

RESEARCH ARTICLE

Intergenerational support among widowed older adults in China

Zhenmei Zhang^{1*} and I-Fen Lin²

¹ Department of Sociology, Michigan State University, East Lansing, USA

² Department of Sociology, Bowling Green State University, Bowling Green, OH, USA

Abstract: With the rapid aging of the Chinese population, growing attention has been given to old-age support. Widowed older adults constitute a particularly vulnerable population because the loss of a spouse can lead to financial hardships and emotional distress. We used data from the 2002 Chinese Longitudinal Healthy Longevity Survey to examine multiple dimensions of old-age support among a nationwide sample of widowed old adults ages 65 and older (N=10,511). The results show that Chinese widows and widowers rely heavily on their adult children, particularly sons and daughters-in-law, for financial, instrumental, and emotional support. Widowed older adults' needs and the number of children are the most significant predictors of old-age support. Widowed older adults with multiple marriages have a lower likelihood of receiving financial assistance, sick care, and emotional support from their children compared to their counterparts who have married only once. There appears to be same-gender preference in adult children's care for their widowed parents with disabilities.

Keywords: *financial transfer; coresidence; emotional support; caregiver; marital history, daughters-in-law; gender; CLHLS*

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*CORRESPONDING AUTHOR

Zhenmei Zhang, Department of Sociology, Michigan State University, 509 E. Circle Drive, East Lansing, MI, 48824
zhangz12@msu.edu

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1 Introduction

Due to a dramatic reduction in fertility levels and significant improvement in life expectancy over the past four decades, China is aging rapidly. Projections suggest that the proportion of individuals ages 60 and older will increase from 10.2% of the Chinese population in 2000 to about 25.1% in 2030. In this context, an increasing number of older Chinese adults will face the inevitable and difficult transition from married life to widowhood. Among those ages 60 and older, about 16.2% of men and 45.9% of women were widowed in 2000, based on a national survey (He, Sengupta, Zhang *et al.*, 2007). The widowed older population is expected to grow rapidly in the first half of the 21st century and reach about 118.4 million by 2050 (Wang and Ge, 2013). Widowed older adults are a particularly vulnerable population because bereavement often leads to financial hardships, poor health, and loneliness (Jadhav and Weir, 2017; Lloyd-Sherlock, Corso, and Minicuci, 2015). Widowhood also brings changes in family dynamics, as the widowed tend to be more dependent on their adult children and to receive more support from them compared to their still-married counterparts (Ha, Carr, Utz *et al.*, 2006; Kalmijn, 2007; Korinek, Zimmer, and Gu, 2011).

In developed countries, numerous studies on widowhood have been carried out over the past few decades, examining short- and long-term adjustments to spousal loss and the role of children, relatives, friends, and the community in helping the widowed in later life (Carr, Nesse, and Wortman, 2006; Sasson and Umberson, 2014). In sharp contrast, little research on widowhood has been carried out in China until quite recently, and it is typically treated as a control variable in research on intergenerational

transfers (Logan, Bian, and Bian, 1998; Xie and Zhu, 2009). Thus, although we know, for instance, that adult children in China are more likely to live with a widowed parent than with married parents (Logan and Bian, 1999; Treas and Chen, 2000), little is known about the determinants of intergenerational support for widowed older adults and who is providing what support to them. Our study thus aims to take a first step in understanding the pattern and correlates of intergenerational support for the increasingly large and diverse group of widowed adults in China, paying particular attention to the differences between widows and widowers.

Drawing the data from the 2002 Chinese Longitudinal Healthy Longevity Survey (CLHLS), this study extends the literature on intergenerational support in widowhood in several regards. First, we used a nationwide sample to examine multiple dimensions of intergenerational support, including space (living arrangements), money (financial transfer), and time (emotional support, sick care, and personal care for the disabled), at the beginning of the 21st century. Previous research in this area often focused on a few large Chinese cities (Bian, Logan, and Bian, 1998; Liu, Liang, and Gu, 1995; Xie and Zhu, 2009). The pattern of intergenerational transfer is likely to differ between rural and urban areas owing to the differentials in living standards, family size, pensions, health insurance coverage, and the diffusion of Western values, such as individualism. Second, the CLHLS adopted a unique sampling strategy that oversampled the oldest old (ages 80 and older), a fastest growing segment of the older population. The oldest old population is at a higher risk of experiencing physical and cognitive impairments compared to the younger seniors, and is typically in greater need of financial, emotional, and personal care (Zhang, 2006). Third, we focused on widows as well as widowers. Prior studies in Western countries have suggested that the patterns of intergenerational support differed for widows and widowers, with widows more dependent on adult children for financial support and legal advice than widowers (Ha, Carr, Utz *et al.*, 2006). Fourth, we examined intergenerational assistance beyond the provision of support from sons and daughters. Scholars often focused exclusively on adult children and ignored the role of other potential caregivers in the networks, such as daughters-in-law, sons-in-law, grandchildren, and grandchildren-in-law, who may play an important role in providing the widowed with instrumental and emotional support. Finally, we examined whether marital history relates to intergenerational support in old age. Western studies have showed that parents with multiple marriages are less likely to receive help from their adult children relative to parents who have married only once (Fingerman, Pillemer, Silverstein *et al.*, 2012). As far as we know, this issue has yet to be addressed using Chinese samples.

