Review

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Human resources in long-term care for older adults in China: Challenges amid population aging

Nadida Aximu[1,2], Bahegu Yimingniyazi[1,2], Dapeng Lin[1,2], Jiangtao Zhang[2,3,*], Mengxi Jiang[4,*], Yu Sun[5,6,7,*]

[1] School of Public Health, Xinjiang Medical University, Urumqi, Xinjiang, China;
[2] Xinjiang International Medical Center, Urumqi, Xinjiang, China;
[3] School of Pharmacy, Xinjiang Medical University, Urumqi, Xinjiang, China;
[4] China National Health Development Research Center, Beijing, China;
[5] Department of Otorhinolaryngology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China;
[6] Institute of Otorhinolaryngology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China;
[7] Hubei Province Clinic Research Center for Deafness and Vertigo, Wuhan, China.

SUMMARY: Against the backdrop of accelerating global population aging, China is undergoing significant demographic shifts. Its population aged 60 and above has reached 264 million, projected to account for 40% of the total population by the mid-21st century, becoming a "super-aging society" and triggering a surge in long-term care demand. On the demand side, the overall ADL disability rate among middle-aged and older adults is 23.8% (35.4% organic), rising to 30.5% among those aged 80 and above; 17.8% have IADL impairments, and 36.44% of households with older adults are empty-nest. Combined with population aging, rising disability rates, the growth of empty-nest families, and heavy disease burdens, care demand continues to grow annually. On the supply side, 13 million caregivers are needed for disabled/semi-disabled older adults, with only ~1 million practitioners; traditional models focusing solely on basic daily assistance fail to meet diverse needs like mental health support and rehabilitation. To this end, this study aims to synthesize evidence on the structural challenges faced by China's geriatric care workforce. By analyzing demographic data, care demand indicators, and geriatric care models, it identifies core issues and proposes evidence-based strategies, with the purpose of improving the quality of life of older adults and strengthening development of professional geriatric care talent.

Keywords: Population aging in China, geriatric care, shortage of nursing resources, older adults' care needs, older adults care models

1. Introduction

The World Health Organization (WHO) defines healthy aging as a process of developing and maintaining functional ability required for older adults to live a healthy life, with the goal of enabling them to live a dignified and quality life in their later years and reducing dependency (*1*). However, the intensification of global population aging, coupled with the increase in age-related diseases and rise in disability rates, poses significant challenges to global health and social care services (*2,3*). In 2020, the proportion of the population aged 65 and above reached 20% or more in 22 countries and regions; by 2050, the population aged 60 and above (2.132 billion) will be nearly twice the size of the adolescent population aged 15 to 24 (*4,5*).

Population aging and rising incidence of diseases among older adults have driven a surge in global demand for older adults care, with the imbalance between supply and demand emerging as a common issue. From the demand side, dependency on older adults care among older adults has increased significantly. Activities of Daily Living (ADL), which form the foundation for older adults to maintain daily independence, include basic behaviors such as eating, dressing, bathing, getting in and out of bed, and using the toilet; difficulty in performing these independently is considered disability, and the Instrumental Activities of Daily Living (IADL). It focuses on an individual's ability to independently complete complex daily tasks, and is a crucial reference for determining whether a person can live independently (*6*). Specific data show that the proportion of older adults with functional dependency in the UK is projected to increase by one-third between 2015 and 2035 (*7*); the

disability rate among older adults in the US has been rising (*8*), with ADL limitations intensifying across the 50-80 age group (*9*); one in five older adults in Japan is projected to have dementia in the future (*10*).

From the supply side, the prominent issue is a shortage of care resources. Studies indicate that the population aged 65 and over in the US will double by 2060 (*11*), leading to insufficient numbers of older adults care workers. Among the 4.5 million care providers, 86% are female with generally low educational attainment, resulting in a mismatch between supply and demand (*12*). Data from the Ministry of Health show that Japan's demand for long-term care workers will rise from 2.11 million in 2019 to 2.8 million in 2040, and with children of the baby boomer generation retiring around 2040, pressure on the supply of care workers will persist (*13*).

Compared with global trends, population aging in China, characterized by a larger scale and faster speed, endows the contradiction between supply and demand in care provision with greater particularity and urgency. As a large developing country accounting for nearly one-fifth of the world's population, addressing population aging constitutes a severe challenge, and whether older adults receive adequate care services is also a cause for concern. In 2024, the population aged 65 and above in China reached 220 million, accounting for 15.6% of the total population, and it is projected to rise to 26% by 2050 (*14*). Additionally, the proportion of the population aged 65 and above increased from 7% to 14% in only 21 years, compared with 115 years in France (*15*).

Superimposed with national conditions such as family downsizing caused by the family planning policy, "aging before becoming wealthy", and "aging before being prepared", the contradiction between supply and demand of care resources has been exacerbated, while health status of the older adult population has further intensified this contradiction. Data show that the overall ADL disability rate among middle-aged and older adults in China reaches 23.8% (35.4% of which are organic) (*16*). There are 33 million people aged 60 and above with difficulties in daily living, among whom nearly one-third need to depend on others for care (*17*).

Caregivers are the core link connecting the demand for care for older adults and health outcomes, and their capabilities directly affect the healthy life expectancy of older adults. However, the workforce of geriatric caregivers in China is characterized by insufficient quantity, weak professional qualifications, imbalanced personnel structure, and poor stability. Based on the needs of disabled and semi-disabled older adults, 13 million caregivers are required, but there are only about 1 million actual practitioners, among whom 300,000 have received professional training and 100,000 hold professional qualifications. The workforce is predominantly female (over 80%) and aged 40–60, with low educational attainment (two-thirds having junior high school education or below, and only 7.8% having junior college education or above), and the rate of certified employment is less than 32% (*18,19*). These structural deficiencies lead to poor stability. Surveys show that caregivers work over 10 hours per day on average, with a monthly income of less than 5,000 Chinese yuan; 61.1% are dissatisfied with their work, 51.8% have an intention to resign, and average turnover rate is 23.3%, which exacerbates manpower shortages and hinders development of long-term care services (*20-22*).

