

Anderson, Barbara A., Cheong-Seok Kim, John H.  
Romani, John W. Traphagan, and Jinyun Liu

Living Arrangements and Mortality Risks of the Urban  
Elderly in Yunnan Province, China, 1995

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**Living Arrangements and Mortality Risks of the Urban Elderly in  
Yunnan Province, China, 1995**  
(March 1999)

**Abstract:**

A concern in China is that marketization of the economy and decreases in state-subsidized housing may lead to declines in co-residence of the elderly with their adult children. Co-residence has been thought to contribute substantially to the well-being of the elderly, a major dimension of which is survival. Few studies, however have examined factors related to co-residence, well-being, and survival.

We use micro-data from the 1995 Mid-Censal Survey for elderly in urban parts of Yunnan Province, China to examine this question. These data contain information about all household members as well as about household members who died in the previous year. This permits examination of factors related to co-residence and the relation of co-residence to mortality of the elderly.

The main findings and conclusions of this paper are:

- C Co-residence of the elderly with their married children, especially with married sons, is an expression of the Confucian ideal of filial piety. Many have assumed that in China all those who are able to will live with the family of a married child. This assumption is not supported by data from urban Yunnan, in which only half of those age 60-64 live with younger married relatives. Whether and when the elderly co-reside with married children is a decision rather than a cultural norm to which people adhere whenever possible.
- C When an elderly person becomes co-resident depends on his or her marital status. Widowhood by itself seems to be a substantial reason for co-residence. Levels of co-residence of the married are lower at all ages than of the widowed. Co-residence of the married seems to be precipitated by the need for help on the part of the elderly married couple.
- C For the elderly as a whole, co-residence has an insignificant relation to mortality. Among the widowed, co-residence is related to substantially *lower* chances of mortality. Among the currently married, co-residence is related to substantially *higher* chances of mortality, probably because risk factors for mortality are strongly related to selection into co-residence among those who are currently married.
- C If co-residence is the result of a decision on the part of the elderly and their married children, researchers need to be cautious in interpreting the effects of co-residence on mortality and other life events. If the decision to co-reside differs for the married and the widowed, then seeming effects of co-residence on life events will be affected by differences in selection into co-residence for the married and the widowed.

Keywords: intergenerational relations, co-residence, family, Asia

Dataset used: 1995 Mid-Censal Survey of China, data for Yunnan Province

**About the Authors:**

Barbara A. Anderson, Professor, Department of Sociology and Research Scientist, Population Studies Center

Cheong-Seok Kim, Researcher, Population Studies Center

John H. Romani, School of Public Health, University of Michigan

John W. Traphagan, National Institute of Aging Postdoctoral Fellow, Population Studies Center

Jinyun Liu, Social Science Senior Research Associate, Survey Research Center, Institute for Social Research, University of Michigan

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## Introduction

In China, as in much of the world, the proportion of the population comprised by the elderly has increased (Xiong 1997). Declines in fertility and, to a lesser extent, declines in mortality, have resulted in an increase in the ratio of the elderly to those in the working ages. Concerns have arisen as to whether increasing pressures on the working age population will lead to a decrease in family-based support of the elderly. In China there also has been concern that marketization of the economy and decreases in state-subsidized housing may lead to declines in co-residence of the elderly with their married children (Xu and Yuan 1997).

Co-residence has been thought to substantially contribute to the well-being of the elderly. A major dimension of well-being is survival. One important question is whether co-residence with married children leads to lower death rates among the elderly.

Few studies have examined factors related both to co-residence and to survival. Most surveys of the elderly contain too few deaths for statistical analysis, and vital statistics data typically do not contain information on living arrangements apart from marital status. With few exceptions (e.g. Davis, Neuhaus, Moritz and Segal 1992; Grundy 1993), researchers have not examined factors related both to co-residence and to survival of the elderly. This is because social scientific surveys of the elderly designed to study factors related to co-residence usually do not collect mortality data or contain too few deaths for statistical analysis (c.f. Chan and DaVanzo 1996; DaVanzo and Chan 1994), and vital statistics data that include many deaths of the elderly typically do not contain information on living arrangements apart from marital status (c.f. Imaizumi 1991).

We use micro-data from the 1995 Mid-Censal Survey of China to examine the tendency of elderly persons in urban parts of Yunnan Province, China to live with married younger relatives and the relation of co-residence to mortality of the elderly. These data contain information about all household members as well as about household members who died in the previous year. Thus, we can examine factors related to co-residence and to mortality and we can examine the relation of co-residence to mortality of the elderly.

In China, as well as in other parts of East Asia, Confucian-oriented values of filial piety encourage co-residence of the elderly with their children. This is an expression of the generalized obligation children have to their parents (Baker 1979; Freedman et al. 1978; Lang 1946; Lebra 1976). Co-residence can be beneficial to both the younger and the older generation. For young families, co-residence can provide housing, other material support, and help with child care. For the elderly, co-residence can provide three kinds of support: emotional support, material support for the elderly who would otherwise be quite poor, and personal assistance for the elderly who have poor health or would have difficulty living independently.

In many parts of the world co-residence over the life cycle exhibits a U-shaped pattern, with co-residence common when adult children marry and begin childbearing. At this stage, co-residence may be more in the interest of the younger generation than of the older generation. Later both the

older and younger generations may live in nuclear families. Even later, multi-generational co-residence may resume. Chi and Hsin (1996) report this pattern for Taiwan. Traphagan (2000, in press) presents evidence for rural contemporary Japan that married children, especially eldest sons, often feel a strong obligation to co-reside with their parents as the parents become older and more infirm, even if they do not necessarily otherwise want to co-reside.

Co-residence with married children is more crucial for some kinds of support of the elderly than for other kinds. Since a spouse can provide emotional support, an elderly married person may have less need for the emotional support provided by co-residence than an elderly widowed person. It has been recognized that in the United States (Hamon and Blieszner 1990; Kobrin 1976) and other Western countries (Di Iulio 1981; European Community 1982; Harrison 1981) many older people do not want to live with their children; one should not assume that all elderly persons in East Asia want to reside with their married children. Analysis of survey data from Korea shows that many elderly who are fairly well-off reside with their married children mainly for the benefit of the children; if they only considered their own interests, they would prefer to reside separately, especially if the elderly person is married (Kim 1997b 1998; Kim and Rhee 1997).