1.1 Widowhood and Intergenerational Support in China

The relationship between widowed parents and their adult children is heavily influenced by the Confucian ideals of filial piety. For thousands of years, China was a patriarchal, patrilineal, and patrilocal society, and only sons were entitled to inherit family property. Traditionally, married sons, daughters-in-law, and grandchildren were responsible for taking care of their aging parents (Whyte, 2003). By contrast, daughters cannot inherit any family property and their services have typically transferred to their husbands' family upon marriage (Deutsch, 2006; Li, Feldman, and Jin, 2004). Consistent with this expectation, previous studies found that Chinese older adults, including the widowed, are much more likely to co-reside with sons than with daughters. Sons in rural areas also provided more elder care than daughters (Guo, Chi, and Silverstein, 2016), and although current legislation requires that daughters share with sons the responsibility of providing for their parents in old age, many older Chinese still regard daughters as temporary members of their natal families and do not expect support from their daughters (Deutsch, 2006; Miller, 2004). Despite rapid social and economic changes since the late 1970s, filial values are still strong in China (Zhan and Montgomery, 2003), though the patrilineal norms have been weakened significantly in cities. In a 1997 survey conducted in Beijing, most young respondents

agreed that both sons and daughters should assist parents financially and take care of aging parents (Deutsch, 2006).

To this point, no universal public pension program exists in China (Silverstein, Cong, and Li, 2006), and the healthcare system remains poorly developed, especially in rural areas. China's state policy for decades has largely assigned the responsibility of elder care to adult children and their spouses. Only for those older adults with no children, no income, and no physical ability to work (so-called the "Three-No" older adults) has the government stepped in and used public funds to establish an institutional care system that covers the cost of services for food, healthcare, clothing, accommodation, and funerals (known as the "Five-Guarantees"). Nevertheless, in contemporary China, the "Three-No" population is very small, accounting for only 1%–2% of the older population (Gu, Zhang, and Zeng, 2009). In sum, strong filial values coupled with the lack of a nationwide social security system for older adults have placed a tremendous amount of pressure on adult children to step in when one of their parents become widowed.

As we could not find any prior studies focusing specifically on intergenerational support for widowed older adults in China, our literature review briefly discusses the general literature on intergenerational support in old age. Intergenerational support in old age can take different forms: coresidence, financial support, instrumental support such as personal care and household help, and emotional support. In China, coresidence of parents with adult children has been the primary means through which aging parents' material, physical, and emotional needs were met (Cooney and Shi, 1999; Logan, Bian, and Bian, 1998; Silverstein, Cong, and Li, 2006; Treas and Chen, 2000; Zimmer, 2005). Thus, parent-child coresidence is positively related to intergenerational exchanges (Silverstein, Cong, and Li, 2006). Previous research in China and Taiwan has found that intergenerational support is largely determined by the aging parents' needs as well as by child's gender and the number of children (Lee and Xiao, 1998; Lin, Goldman, Weinstein *et al.*, 2006; Zhan and Montgomery, 2003).

1.1.1 Aging Parents' Needs

Recent research in mainland China largely supports the needs-based transfer model, which suggests that intergenerational transfers in late life are strongly associated with the needs of the aging parents (Lee and Xiao, 1998). For example, in urban areas, older adults who received retirement benefits were less likely to count on financial assistance from their adult children than those who did not. In addition, older adults who had achieved relatively higher educational attainment were less likely to receive financial support from their children than their counterparts (Lee and Xiao, 1998). More educated parents in urban China were also less likely to live with a married child (Logan and Bian, 1999). Functional impairment of the older adults, particularly among women, often positively relates to the likelihood of coresidence with children (Zimmer, 2005).

In addition, some key differences exist between widows and widowers in China. Financially, widows are more disadvantaged than widowers. Widowhood for women often means the loss of their main source of income, as a result of women's lower labor force participation rates compared to men. Widowers, by contrast, are often more isolated and have lower levels of emotional connectedness with their adult children than widows, as women tend to be kin-keepers in China (Jiang, Li, and Sánchez-Barricarte, 2015; Liu, 2014).

Based on prior studies, we anticipate that widowed older adults with greater financial and personal care needs are more likely to receive all types of intergenerational support than those with fewer needs. Furthermore, widows are more likely than widowers to receive intergenerational support.