The shortage of geriatric caregivers has imposed pressure on the social older adults care service system. Against this backdrop, this study, set against the context of population aging in China, focuses on the predicament of "insufficient quantity, low quality, and poor stability" in the geriatric care workforce. It synthesizes current situations and issues (including care models, actual demand, contradictions between health heterogeneity and care provision, and structural shortcomings of the system), aiming to provide references for workforce development and system improvement.

2. The Current Situation of Aging in China

2.1. Changes in the total population of older adults in China

From 2013 to the end of 2023, the total number of older adults aged 60 and above in China reached approximately 290 million, accounting for 21.1% of the total population (Figure 1). Over these 10 years, the number increased by 100 million, with an average annual growth of 6.7 million. The proportion of older adults in the total population rose from 10.45% to 18.75% (*23*). Nationwide, the number of older adults aged 65 and above stood at 216.76 million, making up 15.4% of the total population (*24*).

A comparison of data from the Fifth and Sixth National Population Censuses shows that the proportion of older adults aged 60 and above in the total population increased by 2.86 percentage points (*25*). Between the Sixth and Seventh National Population Censuses, this proportion rose by 5.44 percentage points (*26*), indicating that China's population aging process has accelerated since 2010. This acceleration is an inevitable outcome of the family planning policy implemented in 1982: individuals who were of childbearing age (20–30 years old) at that time have now reached 50–60 years of age. Consequently, the proportion of older adults has continued to rise since 2020, posing new demands and challenges for economic development and urban management. Notably, demand for care among older adults has become increasingly prominent.

2.2. Changes in age structure of the older adult population in China

With increasing life expectancy, the numbers of

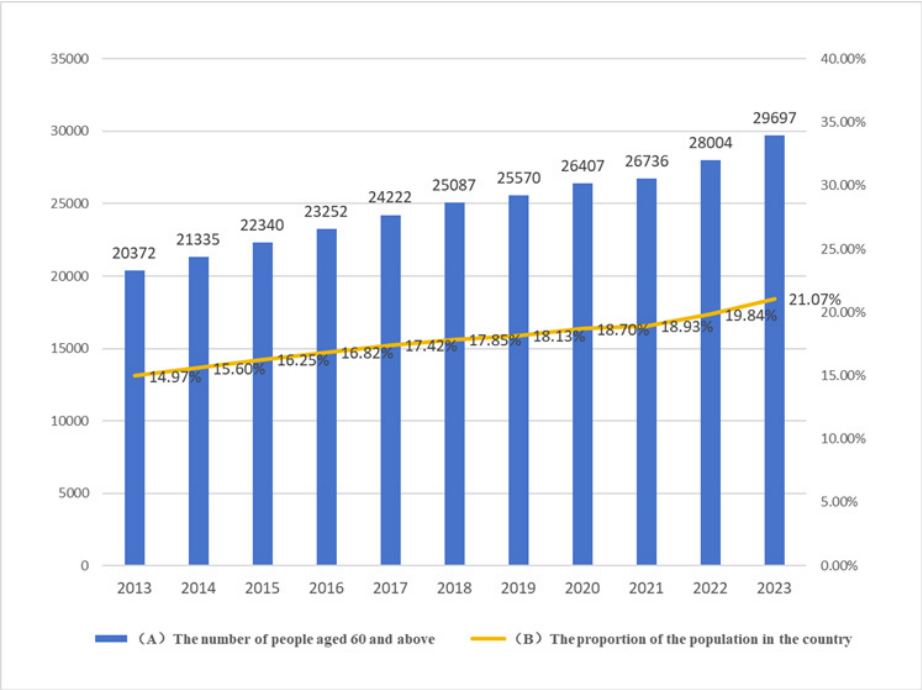

Figure 1. The total number of Chinese older adults aged 60 and above from 2013 to 2023. In the figure, these two sets of data represent: (A) number of people aged 60 and above; (B) proportion of older adults population in total national population. *Data source*: 2023 Annual Report on the Development of older adults Affairs in China (*https://www.gov.cn/lianbo/bumen/202410/content_6979487.htm*).

advanced older adults, long-lived older adults, and centenarians have continued to rise. From 2000 to 2010, the number of older adults aged 70 and above increased from 53 million to 78 million. From 2010 to 2020, this figure further grew from 78 million to 117 million, with its proportion in the total population rising from 4.29% to 5.83% and then surging to 8.29%. From 2000 to 2020, the number of advanced older adults aged 80 and above increased from 8.96 million to 24.97 million, and their proportion in the total population rose from 0.71% to 1.78%. Over the same period, the proportion of long-lived older adults aged 90 and above also increased from 0.07% to 0.33%, while the number of centenarians grew from 18,000 to 119,000. These trends indicate that the growth of China's advanced older adults population is accelerating. Advanced aging is often accompanied by issues such as empty-nest living, disability, cognitive impairment, poverty, and multimorbidity, rendering the challenge of daily living care particularly prominent (*27*).

2.3. Marital status of older adults in China

According to data from the Fifth, Sixth, and Seventh National Population Censuses, the proportion of unmarried individuals aged 15 and above in China decreased from 20.2% to 19.2% between 2000 and 2020. Among this group, the proportion of unmarried older adults aged 60–64 dropped from 2.2% to 1.7%, while the proportion of unmarried older adults aged 65 and above rose slightly from 1.4% to 1.6%. The proportion of divorced individuals increased from 0.9% to 2.4% over the same period. Specifically, the proportions of divorced older adults aged 60–64 and those aged 65 and above rose by 1.5 percentage points and 0.4 percentage points, respectively. The proportion of widowed individuals increased marginally from 5.6% to 5.7%. Although the proportion of widowed older adults aged 60 and above declined to some extent, it is noteworthy that the proportion of widowed older adult women remains high, reaching 37.8% by 2020 (Table 1) (*25,26*).

