

Research on the Humanized Design Path of Community Elderly Care Supporting Buildings under the Background of Aging

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Abstract: The population structure is continuously transforming towards an aging society. Community-based home care has become the mainstream elderly care model. The supporting buildings within the community undertake multiple functions such as day care, rehabilitation and physiotherapy, life services, and leisure and social interaction. The traditional supporting building design only refers to the general public building standards for layout, without taking into account the characteristics of the elderly group, such as the decline of physiological functions and the special psychological and emotional needs. There are many shortcomings in the adaptation of spatial scale, passage conditions, functional matching, and environmental atmosphere. During long-term use, problems such as passage obstacles, idle functions, and psychological alienation are prone to occur. This article focuses on three fundamental theories: the stratified adaptation of the all-round needs of the elderly group, the intergenerational symbiosis of community elderly care Spaces, and the full-process closed-loop management of elderly-friendly buildings. It sorts out the common humanized shortcomings in the current design of community elderly care supporting buildings. A complete set of implementation design paths is established from four aspects: comprehensive analysis of elderly needs in the early stage and precise site selection, stratified and composite all-age compatible space layout, integrated design of barrier-free and emotional details, and elderly-friendly management and control covering the entire stage of planning, construction and operation and maintenance. It takes into account passage safety, functional practicality and spiritual and emotional care. Provide reference design ideas for the humanized renovation and new construction projects of elderly care supporting buildings in urban communities.

Keywords: population aging; community elderly care supporting buildings; humanized design; elderly-friendly space; intergenerational symbiosis; home-based elderly care

1. Introduction

A home-based elderly care pattern with community support is gradually taking shape, and various regions are continuously promoting the implementation and construction of community elderly care supporting facilities. The unique characteristics of the elderly in terms of movement, perception and psychology put forward differentiated requirements for the spatial scale, passage guarantee, functional setting and environmental creation of supporting buildings. The design process lacks in-depth consideration of the real needs of the elderly group, which can easily lead to inconvenient space utilization, low facility utilization rate, and weak participation willingness of the elderly. Thoroughly sorting out and constructing a systematic and humanized design logic that conforms to the physiological, psychological and behavioral characteristics of the elderly group, and on this basis, establishing a complete set of design systems that can take into account safety and convenience, social inclusiveness and long-term operation and maintenance controllability, is the key path to enhancing the actual use value of community elderly care supporting buildings and optimizing the living experience of the elderly. The construction and improvement of this system can not only effectively enhance the compatibility and utilization efficiency of space and facilities, strengthen the sense of belonging and participation willingness of the elderly, but also ensure the sustainable operation of facilities from a long-term perspective, thereby providing a solid design support and practical foundation for the stable, efficient implementation and sustainable healthy development of the community elderly care service system.

2. The basic theories related to the humanized design of community elderly care supporting buildings

There are obvious stratified differences in the physiological state, self-care ability and spiritual demands of the elderly group. The core of the demand stratification matching theory is to divide the elderly group into three categories: fully self-care, semi-self-care and disabled and demented. At the same time, it sorts out the four core demands of daily living, rehabilitation care, leisure and social interaction, and emotional comfort, and matches the corresponding spatial scale, access standards and functional modules according to the demand levels.

The entire theory abandons the unified and universal spatial design approach, taking the stratified demand assessment as the pre-constraint for the site selection and floor plan layout of supporting buildings. It provides the underlying logical support for the formulation of differentiated functional zoning and barrier-free gradient standards for community elderly care facilities, achieving a two-way compatibility between hardware space supply and the real usage needs of the elderly group [1].

3. At present, the design of community elderly care supporting buildings has a frequent shortcoming of humanization

3.1 There is a lack of preliminary analysis on the needs of the elderly and site selection, resulting in inherent compatibility deviations in the plan

Some supporting building projects only refer to the construction indicators to define the scale, without conducting a stratified demand investigation of the elderly group in the community. The proportion of self-care and disabled elderly people in the area is unclear, and the ratio of rehabilitation beds, day care, and leisure activity rooms is unbalanced. The site selection only meets the land use indicators and does not take into account the walking distance of the buildings, the noise from street traffic, or the height difference of the ground. Some supporting buildings are set deep in the community, with multi-level steps and long-distance unobstructed walkways hindering the daily access of the elderly.

