

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/256927376>

# Does co-residence with adult children associate with better psychological well-being among the oldest old in China?

Article in *Aging and Mental Health* · September 2013

DOI: 10.1080/13607863.2013.837143 · Source: PubMed

---

CITATIONS

13

READS

55

3 authors, including:



**Tianyong Chen**

Chinese Academy of Sciences

5 PUBLICATIONS 67 CITATIONS

SEE PROFILE

This article was downloaded by: [Institute of Psychology ]

On: 15 March 2014, At: 00:43

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Aging & Mental Health

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/camh20>

### Does co-residence with adult children associate with better psychological well-being among the oldest old in China?

Jinfeng Wang<sup>a</sup>, [Tianyong Chen](#)<sup>a</sup> & Buxin Han<sup>a</sup>

<sup>a</sup> Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing, China

Published online: 20 Sep 2013.

To cite this article: Jinfeng Wang, Tianyong Chen & Buxin Han (2014) Does co-residence with adult children associate with better psychological well-being among the oldest old in China?, *Aging & Mental Health*, 18:2, 232-239, DOI: [10.1080/13607863.2013.837143](https://doi.org/10.1080/13607863.2013.837143)

To link to this article: <http://dx.doi.org/10.1080/13607863.2013.837143>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

## Does co-residence with adult children associate with better psychological well-being among the oldest old in China?

Jinfeng Wang<sup>†</sup>, Tianyong Chen\* and Buxin Han\*

*Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Beijing, China*

*(Received 21 January 2013; accepted 16 August 2013)*

**Objectives:** Embedded in a traditional culture where filial piety was honored, living with adult children once had been the most prevalent living arrangement and the best option for Chinese elderly people. This study examined whether co-residence with adult children would be still beneficial to the psychological well-being (PWB) among the oldest old (aged 80 and above) in China today.

**Method:** Using data from the fifth wave of the Chinese Longitudinal Healthy Longevity Survey conducted in 2008, the authors examined the living arrangements among the total sample ( $n = 12,213$ ) and the association between living arrangement and PWB among a subsample ( $n = 7037$ ) of respondents with normal cognition.

**Results:** (1) More than half (67.1%) of the unmarried oldest old reported being co-resided with their children; while for the married oldest old, the majority of the respondents (62.4%) lived with a spouse only. (2) For the widowed, co-residence with adult children was associated with better PWB compared to living alone; but for the married, co-residence did not bring additional benefits to the PWB. (3) Co-residence of the widowed and children was associated with better life satisfaction compared to living with a spouse only, while it was associated with lower emotional well-being compared to living with a spouse (with or without a child).

**Conclusion:** These findings suggest that living arrangements of Chinese oldest old are partially getting westernized, and a majority of them adapt it well. Government programs need to be developed to assist the Chinese oldest old (especially widowed) to live independently.

**Keywords:** psychological well-being; social support; extreme old age; living arrangement; independent living

### Introduction

The oldest old (i.e., people aged 80 and older) are much more likely to need help and support in taking care of their daily needs as compared to the younger old (Zeng, Vaupel, Xiao, Zhang, & Liu, 2002). Co-residence with adult children is assumed to meet the needs of the oldest old because those who are living with children will have more opportunities to interact with them and to gain more physical and emotional supports; therefore it may benefit the well-being of the oldest old (Zimmer, 2005). In fact, embedded in a traditional culture where filial piety was honored, living with adult children once had been the most prevalent living arrangement and the best option for Chinese elderly people (Zeng et al., 2002). This tradition is attributed to Confucian doctrines, which emphasize not only respect for older generations but also the obligation of children to live with and take care of their elderly parents (Cheng & Chan, 2006; Zeng & Wang, 2003).

However, rapid socioeconomic development and urbanization have brought fundamental changes to the structure of the family in China. Economic development, in particular, promotes young people's preference for independent living, and increasing migration and job mobility further separate more old parents from their adult children (Zeng & Wang, 2003). Meanwhile, researches have suggested that giving absolute deference to parents'

wishes and continuing the family line are no longer dominated cultural norms among the Chinese (Cheng & Chan, 2006; Hermalin & Yang, 2004).

Even if elderly people living with children are more likely to receive supports from their children, intergenerational conflict and lack of privacy may lower their psychological well-being (PWB) (Yang & Chandler, 1992; Zhou & Qian, 2008). Thus, some elderly people may also prefer to live separately from their children and enjoy a better quality of life. This trend toward independent living, even among the oldest old, has been observed from the second-half of last century and also appears to be the characteristic of many developed countries (Taeuber & Rosenwaike, 1992; United Nations, 2005). Some previous studies suggest that marital status may influence the effect of co-residence on elderly people's PWB. For instance, in terms of depressive symptoms and other health outcomes, significant differences were found between co-residence with children and living alone in unmarried women but not in married couples (Hughes & Waite, 2002; Waite & Hughes, 1999).

