# Survey on the Demand for Elderly Care Services of Community Residents in Beijing and Analysis of Influencing Factors

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Abstract: *Objective:* To investigate the current situation of the demand for geriatric care services of community residents in Beijing and analyze the influencing factors to provide a reference basis for meeting the demand for diversified and professional geriatric care services. *Methods:* A self-made questionnaire was used to randomly survey 1558 elderly individuals at community health service centers in 8 urban districts where elderly care centers were planned to be built. The influencing factors of the different characteristics of elderly care service needs from three aspects were analyzed using a dichotomous logistic regression model: predisposing, enabling, and, need factors. *Results:* 69.7% of the elderly required home care services, 22.8% wanted to get care services at elderly care centers, 15.9% wanted to get care services at nursing homes, 12.3% required community care services, and 7.4% didn't know where to access care services. 68.5% of the elderly required care services for disabilities/semi-disabilities, 58.0% for dementia, 54.7% for common diseases, 34.9% for rehabilitation training, 33.0% for plumbing care, and 7.5% for hospice care. At the same time, there were urban-rural differences in the demand for elderly care services, with suburban elderly having a higher demand for care services than those living in urban areas ($P < 0.05$). The elderly's demand for care services was mainly related to age, place of residence, and gender in the causative factors, mode of residence and physical condition among able factors, and mode of care services and care needs among need factors ($P < 0.05$). *Conclusion:* The demand for elderly care services was differentiated by factors including place of residence, age, and gender. It is crucial to accurately match the demand for elderly care services, innovate the mode of elderly care services, and improve the service quality to improve the elderly health service system.

Keywords: Elderly care; Service system; Demand; Population ageing; Influencing factors

## 1. Introduction

Since China officially entered the stage of aging in 2000, the growth rate has gradually soared from less than

2% to nearly 4% [1]. In 2021, the proportion of elderly aged 60 and above in China comprised 18.9% of the total population, and the proportion of the elderly aged 65 and above comprised 14.2% of the total population. It is expected that by the end of the "14th Five-Year Plan," China will shift from mild aging to the moderate stage (the proportion of elderly aged 60 and above is over 20%), and enter the severe stage (the proportion is over 20%) by 2035 [2]. According to statistics, there are currently 4.65 million elderly residents who are over 60 years old in Beijing, accounting for 21.3% of the resident population, thus China has already entered a moderately aging society [3]. Although the life expectancy of China's population has increased, the extension of the healthy survival period is relatively lagging, especially for the elderly with diseases and disabilities whose survival period has increased [4]. To achieve healthy aging, the 14th Five-Year Plan and the Outline of Vision 2035 aim to improve the basic elderly service system, vigorously develop inclusive elderly services, and support families to assume the function of old age. It also aims to establish an elderly service system that is coordinated with the home community institutions, which combines medical care, health care, recreation, and nourishment [5].

Currently, China's elderly care model involves home care, community care, and institutional care. China's elderly groups often suffer from chronic diseases, disability, and dementia. Home care, community care, nursing homes, orphanages, and other institutional care models may lack medical and nursing care, hence unable to meet the needs of the elderly for medical care and recreation. Therefore, the Healthy China 2030 program puts forward the promotion of the combination of medical care and nursing to provide the elderly with treatment during hospitalization, rehabilitation, stable life care, and hospice integration of health and old age services [6]. Zhang argued that there was insufficient supply, idle beds, and a lack of supervision in the practice of combining medical and nursing care, including a lack of professionals and ineffective management [7]. In this regard, the Beijing Municipal Government has thus launched the construction of the first elderly care center. Elderly care center refers to institutions or facilities that are specially designed to provide medical, nursing, rehabilitation, social, and spiritual support services for the elderly [8]. It is a professional medical institution that mainly provides daily nursing care, supplemented by simple medical measures and continuous nursing services. It realizes the continuity of care for elderly patients from medical institutions to medical and nursing institutions and back to their families. To further understand the demand of Beijing community residents for nursing care services in geriatric care centers and to ensure its effective operation, a questionnaire survey was conducted on the first batch of community geriatric care centers in Beijing. The characteristics of the elderly population's demand for nursing care services and the influencing factors were also analyzed, to improve the health and quality of life of the elderly population, and provide references for the policy formulation and institutional conception of the geriatric care center's nursing care services [9].

