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Original Paper

Construction of Evaluation Indicator System for Rural Elderly Facilities Configuration in Datong City

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Abstract

China has entered a deeply aging society, and the aging problem in rural areas is particularly serious compared with that in cities and towns. In order to actively respond to the challenges of aging in rural areas, the Rural Revitalization Bureau of Datong City has issued the "Rural Nursing Care Project" Implementation Plan, exploring the establishment of a well-functioning, moderately scaled, and orderly functioning rural pension model. In this paper, through the field research of rural pension facilities and questionnaire interviews with the elderly, and using the SPSS factor analysis method for data statistics and analysis, we finally constructed the evaluation index system of rural pension facilities configuration in Datong City, and established the index basis for the construction of the evaluation system of rural pension facilities configuration, so as to make the sense of acquisition of the elderly in the countryside more adequate, the sense of well-being more sustainable, and the sense of security more secure, which is the most important task for the construction and improvement of the rural pension service system at the moment. It is an urgent task to improve the construction of rural pension service system.

Keywords

rural elderly care, elderly care facility allocation, factor analysis method, evaluation indicators

1. Introduction

According to the Seventh National Population Census Main Data Situation released by the National Bureau of Statistics 2021, the total population of North China is about 169.33 million, with an urbanization rate of 67.20%. In Shanxi Province, for example, the total population so far in 2016 is 34,915,600, with a rural population of 13,084,122; among them, the rural population aged 60 and above (including 60 years old) is about 3,375,800, accounting for 25.80% of the total rural population, and; the population aged 65 and above (including 65 years old) is 2,351,600, accounting for 17.97% of the total

rural population. The population aged 60 and above in Datong City is about 640,000, accounting for 20.64%, and the population aged 65 and above is about 43.7, accounting for 14.07%, which has entered into a moderately aging society, and actively coping with the aging of the population has become a key factor in enhancing the level of development of Datong City, as well as a new challenge for the old-age care work to promote high-quality development in all aspects. In 2021, the Rural Care Project, which is issued by the Bureau of Rural Revitalization of Datong City, was launched by the Bureau of Rural Revitalization of Datong City. In 2021, the Bureau of Rural Revitalization of Datong City issued the "Rural Nursing Care Project" Implementation Program, which gradually explored the establishment of the "urban old-age assistance and rural nursing care" in terms of financing methods, service modes, and "six-assisted" services, etc. The four levels of old-age security in cities, counties, and villages (communities) are also being explored, Village (community) four-level old-age protection system, to establish a well-functioning, moderately sized and orderly rural old-age care model, and to realize "old age care" for the elderly in difficulty in rural areas.

Therefore, in rural areas, whether it is the spatial configuration level of the elderly institutions, or the soft environment construction of the elderly culture created by all aspects of the community, is a measure of the effective supply of elderly services and access to the value of an elderly facility standard, an elderly facility to realize the service range of all the old people without discrimination for the elderly services and enjoy the rights and interests of the basic public services as the value orientation and development goals.

2. Principles and Bases for Screening Evaluation Indexes of Rural Aged-care Facilities

2.1 Principles for the Selection of Evaluation Indicators

2.1.1 The Principle of Comprehensiveness

The operation of the evaluation system for the configuration of rural elderly facilities should be assessed from a number of aspects, such as the supply service capacity of the facilities, the elderly needs of the rural elderly, and the configuration of the surrounding facilities, based on which it is decomposed into a number of evaluation factors and follows the principle of comprehensiveness to screen the evaluation indexes, and the hierarchy of the system from the target level to the construction of the index level is a holistic system, and the screening of the factors at each level has to be taken into consideration The overall system framework and the relationship between the factors.