1.1.2 Child's Gender and Number of Children

Traditionally, sons have the obligation to care for their aging parents, but it is often the daughters-in-law who provide daily living and personal care to the sons' parents in

China (Chappell and Kusch, 2007). Recent research in urban China found that parents are still much more likely to live with married sons than with married daughters (Xie and Zhu, 2009). Nonetheless, there are signs that things are changing, at least in urban areas: Increasingly, married daughters feel strong filial obligations toward their own parents and are playing an important role in taking care of their aging parents. Whyte and Xu (2003) found that in Baoding, a middle-sized city, married daughters did as much or slightly more than married sons in providing old-age support, including personal care, cash assistance, provision of material goods, and help with household chores. More recent studies confirmed Whyte's findings. For example, Xie and Zhu (2009) found that married daughters provided more financial support to older parents than married sons, after controlling for living arrangements in urban China. Hu (2017) found that, all else being equal, daughters provided more financial and household assistance than sons to their parents in 2012. The changing role of daughters in old-age support can be attributed to social changes in pension systems in cities, reduced gender inequality, and declines in fertility (Xie and Zhu, 2009).

Less research has been done in rural China, where traditional values were stronger than in urban China and where very few older adults have had pensions, making them far more dependent on their adult children than are their urban counterparts. For example, Miller (2004) found that in a rural village in Shandong province, most older adults shared the view that sons are the providers of essential support in old age, and the more sons one has, the greater the old-age support; married daughters are not required to provide support, but they might visit, give gifts, or care for a sick parent. Similarly, a recent study in rural Anhui province found that sons provided higher levels of supports to parents than daughters (Guo, Chi, and Silverstein, 2016). Together these results suggest that a greater number of sons and daughters would lead to more collective incomes and better support for aging parents. A few studies showed that parents with more children were indeed more likely to receive financial support and gifts (Lee and Xiao, 1998; Sun, 2002). In addition, geographic proximity of adult children to their parents is the foundation of several types of intergenerational support including instrumental support, regular contacts, and emotional closeness. However, little is known about whether having more children in proximity leads to more old-age support because the effect of proximity on intergenerational support seems to vary by individual child (Guo, Chi, and Silverstein, 2011).

Thus, we expect that widowed older adults with more sons and daughters are more likely to receive all types of intergenerational support than those with fewer sons and daughters. In addition, we anticipate that sons (and daughters-in-laws), on average, play a more important role than daughters in carrying out filial obligations due to higher rates of parents' coresidence with married sons than daughters in China. Nonetheless, because help with bathing, dressing, or toileting invades privacy, widowed parents may prefer receiving personal care from same-gender children (Lee, Dwyer, and Coward, 1993).

1.1.3 Marital History of Widowed Older Adults

Although little research in China has examined the role of older parents' marital history in intergenerational transfers, research in the Western context has shown that older parents' prior divorce and remarriage may compromise their adult children's filial obligation and attachment, which in turn may reduce intergenerational assistance (Fingerman, Pillemer, Silverstein *et al.*, 2012). In China, remarriage after either widowhood or divorce is still frowned upon due to traditional beliefs that one should only marry once (Chen, Dai, and Parnell, 1992). Multiple marriages of older parents can also put strains on intergeneration relations due to property rights disputes. We thus hypothesize that widowed older adults who had married multiple times in the past were less likely to receive all types of intergenerational support than their counterparts who were married only once.

2 Materials and Methods

2.1 Data

The data come from the third wave of the Chinese Longitudinal Healthy Longevity Survey (2002 CLHLS). Started in 1998, the CLHLS was fielded in a randomly selected half of the counties/cities in 22 out of 31 provinces in China. The surveyed areas covered about 85% of the total Chinese population. Local aging committees provided name lists of centenarians in randomly selected counties/cities, including persons residing in institutions. For each centenarian with a pre-designated random code, one nearby octogenarian and one nearby nonagenarian with pre-designated age and sex were interviewed. The term “nearby” typically indicates the same village or the same street, if applicable, or the same town, county, or city. The aim of this special sampling procedure was to have comparable numbers of randomly selected male and female octogenarians and nonagenarians at each age from 80 to 99. In the third wave, sample subjects were extended to include the individuals ages 65 to 79 as a comparison with the oldest old. The procedure for sampling the young-old is similar to the process used for those ages 80 to 99. A more detailed description of the sampling design and data quality of the CLHLS appears elsewhere (Gu, 2008).

In total, the 2002 wave comprised 16,064 respondents. This study focused on widowed respondents aged 65 to 105 in 2002 based on self-reports of current marital status ($N=10,511$). Those who reported being younger than 65 or older than 105 were excluded, either because they were out of the sampling frame or there was insufficient information to validate their extremely old ages (Gu, 2008). We did not utilize the longitudinal follow-ups after 2002 because there are some important changes in the intergenerational support questions, making it difficult to examine changes in intergenerational assistance over time. For example, for the emotional support question asked in 2002, out of 10 categories, respondents can pick only one type of providers (*e.g.*, sons and daughters-in-law), whereas in 2005, respondents were allowed to choose up to three providers. Another important change is that for those who needed help with Activities of Daily Living (ADLs), the major caregiver for each type of ADL limitations was asked in 2002, but only the major caregiver for all six ADL limitations combined was asked in 2005 and onward.