Co-residence is not necessary in order for married children to provide financial support to their elderly parents. In Beijing, co-residence of the elderly declined sharply in the early 1990's. However, frequent visiting and monetary transfers from adults to their elderly parents seem to mitigate some of the possible effects of declines in co-residence (Wang 1995). In Beijing in 1991, one-third of married couples in the working ages sent money monthly to non-co-resident parents (Anderson, Kim, Romani and Liu 1999, forthcoming). Furthermore, in rural China the traditional importance of "by turns" living arrangements meant that elderly parents were supported on a rotating basis in which they slept in their own house or apartment, but moved among the households of their sons for meals and sometimes sleeping (Goldstein, Ku and Ikels 1990:122). Johnson and DaVanzo (1996) similarly report a pattern of frequent visiting replacing co-residence in peninsular Malaysia.

Co-residence may be crucial for personal assistance to the elderly. Poor health or lack of functional capability may lead to a need for help several times a day. With very little availability of nursing homes, personal assistance is most reasonably provided by a member of the same household. If the need is not too great, a spouse could provide the help. Since the spouse of an elderly person is also likely elderly or near-elderly, intensive personal care needs could more easily be provided by a younger person. In the United States, Freedman (1996) found that among the elderly, the married had about one-half the chance of nursing home admission compared to those who were not currently married, even after measures of health were taken into account. For Hong Kong, Chi (1996) showed co-residence was more important for the elderly to receive personal help or help with health care than to receive financial or psychological support. See Hermalin, Ofstedal and Chang (1992) and Roan, Hermalin and Ofstedal (1996) for a discussion of caregiving of the elderly in Taiwan.

The decision to co-reside due to poor health status is understandable in Western countries, in

light of discussions about whether infirm elderly should come to live with their adult children or should enter a retirement home (Mickus, Stommel and Given 1997). Grundy (1993) found for England and Wales that there was higher mortality among those elderly who moved from solitary households to supported households with other adults. Selection into co-residence for poor health was suggested as the reason for this finding (Grundy, Bowling and Farquhar 1996).

If poor health is a major reason for co-residence, those elderly who are co-resident will have significantly worse health than those who are not co-resident. This could lead to higher mortality among the co-resident than the non-co-resident. This kind of phenomenon has not been suggested for populations in which the Confucian values promoting co-residence prevail.

Social support has come to be regarded as the major factor in mortality of the elderly (House, Landis, and Umberson 1988). The presence of a spouse is the most-often cited type of social support. Living with a spouse has consistently been found to be related to lower mortality of the elderly (Gove 1973; Hu and Goldman 1990; Omran 1997). Being co-resident with younger married relatives is another source of social support.<sup>1</sup> However, whether co-residence would be expected to have a positive or a negative relation to mortality of the elderly depends on the extent to which risk factors for mortality, such as poor health, are a substantial part of the reason for co-residence.

Our analysis will examine factors related to co-residence of the elderly with their married children or other younger married relatives, such as grandchildren. We further analyze the relation of co-residence to mortality when other characteristics are taken into account.

### **Data Source and Setting**

This paper is based on the data for the urban population of Yunnan province from the 1995 Mid-Censal Survey of China, which occurred on October 1, 1995. This survey is a mini-census in preparation for the Year 2000 Census of China. It included 1% of the population of China as a whole. This survey and recent Chinese censuses are unusual in that they include vital-statistics type information on deaths to members of the household that occurred in the last year. For each dead person, a variety of information is known, including the month and year of death, sex, and age. The data for all members of a given household are strung together to form a long household record. Thus, household structure can be examined for both living and dead persons.<sup>2</sup>

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<sup>1</sup> Silverstein and Bengtson (1991) found that affectionate relations with children can mitigate the increased mortality risks that follow widowhood. Cornell (1992) presents evidence that in 18th century Japan residing with younger relatives was related to lower mortality of the elderly, even when the spouse was alive.

<sup>2</sup> For a discussion of data quality in the 1995 Mid-Censal Survey of China, see Zhang et al. (1997). For a discussion of data quality in the 1990 Census of China, see Banister (1994), Jiang, Li, and Sun (1994), Zhang et al (1994). For analyses of micro-data from the 1990 Census of China see Anderson and Romani (1997), Anderson and Silver (1994, 1995), Anderson and Liu (1997), Kim (1997a), and Romani (1997).

Information is also included for persons who died in the last year who lived alone at the time of death.

Yunnan Province is located in southwest China, bordering on Vietnam, Laos, and Burma. Southern Yunnan is semi-tropical, while northwestern Yunnan includes the southeastern part of the Himalayan Mountain range. Yunnan is extremely ethnically diverse. However, the majority of the urban population is comprised of Han Chinese.<sup>3</sup>

### **Characteristics of the Elderly in Urban Yunnan**

In this paper, we define the elderly as those age 60 or older. Table 1 shows information about the variables used in the analyses in this paper. Age of living persons is calculated at the date of the survey. For dead persons, age refers to age at the time of death. Living women tend to be older than living men, reflecting the lower mortality of women than men. The age distribution of ages at death is older than of ages of living persons, since death rates increase with age.

A requirement for co-residence with a married child is for the person to have a surviving child. In Chinese culture, it is particularly desirable to live with a married son. The 1995 survey asked the number of children ever born and surviving children by sex of children for women who were less than 65 years of age. Among women age 60-64, 4% had no surviving children, and 9% had no surviving sons. Thus, we do not think that having no surviving child is a major reason why many elderly are not co-resident with their married children.

The interest in intergenerational co-residence and welfare of the elderly has focused on residence of the elderly with married children. The 1995 survey records the relation of every living person to the head of the household. Relation to head of household is not recorded for recently dead persons. Thus we wanted to estimate whether an elderly person lived with a married child using the information we had. We code an elderly person as being co-resident with younger married relatives if there is an ever-married person twenty or more years younger than an elderly woman or twenty-five or more years younger than an elderly man living in the same household.<sup>4</sup> Table 1 shows that 64% of the living elderly are co-resident and 75% of the dead elderly were co-resident.