Nevertheless, the oldest-old Chinese and their children (most of them are also elderly people) should be the most loyal defenders of traditional cultural norms. They may, therefore, still prefer to live together and feel well with

<sup>†</sup>State Key Laboratory of Resources & Environmental Information System, Institute of Geographical Science and Natural Resources Research, University of Chinese Academy of Sciences, Beijing, China

\*Corresponding authors. Email: [chentiy@psych.ac.cn](mailto:chentiy@psych.ac.cn), [hanbx@psych.ac.cn](mailto:hanbx@psych.ac.cn)

such living arrangement, regardless of whether they are married or unmarried.

To sum up, with dramatic changes that have occurred in Chinese society in recent decades, it is a worth attending problem whether co-residence with adult children is still the most prevalent living arrangement and beneficial to the PWB among the oldest old in China.

In this study we address two questions. First, we ask whether co-residence with adult children is still the most prevalent living arrangement among the oldest old in China today. Second, we explore whether co-residence with children, compared to independent living (i.e., living with a spouse only or living alone according to marital status), is associated with better PWB among the oldest old. Given that living arrangement options are partially determined by marital status and that a spouse likely provides the most immediate source of support, analyses were conducted separately for those married and unmarried.

We hypothesize that living with children is still beneficial to the PWB (both life satisfaction (LS) and emotional well-being (EWB)) of the oldest old in China today. In particular, (1) for the widowed oldest old, living with children is associated with better PWB compared to living alone; (2) for the married oldest old, living with a spouse and children is also associated with better PWB compared to living with a spouse only; (3) adult children may partially substitute for the role of spouse, thus co-residence of the widowed oldest old and adult children is associated with equivalent PWB compared to living with spouse only.

## Methods

### Sample

We use the data from the Chinese Longitudinal Healthy Longevity Survey (CLHLS), 'the first large survey of the oldest old ever conducted in a developing country' (Zeng et al., 2002, p. 252). The data were undertaken in 631 randomly selected counties and cities of the 22 provinces in China, and the survey areas represent 85% of China's population. In 2008, the fifth wave of the survey, 12,213 oldest-old respondents (aged 80 and older) were interviewed. This survey accumulated comprehensive information of the oldest old in China, including demographic data, financial and health status, living arrangement, social support, PWB, and so on (presented in Table 1). Briefly, the sample was predominantly female, without marriage (widowed, never married, or divorced), poorly educated, and financially deprived, which is typical of the oldest-old population in China. Overwhelming majority of them had at least one child alive and most of them lived with their children, while very few of them lived with others (e.g., other relatives or nannies) or lived in an institution. In addition, the sample in general was relatively healthy, although 29.2% suffered from different physical impairment and 16.4% reported *bad* or *very bad* health status.

Note that the CLHLS oversampled extremely nonagenarians and centenarians, because there are fewer persons at the more advanced ages (Zeng, Vaupel, Xiao, Zhang, & Liu, 2001). Therefore, it is not surprising that 40.5% of

the respondents got a score below cut-off points for the Chinese version of mini-mental state examination (MMSE, for detail see Zhang, 2006). Given that the overwhelming majority of Chinese oldest old are illiterate or have very limited education, education-based cut-off points were used in this study (i.e., 17/18 for those without formal education, 20/21 for those with 1–6 years of education, and 24/25 for those with more than 6 years of education, see Zhang et al., 2004). As the MMSE has been widely used in clinical and epidemiological studies as a standardized screening tool for cognitive impairment, serious questions are raised about the validity of self-reports for those who get lower MMSE scores than the cut-off points. Note that, in the CLHLS data, from 16.3% to 20.3% of respondents could not answer at least one of the six PWB questions. Most of the missing data (95.6%–99.5%) were associated with lower MMSE scores than the cut-off points. In addition, about 1.0% of the sample of oldest old had either never married or divorced. We exclude them from the analyses and confirmed that our results were not sensitive to this choice. Therefore, only a subsample ( $n = 7037$ ) of respondents with normal cognition were included when the association between living arrangement and PWB was analyzed.

