . . . . .	5,724	1,664	1,106	1,049	1,040	4,531	2,482	555	447	544	606	2,092	3,242	1,110	659	505	434	2,439
70 to 79 . . . . .	7,776	1,839	1,931	1,994	1,981	6,807	3,066	752	635	741	672	2,672	4,709	1,087	1,296	1,252	1,309	4,135
80 and over . . . . .	4,903	1,124	1,358	1,650	1,399	4,649	1,666	436	511	569	452	1,519	3,236	688	847	1,081	947	3,129
<b>Marital Status</b>																		
Currently married <sup>2</sup> . . . . .	8,442	2,409	1,963	1,910	1,716	7,111	4,719	1,290	1,062	1,260	1,139	4,049	3,723	1,119	901	650	577	3,062
Other <sup>3</sup> . . . . .	9,960	2,218	2,432	2,783	2,704	8,875	2,495	452	532	594	591	2,234	7,465	1,766	1,900	2,189	2,113	6,641
<b>Educational Attainment<sup>4</sup></b>																		
Illiterate . . . . .	13,556	3,430	3,464	3,404	3,284	11,844	3,762	937	891	910	858	3,351	9,793	2,493	2,572	2,494	2,426	8,493
Primary school <sup>5</sup> . . . . .	4,268	1,037	865	1,194	1,032	3,643	2,962	645	636	850	769	2,521	1,306	392	229	344	263	1,122
Junior high school or above . . . . .	579	161	67	95	104	500	490	161	67	95	103	412	88	—	—	1	1	88
<b>Money Income (in Yuan)</b>																		
Low . . . . .	7,830	2,123	1,646	1,853	1,881	6,748	2,851	808	560	667	647	2,402	4,979	1,314	1,087	1,186	1,234	4,346
Medium . . . . .	7,689	1,628	1,711	1,620	1,502	6,759	3,029	560	634	699	590	2,822	4,659	1,068	1,077	921	912	3,938
High . . . . .	2,883	877	1,038	1,220	1,037	2,479	1,334	373	400	488	494	1,060	1,549	503	638	732	544	1,419
<b>Living Arrangement</b>																		
Living alone . . . . .	1,540	351	463	429	435	1,287	452	96	117	135	172	382	1,087	255	345	294	263	905
Living with spouse only . . . . .	4,275	1,013	1,090	1,018	927	3,616	2,164	503	446	564	560	1,884	2,112	510	645	454	367	1,732
Living with children and/or others <sup>6</sup> . . . . .	12,587	3,263	2,842	3,246	3,059	11,083	4,599	1,143	1,031	1,156	998	4,018	7,989	2,120	1,811	2,090	2,060	7,066
<b>Percent</b>																		
<b>Having ADL Limitation</b>																		
Total . . . . .	20.2	5.1	4.8	5.2	4.9	17.6	16.3	3.9	3.6	4.2	3.9	14.2	24.0	6.2	6.0	6.1	5.8	20.8
<b>Age</b>																		
60 to 69 . . . . .	10.9	3.2	2.1	2.0	2.0	8.6	9.1	2.0	1.6	2.0	2.2	7.7	12.7	4.4	2.6	2.0	1.7	9.6
70 to 79 . . . . .	26.2	6.2	6.5	6.7	6.7	22.9	22.1	5.4	4.6	5.3	4.8	19.3	29.7	6.9	8.2	7.9	8.3	26.1
80 and over . . . . .	57.0	13.1	15.8	19.2	16.3	54.0	51.9	13.6	15.9	17.7	14.1	47.3	60.1	12.8	15.7	20.1	17.6	58.1
<b>Marital Status</b>																		
Currently married <sup>2</sup> . . . . .	14.6	4.2	3.4	3.3	3.0	12.3	13.8	3.8	3.1	3.7	3.3	11.8	15.8	4.7	3.8	2.8	2.4	13.0
Other <sup>3</sup> . . . . .	29.9	6.7	7.3	8.4	8.1	26.7	24.5	4.4	5.2	5.8	5.8	21.9	32.3	7.6	8.2	9.5	9.2	28.8
<b>Educational Attainment<sup>4</sup></b>																		
Illiterate . . . . .	24.8	6.3	6.3	6.2	6.0	21.7	21.6	5.4	5.1	5.2	4.9	19.2	26.3	6.7	6.9	6.7	6.5	22.8
Primary school <sup>5</sup> . . . . .	13.6	3.3	2.8	3.8	3.3	11.6	13.0	2.8	2.8	3.7	3.4	11.1	15.0	4.5	2.6	3.9	3.0	12.9
Junior high school or above . . . . .	11.5	3.2	1.3	1.9	2.1	9.9	11.6	3.8	1.6	2.2	2.4	9.7	11.0	—	—	0.1	0.1	11.0
<b>Money Income (in Yuan)<sup>6, 7</sup></b>																		
Low . . . . .	24.6	6.7	5.2	5.8	5.9	21.2	21.1	6.0	4.1	4.9	4.8	17.8	27.2	7.2	5.9	6.5	6.7	23.7
Medium . . . . .	19.6	4.2	4.4	4.1	3.8	17.2	16.1	3.0	3.4	3.7	3.1	14.9	22.9	5.3	5.3	4.5	4.5	19.4
High . . . . .	14.2	4.3	5.1	6.0	5.1	12.2	11.0	3.1	3.3	4.0	4.1	8.7	19.0	6.2	7.8	9.0	6.7	17.4
<b>Living Arrangement</b>																		
Living alone . . . . .	20.9	4.8	6.3	5.8	5.9	17.4	15.9	3.4	4.1	4.7	6.0	13.4	24.0	5.6	7.6	6.5	5.8	20.0
Living with spouse only . . . . .	15.8	3.7	4.0	3.8	3.4	13.4	13.8	3.2	2.8	3.6	3.6	12.0	18.5	4.5	5.7	4.0	3.2	15.2
Living with children and/or others <sup>6</sup> . . . . .	22.2	5.8	5.0	5.7	5.4	19.6	17.8	4.4	4.0	4.5	3.9	15.5	25.9	6.9	5.9	6.8	6.7	22.9

