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**HELP FROM WHOM? CROSS-CULTURAL DIFFERENCES IN RECEIVED**

**SUPPORT AMONG THE AGING ADULTS IN THE U.S. AND CHINA**

A Thesis in

Sociology and Demography

by

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## **ABSTRACT**

This study aims to examine the culture differences in the supply of social support to the aging population in the Western and Asian contexts, and investigates how the observed cross-cultural differences further vary among different social groups in the U.S. and China. Using data from the Health and Retirement Study (2010) in the U.S. and its sister study China Health and Retirement Longitudinal Study (2011) in China, it compares the between-country differences in the receipt of different instrumental support among the aging adults with functional limitations. The findings suggest that Chinese aging adults with functional limitations are more disadvantaged than their U.S. counterparts in receiving every source of functional help from their children, spouse, relatives, and non-family helpers, when controlling for their sociodemographic status, household resources, institutional support, and health status. Chinese aging adults also more likely to be left without any source of support. The between-country difference is larger among younger cohorts in receiving support from children and spouse. U.S. females are more advantaged than Chinese females in receiving support from different sources, when compared to their male counterparts. The observed between-country differences are independent of the between-country differences in the availability of support and need for support, suggesting unobserved processes at work, such as cross-cultural differences in expectations and seeking behaviors for support. The findings imply that compared to the U.S. elderly, Chinese elderly have rather limited supply of social support to meet their needs. The current study has important implications for broadening the supply network of instrumental support for long-term elderly care in China.

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## **INTRODUCTION**

The percentage of the aging population in East Asia is projected to reach 25% by 2050 (United Nations, 2015), which brings significant policy challenges in understanding how to provide efficient support to the elderly in an aging society. While the existing literature has demonstrated cultural differences in support-seeking behaviors between the Western and Asian contexts, less attention has been drawn to understanding how the supply network of social support differs among the aging population between the two contexts. Such differences might result from the cultural differences in norms and practices in caregiving for elderly, such as varying emphasis on adult children's role as primary caregiver, different gender norms and expectations on females' responsibility in providing support for their spouses, and contrasting perceptions, availability, and use of support from formal and non-family helpers. This study aims to examine the culture differences in the supply of social support to the aging population in the Western and Asian contexts, and investigates how such differences further vary among different social groups in the U.S. and China.

## **BACKGROUND**

### **Functional Social Support: A Theoretical Framework**

Social support is an important function of social relationships, through which individuals are inter-connected and embedded within the social structure. The structural aspect of social support reflects the extent to which individuals are situated or integrated within a social network through social integration, while the functional aspect of social support refers to the actual functions that social support has provided (Cohen and Wills, 1985). Functional social supports include

emotional support, instrumental support, informational support, and appraisal support (Uchino, 2004). While perceived social support is oriented toward the hypothetical conditions on what support is perceived to be available, received support is grounded in behavioral transactions occurring over a set period of time (Dunkel-Schetter and Bennett, 1990). Received support reflects the actual provision of support towards the individual recipient. However, received support is not related to the perceived availability of support in a straightforward manner (Dunkel-Schetter and Bennett, 1990). For example, studies have found that received support is not as highly related to successful coping as the perceived availability of support (Barrera, 2000; Lehman, Ellard, and Wortman, 1986).

The functional aspect of social support is explained by stress-related theoretical models that emphasize the role of social support in the stress-related processes. The stress-buffering model argues that social support is beneficial because it decreases the negative effects of stress on individuals' mental health (Cobb, 1976; Cohen and Wills, 1985; Cohen and Herbert, 1996). Additionally, the stress-prevention model suggests that social support is beneficial because network members may provide resources to avoid or reduce individuals' exposure to negative life events (Gore, 1981; LaRocco, House, and French, 1980). Critiques on stress-related models include the inconsistency of research, gaps in understanding of such models, and inexplicit processes (Uchino, 2004).

While the association between social support and mental health is particularly strong, studies also consistently find that lack of social contacts, connections, and support is strongly associated with increased mortality risks (Berkman, 1984; House, Umberson, and Landis, 1988; Israel and Rounds, 1987). The receipt of instrumental and functional support are consistently found to be associated with fewer functional limitations and slower functional declines



(Demange et al. 2004; Seeman et al. 1996; Travis et al. 2004; Choi and Wodarski 1996; Bierman and Statland 2010; Unger et al. 1999).

### **Support-seeking Behaviors: Differences between the Western and Asian Cultural Contexts**

Cultural variations in social relationships lead to variations in people's perceptions and behaviors on social support across different cultures, specifically in people's behaviors in calling on social support networks and coping with stressors between Western and Asian cultures (Taylor et al., 2004). Western cultures tend to view a person as independent and separate from other people, while Asian cultures tend to view a person as fundamentally connected with others (Markus and Kitayama, 1991; Shweder and Bourne, 1984; Triandis, 1989). Such findings may lead to the assumption that Asians would be more likely to seek social support for help because they place emphasis on their interconnectedness within the social group. However, researchers have shown a different picture. In an individual cultural context, Westerners take actions that are oriented toward the expression of their opinions and beliefs, the realization of their rights, and the achievement of their goals (Fiske, Kitayama, Markus, and Nisbett, 1998; Kim and Markus, 1999). In such context with individualist values, relationships may be seen as means for promoting individual goals, and as such, one may recruit explicit help or aid from those in one's social networks in order to achieve one's personal goals (Taylor et al., 2004).

In contrast, Asians tend to view a person as primarily a relational entity that is interdependent with others (Markus and Kitayama, 1991; Shweder and Bourne, 1984; Triandis, 1989). In a collectivist cultural context, social relationships, roles, norms, and group solidarity typically are more fundamental to social behavior than an individual's needs (Taylor et al.,

2004). This interdependent view of the self holds that a person should conform to social norms and respond to group goals by seeking consensus and compromise; as such, personal beliefs and needs are secondary to social norms and relationships (Fiske et al., 1998; Kim and Markus, 1999). Thus, in the Asian cultural context, with maintaining group harmony as the priority, any effort to bring personal problems to the attention of others or enlist their help may risk undermining harmony and/or making inappropriate demands on the group (Taylor et al., 2004).

Researchers have attributed such differences in people's perceptions and behaviors on social support to differences between the Western individualist cultures and the Asian collectivist cultures. For example, European Americans are more likely to report needing and receiving social support than are Asians and Asian Americans (Hsieh, 2000; Shin, 2002; Wellisch et al., 1999). Received social support may have negative buffering effects for Asians, because it made Asians more stressed (Liang and Bogat, 1994). One study using open-ended questionnaire and standardized measure of coping has found that Asians and Asian Americans report less and rely on social support less than European Americans when coping with stressful events (Taylor et al., 2004). This study has argued that Asians and Asian Americans are less likely to seek social support because they are concerned about the possible relational ramification of seeking support, such as disturbing the harmony of the group, losing face, receiving criticism, and making the situation worse.

To sum up, the existing literature has compared perceptions on and support-seeking behaviors for social support between the individualist and collectivist cultural contexts, mainly by drawing samples from different ethnic groups within one country. The argument on cultural differences in social support is rarely tested by directly comparing samples from one country dominated by individualist culture and another country with a dominant collectivist culture.

Therefore, the current study plans to draw upon nationally representative samples from the U.S. and China for such purposes. The U.S. is a good example of the Western individualist cultural context, since Tocqueville referred to individualism as a marked characteristic of the Americans and a considerable property supporting democracy and freedom (Tocqueville, 1946; Riesman, 1954; Waterman, 1981; Takano and Osaka, 1999). As for individualist views on social relationships, studies from social psychologists suggest that individualism in the U.S. is reflected in self-reliance with competition, low concern for in-groups, and distance from in-groups (Triandis et al., 1988). In contrast, Chinese society has long been viewed as a collectively oriented society with a focus on social interests, collective action, and a de-emphasis on personal goals and accomplishment, especially after the Communist Revolution (Earley, 1989). Many studies have used the U.S. and China as examples to compare and contrast individualism and collectivism cultures (e.g. Earley, 1989; Chung and Mallery, 1999; Forbes et al., 2009; Sun, 2001).

### **Aging and Caregiving Role: Trends and Cultural Variations**

Another body of research on aging adults has focused on family as the primary source of support, especially among those elderly who are disabled or cognitively impaired. In the U.S., most elder care is provided in the home by (unpaid) family helpers (Levitsky, 2014). Various studies examined the patterns and outcomes of caregiving in aging families in the U.S. (Silverstein and Giarrusso, 2010). Older adults are frequently the recipients of such caregiving, which involves both the emotional and instrumental aspects of social support, such as checking in and providing companionship, doing household chores, preparing meals, taking care of finances, and coordinating medical care (Roberto & Jarrott, 2008). Caregivers for older adults

are more likely to be females than males (Silverstein, Gans, & Yang, 2006), while multiple family members (and nonfamily members) might trade off and coordinate their care efforts (Silverstein and Giarrusso, 2010). For example, siblings of an aging parent often negotiate over the distribution of time and resources directed towards the caring for elderly parents (Connidis & Kemp, 2008). A growing body of literature also demonstrated that caregiving activities brought about positive consequences to caregivers, such as improvements in problem-solving abilities, increased self-understanding, and a growing sense of competence (Roberto and Jarrott, 2008).

While adult children are the primary caregiver for aging adults in both the U.S. and China, the cultural tradition of filial piety in China adds an extra layer of emphasis on the responsibilities of adult children in providing support to their aging parents. In Chinese society and other Asian contexts with Confucian cultural influence, adult children, especially sons, are expected to provide support or assistance for their elderly parents as a moral obligation, a relational norm that is not subject to negotiation (Hong and Liu, 2000). Elder parents experience frustration and even depression if they perceived their children falling short of their expected filial duty (Hu and Chou, 2000). Therefore, some scholars argued that the dominant family dyad in the Chinese and other Confucian societies is the father-son relation, while the dominant family dyad in Anglo-American culture is the husband-wife dyad (Hsu, 1971). Such a divergence in elder care also reflects the cultural differences in perceptions on inter-group relations and support-seeking behaviors between the individualist and collectivist cultures (Ng, 2002). Broadly, the east-west divide in values and cultural perspectives on elder care is well documented (Liu and Kendig, 2000).

However, the cultural norm of filial piety on elder care in China is not stagnant. Such cultural perspective on elder care changes over time, while also being influenced by social and

structural forces. For example, some scholars view the diffusion of so-called Western values and practices as in conflict with Confucian ideals in elder care (Martin, 1990). Qualitative studies have found a decline in the patrilocal tradition of caregiving and a strong social pressure that influences caregiving behavior with economic reforms in urban China (Zhan and Montgomery, 2003). The traditional Confucian filial piety is undergoing modification, or even erosion, in the modernizing Asian society with influences from changes in living arrangements, and the quality of relationships between caregivers and receivers (Ng, Phillips, & Lee, 2002; Cheung and Kwan, 2009). Placing elder parents in institutions, instead of providing personal care for them, is reinterpreted as filial piety in urban China (Zhan, Feng, & Luo, 2008).

Though adult children are often considered to be the primary caregivers, spouses are also significant in providing support to frail older adults, when a spouse is available to care for them (Silverstein and Giarrusso, 2010). Adult children are found to derive greater emotional rewards from caregiving than do spouses (Raschick & Ingersoll-Dayton, 2004). Gender differences are also found among spousal caregivers in that wife caregivers suffer greater adverse effects than husband caregivers (Choi, Burr, Mutchler, & Caro, 2007). However, little research has compared spousal caregivers with adult children caregivers in other non-Western contexts.