During the site selection stage, children's activities, community commercial Spaces and other areas were not synchronized and integrated for layout. Elderly care buildings were isolated at the corners of the plot, lacking natural intergenerational interaction scenarios. The drawings lack a complete calculation of the elderly's behavioral flow lines. The dimensions of the corridors, entrances and exits, and restrooms only meet the minimum limits of general standards. There is no reserved space for the intersection of walking AIDS and the simultaneous passage of caregivers. Problems such as crowded passage and wheelchairs being unable to turn were discovered during the construction stage, which led to extensive adjustments in the floor plan layout and increased the renovation cost.

3.2 The spatial layout is single and isolated, lacking a layered and composite design that is compatible with all ages

The supporting buildings adopt a completely enclosed and independent floor plan model. All functional Spaces are only open to the elderly, with no transitional shared areas. The daily activities of the elderly are entirely confined within their dedicated buildings, lacking natural contact scenarios with other community residents. The planar functions are simply divided. The rehabilitation, leisure and dining areas are separated from each other. To switch, one needs to pass through a long and narrow closed corridor. Elderly people with dementia are prone to getting lost in space [3].

4. A full-cycle implementation and control path for enhancing the humanization level of community elderly care supporting buildings

4.1 Establish an integrated pre-judgment mechanism for the stratified needs and venues of the elderly across the entire region

After the project was launched, a stratified survey of the entire elderly population in the community was carried out simultaneously. All basic information, including the number of self-care, semi-self-care and disabled elderly people, their daily activity periods, and their core demands for rehabilitation and social interaction, was collected comprehensively. At the same time, predictions of long-term population structure changes in the community were also collected. Complete the archiving of the elderly stratified demand investigation report and the site circulation line calculation data as the hard prerequisite materials for the formulation of the supporting building plan, to solve the humanized shortcomings caused by the imbalance of functional ratio, poor accessibility of site selection and spatial isolation from the source, and stabilize the daily visit and use frequency of the building [4].

4.2 Implement a standardized layout system for stratified and composite Spaces that are compatible with all ages

The design logic of the fixed elderly care supporting complex space is divided into three types of functional zones. The enclosed exclusive care area is centrally set on the inner side of the building, and an independent and quiet rest environment is reserved. The transition buffer shared area is arranged at the street-facing and entrance/exit positions of the building,

equipped with leisure seats and green plant landscapes. The all-age open and shared space is seamlessly connected with the community's public areas and is available for the elderly, children and residents to use together.

5. Conclusion

The elderly group in the community has special physiological perception and diverse spiritual and emotional needs. The spatial layout, passage conditions, and detailed supporting facilities of elderly care supporting buildings all need to be in line with the unique characteristics of the elderly group. There are mature theories related to the stratified adaptation of the all-round needs of the elderly group, the intergenerational symbiosis of community elderly care Spaces, and the full-process closed-loop management of elderly-friendly buildings To provide clear theoretical support for sorting out the shortcomings of humanized design in supporting buildings and establishing a complete set of optimized control systems. At present, community elderly care supporting buildings generally have prominent shortcomings such as the lack of preliminary analysis of elderly needs and site conditions, single spatial layout lacking all-age composite design, fragmented barrier-free and emotional details, and the absence of a full-process closed-loop management for elderly-friendly facilities. These have continuously led to multiple problems such as passage obstacles, idle functions, psychological estrangement among the elderly, and extensive renovations and adjustments during the operation stage.

Establishing an integrated pre-judgment mechanism for the stratified needs and venues of the elderly across the entire region, implementing a standardized layout system for stratified and composite Spaces that are compatible with all ages, standardizing a complete set of design details that integrate barrier-free and emotional aspects, and building a closed-loop management system for elderly-friendly facilities covering all stages can systematically resolve various humanized design obstacles and difficulties in community elderly care supporting buildings. Comprehensively enhance the safety of spatial passage, functional adaptability and the level of spiritual and emotional care. We will continue to sort out the interlinked logic among the pre-assessment of elderly needs, the layout of all-age composite Spaces, barrier-free emotional detail support, and phased elderly-friendly verification, steadily improve the humanized design quality of new and renovated urban community elderly care supporting projects, and provide stable and reliable architectural design technical support for the construction of the domestic home-based elderly care support system.

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