See footnotes on next page.

– Represents or rounds to zero.

<sup>1</sup> Population refers to the number of people who reported a valid answer to the question on ADL limitations.

<sup>2</sup> "Currently married" refers to people who were currently married and living with their spouse.

<sup>3</sup> "Other" includes people who were widowed, divorced, separated, or never married.

<sup>4</sup> "Illiterate" refers to people aged 15 and older who are unable to read. Primary school in China is equivalent to elementary school in the United States, and junior high school is equivalent to middle school or junior high school.

<sup>5</sup> "Primary school" includes "primary school" and "old-style private school."

<sup>6</sup> "Money Income" is monthly income in Chinese yuan. In 2000, the exchange rate between the U.S. dollar and the Chinese yuan was \$1 = 8.28 yuan.

<sup>7</sup> In this table, for total China, "Low" monthly money income is less than 50 yuan, "Medium" is 50 to 199 yuan, and "High" is 200 yuan or above. For urban China, "Low" is less than 300 yuan, "Medium" is 300 to 749 yuan, and "High" is 750 yuan or above. For rural China, "Low" is less than 50 yuan, "Medium" is 50 to 149 yuan, and "High" is 150 yuan or above.

<sup>8</sup> "Living with children and/or others" may include spouse, children, grandchildren, parents, or any other family or nonfamily members.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

Table A-3.  
**Population Aged 60 and Over Satisfied With Life by Sex, Age, Residence, and Selected Characteristics for China: 2000**

(Numbers in thousands)