Cultural differences in gender norms and gender roles might also contribute to the cultural differences of receiving social support and elderly caregiving from spouses. In many cultures, females are expected to care for others. The masculine role is “instrumental” with independence, competence, and rationality, while the feminine role is “expressive” with warmth, compassion, and supportiveness (Bem, 1974). Women on average have more close friends than men, and they emphasize the intimacy and disclosure in their relationships (Vaux, 1985). Compared to men, women also have better social support resources, and reciprocally provide more support to their

social network than men do. Putting into the context of elder care, gendered elder care is observed in both the U.S. and China, particularly among the gendered division of elder care among the adult children (Cancian and Oliker, 2000; Zhan and Montgomery, 2003). Fewer studies have directly compared the gendered division of elder care among aging couples and examined whether females provide more support to their spouse than males do (Calasanti and Bowen, 2006). Moreover, gender role attitudes differ between the Western and Asian cultural contexts, and gender role attitudes are considered to be generally more traditional in the Asian context (Boehnke, 2011). It is less understood how the stronger gender norms and expectations on females' role as caregiver towards their spouses and family members in the Asian contexts have contributed to the gender differences in receiving support from spouses in such societies.

In addition, the traditional gender norm of elder care in the Asian contexts may also be changing over time with demographic trends. For example, Japanese men are increasingly taking up the caregiving work to frail elderly relatives, though the caregiving work is traditionally the responsibility of wives and daughters-in-law (Long and Harris, 2000). Less evidence is found in the Chinese context, where gendered division of elder care is still prominent (Zhan and Montgomery, 2003). A broader view on gender attitudes shows a larger positive effect of individual education on gender egalitarian for Chinese women than for Chinese men (Shu, 2004). Therefore, it is plausible that with the increased educational achievement within the Chinese society, we would observe possible shifts in the traditional gender norm of elder care among younger cohorts of Chinese elderly.

### **Structural Differences in Received Support: An Alternative Explanation**

The potential differences in the perception and supply of social support among the elderly may not only be attributed to cultural differences in social support and elder care, but also to different demographic patterns and trends in the U.S. and China. Recent demographic trends in fertility, marriage, and migration lead to shifts in family structure and consequently changes in the social support structure among the aging cohorts in both contexts. For example, in the U.S. context with aging baby boomers, the recent increasing rates of divorce and remarriage are found to be negatively affecting the support that adult children provide to their elderly parents (Pezzin, Pollak, & Schone, 2008). The increasing divorce rate also has a direct effect on the availability of spousal help for aging adults, though the increasing rate of cohabitation might offset it. The growing number of childless individuals also raises concerns over the loss of significant source of family support that elderly receive, and its potential negative impacts on the psychological well-being of aging individuals (Bures, Koropecj-Cox, & Loree, 2009).

In China, the total fertility rate has fallen from 6.0 in the 1950s to between 1.5 and 1.7 since the late 1990s, partly due to the one-child policy in 1979 (United Nations, 2016). The recent “two-child” policy is projected to have modest effect on shrinking workforce and population aging (Zeng and Hesketh, 2016). The low fertility rate and reduction in family size may lead to the decreasing availability of adult children’s instrumental and financial support for their aging parents, though not as dramatic as anticipated (Zimmer and Kwong, 2003). Large-scale rural-urban migration and the decline in multi-generational co-residence may also reduce the availability of instrumental support from adult children in the form of care and labor, but not necessarily a decrease of financial support (Giles, Wang, & Zhao, 2010). As a result, aging adults in China might experience a decline in the receipt of support from their adult children compared to those in the U.S., despite the strong cultural norm of filial piety for elder care.

Fewer studies have examined the impact of rural-urban migration and changing living arrangements on the availability of spousal help towards the aging adults, especially among the female elderly.

The demographic trends and changes in family structure might affect the availability of received support from adult children and spouses among the aging cohorts in both the U.S. and China. The relatively lower marriage rate in the U.S. might lead to a lower prevalence of spousal help among the elderly. The shrinking family size and absence of adult children might lead to a lower prevalence of adult children's support for elderly in China. Such compositional differences between two contexts also contribute to the observed differences in received support among the aging adults in the U.S. and China.

Economic resources are directly associated with the need for instrumental social support, especially among the aging adults with frailty. Elderly with more economic resources have more sources of available social support, as well as more alternative approaches to replace the type of instrumental support that is not available to them. For example, aging adults with functional limitations can hire paid helpers for their daily activities, if no other unpaid helpers are available to provide such support. Differences in economic development, household income and wealth, and development of social security system all lead to different mean level of economic resources available to aging individuals. Therefore, differences in the average availability of economic resources among the elderly in the U.S. and China might also contribute to the observed differences in the supply structure of received support between the two contexts.

Institutional support is another important source of social support provided by non-family members to the aging adults. In addition to assistance from family and friends, many frail older adults in the U.S. receive support from formal home care services, paid by care recipients and



their families, private insurance, or Medicaid (Johnson and Wiener, 2006). Though Medicare and traditional private health insurance do not cover most long-term care services, Medicaid covers nursing home care, home health services, and nonmedical home- and community-based care to qualifying disabled individuals, especially those with limited economic resources (Johnson and Wiener, 2006). In contrast, the non-familial system for elder care is much less developed in China and other developing countries (Lloyd-Sherlock, 2000). Though the urban population is mostly covered by government health insurance (Bogg et al., 1996), less than 10% of the rural population was insured by 2000 (Liu, 2004). The lack of healthcare coverage is significantly contributing to the lack of available healthcare services for elderly with limited economic resources in rural China. In urban areas, the community-based long-term care has been an emerging form of services for institutional elder care, mainly in the non-government sectors (Wu et al., 2008; Feng et al., 2011).

In summary, different availability of economic resources and institutional support towards the elderly in the U.S. and China may contribute to the different structures of received social support between the two contexts. In addition to cultural explanations on family support for elderly, the lack of institutional support for Chinese elderly is another contributing factor in explaining this.

Differences in the supply of instrumental support may reflect the differences in need and the underlying differences in health conditions between two populations. The received instrumental support for elderly is directly related to their functional limitations in daily activities. Based on a nationally representative sample in 2002, research shows that the community-based disabled population is sizable in the U.S. (about 8.7 million aged 65 and older; 20.6% of the population), and many frail older adults have mental health problems. Age-adjusted prevalence of disability

in China shows that more than 20% of the population aged 65 and above have disability problems in 2006, a significant increase compared to that in 1987 (Zheng et al., 2011). Depressive symptoms are detrimental in increasing the risk of disability among the Chinese elderly (Jiang et al., 2004). Therefore, differences in the prevalence of disability, depression, chronic conditions, and other health measures may also explain the observed differences in received instrumental support among the aging population in the U.S. and China.

## **RESEARCH QUESTIONS**

While the existing literature has demonstrated strong cultural differences in support-seeking behaviors between the Western and Asian cultural contexts, less attention has been drawn to directly comparing the cultural differences in elderly's received instrumental support between two contexts. Structural and compositional differences in the availability of support might also contribute to the observed differences and therefore be interpreted as part of the cultural differences. This study plans to focus on the received instrumental social support, and compares cross-cultural similarities and differences in the received social support among the aging population between the U.S. and China.

This study has two main research questions. First, what are the cultural differences in the supply and receipt of instrumental support among elderly between the U.S. and China? Specifically, are there any cultural differences in the likelihood of receiving particular sources of instrumental support (such as support from children, support from spouse, support from other family members, and support from non-family members), after controlling for individual sociodemographic characteristics, household resources, institutional support, health status, and

need for support? Second, what are the social and cultural factors that further complex the cross-cultural differences in the receipt of instrumental social support? Does such between-country differences vary by age/cohort, gender, and the need for instrumental support?

## **DATA AND METHODS**

### **Data and Sample**

This study draws on comparable samples from both the U.S. and China and directly compares the received social support among the aging population. I pooled data from two nationally representative datasets, Health and Retirement Study (HRS) in the U.S., and China Health and Retirement Longitudinal Study (CHARLS) in China, and harmonized them into one dataset. HRS is a long-term panel study of approximately 28,000 Americans over the age of 50 and born before 1959 with information on the economic, social, and health status of respondents. It starts in 1992 and collects information every two years. It also collects refreshing samples every 6 years to make the overall sample nationally representative of the population aged 50 and above (Sonnega et al. 2014). Its most recent sample with national representativeness is from wave 2010. CHARLS is modeled after HRS as a nationally representative sample of 17,500 Chinese residents aged 45 and older. Its baseline wave is fielded in 2011 and collects follow-up information every two years (Zhao et al. 2014). The structure and content of CHARLS make it possible for its integration and comparison with HRS. For comparability, this study uses the nationally representative waves from both datasets (HRS 2010, and CHARLS 2011), and constrains both samples to respondents aged 50 and above. This study draws upon raw data from

both the HRS and CHARLS, as well as harmonized versions of data from RAND (RAND, 2015) and the Gateway to Global Aging Data<sup>1</sup>.

For my analysis, I constrain my sample to respondents from both datasets aged 50 and above with no missing information on age and gender. Since the main variable of interest, received instrumental support, is asked to respondents who have at least one limitation in activities of daily living (ADL) or instrumental activities of daily living (IADL) at the interview, I constrained my sample to respondents with at least one ADL or IADL limitation<sup>2</sup>. The final sample size of my study contains 4,925 American respondents from HRS and 3,960 Chinese respondents from CHARLS (total sample size is 8,885 observations).

## Measurements

*Received (instrumental) support* is measured by different sources of help that respondents received for their daily life and physical activities. In both HRS and CHARLS, if a respondent has identified having difficulty in completing at least one task of ADL or IADL<sup>3</sup>, the respondent was then asked whether he/she received help. If respondents reported receiving help, then the respondents are asked to identify who helped them *most often* with daily activities from a list of choices including their family members (such as spouse, parents, children and children-in-laws, grandchildren and grandchildren-in-laws, and siblings), other relatives, paid helpers (such as

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<sup>1</sup> Harmonized CHARLS dataset and Codebook, Version B (November, 2015) developed by the Gateway to Global Aging Data, funded by the National Institute on Ageing (R01 AG030153, RC2 AG 036619, 1R03AG043052). For more information, please refer to [www.g2aging.org](http://www.g2aging.org).

<sup>2</sup> For a detailed description of the construction of ADL and IADL measures, please refer to the later measurement section on “functional limitations”.

<sup>3</sup> For a complete list of tasks for ADL and IADL, please refer to the later measurement section on “functional limitations”.

nanny), and volunteer or employee of facility<sup>4</sup>. Five dichotomous variables are created to represent the categories/sources of helpers that respondent have received help from. *Help from spouse* equals to 1 when the respondent has received help from his/her spouse for daily activities and 0 indicates not receiving help from spouse. A “spouse” could either be the respondent’s spouse from marriage, or the respondent’s partner who helps them with daily activities. *Help from children* refers to receipt of functional help from respondents’ son, daughter, son-in-law, daughter-in-law, and stepchildren. *Help from relatives* refers to receipt of functional help from respondents’ parents, parents-in-law, siblings, siblings-in-law, grandchildren and grandchildren-in-laws, and other family members and relatives. *Help from other non-family helper* refers to receipt of functional help from paid helpers, volunteers, and other possible non-family helpers. *Help from any helper* equals to 1 if respondents have reported receiving any help from spouse, children, relatives, and other non-family helpers; and equals to 0 if respondents have zero helper.