## Measures

### Dependent variables

Self-reported LS in the CLHLS was measured by a single question, namely, 'how do you feel about your life at present?' Five levels of responses were given, i.e., *very good*, *good*, *so so*, *bad*, and *very bad*. The EWB was measured by five questions as follows: (1) 'Do you always look on the bright side of things?' (2) 'Do you often feel anxious or fearful?' (3) 'Do you often feel lonely and isolated?' (4) 'Do you feel the older you get the more useless you are?' and (5) 'Are you as happy now as when you were younger?' Five levels of responses were given, i.e., *always*, *often*, *sometimes*, *seldom*, and *never*. Respondents were asked to choose one of the five options. The scores of negative questions (i.e., questions 2, 3, and 4) were reversed to positive scores. Therefore, for all of the above six questions of LS and affective experience, higher scores represent better PWB.

### Independent variables

Living arrangement was divided into six categories: living with a spouse and children, living with a spouse only, living with children only, living with others, living alone, and living in an institution. Respondents were required to choose one of the six options. Expected living arrangement was classified into five categories: living alone (or with a spouse) regardless residential distance with children, living alone (or with a spouse) and children living nearby, co-residence with children, living in an institution, and do not know.

The control variables included demographic information (age, gender, place of residence, education), financial situation (main source of financial support and financial strain), health status (activities of daily living (ADL) and

Table 1. Descriptive statistics, CLHLS 2008 (in percentages).

Variable	Total sample ( $n = 12,213$ )	Sample for regression ( $n = 7037$ )
<b>Age</b>		
80–89	35.1	47.6
90–99	37.2	36.8
100+	27.6	15.6
Female	61.5	55.2
<b>Marriage</b>		
Currently married	18.5	22.5
Widowed	80.5	77.5
Never married	0.8	–
Divorced	0.2	–
At least one child alive	95.0	96.6
Urban	39.5	41.5
<b>Education</b>		
0 years	71.5	66.9
1–6 years	22.1	25.7
6+ years	6.4	7.4
<b>Main source of financial support</b>		
Retirement wages	14.5	18.2
Children	74.3	71.2
Government	7.8	6.7
Others	3.4	3.9
Financial strain	23.2	19.6
<b>Physical condition (ADL)</b>		
Active	70.8	85.3
Mildly disabled	14.6	10.0
Severely disabled	14.6	4.7
<b>Self-rated health status</b>		
Good or very good	40.4	52.1
So so	29.5	34.2
Bad or very bad	13.8	13.6
Not able to answer	16.3	0.1
Cognitive impairment (MMSE)	59.5	0.0
<b>Living arrangement</b>		
With spouse and children	5.3	6.7
With spouse only	11.5	15.8
With children only	55.8	49.7
With others	9.1	7.3
Alone	15.9	18.8
In an institution	2.3	1.8
Children living nearby	89.7	91.7
Lack of social support	11.7	7.3

self-reported health status), and lack of social support. The main source of financial support was classified into four categories: from own or spouse's retirement wages, from children, from government, or from others. Financial strain was measured by single item: 'Is all of the financial support sufficient to pay for daily expenses?' If the answer was 'no', this variable was coded as yes, and as no otherwise. Self-rated health was measured on 5-point scale ranging from very good to very bad. ADL were measured by six items: bathing, dressing, toileting, indoor transferring, continence, and feeding (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963). If none of the six ADL activities were impaired, the person was coded as active; if one or two activities were impaired, the person was coded as mildly disabled; if three or more activities were impaired, the person was coded as severely disabled. Social support was measured by four items as follows: (1) 'When you are sick, who usually takes care of you?' (2) 'To whom you usually talk frequently in daily life?' (3) 'To whom you talk first when you need to share some of your thoughts?' (4) 'To whom you ask for help when you have

problem or difficulties?' For each item, only very few of the respondents (1.7%–3.9%) answered 'nobody'. To avoid the categories with low-frequency counts in the regression analysis, we generated a new variable as lack of social support. If the answer for any of the four questions was 'nobody', the variable lack of social support was coded as yes.

#### Data analysis

The analysis began with descriptive breakdowns of living arrangements among the oldest old in the CLHLS sample. Given the living arrangement options are partially determined by marital status, living arrangement was examined separately for those married and unmarried. In the second part, a series of regression models was presented to examine the effects of living arrangement on LS and EWB of the oldest old. For the married oldest old, we ask whether the PWB is better for those living with a spouse and children compared to those living with a spouse only. While for the unmarried oldest old, we examine whether the

PWB is better for those living with a child compared to those choosing other living arrangements (i.e., living with others, living alone, and living in an institution). Finally, we include both married and unmarried oldest old, together with six types of living arrangements (*living with child only* as reference); therefore, we can make a direct comparison on the six types of living arrangements in the merged sample.

