Preferences for Formal Social Care in Rural and Urban China:

Evidence from a National Survey

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Abstract

This study investigates older people's preferences for social care in rural and urban China. The data come from the China Longitudinal Ageing Social Survey (CLASS) which collected information from a nationally representative sample of 10,682 Chinese older people aged 60 and over in 2014. Guided by the ecological model of aging, multilevel logistic regression analyses were conducted to identify the factors associated with preferred care arrangements. We found that older people in urban China are more likely than those in rural China to accept care home services or prefer government-provided care. Educational qualifications and the number of surviving children strongly and consistently predict older people's preferences for formal care in both rural and urban China. Proximity to care home facilities and higher income are associated with an increase in the willingness to live in a care home in urban China, but they are not significant predictors of preferences for formal care in rural China. We argue that a one-size-fits-all social care policy may not be well-received in the Chinese older population. The government may want to consider social care policies where support is tailored to suit older people's varied preferences.

Keywords: social care preferences, older people, rural-urban disparity, ecological model of aging, China

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Introduction

Social care for older people is an integral part of the welfare system in many countries. Given the global trend of population aging, demand for social care is bound to increase substantially in the coming decades. This is especially the case in China, where it is projected that the number of older people aged 65 and over will double, and the number of adults of working age will decrease by 9.1% in the following two decades (United Nations, 2017). In many high-income countries, formal social care and informal (or unpaid) care provided by family members join forces to meet older people's care needs (Gori, Fernandez, & Wittenberg, 2016). In China, in contrast, older people are heavily reliant on unpaid care. The formal care system in China is still under-developed (Glinskaya & Feng, 2018; Zhu & Walker, 2018). In the absence of formal care, a sharp rise in the dependency ratio in Chinese society means that either the family members' caregiving capacity will be stretched to the limit or there will be widespread unmet needs in the older population.

Recognizing these challenges, the Chinese central government has formulated a series of policies to increase the capacity of formal care. The objective is to build a social care system where 'home-based care is the foundation, community-based care provides the necessary support and residential care is supplementary' (Wong & Leung, 2012). The government has published the development plan on home care and care home services for older people (State Council, 2019). Recent policy directives not only aim to optimize the mixed economy of long-term care financing by delineating the funding responsibilities of the government and the private sector but also put a great emphasis on the integration of community-based care, institutional care, and health care services.

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Interpretation of the central government policies varies slightly among the local governments. In some provinces or cities (e.g., Shanghai, Jilin, and Sichuan), the interpretation is that 90% of older people will receive care at home with help from family members, 7% will receive day care and community care services, and 3% will live in care homes (the '9073' model). In contrast, other local governments (e.g. Beijing, Jiangsu, and Guangdong) interpret it as 90% receiving care at home, 6% receiving community support and 4% live in care homes (the '9064' model).

Following these policy initiatives, home and community-based care services have expanded quickly, especially in large cities. This is reflected in both the number and the diversity of services. Meal delivery, medical check, escort services, day care and rehabilitation services all target at older people's needs, with the aim of helping older people 'age in place' (Glinskaya & Feng, 2018).

The past decade has also witnessed a 'leap forward' in the capacity of care home services (Shum, Lou, He, Chen, & Wang, 2015). There are different types of care homes in China including nursing homes, day care homes, and hostels, but their definition and distinction are not always clear. According to the Ministry of Civil Affairs (2013, 2017), the number of care homes increased threefold, from 44,300 in 2012 to 140,000 in 2016. The number of care home beds per thousand older people increased by nearly 50%, from 21.5 to 31.6 in the same period. Apart from the care homes directly established by the Chinese government, a number of policies have been issued that encourage not-for-profit organizations and private enterprises to provide care home services. The government has offered financial subsidies to these providers to cover some of their investment and operating costs.

However, the expansion of formal care capacity does not necessarily translate into care utilization. For community-based care, the 'Starlight Project' was launched by the

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government in 2001. In the following three years, the government invested 13.5 billion yuan ($1.9 billion) and built 13,500 community-based service centers across the country (Wong & Leung, 2012). Unfortunately, most of them have been unused or under-used for years, and many have either been shut down or are used for other purposes (Xie, 2008). For care home services, the occupancy rates are low and vary considerably. A survey in six Chinese cities conducted by the Chinese Academy of Social Sciences (2014) found that while care homes operated by the government have a full occupancy rate and a long waiting list, others in the same city, especially those operated by the private sector, have an occupancy rate well below 50%. Wu, Wang, Kong, Dong, and Yang (2015) conducted a survey in another 12 cities and found a similar level of occupancy rate. They reported that the fees charged by care homes in these cities on average amount to 2,134 Yuan ($300) per month, but the average pension income among urban enterprise retirees is only 2,061 Yuan ($282) per month. Affordability may become a barrier to the utilization of care home services. Moreover, the pension income of older people is much lower in rural than in urban China, posing an even greater challenge to care utilization (Ministry of Civil Affairs, 2016).