***Sociodemographic variables*** include respondents’ age, gender, marital status, educational attainment from baseline wave<sup>5</sup>. *Age* is a continuous variable showing respondents’ self-reported age (in years) at the time of the interview. *Female* is dichotomous with 1 indicating female respondents and 0 indicating male respondents. *Marital status* is coded into three mutually exclusive categories, *married*, *partnered*, and *non-married/partnered* (i.e. separated, divorced, widowed, or never married). Educational attainment *high school educated* is dichotomously

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<sup>4</sup> In CHARLS questionnaire, respondents are asked to identify up to three different helpers that help them most often with daily activities. The actual survey responses show that no respondent identified having three or more helpers. In contrast, the HRS questionnaire does not restrict the number of helpers that respondents could identify. In this study, I restricted the top two helpers that HRS respondents have identified so as to keep it comparable to CHARLS. In fact, only a very small proportion of respondents from HRS (74 observations, 1.48% of the analytic sample) have identified having three or more types of helpers. The final sample of this study only includes respondents from both countries with no helper, one type of helper, or two types of helpers at most.

<sup>5</sup> Race is not included as a sociodemographic covariate because there is not a same or comparable “race” variable in CHARLS. The Chinese society is also much more racially homogeneous than the U.S. with limited racial disparity in sociodemographic outcomes. “Ethnic group” in China is not comparable to the social construct of race in the U.S.

coded as 1 indicating the respondent has completed high school education or above and 0 indicating that the respondent's educational attainment is lower than high school education.<sup>6</sup>

*Household resources* include respondents' number of living children, co-resident children, household income, and household wealth from the baseline interview. Total living children and co-resident children not only represent the resources that respondents have, but also capture the compositional differences between the U.S. and China that might reflect demographic trends and transitions, such as fertility decline, and internal migration. *No living children* is dichotomous with 1 indicating that the respondent does not have any living biological, adopted, or step-children and 0 otherwise. *Number of living children* is a continuous variable indicating the number of living children (both co-resident and non-co-resident) that the respondent has, including biological, adopted, and step-children.<sup>7</sup> *Have co-resident children* is a dichotomous variable with 1 indicating that the respondent has one or more children living within the same household, and 0 indicating otherwise. Additionally, household income and wealth capture the economic resources of respondents in both countries. Both household income and household wealth are taken with the natural log to deal with the problem of right skewedness. *Log household income* is the natural log of the sum of all income at the household level including income from earning, pension, government transfer, other income, and capital income. *Log household wealth* is the natural log of the net value of non-housing financial wealth. For CHARLS sample, household income and wealth are measured in Chinese currency *yuan* and

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<sup>6</sup> CHARLS and the harmonized version from Gateway to Aging have included five categories in constructing respondents' educational attainment to address the much lower average educational attainment of the aging cohort (primary education; lower secondary education; upper secondary education; post-secondary education; and first-stage of tertiary education). About 64% of the total sample have no more than primary education. To address this issue, this study has categorized those respondents from CHARLS with some secondary education into "high school educated".

<sup>7</sup> Note: "number of living children" does not include children-in-laws, while one of the dependent variable "help from children" includes received help from children-in-laws.

therefore are standardized into U.S. dollars before being harmonized into one dataset with HRS sample.<sup>8</sup> Negative values for original household income and wealth in both HRS and CHARLS are transformed by taking the natural log of the absolute values and then applying the negative signs.<sup>9</sup>

*Institutional support* captures the structural differences between the two societies in providing support for their aging population. *Government healthcare coverage* is dichotomously coded with 1 indicating that the respondent is covered by any kind of government healthcare plans and 0 indicating that the respondent does not have any government healthcare plans.<sup>10</sup>

*Health status and health behaviors* include respondents' health behaviors and lifestyle, subjective health measure, mental health, cognitive functioning, and physical health measured by chronic conditions and mobility limitations. *Self-reported health* represents respondents' self-reported health status ranged from 1 to 5 (1=excellent, 2=very good, 3=good, 4=fair, 5=poor). *Ever smoke* and *ever drink* are both dichotomously coded with 1 indicating that the respondent has ever smoke cigarettes/drink alcohol and 0 otherwise. *BMI* is respondents' body mass index and is constructed with respondents' weight and height (kg/m<sup>2</sup>). *Depressed* is a dichotomous variable with 1 indicating that respondents are depressed based on the CESD measures (Radloff,

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<sup>8</sup> The transformation of Chinese yuan into U.S. dollars is based on the currency exchange rate published by Federal Reserve Board on the median survey date of CHARLS baseline survey (8/1/2011). All Chinese yuan are divided by 6.4337 and transformed into U.S. dollars. For more information, please refer to <https://www.federalreserve.gov/releases/h10/2011.htm>

<sup>9</sup> I first tested whether the negative values of household income and wealth would skew the analysis by keeping them as they are, keeping them as zeros, and dropping them from the analysis. Results showed that the negative values did not skew all analyses. I decided to keep all negative values as they are and take the natural log of the absolute values before applying the negative signs.

<sup>10</sup> For HRS respondents, government health insurance programs include Medicare, Medicaid, VA/CHAMPUS, and other government health insurance. For CHARLS respondents, public health insurance programs include urban employee medical insurance, urban resident medical insurance, new cooperative medical insurance, urban and rural resident medical insurance, government medical insurance, medical aid, and urban non-employed persons' health insurance.

1977) and 0 otherwise.<sup>11</sup> The cognitive ability is measured by a *total word recall score* (ranged from 0 to 20) that sums the immediate and delayed word recall scores. *Any chronic conditions* is a dichotomous variable with 1 indicating that the respondent has self-reported having any of the following conditions: diabetes, stroke, hypertension, cancer, lung disease, and heart problems.<sup>12</sup>

***Functional limitations*** are measured by activities of daily living (ADL) and instrumental activities of daily living (IADL). Both ADL and IADL are based on a series of common physical tasks in HRS and CHARLS that asked respondents if they had any difficulty finishing (RAND Center for the Study of Aging, 2015). Tasks of ADL include bathing, eating, dressing, walking across a room, and getting in or out of bed. *Any ADL difficulty* equals to 1 if a respondent has indicated that he/she has difficulty in completing any of these five tasks and equals to 0 if respondent has no difficulty in completing any of the tasks. *Total ADL limitation* is respondents' summary score on ADL limitations ranged from 0 to 5. Tasks of IADL include taking medication, handling money, shopping, and preparing meals (the fifth commonly-used item in IADL of "using a telephone" is excluded from this study since the CHARLS baseline does not have this item). *Any IADL difficulty* equals to 1 if respondent has difficulty in completing at least one task and equals to 0 otherwise. *Total IADL limitation* is respondents' summary score on IADL limitations ranged from 0 to 4.

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<sup>11</sup> In HRS, CESD measures are based on the short form of 8 dichotomous items and respondents are defined as depressed if they score 4 or higher out of a total score of 8 (Teo et al. 2015). In CHARLS, CESD measures are based on 10 items, each of which is on a four-point scale. Respondents are defined as depressed if they score 11 or higher out of a total score of 30 (Hu et al. 2015).

<sup>12</sup> To capture the effect of comorbidity among elderly, I also created three dichotomous variables: no chronic condition, one chronic condition, and two or more chronic conditions. Results of analysis are not significantly different from using any chronic conditions as the covariate.



## **Analytic Strategy**

After using a consistent approach to construct and standardize variables of interest separately in HRS and CHARLS, I pooled two datasets and merged them into one cross-national dataset with a country identifier, as well as unique identifiers for each individual respondent. I constrained my sample to respondents aged 50 and above with no missing information on age and gender. I also constrained my sample to respondents with at least one ADL or IADL limitations. The final harmonized cross-national dataset therefore includes respondents' received instrumental support for daily activities, sociodemographic information, household and institutional information, health status and health behaviors, and functional limitations from HRS 2010 wave and CHARLS 2011 wave. I imputed missing values for variables of interests using the sequential imputation with chained equations in Stata 14.0 (StataCorp, 2015). The final sample of my study contained 4,925 American respondents from HRS and 3,960 Chinese respondents from CHARLS (total sample size: 8,885 observations).

The analysis consists of two steps. The first step is to test whether there are country differences in the probability of receiving different instrumental support among the elderly in the U.S. and China. I use logistic regression models to predict the likelihood of receiving a particular source of functional help as a function of the country variable "China" (with reference to the U.S.), sociodemographic variables, household resources, institutional support, health status and health behaviors, and functional limitations of respondents. Five binary outcomes of received functional help (*help from children, help from spouse, help from relatives, help from other non-family helper, and help from any helper*) are tested separately as the outcomes of interest. For the second step, I investigate what sociodemographic and health-related factors operate differently between the two countries in predicting the receipt of support. Based on the series of logistic

models from the first step, I further include interaction terms with the country indicator (for example, female\*country interaction) into the models to investigate how the observed between-country differences in received instrumental support vary among different social groups.

## **RESULTS**

Summary statistics by country are shown in Table 1. All descriptive statistics are significantly different between two countries. The HRS sample from the U.S. is older than the CHARLS sample from China. This is consistent with the pattern that life expectancy at birth in the U.S. is approximately 3 years longer than that in China (World Bank, 2015). Another contributing factor is that the sampling frame is the aging population 45 years and older for CHARLS while HRS is sampled on the aging population 50 years and older. The HRS sample also has a much higher proportion of respondents with high school education, higher proportion of childless respondents, higher average number of living children (among those with at least one living children), higher average household income and household wealth than the CHARLS sample. In contrast, the CHARLS sample has a much higher proportion of respondents who have at least one children co-residing with them (47.2%). The Chinese aging cohorts have a much higher proportion of being married (74.1%) while this percentage is only 44.1% among the U.S. sample, most likely because the U.S. sample are older with higher divorce rate (Brown and Lin, 2012). Thus, it is not surprising to observe that 33% of the Chinese elderly received help from their spouses for their functional limitations, while only 26.9% of the U.S. elderly got the same help. As for other sources of received help, the older adults in the U.S. have a higher rate of receiving help from their children (31.1%), family members and relatives (10.4%), and other non-family helpers such as nanny and employee of facility (19.9%). Only 17.6% of Chinese respondents

have received functional help from their children, 3.7% received help from their relatives, and 1.4% received help from non-family helpers.

Among these respondents with functional limitation in both countries, 64.7% of the U.S. sample received at least one source of functional help while only half of the Chinese sample (50%) did. In other words, only 35.3% of the U.S. respondents with functional limitation received no help at all, while this number for the Chinese respondents is much higher (50%). 41.02% of the HRS sample has only one type and 44.39% of the CHARLS sample does the same. 23.7% of the HRS sample received two types of functional help, while only 5.66% of the CHARLS sample did. For a detailed distribution of the sources of received help in both countries, please refer to Appendix A, Table 1a-1c.

The HRS sample has a higher proportion of respondents who have ADL limitations (77.2%). The HRS sample also has a higher mean of total ADL limitations (1.7). The CHARLS sample has a higher prevalence of IADL limitations (78.3%), while the HRS sample has a higher mean of total IADL limitations (1.5).<sup>13</sup> As for other health status measures, the CHARLS sample has healthier lifestyles measured by lower rates of those who ever drink and ever smoke, and lower mean BMI score, and lower prevalence rate in having any chronic condition. However, the CHARLS sample has a higher mean score in self-reported health (i.e. poorer self-reported health), a much higher prevalence rate of depression, and substantially lower score of cognitive measure (i.e. poorer cognitive functioning).

