

Design Strategies for Safe and Comfortable Elderly Day Care Centers in Urban China

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Abstract

This study addresses design strategies for safe and comfortable elderly care centers in urban China. The objective of this study was to analyze the direct effects of design on the elderly care environment, the division of safety spaces, and the design of safe and comfortable elderly care centers in urban communities in China. The research instruments were questionnaires and interviews and a mixed-methods research design, combining qualitative and quantitative approaches. Qualitative data for data analysis were collected through field observation, a literature review, and in-depth interviews with five experts in interior and environmental design, as well as three nursing home managers. Quantitative data were obtained through a structured questionnaire administered to ten elderly residents who had lived in the selected facilities for at least three years. Data analysis involved both descriptive statistics and a qualitative synthesis to assess user satisfaction, design effectiveness, and spatial efficiency. The results revealed that elderly people prioritized interior safety features such as non-slip floors, well-placed handrails, wide walkways, and strategic lighting. Furthermore, design elements such as furniture arrangement, warm, contrasting colors, and ease of movement were crucial to their sense of comfort and independence. Experts also found that maintaining physical safety and promoting emotional well-being depended on visual clarity, tactile feedback, and ergonomic design. Experts emphasized that incorporating local cultural characteristics into design not only enhances a sense of identity but also enhances the sense of identity. But it also helps to increase the emotional bond between users and their living spaces.

Keywords: design strategies, elderly day care centers, cultural characteristics in design

Introduction

The rapid demographic transition toward an aging society has become one of the most significant social phenomena in China and across the globe. As the proportion of elderly citizens continues to rise, urban communities face increasing challenges in providing environments that meet both the physical and psychological needs of older adults (United Nations, 2019). In recent decades, the focus of elderly care has shifted from institutional nursing homes to community-based care, emphasizing the principle of “aging in place.” This concept highlights the importance of designing environments that promote safety, comfort, accessibility, and social interaction within familiar surroundings (World Health Organization, 2018). Consequently,

environmental and spatial design play crucial roles in enhancing the quality of life of the elderly by addressing their physical limitations and emotional well-being (Day, 2004; Karakaya, 2009).

Urban community elderly day care centers serve as essential intermediaries between home-based and institutional care. These centers provide daily services such as health monitoring, rehabilitation, recreation, and social participation, enabling the elderly to remain in their communities while receiving professional support (Liu, 2010). However, many existing facilities in Chinese urban areas were adapted from pre-existing buildings without sufficient consideration of spatial layout, environmental comfort, and safety measures (Song, 2010). Common issues include poor space division, lack of barrier-free access, insufficient lighting, and inadequate safety installations, which significantly limit the functionality and comfort of these environments (Tang, 2013). Therefore, systematic research and design innovation are required to improve the environmental quality and safety standards of elderly day care facilities.

This study aims to analyze the direct relationship between design elements—specifically space division, safety systems, and elderly care facilities—and the overall elderly care environment in urban communities of China. It examines how spatial design affects users' physical comfort, sense of safety, and emotional experience. Furthermore, the research explores integrated design strategies that combine safety, accessibility, and aesthetics to create environments that promote independence and social participation among elderly users (Chao, 2014; Li, 2012). The study employs both qualitative and quantitative approaches, including expert interviews, field observations, and user satisfaction assessments, to identify practical design solutions that address real-world challenges in community elderly day care centers.

By analyzing the direct effects of design on elderly users' daily activities, safety perception, and emotional comfort, this research contributes to the development of a holistic framework for elderly-centered design in China. The findings will provide practical recommendations for architects, interior designers, and policymakers to enhance spatial planning, environmental safety, and design standards for elderly care centers. Ultimately, this study emphasizes that thoughtful design—grounded in safety, accessibility, and human-centered principles—can transform urban community elderly care environments into inclusive spaces that promote dignity, well-being, and sustainable living for the aging population (Stokes, 1992; Evans & McCoy, 1998).

Research Objective

To analysis the design direct effect with the elderly care environment, space division, safety and elderly the care facilities, and make a safe and comfortable elderly daycare center design in urban communities at China

Literature Reviews

The review of related literature and study of the development of unban community and the direction of old-age people needs. This will be achieved by collecting relevant documents and literature as basic information to accomplish the following objective:

1. The history and background of community day care center

In most countries, housing for the elderly is subject to stringent regulation. These particular standards effectively cover whole areas of the building, including communal areas; residents' flat, staff works paces and finishes, fixtures and furniture as well as external environments (Stokes, 1992). The principal aim of these guides and standards is to qualify the housing environment for the people with special needs. These standards not only concern building accessibility for people with differing levels of physical limitations but also should be used to promote consistent, high quality design standards facilitating good care and quality of life.