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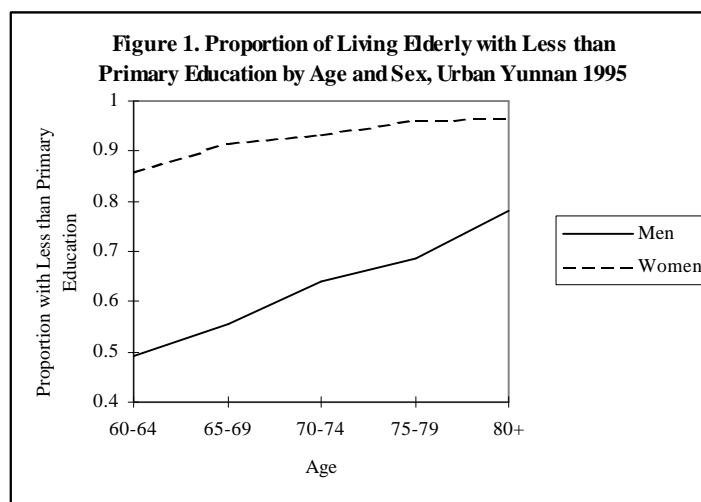
<sup>3</sup> Ethnic groups in Yunnan differ in many social and demographic behaviors. The results in this paper are unaffected by inclusion of variables related to ethnic group. For discussion of ethnic groups in Yunnan see Anderson (1995), Anderson, Kim, and Romani (1997), Zhang and Zhang (1994), and Zhang et al. (1995). For a discussion of ethnic groups and demographic behavior in China, see Yang (1994), and Zhang (1994).

<sup>4</sup> We wanted to identify married children but not to misidentify the spouse as the child of the elderly person. Since childbearing for women rarely began before age 20 for women or before age 25 for men, our coding rule seemed a reasonable decision.

**Table 1. Characteristics of the Elderly, Urban Yunnan 1995**

	Live Persons			Dead Persons		
	Total	Men	Women	Total	Men	Women
<b>Age Distribution</b>						
60-64	34.2	36.4	32.2	12.2	13.8	10.4
65-69	27.5	28.5	26.6	19.4	23.3	15.1
70-74	18.8	18.8	18.9	16.9	18.0	15.7
75-79	11.1	9.9	12.2	21.4	22.5	20.3
80-84	5.9	4.7	7.0	18.7	15.9	21.7
85-89	1.9	1.4	2.4	7.6	5.0	10.4
90+	.3	.2	.6	3.9	1.6	6.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
<b>%Co-Resident</b>	64.2	58.7	69.1	74.7	71.7	78.0
<b>Educational Level</b>						
Less than Primary	75.3	57.6	91.2	N.A.		
Primary	18.4	31.1	7.0			
Junior High	4.5	8.1	1.3			
Senior High	1.4	2.3	.5			
Some College or More	.5	.9	.1			
Total	100.0	100.0	100.0			
<b>Proportion Working</b>	23.0	30.8	16.0	N.A.		
<b>Marital Status</b>						
Married	64.6	77.8	52.8	N.A.		
Widowed	33.9	20.4	46.0			
Divorced	.7	.9	.5			
Never Married	.8	.9	.7			
Total	100.0	100.0	100.0			
<b>Estimated % Married</b>	55.5	68.7	43.6	33.3	46.6	18.8
N	15,404	7,273	8,131	723	378	345

Education of the elderly in urban Yunnan is low; 91% of elderly women have never been to primary school. Unfortunately educational attainment of those who had recently died was not collected. Figure 1 shows the proportion of the elderly by sex in 1995 who have less than primary education. The vast majority of elderly women have no education. Men at all ages are more likely to have had some schooling than women. Half of men age 60-64 have some education. The pattern by age and sex suggests that between 1910 and 1935 schooling chances for boys increased substantially.<sup>5</sup>



Although official retirement age for state-sector jobs in China is 55 for women and 60 for men, many elderly continue to work for pay, both among the self-employed and among those who were employees. As shown in Table 1, 23% of the living elderly had a reported occupation and, thus, were working for pay in 1995. For live persons, occupation refers to current occupation.<sup>6</sup>

Almost all of the elderly were married or widowed; as shown in Table 1, less than 2% of the living elderly in 1995 were never married or divorced. Put another way, 96% of those who were not currently married were widowed. The lower mortality of women, the typical age difference of spouses, and a somewhat greater tendency of men than women to remarry results in a higher proportion of widows than widowers. In the discussion and in tables and figures in the remainder of this paper, we shall refer to the unmarried as widowed.

Since a purpose of this paper is examination of factors related to mortality, it is important to have

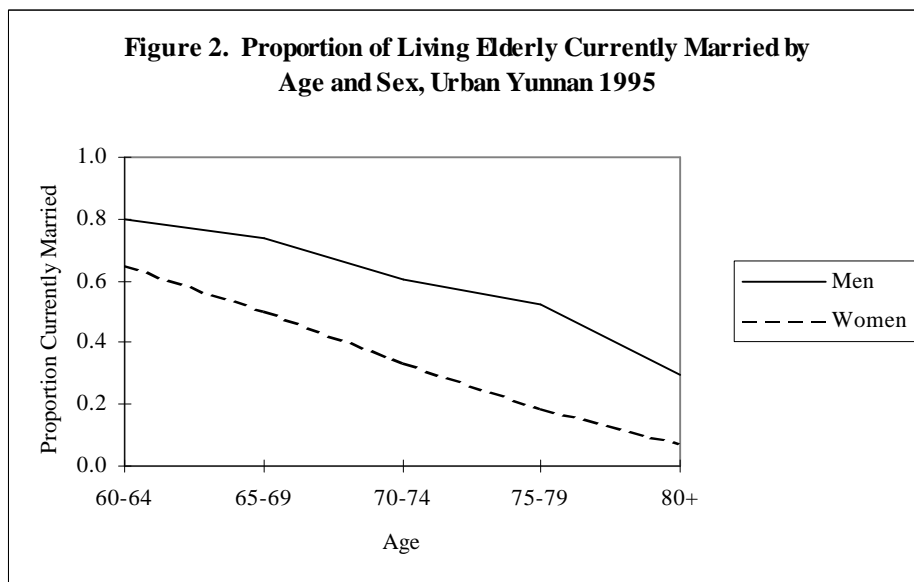
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<sup>5</sup> For discussion of cohort changes in education in China as a whole, see Hannum and Xie (1994). For discussion of cohort changes in education in Yunnan, see Anderson (1995).