[Table 1 here]

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<sup>13</sup> For a detailed distribution of respondents with only ADL limitations, only IADL limitations, or both ADL and IADL limitations in both samples, please refer to Appendix A, Table 1d.

## **Between-country Differences in Received Instrumental Support from Different Sources**

Table 2 represents a series of logistic models comparing country differences between the U.S. and China in the probability of receiving particular sources of functional help, conditioning on the sociodemographic, household resources, institutional support, health status and behaviors, and functional limitations among the aging population with functional limitation. The odds ratio of variable “China” represents the odds of Chinese respondents in receiving a particular source of help relative to U.S. respondents, controlling for all other covariates. Results show that Chinese elderly consistently have a *lower* probability in receiving functional help across all sources, ranging from children, spouse, relatives, and other non-family helpers. Chinese elderly are also less likely to receive functional help from *any* helpers than the U.S. elderly do (odds ratio: 0.301). Interestingly, even though the Chinese respondents have a higher prevalence of being married and bivariate receipt of help from spouse, their odds of receiving spousal help are still 60.9%  $((1-0.391)*100%=60.9\%)$  lower than their U.S. counterparts, after controlling for their sociodemographic status, household resources, institutional support, health behaviors, and psychological and physical health conditions.<sup>14</sup> Similarly, Chinese elderly have 54.7% lower odds of receiving help from their children, 59.7% lower odds of getting help from their relatives, and 91.34% lower odds of receiving help from other non-family helpers, compared to the U.S. elderly. The largest between-country difference in received support is observed in the functional help coming from non-family helpers. Overall, the results from Table 2 have shown substantial country differences in the supply and receipt of functional help among the aging population

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<sup>14</sup> Model predicting the probability of receiving functional help from spouse only among respondents with an existing spouse or partner (N=5,454).

between the U.S. and China. Chinese elderly with functional limitations are much more disadvantaged in receiving functional help from different sources.

[Table 2 here]

Table 3 further explores the between-country differences in receiving functional help from *spouse* among the aging adults in the U.S. and China. The received spousal help comes from a married spouse or a partner. All models in Table 3 are restricted to respondents who have an existing married spouse or a partner (N=5,454). Both Model 1 and Model 2 show that Chinese respondents with an available spouse/partner have a *lower* probability than U.S. respondents in receiving spousal help (odds ratio in Model 2: 0.610), even after controlling for their gender and age, despite that the Chinese sample has a much higher proportion of being married/partnered (77.8%) than the U.S. sample does (48.2%). Model 3 controls for the effect of partnership, and reflects that partnered respondents are less likely than married respondents to receive such help. Model 4 shows that after controlling for sociodemographic, household resources, institutional support, and health status, Chinese elderly are further more disadvantaged than their U.S. counterparts in receiving such help (odds ratio: 0.391).

[Table 3 here]

### **Between-country Differences in Age Effect**

For the next step, I investigated for factors that might work differently between the two countries in predicting the receipt of functional help among the aging population, by including interaction terms between the country indicator and a series of covariates. Figure 1 shows the country-varying effects of age in predicting the receipt of functional help from children among

the aging cohorts in the U.S. and China (model results of odds ratios shown in Appendix B, Table 2). Predicted probabilities are estimated at means of covariates. Figure 1 shows that the predicted probability of receiving functional help from children increases among older age groups. For U.S. respondents, the probability increases from 13.9% at age 50 to 41.9% at age 100. For Chinese respondents, the probability increases from 4.3% at age 50 to 41.9% at age 100. Among younger age groups, U.S. respondents with functional limitations are more likely to receive children's help than Chinese respondents are, but the gap closes around the age of 90. For the oldest old, there are no observable differences in the predicted probability between the two countries (overlapping confidence intervals). The probability of getting functional help from children when individuals age is increasing at a much steeper trajectory in China than that in the U.S. Even though conventional wisdom suggests the influence of a strong culture of filial piety on adult children as the primary caregiver to aging parents in Asian contexts (Liu, 2000), this graph reveals some contradictory findings. Chinese elderly do not consistently have a higher likelihood of receiving children's help on their daily activities than U.S. elderly do, especially among the younger cohorts of aging population.

[Figure 1 here]

Figure 2 shows the country-varying effects of age in predicting the receipt of functional help from spouse among the aging cohorts in the U.S. and China (model results shown in Table 3, Model 5). Predicted probabilities are estimated with covariates at means. Again, the largest between-country differences in receiving spousal help are observed among younger age groups. For Chinese respondents, the predicted probability remains flat (around 40%) among all age groups, while for U.S. respondents, the predicted probability declines from 63.1% at age 50 to 45.6% at age 100. The gap between two countries closes at age 85. Since the availability of

spouse/partner also depends on the survival probability of spouse/partner, and gender differences in life expectancy exist in both contexts (e.g. Le et al. 2015; World Bank, 2015), I stratified the model by gender and tested for the age effect separately among female respondents and among male respondents. The age and country interaction terms are not significant in both gender-stratified models (results not shown). Additionally, the gender and country interaction term is insignificant in predicting the receipt of spousal help (results not shown). In summary, the U.S. respondents with functional limitations are more advantaged than Chinese respondents in receiving functional help from their spouse/partner, but such advantage becomes much smaller among older age groups. Such between-country difference does not vary by gender.

[Figure 2 here]

### **Between-country Differences in Gender Effect**

The between-country differences in received instrumental support not only vary among different age groups, but also vary by gender. Figure 3a and 3b show the country-varying effects of gender in predicting the receipt of functional help from any helper, and from children (model results shown in Appendix C, Table 3; country\*gender interactions are statistically significant in both models). Both predicted probabilities are estimated with covariates at means. For predicting the receipt of support from any helper (Figure 3a), U.S. females have a higher probability (74.6%) than U.S. males do (70.2%), while Chinese females have a *lower* probability (41.1%) than Chinese males do (48.0%). Compared to their male counterparts, Chinese females are more disadvantaged than U.S. females in getting any kind of functional support when they need it. In terms of functional support from children (Figure 3b), in both countries, females have a higher

probability than males in getting it. In the U.S. sample, females' advantage is much larger (11.1% point difference in predicted probability) than that in the Chinese sample (2.5%).

[Figure 3a & 3b here]

### **Between-country Differences in the Effects of Functional Need**

Figure 4 shows the between-country differences in the relationship between the need for help and the supply of help among the aging adults in the U.S. and China (model results shown in Appendix D, Table 4). Predicted probabilities are estimated with covariates at means. Among the sample respondents with more severe disability, the probability of receiving any instrumental support for their functional need goes up in both the U.S. and China. However, the U.S. sample consistently has a higher predicted probability, and the gap of predicted probability between the U.S. and China widens as respondents have more severe functional limitations. The largest gap between the U.S. and China is about 23.5% when respondents have three limitations in ADL; in other words, for respondents with three ADL limitations, the U.S. elderly have an 85.2% chance of receiving functional help from any possible helpers, while the chance for Chinese elderly is only about 61.7%. When respondents suffer from the most severe condition (with five ADL limitations), the probability of getting any help for U.S. elderly is almost 100%, while the probability is only around 75% for Chinese elderly. This reveals the limited supply network of support among Chinese disabled elderly in that their received support does not always meet their need for help.

[Figure 4 here]



## **DISCUSSION**

This study examines the cultural differences in received instrumental support among the aging population between the U.S. and China, and explores how such differences further vary among different social groups. Results show that there are considerable differences between the U.S. and China in the likelihood of receiving particular sources of instrumental support among the aging adults with functional limitations. Chinese older adults are consistently less likely than U.S. older adults to receive functional help as a form of instrumental support from their children, spouse, other relatives, and other non-family helpers, when conditioning on the same level of sociodemographic status, household resources, institutional support, health status and behaviors, and functional limitations. Chinese older adults are also significantly less likely to receive functional help from any sources than U.S. older adults are, when they are both experiencing at least one limitation in their daily activities. Disabled Chinese elderly are more likely to be left without any support than U.S. elderly are. Additionally, nearly 100% of U.S. older adults with severe functional limitations (five limitations in daily activities) receive functional help from at least one source, while the probability for Chinese older adults is slightly lower than 80% (shown in Figure 5). Overall, Chinese older adults are more disadvantaged because they are less likely to receive the instrumental support that they need.

### **Support-seeking Behaviors between Western and Asian Contexts**

Findings on the received instrumental support from **relatives and non-family members** are consistent with the literature on the support-seeking behaviors and supply of support within the Asian cultural context. Chinese elderly are much less likely than their U.S. counterparts to

receive functional help from other family members (relatives except for their children and spouse) and other non-family helpers, when they need help for their own functional limitations. Previous research has suggested that elderly care is perceived as a personal problem in Asian context and that individuals are less likely to seek help from their social group outside their families (Taylor et al., 2004; Ng, 2002; Liu, 2000). Thus, it is not surprising to see that within the Chinese sample, older adults have a much lower prevalence of relying on relatives and non-family members as functional helpers, compared to children and spouse as functional helpers. Compared to the U.S. sample, the Chinese sample is also *less* likely to receive functional help from other relatives and non-family members, even after controlling for their economic capacity (household income and wealth) and structural constraints (government healthcare coverage).

### **Changing Families with Demographic Trends**

Findings on the received instrumental support from **children** show that difference in demographic patterns and trends between the U.S. and China is *not* the only contributing factor to the observed between-country differences in received support from children. Result from the current study shows that Chinese aging cohorts are less likely than their U.S. counterparts in receiving children's support for their functional limitations. A potential explanation is that the observed disadvantage is due to the different availability of children between the aging cohorts in both contexts. Declining fertility rate, reduction in family size, and large-scale rural-urban migration in China might lead to a lower availability of adult children to directly provide instrumental support to their aging parents (Zimmer and Kwong, 2003). However, this study shows a different picture. Almost 8% of the HRS sample are childless, while only 2.83% of the CHARLS sample are the same. Among those who have at least one living child, while the

average number of living children in the CHARLS sample (3.26) is slightly lower than that in the HRS sample (3.58)<sup>15</sup>, almost 50% of the CHARLS sample has at least one child living with them. Only 29.5% HRS sample has at least one co-resident child. In other words, the Chinese older adults in the sample do *not* have fewer available children from which to seek help. When controlling for the average number of children and the proportion of co-resident children, the Chinese older adults are further disadvantaged than their U.S. counterparts in receiving children's support (Appendix E, Table 5).

To further investigate the effect of migration process on older adults' received instrumental support, I compared the probability of receiving different sources of instrumental support between rural and urban respondents in the CHARLS sample<sup>16</sup> (results not shown). Contrary to the expected consequences of ongoing large-scale rural-urban migration, rural respondents in CHARLS do not significantly differ from their urban counterparts in the number of co-resident children that they have.<sup>17</sup> However, in the multivariate models, rural respondents remain significantly less likely to receive functional help from their children and other non-family helpers than their urban counterparts, suggesting processes other than kin-availability at work. Rural older adults are more disadvantaged than urban ones in their received instrumental support in China.

In contrast, findings on the received instrumental support from **spouse** show that between-country difference in marriage rates and availability of spouse/partner are important factors in

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<sup>15</sup> The between-country difference on average number of children is larger on the entire sample. For the complete HRS sample, the average number of children is 3.12 while the number for the complete CHARLS sample is only 2.64.