Characteristic	Both sexes				Male				Female			
	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over
<b>TOTAL POPULATION<sup>1</sup></b> .....	<b>118,514</b>	<b>69,663</b>	<b>38,030</b>	<b>10,821</b>	<b>57,809</b>	<b>35,760</b>	<b>17,970</b>	<b>4,079</b>	<b>60,705</b>	<b>33,903</b>	<b>20,060</b>	<b>6,742</b>
<b>Number</b>												
<b>Satisfied With Life</b>												
Total .....	74,545	44,728	23,495	6,323	37,178	23,247	11,524	2,406	37,368	21,480	11,971	3,917
<b>Marital Status</b>												
Currently married <sup>2</sup> .....	50,930	35,241	14,135	1,554	30,496	20,440	8,920	1,136	20,434	14,801	5,214	419
Other <sup>3</sup> .....	23,616	9,487	9,361	4,768	6,682	2,807	2,604	1,271	16,934	6,680	6,757	3,498
<b>Educational Attainment<sup>4</sup></b>												
Illiterate .....	36,535	18,461	13,752	4,323	11,187	5,728	4,470	989	25,349	12,733	9,282	3,334
Primary school <sup>5</sup> .....	25,997	17,367	6,984	1,646	17,159	11,252	4,780	1,126	8,838	6,115	2,203	520
Junior high school or above .....	12,013	8,900	2,760	354	8,832	6,267	2,274	291	3,181	2,633	486	63
<b>Money Income (in Yuan)<sup>6, 7</sup></b>												
Low .....	19,257	10,338	6,505	2,414	7,583	4,235	2,659	688	11,674	6,103	3,845	1,725
Medium .....	30,030	18,159	9,558	2,313	14,156	8,861	4,464	831	15,874	9,297	5,094	1,482
High .....	25,258	16,231	7,432	1,596	15,439	10,151	4,401	886	9,820	6,079	3,031	709
<b>Living Arrangement</b>												
Living alone .....	4,554	1,766	1,972	816	1,406	795	497	115	3,148	971	1,475	702
Living with spouse only .....	23,756	14,895	8,059	802	14,165	8,420	5,099	646	9,590	6,475	2,960	156
Living with children and/or others <sup>8</sup> .....	46,235	28,067	13,464	4,705	21,606	14,033	5,928	1,645	24,629	14,034	7,536	3,060
<b>Percent</b>												
<b>Satisfied With Life</b>												
Total .....	62.9	64.2	61.8	58.4	64.3	65.0	64.1	59.0	61.6	63.4	59.7	58.1
<b>Marital Status</b>												
Currently married <sup>2</sup> .....	65.0	65.7	64.2	58.6	65.6	66.1	65.6	58.5	64.1	65.1	61.9	58.6
Other <sup>3</sup> .....	58.8	59.3	58.5	58.4	58.9	58.1	59.5	59.4	58.7	59.8	58.1	58.0
<b>Educational Attainment<sup>4</sup></b>												
Illiterate .....	59.2	61.2	57.4	56.5	60.3	62.2	58.5	58.2	58.7	60.8	56.9	56.0
Primary school <sup>5</sup> .....	64.0	63.2	66.3	62.4	62.9	62.7	64.9	57.2	66.1	64.2	69.6	77.6
Junior high school or above .....	74.5	74.0	77.7	66.3	73.8	72.9	76.8	70.9	76.8	76.7	82.4	50.9
<b>Money Income (in Yuan)<sup>6, 7</sup></b>												
Low .....	54.3	54.9	51.7	59.5	54.5	54.1	55.0	54.6	54.2	55.4	49.7	61.7
Medium .....	62.0	64.2	61.3	51.4	61.9	63.4	61.5	50.5	62.2	64.9	61.0	52.0
High .....	72.9	72.0	75.4	70.4	73.5	72.7	74.9	75.7	72.0	71.0	76.2	64.7
<b>Living Arrangement</b>												
Living alone .....	49.2	48.8	49.1	50.5	43.5	47.3	40.6	34.8	52.4	50.1	52.9	54.6
Living with spouse only .....	64.9	64.9	66.1	55.6	66.1	65.8	67.5	60.0	63.3	63.8	63.7	42.6
Living with children and/or others <sup>8</sup> .....	63.6	65.1	61.7	60.6	65.2	65.9	64.5	61.5	62.3	64.3	59.7	60.1

See footnotes at end of table.

Table A-3.  
**Population Aged 60 and Over Satisfied With Life by Sex, Age, Residence, and Selected Characteristics for China: 2000—Con.**

(Numbers in thousands)