2.1.2 Principle of Relevance

The selection of evaluation indexes for the configuration of rural aged-care facilities should be carried out under real-time scientific policy orientation, theoretical guidance and field visits to make targeted choices, focusing on rural aged-care policies, scholars' research focuses, the actual needs of the rural elderly and other points of concern, combining with the level of economic development of the rural areas, the local customs and habits, and the current situation of the configuration of the facilities, in order to

summarize the evaluation factors of the levels, and to ensure that each evaluation index can be accurately described, characterize the content of the evaluation, and avoid redundancy and confusion.

2.1.3 Principle of Adaptability

As the government and domestic scholars pay more attention to rural old-age care, the rural old-age care cause has been in a forward state, therefore, when establishing the evaluation indicators, it is necessary to make sure that they are adapted and effective, and can be adjusted in a timely and flexible manner in accordance with the constant changes in the rural old-age care state, so as to achieve the dynamic adaptability of the indicators to rural old-age care problems.

2.1.4 Principle of Feasibility

The construction of the evaluation system should take into account the convergence of information from multiple sources such as policy, literature collection, field research and case analysis, and the effectiveness of data collection in all aspects should be integrated; at the same time, it is necessary to try to ensure the convenience and feasibility of the means and methods of access, and to avoid non-essential and unreasonable repetitive and erroneous work.

2.2 Basis for Screening Indicators for Evaluating Rural Aged-care Facilities

This study mainly takes the four directions of case analysis of elderly facilities, policy orientation of government agencies, focus of domestic scholars' views, and questionnaire interviews of rural elderly as the source of information for the selection of evaluation indexes of rural elderly facilities allocation. First, the excellent cases are analyzed to evaluate a sentence of the foundational framework of the indicators. Secondly, the literature in the related fields of rural elderly care and evaluation system is retrieved through the two directions of policy orientation of government agencies and focus of domestic scholars' viewpoints. Finally, the questionnaire interviews with the rural elderly are used as the basis for determining the importance of the evaluation indicators.

2.3 Ideas for Screening Indicators for Evaluating the Configuration of Rural Aged-care Facilities

This thesis establishes evaluation indicators for rural elderly facilities allocation according to a three-step strategy, which is, in turn, the construction of the basic framework of evaluation indicators, the preliminary screening of evaluation indicators, and the final selection of evaluation indicators.

2.3.1 Construction of the Basic Framework of Evaluation Indicators

The excellent demonstrations of rural "nursing homes" and "care service centers" in Datong City, which are promoted on various platforms on the Internet, are selected for field research to summarize the operational status of the nursing facilities, location conditions, current status of the institutions, the surrounding environment and other elements, and to construct a basic framework for evaluating the configuration of rural nursing facilities based on case analysis. Based on the case study, a basic framework of evaluation indicators for rural elderly care facilities is constructed.

2.3.2 Preliminary Screening of Evaluation Indicators

On the basis of the establishment of the basic framework, the literature in the related fields of rural pension and evaluation system is searched through the two directions of the policy orientation of government agencies and the focus of domestic scholars' viewpoints, and the evaluation content influencing factors are summarized to realize the preliminary screening of evaluation indexes.

2.3.3 Final Selection of Evaluation Indicators

Through questionnaire interviews with rural elderly people, the survey data on the importance of the elderly to the evaluation factors identified above were counted, and the research data were analyzed using the spss factor analysis method to sort out the correlation and association between the evaluation factors, and the evaluation indexes were finally determined based on the needs of the elderly.

3. Evaluation Indicator Base Framework Construction

3.1 Summarize the Constituent Elements

So far, the development of rural mutual-aid nursing homes in China has evolved from the initial exploration of rural nursing in the Feixiang model to the construction of a rural mutual-aid nursing service network based on village-level mutual-aid points and rural welfare homes, gradually forming a model of nursing that is adapted to China's vast rural areas. Datong City, with the goal of "nursing home", is actively exploring the implementation of a rural "nursing project" to provide a wide variety of services for the "two noes" in rural areas who are incapable of taking care of themselves and have no one to take care of them. This article is based on the field research of Xindong Village, which is the largest rural village in China. In this paper, we conducted field research on the "Care and Nurturing Home" in Xindong Village, the "Care and Nurturing Service Center" in Guayuan New Village, the "Care and Nurturing Service Center" in Fangcheng New Village, and the "Care and Nurturing Home" in Dongmaimao Village. This will provide data support for the construction of the basic framework of evaluation indexes below.