2.4. Living arrangements of older adults in China

Currently, older adults living in empty-nest families account for 36.44% of the total older adult population, with the primary living arrangement being that older adult couples (aged 65 and above) reside independently (Table 2) (*28*). In terms of living arrangements for older adults, home-based care holds an absolutely dominant position, accounting for 98.6%, whereas institutional care accounts for only 1.4%. The combined proportion of couple households and single-person households stands at 52.3%, representing a 12.7% increase compared with 2010 (*29*). Additionally, the proportion of empty-nest older adults in rural areas is higher than that in urban areas. Nationwide, in households with only one older adult, the proportion of single older adults living alone exceeds one-third. Both at the national level and across urban and rural areas, the proportion of single older adults living in one-person households (single-person households) is gradually increasing (*30*).

Table 1. Marital status proportions of the population aged 60 and over in China (2000–2020) (%)*

Category	Unmarried			Divorced			Widowed		
	2000	2010	2020	2000	2010	2020	2000	2010	2020
Total	20.2	21.6	19.2	0.9	1.4	2.4	5.6	5.7	5.7
60–64	2.2	1.9	1.7	0.8	1.0	2.3	14.8	11.5	8.3
≥ 65	1.4	1.7	1.6	0.6	0.7	1.0	37.7	34.5	27.1

*Population aged 60 and above in China (2000–2020). Data Source: *Ref.* (*2,7,8*).

Table 2. Living style and changes of the older adults (%)*

Category	2020		2010		2000	
	Live alone	Couples living alone	Live alone	Couples living alone	Live alone	Couples living alone
Country	36.44	55.96	24.28	47.92	15.79	41.99
City	34.86	56.80	26.25	52.19	18.52	46.76
Town	36.33	55.33	25.45	50.49	18.26	47.40
Village	37.43	55.64	23.15	44.83	14.56	39.30

*Population aged 65 years and above (2000-2020). Data Source: *Ref.* (*12*).

2.5. Health status indicators and trends among older adults

With the intensification of population aging, the proportions of illness, medical consultation, and hospitalization have also increased significantly. According to the results of the 1st to 6th Health Service Surveys, the two-week prevalence rate, two-week consultation rate, and hospitalization rate among China's older adult population have all shown a rapid upward trend, rising from 25% to 58.4%, 28.0% to 42.6%, and 6.1% to 27.2% respectively. As age increases, the proportions of hearing impairment, visual impairment, and dementia also gradually rise, standing at 57.1%, 48.7%, and 7.8% respectively, with a significant increase after the age of 80 (Figure 2) (*31,32*).

2.6. Care models for older adults in China and current status

China's older adults care model has evolved with social development: from traditionally family-centered, to state-subsidized and collective-supported care, to today's socialized, diversified model integrating family, community, and institutional care. Compared with mature systems in other countries, China's remains exploratory (*33*). Though a diversified framework is initially formed, supply-side fragmentation is prominent, characterized by "rapid growth of institutional care and relative lag in home and community-based services (HCBS)" (*34*).

Family care, once primary for older adults, has weakened with shrinking families (1.6 adult children per urban older adult on average). Most prefer home care, but support is insufficient (*35*). A 2024 survey revealed that only 15.3% of disabled older adults aged 65 and above have access to family care, failing to address large-scale care demands (*36*). Community care (home visits, day care centers) grew rapidly, with beds rising from 198,000 to 3.478 million (2012–2018). However, rural areas lag due to scarce resources and scattered populations, with lower coverage of professionals and facilities than cities, failing to fill family care gaps (*34*).

Institutional care, as a professional carrier for addressing complex care needs (particularly for disabled older adults), has become increasingly prominent. By 2023, there were over 400,000 older adult care institutions nationwide, housing approximately 8.5 million older adults, 70% of whom were disabled or semi-disabled. These institutions are major employers of professional geriatric caregivers, absorbing over 60% of the national geriatric care workforce, and their development directly impacts stability and service quality of the care team (*37*).

A survey on Chinese older adults showed that 86.37% preferred living at home, but their inclination toward institutional care grew with increased disability (*38*). However, institutional care faces structural challenges: while beds rose from 2.345 million in 2008 to 7.271 million in 2018 (from 21.4 to 43.6 beds per 1,000 older adults aged 65 and above), bed vacancy rates remained high (reaching 55.1% in 2014). Shortages of professional nurses and insufficient service standardization further constrained its role in attracting and stabilizing the care workforce (*34*).

3. Contradiction between care needs of older adults and insufficient supply in China

3.1. Current situation of actual care needs of older adults

Older adults in China are characterized by advanced age, chronic diseases, disability, and empty-nest status. Rising disease prevalence has directly driven rapid growth in

demand for older adults care, long-term medical services, and nursing care (*39,40*). Relevant studies indicate that the trend of functional dependence among older adults has hindered health and social care planning and resource allocation; national sampling surveys on persons with disabilities also show an upward trend in disability prevalence among individuals aged 60 to 74 (*41*).

In terms of current health and disability status, the Seventh National Population Census shows that 12.7% of older adults aged 60 and above are in poor health, and 2.3% are unable to manage daily life independently. Those living alone or in older adults care institutions have poorer health than those living with family, which may be related to care dependence caused by poor health (Table 3) (*23*). The Sixth Health Services Survey further notes that 9.3% of the older adult population are fully self-reliant, with proportions of mild, moderate, and severe disability at 3.7%, 1.1%, and 1.8% respectively. The disability rate is higher in rural areas than in urban areas, and among older adults aged 80 and above, the proportions of mild, moderate, and severe disability reach 10.3%, 3.5%, and 6.2% (Figure 3) (*31,42*).