2.2 Measures

We examined four types of intergenerational support: (a) net financial transfers between adult children and widowed older adults, (b) sick care, (c) emotional support, and (d) parent-child coresidence. Information about financial transfers (in cash and in kind) between adult children and their widowed parents in 2001 was collected. We followed the practice of Xie and Zhu (2009) and created an indicator that equals 1 if the net flow from adult children to parents is positive, and 0 otherwise. We also examined the determinants of the amount of net financial transfers. As the distribution of the net financial transfers was skewed, we used the natural logarithm for the dependent variable in the multivariate analysis. Emotional support was assessed with the following question: “To whom do you talk first when you need to share your thoughts and feelings?”; whereas sick care was gauged by the following question: “Who takes care of you when you are sick?” The response categories for these two questions were: sons and daughters-in-law; daughters and sons-in-law; son and daughter; grandchildren and grandchildren-in-law; other relatives; friends or neighbors; social workers; domestic workers; and nobody. A dichotomous measure was created ($=1$, if adult children/children-in-law or grandchildren/grandchildren-in-law was mentioned, and $=0$ otherwise). Parent-child coresidence consisted of three categories: living with children and/or grandchildren, living in institutions, and living alone or with others (*e.g.*, siblings, parents, or others). We combined living alone and living with others because a very small number of widowed older adults living with others, which prevents us from conducting a separate analysis.

Widowed older adults' needs: Based on previous literature, we included the following characteristics of the widowed: education, pension, and the number of Activities of Daily Living (ADL) difficulties. As the majority of the older adults in the sample, the oldest old in particular, did not receive any formal education, education was measured as a dichotomous variable (=1, if received one or more years of schooling, and =0 otherwise). Those who had a pension were coded 1, and 0 otherwise. These two variables reflected the widowed older adults' economic needs in later life. We indexed ADL limitations by counting the number of ADLs that an older adult could not perform independently, including bathing, dressing, eating, indoor transferring, toileting, and continence, ranging from 0 to 6. This variable reflected the widowed older adults' personal care needs.

Child's gender and number of children: We included the number of living sons, the number of living daughters, and the number of children living nearby—living in the same village, town, county, or city.

Widowed older adults' marital history: Widowed older adults' marital history was captured using a dichotomous measure: 1=married twice or more; 0=married only once.

Control covariates included older adults' age (a continuous variable), gender (1=woman, 0=man), ethnicity (1=Han, 0=Non-Han), and current residence (1=rural, 0=urban).

2.3 Analytic Strategy

This study comprises four analyses: First, we described the characteristics of the widowed older Chinese in the sample. Next, we conducted multivariate analyses to examine how widowed older parents' needs, child's gender and number of children, and widowed older adults' marital history are related to the likelihood of receiving four types of support from their offspring. The receipts of net financial transfers, sick care, and emotional support were examined using logistic regressions. For widowed parents who received more financial assistance from their adult children than they gave to the children, we also examined the determinants of the net amount of financial transfers from adult children to widowed parents using Ordinary Least Squares (OLS) regressions. As living arrangements include more than one category, we used multinomial logistic regressions. In the third analysis, we examined who were the major providers of financial assistance, sick care, emotional support, and coresidence, separately by widows and widowers. Finally, for widowed older adults who had difficulty performing any ADL, we examined the major care provider for each ADL activity for widows and widowers.

Overall, there was very little missing data for all the variables examined, with the exception of financial support. Roughly 13% of the respondents with at least one child had missing values on the amount of money received or given to either sons or daughters. To reduce the influence of missing items on our data analysis and inferences, we used a multiple imputation procedure to fill in missing values (Allison, 2001). The results were based on 10 multiple-imputed replicates. We used sampling weights in all descriptive statistics. As sampling weights were solely a function of older adults' age, gender, and current residence, and these variables were included in the multivariate analysis, we presented the unweighted estimates for regression models because they are unbiased and consistent (Winship and Radbill, 1994). All analyses were performed using statistical software Stata version 14.

3 Results

3.1 Characteristics of Widowed Older Adults in China

Table 1 shows a high prevalence of transfers from adult children to widowed older parents in China. Nearly 85% of widowed older adults received financial support from their adult children. The average amount of money received was 1,225 yuan

in 2001. Approximately 89% and 72% of the widowed received sick care and emotional support, respectively, from their children/children-in-law or grandchildren/grandchildren-in-law (children, thereafter). Two-thirds of the widowed (67%) lived with their children, three in ten lived alone or with others, and only about 4% of the widowed lived in nursing homes.