There are enormous variations in the Chinese older population in terms of care needs, affordability and attitude towards formal care. Since the development of the formal care sector is largely based on top-down planning, the provision of services may not always reflect the preferences of residents. The mismatch between preferences and supply has been one of the main reasons for the under-utilization of formal care services (Wu et al., 2015; Xie, 2008). This not only leads to a waste of public resources but also means a suboptimal level of wellbeing in the older population.

Against this background, this study investigates the stated care preferences among Chinese older people and the underlying drivers of their preferences. According to Fernandez-Carro (2016) and Lehnert, Heuchert, Hussain, and König (2019), stated

preferences for care, also known as preferred care arrangements, refer to people's willingness to receive a particular type of care or ideal choices of care in hypothetical situations. Stated preferences for care reflect people's subjective needs and are different from the objective need for care. Commonly used measurements of objective need include health status, functional impairment, and cognitive impairment. There is a consensus in the literature that objective need is a strong predictor of actual utilization of care (Genet et al., 2011; Luppa et al., 2010). While evidence on actual care utilization is accumulating rapidly in the international literature, more research is needed to understand older people's care preferences. Research on the latter is especially valuable in the Chinese context, not least because formal care is not available in many parts of the country and care utilization is thus not directly observable. A better understanding of this issue will help the government make informed decisions on resource allocation so that the provision of services can be well-suited to older people's varied preferences.

Analytical framework

The analytical framework of this study is based on the ecological model of aging, which aims to understand older people's preferences, behavior and life outcomes as a result of the interactions between their personal characteristics and the environment in which they live (Moore, 2014). The model maintains that older people mobilize resources to meet the requirements of the environment (also known as environmental press) on a day-to-day basis. The gap between the available resources and the environmental press has varied consequences for their wellbeing (Lawton, 1980, 1983; Lawton & Nahemow, 1973). From this point of view, older people's preferred care arrangements reflect their desired combinations of resources that they believe can improve or maximize their wellbeing in the existing environment.

In the ecological model, people's preferences are influenced by both individual-level and environment-level factors (Waites, 2013). At the individual level, demographic characteristics, functional capability and socioeconomic status play a central role (Figure 1). Demographic profiles such as age, gender and ethnicity are the predisposing attributes associated with the propensity for certain care arrangements (Satariano, 2006).

(Figure 1 about here)

Functional capability and socioeconomic status are the resources in the immediate possession of older people that can be mobilized to meet the environmental requirements. Older people's preferences for care are embedded in diverse environmental contexts (Greenfield, 2012). If functional capability falls short of environmental press significantly, older people will experience a heightened level of discomfort, in which case informal care alone may not be sufficient to maintain their quality of life (Lawton & Nahemow, 1973). This will prompt them to seek professional help to bridge the gap between personal capability and environmental press. Therefore, we expect that people with more severe functional disability are more likely to prefer formal care provided by professional caregivers (*hypothesis 1*).

Socioeconomic status is not only an indicator of older people's financial resources but also reflects their intangible assets and human capital such as abilities, knowledge, and skills (Bronfenbrenner & Morris, 2006). Affordability of formal care services depends upon older people's financial resources (Kemper, 1992; Paraponaris, Davin, & Verger, 2012; Suanet, Van Groenou, & Van Tilburg, 2012). A higher level of education helps people access information regarding public services (Smith, Dixon, Trevena, Nutbeam, & McCaffery, 2009). And awareness is a precondition of preferences. Following this logic, we predict that people with a higher socioeconomic status have a heightened preference for formal care (*hypothesis 2*).

The existing literature (Tesch-Romer & Wahl, 2017; Wahl, Iwarsson, & Oswald, 2012) makes a distinction between three types of environmental factors: social support networks, physical environment (e.g. housing, public service facilities, and community infrastructure), and social institutions (e.g. social values or norms). Social support networks are the human resources available to older people for care, company, and psychological consolation (Barrera, 1986). Emotional and geographical proximity to family members and friends facilitates older people's participation in social activities and helps them maintain social identity in the community. Most importantly, social support networks play an irreplaceable role in compensating for older people's decline in functional capability (Wiles, Leibing, Guberman, Reeve, & Allen, 2012). People with a stronger social support network should have a lower preference for formal care (*hypothesis 3*).

The physical environment may create barriers to people's lives. Yet, it can also be altered to suit people's specific needs. Community centers or social clubs that provide a venue for older people to socialize with friends save the time and efforts needed to utilize and expand social support networks (Gray, 2009). High-quality healthcare services provided by local clinics substitute nursing care in a care home. Thus, we expect that having access to community-based services is positively associated with people's preferences for home-based care or care provided by family members and friends (*hypothesis 4*).