3.2 Constructing the Underlying Framework

In the end, through the field research and visits to the above five pilot units of the care and attention project in Datong City, we sorted out the aging-adapted components of the rural homes and classified the aging-adapted components of the rural homes according to their operational nature, which can be categorized according to the three levels of spatial planning, infrastructure construction, and social support: the spatial planning includes the district transportation and the distribution of the facilities in the vicinity; the infrastructure construction includes the facilities' functional configuration, barrier-free design, physical environment design, and staffing; and the social support includes the soft environment construction of the facilities. Infrastructure construction includes the functional configuration of facilities, barrier-free design, physical environment design, and staffing; social support includes the soft

environment construction of facilities. These seven categories of ageing-appropriate components of welfare homes together form the basic framework for the evaluation indicators of rural elderly facilities.

4. Preliminary Selection of Evaluation Indicators

4.1 Generalization of Evaluation Factors

After constructing a basic framework of evaluation indexes based on the above seven types of aging-appropriate components of rural homes, following the principles of comprehensiveness, relevance, adaptability and feasibility, the aging-appropriate evaluation factors covered under these seven types are summarized by combing and summarizing the literature in related fields retrieved from the policy orientation of the governmental agencies and the focus of the views of the scholars in China.

Table 1. Summary of Evaluation Factors in Both Directions

Basic framework	Summarization of factors for evaluating the policy orientation of government agencies	Domestic scholars' viewpoints focus on the evaluation factor summarization
Traffic location	Facility location,naturalenvironment,and surrounding transportation environment	The location of the facility is very much based on the frequency of use by the elderly, the surrounding environment, and the convenience of transportation (accessibility).
Neighborhood Facilities	Health service station, village activity square	Health service station, public toilet, villagers' activity square, village committee
Function Configuration	Elderly living room, indoor public space, outdoor public space, public bath, public kitchen, medical office, courtyard landscape design	Architectural layout, convenience of indoor space flow, leisure design of outdoor activity areas, sun and rain protection of outdoor activity areas, arrangement of public toilets in outdoor activity areas, diversity of floor tiles, elderly education and training rooms
Barrier-free design	Emergency call system installation, signage, directional signage installation, handrail installation	Height difference treatment, non-slip flooring
Physical environment design	Lighting and ventilation, noise protection, heat preservation and insulation	Lighting system design

Staffing	Professional Providers, Physicians on Assignment, Management Supervisors	Professional services staff, physicians on assignment, management and supervisory staff
Soft environment	Regular medical visits, volunteer visits	Provision of cultural, sports, recreational and practical activities, meal delivery and bathing services

4.2 Preliminary Selection of Evaluation Indicators

After comparing and merging the evaluation factors of rural elderly facilities allocation summarized in the two directions, 30 evaluation indicators were finally preliminarily screened at the level of seven influencing elements under the basic framework, and relevant definitions were made for the evaluation indicators, as shown in the table below:

Table 2. Summary of Evaluation Factors for the Initial Screening

Influencing factors	Initial selection of evaluation indicators	Evaluation content
Location and Transportation	Facility siting	In the case of non-resident elderly space scale coverage
	Surroundings	Noise, pollution sources, lighting and ventilation conditions
	Transportation conditions (liveability)	Accessibility and distance from busy intersections
	Ease of transportation (accessibility)	Accessibility of emergency relief services
Neighborhood Facilities	Health service stations	Whether it facilitates the elderly to seek timely medical treatment
	village activity center	Whether it facilitates the elderly to interact with villagers in a mutually supportive manner
	building layout	Whether the layout is in a form that facilitates the elderly's interaction with the outside world
Function Configuration	Elderly people's living room	Whether the living room is well-equipped
	Interior public space configuration	Diversity of interior public space configurations
	Public Bathroom Configuration	Whether to allocate public toilets and bathrooms
	Public Kitchen Configuration	Whether or not public sanitary kitchens and