Table 1. Descriptive statistics (weighted means or percentages) of widowed Chinese ages 65 and older (CLHLS, 2002)

Variables	Mean or %	SD
Receipt of net financial transfer (%)	84.66	
Amount of net financial transfer (yuan) ^a	1225.34	1911.76
Receipt of sick care (%)	89.02	
Receipt of emotional support (%)	72.05	
Living arrangements (%)		
Living alone/with others	29.54	
Living in nursing homes	3.86	
Living with children	66.61	
Widowed older adults' needs		
Received schooling (%)	35.43	
Having pension (%)	15.72	
ADL limitations (0–6)	0.23	0.81
Child's gender and number of children		
Number of sons (0–4)	1.95	1.23
Number of daughters (0–4)	1.77	1.28
Number of children living nearby (0–6)	3.25	1.90
Marital history		
Married twice or more (%)	7.43	
Control variables		
Age (65–105)	75.02	6.71
Female (%)	73.04	
Rural (%)	82.98	
Han (%)	93.96	

Notes: $N = 10,511$

^a Sample includes the widowed Chinese who had at least one child and received positive financial transfers from their children and children-in-law, $N = 8,333$

Overall, the widowed older adults had low levels of educational attainment: slightly more than one-third had received some education. About 16% had pensions. The mean number of ADL limitations was 0.23. On average, the widowed had two sons, two daughters, and three children who lived nearby. The fertility level of the widowed in the sample was relatively high because most of them had already finished childbearing when the one-child policy was introduced in the late 1970s. Roughly 7% of widowed older adults were married more than once. The average age of the widowed older adults were 75 years old. The majority of the widowed population was widows (73%), lived in rural areas (83%), and were Han (94%).

3.2 Factors Associated with Old-Age Support in Widowhood

3.2.1 Widowed Older Adults' Needs

As shown in Table 2, we found that overall widowed older adults' financial and personal care needs were positively associated with the likelihood of receiving

transfers, with a few exceptions. Specifically, the likelihood of receiving financial support from children decreased significantly with the receipt of a pension, controlling for the number of sons, the number of daughters, the number of children living nearby, widow's marital history, living arrangements, and other covariates (0.20). When we looked at the amount of financial support received among those who had positive net transfers, those with a pension on average received less money from their children than those without a pension (-0.10). The number of ADL limitations was positively associated with the amount of money received by the widowed (0.05). Surprisingly, widowed older adults who had received some schooling received a greater amount of financial assistance from their children than their counterparts without formal education (0.18).

In terms of sick care, the pattern is more complex. Consistent with the needs-based model, those with a pension were less likely to receive care from children (0.73). However, the odds of having children as caregivers also decreased significantly with each additional increase in ADL limitations, after controlling for living arrangements and other covariates (0.76). This suggests that when older adults have multiple ADL limitations, outside helpers (*e.g.*, domestic workers or other relatives) may be hired to care for them.

As for emotional support, there were no statistically significant associations between the widowed older adults' financial conditions and the odds of receiving emotional support. Nevertheless, the number of ADL limitations was inversely associated with the odds of naming children as confidants (0.95).

Table 2. Logistic, OLS, and multinomial regression results of intergenerational support among widowed Chinese ages 65 and older (CLHLS, 2002)

	Financial support ^a	Amount of financial transfer ^b	Sick care ^a	Emotional support ^a	Living with children vs. alone ^a	Living in nursing homes vs. alone ^a
Widowed older adults' needs						
Received schooling	1.08	0.18**	0.85	0.91	0.95	1.10
Having pension	0.20**	-0.10*	0.73*	1.12	0.89	1.23
ADL limitations	1.02	0.05**	0.76**	0.95**	1.19**	1.21**
Child's gender and number of children						
Number of sons	1.43**	0.15**	1.14**	1.15**	1.05 [†]	0.70**
Number of daughters	1.24**	0.14**	1.06	1.14**	1.27**	0.89*
Children living nearby	0.93**	-0.04**	1.29**	1.05*	0.79**	0.76**
Marital history						
Married twice or more	0.76*	-0.17**	0.71**	0.70**	0.87	1.06
Control variables						
Living alone/with others	ref	ref	ref	ref		
Living in nursing homes	0.74*	0.34**	0.09**	0.17**		
Living with children	1.55**	-0.10**	21.07**	4.87**		
Age	1.00	0.005**	1.00	1.02**	1.03**	1.00
Female	1.21 [†]	0.07*	0.99	1.05	1.20**	1.00
Rural	0.97	-0.59**	1.36**	1.02	1.09	0.59**
Han	0.93	0.21**	1.18	0.68**	0.50**	1.08
<i>N</i>	10,511	8,333	10,511	10,511	10,511	10,511

Notes: OLS=ordinary least square

^aOdds ratios are reported

^bWe used OLS regression to estimate the correlates of the amount of net financial transfer received by the widowed Chinese from their children and children-in-law. The analytic sample includes those who had at least one child and received positive financial transfers from children and children-in-law. [†] $p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

Regarding coresidence, one on hand, the number of ADL limitations was positively associated with living with children, after controlling for all covariates (1.19). On the other hand, more ADL limitations were also associated with higher odds of living in nursing homes (1.21). Neither education nor pension receipt was significantly associated with the odds of coresidence.

