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Research on the Integration of Age-friendly Design into Community Elderly Care Paths in Dalian—Taking a Community in Dalian as an Example

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Abstract: ***Population aging is the inevitable result of the improvement of people's living standards and the extension of life expectancy, which brings with it huge pressure on the elderly care, and the elderly care problem is imminent. Compared with some developed countries that entered the aging society earlier in the world, the "getting rich first and then getting old" laid a theoretical foundation for aging-friendly transformation, while China's "getting old before getting rich" when entering the aging society undoubtedly adds difficulty to solving or alleviating the elderly care problem. Under such circumstances, China's aging-friendly buildings are not optimistic in terms of quantity or quality. At this time, it is of great significance to study the design of elderly living space that truly conforms to China's national conditions.***
This study extracts and summarizes the existing excellent cases, takes the real needs of Chinese elderly people and the prediction of China's national conditions that it will enter a deep aging stage in the future as the basis, and on the basis of design that reflects humanistic care, combined with the trend of aging in the new era, focuses on designing a community renovation case that meets the use behavior of the elderly, combines indoor and outdoor space with reasonable space scale and comfortable psychological atmosphere. Therefore, in the design of Dalian elderly care community, this case will propose a method of aging-friendly space renovation that is full of humanistic care details and innovative. The research on the aging-friendly renovation of a community in Dalian is mainly carried out from two aspects: spatial planning principles and key points of indoor and outdoor space aging-friendly design, including plane layout principles, furniture selection and customization, material selection and other design contents. Through the completion of this research and design, more humanized and artistic design connotations are given to aging - friendly design, providing some ideas for the future construction of elderly care communities and the design of elderly living spaces in China.

Keywords: Aging-Friendly Design; Community-Based Elderly Care; Space Design.

1. RESEARCH OVERVIEW

1.1 Background

The global aging problem is becoming increasingly serious, prompting countries to carry out extensive reforms and innovations in the fields of social security, urban planning and community services. According to the United Nations' World Population Aging Report, by 2050, the global population aged 65 and above is expected to reach 16%. This trend makes aging-friendly design an important issue in global urban development. As the most populous country in the world, China is particularly prone to aging. The current aging situation in China presents two characteristics: a large number of elderly people; and a fast aging rate. Liaoning Province has a relatively high degree of aging, with an aging rate of more than 21.1% (data at the end of 2023); as of the end of 2023, the city's registered elderly population aged 60 and above was 1.8269 million, accounting for 30.01% of the registered population. The city has a total of 45,000 nursing beds and 391 nursing homes. District, street and community-level elderly care service facilities have not been fully covered, and only 1.2% of the elderly choose institutional care. 85.8% of Dalian's elderly still prefer home care. The traditional family-based elderly care model can no longer meet the increasingly complex aging needs of Dalian's modern urban life, especially the infrastructure of old communities cannot effectively cope with the growing care needs of the elderly. Therefore, how to promote the transformation of old communities to be suitable for the elderly has become an issue that needs to be focused on. In this context, by drawing on successful cases of aging-friendly care and combining the actual situation in Dalian, we conduct empirical research and collect relevant data, and practice and transform them in typical communities in Dalian, which will provide theoretical support and practical guidance for the transformation of old communities to be suitable for the elderly in China.

1.2 Research Purpose and Significance

This study aims to improve the convenience and safety of the elderly's lives, moderately enhance the cohesion and vitality of the community, and promote social harmony by renovating an old community in Dalian. In this process, art empowerment and space design, as an interdisciplinary field, provide better solutions to effectively improve the quality of life of the elderly.

By investigating and understanding the demand, supply, and service quality of home-based elderly care services in a community in Dalian, analyzing the current problems and shortcomings, and proposing reasonable targeted suggestions and implementation measures, it will be possible to combine artistic empowerment with spatial design, promote the transformation of China's old communities into aging-friendly communities, and promote the development and demand of home-based elderly care services in Dalian. The research and design fully consider the significant characteristics of the physiological, psychological, and daily behavioral activities of the elderly in Dalian, and combine a variety of design principles to propose and design aging-friendly living spaces, and explore their specific application paths in practice.