		dining rooms are equipped
	Infirmary configuration	Availability of infirmary for initial treatment of elderly people's condition
	Convenient flow of interior space	Whether the interior space configuration is reasonable
	Diversified design of outdoor activity areas	Is the design of outdoor recreational space rich and varied
	Installation of public toilets in outdoor activity areas	Whether public toilets are located close to outdoor activity areas
	Diversity of floor coverings to	Variety of floor coverings and guidance functions
	elevation process	Whether or not the interior and exterior are stocked with ramp treatment for steps
	Anti-slip floor treatment	Whether the floor covering has anti-slip function
Barrier-free design	Handrail Installation	Whether handrails are installed on stairs, bathrooms, toilets and corridors
	Emergency call system installation	Whether emergency call systems are installed in living rooms and bathroom spaces
	Signs, signage installation	Whether signs and directional signs are installed to guide the elderly
	day lighting and ventilation	Interior space lighting and ventilation
	Thermal insulation	Thermal insulation condition of indoor space in different seasons
Physical environment design	noise protection	Noise isolation in quiet areas of living rooms and public spaces
	Lighting system design	Whether the lighting design is reasonable, avoid glare
	Professional services staff	Availability of staff for specialized services
Staffing	Management Supervisors	Whether the facility management is in good operating condition
	Regular medical visits	Whether the township and district health care organizations have periodic medical rounds
soft environment (e.g. infrastructure)	Volunteer Visitation	Whether volunteers are organized to provide haircutting, meal and bathing services on a periodic basis
	Conducting cultural, sports and recreational practical activities	Whether or not to carry out cultural, sports and recreational practices on a cyclical basis

5. Final Selection of Evaluation Indicators

5.1 Statistics and Analysis of Indicators

The 144 questionnaire data of "Survey on the Importance of Evaluation Indicators of Rural Elderly Facilities Configuration for Aging" are organized and summarized, and inputted into Excel table for 5-point quantitative processing, so as to get the raw matrix of 30 preliminarily screened indicators of evaluation indicators of rural elderly facilities configuration for aging, as the raw data for the next step of factor analysis. Then, the original matrix was entered into the software SPSS26 to prepare for the following step-by-step analysis of the index data such as reliability test, validity test, principal component extraction and index categorization analysis.

5.1.1 Reliability Test of the Questionnaire

Reliability test refers to the consistency of the internal structure of the scale data and the reliability test of the questionnaire. In this paper, the author used Cronbach α Reliability coefficient method to test the sample data of the questionnaire, according to the theoretical basis, when the α reliability coefficient is greater than 0.8, it means that the internal consistency between the items of the scale is very high, and the reliability of the scale is very high; when the α reliability coefficient is between 0.7 and 0.8, it means that the internal consistency between the items of the scale is relatively high and the reliability of the scale is good; when the α reliability coefficient is between 0.6 and 0.7, it means that there is a certain degree of consistency between the items of the scale, and the reliability of the scale still has some reference value; when the α reliability coefficient is less than 0.6, it indicates that the internal consistency between the items of the scale is relatively low, and then the questionnaire needs to be revised.

Based on the above theoretical explanations, reliability scales were simulated for all variables, as shown in Table 3, and according to the summary of the case processing, the validity of the 144 scales containing 30 question items reached 100%, and the Cronbach α reliability coefficient is 0.887, which indicates that the internal consistency of the scale is very high, and the internal correlation of the variables in the research questionnaire meets the requirements of this dissertation research, and the validity can be verified on this basis.

