

Innovative Design Strategy for Indoor Space in Home Care Based on the Emotions of the Elderly

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ABSTRACT

With the arrival of an ageing society, the Chinese government encourages the elderly to age in place. Under the concept of ageing at home, interior space design has become an essential part of senior care services. This paper focuses on the new home care internal space design strategy for the emotional needs of the elderly. Firstly, this paper introduces the dynamic characteristics of the elderly, including their emotional needs, emotional expression, and pattern of emotional change. Secondly, this paper analyzes the existing status quo of home care indoor space design. It points out the problems and deficiencies, such as irrational spatial layout, imperfect functional facilities, and lack of intelligent facilities. Finally, this paper puts forward based on the emotions of the elderly under the home care indoor space design innovation strategy, spatial layout, functional facilities settings, and intelligent facilities; these strategies for the elderly to provide more high-quality, intimate pension services but also for interior designers to offer a new way of thinking and methods.

Keywords: *The elderly, Emotional needs, Aging in place, Interior space design, Innovative strategies.*

1. INTRODUCTION

China's ageing population is increasing rapidly, and it is expected that the proportion of older adults aged 65 years or older will surpass that of Japan in 2030, making it one of the countries with the highest population ageing in the world. [1] According to the Academy of Social Sciences, by 2050, the number of older adults aged 60 and above will reach 483 million, and the number of older adults aged 80 and above will reach 108 million [2]. As a result, the problem of the elderly gradually attracts people's attention. The traditional way of ageing is mainly to centralize the management of the elderly in nursing homes or care homes. Still, there are many problems in this way, such as gathering people, space congestion, and insufficient services [3]. Therefore, the concept of ageing in place has gradually become popular. Ageing in place refers to the elderly receiving services at home, including life care, medical care, psychological care, and so on, to achieve the purpose of more senior people enjoying their twilight years at home.

2. EMOTIONAL NEEDS OF THE ELDERLY

For the elderly group, emotional needs are mainly reflected in the four aspects of sense of belonging, sense of value and sense of security.

2.1 Need for a Sense of Belonging

The need for a sense of belonging manifests itself first and foremost as a need to talk. This includes the need to talk about worries and thoughts about children, opinions about events in life, and memories of worries and sorrows and past events. Confiding relieves psychological stress while promoting closer relationships and integration into new groups. Confiding also helps bring about positive emotional responses, support and understanding, and feelings of acceptance and approval. Next is the need to share, including the need to share life experiences and one's successes, which can lead to greater recognition of one's value. The need for companionship is the most immediate need of the elderly and includes the companionship of children and the companionship of monumental

things. Finally, there is the need for interaction, which consists of the desire to be included in a group and the need for active and passive interaction. Some older persons are socially engaged and will actively participate in collective activities in the community. In comparison, many older persons are eager to socialize but find it challenging to take the first step on their initiative. They need someone, an organization or a platform to guide them.

2.2 Need for a Sense of Value

On the one hand, with the continuous development of society, there is an increasing need for the elderly to learn new things. The elderly are constantly exposed to new knowledge with the spirit of living to learn. Although the elderly are slower to accept new knowledge, their children or grandchildren often influence them. For example, the elderly may experience the convenience and the beauty of communication brought about by Internet products through their children's video or voice chatting tools and thus develop a strong interest in the Internet.

On the other hand, the elderly also need self-actualisation, and the elderly would like to have the opportunity to demonstrate the skills the elderly have accumulated and the new knowledge the elderly have learned. In addition, the recognition of honour can motivate and encourage empty nesters to participate in a rich and colourful life and sum up this stage of life.

2.3 Need for a Sense of Security

First, psychological safety is one of the basic instinctive needs, and essential environmental responses require psychological safety. Psychological security plays a vital role in healthy physical and mental development. The second is the need for emotional support, the need to find a support vehicle to deal with the memories of past years and the exchange of faded emotions with children to drive more incredible energy for life and for the memory of the present life to pave the way for future life. Third, there is a need for information security, the world's changes and the authenticity of information, and the need to judge the standard of right and wrong. Fourth, the need for guidance, although the need for security can not wholly avoid insecurity, can be guided by the situation to judge insecurity, easing the tension that insecurity brings about.

3. THE CURRENT SITUATION OF INTERIOR SPACE DESIGN FOR THE ELDERLY AT HOME

Current interior space design for aging in place has some challenges and shortcomings in a number of areas.

3.1 Same Old Story, No Personalization

Older adults have different physical conditions, living habits and cultural backgrounds, so customized design solutions must be developed according to individual circumstances. However, some things could be improved in the current interior space design for ageing in place, which fails to consider the older persons and unique requirements of the old. For example, some older persons may need amazing beds and care facilities, but the existing design solutions are often generic and cannot meet their needs.