Characteristic	Both sexes				Male				Female			
	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over
<b>URBAN POPULATION<sup>1</sup></b> .....	<b>27,579</b>	<b>16,983</b>	<b>8,319</b>	<b>2,277</b>	<b>13,396</b>	<b>8,446</b>	<b>4,057</b>	<b>893</b>	<b>14,183</b>	<b>8,537</b>	<b>4,262</b>	<b>1,384</b>
<b>Number</b>												
<b>Satisfied With Life</b>												
Total .....	19,524	12,087	5,893	1,544	9,752	6,134	3,035	583	9,772	5,953	2,858	961
<b>Marital Status</b>												
Currently married <sup>2</sup> .....	15,129	10,437	4,171	521	9,026	5,901	2,726	399	6,103	4,536	1,444	122
Other <sup>3</sup> .....	4,395	1,650	1,723	1,023	726	233	309	184	3,670	1,417	1,414	839
<b>Educational Attainment<sup>4</sup></b>												
Illiterate .....	4,650	1,937	1,866	848	684	256	311	118	3,966	1,681	1,555	730
Primary school <sup>5</sup> .....	6,143	3,666	2,057	420	2,945	1,507	1,200	237	3,198	2,159	857	183
Junior high school or above .....	8,731	6,484	1,970	276	6,123	4,371	1,524	228	2,608	2,114	446	48
<b>Money Income (in Yuan)<sup>6, 7</sup></b>												
Low .....	4,978	2,664	1,588	726	805	378	314	114	4,172	2,286	1,274	613
Medium .....	7,425	4,731	2,241	454	3,627	2,311	1,090	226	3,798	2,420	1,151	228
High .....	7,121	4,692	2,065	364	5,320	3,445	1,631	243	1,802	1,247	434	120
<b>Living Arrangement</b>												
Living alone .....	1,106	383	515	208	245	91	108	47	860	292	407	161
Living with spouse only .....	6,919	4,030	2,566	323	4,245	2,299	1,689	257	2,674	1,731	877	66
Living with children and/or others <sup>8</sup> .....	11,500	7,674	2,812	1,013	5,262	3,744	1,238	280	6,238	3,930	1,574	733
<b>Percent</b>												
<b>Satisfied With Life</b>												
Total .....	70.8	71.2	70.8	67.8	72.8	72.6	74.8	65.3	68.9	69.7	67.1	69.4
<b>Marital Status</b>												
Currently married <sup>2</sup> .....	73.3	72.6	76.1	67.2	73.8	73.3	76.7	63.6	72.7	71.7	75.0	82.3
Other <sup>3</sup> .....	63.3	63.2	60.7	68.2	62.3	58.6	61.3	69.4	63.5	64.1	60.5	67.9
<b>Educational Attainment<sup>4</sup></b>												
Illiterate .....	64.8	66.6	61.0	70.2	61.6	62.6	61.0	60.8	65.4	67.3	61.0	72.0
Primary school <sup>5</sup> .....	65.8	62.8	72.3	64.3	64.7	60.1	72.1	62.3	66.9	64.9	72.5	67.0
Junior high school or above .....	78.8	78.7	81.5	66.5	79.2	79.1	80.9	71.7	78.0	77.9	83.9	49.6
<b>Money Income (in Yuan)<sup>6, 7</sup></b>												
Low .....	61.0	62.6	56.8	65.5	54.3	52.3	58.4	51.0	62.5	64.7	56.4	69.2
Medium .....	68.3	66.7	72.4	65.5	64.9	64.2	67.1	61.7	71.8	69.4	78.2	69.7
High .....	83.4	83.2	85.0	76.6	84.1	83.5	86.0	80.1	81.3	82.4	81.5	70.2
<b>Living Arrangement</b>												
Living alone .....	57.7	61.9	53.2	63.0	56.6	59.0	52.2	(B)	58.1	62.9	53.5	62.7
Living with spouse only .....	72.4	67.9	80.7	72.1	73.8	70.4	79.7	69.7	70.3	64.9	82.7	83.2
Living with children and/or others <sup>8</sup> .....	71.4	73.6	67.4	67.6	73.0	74.5	71.5	62.0	70.1	72.7	64.5	70.1

See footnotes at end of table.



Table A-3.  
**Population Aged 60 and Over Satisfied With Life by Sex, Age, Residence, and Selected Characteristics for China: 2000—Con.**

(Numbers in thousands)