1.3 International Experience and Reference in Designing Aging-friendly Communities

In the 1970s, relevant research on retirement communities began to emerge abroad. European and American countries have entered the aging era for a long time and have a high level of aging, so the research and time in this area are relatively mature. The term "community" was proposed by a German scholar, who believed that the community is an organic whole that carries people's lifestyle, common memories and spiritual belonging to their place of residence. American scholar Sanders believes that the community is a place for social resources, wealth, rights, etc. to interact. The concept of retirement communities first originated in the Netherlands and was gradually promoted in the United States, Japan, the United Kingdom and other countries. At present, most developed countries abroad have transformed from simple family and institutional care to community care.

In the design and renovation of aging-friendly homes in European and American countries, in addition to focusing on the transformation of physical spaces, the social participation of the elderly is also emphasized to form an aging-friendly community ecosystem. In the United States, the government improves the quality of life of the elderly through the "Elderly-Friendly Housing" project, combines life with smart homes, and establishes emergency rescue systems and other services to ensure that the elderly receive high-quality care in their original place of residence while maintaining social participation. Sweden and the Netherlands in Europe have deepened the concepts of "shared space" and "mutual assistance" in aging-friendly communities. The Japanese community elderly care model has formed a comprehensive elderly care system with "community as a unit and integration of multiple services". The "nursing station" in the community provides medical care and nursing, and also combines activities such as daily life support to enhance the social interaction of the elderly.

The domestic communities in this study refer to existing communities that are based on the community, but whose construction standards and status are not adapted to the current social development and have obsolete problems. Therefore, based on the reference of international models, this study focuses on combining China's actual situation to innovate characteristic cases. In terms of physical space transformation, old communities in Dalian, Liaoning and even the whole of China generally have problems of narrow space and aging infrastructure. Therefore, in addition to learning from some international community ecology, barrier-free design and other elements, they also need to be adjusted flexibly. For example, in the case where large-scale transformation of old communities cannot be carried out, low-cost and high-efficiency measures such as adding handrails, improving lighting, and adding anti-slip facilities can be used to meet the needs of the elderly. In addition, using vacant areas to transform public houses, parking lots, etc. into elderly activity spaces can effectively enhance community vitality and provide social and cultural venues for the elderly.

2. RESEARCH AND PROBLEM ANALYSIS ON AGE-FRIENDLY DESIGN IN A COMMUNITY IN DALIAN

2.1 Research Subjects, Content and Methods

A community in Dalian, Liaoning Province, located in the central urban area, Jiahui Xinghai Community in Dalian City, Liaoning Province is located in the central urban area. was built in 1992, covers an area of 0.38 square

kilometers, and currently has 2,067 households and 6,763 residents, of which the elderly account for 28.69%. There are typical aging problems in Dalian communities. As time goes by, the community facilities are aging and the environment is dirty and messy, which has a negative impact on the lives of community residents, especially the elderly, who account for a large proportion. Therefore, it is urgent to carry out aging-friendly renovation of community space. Research on a community in Dalian is helpful to explore the aging-friendly renovation path of similar old communities, which has positive significance for the implementation of space design renovation.

The research method for a community in Dalian, Liaoning Province is divided into the following steps: field investigation, questionnaire survey, and result analysis. The field investigation is to observe the living conditions of the elderly in the community and whether the facilities around the community are convenient for the elderly, including medical care, entertainment, shopping, etc. The community staff and community owners are asked about their views on the renovation of the community's aging-friendly space.