<sup>16</sup> Residence information by rural and urban region is restricted data for HRS sample. Therefore, similar analysis was not done given the scope of current study.

<sup>17</sup> The average number of co-resident children for rural respondents in CHARLS is 0.596 while the average number for urban respondents is 0.587.

explaining the observed differences in received support from spouse. Thirty-three percent of the Chinese sample have reported that their spouse most often helped them with their daily activities, while only 27% of the U.S. sample did so. The higher prevalence of received spousal help in the Chinese sample is most likely due to the compositional characteristic that a significantly higher proportion of the Chinese sample has an available spouse or partner than the U.S. sample does. Previous research also suggests that the rising divorce rate in the U.S. has had an impact on the availability and supply of elderly care (Pezzin, Pollak, & Schone, 2008). In the current study, when conditioning on respondents in both countries among those with an available spouse/partner, Chinese older adults are in fact *less* likely than U.S. older adults to receive spousal help. After controlling for individuals' sociodemographic and health status, Chinese older adults are further disadvantaged than U.S. older adults in receiving spousal help (results from Table 3). In other words, even with the supply of spousal help more available to Chinese older adults, they are less likely to receive it. This pattern does not vary by gender. This suggests that there are more unobserved processes at work, other than the availability of support and need for support. More research needs to be done in explaining the observed between-country differences, such as different norms/expectations on the caregiving role of spouses, or potentially different behaviors in seeking support from spouses between two contexts.

### **Changing Cultural Norms and Gendered Pattern for Elder Support**

While the literature on elder care and cultural differences in social support both suggests that elder care in the Asian context primarily relies upon help from adult children (Liu, 2000; Ng, 2002), this study shows that the likelihood of receiving instrumental support from children are lower among Chinese older adults than it is among the U.S. older adults. The likelihood of

receiving children's help grows among older cohorts of aging individuals, and the probability increases faster among Chinese aging individuals (shown in Figure 1). Results may reflect cohort effects in the magnitude of cultural norm of filial piety for elder care in China.<sup>18</sup> Among the younger cohorts of aging adults in China, it is possible that such a traditional cultural norm has become weaker due to the process of modernization and diffusion of Western cultural values (Martin, 1990). The weakened norm of filial piety is therefore reflected in the lower probability of received support from adult children among younger cohorts in China, not only lower than that among older cohorts in China, but also lower than that among younger cohorts in the U.S.

Findings from this study reveal that the observed between-country differences further vary by age groups, which implies the changing patterns in the supply and receipt of instrumental support over time in both contexts. For aging individuals in both countries, the probability of receiving children's support increases with age, while the gap between younger and older cohorts is much larger in China. In contrast, the probability of receiving spousal support decreases with age, and the gap between younger and older cohorts is much larger in the U.S. Larger between-country differences in receiving instrumental support from both children and spouse are observed among younger cohorts in the U.S. and China.

In addition, the gender dynamics in receiving spousal support is different between the two countries. For the overall likelihood of receiving any type of help when needed, Chinese females are less likely than Chinese males to receive it, while U.S. females are more likely than U.S. males to receive it (shown in Figure 3a). In other words, the overall supply of instrumental support for Chinese females is much more limited than that for U.S. females. In terms of support

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<sup>18</sup> Alternatively, results may only reflect the age effect that the cultural norm of filial piety starts to play a stronger and more visible role when older adults reach to certain ages.

from children, in both the U.S. and China, females have a higher probability of receiving instrumental support from their children than males do, though U.S. females have a much stronger advantage than Chinese females do (shown in Figure 3b). Interestingly, there is no gender difference in either context in the receipt of instrumental support from spouse. In addition to the between-country differences in the gendered pattern among the recipients of instrumental support, it would be interesting to further explore the gender differences among the providers of instrumental support, such as whether there are between-country differences in the supply of instrumental support by adult son, adult daughter, and adult children-in-laws. Such analysis is beyond the scope of current study.<sup>19</sup> In summary, the receipt of instrumental support is gendered in both contexts, while female older adults in the U.S. are more advantaged than female older adults in China are.

The current study has several limitations. First of all, the sample from both countries is restricted to the aging adults with at least one functional limitation, since questions on received instrumental support are only asked from this group of respondents. This study did not examine other forms of instrumental support, such as financial transfer, or household labor. In addition, this study is not able to directly compare the country differences on elderly's attitudes and expectations on instrumental support. It does not directly observe the country differences in cultural norms on elder care and instrumental support. Rather, it compares the between-country differences on received support as a result of the expectation, support-seeking behaviors, and supply of available support. Second, even though CHARLS is modeled after and designed to be comparable with HRS, there are still inconsistencies in terms of design and coding of specific

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<sup>19</sup> Information on the gender of the adult children who provide the instrumental support to the older adults with functional limitations is available in the HRS sample, but not available in the CHARLS sample. Therefore, such analysis is not possible for the current study.

survey questions. For example, HRS respondents have the opportunities to identify the gender of their children that they received functional help from, while such information is not available in CHARLS sample. CHARLS respondents are asked to identify up to three different helpers, while HRS respondents do not have such restrictions. Similar problems occurred in variables like household income, household wealth, and depression based on CESD measures. Substantial effort was made to standardize such variables and test for sensitivity (details in “measurement” section). Lastly, data from this study is cross-sectional. Even though this study does not address how the between-country differences in received support among the aging adults change over time, the cross-sectional data in the current study is able to reflect cohort effects on the between-country differences as a form of cross-cultural differences in social support and elder care.

## **CONCLUSION**

The current study builds on the existing literature on cultural differences in social support between the Western and Asian contexts, and asks questions on whether there are cross-cultural differences between the U.S. and China in the receipt of different instrumental support among the aging adults. Further, it explores whether the between-country differences vary among different social groups. The findings suggest that Chinese aging adults with functional limitations are more disadvantaged than their U.S. counterparts in receiving every source of functional help from their children, spouse, relatives, and non-family helpers. Chinese aging adults also have a lower probability of receiving any type of instrumental support than U.S. elderly do. Despite the stronger cultural norm of filial piety in the Asian context, Chinese aging adults are less likely than their U.S. counterparts to receive children’s help, particularly among the young old. Chinese elderly are much less likely to receive the functional help from their

spouses, even though they have a higher prevalence of being married with an available spouse. In terms of receiving support from other sources, U.S. females are more advantaged than Chinese females are, compared to their male counterparts. The findings imply that compared to the U.S. elderly, Chinese elderly have rather limited supply of social support to meet their needs. The gender gap in the received support is also larger in China. The observed between-country differences received support are independent of the between-country differences in the availability of support and need for support, suggesting unobserved processes at work, such as cross-cultural differences in expectations, practices, and seeking behaviors for support.

Broadly, the current study has important implications for broadening the supply network of instrumental support for long-term elderly care in China, where the population has been aging rapidly. The proportion of elderly (aged 65 and above) is projected to reach 25% in 2050 and almost 30% by 2080, with the universal two-child policy recently in effect (Zeng and Wang 2014; Zeng and Hesketh 2016). The number of elderly population (aged 65 and above) will reach 355 million by 2050, while the total fertility rate remains below replacement (Zeng and Wang 2014). The government has been trying to reinforce the role that traditional family plays in providing elder care, such as introducing new law that requires adult children to visit aging parents frequently to meet their financial and emotional needs. Such effort is insufficient with the demographic trends of increasing internal migration, decreasing co-residence and extended family, and declining cultural norm of filial piety. On the other hand, community-based elder care is still emerging from non-government sectors in urban China, with much limited government support (Wu et al., 2008; Feng et al., 2011). The supply of public institutions for elder care are much lower than the demand. The government should increase its investment in increasing the size and quality of public institutions for elder care. It should also increase its



support for the development of community-based elder care, and play a greater role in coping with the increasing need for elder care during the population aging process.

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**Table 1. Descriptive Statistics for Study Variables: HRS 2010 and CHARLS 2011**

	Percent or Mean (S.E.)	
	HRS <sup>1</sup>	CHARLS <sup>2</sup>
<b><i>Received Help (%) from</i></b>		
Spouse	26.9	33.0
Children	31.1	17.6
Relatives	10.4	3.7
Other (non-family) helper	19.9	1.4
Any helper	64.7	50.0
<b><i>Sociodemographic Variables</i></b>		
Age	70.6 (0.18)	65.6 (0.15)
Female (%)	61.8	58.8
Married (%)	44.1	74.1
Partnered (%)	4.1	3.7
Non-married, non-partnered (%)	51.8	22.2
High school educated (%)	68.4	32.6
<b><i>Household Resources</i></b>		
No living children (%)	7.95	2.83
Number of living children*	3.58 (0.03)	3.26 (0.03)
Have co-resident children (%)	29.5	47.2
Natural log household income (USD)	9.8 (0.03)	6.5 (0.05)
Natural log household wealth (USD)	3.1 (0.11)	1.3 (0.11)
<b><i>Institutional Support</i></b>		
Government healthcare coverage (%)	80.1	91.8
<b><i>Health Status and Behaviors</i></b>		
Ever drink (%)	40.0	36.4
Ever smoke (%)	60.5	34.0
Self-reported health (1=excellent; 5=poor)	3.7 (0.01)	4.4 (0.02)
Depressed (%)	38.0	56.7
BMI (kg/m <sup>2</sup> )	29.4 (0.11)	22.9 (0.07)
Any chronic conditions (%)	87.6	54.8
Total word recall score	7.8 (0.06)	5.7 (0.06)
<b><i>Functional Limitations</i></b>		
Any ADL difficulty (%)	77.2	61.4
Any IADL difficulty (%)	67.2	78.3
Total ADL limitations	1.7 (0.02)	1.3 (0.02)
Total IADL limitations	1.3 (0.02)	1.5 (0.02)
N	4,925	3,960

Notes: ADL = Activities of Daily Living; IADL = Instrumental Activities of Daily Living. Sample restricted to those with at least one ADL or IADL limitation at the interview with no more than 2 sources of received help.

\*Mean for number of living children estimated among those with at least 1 living children.

1. Health and Retirement Study (2010). 2. China Health and Retirement Longitudinal Study (2011).

All statistics significantly different between HRS and CHARLS, two-tailed test.