Characteristic	Both sexes				Male				Female			
	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over
<b>RURAL POPULATION<sup>1</sup> .....</b>	<b>90,938</b>	<b>52,681</b>	<b>29,712</b>	<b>8,545</b>	<b>44,415</b>	<b>27,315</b>	<b>13,913</b>	<b>3,187</b>	<b>46,523</b>	<b>25,366</b>	<b>15,799</b>	<b>5,358</b>
<b>Number</b>												
<b>Satisfied With Life</b>												
Total .....	55,021	32,641	17,602	4,779	27,426	17,114	8,489	1,823	27,595	15,527	9,112	2,956
<b>Marital Status</b>												
Currently married <sup>2</sup> .....	35,801	24,804	9,964	1,034	21,470	14,539	6,194	737	14,331	10,264	3,770	297
Other <sup>3</sup> .....	19,220	7,837	7,638	3,745	5,956	2,574	2,295	1,086	13,264	5,263	5,343	2,659
<b>Educational Attainment<sup>4</sup></b>												
Illiterate .....	31,885	16,524	11,886	3,475	10,502	5,472	4,159	871	21,383	11,052	7,726	2,604
Primary school <sup>5</sup> .....	19,854	13,701	4,927	1,226	14,214	9,745	3,580	889	5,640	3,956	1,347	337
Junior high school or above .....	3,283	2,415	789	78	2,710	1,896	750	64	573	519	39	15
<b>Money Income (in Yuan)<sup>6, 7</sup></b>												
Low .....	17,052	9,150	5,804	2,097	7,326	4,103	2,585	638	9,726	5,047	3,220	1,459
Medium .....	23,700	14,333	7,678	1,689	11,508	7,225	3,720	563	12,193	7,108	3,958	1,126
High .....	14,269	9,158	4,119	993	8,592	5,786	2,184	622	5,677	3,372	1,934	371
<b>Living Arrangement</b>												
Living alone .....	3,449	1,383	1,457	609	1,161	704	389	68	2,288	679	1,068	540
Living with spouse only .....	16,837	10,865	5,493	479	9,921	6,121	3,410	390	6,916	4,744	2,083	90
Living with children and/or others <sup>8</sup> .....	34,735	20,393	10,652	3,691	16,344	10,289	4,690	1,365	18,391	10,103	5,962	2,326
<b>Percent</b>												
<b>Satisfied With Life</b>												
Total .....	60.5	62.0	59.2	55.9	61.8	62.7	61.0	57.2	59.3	61.2	57.7	55.2
<b>Marital Status</b>												
Currently married <sup>2</sup> .....	62.1	63.1	60.3	55.0	62.7	63.5	61.7	56.1	61.1	62.6	58.0	52.4
Other <sup>3</sup> .....	57.8	58.5	58.0	56.2	58.5	58.1	59.2	58.0	57.5	58.7	57.5	55.5
<b>Educational Attainment<sup>4</sup></b>												
Illiterate .....	58.4	60.6	56.9	54.0	60.2	62.1	58.3	57.8	57.6	59.9	56.2	52.8
Primary school <sup>5</sup> .....	63.4	63.3	64.1	61.8	62.5	63.1	62.8	56.0	65.7	63.7	67.9	84.9
Junior high school or above .....	65.1	63.8	69.6	65.4	63.9	61.7	69.7	68.1	71.5	72.4	(B)	(B)
<b>Money Income (in Yuan)<sup>6, 7</sup></b>												
Low .....	53.8	54.2	51.7	58.8	54.6	54.1	55.6	54.1	53.2	54.3	48.9	61.1
Medium .....	60.5	62.8	60.4	46.7	61.0	62.9	60.6	45.4	60.1	62.7	60.2	47.4
High .....	71.0	70.6	71.4	72.9	70.8	70.2	70.0	80.9	71.3	71.4	73.1	62.4
<b>Living Arrangement</b>												
Living alone .....	47.0	46.1	47.8	47.3	41.4	46.1	38.2	26.5	50.5	46.0	52.7	52.6
Living with spouse only .....	62.3	63.9	60.9	48.2	63.3	64.2	62.8	55.0	60.9	63.4	58.0	31.3
Living with children and/or others <sup>8</sup> .....	61.4	62.4	60.4	58.9	63.0	63.3	62.9	61.5	60.0	61.6	58.5	57.5

See footnotes on next page.

(B) Derived measure not shown where base is less than 75,000.

<sup>1</sup> Population refers to the number of people who reported a valid answer to the question on whether satisfied with life.

<sup>2</sup> "Currently married" refers to people who were currently married and living with their spouse.

<sup>3</sup> "Other" includes people who were widowed, divorced, separated, or never married.

<sup>4</sup> "Illiterate" refers to people aged 15 and older who are unable to read. Primary school in China is equivalent to elementary school in the United States, and junior high school is equivalent to middle school or junior high school.

<sup>5</sup> "Primary school" includes "primary school" and "old-style private school."

<sup>6</sup> "Money Income" is monthly income in Chinese yuan. In 2000, the exchange rate between the U.S. dollar and the Chinese yuan was \$1 = 8.28 yuan.