The community was surveyed on the spot. Secondly, questionnaires were distributed to the elderly over 60 years old in the community in the form of visits to obtain their evaluation of the community and surrounding facilities. The survey was conducted in a combination of online and offline methods. The survey subjects selected elderly groups of different ages, genders, health conditions and living environments in a community in Dalian as samples. After the survey, a total of 193 questionnaires were collected, and invalid questionnaires with incomplete answers or the same answers were eliminated. Finally, 132 valid questionnaires were obtained, and the questionnaire efficiency was 68.39%.

In the result analysis phase, we summarized the basic information of the elderly, living environment and other variables in the questionnaire, conducted a descriptive analysis, used correlation analysis to analyze the mutual influence between the living environment, satisfaction and needs of the elderly in the community, compared the elderly's renovation ideas and design renovation methods one by one, and proposed design principles and specific implementation plans.

2.2 Survey Results and Problem Analysis

According to the questionnaire results, the surveyed group is not satisfied with the facilities in a community in Dalian, Liaoning Province. More than 71% of them chose "dissatisfied" and "very dissatisfied". The facilities in a community in Dalian, Liaoning Province urgently need to be improved to meet the needs of the elderly. At present, the community mainly has three aspects of aging-friendly deficiencies:

2.2.1 Accessibility facilities need to be improved

Through questionnaire surveys and field investigations, it was found that the barrier-free ramps on the main roads, entrances and exits, and unit entrances of a community in Dalian, Liaoning Province were not well-equipped, and some were missing or damaged. Some corridors were piled with debris, and some corridor handrails were damaged; the community's public service area lacked activity space, lacked elderly care service rooms, and the squares were unevenly distributed, lacking facilities for elderly activities. In addition, the landscape roads in the community were too complicated and lacked a guidance system, resulting in poor sense of direction for the elderly in the community, making it easy for them to take detours and get lost.

2.2.2 Traffic organization is chaotic

In the early residential design specifications, the three-level road network system ensured the basic traffic capacity of vehicles, but did not take into account the separation of people and vehicles. With the increase in the number of private cars, there is a shortage of parking spaces in a community in Dalian, Liaoning Province, and the phenomenon of random parking of motor vehicles is serious, encroaching on the sidewalks. At the same time, through field surveys, it was found that there were road occupation and illegal construction in the community, which seriously disrupted the pedestrian flow. The existing traffic organization model is likely to threaten the personal safety of the elderly, so the traffic organization method of a community in Dalian, Liaoning Province needs to be improved.

2.2.3 The space environment does not meet the needs of aging

The interior decoration of the residential corridors in a community in Dalian, Liaoning Province is polluted and

aged, and the quality is poor. The existence of street markets and catering stalls has encroached on the public space of the community. There is a relative lack of venues for activities, and there are no small gardens for the elderly to rest and communicate. The lack of barrier-free connections between facilities brings inconvenience to the elderly and is not conducive to their healthy life. The community's night lighting is insufficient and it is difficult to meet the requirements of the elderly for outdoor activities at night. The existing greening is not planned and the landscape effect is poor.

2.3 Age-friendly Design Goals, Concepts and Principles

The goal of the aging-friendly renovation of a community in Dalian, Liaoning Province is to improve community functions, service capabilities and service levels by adding barrier-free facilities, reconstructing traffic organization and improving spatial environment, and to enhance the living environment and residents' satisfaction. Further create a livable community suitable for the elderly and a harmonious living environment. In the aging-friendly renovation of a community in Dalian, Liaoning Province, the research and design always adhere to the concept of "people-oriented", starting from the actual needs of the elderly group, and through the joint adjustment of multiple forces, including society, market and government, to create an aging-friendly, livable, safe, smooth and open community. On the basis of the previous questionnaire survey and combined with the field research on the basic situation of an old community in Dalian, the following renovation principles were established: First, we need to sort out the existing problems in the community, especially the community locations that are not suitable for aging-friendly services, classify the problems, and propose targeted aging-friendly design measures one by one; second, in response to the chaotic traffic organization and random parking of vehicles within the community, propose corresponding governance measures to ensure that special operation vehicles such as firefighting and emergency vehicles can pass unimpeded when special circumstances occur; then, fill in the gaps in barrier-free design to meet the basic aging-friendly needs of the elderly; finally, through new additions or reconstructions, configure public infrastructure serving the elderly to improve the community's service capacity and service level.