Table 3. Results of Reliability Tests for the Questionnaire Summary Scale

Summary of case processing			
		Number of cases	%
	validity	144	100.0
case-by-case	rule outa	0	.0
	(grand) total	144	100.0
Note: α is based on the column-wise deletion of all variables in the process.			
Reliability statistics			
Cronbach Alpha		item count (of a consignment etc)	
0.887		30	

5.1.2 Validity Test of the Questionnaire

After the reliability test of the questionnaire data above, it is necessary to verify whether the research data of the title of this paper is suitable for factor analysis, according to the theoretical principles of factor analysis, KMO and Bartlett Bartlett Sphericity test, when the KMO value is greater than 0.6 and the Bartlett significance level is less than 0.05, it means that the data of the original questionnaire is suitable for factor analysis.

In this paper, the KMO and Bartlett Bartlett sphericity test are conducted for the questionnaire data of "Survey on the Importance of Evaluation Indicators of Aging Adaptation of Rural Elderly Facility Configurations", which results in a KMO value of 0.832, indicating that the degree of overlap between the variables is very high; the Bartlett Bartlett sphericity test is significant at 0.000, which indicates that there is a very strong correlation between the variables value of 0.000, the sample data significance level is relatively high, and there is a very strong correlation between the variables. In conclusion, through factor analysis, this set of data is suitable for factor analysis.

Table 4. Tests of KMO and Bartlett's Sphericity for Questionnaire Summary Table

KMO Sample Suitability Quantity		0.832
Bartlett's test of sphericity	approximate chi-square (math.)	1684.713
	(number of) degrees of freedom (physics)	435
	significance	0.000

5.2 Extracting the Common Factor

Through the above reliability and validity analysis of the evaluation indicators of the initial screening of a total of 30 evaluation indicators at the level of three guidelines, namely spatial planning, infrastructure construction and social support, and the revision of the questionnaire through the statistical analysis of the questionnaire data, we excluded three evaluation factors whose scores are mainly distributed in the importance level of 2-3 points, and got the new indicator scale, on the basis of which we conducted the indicator categorization analysis for the initial selection of the evaluation indicators , extracting the common factors and realizing the purpose of dimensionality reduction.

5.2.1 Principal Component Analysis

The newly determined scale data including 27 indicators were imported into SPSS26 software for factor analysis, and the maximum variance method was used to rotate the factors to realize the analysis of principal components, in the output total variance explanation table, the eigenvalues of the first 7 factors were greater than 1, and the total variance cumulative explanation rate was 61.055%, as shown in Table 5 below, which surfaces that the current questionnaire's 7 factors could reflect 61% of the information of

the questionnaire, in addition, through the output component matrix table, it can be seen that the 27 evaluation factors can be extracted from the 7 male factors.

Table 5. List of Principal Components of Evaluation Indicators for Ageing of Rural Elderly Facility Configurations

Total Variance Explained									
	Initial eigenvalue			Extract the sum of the squares of the loads			Rotational load sum of squares		
ingredient	(grand) total	Percentage of variance	Cumulative %	(grand) total	Percentage of variance	Cumulative %	(grand) total	Percentage of variance	Cumulative %
1	8.487	31.435	31.435	8.487	31.435	31.435	5.398	19.993	19.993
2	1.773	6.567	38.002	1.773	6.567	38.002	2.133	7.900	27.892
3	1.539	5.699	43.701	1.539	5.699	43.701	2.070	7.665	35.557
4	1.347	4.987	48.688	1.347	4.987	48.688	1.818	6.732	42.289
5	1.225	4.537	53.226	1.225	4.537	53.226	1.762	6.527	48.816
6	1.079	3.997	57.222	1.079	3.997	57.222	1.732	6.416	55.233
7	1.035	3.833	61.055	1.035	3.833	61.055	1.572	5.822	61.055
8	.991	3.671	64.726						
9	.912	3.376	68.102						
10	.872	3.229	71.332						
11	.804	2.976	74.308						
12	.772	2.859	77.167						
13	.763	2.826	79.993						
14	.713	2.642	82.635						
15	.625	2.314	84.950						
16	.501	1.857	86.807						
17	.494	1.831	88.638						
18	.456	1.688	90.326						
19	.407	1.507	91.833						
20	.394	1.461	93.294						
21	.375	1.388	94.682						
22	.331	1.224	95.906						
23	.286	1.059	96.965						
24	.251	.928	97.893						
25	.231	.855	98.748						