A major strength of the ecological model of aging is its cross-cultural applicability (Rosenberg, Jullamate, & Azeredo, 2009). It emphasizes the influence of the social environment, such as social values and beliefs held by a group, on its members (Greenfield, 2012). Confucianism, the dominant value system since the imperial era, defines the key relationships in the Chinese society (e.g. husband and wife or children and parents) and specifies the obligations in these relationships (Canda, 2013). Older people expect to receive

help and care from family members and adult children feel obliged to respect and provide care for their parents.

China is characterized by the rural-urban disparity in social values and beliefs. As Chinese cities go through modernization at an unprecedented speed, people's attitudes and expectations towards family obligations are also changing rapidly. Industrialization, economic growth, and exposure to western culture have led to a nuclearization of the household structure and a reduction in family size (Chen & Silverstein, 2000). A rise in individualistic values among older people and a decline in filial piety have been widely observed (Cheung & Kwan, 2009; Thogersen & Ni, 2010; Yan, 2010). Li, Hong, Essex, Sui, and Gao (2012) reported that many older people in cities have doubts about their children's ability to provide care. In contrast, economic development in rural areas is markedly lagging behind. Modernization does not permeate rural society as widely as it does in urban China, and traditional values have not gone through drastic changes. It is still common among rural older people to expect members of their extended family - especially their children - to provide care when they need help (Qi, 2015).

Older people's self-image and self-worth are derived from their relationships with family members (Mjelde-Mossey, Chi, & Lou, 2006). Those living in rural areas would be reluctant to move into a care home because it would reflect the lack of care from the family. In this case, institutionalization not only represents the utilization of care but also has a social meaning and can become a stigmatizing experience. Hence, it seems reasonable to argue that people living in urban China are more likely than those in rural China to prefer formal care (*hypothesis 5).*

Research Methods

Data

The analyses in this study are based on the baseline data of the China Longitudinal Aging Social Survey (CLASS), a national survey that collected social and economic information on Chinese older people aged 60 and over. Following a multi-stage sampling design, the baseline survey was conducted in 2014 in the form of face-to-face interviews. The primary sampling unit is a community/village. A total of 10,682 older people from 259 urban communities and 172 rural villages in 28 provinces participated in the survey. A structured questionnaire was read and filled in by trained interviewers based on answers provided by interviewees (Chen, Chi, & Liu, 2019; Du, Sun J, Zhang W, & Wang X, 2016).

Both individual and community-level information were collected in the survey. The individual-level information was collected from older people through the individual questionnaire. The community questionnaire collected information on the characteristics of the urban community or rural village. In China, an urban community or a rural village is the most basic administrative unit. Each urban community/rural village is governed by the local residential committee, which is the lowest-level body in the Chinese government hierarchy. The director of each residential committee completed the community questionnaire.

Dependent variables

We investigated two variables that measure older people's preferences for formal social care. The first is their willingness to live in a care home. The CLASS questionnaire asked respondents under which condition they would accept living in a care home. The respondents were given seven choices: poor health, feeling lonely, family conflict, changing the living environment, other conditions, and never living in a care home. The majority of older people reported that they did not want to live in a care home under any circumstances, so we combined the other six categories. This allowed us to create a binary variable that

indicates people's willingness to live in a care home (0=no and 1=yes). The questionnaire did not differentiate between different types of care homes (see the first section).

The second measure relates to the preferred providers of care. The questionnaire asked respondents who should be responsible for providing care when they need it. The respondents were given five options: the government, children, a spouse, neighbors, and both the government and family members. Those who chose the first or the fifth answer were treated as a preference for government-provided care and coded as 1, and the rest were treated as a preference for informal care and coded as 0. At present, the Chinese government either delivers care services on its own (direct provision) or financially subsidizes non-for-profit or for-profit organizations that deliver care services (indirect provision). In both cases, professional workers are hired to provide care to older people. Therefore, this variable can also be used to measure preferences for formal care.

Personal characteristics

The investigation of the determinants of preferred care arrangements was based on the analytical framework discussed in the previous section. In terms of demographic profiles, we investigated age and gender. Regarding functional capability factors, we examined older people's ability to perform the activities of daily living (ADL) and the instrumental activities of daily living (IADL). The CLASS survey contains information on nine ADLs: grooming, dressing, bathing, feeding, going to the toilet, controlling urination, controlling defecation, transferring from bed to chair, and indoor mobility. All of the ADL questions were measured on a three-point scale: 1=I do not need any help, 2=I need help, and 3=I cannot do it. Adding up the scores for each ADL question, we constructed an ADL disability variable. The values of this variable range from 9 (no ADL disability) to 27 (severe ADL disability). The Cronbach's alpha coefficient of this variable is 0.93, which indicates excellent scale reliability.

The survey contains information on seven IADLs including making phone calls, taking medication, traveling on transportation, shopping, managing money, cooking, and doing housework. The IADL questions were measured on the same three-point scale. Adding up the scores for each question, the IADL disability variable has a value ranging from 7 (no IADL disability) to 21 (severe IADL disability). The Cronbach's alpha coefficient for this variable is 0.87.