<sup>7</sup> In this table, for total China, "Low" monthly money income is less than 50 yuan, "Medium" is 50 to 199 yuan, and "High" is 200 yuan or above. For urban China, "Low" is less than 300 yuan, "Medium" is 300 to 749 yuan, and "High" is 750 yuan or above. For rural China, "Low" is less than 50 yuan, "Medium" is 50 to 149 yuan, and "High" is 150 yuan or above.

<sup>8</sup> "Living with children and/or others" may include spouse, children, grandchildren, parents, or any other family or nonfamily members.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

Table A-4.

### Average Number of Visits to Doctor's Office in Last Year Among Population Aged 60 and Over by Sex, Age, Residence, and Selected Characteristics for China: 2000

Characteristic	Both sexes				Male				Female			
	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over
<b>TOTAL POPULATION<sup>1</sup> (in thousands) .....</b>	<b>117,338</b>	<b>68,952</b>	<b>37,607</b>	<b>10,780</b>	<b>57,231</b>	<b>35,348</b>	<b>17,821</b>	<b>4,062</b>	<b>60,108</b>	<b>33,604</b>	<b>19,785</b>	<b>6,718</b>
<b>Doctor's Office Visits</b>												
Total .....	5.1	5.1	5.3	4.3	4.9	4.7	5.4	4.5	5.3	5.5	5.3	4.2
<b>Marital Status</b>												
Currently married <sup>2</sup> .....	5.0	4.8	5.6	4.7	5.1	4.8	5.6	5.1	4.9	4.7	5.6	3.7
Other <sup>3</sup> .....	5.2	6.0	5.0	4.2	4.1	3.8	4.6	4.0	5.7	7.0	5.1	4.3
<b>Educational Attainment<sup>4</sup></b>												
Illiterate .....	4.9	5.0	4.9	4.3	4.0	3.8	4.2	4.2	5.3	5.5	5.3	4.3
Primary school <sup>5</sup> .....	4.7	4.6	5.1	4.1	4.7	4.4	5.5	4.7	4.6	4.9	4.3	2.2
Junior high school or above .....	7.0	6.4	8.9	6.1	6.7	6.2	8.2	5.2	7.8	6.9	12.3	9.5
<b>Money Income (in Yuan)<sup>6, 7</sup></b>												
Low .....	3.9	3.8	4.3	3.5	3.7	3.4	4.2	3.2	4.1	4.0	4.3	3.7
Medium .....	4.8	4.8	5.0	4.2	4.0	3.8	4.2	4.6	5.5	5.7	5.6	4.0
High .....	6.7	6.5	7.3	6.0	6.6	6.2	7.8	5.9	6.8	6.9	6.6	6.1
<b>Living Arrangement</b>												
Living alone .....	5.5	5.5	5.8	4.7	4.1	4.3	4.1	3.1	6.3	6.5	6.6	5.2
Living with spouse only .....	5.4	5.2	5.7	5.7	5.4	5.1	5.8	6.6	5.3	5.3	5.6	3.3
Living with children and/or others <sup>8</sup> .....	4.9	5.0	5.1	4.0	4.6	4.5	5.2	3.9	5.1	5.5	5.0	4.0
<b>URBAN POPULATION<sup>1</sup> (in thousands) .....</b>	<b>26,950</b>	<b>16,638</b>	<b>8,138</b>	<b>2,174</b>	<b>13,135</b>	<b>8,300</b>	<b>4,001</b>	<b>834</b>	<b>13,815</b>	<b>8,338</b>	<b>4,187</b>	<b>1,340</b>
<b>Doctor's Office Visits</b>												
Total .....	7.3	7.3	7.9	4.5	7.5	7.2	8.6	5.9	7.0	7.4	7.2	3.7
<b>Marital Status</b>												
Currently married <sup>2</sup> .....	7.6	7.3	8.7	5.8	7.8	7.3	9.1	6.5	7.4	7.3	7.9	3.1
Other <sup>3</sup> .....	6.2	7.2	6.4	3.9	4.9	4.6	5.3	4.4	6.4	7.6	6.6	3.8
<b>Educational Attainment<sup>4</sup></b>												
Illiterate .....	6.0	6.9	6.3	3.3	5.1	4.6	5.9	3.9	6.2	7.2	6.3	3.2
Primary school <sup>5</sup> .....	7.3	7.2	8.0	5.5	7.7	6.9	9.0	7.1	6.9	7.3	6.5	3.3
Junior high school or above .....	8.0	7.5	9.8	6.9	7.8	7.5	9.0	5.8	8.6	7.7	12.9	10.2
<b>Money Income (in Yuan)<sup>6, 7</sup></b>												
Low .....	5.7	6.1	6.2	2.8	4.9	4.4	6.0	4.0	5.8	6.4	6.2	2.6
Medium .....	6.8	7.0	6.6	5.4	6.0	6.2	5.5	6.0	7.6	7.8	7.9	4.6
High .....	9.3	8.6	11.4	7.1	9.5	8.5	12.0	6.9	8.9	8.9	9.4	7.5
<b>Living Arrangement</b>												
Living alone .....	6.1	5.9	6.8	4.1	4.7	4.5	5.1	3.7	6.5	6.3	7.3	4.3
Living with spouse only .....	8.2	7.7	9.3	7.8	8.3	7.4	9.6	9.4	8.1	8.1	8.7	1.8
Living with children and/or others <sup>8</sup> .....	6.8	7.2	7.1	3.7	7.1	7.1	7.8	3.6	6.6	7.2	6.5	3.7