In terms of activities of daily living, the ADL disability rate among older adults aged 60 and above was 7.8% in 2020 (reaching 30.5% among those aged 80 and above), with an IADL impairment rate of 17.8% (21.3% in rural areas, higher than 18.1% in urban areas). Additionally, the prevalence of dementia among older adults aged 65 and above was 5.14%, with higher risks observed in rural populations and illiterate groups (*36*). Currently, 17.8% of older adults require care, and the unmet rate of ADL needs reached 54.3% in 2020 (*43*). The Sixth National Health Services Survey shows that the proportion of older adults needing assistance in six daily activities (including bathing and dressing) ranged from 1.8% to 5.7%. Among those receiving older adults care services, preventive healthcare accounted for the highest proportion (30.4%), while 56.8% received no

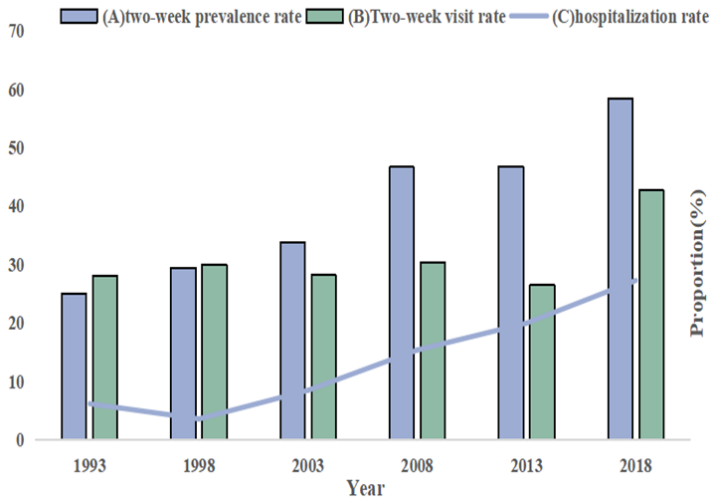

Figure 2. Morbidity and medical treatment among older adults, 1993–2018. In the figure, the three kinds of data represent respectively: (A) two-week prevalence rate; (B) Two-week visit rate; (C) hospitalization rate. The calculation method for the two-week prevalence rate is the number of patients among the older adults population within two weeks divided by the total number of the surveyed older adults population. Two-week visit rate is equal to number of visits by the older adults population within two weeks in the survey/the total number of the older adults population surveyed. Hospitalization rate is equal to the number of hospitalizations of the older adults population within one year in the survey/ the total number of the older adults population surveyed. *Data Source*: The Sixth National Health Service Statistical Survey Report of China (2018) (*https://thinker.cnki.net/bookstore/book/bookdetail?bookcode=9787117312813000&type=book*).

Table 3. Health status of the older adults aged 60 and above (%)

Category	Health	Basically healthy	Unhealthy but able to take care of oneself in daily life	Unhealthy and unable to take care of oneself in daily life
Live with spouse and children	64.3	27.2	6.9	1.6
Live with spouse only	57.6	32.3	8.5	1.6
Live with children only	44.0	36.4	15.1	4.6
Live alone with a nanny	28.8	31.2	18.6	21.4
Live alone without a nanny	43.2	39.2	16.2	1.3
Live in a nursing home	13.0	30.7	29.6	26.7
Others*	53.7	31.8	10.8	3.7
Total	54.6	32.6	10.4	2.3

*Others: Living with relatives / Living in a collective residence/temporary living. Data Source: *Ref*. (*2*).

services. Moreover, the more severe the disability, the higher the proportion of receiving rehabilitation care and daily living assistance (Table 4) (*26*).

In terms of mental health, the decline in physical function can exacerbate psychological burden, and late-life depression can also increase the prevalence of physical illnesses and further reduce quality of life (*44*). Currently, the overall prevalence of depression among older adults is 22.7%, with rural women (47%) having a significantly higher rate than urban men (22%), primarily associated with social isolation (*36*). A survey in Northeast China shows that 81.66% of older adults have needs for psychological support, and the detection rate of depression among empty-nest older adults (34.2%) is significantly higher than that among non-empty-nest older adults (18.5%) (*45*). A multi-center study across 17 provinces indicates that among the primary care needs of older adults, mental health (76%), hospice care (73%), and older adults care environment (71%) rank as the top three (*46*).

Social participation, as a key measure for actively responding to population aging, is crucial for alleviating psychological issues and enhancing quality of life. Studies have confirmed that it can reduce the risk of depression, slow down cognitive decline, and protect the mental health of older adults (*47,48*). However, there are significant disparities in its current status. Among 7,901 respondents, the participation rate in economic activities is the highest (55.14%), while participation rates in socializing (31.97%) and exercising (7.4%) are relatively low, constrained by factors such as environment and physical conditions (*49*). Currently, the demand of older adults for Older Adults care services has shifted from mere material security to equal emphasis on material and spiritual needs, with particular attention to rehabilitation care and cultural and recreational activities. They are in urgent need of reliable care, emotional comfort, and diversified leisure activities (*50*).