We identified and investigated two socioeconomic status factors in the dataset: income and education. The survey asked respondents to report their total income in the past 12 months. This question enabled us to create a continuous variable that measures older people's annual income. The question relating to educational achievement has six categories: illiteracy, informal education, primary education, junior secondary education, senior secondary education, and higher education and above. We combined the information in this question and created a variable with three categories: no formal education, primary or junior secondary education, and senior secondary education or above.

Environmental characteristics

We identified three variables in the dataset which could be used to measure older people's social support network: perceived social support, marital status and living arrangements, and the number of surviving children. In regard to perceived social support, older people were asked six questions about the total number of family members and friends they can get in contact with each month or they can talk to about personal matters. The answers (and scores assigned by the CLASS questionnaire) are: none (0), one person (1), two persons (2), three to four persons (3), five to eight persons (5), and nine persons and above (9). Adding up the scores for each question, we created a variable whose values range from 0 to 54. A higher value indicates stronger perceived social support.

The variable relating to marital status and living arrangements has three categories: single and living alone, single and living with other people in the same household, and married couples. Single older people include those who have never been married, as well as those who are widowed, separated or divorced. Older people were asked to report the number of their surviving children. This was treated as a continuous variable in our analyses.

Information on the physical environment was retrieved from the community questionnaire. The director of the residential committee in the urban community or rural village was asked to confirm the availability of the following facilities: care homes, socialization facilities (including social activity rooms for older people, parks, fitness rooms, and libraries), and community clinics. For each type of facility, we created a binary variable (1=yes and 0=no).

Following the discussion on the rural-urban disparity in social values, we included rural-urban residence as a predictor of preferred care arrangements. Based on the information in the community questionnaire, we created a variable with two categories: living in a rural village or living in an urban community. We also stratified our sample by rural-urban residence to investigate whether the predictors differed systematically between the rural and urban older population.

Statistical analysis

We built multilevel logistic regression models to identify the most important predictors of preferred care arrangements. Community-level random effects were included in the models to account for community-level unobserved heterogeneity. The percentage of missing values across variables ranges from 0.6% to 10.5% (see appendix). We adopted the multivariate imputation with chained equations (MICE) approach to simultaneously impute all of the variables with missing values. Results reported in this study are based on the analyses of five multiply imputed datasets. Following Marchenko and Eddings (2011) and

Eddings and Marchenko (2012), we conducted post-imputation diagnostics, which reported plausible imputed values (see Appendix).

Results

Overall, 28.0% of older people in the entire sample are willing to live in a care home, and 30.7% would prefer to receive government-provided care (table 1). There is a big difference between urban and rural older people in terms of preferred care arrangements. 34.4% of the urban older people are willing to live in a care home. In comparison, only 18.7% of rural older people are willing to do so. An overwhelming majority of rural older people (81.3%) would not consider the option of living in a care home under any circumstances. 36.0% of the urban older people would prefer government-provided care, whereas only 23% of the rural older people would do so.

(Table 1 about here)

In general, the urban population have better functional capability than the rural population. The mean ADL and IADL scores for urban older people are 9.5 and 8.3, respectively. In comparison, the scores for rural older people are 9.6 and 9.0, respectively. Urban older people also have a much higher socioeconomic status. 24.2% of the older people in urban China have received at least senior secondary education. This is in stark contrast to the proportion in rural China, where only 3.3% have this level of education. In addition, the annual personal income of urban older people is almost four times larger than that of rural older people. Compared to urban older people, rural older people have more children, and a higher percentage of them are single. In addition, urban older people reported slightly higher perceived social support than rural older people.

37.8% (N=98) of the 259 urban communities in our sample have a care home. This proportion is far higher than that in rural villages, which is only 14.5% (25 out of 172). 96.9% (N=251) of the urban communities have at least one type of socialization facility. In

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comparison, 82.6% of the rural villages (N=142) have socialization facilities. 83.4% of the

urban communities and 90.1% of the rural villages have a community clinic.

Table 2 shows the factors associated with older people's willingness to live in a care

home. Older people living in an urban community are significantly more likely to be willing

to live in a care home. The odds for urban older people are 1.4 times larger than those for

rural older people. Education, marital status and living arrangement, and the number of

children consistently predict the willingness to live in a care home in the rural, urban and

total older population. Older people receiving formal education are more likely than those

without formal education to be willing to live in a care home. Single older people living alone

are more likely than those living with others to accept living in a care home. As the number

of surviving children increases, the willingness to live in a care home among older people

decreases significantly. In all three models, the likelihood ratio test of random effects is

statistically significant, which means that community-level unobserved heterogeneity should

be accounted for in the multilevel models.