3.2 Lack of Intelligent Home Utilization

Integrating intelligent technology has become an essential element in the interior space design of home care, providing a more convenient and comfortable living experience for the elderly ^[4]. However, the current interior space design for ageing in place often lacks intelligent support to fully meet the unique needs of the elderly. For example, some the elderly may need telemedicine services or smart home systems, but existing design solutions often need to consider these needs.

3.3 Inadequate Safety

There are many safety hazards in the daily lives of the elderly, such as slips and falls. Therefore, the safety of the elderly needs to be fully considered in the design of the indoor space for ageing in place [5]. However, the existing interior space design for ageing in place often has the problem of insufficient safety; for example, the floor needs to be equipped with anti-slip measures, which quickly causes the elderly to slip and fall. Furniture has no rounded corners, which can easily cause more senior people to bump and get hurt. Insufficient indoor lighting can easily cause vision loss and accidental injuries to the elderly. Handrails and safety rails are not installed, which may easily cause the elderly to fall.

3.4 Lack of Communication Space

The ageing-in-place space is characterized by inadequate communication between the elderly and their children and friends. Although everyone may be together in the living room, they usually choose to watch TV, and there is no suitable space where children can chat with the elderly and listen quietly to their thoughts.

This situation may cause problems in the communication between seniors and their children and friends. The elderly may feel ignored or isolated because the sound of the television often drowns out their voices. Children and friends may also miss out on the opportunity to interact with the elderly and need help understanding their thoughts and feelings.

4. INTERIOR SPACE DESIGN

4.1 Living Room

Living Room: the elderly will spend more time in the living room to rest, watch TV or communicate with family and friends in their daily lives, so the design of the living room needs to be comfortable and safe as the primary consideration. First of all, the spatial layout of the living room should be spacious and bright, and the furniture should be arranged in such a way as to avoid creating obstacles and provide a convenient walking path. The height and depth of the sofa should be suitable for the physical condition of the elderly, making it easy for them to sit and stand. Armrests can be provided next to sofas or chairs for the elderly to maintain balance and support. The floor should be made of non-slip material to minimize the risk of falling.

In addition, there should be adequate lighting in the living room, especially in the reading and craft activity areas, to protect older adults' eyesight. TV and audio equipment controls should be simple to use and avoid complicated operating procedures. Curtains or blinds should be easy to operate and effectively regulate room light. Emergency call buttons or telephones should be installed at appropriate locations in the living room so that the elderly can seek help in case of emergency.

For décor, it's best to choose decorations and colours that have a positive emotional impact on seniors and make sure small objects don't become stumbling blocks. Finally, make sure that the living room has adequate airflow and maintains the right

room temperature to create a living environment that is both cosy and healthy for seniors. In addition, there should be adequate lighting in the living room, especially in the reading and craft activity areas, to protect older adults' eyesight. TV and audio equipment controls should be simple to use and avoid complicated operating procedures. Curtains or blinds should be easy to operate and effectively regulate room light. Emergency call buttons or telephones should be installed at appropriate locations in the living room so that the elderly can seek help in case of emergency.

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4.2 Bedroom

Creating a comfortable and liveable bedroom for the elderly requires full consideration of their physiological needs and living habits. First of all, the bedroom should be spacious and easy to move around to facilitate the free movement of the elderly. The bed height should be appropriate, and auxiliary facilities such as handrails or ramps should be provided to allow the elderly to get in quickly and out of bed. Adequate lighting and storage space should be provided in the bedside area to facilitate placing frequently used items such as books, glasses, and remote controls. In addition, bedrooms should focus on sound insulation to minimize external noise disturbance. Creating a quiet and peaceful sleep environment will help seniors get quality sleep and improve their health and well-being.

4.3 Bathroom

According to the World Health Organization, globally, over 300,000 people die from falls yearly, half of whom are over 60 years old [6], and bathrooms often involve water, so the floor should be paved with non-slip floor tiles. The walls should be made of moisture-resistant materials to prevent the elderly from slipping, falling, and getting injured. Bathrooms should be equipped with auxiliary facilities such as handrails and ramps to provide necessary support and convenience for the elderly. The bathroom should be designed as a space that is easy to clean and maintain. The floor

and walls should be kept clean and tidy to avoid harbouring bacteria and protect the health of the elderly. The bathroom facilities should also be made of easy-to-clean materials to facilitate daily maintenance and reduce the burden on the elderly.

4.4 Kitchen

The kitchen is an essential functional area at home, and for the elderly, a safe, convenient, and comfortable kitchen is crucial. In kitchen design, the physiological needs and living habits of the elderly should be taken into account, and materials and equipment that are easy to clean and maintain should be selected. For example, cabinets and countertops should be made of durable, easy-to-clean materials, and stoves should be made in styles with safety devices. The kitchen layout should be reasonable, with a smooth flow of movement to avoid the need for the elderly to bend over or tiptoe to operate frequently. Cabinets and electrical appliances should be placed at a height that is convenient for the elderly to access, and the countertop should leave enough space for activities. A dining area can be set up in the kitchen to make it easier for seniors to eat and interact with their families.