## 2. Objects and methods

### 2.1. Objects of study

From May 22 to May 31, 2023, surveys were randomly distributed to visitors at 10 community health service centers in 8 urban districts of Beijing (Dongcheng, Haidian, Chaoyang, Mentougou, Daxing, Tongzhou, Miyun, and Huairou). Inclusion criteria: (1) Patients who consented; (2) good cognitive function; (3) aged ≥ 60 years old. Exclusion criteria: (1) Patients with severe mental illness; (2) communication barriers; (3) presence of acute illness.

### 2.2. Survey instruments

Based on the current situation of local health services and the review of relevant literature, we designed our own "Questionnaire on the Needs of Community Residents Related to Elderly Care," which included two parts: the

basic information of the respondents and their medical needs. The basic information of the respondents includes gender, age, place of residence, spouse status, mode of residence, etc. The medical needs include physical conditions, care needs, and needs for services provided by the medical and nursing institutions.

## 2.3. Methodology of the survey

A cross-sectional survey on the demand for elderly care services was conducted for community residents and filled out anonymously through WeChat scanning. Those with genuine difficulties had relatives or carers to answer on their behalf. The surveyors received systematic training before taking up their duties and were required to obtain the informed consent of the survey respondents. A total of 1,558 questionnaires were distributed, and all were recovered, with a recovery rate of 100%. Excluding questionnaires with incomplete information and those that did not correspond to the facts, 1,556 questionnaires were valid, with a validity rate of 99.87%.

## 2.4. Statistical methods

After the survey was completed, all questionnaires were screened and unqualified questionnaires were eliminated. Data were collated and statistically analyzed using the Storm Statistical Platform (www.medsta. cn/software) and R version 4.3.0. The 7 needs of community residents in Beijing for elderly care services were used as dependent variables, with 3 categories including causative factors (place of residence, gender, age), enabling factors (whether living with children/spouse/grandchildren/elder/others, living alone, physical condition, knowledge of elderly care centers), and need factors (most comfortable/financially limited for home care, nursing home care, community care, elderly care center care, don't know where to access care, and knows where to access care). The other 3 categories were categorized as independent variables. The final breakdown was 19 independent variables and 7 dependent variables, for a total of 26 variables.

Firstly, column table analysis and chi-squared ($\chi^2$) test were carried out, and then the significantly related independent variables were included in the unordered multicategorical logistic regression to analyze the demand for elderly care services and the influencing factors. Results were considered statistically significant at $P < 0.05$.

# 3. Results

## 3.1 Basic situation of the elderly in the Beijing community

As shown in **Table 1**, a total of 1556 community residents were included in this study, of whom 746 (48.4%) were aged 60–65 years, 546 (35.4%) were aged 65–70 years, 205 (13.3%) were aged 71–80 years, and 45 (2.9%) were aged 81 years and above; 1,431 (92.0%) residents were from the suburbs and 125 (8.0%) were from towns. There were 1010 (65%) females and 545 (35%) males.

## 3.2. Demand for community elderly care services in Beijing

A total of 1,086 (69.7%) residents demanded home care services, 355 (22.8%) wanted to obtain care services at elderly care centers, 247 (15.9%) wanted to obtain care services at nursing homes, 191 (12.3%) wanted to obtain care services in the community, and 115 (7.4%) residents did not know where to obtain care services. There were 1,068 (68.5%) residents who required incapacitated/semi-incapacitated elderly care, 903 (58.0%) who required care for dementia, 852 (54.7%) who required care service needs of common and multiple diseases, 544 (34.9%) who required rehabilitation guidance and training, 514 (33.0%) with pipeline care needs, and 117 (7.5%) residents who required hospice care.