The predictors of the willingness to live in a care home differ between rural and urban

older people. Older people aged 80 and over and males are significantly less likely to accept

the prospect of living in a care home in urban China, but age and gender are not statistically

significant predictors in rural China. Rural older people with more severe ADL disabilities

are more likely to be willing to live in a care home, and those with more severe IADL

disabilities have a lower willingness to do so. Such a pattern can also be observed among

older people living in urban areas, but the coefficients are not statistically significant. Urban

older people with a higher income have a higher willingness to live in a care home. But

income is not a statistically significant predictor among rural older people.

(Table 2 about here)

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For older people living in cities, the availability of a care home in the local community significantly increases the likelihood of care home acceptance. However, these facilities do not have a significant impact on the preference of older people in rural villages. The availability of a community clinic reduces the willingness to live in a care home in urban communities, but it is not a significant predictor among rural older people. The availability of socialization facilities is not a statistically significant predictor in any of the three models.

Table 3 shows the factors associated with older people's preference for government-provided care. The odds of preferring government-provided care are 1.5 times larger among urban than rural older people. Both the number of surviving children and educational qualifications are significant predictors in all three models. Older people receiving formal education are more likely than those without formal education to prefer government-provided care. The more surviving children an older person has, the more likely this person is to prefer informal care. ADL and IADL scores are not statistically significant in any of the three models. The likelihood ratio test of random effects is statistically significant in all three models, which suggests that there is significant community/village-level heterogeneity in terms of preferences for government-provided care and such heterogeneity should be captured in a multilevel model.

(Table 3 about here)

Older people's preferences for government-provided care differ significantly by gender in rural China. However, gender is not a statistically significant predictor in urban China. Single older people living alone are more likely than single older people living with others to prefer government-provided care in urban China, but this variable does not have a significant impact in rural China. The availability of community clinics reduces the likelihood of preference for government-provided care in urban China but is not associated with older people's preference in rural China.

Discussion

This study investigated the preferred care arrangements among the Chinese older population. Most of the existing Chinese studies have focused on the actual utilization of social care and its determinants, but less is known about people's care preferences (Gruijters, 2017; Lu, Liu, & Piggot, 2015). A systematic review conducted by Lehnert et al. (2019) identified five China-based studies, among which four focus on Hong Kong. Zhai and Qiu's (2007) work is the only one drawing on evidence from mainland China. Using a nationally representative sample of 10,682 older people, we examined a comprehensive list of factors that may be associated with care preferences. Guided by the ecological model of aging, we investigated both the individual and environment-level factors.

Consistent with the evidence reported in other countries, most Chinese older people prefer to live in their home environment, and care provided by family members is most people's first choice. However, underneath the unequivocal preferences for home-based care and family care is the marked rural-urban disparity in the preferred care arrangement. We have found strong evidence that urban older people have a heightened preference for care home services or government-provided care, whereas rural older people are more likely to prefer home-based care or family care (table 4). Due to the stigma associated with institutionalization, older people in rural areas do not consider care homes as an appealing option for care. Many of them have not visited a care home, and some even may not be aware of its existence. This is not helped by the fact that care homes in rural areas are often small, poorly equipped, not easily accessible, and of low quality (Glinskaya & Feng, 2018).

(Table 4 about here)

Our second hypothesis concerns the relationships between socioeconomic status and preferred care arrangements. The analysis results indicate that the role of income is rather limited in rural China. This may be attributable to rural older people's low affordability. On

average, the annual income of rural older people is less than one-third of urban older people's income (table 1). When care home fees are well beyond people's financial affordability, preferences for care home services will become insensitive to income.

Meanwhile, our analysis provides strong support for the second hypothesis from the perspective of educational qualifications. It seems that human capital is a more important determinant of preferred care arrangements than financial resources. Older people with a higher level of education are more likely to accept care home services and have a stronger preference for government-provided care in both rural and urban China. Yang, Mark, Wuyi, Linsheng, and Hairong (2012) reported that Chinese older people obtain information about formal care from multiple channels such as newspapers, flyers, magazines, television, and friends. In comparison, those without formal education have restricted access to such information, which means that they are less likely to be aware of the benefits of, and form a positive attitude towards, care home services or government-provided care.

The international literature has reported mixed results on the relationship between functional capability and stated care preferences (Fernandez-Carro, 2016; Min, 2005; Werner & Segel-Karpas, 2016). We have found that these two variables are weakly correlated among Chinese older people. These findings point to the divergence between care utilization and care preferences. A systematic review conducted by Luppa et al. (2010) shows that older people with more severe disabilities are more likely than those with less severe disabilities to live in a care home. However, such a disability-based stratification of care home utilization does not necessarily reflect people's preferences. Apart from personal preferences, the actual utilization is also the result of a combination of other factors such as the government policy (Yeandle, Kroger, & Cass, 2012), the availability of formal home care services (Blackman, 2000; Ilinca, Leichsenring, & Rodrigues, 2015) and the negotiation between older people and their family members (Chan & Pang, 2007). Some disabled older people prefer to live in their

home environment, but end up living in a care home as a compromise or in extreme cases as a 'forced choice' (Wu, White, Cash, & Foster, 2009). The dissonance between preferences and actual utilization of care may have an adverse impact on older people's well-being and quality of life.