## Results

### Living arrangements of the oldest old

More than half (61.1%, see Table 1) of the oldest old reported being co-resided with their children in the CLHLS sample, and the percentage increased with the age (51.2%, 62.7%, and 71.6% for 80s, 90s, and 100+, respectively). However, the descriptive profiles in Table 2 demonstrated substantial differences in the characteristics of married and unmarried oldest old. Note that the majority (62.4%) of the married oldest old lived with their spouse only, while only 34.7% co-resided with their adult children. In addition, this phenomenon was rather consistent across different subsamples (e.g., age, gender, place of residence), except for centenarians. Meanwhile, for the unmarried oldest old, the overwhelming majority (67.1%) of the oldest old co-resided with their adult children, and

19.1% of them lived alone. Physical conditions (measured by ADL) were another important factor strongly related to living arrangements. Functional-limited oldest old were more likely to live with a child for both the married and unmarried oldest old.

Similar proportion (62.3%) of the oldest old expected to live with a child, other 22.1% expected to live alone (or with a spouse) while their children lived nearby, 6.0% expected to live alone (or with a spouse) and regardless residential distance with children, only 2.6% expected to live in an institution, and 7.0% did not give the answer. Note that the real living arrangements and expected living arrangements were well matched for most of the respondents (72.8%, 76.8%, 82.7%, 63.2% for living with a spouse and children, living with a spouse only, living with children only, and living in an institution, respectively). However, more than half (68.0%) of those living with others expected to live with children, and the majority of those living alone expected to live alone but children living nearby (51.0%) or live with children (22.9%).

### Predicting psychological well-being

The LS and EWB were regressed on living arrangement and other control variables. The results were presented in Table 3. For the married oldest old, the magnitude of the

Table 2. Living arrangements among the married and unmarried oldest old in China (in percentages).

Variables	Living arrangement					
	Spouse and child	Spouse only	Child only	Others	Alone	Institution
Married ( $n = 2255/1583$ )						
Age						
80–89	26.9 (29.0)	65.7 (71.0)	4.7 (–)	0.3 (–)	1.7 (–)	0.6 (–)
90–99	30.5 (29.9)	59.2 (70.1)	7.0 (–)	0.5 (–)	2.2 (–)	0.6 (–)
100+	41.7 (42.6)	38.3 (57.4)	16.5 (–)	0.9 (–)	0.0 (–)	2.6 (–)
Gender						
Male	29.1 (30.4)	63.0 (69.6)	4.8 (–)	0.3 (–)	2.1 (–)	0.7 (–)
Female	27.5 (27.3)	60.9 (72.7)	9.2 (–)	0.7 (–)	0.8 (–)	0.8 (–)
Place of residence						
Rural	27.0 (28.2)	63.4 (71.8)	7.1 (–)	0.4 (–)	1.9 (–)	0.2 (–)
Urban	31.1 (31.5)	61.1 (68.5)	4.4 (–)	0.4 (–)	1.6 (–)	1.5 (–)
Physical condition (ADL)						
Active	26.4 (28.2)	65.3 (71.8)	5.5 (–)	0.3 (–)	1.9 (–)	0.6 (–)
Mildly disabled	37.7 (37.1)	51.9 (62.9)	7.7 (–)	0.5 (–)	0.5 (–)	1.6 (–)
Severely disabled	45.2 (59.1)	41.1 (40.9)	10.1 (–)	1.2 (–)	1.2 (–)	1.2 (–)
Total	28.7 (29.6)	62.4 (70.4)	6.0 (–)	0.4 (–)	1.8 (–)	0.7 (–)
Unmarried ( $n = 9958 / 5454$ )						
Age						
80–89	–	–	61.6 (61.2)	6.5 (6.5)	29.2 (30.1)	2.6 (2.2)
90–99	–	–	66.9 (64.0)	9.7 (9.6)	21.0 (24.4)	2.4 (2.0)
100+	–	–	72.1 (70.4)	16.7 (14.9)	8.0 (11.6)	3.1 (3.1)
Gender						
Male	–	–	63.1 (61.7)	9.9 (8.3)	24.5 (28.0)	2.5 (2.0)
Female	–	–	68.9 (65.5)	11.6 (10.0)	16.7 (22.1)	2.8 (2.4)
Place of residence						
Rural	–	–	68.2 (65.3)	10.5 (8.3)	20.2 (25.5)	1.1 (0.9)
Urban	–	–	65.5 (62.4)	12.1 (10.9)	17.3 (22.4)	5.1 (4.3)
Physical condition (ADL)						
Active	–	–	62.9 (61.8)	9.4 (8.7)	25.1 (27.4)	2.5 (2.2)
Mildly disabled	–	–	76.0 (76.3)	13.2 (11.9)	8.4 (9.7)	2.4 (2.1)
Severely disabled	–	–	75.9 (75.4)	16.0 (14.9)	4.4 (5.2)	3.7 (4.5)
Total	–	–	67.1 (64.1)	11.1 (9.4)	19.1 (24.2)	2.7 (2.3)

Note: Data of the sample for regression are shown in parentheses; dashes indicate that data were not applicable.