3.2. Impact of changes in family structure on caregiving functions

Currently, home-based care for older adults remains the primary form of older adults care in China (*51*). With the decline in family size and increased life expectancy, the likelihood of both children and parents entering older age

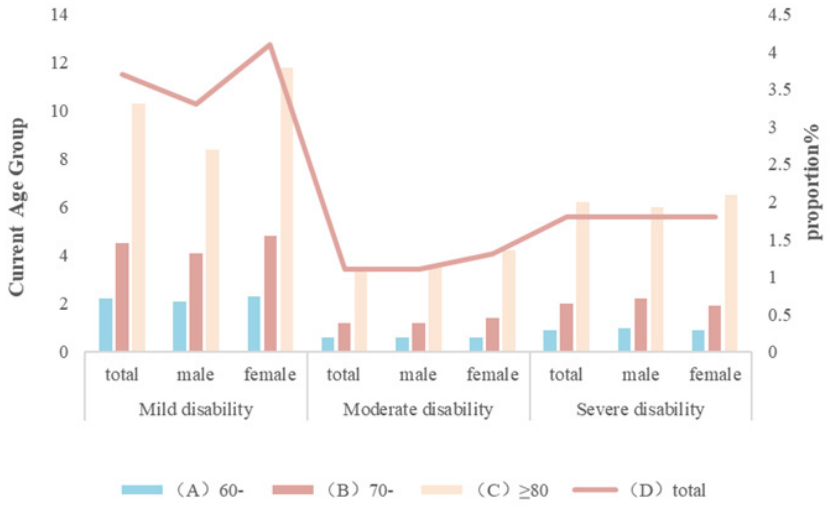

Figure 3. Health Status of older adults at Different Ages (%). In the figure, the three kinds of data represent respectively: (A) The varying degrees of disability among people of different genders aged 60 and above; (B)The varying degrees of disability among people of different genders aged 70 and above; (C) The varying degrees of disability among people of different genders aged 80 and above. We calculated the number of older adults aged 60 and above, 70 and above, and 80 and above respectively, and then calculated the disabled older adults of different grades among men and women respectively corresponding to the population numbers of different grades. *Data Source*: The Sixth National Health Service Statistical Survey Report of China (2018) (*https://thinker.cnki.net/bookstore/book/bookdetail?bookcode=9787117312813000&type=book*).

Table 4. Current situation of care services for older adults with different levels of disability (%)

Degree of disability	Preventive health care	Medical assistance	Rehabilitation nursing	Spiritual solace	Daily living care	Cultural and sports activities	Education for older adults	None
Fully self-care	36.8	16.9	2.2	2.2	2.8	5.8	10.5	67.9
Mild disability	32.9	16.7	3.0	2.4	5.3	2.4	7.8	69.9
Moderate disability	28.3	17.4	4.9	3.0	5.2	0.8	7.8	75.6
Severe disability	30.1	16.5	6.4	2.4	7.2	0.5	6.5	74.8
Total	30.4	14.1	1.9	1.8	2.5	4.6	8.6	56.8

Data Source: *Ref*. (*26*).

simultaneously has risen. The main family caregivers are shifting from young and middle-aged adults to middle-aged and older individuals (*52*), with scenarios such as younger older adults caring for older adults and middle-aged people providing care for multiple older adults becoming prevalent realities and dilemmas (*53*,*54*).

China's home-based care model for older adults faces structural difficulties. Amid shrinking families and longer life expectancy (*55*), "younger older adults caring for older adults" and "middle-aged people caring for multiple older adults" are common, with main family caregivers shifting from young adults to middle-aged and older individuals. Among mildly disabled older adults, 75.26% and moderately disabled ones 66.42% choose home/community care; rural disabled older adults rely on family care (92.7%) over institutions (1.4%) (*56,57*). For disabled older adults aged 80 and above, 45.3% receive spousal care, while adult child caregivers (average 52.7) face heavy physical and mental stress (*58,59*). Under "4-2-1" family structures, middle-aged people bear dual responsibilities of supporting 2–3 older adults and raising children, reducing care quality and increasing adult children's economic burdens (*60,61*). Only 32% of 1.27 million care workers are certified, with a 38% gap in long-term care demand for disabled older adults; while insufficient care supply and talent shortages restrict institutional care (*62*). Additionally, rural adult children's migration has significantly reduced rural family care availability (*45*).

In addition, according to the Report on Research of Urban Home-based Care Services for Older Adults released by the National Committee on Aging, the proportion of empty-nest families (including older adults living alone) among the urban older adult population has reached 49.7%, and 56.1% in large and medium-sized cities, with older adults living alone accounting for 12.1% (*63*). Most of these older adults are unable to manage daily life independently and require substantial care, attention, and medical resources (*64*).

The growing number of older adults who are advanced in age, disabled, or living in empty-nest situations has placed significant pressure on China's social care service system for older adults, coupled with a severe shortage of care workers for older adults. Therefore, there is an urgent need for professional care teams and socialized care services to address these issues.

3.3. High costs and access barriers in long-term care

China's National Assessment Report on Aging and Health Status notes that approximately 33% of the country's disease burden stems from older adults' health issues (*65*). With rising per capita burden of chronic diseases, older adults in China face higher disease burdens than those in other low-income countries. The number of semi-disabled older adults is over twice that of disabled ones. Projections suggest that by 2050, semi-disabled older adults aged 80 and above will reach around 100 million (annual growth ~3%), and disabled ones 20.72 million (annual growth 3.7%). These groups require more long-term care than ordinary older adults, imposing heavier disease and care burdens (*36,66*).

High and persistent long-term care costs for disabled older adults are a key barrier to adequate care. Scholars studying direct long-term care costs note that nursing costs for disabled older adults are over twice those of age-matched fully functional peers. Semi-institutional care (2.65227 trillion Chinese yuan) costs over twice home care (1.23494 trillion Chinese yuan), and full institutional care (3.99877 trillion Chinese yuan) over three times (*67*). A study on such costs found home care for disabled older adults accounts for 19.4% of household weekly income, rising to 90.1% for community-institutional care and 134.4% for institutional care — costs often unaffordable for families (*57*). China's urban and rural resident medical insurance covers only hospitalization and special nursing expenses, excluding long-term care costs, exacerbating hardships for disabled older adults. Additionally, home care limitations (inability to perform certain procedures) force repeated hospitalizations, causing admission difficulties and higher medical costs.