As expected, widows received a greater amount of financial support (0.07) and were more likely to live with their children (1.20) than widowers. Moreover, age was positively related to financial assistance (0.005), emotional support (1.02), and coresidence (1.03). Among those who received positive net financial transfers from their children, widowed older adults in rural areas received less than their urban counterparts (-0.59), but widowed older adults in rural areas were more likely to receive care from children (1.36) and were less likely to live in nursing homes than their counterparts in urban areas (0.59). Compared with non-Hans, Hans received less financial assistance from their children (0.21) and were less likely to receive emotional support from their children (0.68) or live with their children (0.50).

3.2.2 Child's Gender and Number of Children

Table 2 also shows that children, *both* sons and daughters, played an important role in all types of support to the widowed. In general, widowed older adults who had more sons or daughters were more likely to receive financial support from children, receive care from children, confide in children, and live with children than those who had fewer children. The number of sons and daughters was also positively associated with the amount of money received by the widowed. Therefore, regardless of the gender of the child, the more children the better old-age support in China. The number of children in close proximity was also positively related to the odds of receiving sick care (1.29) and emotional support (1.05) and negatively associated with the odds of living in nursing homes (0.76). On the other hand, the number of children living nearby was associated with lower odds of receiving financial support (0.93), lower amount of net financial transfer (-0.04), and lower odds of coresidence (0.79).

We followed Xie and Zhu's (2009) work and controlled for living arrangements in the analyses of financial support, sick care, and emotional support. Not surprisingly, coresidence was positively associated with the likelihood of these transfers from children. Widowed older adults in nursing homes seemed to be the most disadvantaged. Compared to those living alone or with relatives, those living in nursing homes were less likely to receive financial support (0.74), sick care (0.09), and emotional support (0.17) from their children.

3.2.3 Marital History of Widowed Older Adults

As shown in Table 2, those who had multiple marriages were less likely to receive financial support (0.76), sick care (0.71), and emotional support (0.70) from their children, relative to those who were married only once. Even for those who received net financial transfers from their children, the widowed with a history of multiple marriages received less than those who were married only once (-0.17). Widowed old adults' marital history, however, had no significant bearing on living arrangements.

3.3 Sources of Support by Provider's Gender and Family Ties with Widowed Parents

In previous analyses, we found that widowed older adults in China relied heavily on their children for multiple types of old age support. Next, we examined who provided what support and whether these patterns vary between widows and widowers.

Table 3 shows clearly that sons and daughters-in-laws were still the main providers of financial assistance, sick care, and emotional support and were most likely to live with widowed parents in China. Nevertheless, the majority of widowed older adults reported that daughters also provided financial assistance to them. The patterns somewhat vary by parents' gender. Widows were more likely to receive financial assistance from both sons and daughters than were widowers (70% vs. 63%,

respectively, $p < 0.05$). In addition, a higher proportion of widowers (79%) than widows (72%) reported that their sons and daughters-in-law took care of them when they were ill ($p < 0.05$). Widowers (72%) were more likely than widows (63%) to name their sons and daughters-in-law as the ones they would talk to first when they wanted to share their thoughts and feelings ($p < 0.05$). Widows, on the other hand, more often named their daughters and sons-in-law as confidants than widowers (18% vs. 12%, respectively, $p < 0.05$). Finally, widowers were more likely to live with their sons than were widows (84% vs. 79%, respectively, $p < 0.05$).

3.4 Sources of Assistance for Disabled Widows and Widowers

In additional analyses, we examined who provided principal care to those who needed help with ADLs. Following Hermalin and Shih's (2003) work, we conducted separate analyses for widows and widowers due to previous findings that older adults' gender mattered in who provided what ADL assistance (Lee, Dwyer, and Coward, 1993). The analytic sample was restricted to widowed older adults who experienced at least one ADL difficulty. Several important findings emerged, as shown in Table 4. First, among

Table 3. Sources of support received by widowed Chinese by provider's gender and family ties to the widowed

	Net Financial Transfer ^a		<i>p</i>
	Widows (%)	Widowers (%)	
Main provider			
Sons and daughters	70.1	62.7	*
Sons and daughters-in-law	21.1	26.0	ns
Daughters and sons-in-law	8.8	11.3	ns
	Sick Care ^b		
	Widows (%)	Widowers (%)	
Sons and daughters-in-law	72.2	78.7	*
Daughters and sons-in-law	13.6	9.8	ns
Sons and daughters	11.6	9.5	ns
Grandchildren and grandchildren-in-law	2.6	2.0	ns
	Emotional Support ^c		
	Widows (%)	Widowers (%)	
Sons and daughters-in-law	63.4	72.4	*
Daughters and sons-in-law	17.8	11.7	*
Sons and daughters	15.5	13.3	ns
Grandchildren and grandchildren-in-law	3.3	2.6	ns
	Living Arrangements ^d		
	Widows (%)	Widowers (%)	
Live with son	78.7	84.4	*
Live with daughter	12.8	10.8	ns
Live with son and daughter	2.5	0.7	*
Live with grandchild	6.0	4.1	ns

Notes: The means and percentages are weighted.