To sum up, understanding and appreciating the influence of the environment to elderly people and their perceptions will be essential to provide a quality living environment and, hence, improve their quality of life.

2. Theories

2.1 Colour theory: basis on the colour emotions, clean-dirty, tense-relaxed, and heavy-light. Which colour was developed on the basis of the colour emotion factors for elder's activity.

2.2 Theory of emotional: Emotion is a mode of behavior which is purposive. Emotions are mental phenomena, and all mind is divided into three parts: feeling/sensation, belief, and desire.

3. Research

This study will begin with research academic about daycare design, the health of the elderly and experts about community development process and the need of providing for the elder.

Reviewed of the development of community-based old-age care facilities at home and abroad, for example, in Europe, Not only will the government spend a lot of money to support the construction of old buildings, but other charitable organizations will also spend a lot of money to support the life and health of the elderly (Shi, 2022) . Among them do more perfect, such as care homes in Britain, care homes, France's senior housing, elderly institutions, Sweden's senior housing and so on. Although the nature and scale are not the same, they are all built according to the characteristics of the elderly group, and even many elderly care institutions undertake medical care functions, giving the elderly meticulous care, so that the rapid growth of aging in the country by many elderly people in favor of institutional care. In Asia, Day care centers can provide day care and home support services to the elderly who can take care of themselves to help them maintain their vitality, maintain their health and improve their quality of life, to enable these elderly in the familiar environment of the community. At the same time, community service nurses provide help and support to motivate nurses to provide various care and support services for the elderly (Liu, 2010). To satisfied the different needs of the elderly. The most developed countries in the world have changed from institutional old-age care to home-based elderly care, from large-scale to intensive, from unitary to diversified after decades of practice and exploration, all of them are developing to the community day care based old-age care, and finally return to the community, to the community day care for elderly.

Methodology

Research methods refer to the methods and means that are mainly adopted and used in the research process. The research adopted mixed research methods, including qualitative method and qualitative method. Through the qualitative research method, the paper studied the community day care center for elderly design and its related data, and on this basis, the data analysis was carried out. Through quantitative research methods, the satisfaction of experts and elders with the application of day care community to design was analyzed. The research adopted the methods of literature research, field observation, expert interview, questionnaire survey. In addition, the specific content of this study also determines that it will adopt some special research methods in the research process, as the follow:

1. Data collection: is the part that indicates how data was collected, depending on the nature of each type of research, which may have different data collection methods.

1.1 Collect literature review data

The researchers collected the history and development of community day care center from Europe and Asia, the application status of facilities in day care community design, and elders' intention of facilities color and design innovation in day care community design, in order to discover the law of artistic creation and future development trend. By taking notes, shooting, interview, master basic theoretical knowledge and basic information needed for design. In order to facilitate the later design, the literature data and related research are classified, summarized and analyzed.

1.2 Collect field survey data

Visit and observe 6 daycare community centers in Nanjing. There were collected and the information on the source, development and other aspects of facilities were collected. The researcher collected the interior design in terms of color, materials, trend information.

1.3 Collect interview data

Professionals were invited to do an in-depth interview. Research invited a number of five experts. To interview experts in color research or packaging design, to gather knowledge and opinions on interior design and landscapes designs, experts are invited to evaluate the satisfaction of using the original area arrangement created by interior design.

2. Data analysis: is the part that describes how to analyse both quantitatively and qualitatively, depending on the characteristics of each type of research or according to each relevant branch. This research mainly adopts the form of qualitative research and quantitative research.

2.1 Qualitative research data analysis

This was a rational analysis of data collected through literature review, field investigation, observation, and expert interviews. Qualitative research has the characteristics of descriptive, inductive and subjective. Descriptiveness is mainly reflected in the collection of previous research materials (Englander, 2012). In this research, qualitative research will be conducted in creative a new area of day care community, interviews between elders and experts (conversation records, photos, audio recordings). Inductive performance is to summarize and summarize other scholars' viewpoints, literature and related research materials in the research, and make research comments. The subjectivity is reflected in that the main body of the qualitative analysis is the researcher himself. In this study, we need to rely on our own knowledge accumulation and experience to conduct in-depth research on the currently existing problems and design motivation of day care community solution to the problem.