**Table 1.** Basic status of the study population ($n = 1558$)

| Variant | Categorization | Cases ($n$) |
|---|---|---|
| Place of residence | Urban area | 125 (8.0) |
| | Suburban | 1431 (92.0) |
| Gender | Male | 545 (35.0) |
| | Women | 1010 (65.0) |
| Age | 60–65 years | 746 (48.4) |
| | 65–70 years | 546 (35.4) |
| | 71–80 years | 205 (13.3) |
| | >81 years old | 45 (2.9) |
| Residence with children | No | 906 (58.2) |
| | Yes | 652 (41.8) |
| Residence with spouse | No | 519 (33.3) |
| | Yes | 1039 (66.7) |
| Living with grandchildren | No | 1468 (94.2) |
| | Yes | 90 (5.8) |
| Living alone | No | 1438 (92.3) |
| | Yes | 120 (7.7) |
| Living with elders | No | 1442 (92.6) |
| | Yes | 116 (7.4) |
| Living with others | No | 1533 (98.4) |
| | Yes | 25 (1.6) |
| Condition | (1) Chronic illnesses, require medication but can take care of themselves | 779 (50.5) |
| | (2) Have a chronic illness and can take care of themselves without medication | 183 (11.9) |
| | (3) Wellness | 507 (32.8) |
| | (4) Partially self-supporting | 48 (3.1) |
| | (5) Require assistance. | 27 (1.7) |
| Caregiver requirements | None | 1188 (76.3) |
| | 1 in need of care | 315 (20.2) |
| | 2 in need of care | 49 (3.1) |
| | 3 in need of care. | 6 (0.4) |
| Home care, home comfort | No | 472 (30.3) |
| | Yes | 1086 (69.7) |
| Home care, financial constraints | No | 1198 (76.9) |
| | Yes | 360 (23.1) |
| Nursing home care | No | 1311 (84.1) |
| | Yes | 247 (15.9) |
| Community care | No | 1367 (87.7) |
| | Yes | 191 (12.3) |

**Table 1 (Continued)**

| Variant | Categorization | Cases (*n*) |
|---|---|---|
| Elderly care center care | Yes | 1203 (77.2) |
| | Be | 355 (22.8) |
| Not knowing where to access care services | No | 1443 (92.6) |
| | Yes | 115 (7.4) |
| The rest | No | 1526 (97.9) |
| | Yes | 32 (2.1) |
| Degree of understanding of elderly care centers | Heard of it. | 963 (61.8) |
| | Heard of it and got to know it. | 258 (16.6) |
| | Never heard of it. | 337 (21.6) |
| Care needs of disabled/semi-disabled elderly people | No | 490 (31.5) |
| | Yes | 1068 (68.5) |
| Care needs of demented elderly | No | 655 (42.0) |
| | Yes | 903 (58.0) |
| Needs of common and frequent diseases | No | 706 (45.3) |
| | Yes | 852 (54.7) |
| Rehabilitation guidance and training needs | No | 1014 (65.1) |
| | Yes | 544 (34.9) |
| Pipeline care needs | No | 1044 (67.0) |
| | Yes | 514 (33.0) |
| Hospice/hospice needs | No | 1441 (92.5) |
| | Yes | 117 (7.5) |

## 3.3. Care service needs of the elderly with different characteristics

As shown in **Table 2**, differences in the needs of elderly people with different places of residence for disablement/semi-disablement, rehabilitation instructional language training, plumbing care, and other needs were statistically significant ($P < 0.05$). Differences in hospice/hospice care needs among older adults of different genders were also statistically significant for the 7 elderly service needs ($P < 0.05$).

## 3.4. Factors influencing the demand for elderly care services

The results of binomial logistic regression analyses used the elderly's need for care services as the dependent variable (no need = 0, need = 1) and causal, enabling, and need factors as the independent variables (19 independent variables). Results showed that the elderly in suburban areas, females, disabled/semi-disabled, and live alone all require care services, as shown in **Table 3**. On the other hand, the proportion of the elderly with rehabilitation or plumbing care needs living with their children, all required nursing services.