4.5 Leisure Space

Friendly social activities can increase the pleasure of the elderly, so creating a relaxation space that is physically and mentally enjoyable requires creating a quiet, relaxing and fun atmosphere based on their interests and preferences. This leisure space can be customized to suit the preferences of the elderly, for example, by setting up a comfortable reading corner with upholstered seating, bright lamps and an abundance of books. For seniors who like to watch movies, a cosy TV area can be created with comfortable sofas and a clear TV set. An easily accessible garden can also be designed to allow seniors to get close to nature and enjoy time outdoors. Leisure space can also incorporate some social elements, such as setting up a small meeting area with comfortable seats and coffee tables so seniors can chat and catch up with friends or family members. Some group activities suitable for the elderly, such as book clubs and handicrafts, can also be organized to enrich their spiritual life and promote social interaction [7].

5. INNOVATIVE STRATEGIES OF INTERIOR SPACE DESIGN FOR AGING IN PLACE BASED ON THE EMOTIONS OF THE ELDERLY

To solve the current problems in the design of interior space for ageing in place and to meet the emotional needs of the elderly, some innovative strategies need to be adopted.

5.1 Personalization

To meet the emotional needs of the elderly, a customized design plan should be developed based on the individual circumstances of each more senior person. This requires consideration of the elderly's physical condition and health needs and the provision of unique beds and care facilities. For example, for the elderly with limited mobility, height-adjustable beds with nursing aids can be provided so they can quickly move in and out of the bed and carry out their daily care [8].

During the design process, the elderly's cultural background and living habits should also be taken into account to provide them with decorations and furniture that match their preferences and habits. For example, if the elderly have specific cultural traditions, relevant elements such as traditional artwork or decorations can be incorporated into the design to help them feel a familiar and intimate atmosphere. Furniture styles and materials can be selected according to the elderly's preferences to ensure that the elderly feel comfortable and contented in the aging-at-home space.

Developing customized design solutions based on individual seniors can better meet their emotional needs and provide a unique and thoughtful ageing-in-place interior, creating a living environment that is welcoming, comfortable, and in tune with their personalities and cultures.

5.2 The Use of Intelligent Technology to Create Smart Home Life

Intelligent technology plays a vital role in producing smart home life. For the elderly, clever technology can provide a more convenient, safe and comfortable home living experience.

Security Monitoring System: intelligent door locks, video surveillance and smoke/gas detectors. These systems can monitor and alert the elderly promptly to ensure their safety. At the same time, they can be connected to the cell phones of family

members or caregivers for real-time access to safety information. Intelligent Lighting and Temperature Control System: A bright lighting and temperature control system is installed, which can be adjusted by voice control or cell phone apps to adjust the lighting and temperature. Seniors can change the indoor environment at any time according to their needs and preferences, improving comfort and quality of life. Smart home assistant: Utilizing smart home assistant devices, such as voice assistants or smart speakers, seniors can control home devices through voice commands, check information such as weather and news, and even make voice calls to family and friends. Such devices can provide convenience and entertainment for seniors while reducing their operational burden.

5.3 Safety and Comfort Go Hand in Hand

It is essential for the elderly to feel safe and comfortable in their home space. For example, safety precautions: Provide appropriate safety precautions for the elderly, such as non-slip flooring, handrails and guardrails. These measures can help the elderly prevent falls and other accidents and provide additional support and stability. Comfortable living environment: Provide a comfortable living environment for the elderly, including ergonomic furniture, comfortable beds and seats, and appropriate indoor temperature and humidity. These factors can enhance the comfort of older persons and reduce discomfort and fatigue.

5.4 Social and Activity Space

Providing a social and activity-rich space for older adults can promote interaction and communication and help them stay socially connected, actively participate, and enjoy an enriched life [9].

Multi-functional space: designing a multi-functional social and activity space can meet different needs. This space can be used to host parties, social events, recreation, sports, and exercise. Ensure the space is well laid out to fully utilise the available space and provide comfortable seating and activity areas. Social interaction facilities: Provide social interaction facilities such as game tables, chess and cards room, TV and sound system. These facilities can facilitate interaction and communication among the elderly and provide opportunities for recreational and entertainment activities.

6. CONCLUSION

Innovative strategies for designing interior spaces for ageing in place based on the emotional needs of the elderly is a challenging task, and designers must have an in-depth understanding of the needs of the elderly, including their unique physical and psychological needs. Innovative strategies not only need to start from the perspective of interior design but also need to consider the actual situation of the elderly and design an interior space that meets their living habits, cultural background and social environment. At the same time, designers also need to improve their design level in continuous practice and accumulation to create better living environments for the elderly and to meet their emotional needs and practical situations.

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