Table 3. Ordinary least squares regression of PWB on living arrangements and other control variables among married and widowed oldest old.

Independent variables	Married (n = 1583)		Widowed (n = 5454)		Total (n = 7037)	
	LS	EWB	LS	EWB	LS	EWB
Living arrangement (reference = with child <sup>a</sup> )						
With spouse and child	-	-	-	-	-0.06 (-0.13, 0.01)	0.13*** (0.07, 0.19)
With spouse only	-0.04 (-0.12, 0.04)	-0.02 (-0.08, 0.04)	-	-	-0.11*** (-0.16, -0.06)	0.13*** (0.08, 0.17)
With others					0.00 (-0.06, 0.07)	-0.02 (-0.08, 0.04)
Alone			-0.01 (-0.07, 0.06)	-0.02 (-0.08, 0.04)	-0.21*** (-0.25, -0.16)	-0.11*** (-0.15, -0.07)
Institution			-0.21*** (-0.26, -0.17)	-0.10*** (-0.14, -0.06)	-0.12 (-0.24, 0.01)	-0.26*** (-0.37, -0.15)
Age (reference = 80-89)						
90-99	0.01 (-0.08, 0.09)	-0.12*** (-0.18, -0.06)	0.02 (-0.02, 0.06)	0.03 (-0.01, 0.06)	0.02 (-0.02, 0.05)	0.00 (-0.03, 0.03)
100+	0.07 (-0.13, 0.28)	0.11 (-0.05, 0.27)	0.04 (-0.01, 0.10)	0.05* (0.01, 0.10)	0.04 (-0.01, 0.10)	0.05* (0.01, 0.09)
Female (yes)	0.04 (-0.04, 0.13)	-0.08* (-0.15, -0.02)	0.02 (-0.02, 0.07)	-0.01 (-0.05, 0.02)	0.03 (-0.01, 0.07)	-0.03 (-0.06, 0.01)
At least one child alive (yes)	0.20 (-0.09, 0.49)	0.12 (-0.10, 0.35)	0.02 (-0.08, 0.13)	0.03 (-0.06, 0.13)	0.04 (-0.06, 0.14)	0.05 (-0.04, 0.13)
Have children live nearby (yes)	0.08 (-0.09, 0.26)	0.00 (-0.14, 0.14)	-0.01 (-0.07, 0.06)	-0.02 (-0.08, 0.03)	0.01 (-0.06, 0.07)	-0.02 (-0.08, 0.03)
Urban (yes)	0.02 (-0.06, 0.10)	0.02 (-0.04, 0.09)	0.07*** (0.03, 0.11)	0.07*** (0.03, 0.10)	0.06*** (0.03, 0.10)	0.06*** (0.03, 0.09)
Education (reference = 0 year)						
1-6 years	0.19*** (0.11, 0.27)	0.08* (0.02, 0.14)	0.06* (0.01, 0.11)	0.04 (0.00, 0.08)	0.10*** (0.06, 0.14)	0.05** (0.02, 0.09)
6+ years	0.26*** (0.14, 0.38)	0.12*** (0.03, 0.22)	0.11* (0.02, 0.20)	0.12** (0.04, 0.19)	0.16*** (0.09, 0.23)	0.12*** (0.06, 0.17)
Financial support (reference = others)						
Own or spouse	0.20* (0.04, 0.35)	0.02 (-0.10, 0.15)	0.15* (0.03, 0.27)	0.12* (0.01, 0.22)	0.18*** (0.08, 0.27)	0.08 (0.00, 0.16)
Child	0.12 (-0.02, 0.27)	-0.10 (-0.21, 0.01)	0.05 (-0.06, 0.16)	0.00 (-0.10, 0.09)	0.08 (0.00, 0.17)	-0.03 (-0.11, 0.04)
Government	0.13 (-0.06, 0.33)	0.12 (-0.03, 0.27)	0.02 (-0.10, 0.15)	-0.01 (-0.12, 0.10)	0.06 (-0.05, 0.16)	0.00 (-0.08, 0.09)
Financial strain (yes)	-0.61*** (-0.70, -0.52)	-0.24*** (-0.31, -0.17)	-0.40*** (-0.45, -0.35)	-0.24*** (-0.28, -0.19)	-0.45*** (-0.49, -0.41)	-0.23*** (-0.27, -0.20)
Physical condition (reference = active)						
Mildly disabled	0.19** (0.05, 0.33)	-0.19*** (-0.31, -0.08)	0.08* (0.02, 0.14)	-0.02 (-0.07, 0.03)	0.09* (0.04, 0.15)	-0.04 (-0.09, 0.00)
Severely disabled	0.00 (-0.21, 0.22)	-0.19* (-0.36, -0.03)	0.02 (-0.06, 0.11)	-0.12** (-0.19, -0.05)	0.02 (-0.06, 0.10)	-0.13*** (-0.20, -0.06)
Self-rated health (reference = good or very good)						
So so	-0.50*** (-0.58, -0.42)	-0.20*** (-0.26, -0.14)	-0.44*** (-0.48, -0.40)	-0.32*** (-0.35, -0.28)	-0.45*** (-0.49, -0.42)	-0.29*** (-0.32, -0.26)
Bad or very bad	-0.77*** (-0.87, -0.67)	-0.42*** (-0.50, -0.34)	-0.72*** (-0.78, -0.66)	-0.56*** (-0.61, -0.51)	-0.74*** (-0.79, -0.68)	-0.53*** (-0.57, -0.48)
Lack of social support (yes)	-0.14 (-0.35, 0.07)	-0.06 (-0.23, 0.10)	-0.17*** (-0.24, -0.11)	-0.11*** (-0.17, -0.05)	-0.16*** (-0.23, -0.1)	-0.11*** (-0.17, -0.06)
R <sup>2</sup>	0.35	0.20	0.24	0.18	0.27	0.19