<sup>6</sup> Occupation of dead persons was also collected, but the meaning for dead persons is different than for living persons. Eighty-nine percent of dead persons had a reported occupation at the time of death. It is not plausible that 89% of these elderly persons were actually working for pay shortly before they died. For dead persons, thus, we think that occupation reflects main lifetime occupation or last occupation and is not an indicator of whether they were working for pay shortly before they died.

comparable variables for living and dead persons. In 1995, marital status of recently dead persons was not collected. We estimated whether a recently dead person was married at the time of his or her death through examination of the composition of the remaining members of the household. We estimated that the dead person was married if the household contained a widowed person of approximately the same age as the dead person.<sup>7</sup> We also estimated whether living persons were married, using the same procedure as applied to dead persons.<sup>8</sup> The proportions estimated to have been married among both living and recently dead persons are shown in Table 1. The estimated proportion married for living persons is lower than the reported proportion, but is fairly close. In the rest of the paper in tables and graphs, we use the estimated marital status of the living and dead elderly, in order to employ comparable variables.

Figure 2 shows the proportion of the living elderly by age and sex who are estimated to be currently married in 1995. Elderly men are more likely to be married than elderly women.



This is due to higher mortality of men than women, leaving widows more often than widowers, and because men tend to be older than their wives, further increasing the chance that an elderly woman will lose her spouse compared to an elderly man.

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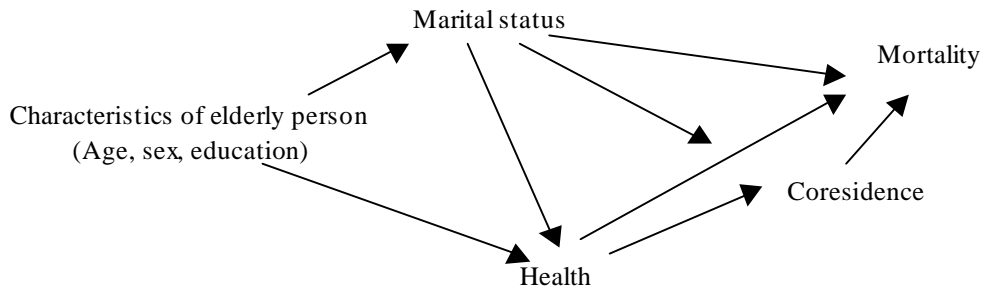
<sup>7</sup> In China, wives tend to be younger than their husbands. However for second marriages, there is more variance in the age difference of the spouses. We wanted to use an age range sufficient to include the spouse without misclassifying other household members as spouses. We classified a recently deceased woman as having been married if there is a widowed man between five years younger and fifteen years older in the household and we classified a recently deceased man as having been married if there is a widowed woman between fifteen years younger and five years older in the household.

<sup>8</sup> In 90% of the cases for living elderly persons, there is agreement between whether the person reported he or she was currently married and the estimation of whether the person was currently married.

## Approach to the Analysis

Figure 3 is a schematic model of the relations between multigenerational co-residence and mortality of the elderly examined in this paper. Whether an elderly person lives with a married child and the factors related to the decision to co-reside is the first focus of this paper. An elderly person may co-reside with a married child from the time that child is married. If this is the case, there is no decision on the part of the elderly person to begin co-residence. If the elderly person is not currently co-resident with a married child, there is a decision to be made by members of the older and younger generations whether to begin to co-reside. Co-residence may be precipitated by an event such as widowhood of the elderly parent; it may occur at some predetermined age; or it may be in response to a perceived increased need by the elderly person or by the married child for co-residence.

**Figure 3: Schematic Model of Relations of Coresidence and Mortality of Elderly**



We do not have any direct measures of the health status or capability for independent living of the elderly persons in the survey. However, those who are younger, better educated or still working for pay are likely to have less need for personal assistance from married children. On the other hand, those elderly who are younger, better educated, and married are more able to help their children or grandchildren.

The second focus of this paper is whether co-residence is related to lower mortality of the elderly, after other characteristics of the elderly person, such as age, sex, and marital status, have been taken into account. In most of the world, married people have lower mortality than widowed people.

There are several possible reasons why the widowed may have higher mortality than the married. Widowed people may have high mortality due to risk factors for mortality that they share with their deceased spouses. Using data for the United States, Umberson (1992) found the widowed

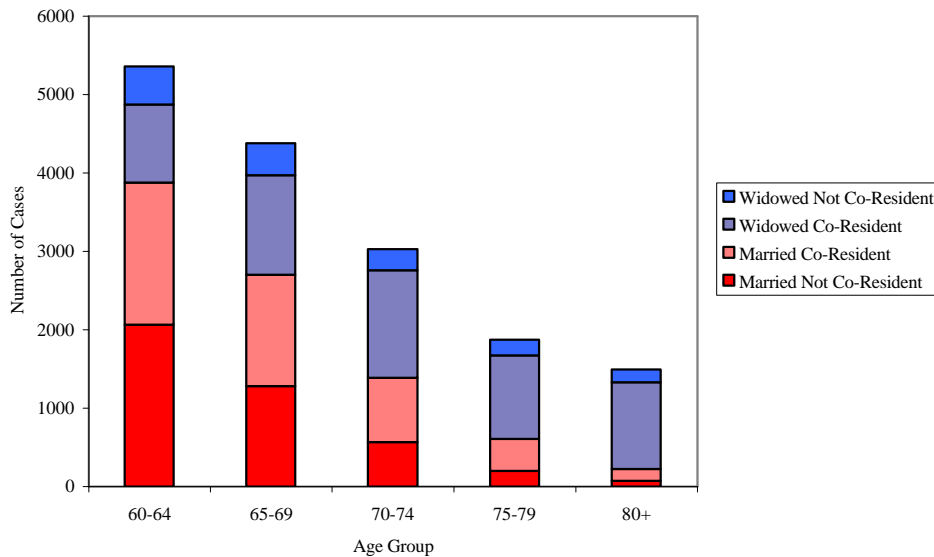
to have poorer health than otherwise similar married people. The widowed may have elevated mortality due to a short-term bereavement effect, such as Kaprio, Koskenvuo and Rita (1987) found using data for Finland. The widowed may have high mortality due a decline in overall welfare accompanying widowhood, such as Rahman (1997) found using data for Bangladesh.