Per capita medical expenses for those aged 65 and above are 2–8 times higher than for people under 65, with over 80% of lifetime medical costs incurred by individuals aged 60 and above (*68*). As the number of disabled older adults rises, nursing, support, and medical costs will increase, imposing heavy burdens on families and society. A *Lancet* report notes that by 2030, 14.02 million older adults in China will need long-term care, creating a substantial funding gap (*45*). Seventh National Population Census data show older adults relying on labor income or pensions have better health than those dependent on unemployment insurance, family support, or minimum living allowances — particularly in rural areas. This highlights the need to strengthen safeguards for older adults with unstable livelihoods and low living standards.

3.4. Development of care institutions for older adults and gaps in service supply

As the number of disabled older adults in China grows, families and society face greater long-term care responsibilities, with disabled older adults showing growing willingness to reside in care institutions long-term. Data shows that by late 2020, there were 5,857 fully licensed medical-nursing integrated institutions, up 59.4% from late 2017. Additionally, 72,000 contracted partnerships existed between medical institutions and older adults care services — 6.1 times the number in late 2017.

However, despite the growing number of medical-nursing integrated institutions, care institutions for older adults still have persistent deficiencies in medical service

capabilities (*69*). Most lack adequate public activity facilities, particularly medical service facilities — nearly 50% of Xi'an's care institutions for older adults lack such medical facilities (*70,71*). Basic configuration of basic medical facilities, fundamental to providing medical and nursing services, directly affects these institutions' service supply and functional performance. Care institutions for older adults face issues including low occupancy rates, heavy government dependence, and weak internal motivation. Additionally, public institutions receive greater policy and financial support, while private ones suffer from caregiver shortages and low caregiver quality (*72*). Studies show nursing bed occupancy dropped significantly from ~80% in 2008 to ~55% in 2014. For private institutions, low occupancy stems from high costs, lack of insurance coverage, inadequate services/facilities, poor care quality, and inconvenient locations (*73*).

China's long-term care for older adults has long seen a severe supply-demand imbalance, worsened by shifting family structures. With mounting challenges, traditional home-based care has weakened amid caregiver aging and scattered care resources. In this context, institutional care — with its professional service advantages — is shifting from a supplement to a key pillar of the older adults care system (*46*). Future demand for long-term care will grow, with rising shares of disabled, advanced-age, and empty-nest older adults. However, institutional care development is constrained by shortages of professional nursing talent. This requires expanding institutional care supply, improving staff professionalism, and refining talent cultivation mechanisms to meet older adults' diverse needs for quality medical and health services (*50*). Shifting from family dependence to socialized, professional services is not only inevitable for addressing aging but also critical for sustainable development of the older adults care system.

4. Current situation of older adults caregivers in China

In 2019, the national Notice on Strengthening Geriatric Nursing Services proposed the need to comprehensively integrate geriatric nursing resources, increase the number of medical institutions providing geriatric nursing services, and encourage grassroots medical and health institutions with the necessary conditions to set up and add beds for geriatric nursing services as required. Tertiary hospitals are encouraged to mainly provide specialized nursing services for older adults patients and undertake tasks such as technical support for geriatric nursing and talent training (*74*). Against the backdrop of the global trend of population aging, the aging process in China is accelerating continuously, and the scale of the older adults population who are disabled or living alone is growing increasingly large. This profound change in the population structure has made the older adults care model that deeply integrates medical care and nursing a key measure to cope with an aging society, and it has also put forward higher requirements for the professionalization level of geriatric nursing (*75,76*). High-quality geriatric nursing services cannot be achieved without support of a professional team. However, currently, there are obvious shortcomings in construction of China's geriatric nursing team. Especially, the group of nursing assistants is characterized by a low level of education and a lack of professional knowledge, which clearly fails to meet the needs of China's aging society (*75,77*). Some studies have pointed out that in 2015, there were 2.147 million service recipients in older adults care service institutions nationwide. According to the staffing standards of 3:1 for disabled older adults people and professional nursing staff and 10:1 for self-care older adults people and professional nursing staff, the number of required service personnel was approximately 350,000, but the actual number of service personnel was only 195,600 (*78*).

From this, it can be seen that the shortage of geriatric nursing talents in China has become the core bottleneck restricting construction of the older adults care service system. If the bottleneck in talent cultivation and reserve cannot be broken through as soon as possible, the older adults care model that deeply integrates medical care and nursing will be difficult to promote due to the weakness of professional strength. Care needs of the large number of disabled and older adults people living alone will also face a more severe supply gap, posing a significant challenge to the sustainable development of an aging society (*34*). The diversified needs of the older adults put forward higher requirements for cultural knowledge, and demand higher professional skills, service levels, qualifications, and professional qualities of medical staff. Therefore, it is necessary to encourage cooperation with institutions of higher learning, strengthen talent reserve, and cultivate professional qualities of geriatric care personnel (*79*).

4.1. Structure and distribution of geriatric departments

The data on the settings of geriatric-related departments were analyzed through the "Electronic Registration Information System for Medical Institutions" (*80*). A total of 444,000 various departments were set up in public hospitals in 31 provinces (autonomous regions and municipalities directly under the Central Government) across the country, among which 3,394 were geriatric-related departments, accounting for 0.76% of the total number of departments established in the 31 provinces (autonomous regions and municipalities directly under the Central Government). Proportions of geriatric-related departments in general hospitals, traditional Chinese medicine hospitals, specialized hospitals, sanatoriums and nursing homes were 0.59%, 0.92%, 1.50%, 1.12% and 8.78% respectively. Overall, specialized hospitals, sanatoriums and nursing homes had relatively

high proportions of geriatric departments. In terms of provinces, Qinghai Province, Shanghai City and Chongqing City had proportions of geriatric departments reaching 2.01%, 1.94% and 1.31% of the total number of departments respectively. In these three provinces, the proportion of people aged 60 and above in Shanghai City and Chongqing City exceeded 20% (Table 5).