**Table 2.** Demand for elderly care services according to different characteristics of the elderly

| Type of requirement | Demand (economics) | Place of residence (%) | | P | Gender | | P | Age (years) | | | | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Urban | Suburban | | Male | Women | | 60–65 | 65–70 | 71–80 | > 81 | |
| Disabled/semi-disabled | No | 28 (22.4) | 462 (32.3) | 0.029 | 159 (29.2) | 328 (32.5) | 0.200 | 215 (28.8) | 193 (35.3) | 68 (33.2) | 10 (22.2) | 0.040 |
| | Yes | 97 (77.6) | 969 (67.7) | | 386 (70.8) | 682 (67.5) | | 531 (71.2) | 353 (64.7) | 137 (66.8) | 35 (77.8) | |
| Dementia | No | 55 (44.0) | 599 (41.9) | 0.711 | 235 (43.1) | 417 (41.3) | 0.519 | 322 (43.2) | 226 (41.4) | 86 (42.0) | 14 (31.1) | 0.442 |
| | Yes | 70 (56.0) | 832 (58.1) | | 310 (56.9) | 593 (58.7) | | 424 (56.8) | 320 (58.6) | 119 (58.0) | 31 (68.9) | |
| Common/multiple diseases | No | 56 (44.8) | 649 (45.4) | 0.980 | 260 (47.7) | 443 (43.9) | 0.161 | 344 (46.1) | 252 (46.2) | 85 (41.5) | 17 (37.8) | 0.457 |
| | Yes | 69 (55.2) | 782 (54.6) | | 285 (52.3) | 567 (56.1) | | 402 (53.9) | 294 (53.8) | 120 (58.5) | 28 (62.2) | |
| Rehabilitation guidance and training | No | 61 (48.8) | 951 (66.5) | < 0.001 | 356 (65.3) | 655 (64.9) | 0.897 | 490 (65.7) | 367 (67.2) | 125 (61.0) | 22 (48.9) | 0.048 |
| | Yes | 64 (51.2) | 480 (33.5) | | 189 (34.7) | 355 (35.1) | | 256 (34.3) | 179 (32.8) | 80 (39.0) | 23 (51.1) | |
| Pipeline care | No | 68 (54.4) | 974 (68.1) | 0.003 | 368 (67.5) | 673 (66.6) | 0.765 | 494 (66.2) | 385 (70.5) | 132 (64.4) | 23 (51.1) | 0.029 |
| | Yes | 57 (45.6) | 457 (31.9) | | 177 (32.5) | 337 (33.4) | | 252 (33.8) | 161 (29.5) | 73 (35.6) | 22 (48.9) | |
| Hospice/hospice care | No | 117 (93.6) | 1322 (92.4) | 0.750 | 518 (95.0) | 920 (91.1) | 0.006 | 681 (91.3) | 512 (93.8) | 191 (93.2) | 43 (95.6) | 0.307 |
| | Yes | 8 (6.4) | 109 (7.6) | | 27 (5.0) | 90 (8.9) | | 65 (8.7) | 34 (6.2) | 14 (6.8) | 2 (4.4) | |

**Table 3.** Results of logistic regression analyses of factors influencing the demand for care services for the elderly in the community

| Independent variable | Consultation | Disabled/ semi-disabled | | Demented old man | | Common/multiple diseases | | Rehabilitation | | Pipeline care | | Hospice | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | B | OR | B | OR | B | OR | B | OR | B | OR | B | OR |
| Place of residence | Urban area | | | | | | | | | | | | |
| | Suburban | -0.41 | 0.66 | - | - | - | - | -0.55 | 0.57* | -0.34 | 0.71 | - | - |
| Gender | Male | | | | | | | | | | | | |
| | Women | - | - | - | - | - | - | - | - | - | - | 0.65 | 1.92* |
| Age | 50–60 years old | | | | | | | | | | | | |
| | 61–70 years | -0.34 | 0.71* | - | - | - | - | -0.02 | 0.98 | -0.06 | 0.94 | - | - |
| | 71–80 years | -0.30 | 0.74 | - | - | - | - | 0.14 | 1.15 | 0.14 | 1.15 | - | - |
| | > 81 years old | 0.36 | 1.44 | - | - | - | - | 0.59 | 1.80 | 0.70 | 2.02* | - | - |
| Living with children | No | | | | | | | | | | | | |
| | Yes | 0.30 | 1.35* | - | - | - | - | 0.28 | 1.33* | 0.30 | 1.35* | -0.39 | 0.68 |
| Living with spouse | No | | | | | | | | | | | | |
| | Yes | | | | | | | | | | | -0.39 | 0.68 |
| Living with grandchildren | No | | | | | | | | | | | | |
| | Yes | - | - | - | - | - | - | 0.25 | 1.28 | - | - | - | - |
| Living alone | No | | | | | | | | | | | | |
| | Yes | -0.49 | 0.61* | - | - | - | - | - | - | - | - | - | - |

# 4. Discussion

## 4.1. Demand for care services for the elderly of different places of residence and different ages

By analyzing the demand for care services for the elderly in different places of residence and at different ages, there were significant differences in the demand for services for those who required disabled/semi-disabled, rehabilitation training, and plumbing care among the elderly in the suburbs and the senior age group. As the study population consisted of community residents in the 8 regions where the construction of elderly care centers was proposed, it showed that more suburban elderly people were more likely to accept the home-based model of care services due to their perceived comfort at home and their financial constraints.