With regard to the fourth hypothesis, we have found that the number of surviving children strongly and consistently predicts older people's care preferences in rural and urban China. When older people make care plans for the future, offspring seem to be the most important social support resources under consideration. It is also interesting to note that while living with a spouse is an important predictor of actual utilization of family care (Gruijters, 2017), it makes little difference to older people's care preferences. This once again shows that the determinants of actual utilization of care do not necessarily overlap with those of preferred care arrangements.

The policy implications of this study are threefold. First, given the vital role of education and information in shaping people's preferences, the government may want to take measures to communicate effectively with older people and raise people's awareness of the formal social care services. This is not to persuade people to use these services but to help people have equal access to the key information so that they can make informed decisions regarding their future social care plans.

Second, care preferences are not static but constantly change on the basis of people's evaluation of the existing resources and adjustments to the environment. As the parents of the one-child cohort enter old age in China, older people on average will have fewer children in the decades to come, which means that preferences for social care will gradually shift from informal care to formal care in the future. Therefore, continued financial investment from the central government in the social care system in both rural and urban China will be indispensable. The majority of older people in China, like those in many other countries,

prefer to stay in their homes rather than move to a care home. Hence, a formal care system that centers on home or community-based care as opposed to care home services seems to align better with Chinese older people's preferences.

Third, the great variations in care preferences mean that a one-size-fits-all policy is unlikely to be well-received by the older population. Instead, it would be useful for government support to be sufficiently flexible and responsive to people's varied preferences. In western countries, some government support is targeted at older people with care needs, while other support is designed for caregivers. We argue that both types of support will be essential in the future, but the government may have different focuses in different settings. In urban areas, the government may commit more resources to the direct provision of formal care. In rural China, however, the focus of the policy may slightly shift towards support for informal caregivers. Services such as counseling, respite care and training courses for caregivers, which have been well-established in western countries (Courtin, Jemiai, & Mossialos, 2014; Glendinning, 2004), can be a useful supplement to formal care services.

Variations in preferred care arrangements highlight the importance of social work in the Chinese long-term care system. In western countries, social workers play an indispensable role in assessing and counseling older people's care needs. They serve as coordinators and gatekeepers, connecting older people's care needs and preferred arrangements with resources and support (McDonough & Davitt, 2011; Xie, Hughes, Sutcliffe, Chester, & Challis, 2012). Social work is still a relatively new and emerging enterprise in China (Sim & Lau, 2017). However, its potential for development, especially in the long-term care sector, should not be underestimated, not least because China has both the largest workforce and the largest number of older people in the world. Continued and increased support from the government as well as from the Associations of Social Workers at the national and local levels will be fundamental if we want to attract more talents to this sector. Crucially important is the

development of social work education and training programs that equip social workers with the knowledge and expertise to address the varied needs and preferences of older people.

Limitations and Future Research

Because our analyses were based on a cross-sectional dataset, it should be kept in mind that the results presented in this paper should be interpreted as an associative rather than a causal relationship. Longitudinal information will be needed in the future to help us further establish the causal relationships between stated care preferences and their predictors. Moreover, longitudinal information will also be highly valuable to understand how older people's stated care preferences change over time and what drives the changes in their preferences (Wolff, Kasper, & Shore, 2008). Finally, we have found that some older people's preferences may not align with their actual utilization of social care services. In future research, it would be useful to examine the characteristics of older people who experience this divergence and investigate its consequences for older people.

Conclusion

The ecological model of aging proves to be a useful framework for understanding social care preferences. There are great variations in preferred care arrangements in the Chinese older population, with educational qualifications and the number of surviving children being the most important predictors in both rural and urban China. The rural-urban disparity in social values leads to a parallel divide in preferences for formal care. In comparison, demographic characteristics and functional capability play a less salient role in shaping people's care preferences. Findings reported in this study confirm the importance of careful consideration of user preferences in the process of service planning and policy design, which could be the key to tackling the under-utilization of social care services in the Chinese context.