Note: Coefficients are unstandardized; 95% confidence interval for coefficients is shown in parentheses; dashes indicate that data were not applicable.

LS = life satisfaction, EWB = emotional well-being.

<sup>a</sup>For married, widowed and total, reference = with spouse & child, with child only, with child only, respectively.

\*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

coefficient was not significantly different from zero, which suggested that co-residence with children did not bring additional benefits to the LS or EWB compared to living with a spouse only.

For the widowed oldest old, the results demonstrated a strong negative association between living alone and PWB. Likewise, living in an institution offered almost the same LS but lower EWB compared to living with a child only. Note that living with others associated the same level of LS and EWB compared to living with a child only, thereby highlighting the positive association between family household and PWB.

Finally, we included both married and widowed oldest old, together with six types of living arrangements. The results were consistent with separate analyses for the married and widowed. Note that living with a child was associated with better LS compared to living independently (i.e., living with spouse only and living alone) and similar LS compared to living with a spouse and child, but lower EWB compared to living with a spouse (with or without a child).

The control variables were not the main focus of this article, but worth mentioning. Consistent with the previous studies, financial strain and health status played an important role on the PWB of the oldest old (Cheng & Chan, 2006; Li, Chen, & Wu, 2008), while the association between sociodemographic variables (age, gender, place of residence, and education) and the PWB variables were generally weak or even nonsignificant especially when other variables are controlled (Diener, Suh, Lucas, & Smith, 1999).

## Discussion

The present study examined whether co-residence with adult children, with rapid social transformation, would still be the most prevalent living arrangement and the best option for the PWB of the oldest old among a sample of the CLHLS. There are few studies in previous literature that have focused on living arrangement and its association with the PWB among the oldest-old people, specifically based on a population sample in China. Consistent with the previous studies (Zeng & Wang, 2003; Zimmer, 2005), our findings suggest that co-residence with children is still the most prevalent living arrangement for the total sample of the oldest old. Moreover, our analysis shows that marital status is a critical determinant for living arrangements of the oldest old, and co-residence is mostly found in the oldest old who have not married. As we expected, the data show that co-residence with children is also beneficial to the PWB of the widowed oldest old, so is for living with others (most of them were younger generation of the family, such as child's spouse, grandchild, grandchild's spouse, etc.). In the traditional filial piety culture background, elderly people living in a family household are more likely to receive both physical and emotional supports from their children or other younger generation of the family, therefore they are more likely to report higher PWB compared to those living alone.

Although co-residence with children is still the dominant living arrangements for Chinese oldest old, some changes are occurring in China today (Chen & Short, 2008; Zeng & Wang, 2003; Zhou & Qian, 2008). Our analysis shows that the majority of those who have married live only with their spouse, rather than with their children. To our knowledge, this is the first time that such a high prevalence (62.4%) of independent living among Chinese married oldest-old couples was reported along with their PWB status. Using the data from Chinese censuses, Zeng and Wang (2003) also found that the proportion of those living only with a spouse increased steadily from 1982 to 2000 among the younger elderly and the oldest old, but still remained much less common than in western countries. In western society, elderly people clearly prefer to live independently if possible (Taeuber & Rosenwaike, 1992). The changes in economic mobility and social norm are two major reasons related to the increasing of independent living (Cheng & Chan, 2006; Fung & Cheng, 2010; Zeng & Wang, 2003). Note that the majority of those living only with a spouse reported that independent living was just what they expected, and the overall PWB of them was as good as the PWB of those who co-reside with their children. These findings thus suggest that living arrangements of Chinese oldest old are partially getting westernized, and the majority of oldest-old people adapt it well.