We would expect the widowed to have higher mortality than the married to be true in our study. Since co-residence is a source of social support, we would expect that for any given elderly person co-residence would decrease (or not increase) the chance that the elderly person dies in a particular time period. However, if a major reason for co-residence is ill health or incapability for independent living by the elderly person, then the selection into co-residence could result in a positive relation between co-residence and mortality.

### Analysis of Factors Affecting Co-Residence

Figure 4 shows the distribution of the number of cases of living elderly in our data set by age, marital status, and co-residence status. The number of people in the survey declines with age, as would be expected due to mortality. It is also clear that the proportion married declines with age.

**Figure 4. Number of Cases of Living Elderly by Age, Marital Status, and Co-Residence, Urban Yunnan 1995**



The distribution between those who are co-resident and those who are not co-resident is interesting. At all ages, the widowed tend to be co-resident. Among the married, co-residence increases with age. At all ages, co-residence is the norm for the widowed, while this is not true for the married.

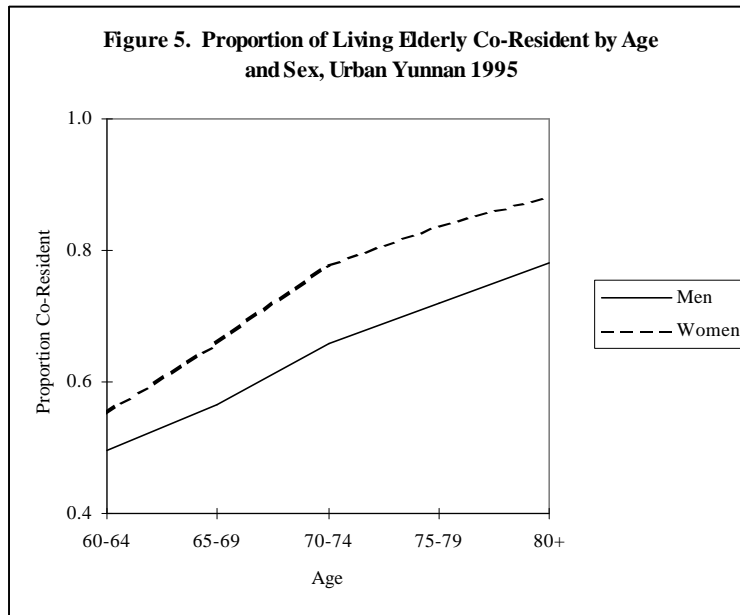


Figure 5 shows the proportion of the elderly who were co-resident by age and sex. It increases with age and is higher at all ages for women than for men. Among those age 60-64, 52% of all living elderly were co-resident. Thus for almost half of the elderly, co-residence with younger married relatives is a decision to be made, rather than a carryover from earlier living arrangements. There has been substantial evidence from other studies (Freedman 1978) that the Confucian ideal of multi-generational co-residence is often not attained in practice, even when such co-residence would be possible. However, the expectation of many scholars and commentators remains that parents will live with their married children whenever possible.

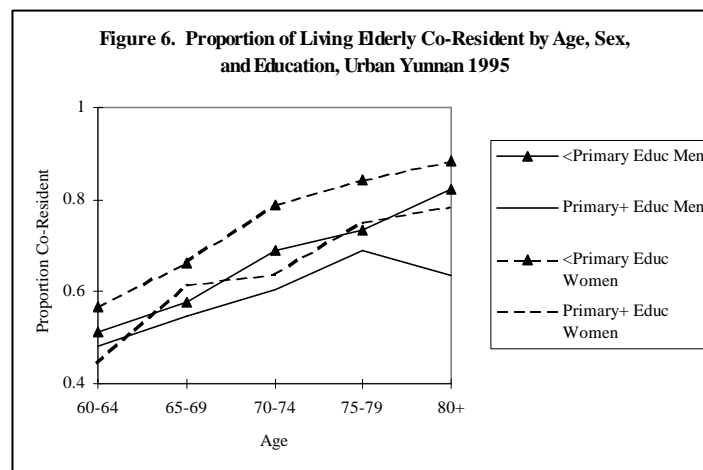


Figure 6 shows the proportion co-resident by age, sex and education. Co-residence is more common for less educated than for more educated elderly, and the gap by education increases with age. People with less education tend to have fewer financial resources and are likely to have poorer health than people with less education (Estes et al. 1984; Robert and House 1996; Victor

1991). The greater tendency to co-reside by those with less education suggests that co-residence is motivated by the needs of the elderly. The relatively high level of co-residence among men in their sixties with some education may indicate that part of the reason for co-residence among these relatively well-off elderly men is provision of help to the younger generation.

Figure 7 shows the proportion co-resident by age, sex and marital status. The widowed are substantially more likely to be co-resident than the currently married. Figure 7 confirms the impressions from Figure 4.

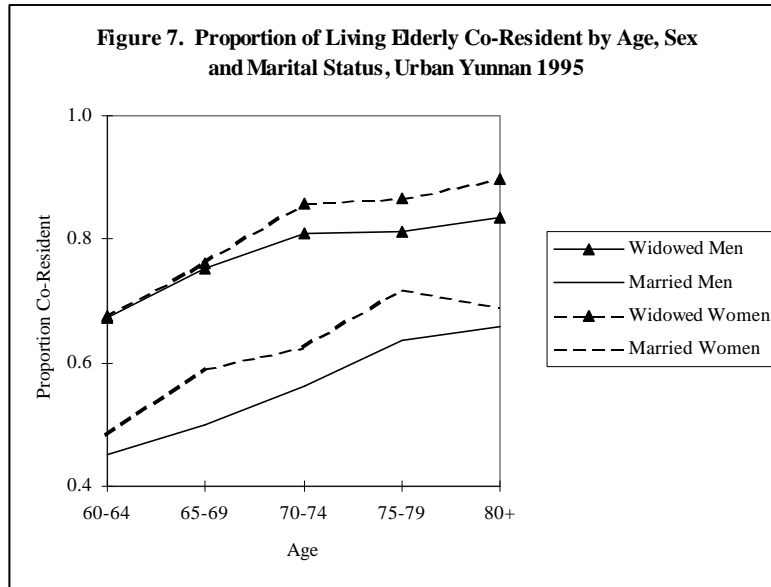


Table 2 shows the results of logistic regression analyses of factors related to co-residence. The dependent variable has the value 1 if the elderly person is co-resident and 0 otherwise. Column 1 shows the results for all living elderly, while Columns 2 and 3 show the results for the widowed elderly and the married elderly separately. In the multivariate analysis, being older, being widowed, having less education, and not working for pay all contribute to the likelihood of co-residence. All of these characteristics are related to being in more need of social support, personal aid, and financial support.