The demand for care services for the elderly in suburban areas is affected by economic conditions, age, medical resources, cultural background, and other factors. Deng and Liu showed that the rural economy was affected by factors such as the lack of integration funds, the serious outflow of labor, the weak information technology in agriculture, and the limited industrialization of the countryside [10]. As a result, the economic level of suburban residents is generally low and the economic level of support for institutionalized elderly care is limited. In addition, some studies have shown that the higher the age, the greater the likelihood of incapacitation/semi-incapacitation, thus the higher the degree of care demand. This may be because, with age, the individual's health decreases, leading to an increase in the demand for care [11]. Beijing's overall quality healthcare resources show a strong monocentric attribute, with the vast majority of hospitals being medium-sized and located in the central city within the third ring road [12]. In addition, Zhang showed that the population density of the 6 districts of Beijing was decreasing relative to the city's population density, and the population was gradually shifting from dense areas to the suburbs, especially in Fangshan, Shunyi, Changping, and Tongzhou [13]. This resulted in a high population density in the suburbs and a lack of medical and healthcare resources. The elderly care institutions were mostly nursing homes, which do not possess medical resources, and had insufficient supply of care services for the elderly with disabilities/semi-disabilities. In addition, the elderly in the suburbs do not pay much attention to their health needs due to their limited literacy level and are strongly influenced by traditional filial piety, where most reject seeking treatment at nursing institutions.

Taking into account the economic conditions, cultural backgrounds, medical resources, and other factors of the elderly in suburban areas, the idea of building elderly care centers in suburban areas should be further clarified. Care facilities with medical resources and home comfort have become the focus of demand, where long-term care insurance should be incorporated to alleviate the financial burden of the elderly living in suburban areas.

## 4.2. Nursing service needs of the elderly at different ages

As people age, their physical functions and health conditions change, such as physiological aging, increased incidence of chronic diseases, and cognitive impairments. Han *et al.* showed that the risk of disability in elderly people increases with age [14]. According to Jiang *et al.*, the nursing service needs of the disabled elderly significantly increased as they grew older [15]. Data from this study suggested that elderly people, whether living alone or with their family, had a demand for professional nursing care, such as tube care. Given the growing need for professional nursing among the elderly, it is imperative to establish and promote the operation of senior nursing care centers. Not only will this relieve the hospitalization pressure on professional medical institutions but also compensate for the lack of professional care capabilities in elderly care facilities.

## 4.3. Demand for hospice/hospice care services based on the gender of the elderly

This study showed that female seniors had a higher need for hospice/hospice services.

As society's living standard continues to improve, the idea of a "good death" becomes the inevitable pursuit of dignity and quality of life. Therefore, hospice services have become an important means of promoting active and healthy aging. Li showed that the elderly in China were generally weak before the end of life, and the duration is longer, resulting in a heavier burden of care [16]. The proportion of elderly who are bedridden at the end of life is high, increasing from 70% to 72%. When considering gender, the proportion of female elderly who are bedridden is higher than that of men, at 74.0% and 69.5%, respectively. Therefore, female elderly are more in need of hospice/hospice care services from professional institutions, which not only reduces the burden of family care but also ensures their dignity and quality of life at the end of their lives.

The aging-friendly construction of elderly care centers, which, in addition to having medical care resources and functions, also have embedded family elements and are linked to hospice units, thus meeting the needs of the elderly for end-of-life care services.

## 5. Conclusion

The demand for elderly care services in Beijing's suburban areas is high and the main factors affecting the demand for elderly care services include place of residence, gender, age, and mode of care services required. To meet the multi-level and diversified care service needs of the elderly and to promote the equalization of elderly care services, this study suggested that the demand-oriented development of elderly care institutions in suburban areas of Beijing should be able to meet the functions of medical care, hospice care, and home comfort. The government should also improve and strengthen the policy of supporting the operation of elderly care institutions timely, and explore the inclusion of life care items in the scope of protection through medical and long-term care insurance to alleviate the burden on these institutions. Furthermore, by aligning policy objectives and integrating the advantages of resources from the society, community, villages, and households, the radius of publicity of elderly care institutions can be expanded. This would increase the residents' awareness of and trust in elderly care institutions. Additionally, 7.4% of community residents in this questionnaire did not know where to access nursing services, hence further research is needed to address this issue.

## Disclosure statement

The authors declare no conflict of interest.

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