^a Difference between the widows and widowers significant at $p < 0.05$

ns: Not significant at $p < 0.05$

^a The analytic sample includes widowed older adults who had at least one child and received positive financial transfers from children/children-in-law.

^b The analytic sample includes widowed older adults who mentioned adult children/children-in-law or grandchildren/grandchildren-in-law as the ones who would take care of them when they were sick.

^c The analytic sample includes widowed older adults who mentioned adult children/children-in-law or grandchildren/grandchildren-in-law as the ones they would talk to first when they wanted to share their thoughts and feelings.

^d The analytic sample includes widowed older adults who lived with adult children or grandchildren.

Table 4. Source of ADL assistance received by widows and widowers^a

Main provider (%)	Bathing	Dressing	Toileting	Transferring	Continence	Feeding
Widows						
Son	6.2	14.4	14.8	19.5	10.1	20.3
Daughter-in-law	41.9	41.6	43.4	38.9	35.8	40.6
Daughter	29.7	15.8	13.8	9.3	17.0	11.5
Son-in-law	0.0	0.0	0.2	0.5	0.1	1.1
Son and daughter	2.0	4.5	3.6	6.4	2.4	5.0
Grandchildren	5.7	4.5	3.3	3.5	2.0	3.2
Other relatives	3.6	1.5	2.8	2.5	1.9	2.8
Social service	6.2	8.4	9.4	10.3	4.9	8.5
Domestic worker	4.1	9.2	7.8	8.8	9.9	7.7
None	0.7	0.1	0.8	0.2	15.9	1.1
Total number (N)	2,745	1,332	1,468	1,181	735	859
Widowers						
Son	62.5	58.6	55.8	54.9	45.3	48.2
Daughter-in-law	4.2	12.2	4.5	8.3	5.1	17.4
Daughter	5.8	2.6	6.0	2.7	3.8	3.1
Son-in-law	0.9	0.6	0.2	0.1	2.0	0.1
Son and daughter	5.3	4.7	6.4	4.9	3.1	2.1
Grandchildren	10.1	8.9	10.1	11.3	1.0	16.8
Other relatives	0.4	0.5	1.1	0.5	1.0	1.5
Social service	4.6	4.8	9.1	8.9	9.8	5.9
Domestic worker	4.1	6.4	6.1	7.8	7.8	2.8
None	2.0	0.8	0.6	0.5	21.1	0.3
Total number (N)	825	377	376	303	196	215

Notes: ^aThe analytic sample includes widowed older adults who had difficulties in one or more ADLs. The percentages are weighted. Due to very little missing data on sources of ADL assistance and the small number of people in some cells, we did not do multiple imputations and included respondents who answered the related questions.

widows who needed help with ADLs, about 36%–43% mentioned their daughters-in-law as the main caregivers for various ADLs. It is clear that for widows in China, despite tremendous social and economic changes, daughters-in-law still played a crucial role in taking care of the day-to-day needs of their mothers-in-law. Sons, daughters, grandchildren, domestic workers, and social services accounted for most of the remaining providers. Very few widows relied on sons-in-law or other relatives for ADL assistance.

By contrast, sons played a big role in helping widowers with ADLs. Approximately 45%–63% of widowers mentioned that their sons helped them when they needed help with ADLs. Daughters-in-law also played a salient role in helping the widowers in terms of feeding (17%), dressing (12%), and transferring (8%). A significant proportion of widowers also were helped by their grandchildren (*e.g.*, 17% for feeding, 11% for transferring). Likely because few widowers lived with their daughters, only a small proportion of widowers relied on their daughters for ADL assistance.

4 Discussion

Although China has experienced rapid demographic, social, and economic changes in the past few decades, we find that the overwhelming majority of widowed older adults still rely heavily on their adult children for financial assistance, sick care, and emotional support, and that living with adult children, sons in particular, remains the modal arrangement of widowed older Chinese. Our hypotheses were largely

supported, with a few exceptions. The flow of upward transfers from adult children to a widowed parent is most likely to occur when the parent is in need of support (either financially or physically) and has a large number of children regardless of child's gender. The number of children who live close by is positively associated with the odds of receiving some types of support including sick care and emotional support. The transfer, however, is less likely to occur when the widowed parent had a complex marital history. Our findings also suggest that the most vulnerable group, the widowed with ADL disabilities, may face particular challenges in sick care and emotional support as their disability worsens over time.

How are these results compared to those of the United States? There are some key similarities as well as differences. Widowed parents' needs in ADL assistance are associated with coresidence in both countries (Liang, Brown, Krause *et al.*, 2005; Seltzer and Friedman, 2014). Nevertheless, while widowed older adults' socioeconomic status and the number of adult children are positively associated with coresidence in China, these factors are not associated with coresidence in the U.S. Instead, having at least one daughter is significantly related to coresidence for widows in the U.S. In addition, the rates of coresidence in widowhood vary widely in the two countries: less than 10% of widows lived with their children in the U.S. (Seltzer and Friedman, 2014) compared to 67% in China. This is partly due to different cultural traditions and economic contexts in the two societies. As our measures of financial support, sick care, and emotional support are not directly comparable to those used in the U.S. studies, it is difficult to compare these results between the two countries.