**Table 2. Logistic Regression Analysis of Factors Related to Co-Residence and to Death of the Elderly, Urban Yunnan, 1995**

**Dependent Variables** **Co-Residence:** Whether Person Age 60+ Lives in a Household Containing an Ever-Married Person 20 or more years younger than an elderly woman or 25 or more years younger than an elderly man (0=No, 1=Yes)

**Mortality:** Whether Person Age 60+ from Group is Alive at the 1995 Survey Date or Had Died in Previous 12 Months (0=Alive, 1=Died)

	Co-Resident Living Elderly - All Variables			Co-Resident Living Elderly-Variables Available for All Elderly			Mortality All Elderly-Variables Available for All Elderly		
	Total (1)	Widowed (2)	Married (3)	Total (4)	Widowed (5)	Married (6)	Total (7)	Widowed (8)	Married (9)
Age 65-69 (0=No, 1=Yes)	<u>.1786</u> ( <u>&lt;.001</u> )	<u>.2722</u> (.001)	<u>.1511</u> (.004)	<u>.2814</u> ( <u>&lt;.001</u> )	<u>.3980</u> ( <u>&lt;.001</u> )	<u>.2440</u> ( <u>&lt;.001</u> )	<u>.6297</u> ( <u>&lt;.001</u> )	<u>.7250</u> ( <u>&lt;.001</u> )	<u>.5441</u> (.003)
Age 70-74 (0=No, 1=Yes)	<u>.4500</u> ( <u>&lt;.001</u> )	<u>.6835</u> ( <u>&lt;.001</u> )	<u>.3131</u> ( <u>&lt;.001</u> )	<u>.6477</u> ( <u>&lt;.001</u> )	<u>.9307</u> ( <u>&lt;.001</u> )	<u>.4968</u> ( <u>&lt;.001</u> )	<u>.7988</u> ( <u>&lt;.001</u> )	<u>.8601</u> ( <u>&lt;.001</u> )	<u>.7604</u> ( <u>&lt;.001</u> )
Age 75-79 (0=No, 1=Yes)	<u>.6357</u> ( <u>&lt;.001</u> )	<u>.6937</u> ( <u>&lt;.001</u> )	<u>.6187</u> ( <u>&lt;.001</u> )	<u>.8754</u> ( <u>&lt;.001</u> )	<u>.9871</u> ( <u>&lt;.001</u> )	<u>.8477</u> ( <u>&lt;.001</u> )	<u>1.5256</u> ( <u>&lt;.001</u> )	<u>1.6096</u> ( <u>&lt;.001</u> )	<u>1.4139</u> ( <u>&lt;.001</u> )
Age 80+ (0=No, 1=Yes)	<u>.7933</u> ( <u>&lt;.001</u> )	<u>.9082</u> ( <u>&lt;.001</u> )	<u>.5906</u> ( <u>&lt;.001</u> )	<u>1.0536</u> ( <u>&lt;.001</u> )	<u>1.2279</u> ( <u>&lt;.001</u> )	<u>.8710</u> ( <u>&lt;.001</u> )	<u>2.1129</u> ( <u>&lt;.001</u> )	<u>2.2108</u> ( <u>&lt;.001</u> )	<u>2.0241</u> ( <u>&lt;.001</u> )
Male (0=No, 1=Yes)	-.0401 (.317)	-.0457 (.517)	-.0272 (.578)	<u>-.2026</u> ( <u>&lt;.001</u> )	<u>-.1991</u> (.002)	<u>-.1973</u> ( <u>&lt;.001</u> )	<u>.4884</u> ( <u>&lt;.001</u> )	<u>.4335</u> ( <u>&lt;.001</u> )	<u>.5896</u> ( <u>&lt;.001</u> )
Primary Education (0=No, 1=Yes)	<u>-.1487</u> (.002)	-.0286 (.767)	<u>-.1937</u> ( <u>&lt;.001</u> )						
> Primary Education (0=No, 1=Yes)	<u>-.5876</u> ( <u>&lt;.001</u> )	<u>-.6305</u> ( <u>&lt;.001</u> )	<u>-.5727</u> ( <u>&lt;.001</u> )						
Working (0=No, 1=Yes)	<u>-.5790</u> ( <u>&lt;.001</u> )	<u>-.8591</u> ( <u>&lt;.001</u> )	<u>-.4784</u> ( <u>&lt;.001</u> )						
Married (0=No, 1=Yes)	<u>-.9609</u> ( <u>&lt;.001</u> )			<u>-.9988</u> ( <u>&lt;.001</u> )			<u>-.4922</u> ( <u>&lt;.001</u> )		
Co-Resident (0=No, 1=Yes)							.0586 (.530)	<u>-.4458</u> ( <u>&lt;.001</u> )	<u>.7237</u> ( <u>&lt;.001</u> )
Constant	<u>1.1481</u> ( <u>&lt;.001</u> )	<u>1.0963</u> ( <u>&lt;.001</u> )	<u>.1926</u> ( <u>&lt;.001</u> )	<u>.9317</u> ( <u>&lt;.001</u> )	<u>.8078</u> ( <u>&lt;.001</u> )	-.0301 (.461)	<u>-4.060</u> ( <u>&lt;.001</u> )	<u>-3.713</u> ( <u>&lt;.001</u> )	<u>-4.990</u> ( <u>&lt;.001</u> )
X <sup>2</sup>	<u>1868.37</u> ( <u>&lt;.001</u> )	<u>347.83</u> ( <u>&lt;.001</u> )	<u>277.34</u> ( <u>&lt;.001</u> )	<u>1651.60</u> ( <u>&lt;.001</u> )	<u>231.83</u> ( <u>&lt;.001</u> )	<u>155.05</u> ( <u>&lt;.001</u> )	<u>485.66</u> ( <u>&lt;.001</u> )	<u>249.41</u> ( <u>&lt;.001</u> )	<u>139.75</u> ( <u>&lt;.001</u> )
d.f	9	8	8	6	5	5	7	6	6
N	15,404	6,859	8,545	15,404	6,859	8,545	16,127	7,341	8,786