See footnotes at end of table.

Table A-4.

### Average Number of Visits to Doctor's Office in Last Year Among Population Aged 60 and Over by Sex, Age, Residence, and Selected Characteristics for China: 2000—Con.

Characteristic	Both sexes				Male				Female			
	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over	60 and over	60 to 69	70 to 79	80 and over
<b>RURAL POPULATION<sup>1</sup> (in thousands)</b> .....	<b>90,389</b>	<b>52,314</b>	<b>29,469</b>	<b>8,606</b>	<b>44,096</b>	<b>27,049</b>	<b>13,820</b>	<b>3,227</b>	<b>46,292</b>	<b>25,266</b>	<b>15,648</b>	<b>5,378</b>
<b>Doctor's Office Visits</b>												
Total .....	4.4	4.4	4.6	4.3	4.1	3.9	4.4	4.2	4.8	4.9	4.8	4.3
<b>Marital Status</b>												
Currently married <sup>2</sup> .....	4.1	3.9	4.6	4.3	4.1	4.0	4.4	4.5	4.1	3.8	4.9	3.8
Other <sup>3</sup> .....	5.0	5.8	4.7	4.3	4.0	3.7	4.5	4.0	5.5	6.9	4.8	4.4
<b>Educational Attainment<sup>4</sup></b>												
Illiterate .....	4.7	4.8	4.7	4.5	3.9	3.8	4.0	4.2	5.1	5.3	5.1	4.5
Primary school <sup>5</sup> .....	3.9	3.9	4.1	3.6	4.1	4.0	4.4	4.2	3.4	3.7	3.0	1.5
Junior high school or above .....	4.7	4.1	7.0	4.4	4.8	4.0	7.0	3.7	4.4	4.1	(B)	(B)
<b>Money Income (in Yuan)<sup>6, 7</sup></b>												
Low .....	3.8	3.6	4.1	3.6	3.7	3.4	4.3	3.2	3.9	3.9	3.9	3.9
Medium .....	4.7	4.8	4.7	3.9	3.9	3.8	4.1	3.5	5.4	5.7	5.3	4.1
High .....	5.0	4.6	5.6	6.9	4.9	4.5	5.3	6.8	5.3	4.7	6.0	7.1
<b>Living Arrangement</b>												
Living alone .....	5.3	5.4	5.5	4.9	4.0	4.3	3.8	3.0	6.2	6.6	6.3	5.4
Living with spouse only .....	4.4	4.3	4.4	4.9	4.3	4.3	4.3	5.4	4.4	4.3	4.7	3.7
Living with children and/or others <sup>8</sup> .....	4.4	4.3	4.6	4.0	4.0	3.6	4.6	4.0	4.7	5.0	4.6	4.1

(B) Derived measure not shown where base is less than 75,000.

<sup>1</sup> Population refers to the number of people who reported a valid answer to the question on visits to doctor's office.

<sup>2</sup> "Currently married" refers to people who were currently married and living with their spouse.

<sup>3</sup> "Other" includes people who were widowed, divorced, separated, or never married.