In the design, In the design, we must start from the physiological, psychological and social needs of the elderly and create a space environment that conforms to their living habits and lifestyles. The following principles need to be followed: First, the principle of humanity. Starting from the perspective of the elderly, the living space is planned, laid out and detailed with humanized design concepts and methods, so that the space not only meets the basic living functions of the elderly, but also improves their living comfort and sense of happiness in life. In terms of function, we must grasp the barrier-free design and furniture furnishings of each space, such as the handrail design along the wall, the foldable bathing chair in the bathing space, etc., and pay attention to the combination, balance and coordination of barrier-free, comfort, adaptability, social and sense of belonging. In particular, we must grasp the interior decoration style and soft decoration effect, the purpose is to distinguish it from hospitals and temporary residences, and enhance the elderly's yearning and belonging to the living environment. The second is the safety design principle. In the planning and design principles of the interior space of the elderly-friendly community, the safety principle must be the first priority, and a series of measures must be taken to eliminate or reduce the potential safety hazards in the living environment. Consider the safety of the elderly in the design, pay attention to anti-slip, barrier-free passage, handrail setting, furniture stability, sufficient lighting and the configuration of the emergency call system. In the planning and design of the apartment layout for the elderly, in addition to the complete partition of the spaces that require absolute privacy, such as bedrooms and toilets, the remaining spaces should be kept as transparent as possible to avoid the elderly being unable to find out in time when an accident occurs in a closed space. In the design of the bedroom space, the wall color at the head of the bed is different from that of other walls, which is convenient for the elderly to identify the position of the head of the bed and prevent falls. These implementations will help improve the living safety and quality of life of the elderly and provide strong protection for their later life. The third is the principle of ease of use. The design should be in line with the usage habits and physical function characteristics of the elderly to ensure that they can use the living space and its internal facilities easily and conveniently. Pay attention to the clarity of the spatial layout, the scale suitability of the furniture and facilities, the intuitiveness of the operating interface, the convenience of the storage space, the mildness of the color and material, and the introduction of aging-friendly auxiliary applications. Implement a design method of miniaturization and complex functions. Due to the difficulty of large-scale development of plots, the scale of the living space of a community elderly care facility in Dalian is relatively small. Efforts should be made to reduce the service radius of the elderly care facility, create a family scale, and save land resources. Combine the elderly living space with the community functional space to serve the elderly together and improve the utilization rate of facilities.

3. DESIGN AND RENOVATION STRATEGY FOR AGING-FRIENDLY COMMUNITY IN DALIAN

3.1 Space Design of Elderly-friendly Community Suites

The first is the apartment design. The biggest advantage of choosing a column grid structure with less plane restrictions is that it can be flexibly adjusted according to the actual situation. In the column grid distribution of the Dalian retirement community concept design, priority is given to the intelligent column grid spacing that is easy to adjust, easy to divide, and leaves an operation port. Each column grid spacing is distributed in 7.22m~7.53m*7.18m~7.82m. For each standard single room cut, two or more single rooms can be directly spliced and used when the area needs to be expanded. When the area needs to be reduced, a standard room can be divided into two single rooms of reasonable size to meet the needs of various combinations and various apartment types. In terms of space division, each apartment type gives priority to whether the stretcher can pass smoothly at any position in the room to facilitate unexpected situations; the entrance is guaranteed to be spacious enough and a shoe-changing space is reserved; a "double master bedroom" design is implemented, and each master bedroom is equipped with an independent bathroom to meet the needs of multiple generations for private space; the living room ensures sufficient light and is connected to the balcony or community landscape to create a pleasant leisure space; the kitchen considers the proximity to the restaurant to ensure smooth dynamic design.