Coefficients are underlined if p<.05

The relation of co-residence to marital status suggests that becoming widowed is a strong reason to begin to co-reside with married children. Even if the widowed person is capable of independent living, the loss of the emotional support of the spouse may by itself make co-residence attractive to the elderly person. This view has been articulated by elderly in East Asia. Elderly are often quite conscious of widowhood as an event that will necessitate some decision about co-residence. Kim (1998: 146) quotes elderly focus group participants in Korea:

“If my husband dies first, I would like to live with her (my eldest daughter-in-law)...”(Elderly Married Woman in Korea)

“I have two plans ... If my wife passes away, I would either go to the son with whom I am most comfortable with, and I would give him more money; or I would just live here (one son’s place) for a few months and there (another son’s place) for a few months.”  
(Elderly Married Man in Korea)

Married elderly also are sometimes quite clear about their desire to maintain residence separate from their children as long as they are physically able. As Kim (1998: 137) quotes a married elderly man:

“Once I am near death, I will go live with my eldest son, since I would be given burial rites there ... My eldest daughter-in-law asks me to come and live with them, but I don’t want to live with them yet. It’s better to live with your wife separately from the children for now.” (Elderly Married Man in Korea)

The notion that older people associate co-residence with a shift that may occur at the death of a spouse is also evident in Japan. In ethnographic interviews conducted by Traphagan (1998) in 1995 and 1996 with more than 50 elderly living in a rural town, the idea that co-residence is something to be delayed as long as possible was frequently raised, as is entrance into old age itself. The following quite illustrates that many elderly widows are unwilling to give up the freedom and independence (*jiyû*) they were experiencing for the first time in their adult lives.

“I thought this would be a time we would do things together; his death was a great disappointment (*gakkari*). I thought we would be able to enjoy conversation and company in our later years...When you get to this age, the best way is to live alone. If I am able to, I would like to live alone from here on. Since I have my health this is the best way. If you live with your children it will get on your nerves (*shinkei o tsukau*). If you live with your children you don't have the freedom to do what you want. I have enough money to live and so I can do pretty much what I want. It's not good to suddenly find yourself living alone, but I had time to get used to it and now I don't want to change that.” (Elderly Widowed Women in Japan)

Another informant Traphagan interviewed was caring for her bed-ridden husband and was receiving assistance twice-a-week from the town's home helper program. She clearly relates co-residence of her eldest son (a common pattern in Japan) to becoming a widow. Her son works in a neighboring prefecture and she states that she, "expects him to eventually return, probably after

my husband dies." She also has two living daughters, the youngest of whom had recently returned from Tokyo to live with her. Below, she talks about the considerable stress that she feels as a result of caring for her husband and that her daughter's return has helped to relieve that stress:

“My daughter came back because of I am getting older and because it was time to get married, but at her age it will be difficult to find a husband. I asked her for years to come back to live with us because of my husband's health, and I think that this is part of the reason that she came back. Having her around helps to reduce the stress of caring for my husband because I can get out to spend time with friends and go to events like last week's festival last [in a neighboring town].” (Elderly Married Women in Japan)

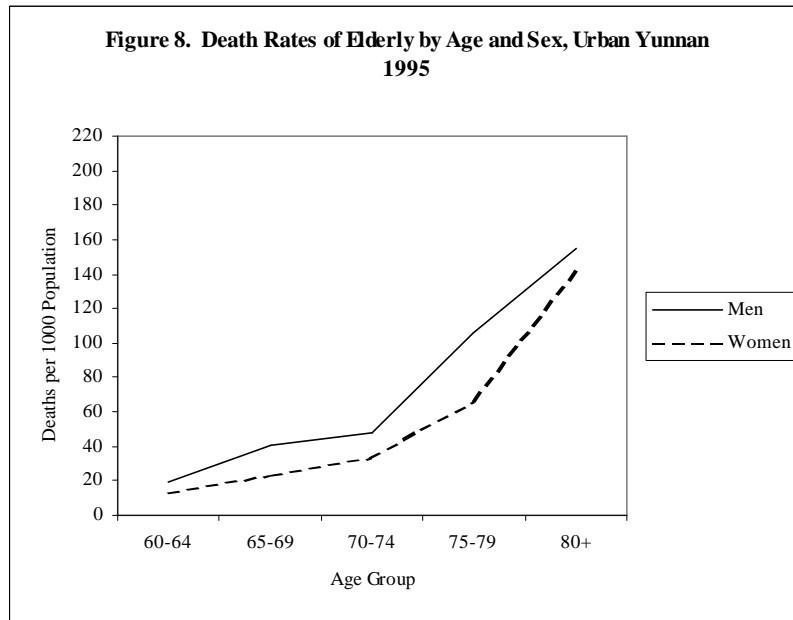
Columns 4 through 6 shows logistic regression analyses of co-residence in which the independent variables are restricted to those that are also available for dead persons. The results are similar to those in Columns 1 through 3.<sup>9</sup> Sex is significant in Columns 4 through 6, while it is not in Columns 1 through 3 because men are more likely to have education and to be working than women. This is similar to Kim's (1998) findings regarding preferences for co-residence among the elderly in Korea. Overall elderly women expressed a stronger preference for co-residence than elderly men. This difference disappeared when the economic status of the elderly person was taken into account.

### **Factors Affecting Mortality**

Figure 8 shows the age-specific death rates per thousand population for men and women in the 1995 data. The numerator is the number of people who died in the 12 months before the 1995 survey who were a given age at death. The denominator is the sum of those people and the living people in that age group at the time of the survey. This would be the same as the age-specific mortality rate if the number of people by age and other characteristics did not change in the year before the 1995 survey. Figure 8 shows the expected pattern of higher male than female death rates and increasing death rates with age.

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<sup>9</sup> Columns 4 through 6 of Table 2 show the results for living elderly. Logistic regression analyses including all elderly (living and recently deceased) are virtually identical.