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Table 1. Sample characteristics

Variables	Rural China	Urban China	Total
	Proportions or means		
Preferred care arrangements			
Willingness to live in a care home			
No	81.3%	65.6%	72.0%
Yes	18.7%	34.4%	28.0%
Preferences for government-provided care			
No	77.0%	64.0%	69.3%
Yes	23.0%	36.0%	30.7%
Demographic characteristics			
Age			
60-79	84.7%	83.2%	83.8%
80+	15.3%	16.8%	16.2%
Gender:			
Female	50.8%	52.8%	52.0%
Male	49.2%	47.2%	48.0%
Functional capability			
ADL score	9.6	9.5	9.6
IADL score	9.0	8.3	8.6
Socioeconomic status			
Education			
No formal education	48.5%	25.0%	34.4%
Primary or junior secondary education	48.2%	50.9%	49.8%
Senior secondary education or above	3.3%	24.2%	15.8%
Personal income (thousand Chinese Yuan per year)	6.8	24.5	17.4
Social support network			
Perceived social support	17.8	18.7	18.3
Marital status and living arrangements			
Single, living alone	14.7%	12.2%	13.3%
Single, living with other people	25.2%	22.2%	23.4%
Married couples	60.1%	65.6%	63.4%
Numbers of children	3.5	2.8	3.1
Total number of older people	4280	6402	10,682
Facilities in the community/village			
Care homes			
No	85.5%	62.2%	71.5%
Yes	14.5%	37.8%	28.5%
Socialization facilities			
No	17.4%	3.1%	8.8%
Yes	82.6%	96.9%	91.2%
Community clinics			
No	9.9%	16.6%	13.9%
Yes	90.1%	83.4%	86.1%
Total number of communities/villages	172	259	431

Notes:
(1) Calculations by authors from the five imputed datasets.
(2) ADL: activities of daily living; IADL: instrumental activities of daily living.

Table 2. Predictors of willingness to live in a care home: Multilevel logistic regression models

Independent variables	Total		Rural area		Urban area	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Demographic characteristics						
Age						
60-79 (ref.)						
80+	0.795**	0.070	0.905	0.144	0.751**	0.078
Gender:						
Female (ref.)						
Male	0.853**	0.051	0.975	0.105	0.807**	0.056
Functional capability						
ADL score	1.040	0.023	1.074*	0.031	1.018	0.035
IADL score	0.961*	0.016	0.914***	0.024	0.989	0.022
Socioeconomic status						
Education						
No formal education (ref.)						
Primary or junior secondary education	1.306***	0.090	1.235*	0.129	1.323**	0.126
Senior secondary education or above	1.661***	0.154	1.608*	0.371	1.598***	0.179
Personal income	1.462***	0.086	0.986	0.124	1.678***	0.114
Social support network						
Perceived social support	0.998	0.002	0.994	0.004	0.999	0.003
Marital status and living arrangements						
Single, living alone (ref.)						
Single, living with other people	0.651***	0.064	0.657**	0.102	0.643***	0.078
Married couples	0.907	0.069	0.936	0.117	0.899	0.087
Number of children	0.839***	0.017	0.921**	0.028	0.790***	0.022
Facilities in the community/village						
Care homes						
No (ref.)						
Yes	1.235*	0.115	1.372	0.276	1.232*	0.128
Socialization facilities						
No (ref.)						
Yes	0.989	0.146	0.892	0.167	1.232	0.348
Community clinics						
No (ref.)						
Yes	0.756*	0.086	0.934	0.220	0.749*	0.097
Rural-urban residence						
Rural village (ref.)						
Urban community	1.391***	0.071	—	—	—	—
Joint significance test	560.174***		78.084***		409.952***	
LR test of random effects	$\chi^2(1) = 243.452$***		$\chi^2(1) = 125.612$***		$\chi^2(1) = 109.632$***	
N	10,682		4,280		6,402	

Notes
(1) Calculations by authors from the five imputed datasets.
(2) SE: standard error.
(3) *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
(4) ADL: activities of daily living; IADL: instrumental activities of daily living.
(5) LR test: Likelihood-ratio test.

Table 3. Predictors of preferences for government-provided care: Multilevel logistic regression models

Independent variables	Total		Rural area		Urban area	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Demographic characteristics						
Age						
60-79 (ref.)						
80+	0.908	0.072	0.774	0.109	0.969	0.092
Gender:						
Female (ref.)						
Male	1.124*	0.058	1.316**	0.121	1.035	0.065
Functional capability						
ADL score	1.011	0.018	1.012	0.029	1.007	0.024
IADL score	0.999	0.015	0.98	0.022	1.013	0.019
Socioeconomic status						
Education						
No formal education (ref.)						
Primary or junior secondary education	1.155*	0.074	1.118	0.106	1.141	0.099
Senior secondary education or above	1.661***	0.148	1.859**	0.402	1.604***	0.172
Personal income	1.021	0.058	0.858	0.105	1.077	0.072
Social support network						
Perceived social support	1.003	0.002	1.006	0.004	1.001	0.003
Marital status and living arrangements						
Single, living alone (ref.)						
Single, living with other people	0.764**	0.068	0.768	0.107	0.756*	0.085
Married couples	0.911	0.067	0.872	0.105	0.939	0.087
Number of children	0.875***	0.016	0.913***	0.025	0.848***	0.020
Facilities in the community/village						
Care homes						
No (ref.)						
Yes	1.143	0.121	1.066	0.221	1.196	0.138
Socialization facilities						
No (ref.)						
Yes	0.946	0.146	0.98	0.180	0.782	0.233
Community clinics						
No (ref.)						
Yes	0.726**	0.089	0.950	0.219	0.663**	0.095
Rural-urban residence						
Rural village (ref.)						
Urban community	1.531***	0.063	—	—	—	—
Joint significance test	288.156***		72.346***		173.328***	
LR test of random effects	$\chi^2(1) = 435.546^{***}$		$\chi^2(1) = 140.892^{***}$		$\chi^2(1) = 277.492^{***}$	
N	10,682		4,280		6,402	

Notes

(1) Calculations by authors from the five imputed datasets.