Second, bedroom design. The design of living space suitable for the elderly should fully consider the physical characteristics of the elderly. For the elderly who are unable to move or bedridden, barrier-free design is often used. The bedrooms of the elderly need good ventilation and lighting. Since the elderly are bedridden for a long time, good ventilation is conducive to regulating the indoor air. The optimal height of the bedroom bed is 450mm. Handrails should be added on both sides of the bed and the height of the handrails should be 700-900mm. A space of 900-1524mm should be reserved on both sides of the bed to facilitate the care of the elderly or the passage of the elderly's wheelchair. Secondly, an intelligent voice assistant is installed against the wall at the head of the bed. For example, when an elderly person with mobility problems needs to get out of bed and move around, he or she can use voice to call for a pedal and handrail to be moved out from under the bed. The elderly person only needs to hold on with both hands and step his or her feet on the pedal, and the machine can automatically transfer the elderly person to the wheelchair beside the bed, effectively replacing manual labor. You can also use the voice switch light design. Many elderly people have to get up at night and need to go through a series of actions such as getting out of bed, turning on the light, and going to the toilet. After that, their sleepiness often dissipates and it is difficult for them to fall asleep again in the second half of the night. The voice night light design allows the elderly to decide the time and brightness of the night light more freely, ensuring that the elderly who have finished getting up at night to go to the toilet continue to sleep well. There is also an intelligent voice emergency call design. For the elderly who have difficulty speaking, a smart bracelet can be designed to detect heart rate. In case of emergency, the emergency button on the bracelet can be pressed at any time, which enhances the rescue efficiency while also improving the safety index of the elderly. Finally, you can also use voice intelligence to play TV to increase the entertainment of the bedroom.

The height of the clothes rod in the elderly-friendly wardrobe should not be greater than 1500mm, so as to avoid the elderly falling or being injured due to insufficient strength when carrying. It is recommended to lay solid wood flooring on the ground without height difference. Most elderly people have poor sleep quality, so sound insulation should also be considered during decoration. It is best to replace the windows with double-layer soundproof glass and the shading degree of the curtains should be high; the room doors and walls should also be soundproofed.

Third, in the design of the bathroom, this space is one of the most frequently used spaces by the elderly, covering multiple functions such as washing face, brushing teeth, bathing, and going to the toilet. As an absolute wet space, special attention should be paid to frequent falls and slips among the elderly, so as to achieve a truly barrier-free design.

When designing, the first thing to pay attention to is the flatness of the ground. The ground design with height difference should be eliminated, such as threshold stones and water retaining bars in shower rooms. The water retaining bars in shower rooms can be replaced with long floor drains; the bathroom swing door is opened by pulling outwards, so that if the elderly faint while taking a bath, they can be treated quickly. Design a spacious bathroom with dry and wet separation, equipped with handrails, easy-to-operate faucets and toilets to meet the needs of people with limited mobility or who need to sit in a wheelchair. The most basic toilet booster frame, washbasin booster frame, and foldable bathing chair are all in place. Use anti-slip materials on the ground to

reduce the risk of falling. Add an emergency call system so that the elderly can quickly contact caregivers in an emergency.

Fourth, kitchen design. A suitable activity area should be reserved, and the living room and dining room should be convenient for access. Space for wheelchairs should be reserved, and tableware suitable for the elderly should be equipped to ensure the continuity of meal preparation and dining. It is necessary to avoid the problem of too long or unsmooth movement lines as much as possible. It is recommended to use U-shaped and L-shaped island kitchen layouts when designing to facilitate operation by the elderly. The height of the countertop and the wall should be appropriate. Cabinets and countertops of appropriate heights make the elderly more comfortable and less prone to fatigue. Simple operating surface. The elderly are not familiar with smart devices and high-tech operations, so a simple control panel is very important. The elderly have poor eyesight, so a bright lighting system is also included in the community space design, and natural lighting and ventilation are emphasized. The restaurant is close to the balcony and windows to obtain a large area of lighting and good ventilation, so that the elderly can enjoy the beautiful scenery outside the window while dining, which is also more conducive to the physical and mental health of the elderly.