26	.178	.661	99.409
27	.160	.591	100.000

Extraction method: principal component analysis.

5.2.2 Indicator Categorization Analysis

After identifying seven public factors among the 27 evaluation factors, the output component matrix was rotated using the Kaiser normalized maximum variance method, and except for the M13 influence factor in principal component 1, each factor had at least one factor loading coefficient with an absolute value of greater than 0.5 in each of the seven principal component distributions and was classified under the same public factor respectively, and multiple indicator variables under the same public factor had a relatively High correlation of multiple indicator variables under the same common factor. According to the seven categories of male factors classified by the rotated component matrix, it can be seen that they are consistent with the classification of the seven constituent elements summarized in the basic framework of the evaluation indicators for the aging configuration of rural elderly facilitie.

Table 6. Rotated Component Matrix of Evaluation Indicators for Aging of Rural Elderly Facility Configurations

Rotated component matrix[a]							
	ingredient						
	1	2	3	4	5	6	7
M12medical clinic configuration	**.724**	.175	.080	.243	.222	.152	-.040
M10Public Bathroom Configuration	**.701**	.483	.132	.467	.150	.309	-.029
M7 building layout	**.651**	.199	.153	-.032	.272	-.015	.313
M8 Senior Living Package	**.655**	.041	.271	.257	.041	.156	-.029
M9 Interior Public Space Configuration	**.633**	.048	.239	.204	.374	.083	.001
M11 communal dining room kitchen configuration	**.560**	.352	.077	.049	.228	-.167	.321
M13 Diversified Design of Outdoor Activity Areas	**.657**	.019	.315	-.071	.069	.128	.108
M1 facility siting	.424	**.741**	.069	.384	.325	.084	.019
M3 Traffic Condition	.053	**.690**	-.079	.143	-.095	.020	.068
M2 Neighborhood	.056	**.573**	.154	.271	.073	-.068	.106
M4 Accessibility	-0.152	**.625**	.043	.043	.085	.116	.132
Proximity of M5 health service stations	.066	.079	**.587**	.464	.014	.028	-.047
M6 Proximity of village activity centers	.294	.317	**.566**	.148	-.305	-.039	.292
M24 Management Supervisor	-.077	.162	.142	**.710**	.239	.020	.070

M23 Professional Services Staff	.121	-.020	.105	**.635**	.170	.282	-.078
M15 floor anti-slip treatment	-.093	-.082	.128	.126	**.792**	-.081	.248
M18 signage, directional signage installation	.237	.231	.018	-.056	**.637**	.012	.422
M17 emergency call system installation	.355	.000	.059	.097	**.610**	-.036	.047
M16 Handrail Installation	.250	.186	.029	-.199	**.547**	.346	.111
M14 height difference treatment	.481	.199	.018	.039	**.516**	.161	-.262
M26 Volunteer Visitation	.062	.107	-.003	.047	.342	**.705**	.109
M27Conducting cultural, sports and recreational practice activities	.206	-.201	-.040	-.078	.161	**.671**	-.021
M25 Regular medical visits	.161	.072	-.153	.017	.219	**.565**	.471
M19 Light and Ventilation	.477	.348	.313	.087	.415	-.060	**.754**
M20 thermal insulation	.285	.178	.130	.093	.167	.067	**.688**
M22 Lighting System Design	.440	.169	.094	.171	-.013	-.197	**.594**
M21 Noise Protection	.361	-.025	.290	.111	.160	-.351	**.590**

Extraction method: principal component analysis.