Inconsistent with the findings from western societies (Davis, Moritz, Neuhaus, Barclay, & Gee, 1997; Michael, Berkman, Colditz, & Kawachi, 2001; Sarwari, Fredman, Langenberg, & Magaziner, 1998), our analysis shows that living alone (the other type of independent living) is associated with lower PWB compared to those who live with children only. We also notice that most of them expected to live with a child or with a child living nearby; therefore, suggesting that independent living was forced rather than chosen for this part of elderly people. The lack of formal support from government and an underdeveloped social security system in China might be the reasons why the widowed oldest old must rely on their children.

Note that, compared to spouse, adult children play a more important role in improving the LS of their older parents. One possible reason is, for the oldest old, adult children (or other younger family members) rather than their spouse, are more likely responsible for taking care of them when needed. Another possible reason lies in the fact that the oldest old may lessen their expectation after their spouse has passed away, thus be easier to get satisfied with their life (Cheng, Fung, & Chan, 2008). While adult children play a more important role in improving the LS of their older parents, spouse seems to contribute more to the EWB of their partner. Our findings show that those living with a spouse (with or without a child) have the highest level of EWB, while those living alone or living in an institution have the lowest level of EWB. The marked difference in well-being existing between categories of marital status has been well established in past literature (Dean, Kolody, Wood, & Matt, 1992; Peters & Liefbroer, 1997).

To sum up, most Chinese oldest old chose to live with their children after their spouse has passed away, and adult children may substitute for the role of spouse in maintaining on one side (LS) but not another side (EWB) of PWB among the oldest old. These results can be well explained by the task specificity model proposed by Litwak (1985). Other studies indicate that EWB decreased with age among Chinese elderly people (Li et al., 2008), and the prevalence of self-reported depressive symptoms (CES-D  $\geq$  16) in the Chinese oldest old is as high as 45.19% (Yu, Li, Cuijpers, Wu, & Wu, 2011). More attention should be paid to the EWB of the oldest old (especially widowed ones) in the future.

The major limitation of the present research is the measurement of the PWB, which has only one item for LS and five items for EWB. In addition, these items are not perfect indicators of PWB because the CLHLS was not designed to study the PWB of the oldest old.

In spite of these limitations, we can conclude that, although co-residence with adult children is still the most prevalent living arrangement and one of the best options for the PWB of the widowed oldest old, independent living is a more common and good choice for the PWB of the married oldest old. In addition, adult children may substitute for the role of spouse in maintaining on one side (LS) but not another side (EWB) of PWB among the oldest old. In light of these results, government policies may need to be developed in assisting the oldest old (especially widowed ones) to live independently.

### Acknowledgements

Data used for this research were provided by the longitudinal study entitled 'Chinese Longitudinal Healthy Longevity Survey' (CLHLS) managed by the Center for Healthy Aging and Family Studies, Peking University. CLHLS is supported by funds from Duke University under an award from the US National Institutes on Aging (NIA) (R01 AG23627-01; PI: Zeng Yi), and by the China Natural Science Foundation, China Social Science Foundation, UNFPA, and Hong Kong Research Grant Council. We would like to thank Yang Ji for his assistance with English editing. We also would like to thank reviewers for the most helpful comments on this article.