<sup>4</sup> "Illiterate" refers to people aged 15 and older who are unable to read. Primary school in China is equivalent to elementary school in the United States, and junior high school is equivalent to middle school or junior high school.

<sup>5</sup> "Primary school" includes "primary school" and "old-style private school."

<sup>6</sup> "Money Income" is monthly income in Chinese yuan. In 2000, the exchange rate between the U.S. dollar and the Chinese yuan was \$1 = 8.28 yuan.

<sup>7</sup> In this table, for total China, "Low" monthly money income is less than 50 yuan, "Medium" is 50 to 199 yuan, and "High" is 200 yuan or above. For urban China, "Low" is less than 300 yuan, "Medium" is 300 to 749 yuan, and "High" is 750 yuan or above. For rural China, "Low" is less than 50 yuan, "Medium" is 50 to 149 yuan, and "High" is 150 yuan or above.

<sup>8</sup> "Living with children and/or others" may include spouse, children, grandchildren, parents, or any other family or nonfamily members.

Note: "Doctor's office" includes a doctor's office, health clinic, outpatient office in hospitals, or any other health organization.

Source: Sample Survey on the Aged Population in Urban/Rural China, 2000.

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## APPENDIX B.

# SOURCE AND ACCURACY OF DATA

The sample for the Sample Survey on Aged Population in Urban/Rural China (SSAPUR) represents the civilian noninstitutionalized older population 60 and over in 27 provinces of China, excluding Nei Mongol, Guangxi, Guizhou, and Xizang.

The 2000 SSAPUR was based on a stratified multistage sample design, described below. In order to produce accurate estimates from the survey data, it was necessary to apply weights to the data that take into account the sample design and the population distribution from the 2000 China Census data. Given that the survey data are based on a sample of the older population in China, the results are subject to sampling errors (or variability) as well as nonsampling errors from all other sources, such as response (including recall) errors and coding and processing errors. The quality control procedures for the survey (including supervision for each operation) were designed to minimize the nonsampling errors. The standard error, or square root of the variance, is used to measure the sampling error. The precision of the survey estimates can also be expressed as confidence intervals based on the standard errors.

The primary sampling units (PSUs) for the survey were the 27 individual provinces. These provinces were stratified by the following six regions: North, Northeast, East, South Central, Southwest, and Northwest. The number of sample provinces allocated to each region

was approximately proportional to its population.

A total of 20 sample provinces were selected for the 2000 SSAPUR from the 27 provinces in the sampling frame. Within each region, the sample provinces were selected with probability proportional to size (PPS), where the measure of size was based on the population aged 50 and over from the Fourth China Census (1990) data. A total of eleven provinces were self-representing (SR), that is, they were included in the 2000 SSAPUR sample with certainty. Most of these were SR because of their large population. In the East region, all seven provinces were SR.

Within each sample province, four cities (urban areas) and four counties (rural areas) were selected at the second sampling stage with PPS using the same measure of size (population aged 50 and over). At the third stage, a sample of 16 blocks was selected with PPS from the combined frame for the four sample cities within each province, and 16 rural townships were selected from the combined frame for the four sample counties, also with PPS. All the urban residential committees within the 16 sample blocks were combined into one list, and all the villages in the 16 sample townships in each province were also listed together. Then a sample of 50 urban residential committees and 50 rural villages was selected with equal probability within the province at the fourth sampling stage. A list of all households with

at least one person aged 60 and older was obtained from each sample residential committee or village, and a sample of 10 households was selected systematically with a random start from the list at the fifth sampling stage. In the case of sample households with more than one person aged 60 and older, one of these individuals was selected at random. This resulted in a sample of about 500 urban older people and 500 rural older people in each sample province, for a total sample of approximately 20,000 people aged 60 and older.

The weighting procedures depend on the sampling methodology for the 2000 SSAPUR. The basic weight for each sample person was calculated as the inverse of his or her probability of selection (calculated by multiplying the probabilities at each sampling stage). These basic weights were then adjusted using the 2000 China Census data for the total older population by region, urban/rural stratum, and sex, which have the same reference year as the 2000 SSAPUR. As a result, the weighted estimates of the older population from the survey have a demographic distribution similar to that seen in the 2000 census.

In order to estimate the precision of results appearing in this report, and to determine whether differences were statistically significant, standard errors were calculated taking into account the stratification and clustering in the sample design.