4.2. Current situation of caregivers in older adults institutions

As the core force of professional care, nursing staff in nursing institutions for older adults directly affect the service quality of institutions and play an important role in China's older adults care system. This profession is jointly approved and established by the Ministry of Human Resources and Social Security and Ministry of Civil Affairs, with a very low entry threshold. They mainly engage in daily living care for older adults, but currently face multiple issues such as low job satisfaction, high turnover rate, low social recognition, and mental health problems (*81,82*).

Studies have found that the quality of care for older adults is closely linked to nursing staff's job satisfaction (*83*). Nursing staff with higher job satisfaction tend to demonstrate better work performance, which positively influences their work commitment and intent to remain in the profession (*84*). However, job satisfaction among nursing staff caring for older adults in China is generally low, with key contributing factors including: emotional exhaustion, lack of personal accomplishment, and inadequate social security (*e.g.*, only 12% participate in "three social insurances" or "five social insurances", with insufficient coverage for unemployment and work-related injuries) (*85*); and insufficient protection of labor rights – a large-scale random sampling in Beijing in 2019 revealed that only 1.6% of nursing staff had signed labor contracts (*86*); and a severe imbalance between remuneration and work intensity — a survey in Zhejiang Province showed that 76.8% of nursing staff earned less than 2,500 Chinese yuan per month and worked over 10 hours daily (*87,88*).

This low satisfaction directly leads to a surge in staff turnover. Prolonged working hours, low salaries, heavy workloads, and emotional burdens contribute to high turnover rates among employees (*89*). Surveys show that nursing staff in older adults care institutions generally feel dissatisfied due to low pay — 96.26% earn 1,000–3,000 Chinese yuan per month — and a mismatch between salary and work intensity (*90*). Additionally, some institutions report an average turnover rate exceeding 30%, with the highest reaching 35.71% (*91*). Nursing staff in Chengdu scored (72.44 ± 18.22) on job burnout and (14.87 ± 3.77) on turnover intention (*92*), indicating significant overall turnover propensity and burnout, which further exacerbates labor shortages.

Prolonged high pressure also severely impairs the mental health of nursing staff. Issues such as heavy workloads, low social status, and weak family support lead to the accumulation of significant negative emotions (*93*). Scholars have found that 48.9% of nursing staff in older adults care institutions report having experienced discrimination; such subjective biases exacerbate emotional burdens and damage self-confidence and self-esteem (*94*). Additionally, studies indicate that the detection rate of job burnout among nursing staff reaches 51.43% (*93*), with 68% experiencing moderate to high emotional exhaustion, accompanied by depressive tendencies. This not only reduces work enthusiasm and personal accomplishment but also significantly increases psychological burden (*95*). In summary, the interlinked issues faced by nursing staff highlight the inadequacy of support for service providers in the current older adults care system. Urgent measures to safeguard their rights and interests are needed to promote the sustainable development of the older adults care workforce.

4.3. Main problems existing in the older adults care team from the perspective of policies and systems

Statistical standards and scope remain unclear. In the current system for care professionals for older adults, at the institutional statistical level, specialized hospitals for geriatric medicine are ambiguously categorized with other specialized hospitals; though general hospitals at or above Level 2 are required to establish geriatric medicine departments, these are not separately classified in statistics, resulting in unclear baseline figures for nursing personnel at the institutional level. At the personnel statistical level, only classification standards for registered geriatric medicine registered doctors are defined, while care staff in older adults care institutions, hospital-based older adults care workers, and primary care workers are not included in statistics. This directly leads to a lack of accurate data support for "the gap between the number of professionals and actual demand", increasing the difficulty of judging supply-demand imbalance (*63*).

In terms of career development, policy support for nursing staff is inadequate. China's 2002 National Occupational Standards for Older Adults Care Workers mandates middle school education and 180 hours of training for such workers, yet actual compliance rates are extremely low (optimistically estimated at less than 1/3) (*96*). Currently, there are no unified professional grading standards or promotion pathways for Older Adults care workers, with most reporting unclear career advancement directions. Studies show only 53.55% of nursing staff hold professional qualifications; among the 83.6% who have received training, merely 38.9% are satisfied with its quality. Additionally, professional training policies are fragmented, suffering from "three deficits": lack of opportunities (40.8%), poor suitability (35.7% cite unreasonable training timing/locations), and insufficient

Table 5. The setup situation of older adults-related departments in different hospitals of different provinces*

Province	General Hospital	TCM Hospital	Specialized Hospital	Ethnic Medicine Hospital	TCM-WM Hospital	Sanatorium/Nursing Home Station	Total of Geriatrics Departments	Total of Established Departments	Proportion of Older Adults-related Departments	Population Aged 60 and Above
Anhui	72	24	13			10	119	12,872	0.92	18.8
Beijing	36	7	16	1	6		66	9,315	0.71	19.6
Fujian	27	15	6				48	8,800	0.55	16.0
Gansu	41	36	12		1		90	9,534	0.94	17.0
Guangdong	108	35	50		9		202	30,296	0.67	12.4
Guangxi	37	13	24	1	8	6	89	17,215	0.52	16.7
Guizhou	19	15	3				37	9,433	0.39	15.4
Hainan	13	9				1	23	2,704	0.85	14.6
Hebei	148	58	29		4	4	243	31,078	0.78	19.9
Henan	103	78	21		1		203	30,191	0.67	18.1
Heilongjiang	66	17	1		6		90	15,100	0.60	23.2
Hubei	62	27	7		2	1	99	15,896	0.62	20.4
Hunan	66	53	83				202	22,860	0.88	19.9
Jilin	50	22	12		1		85	11,015	0.77	23.1
Jiangsu	60	33	36		5	9	143	15,673	0.91	21.8
Jiangxi	51	17	17			14	99	12,163	0.81	16.9
Liaoning	44	8	4	2			58	17,412	0.33	25.7
Inner Mongolia	36	11	7	10	7		71	10,324	0.69	19.8
Ningxia	9	1	1	1			12	2,799	0.43	13.5
Qinghai	8	59	2				69	3,435	2.01	12.1
Shandong	126	74	42		6	12	260	31,168	0.83	20.9
Shanxi	74	33	25		5	1	138	16,846	0.82	18.9
Shaanxi	60	22	12				94	14,669	0.64	19.2
Shanghai	69	14	59		3	8	153	7889	1.94	23.4
Sichuan	102	75	74	2	3		256	28,163	0.91	21.7
Tianjin	10	2	1		1		14	3,606	0.39	21.7
Tibet							0	1,571	0.00	8.5
Xinjiang	66	8	11	1	1		87	11,560	0.75	11.3
Yunnan	28	70	22				120	13,057	0.92	14.9
Zhejiang	63	18	40		11		132	20,751	0.64	18.7
Chongqing	49	26	16		1		92	7,037	1.31	21.9
Total	1,703	880	646	18	81	66	3,394	444,432	0.76	18.7