### References

- Chen, F.N., & Short, S.E. (2008). Household context and subjective well-being among the oldest old in China. *Journal of Family Issues*, 29(10), 1379–1403.
- Cheng, S.-T., & Chan, A.C.M. (2006). Filial piety and psychological well-being in well older Chinese. *The Journals of Gerontology. Series B: Psychological Sciences and Social Sciences*, 61B(5), P262–P269.
- Cheng, S.-T., Fung, H.H., & Chan, A.C. (2008). Living status and psychological well-being: Social comparison as a moderator in later life. *Aging & Mental Health*, 12(5), 654–661.
- Davis, M.A., Moritz, D.J., Neuhaus, J.M., Barclay, J.D., & Gee, L. (1997). Living arrangements, changes in living arrangements, and survival among community dwelling older adults. *American Journal of Public Health*, 87(3), 371–377.
- Dean, A., Kolody, B., Wood, P., & Matt, G.E. (1992). The influence of living alone on depression in elderly persons. *Journal of Aging and Health*, 4(1), 3–18.
- Diener, E., Suh, E.M., Lucas, R.E., & Smith, H.L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125(2), 276–302.
- Fung, H.H., & Cheng, S.T. (2010). Psychology and aging in the land of the panda. In M.H. Bond (Ed.), *The Oxford handbook of Chinese psychology* (pp. 309–326). New York, NY: Oxford University Press.
- Hermalin, A.I., & Yang, L.S. (2004). Levels of support from children in Taiwan: Expectations versus reality, 1965–99. *Population and Development Review*, 30(3), 417–448.
- Hughes, M.E., & Waite, L.J. (2002). Health in household context: Living arrangements and health in late middle age. *Journal of Health and Social Behavior*, 43(1), 1–21.
- Katz, S., Ford, A.B., Moskowitz, R.W., Jackson, B.A., & Jaffe, M.W. (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(12), 914–919.
- Li, D., Chen, T., & Wu, Z. (2008). An exploration of the subjective well-being of the Chinese oldest-old. In Y. Zeng, D. Poston, D.A. Vlosky, & D. Gu (Eds.), *Healthy longevity in China: Demographic, socioeconomic, and psychological dimensions*. (pp. 347–356) Dordrecht: Springer.
- Litwak, E. (1985). *Helping the elderly: The complementary roles of informal networks and formal systems*. New York, NY: Guilford Press.
- Michael, Y.L., Berkman, L.F., Colditz, G.A., & Kawachi, I. (2001). Living arrangements, social integration, and change in functional health status. *American Journal of Epidemiology*, 153(2), 123–131.
- Peters, A., & Liefbroer, A.C. (1997). Beyond marital status: Partner history and well-being in old age. *Journal of Marriage and the Family*, 59(3), 687–699.
- Sarwari, A.R., Fredman, L., Langenberg, P., & Magaziner, J. (1998). Prospective study on the relation between living arrangement and change in functional health status of elderly women. *American Journal of Epidemiology*, 147(4), 370–378.
- Tauber, C.M., & Rosenwaike, I. (1992). A demographic portrait of America's oldest old. In R.M. Suzman, D.P. Willis, & K. G. Manton (Eds.), *The Oldest Old*, (pp. 17–49). New York, NY: Oxford University Press.
- United Nations. (2005). *Living arrangements of older persons around the world*. Retrieved from <http://www.un.org/esa/population/publications/livingarrangement/report.htm>
- Waite, L.J., & Hughes, M.E. (1999). At risk on the cusp of old age: Living arrangements and functional status among black, white and Hispanic adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 54(3), S136–S144.
- Yang, H., & Chandler, D. (1992). Intergenerational relations: Grievances of the elderly in rural China. *Journal of Comparative Family Studies*, 23(3), 431–453.
- Yu, J., Li, J., Cuijpers, P., Wu, S., & Wu, Z. (2011). Prevalence and correlates of depressive symptoms in Chinese older adults: A population-based study. *International Journal of Geriatric Psychiatry*, 27(3), 305–312.
- Zeng, Y., Vaupel, J.W., Xiao, Z., Zhang, C., & Liu, Y. (2001). The healthy longevity survey and the active life expectancy of the oldest old in China. *Population: An English Selection*, 13(1), 95–116.
- Zeng, Y., Vaupel, J.W., Xiao, Z., Zhang, C., & Liu, Y. (2002). Sociodemographic and health profiles of the oldest old in China. *Population and Development Review*, 28(2), 251–273.
- Zeng, Y., & Wang, Z. (2003). Dynamics of family and elderly living arrangements in China: New lessons learned from the 2000 census. *The China Review*, 3(2), 95–119.
- Zhang, Z. (2006). Gender differentials in cognitive impairment and decline of the oldest old in China. *The Journals of Gerontology. Series B: Psychological Sciences and Social Sciences*, 61(2), S107–S115.

- Zhang, M., Katzman, R., Salmon, D., Jin, H., Cai, G., Wang, Z., ...Liu, W.T. (2004). The prevalence of dementia and Alzheimer's disease in Shanghai, China: Impact of age, gender, and education. *Annals of Neurology*, 27(4), 428–437.
- Zhou, M., & Qian, Z. (2008). Social support and self-reported quality of life: China's oldest old. In Y. Zeng, D. Poston, D. A. Vlosky, & D. Gu (Eds.), *Healthy longevity in China: Demographic, socioeconomic, and psychological dimensions*. (pp. 357–375). Dordrecht: Springer.
- Zimmer, Z. (2005). Health and living arrangement transitions among China's oldest-old. *Research on Aging*, 27(5), 526–555.