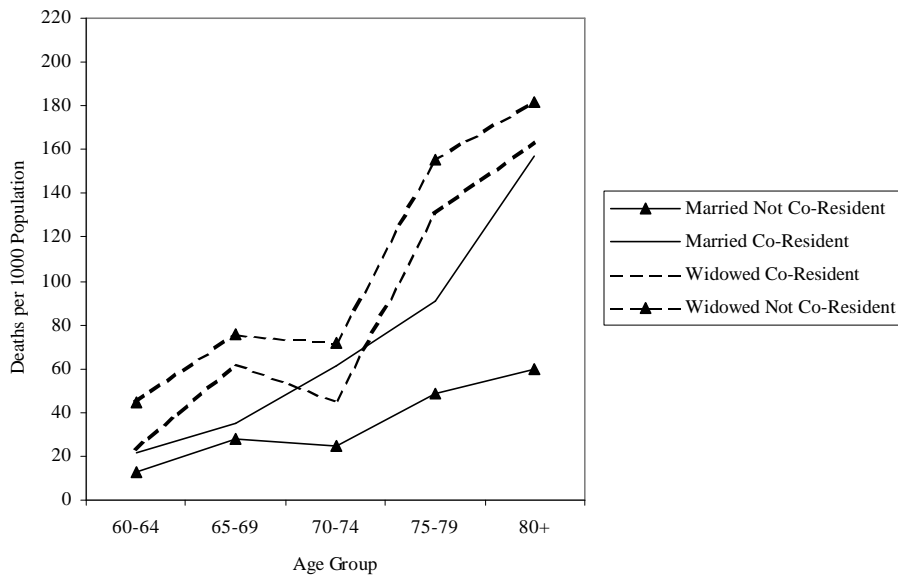
Figures 9 and 10 show age-specific death rates by sex, marital status and co-residence status. Figure 9 refers to men and Figure 10 to women.<sup>10</sup> For both men and women, the married tend to have lower death rates than the widowed. This is consistent with findings about the relation of marital status to mortality among the elderly in the United States and other countries. However, co-residence has an opposite relation to mortality for the widowed and for the married. Among the widowed, those who are co-resident have *lower* mortality than those who are not co-resident. Among the married, those who are co-resident have *higher* mortality than those who are not co-resident. We do not think that co-residence actually increases the mortality risks of the married elderly.

We think that for those elderly who are married, since separate residence is quite common, there often needs to be some reason, such as ill health of the elderly, to precipitate co-residence. Among the widowed, the spouse's death may be enough to lead to co-residence with a married child. To the extent this occurs, risk factors for mortality are a substantially greater cause of selection into co-residence for the married than for the widowed, giving the erroneous appearance that co-residence causes greater mortality among married elderly.

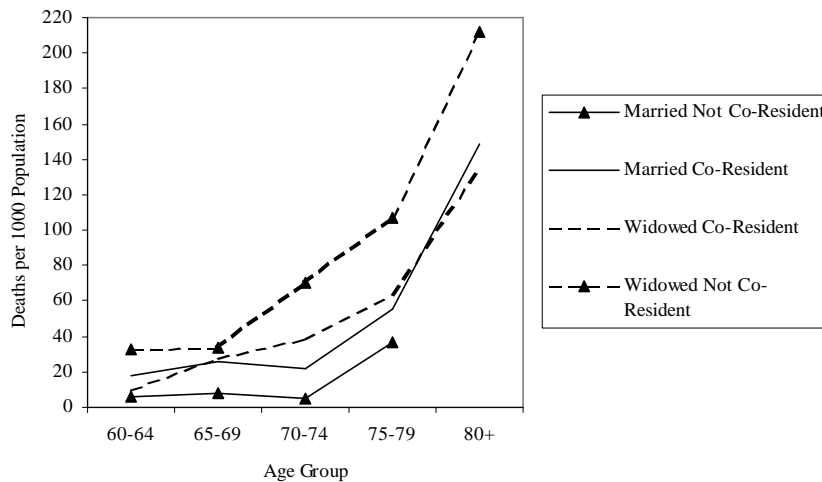
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<sup>10</sup> In Figures 9 and 10 values are not shown that are based on less than 20 cases. This is why no value is shown in Figure 10 for Married Not Co-Resident Women.

**Figure 9. Death Rates of Elderly Men by Age, Marital Status and Co-Residence Status, Urban Yunnan 1995**



**Figure 10. Death Rates of Elderly Women by Age, Marital Status, and Co-Residence Status, Urban Yunnan 1995**



These impressions are supported by results shown in Table 2. Columns 7, 8, and 9 of Table 2 show the results of logistic regression analyses of mortality of the elderly for all elderly, widowed elderly and married elderly. For all analyses, mortality increases with age and is higher for males than females, consistent with normal expectations. In Column 7, being married is significantly related to lower mortality, but being co-resident has no overall effect on mortality. The results in

Columns 8 and 9 support what appears in Figures 9 and 10. Being co-resident has a significant relation to lower mortality chances of the widowed and higher mortality chances of the married.

### **Conclusions and Implications**

Consideration of the above quantitative data from China and qualitative data from East Asia suggest several conclusions about the factors leading to co-residence in Yunnan Province. First, although co-residence of the elderly with their married children, especially with married sons, is a Confucian ideal, whether and when the elderly co-reside with married children is a decision rather than a behavioral norm to which people adhere whenever possible. Co-residence is higher with age, for the widowed than the married, and for those with less education. This pattern suggests that co-residence is a response to the need for help on the part of the elderly.

Entry into co-residence differs depending on whether the elderly person is currently married. Widowhood seems to be a substantial reason for co-residence. Co-residence of the married is lower at all ages than for the widowed. Co-residence of the married seems to be precipitated by the need for help on the part of the elderly married couple, and, when considered in light of the qualitative data from East Asia, suggests that health status may play a significant role in the decision-making process about co-residence.

For the elderly as a whole, co-residence has an insignificant relation to mortality. Among the widowed, co-residence is related to substantially lower chances of mortality. Among the currently married, co-residence is related to substantially higher chances of mortality, probably because risk factors for mortality affect selection into co-residence among those who are currently married.

We have not proposed a solution to the problem posed by selectivity into co-residence related to risk factors for mortality, among the married. To directly test for selectivity and to account for its effect, we would need information on health status. This kind of data is typically not available in large scale surveys and censuses. We hope this paper will sensitize researchers to the potential magnitude of selectivity into living arrangements by health status and encourage more direct testing in the future. We hope this paper will also sensitize researchers to the importance both of being aware of the existence and content of cultural values, but also to look critically at the role of cultural ideals in behavior.

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