Our study also confirms previous findings that sons (and daughters-in-law) still play a very important role in all types of old-age support for widowed older adults, due to the filial norms and the high prevalence of coresidence. In addition, we found that daughters also participate in providing financial support, sick care, and emotional support to their widowed parents. Grandchildren play a much smaller role in providing care and support than sons, daughters, and their spouses. This key finding regarding the role of sons and daughters-in-law is also different from the findings in the U.S. where daughters provide more support than sons to older parents (Grigoryeva, 2017; Laditka and Laditka, 2000; Lee, Jeffrey, and Coward, 1993).

Finally, we found that widowed older adults with ADL limitations are more likely to receive care from children or their spouses of the same gender, with the exception of sons-in-law. Specifically, whereas sons are the major caregivers for widowers, daughters-in-law and daughters bear the major responsibility of caring for widows. This finding is largely consistent with Lee *et al.*'s (1993) finding in the U.S. that a same-gender preference exists in intergenerational caregiving relationships. The notable difference is that daughters-in-law play a far more important role in caring for disabled widows in China than in the United States.

Our study has some limitations that suggest avenues for future research. First, because the survey does not ask respondents detailed information about each child in the family, such as their marital status, educational attainment, occupation, and health, we were unable to take into account each child's abilities to assist their older parents in the current study. Second, our study is based on cross-sectional data and reflects a snapshot of intergenerational support in widowhood. Longitudinal and dyadic data will provide more insights into the trajectories and determinants of caregiving to widowed older adults over time. Third, our measures of intergenerational support are based on reports from widowed adults; a recent study in the United States showed that parents and adult children had a moderate level of agreement on intergenerational transfers, and it is important to control for reporting bias in future studies when both parents' and adult children's reports of same transfers are available (Lin and Wu, 2017). Fourth, although we examined multiple dimensions of support, there are a few important intergenerational transfers that we did not examine due to the lack of data. These transfers include household help, agricultural fieldwork help, frequency of contacts, *etc.* Lastly, we did not examine the quality of care provided by adult children. Recent research in China showed that disabled older adults are more satisfied with the care

provided by daughters (and sons-in-law) than by sons (and daughters-in-law) (Zeng, George, Sereny-Basher *et al.*, 2016).

Nevertheless, the study contributes to a better understanding of intergenerational support in widowhood in several aspects. First, this is one of the few studies that focus on multiple dimensions of intergenerational support from adult children to their widowed parents in China. Our results show that some characteristics of the widowed (*e.g.*, ADL limitations) have different associations with different types of support. Second, this study used a more representative sample in China and covered rural as well as urban areas. Third, the study considered the potential heterogeneity of widowed older adults. For example, it finds that widowed older adults with a complex marital history were less likely to receive multiple types of old-age support from their children compared with widowed older adults who had married only once. Lastly, the study provides a finer distinction among different sources of support, including the adult children's spouses and their offspring, providing a more complete portrait of caregiving networks.

5 Conclusions

It is clear that widowed older adults are a very disadvantaged group, and most depend on their children for financial support in China. It is critical for the government to improve the social security system as well as the financial well-being of widowed older adults. Due to the dramatic drop of fertility rates over the past four decades and high rates of out-migration of young people in rural China, we would expect that fewer adult children and children-in-law will be able to co-reside or live nearby to give their widowed parent the hands-on assistance. China should thus learn from the experience of developed countries and invest in home- and community-based care, residential care, and institutional care. Currently, due to the high cost, institutional care remains a privilege of upper-class families. Working-class families simply cannot afford it (Eckholm, 1998, May 20; Zhan, Feng, Luo, 2008). Our study shows that among the widowed older adults with one or more ADL limitations, only 5%–10% used social services and another 2%–10% used domestic workers. The needs for professional personal care will surely increase in the foreseeable future as the cohorts of Chinese who could only have one child reach old age in the next few decades. Government should consider providing subsidies to those who cannot afford the services, such as the widowed and disabled. As China continues to experience rapid social, cultural, and economic changes, more research is needed to follow these trends in intergenerational relationships and transfers.

Authors' Contribution

Zhenmei Zhang and I-Fen Lin designed the study, planned the analyses, and wrote the article. Zhenmei Zhang prepared the data file and performed the analyses.

Conflict of Interest

No conflict of interest has been reported by the authors.

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Ethics Statement

This study used secondary data from publicly available sources. The CLHLS datasets can be obtained from the following website: <http://www.icpsr.umich.edu/icpsrweb/NACDA/studies/36179>.

Disclaimer

The views expressed in the paper are solely those of the authors and do not necessarily reflect those of Michigan State University or Bowling Green State University.

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