**Table 2. Odds Ratios of Predicting the Receipt of Functional Help, HRS 2010 and CHARLS 2011**

<i>Received Help From</i>	Any Helper	Children Helper	Spouse Helper <sup>1</sup>	Relatives Helper	Other Non-family Helper
<b>China (ref: U.S.)</b>	<b>0.301***</b> (0.0265)	<b>0.453***</b> (0.0477)	<b>0.391***</b> (0.0408)	<b>0.403***</b> (0.0611)	<b>0.0866***</b> (0.0158)
<i>Sociodemographic</i>					
Age	1.033*** (0.0032)	1.039*** (0.0036)	0.993 (0.0039)	0.991 (0.0046)	1.028*** (0.0046)
Female	1.001 (0.0621)	1.719*** (0.1285)	0.707*** (0.0512)	1.124 (0.1169)	1.112 (0.1076)
Partnered (ref: married)	0.773 (0.1050)	0.876 (0.1689)	0.606*** (0.0787)	1.723* (0.4246)	1.452 (0.3797)
Non-married/partnered (ref: married)	0.554*** (0.0355)	3.555*** (0.2475)		3.541*** (0.3813)	3.624*** (0.3590)
HS educated	0.887* (0.0532)	0.833** (0.0574)	1.033 (0.0710)	0.711*** (0.0684)	1.300** (0.1201)
<i>Household Resources</i>					
Number of living children	1.035* (0.0147)	1.155*** (0.0175)	1.021 (0.0175)	0.869*** (0.0201)	0.937*** (0.0179)
Have co-resident children	1.290*** (0.0743)	4.411*** (0.3314)	0.695*** (0.0458)	0.724** (0.0830)	0.371*** (0.0421)
Log(household income)	1.010 (0.0117)	1.030 (0.0156)	0.988 (0.0136)	0.990 (0.0200)	1.014 (0.0240)
Log(household wealth)	0.997 (0.0040)	0.991 (0.0047)	1.004 (0.0047)	0.987 (0.0068)	1.004 (0.0065)
<i>Institutional Support</i>					
Government healthcare	1.383*** (0.1077)	1.140 (0.1121)	1.348** (0.1269)	1.137 (0.1541)	1.877*** (0.3050)



***Health Status and Behaviors***

Ever drink	0.806 <sup>***</sup> (0.0462)	0.866 <sup>*</sup> (0.0596)	0.938 (0.0633)	0.769 <sup>**</sup> (0.0765)	0.765 <sup>**</sup> (0.0706)
Ever smoke	1.131 <sup>*</sup> (0.0681)	1.051 (0.0723)	1.107 (0.0791)	1.170 (0.1122)	1.001 (0.0876)
Self-reported health	1.227 <sup>***</sup> (0.0400)	1.096 <sup>*</sup> (0.0404)	1.214 <sup>***</sup> (0.0480)	1.063 (0.0558)	1.121 <sup>*</sup> (0.0522)
Depressed	0.963 (0.0561)	1.023 (0.0758)	0.967 (0.0655)	1.059 (0.1048)	1.133 (0.1067)
BMI	1.018 <sup>***</sup> (0.0048)	1.018 <sup>***</sup> (0.0053)	1.011 (0.0060)	1.006 (0.0065)	0.984 <sup>**</sup> (0.0061)
Any chronic conditions	1.155 <sup>*</sup> (0.0749)	1.092 (0.0921)	1.186 <sup>*</sup> (0.0848)	0.983 (0.1209)	1.213 (0.1675)
Total word recall score	0.960 <sup>***</sup> (0.0091)	0.957 <sup>**</sup> (0.0118)	0.983 (0.0106)	1.000 (0.0155)	0.958 <sup>*</sup> (0.0163)

***Functional Limitations***

Any ADL limitations	2.284 <sup>***</sup> (0.1448)	1.559 <sup>***</sup> (0.1134)	1.678 <sup>***</sup> (0.1226)	1.598 <sup>***</sup> (0.1716)	3.343 <sup>***</sup> (0.3659)
Any IADL limitations	15.19 <sup>***</sup> (1.0882)	8.049 <sup>***</sup> (0.7889)	7.528 <sup>***</sup> (0.6277)	5.331 <sup>***</sup> (0.7982)	9.241 <sup>***</sup> (1.2603)
Constant	0.00584 <sup>***</sup> (0.0020)	0.000230 <sup>***</sup> (0.0001)	0.250 <sup>**</sup> (0.1149)	0.0219 <sup>***</sup> (0.0120)	0.000704 <sup>***</sup> (0.0004)
<i>N</i>	8,885	8,885	5,454	8,885	8,885

Exponentiated coefficients; Standard errors in parentheses. Multiple-imputation estimates.

Data pooled from HRS (2010) and CHARLS (2011)

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

Note: 1. “SpouseHelper” model predicts the probability of receiving functional help from spouse/partner only among respondents with an existing spouse from marriage or a partner (self-reported or implied). Sample size is therefore smaller (N=5,454) than that in other models (N=8,885).

2. All model results are consistent with model results only among respondents with only ADL limitations or with both ADL and IADL limitations (i.e. excluding respondents with only IADL limitations).

**Table 3. Odds Ratios of Predicting the Receipt of Functional Help from Spouse, HRS 2010 and CHARLS 2011**

	Model1	Model2	Model3	Model4	Model5
<b>China</b>	<b>0.575***</b> (0.0317)	<b>0.610***</b> (0.0345)	<b>0.597***</b> (0.0340)	<b>0.391***</b> (0.0408)	<b>0.152***</b> (0.0720)
Age		1.010*** (0.0029)	1.009** (0.0029)	0.993 (0.0039)	<b>0.986**</b> (0.0053)
China X Age					<b>1.014*</b> (0.0070)
<i>Sociodemographic</i>					
Female		0.815*** (0.0452)	0.814*** (0.0452)	0.707*** (0.0512)	0.707*** (0.0512)
Partnered (ref. married)			0.678** (0.0786)	0.606*** (0.0787)	0.597*** (0.0779)
HS educated				1.033 (0.0710)	1.039 (0.0715)
<i>Household Resources</i>					
Number of living children				1.021 (0.0175)	1.016 (0.0176)
Have co-resident children				0.695*** (0.0458)	0.698*** (0.0460)
Log(household income)				0.988 (0.0136)	0.989 (0.0137)
Log(household wealth)				1.004 (0.0047)	1.005 (0.0047)
<i>Institutional Support</i>					
Government healthcare				1.348** (0.1269)	1.449*** (0.1463)

***Health Status and Behaviors***

Ever drink				0.938 (0.0633)	0.931 (0.0629)
Ever smoke				1.107 (0.0791)	1.098 (0.0786)
Self-reported health				1.214*** (0.0480)	1.211*** (0.0480)
Depressed				0.967 (0.0655)	0.965 (0.0654)
BMI				1.011 (0.0060)	1.010 (0.0060)
Any chronic conditions				1.186* (0.0848)	1.188* (0.0850)
Total word recall score				0.983 (0.0106)	0.982 (0.0106)

***Functional Limitations***

Any ADL limitations				1.678*** (0.1226)	1.670*** (0.1221)
Any IADL limitations				7.528*** (0.6277)	7.510*** (0.6264)

Constant	1.270*** (0.0525)	0.705 (0.1417)	1.182 (0.2989)	0.250** (0.1149)	0.421 (0.2218)
<i>N</i>	5,454	5,454	5,454	5,454	5,454
F Statistic	100.55	43.06	34.93	42.28	40.38
Prob>F	0.000	0.000	0.000	0.000	0.000

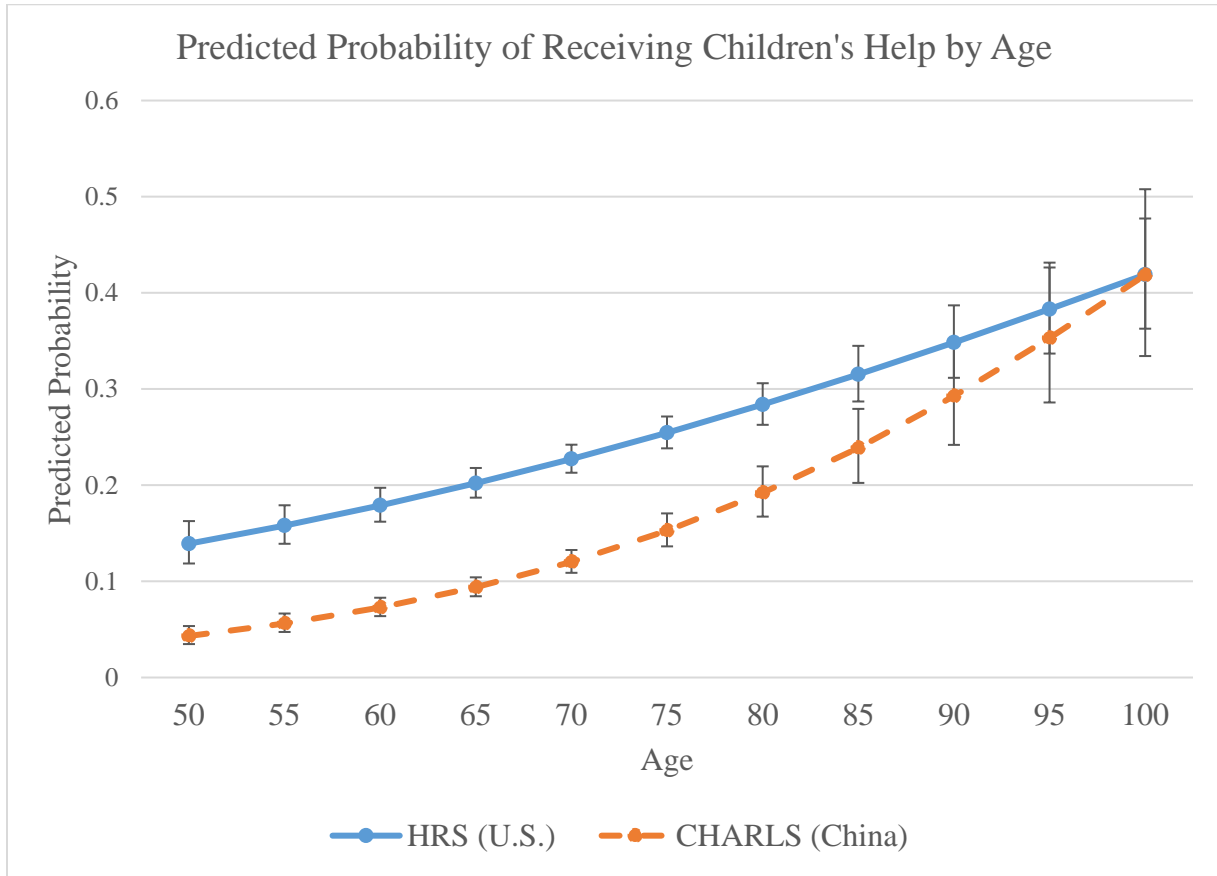
Exponentiated coefficients; Standard errors in parentheses. Multiple-imputation estimates.