Rotation method: kaiser normalized maximum variance method.

a. The rotation has converged after 17 iterations.

5.3 Finalization of Evaluation Indicators

Through the factor categorization analysis of the evaluation indicators above, and after identifying 7 common factors among the 26 evaluation factors, and combining the specific content summarized under each common factor category and the basic framework of the initial division of the 7 components for renaming, respectively, for the facility location siting, the distribution of peripheral facilities, the functional layout of the facility, the facility accessibility design, the design of the facility's physical environment, the facility's staffing, and the social and aging-friendly environment, as shown in Table 7 below.

Table 7. Finalized Indicators for Evaluating the Aging of Rural Elderly Facility Configurations

Evaluation indicator base framework (Quasi lateral level division)	Public factor serial number	Name of the common factor (Renaming)	Variable Code	Indicator variables (Screened 27 evaluation indicators)
Spatial planning	2	Facility Location	M1	Facility siting
			M3	Traffic condition
			M4	Accessibility

		Siting	M2	Surroundings
		Neighborhood Facilities	M5	Proximity of health service
			M6	Proximity of village activity centers
	1	Facility Functional Layout	M12	Infirmary configuration
			M10	Public Bathroom
			M7	Building layout
			M8	Elderly living room
			M9	Interior public space
			M11	Public Dining Room
Infrastructure development	5	Accessible design of facilities	M13	Diversified design of
			M15	Anti-slip floor treatment
			M18	Signs, signage installation
			M17	Emergency call system
			M16	Handrail Installation
			M14	Elevation process
	7	Facility Physical Environment Design	M19	Day lighting and ventilation
			M20	Thermal insulation
			M22	Lighting system design
			M21	Noise protection
	4	Facility staffing	M24	Management Supervisors
			M23	Professional services staff
Social security	6	Social environment for ageing	M26	Volunteer Visitation
			M27	Conducting cultural, sports
			M25	Regular medical visits

6. Conclusions

Through field research on rural elderly facilities and questionnaire interviews with the elderly, and after statistics and analysis of the data, this paper finally constructs an evaluation index system for the configuration of rural elderly facilities in Datong City:

1) One target layer: Evaluation of the aging of the configuration of rural elderly facilities in Datong City;

2) Three guideline levels: spatial planning level, infrastructure development level, and social support level;

3) Seven elemental layers: spatial planning for the location of facilities and the distribution of neighboring facilities; infrastructure development for the functional layout of facilities, barrier-free design of facilities, design of the physical environment of facilities, and staffing of facilities; and social support for the construction of a socially appropriate environment for the elderly;

4) Twenty seven indicator layers: facility location includes 4 indicators on facility location, traffic conditions, accessibility and surrounding environment; distribution of surrounding facilities includes 2 indicators on the proximity of health service stations and villagers' activity centres; and the functional layout of the facility includes the building layout, the configuration of the living rooms for the elderly, the configuration of the indoor public space, the configuration of the communal dining room and kitchen, the configuration of the communal sanitary facilities, the configuration of the infirmary, and the configuration of the outdoor activities. Diversified design of venues: 7 indicators; barrier-free design of facilities including non-slip treatment of floors, installation of handrails, installation of emergency call systems, installation of signage, and treatment of height differences: 5 indicators; design of physical environment of facilities including lighting and ventilation, heat preservation and insulation, design of lighting systems, and noise protection: 4 indicators; staffing of facilities including management and supervisory staff, and professional service staff: 2 indicators; construction of social environment for the elderly: 2 indicators, including volunteers visiting, conducting recreational and sports activities. The construction of social environment for the elderly includes 3 indicators: volunteer visits, cultural, sports and recreational activities, and medical visits.

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