(2) SE: standard error.

(3) *p < 0.05, **p <0.01, ***p <0.001

(4) ADL: activities of daily living; IADL: instrumental activities of daily living.

(5) LR test: Likelihood-ratio test.

Table 4. Test results for research hypotheses

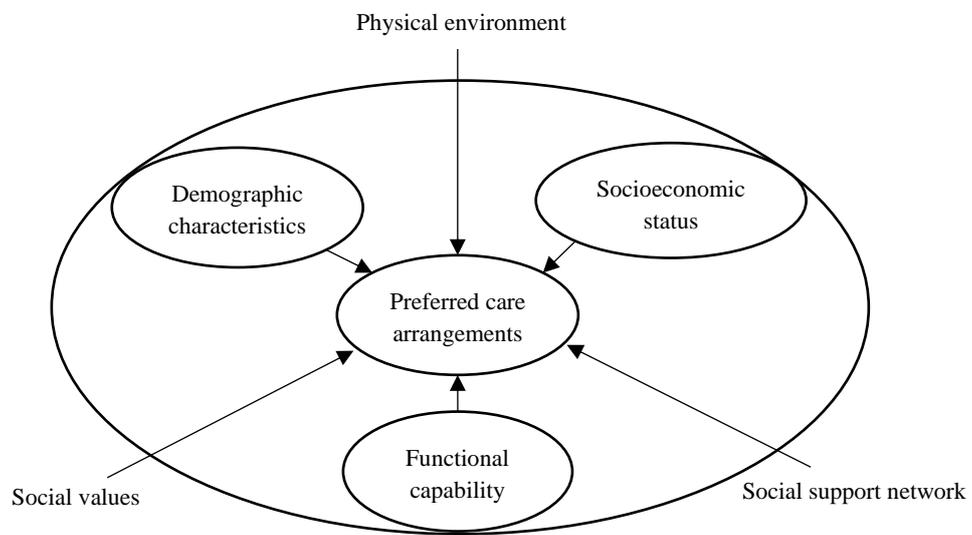| Hypothesis	Willingness to live in care homes	Preferences for government-provided care
H1: Functional capability	Weak evidence	Not confirmed
H2: Socioeconomic status	Confirmed	Confirmed
H3: Social support network	Confirmed	Confirmed
H4: Physical environment	Weak evidence	Not confirmed
H5: Rural-urban disparity in social values	Confirmed	Confirmed

Figure 1. The ecological model of aging for the study of preferred care arrangements

Table A1 Variables with missing values in the dataset and multiple imputation diagnostics

	% missing	Imputation regression	No imputation		Imputed dataset 1		Imputed dataset 2		Imputed dataset 3		Imputed dataset 4		Imputed dataset 5	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Income	10.49%	Truncated regression	0.82	0.62	0.81	0.61	0.81	0.62	0.81	0.61	0.81	0.61	0.81	0.62
Willing to be in care homes	9.94%	Binary Logit	0.28	0.45	0.28	0.45	0.28	0.45	0.28	0.45	0.28	0.45	0.28	0.45
Receiving formal care	4.70%	Binary Logit	0.31	0.46	0.3	0.46	0.31	0.46	0.31	0.46	0.31	0.46	0.31	0.46
Perceived social support	4.07%	Truncated regression	18.35	11.07	18.33	11.07	18.31	11.07	18.37	11.07	18.34	11.05	18.33	11.07
IADL scores	1.77%	Binary Logit	8.55	2.84	8.56	2.84	8.56	2.84	8.56	2.84	8.56	2.84	8.56	2.84
Care home facilities	1.58%	Truncated regression	0.27	0.45	0.27	0.45	0.27	0.45	0.27	0.45	0.27	0.45	0.27	0.45
Gender	0.75%	Binary Logit	0.48	0.5	0.48	0.5	0.48	0.5	0.48	0.5	0.48	0.5	0.48	0.5
ADL scores	0.59%	Truncated regression	9.55	2.12	9.56	2.13	9.56	2.13	9.56	2.12	9.56	2.13	9.56	2.13

Notes

(1) For each imputed dataset, N=10,682;

(2) SD: standard deviation;

(3) The income variable was logarithmically transformed before imputation;

(4) For truncated regression models, the lower boundary is zero.