Data pooled from HRS (2010) and CHARLS (2011)

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

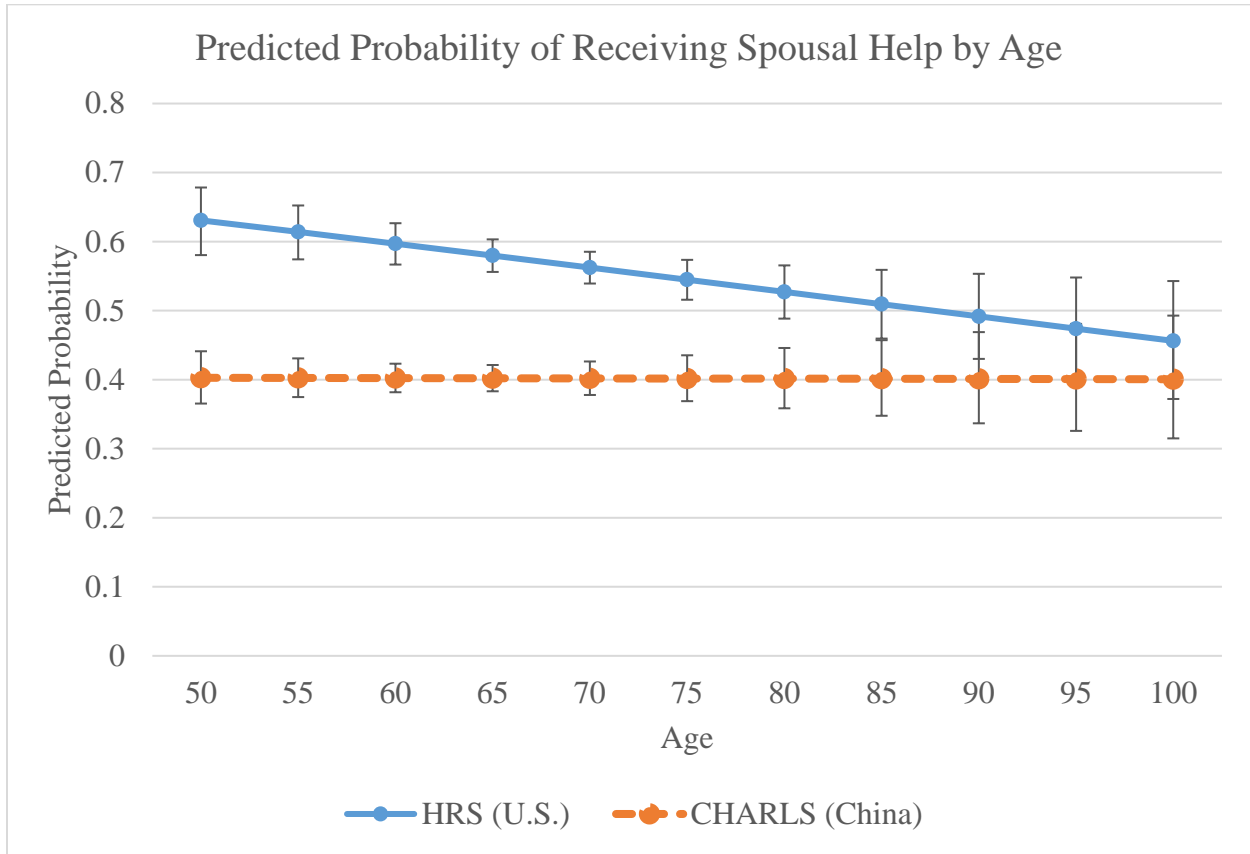
Note: All model predict the probability of receiving functional help from spouse/partner only among respondents with an existing spouse from marriage or a partner (self-reported or implied).

**Figure 1. Predicted Probability of the Receipt of Functional Help from Children by Age and Country, HRS 2010 and CHARLS 2011**



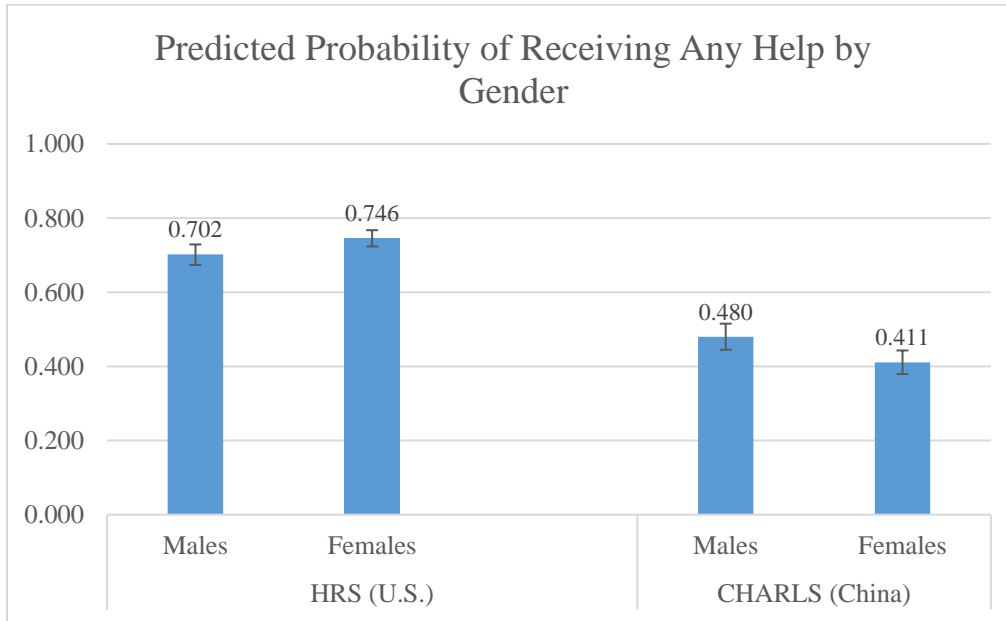
*Note:* Data pooled from HRS (2010) and CHARLS (2011). Model controlled for sociodemographic status, household resources, institutional support, health status, and ADL and IADL limitations. Country\*age interaction is statistically significant at the .001 level, showing significantly different effects of age in predicting the outcome between the U.S. and China. Predicted probability estimated at means of covariates. 95% confidence intervals shown in the graph. Model results are shown in Appendix B, Table 2 (N=8,885).

**Figure 2. Predicted Probability of the Receipt of Functional Help from Spouse by Age and Country, HRS 2010 and CHARLS 2011**

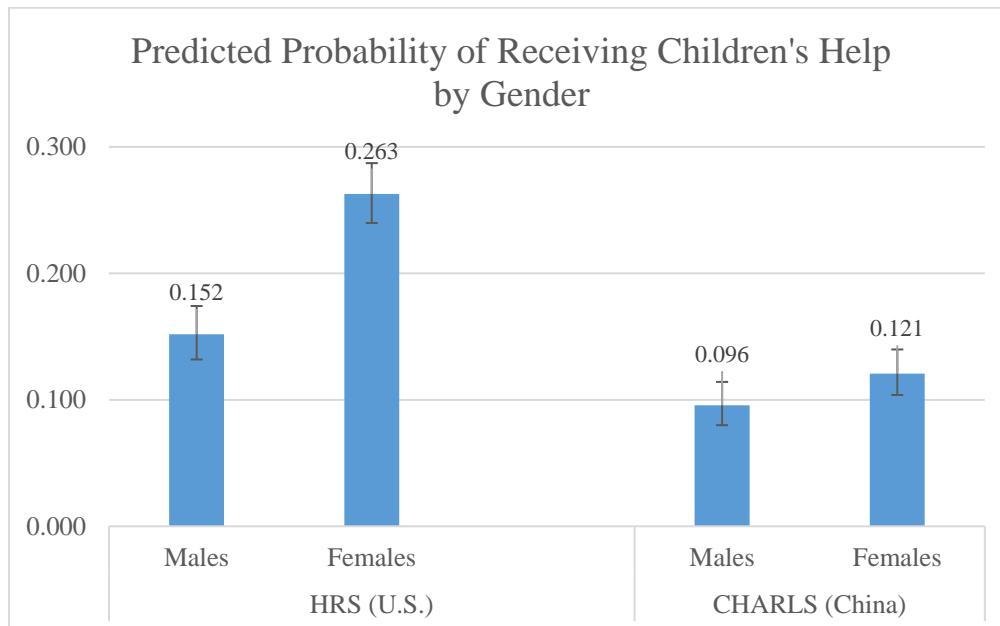


*Note:* Data pooled from HRS (2010) and CHARLS (2011). Model controlled for sociodemographic status, household resources, institutional support, health status, and ADL and IADL limitations. Country\*age interaction is statistically significant at the .05 level, showing significantly different effects of age in predicting the outcome between the U.S. and China. Predicted probability estimated at means of covariates. 95% confidence intervals shown in the graph. Model results are shown in Table 3, Model 5 (N=5,454).

**Figure 3a. Predicted Probability of the Receipt of Functional Help from Any Helper by Gender and Country, HRS 2010 and CHARLS 2011**

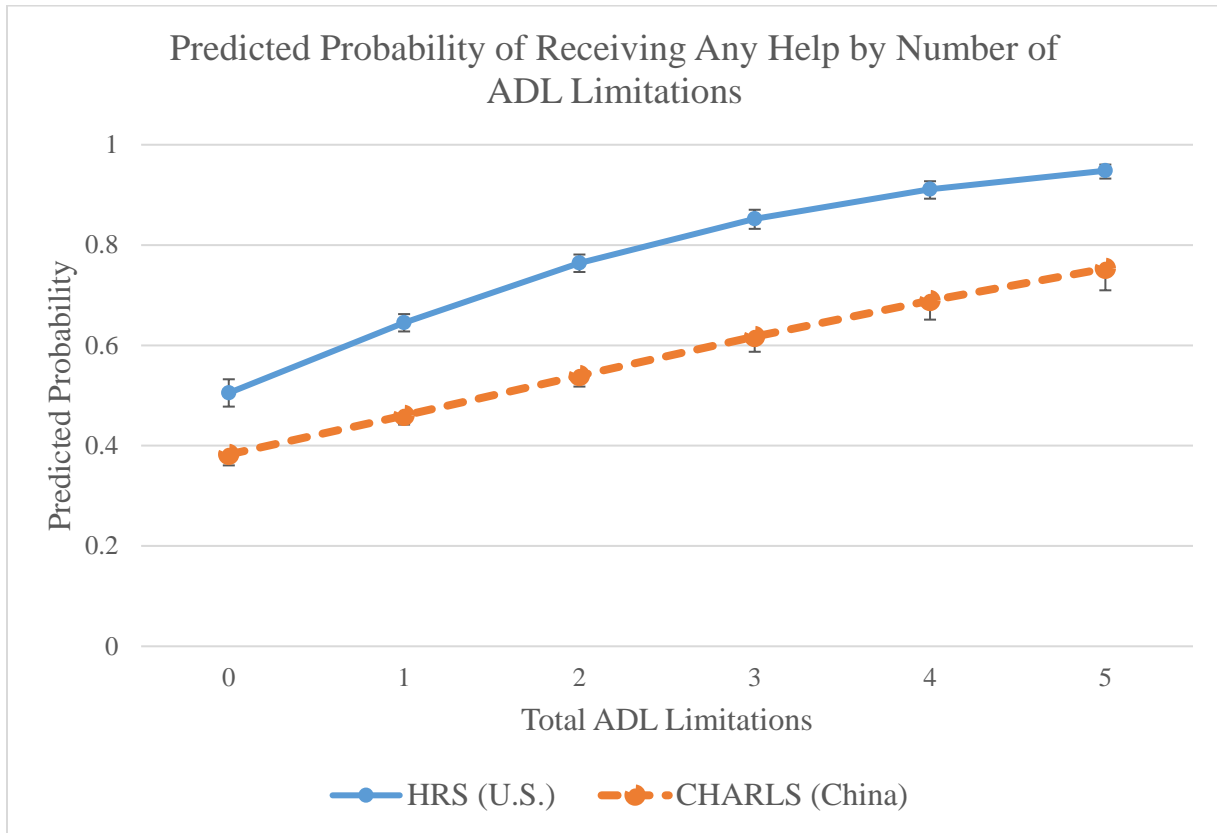


**Figure 3b. Predicted Probability of the Receipt of Functional Help from Children by Gender and Country, HRS 2010 and CHARLS 2011**



*Note:* Data pooled from HRS (2010) and CHARLS (2011). Predicted probability estimated at means of covariates. 95% confidence intervals shown in the graph. Model results shown in Appendix C, Table 3 (N=8,885).