The fifth is the design of the porch. The elderly are not particularly mobile, and many of them use wheelchairs to travel. In order to facilitate the elderly to enter and exit the house, the passage space in the porch area must be spacious enough and the ground level. A 400mm distance must be reserved on the right side of the porch door handle to ensure that the wheelchair user can reach the door. The height of the switch is 1100-1200mm. The combined porch cabinet design is a "dressing mirror + shoe bench + hollow storage" layout, which is convenient for the elderly at home to change shoes on a daily basis. A power armrest is designed next to the shoe bench. The elderly prefer to hoard old things, so the porch cabinet is designed to be a full-length style, so that the elderly's daily necessities can be placed. When choosing floor paving materials, choose non-slip and wear-resistant styles to prevent the elderly from falling.

3.2 Design of Barrier-free Facilities for the Elderly

The survey found that the community lacks public facilities suitable for the elderly. Considering the physical condition of the elderly, it is recommended to equip the community public toilets with toilets suitable for the elderly to meet the needs of some elderly people with limited mobility. Fitness equipment suitable for the elderly should be configured in the community activity venues. At the same time, as they age, the physical fitness of the elderly continues to deteriorate and their mobility also decreases. It is recommended to install elevators in qualified buildings to meet the needs of the elderly. In addition, the community guidance system should be improved, and the role of signs should be strengthened through conspicuous and clear colors, such as adding indicative signs or using different colors of pavement to distinguish the road system.

3.3 Community Landscape Design and Color Matching

In the design and decoration of the living space for the elderly, color matching is very important. Reasonable color matching will create a comfortable, pleasant and natural living atmosphere for the elderly, and is also beneficial to the mental health of the elderly. First of all, you should choose a main color. Generally, soft tones are selected, such as beige, light yellow, light blue, etc., which can give people a quiet, soft and friendly feeling, and create a relaxed and pleasant atmosphere. It can also be adjusted according to the personalized needs of the elderly; secondly, pay attention to the brightness matching, that is, the brightness and darkness of the color. Low-brightness color matching can bring a warm and comfortable atmosphere. For example, beige, light gray, and light yellow are more suitable for home decoration for the elderly than dark gray and brown; the choice of different colors is closely related to different spaces and lights, and some contrast should be matched to improve the visual effect. Some similar colors can be used, not completely consistent, but a little different in hue; in addition to the difference in color, the matching of different materials is also very important. Soft and echoing materials will give people a comfortable and warm feeling, while rough or more dazzling materials will cause discomfort to the elderly, so try to choose some smooth, soft, warm and easy to care for and maintain materials, such as fabric furniture, carpets, etc. In short, good color matching can not only create a comfortable living atmosphere for the elderly, but also contribute to their mental health. When choosing colors, you should pay attention to the main color tone, brightness and contrast, as well as the matching of quality, so as to meet the home needs of the elderly as much as possible.

In terms of landscape design, it is appropriate to increase the elements of the times and the decoration of traditional

culture in the all-age elderly community. On the one hand, it can give the elderly a sense of familiarity and intimacy to create the concept of "home". On the other hand, it can make people of other ages closer to the era familiar to the elderly and alleviate the unfamiliarity between generations. When configuring plants, it is necessary to consider choosing "hypoallergenic and healing" plants as the main body, and plants can be used for "five senses healing". For example, considering the visual decline of people after aging, bright plants can be used to delineate the boundaries of residential groups to increase the recognizability of each residential group and building entrance; fresh flowers and plants can be used to stimulate the sense of smell and relax the mood; smooth and thornless plant branches and leaves should be selected to prevent the elderly from accidentally scratching them, or a flat artificial lawn can be designed for the elderly to relax; in terms of hearing, the sound of running water and birdsong can bring a relaxing and pleasant atmosphere; "parent-child plantations" and other venues can also be appropriately added. While serving as community greening, it can increase the contact between the elderly and the younger generation and realize the rediscovery of self-worth through the process of planting, harvesting, making food and tasting.