*Data on the department setup of public hospitals in the Electronic Registration Information System for Medical Institutions. Data Source: *Ref.* (*56*).

practicality (only 53.4% find content helpful for work). This hinders skill improvement, exacerbating issues of inadequate expertise and low professional value (*77*).

In terms of social status, there is a lack of institutional recognition and inadequate protection for nursing staff's social status. Professional positioning is ambiguous: policies do not classify "older adults care workers" as "professional and technical personnel" but rather as "social service personnel", creating an institutional gap in professional identity compared to medical staff. Additionally, care workers face "social stigmatization". Despite policy advocacy to elevate status of older adults care practitioners, the absence of supporting professional honor systems and public awareness mechanisms fails to effectively alter social prejudices, directly impacting social recognition (*97*). Policies are insufficient in enhancing care workers' social status, lacking unified career promotion systems and guidance for social recognition.

Outdated management and collaboration mechanisms hinder workforce effectiveness. Medical institutions, older adults care facilities, and family caregivers lack regular communication, impeding the circulation of professional knowledge. Personnel management has flaws: no unified national entry thresholds, fragmented training systems (only 58% of institutions offer systematic pre-service training), and outdated training content, and misaligning caregivers' skills with needs. For instance, merely 12% of training covers chronic disease management and 5% includes smart care equipment operation (*97,98*); and training suffers from insufficient opportunities (40.8%) and poor suitability (35.7%) (*99*). The absence of incentive mechanisms (70% of institutions not implementing "skill-based graded compensation") leads to a workforce plagued by "difficulties in recruitment, retention, and skill improvement", becoming an institutional barrier to better service quality (*100*).

5. Conclusion

With the intensification of population aging and changes in family structures, demand for Older Adults care services continues to evolve, making strengthening the older adults care workforce an urgent priority. To address issues and challenges in training older adults care workers, practical recommendations are proposed to optimize the care workforce system and improve service quality, including:

i) Enhancing top-level design. Develop a unified national plan based on national conditions, the demographic structure of older adults, and social needs; improve financial input mechanisms and incorporate them into local assessments. Unify professional standards for occupations such as care workers and rehabilitation therapists, and standardize qualification certification. Eliminate occupational prejudices through media publicity, include outstanding practitioners in national honor selections, clarify norms for the entire process of employment and promotion, and smooth career development pathways.

ii) Optimizing incentive mechanisms. Establish a unified national qualification certification system with "certification-based employment", linking assessments to salaries and promotions. Build a salary system matching labor input (senior care workers' pay not lower than 1.2 times the local average social wage), improve social security and allowances, and offer housing and children's school enrollment benefits to long-term practitioners. Set up special funds to recognize outstanding staff, with their families enjoying fee discounts for institutional care, addressing issues of "difficult recruitment and retention".

iii) Upgrading the training system. The Ministry of Human Resources and Social Security and the National Health Commission should jointly formulate training syllabuses, mandating coverage of comprehensive skills such as chronic disease management and smart device operation. Promote the "theory + practical training + rotation" model, set up training bases in communities, and require care workers to participate in at least 80 hours of continuing education every two years, with delayed promotion for those failing to meet standards.

iv) Expanding training channels. Expand the workforce through "academic qualifications + training + social recruitment": encourage colleges and vocational schools to offer majors related to older adults services, forming a hierarchically connected system; and provide targeted training for rural laborers and guide them into the profession *via* subsidies; conduct standardized service training for institutional staff through "online + offline" models.

Additionally, attention to care workers' physical and mental health is needed to improve job satisfaction: establish regular counseling mechanisms such as quarterly group psychological counseling, and implement flexible work systems to relieve pressure. Incorporate mental health into assessments, improve occupational health safeguards including protective equipment and regular physical examinations, to prevent job burnout and talent loss.

In conclusion, systematically improving the development of the older adults care workforce through enhancing top-level design, optimizing incentives, upgrading training systems, expanding training channels, and focusing on care workers' well-being can adapt to the demand for older adults care services amid population aging.

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**Address correspondence to:*
Yu Sun, Institute of Otorhinolaryngology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, No. 1277, Jiefang Avenue, Jianghan District, Wuhan City, Hubei 430022, China.
E-mail: sunyu@hust.edu.cn

Mengxi Jiang, China National Health Development Research Center, No. 38 Xueyuan Road, Haidian District, Beijing 100191, China.
E-mail: 13240828666@163.com

Jiangtao Zhang, Xinjiang International Medical Center, No. 999 Shangde North Road, Shuimogou District, Urumqi, Xinjiang 830000, China.
E-mail: sjsdyp@xjmu.edu.cn

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