**Figure 4. Predicted Probability of the Receipt of Functional Help from Any Helper by Numbers of ADL Limitations and Country, HRS 2010 and CHARLS 2011**



*Note:* Data pooled from HRS (2010) and CHARLS (2011). ADL = Activities of Daily Living. Any help refers to receiving any type of help from respondents’ children, spouse, other relatives, and non-family helpers. Model controlled for sociodemographic status, household resources, institutional support, health status, and IADL limitation. SUM\_ADL is the summary score of ADL limitation items ranged from 0 to 5. Country\*SUM\_ADL interaction is statistically significant at the .001 level, showing significantly different effect of SUM\_ADL in predicting the outcome between the U.S. and China. Predicted probability estimated at means of covariates. 95% confidence intervals shown in the graph. Model results shown in Appendix D, Table 4 (N=8,885).

## Appendix A. Supplemental Tables on Descriptive Statistics

**Table 1a. Frequency and Distribution of Respondents by Number of Sources of Received Help and Country, HRS 2010 and CHARLS 2011**

# of Sources of Help	HRS (U.S.)	%	CHARLS (China)	%
0	1,738	35.29	1,978	49.95
1	2,020	41.02	1,758	44.39
2	1,167	23.7	224	5.66
Total	4,925	100.0	3,960	100.0

**Table 1b. Frequency and Distribution of Respondents by Sources of Received Help and Country, among those with 1 Source of Received Help, HRS 2010 and CHARLS 2011**

Received Help from	HRS (U.S.)	%	CHARLS (China)	%
Spouse	883	43.71	1,129	64.22
Children	693	34.31	509	28.95
Relatives	153	7.57	81	4.61
Other non-family helper	291	14.41	39	2.22
Total	2,020	100.0	1,758	100.0

**Table 1c. Frequency and Distribution of Respondents by Sources of Received Help and Country, among those with 2 Sources of Received Help, HRS 2010 and CHARLS 2011**

Received Help from	HRS (U.S.)	%	CHARLS (China)	%
Spouse + Children	249	21.34	141	62.95
Spouse + Relatives	72	6.17	24	10.71
Spouse + Non-family Helper	123	10.54	12	5.36
Children + Relatives	434	37.19	41	18.30
Children + Non-family Helper	155	13.28	5	2.23
Relatives + Non-family Helper	134	11.48	1	0.45
Total	1,167	100.0	224	100.0



**Table 1d. Frequency and Distribution of Respondents by Functional Limitations and Country, HRS 2010 and CHARLS 2011**

Functional Limitations	HRS (U.S.)	%	CHARLS (China)	%
Only ADL	1,636	33.22	861	21.74
Only IADL	1,124	22.82	1,536	38.79
Both ADL and IADL	2,165	43.96	1,563	39.47
Total	4,925	100.0	3,960	100.0

**Appendix B. Table 2. Odds Ratios of Predicting the Receipt of Functional Help from Children by Age and Country, HRS 2010 and CHARLS 2011**

	Children Helper
<b>China</b>	<b>0.0752<sup>***</sup></b> (0.0343)
<b>Age</b>	<b>1.030<sup>***</sup></b> (0.0041)
<b>China X Age</b>	<b>1.026<sup>***</sup></b> (0.0064)
Female	1.743 <sup>***</sup> (0.1303)
Partnered (ref: married)	0.862 (0.1669)
Non-married/partnered (ref: married)	3.414 <sup>***</sup> (0.2395)
HS Educated	0.840 <sup>*</sup> (0.0579)
Number of living children	1.145 <sup>***</sup> (0.0175)
Have co-resident children	4.433 <sup>***</sup> (0.3351)
Log(household income)	1.033 <sup>*</sup> (0.0158)
Log(household wealth)	0.993 (0.0048)
Government healthcare	1.268 <sup>*</sup> (0.1296)
Ever drink	0.852 <sup>*</sup> (0.0587)
Ever smoke	1.027 (0.0707)
Self-reported health	1.090 <sup>*</sup> (0.0400)
Depressed	1.018 (0.0763)
BMI	1.015 <sup>**</sup> (0.0053)
Any chronic conditions	1.104 (0.0940)
Total word recall score	0.956 <sup>***</sup> (0.0118)
Any ADL limitations	1.551 <sup>***</sup> (0.1131)
Any IADL limitations	7.961 <sup>***</sup> (0.7791)
Constant	0.000434 <sup>***</sup> (0.0002)
<i>N</i>	8,885

Exponentiated coefficients; Standard errors in parentheses. Multiple-imputation estimates.  
Data pooled from HRS (2010) and CHARLS (2011). \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Appendix C. Table 3. Odds Ratio of Predicting the Receipt of Functional Help by Gender and Country, HRS 2010 and CHARLS 2011**

	Any Helper	Children Helper
<b>China</b>	<b>0.392<sup>***</sup></b> (0.0412)	<b>0.591<sup>***</sup></b> (0.0805)
<b>Female</b>	<b>1.247<sup>**</sup></b> (0.0980)	<b>1.991<sup>***</sup></b> (0.1789)
<b>China X Female</b>	<b>0.606<sup>***</sup></b> (0.0675)	<b>0.651<sup>**</sup></b> (0.0904)
Age	1.032 <sup>***</sup> (0.0032)	1.038 <sup>***</sup> (0.0036)
Partnered (ref: married)	0.781 (0.1062)	0.883 (0.1705)
Non-married/partnered (ref: married)	0.544 <sup>***</sup> (0.0350)	3.529 <sup>***</sup> (0.2462)
HS Educated	0.854 <sup>**</sup> (0.0518)	0.814 <sup>**</sup> (0.0563)
Number of living children	1.037 <sup>*</sup> (0.0147)	1.157 <sup>***</sup> (0.0176)
Have co-resident children	1.282 <sup>***</sup> (0.0738)	4.397 <sup>***</sup> (0.3294)
Log(household income)	1.011 (0.0117)	1.031 <sup>*</sup> (0.0156)
Log(household wealth)	0.998 (0.0040)	0.992 (0.0048)
Government healthcare	1.372 <sup>***</sup> (0.1069)	1.136 (0.1117)
Ever drink	0.781 <sup>***</sup> (0.0451)	0.845 <sup>*</sup> (0.0585)
Ever smoke	1.070 (0.0659)	1.016 (0.0707)
Self-reported health	1.223 <sup>***</sup> (0.0398)	1.091 <sup>*</sup> (0.0405)
Depressed	0.968 (0.0563)	1.026 (0.0763)
BMI	1.018 <sup>***</sup> (0.0048)	1.018 <sup>***</sup> (0.0053)
Any chronic conditions	1.162 <sup>*</sup> (0.0754)	1.094 (0.0922)
Total word recall score	0.957 <sup>***</sup> (0.0091)	0.954 <sup>***</sup> (0.0118)
Any ADL limitations	2.275 <sup>***</sup> (0.1446)	1.552 <sup>***</sup> (0.1131)
Any IADL limitations	15.09 <sup>***</sup> (1.0815)	8.064 <sup>***</sup> (0.7930)
Constant	0.00615 <sup>***</sup> (0.0022)	0.000238 <sup>***</sup> (0.0001)
<i>N</i>	8,885	8,885

Exponentiated coefficients; Standard errors in parentheses. Multiple-imputation estimates.  
Data pooled from HRS (2010) and CHARLS (2011). \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Appendix D. Table 4. Odds Ratios of Predicting the Receipt of Functional Help from Any Helper by Total ADL Limitations and Country, HRS 2010 and CHARLS 2011**

	Any Helper
<b>China</b>	<b>0.417<sup>***</sup></b> (0.0423)
<b>Total ADL Limitations</b>	<b>1.782<sup>***</sup></b> (0.0638)
<b>China X Total ADL Limitations</b>	<b>0.772<sup>***</sup></b> (0.0338)
Age	1.031 <sup>***</sup> (0.0033)
Female	1.023 (0.0645)
Partnered (ref: married)	0.745 <sup>*</sup> (0.1022)
Non-married/partnered (ref: married)	0.528 <sup>***</sup> (0.0344)
HS Educated	0.901 (0.0547)
Number of living children	1.042 <sup>**</sup> (0.0150)
Have co-resident children	1.321 <sup>***</sup> (0.0767)
Log(household income)	1.008 (0.0120)
Log(household wealth)	1.000 (0.0041)
Government healthcare	1.352 <sup>***</sup> (0.1066)
Ever drink	0.828 <sup>**</sup> (0.0481)
Ever smoke	1.145 <sup>*</sup> (0.0700)
Self-reported health	1.148 <sup>***</sup> (0.0380)
Depressed	0.919 (0.0541)
BMI	1.017 <sup>***</sup> (0.0049)
Any chronic conditions	1.169 <sup>*</sup> (0.0767)
Total word recall score	0.961 <sup>***</sup> (0.0092)
Any IADL limitations	12.34 <sup>***</sup> (0.8343)
Constant	0.00852 <sup>***</sup> (0.0031)
<i>N</i>	8,885

Exponentiated coefficients; Standard errors in parentheses. Multiple-imputation estimates. Data pooled from HRS (2010) and CHARLS (2011). \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Appendix E. Table 5. Odds Ratio of Predicting the Receipt of Functional Help from Children, HRS 2010 and CHARLS 2011**

	Model1	Model2	Model3
<b>China (ref: U.S.)</b>	<b>0.473<sup>***</sup></b> (0.0245)	<b>0.679<sup>***</sup></b> (0.0653)	<b>0.453<sup>***</sup></b> (0.0477)
Age		1.034 <sup>***</sup> (0.0033)	1.039 <sup>***</sup> (0.0036)
Female		1.796 <sup>***</sup> (0.1267)	1.719 <sup>***</sup> (0.1285)
Partnered (ref: married)		0.887 (0.1637)	0.876 (0.1689)
Non-married/partnered (ref: married)		3.381 <sup>***</sup> (0.2199)	3.555 <sup>***</sup> (0.2475)
HS Educated		0.688 <sup>***</sup> (0.0450)	0.833 <sup>**</sup> (0.0574)
<b>Number of living children</b>			<b>1.155<sup>***</sup></b> (0.0175)
<b>Have co-resident children</b>			<b>4.411<sup>***</sup></b> (0.3314)
Log(household income)		1.066 <sup>***</sup> (0.0155)	1.030 (0.0156)
Log(household wealth)		0.978 <sup>***</sup> (0.0044)	0.991 (0.0047)
Government healthcare		1.005 (0.0922)	1.140 (0.1121)
Ever drink		0.847 <sup>*</sup> (0.0553)	0.866 <sup>*</sup> (0.0596)
Ever smoke		1.063 (0.0697)	1.051 (0.0723)
Self-reported health		1.103 <sup>**</sup> (0.0385)	1.096 <sup>*</sup> (0.0404)
Depressed		0.990 (0.0717)	1.023 (0.0758)
BMI		1.021 <sup>***</sup> (0.0051)	1.018 <sup>***</sup> (0.0053)
Any chronic conditions		1.086 (0.0862)	1.092 (0.0921)
Total word recall score		0.954 <sup>***</sup> (0.0111)	0.957 <sup>**</sup> (0.0118)
Any ADL limitations		1.441 <sup>***</sup> (0.0983)	1.559 <sup>***</sup> (0.1134)
Any IADL limitations		6.997 <sup>***</sup> (0.6430)	8.049 <sup>***</sup> (0.7889)
Constant	0.451 <sup>***</sup> (0.0139)	0.000883 <sup>***</sup> (0.0003)	0.000230 <sup>***</sup> (0.0001)
<i>N</i>	8,885	8,885	8,885

Exponentiated coefficients; Standard errors in parentheses. Multiple-imputation estimates.

Data pooled from HRS (2010) and CHARLS (2011)

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