3.4 Design of Elderly-friendly Renovation of Residential Roads

Community roads are important channels that connect the inside and outside and link functions, and their rationality has an important impact on the living environment. The aging-friendly renovation of old community roads should start from the following aspects: First, the structure of community roads should be clarified, the primary and secondary flow lines of pedestrians and vehicles should be evaluated, and the non-vehicle flow lines should be separated by limiting the road capacity to meet the requirements of aging-friendly design; Second, in response to the problem of waterlogging in the community when it rains, soft and permeable plastic materials should be used to replace asphalt pavement; Finally, the motor vehicle parking area should be replanned, illegal buildings and debris occupying the pedestrian flow line should be cleared, roadside parking spaces should be set up on sections where conditions permit, and separation strips between vehicles and non-vehicles should be set up to avoid conflicts with pedestrians.

For roads with unreasonable initial designs, they can be transformed into green landscape belts on the premise of meeting the road design principles and community basic functions to improve the overall environment of the community. In addition, community roads can be differentiated through indicative signs or different colors to improve road recognition and make it easier for the elderly to choose roads that suit their needs.

3.5 Elderly-friendly Design of Community Space Environment

When designing a space environment for the elderly, designers should fully consider the characteristics and usage requirements of the elderly. The road design should be as straight as possible, avoiding too many twists and turns, and adding handrails and anti-slip treatment on the ground to reduce the risk of the elderly falling. The height of the handrail should be in line with the usage habits of the elderly. The plants along the slow-moving system should be low shrubs so that the elderly can identify the direction. In terms of social needs, by demolishing illegal buildings inside the community, some of the occupied spaces are transformed into multi-level activity spaces consisting of a central square, a small leisure square, and a small flowerbed micro-landscape to meet the various social needs of the elderly. At the same time, by regularly carrying out community public activities, the elderly's social circle is expanded, and a certain amount of privacy space is created through the natural barriers of trees and flowers as a place for the elderly to move and communicate. In addition, considering that some elderly people need to take care of their children and grandchildren after retirement, children's playgrounds and other children's play areas should be equipped with elderly-friendly facilities, to meet the needs of the elderly and children for common use.

4. CONCLUSION

The increasingly acute conflicts in some old residential areas have attracted the attention of all sectors of society. In order to improve the community home-based elderly care service system, realize the elderly have a place to live and be cared for, solve the difficulties of elderly care, and promote the harmonious and healthy development of society, various places have actively carried out the renovation of old residential areas, especially promoting the renovation of old residential areas suitable for the elderly.

In the renovation of old residential communities, due to the different actual situations faced by each community, the renovation measures taken are also different. According to the survey, the demand for home-based elderly care in Dalian City is diverse. In many aspects such as daily life, medical health, and psychological comfort, problems

such as insufficient supply of elderly-friendly services, low service quality, and insufficient policy support have been found. In response to the trend of population aging in Dalian City, Liaoning Province, it is necessary to provide the elderly with a comfortable and convenient living environment from the design of living space. This study selected a typical old community in the central urban area of Dalian City, sorted out the problems of the community through on-site surveys and questionnaire surveys, determined the goals, concepts and basic principles of the renovation of old communities, adopted a more targeted old community aging-friendly design strategy, completed the old community aging-friendly design from a humanistic perspective combined with cutting-edge design concepts, actively explored the aging-friendly design path in the renovation of old communities, and worked hard to create a more livable living environment for the elderly.

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