2.2 Quantitative research data analysis

Quantitative research is a kind of measurement and analysis of the quantifiable part of things. The data collected by quantitative research was mainly based on the data collected by questionnaire survey for frequency analysis. Quantitative research has the characteristics of objectivity and generality (Wertz, 2021). For example, in this study, some data on the satisfaction of day care community and creative design area were obtained through questionnaires and market research. These quantitative data are true and objective, and can be directly used as the basis for qualitative research in the text after generalization and analysis, thus forming a comprehensive research form.

Results

This data analysis revealed a wealth of information about how elderly participants responded to the care center environment. These survey results gave researchers useful information about their perceptions of the space. For example, some care centers had substandard layouts, some hallways were dark and narrow, some areas lacked adequate lighting, and some design styles lacked adequate indoor amenities. The data analysis also revealed the importance of elderly residents to the space and selected design elements within the project. Key areas of focus for the data analysis included:

1. Color Design Approaches for Safe and Comfortable Elements Color design approaches that incorporate safe and comfortable design elements and modern aesthetics are key approaches to community care center design. This design not only reflects a safe and comfortable environment but also addresses the psychological needs of the elderly. In this process, the challenge for designers is to incorporate modern approaches that simultaneously reflect safety.

2. Extracting and Analyzing Design Elements from Current Care Centers Most community care centers have 40-90 units per building. Each building has common areas such as a common living room with a kitchen and laundry room, a common bathroom, and a garden. Single-family units typically include a living room, bedroom, bathroom, kitchen, hallway, and private restrooms. These are standard affordable rental options in community care centers. According to the regulations of the Nanjing City Council's Community Elderly Care Center Department (2005), participants were at least 60 years old, in good mental health, and able to manage daily activities. This approach minimizes bias by excluding individuals with dementia or other mental health problems. Participants were recruited from Nanjing's community elderly care centers. Although moving to a nursing home can have negative consequences for some elderly individuals (Blenkner, 1967; Wittels & Botwinick, 1974), this often occurs because the familiar environment facilitates improved self-management (Windmill, 1990).

(1) The analysis of Guanghua Yuan in Gulou area

Guanghua day care center is a two-storey building. Each floor has two levels: lower ground floor and upper ground floor, lower first floor and upper first floor. The location of convenient public transport provides a five-minute bus ride into the city centre.



Figure 1 Guanghua day care center for the data analysis area
Source: Researcher

The lower ground floor features studio flats with a shared furnished lounge and kitchen, plus a fully equipped laundry (Figure 2). A stair lift and walk-in lift provide accessibility. One-bedroom flats are located on the upper ground floor, while the lower first floor contains an office and a guest bedroom, along with a shared walk-in shower. The upper first floor primarily houses studio flats.



Figure 2 Guanghua day care center: Common room (Left); Laundry (Right)
Source: Researcher

(2) Yihe community day care center in Xuanwu area

Located in the northwest area of Nanjing city center and near shops, the facility consists of 64 flats. The ground floor features two communal furnished lounges (Figure 3).

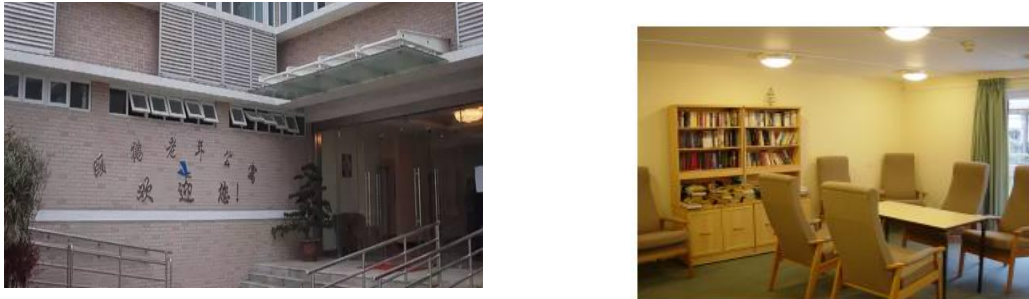


Figure 3 Yihe community day care (Left) and Small Common room (Right)

Source: Researcher

Discussion & Conclusion

This study aimed to analyze the direct effects of design on the elderly care environment, including spatial division, safety features, and care facilities, in order to create a safe and comfortable elderly daycare center design for urban communities in China. The findings revealed that elderly residents place high value on interior safety elements such as non-slip flooring, appropriately placed handrails, wide corridors, and strategic lighting. In addition, the arrangement of furniture, use of warm and contrasting color schemes, and spatial accessibility were found to significantly enhance a sense of comfort, autonomy, and emotional stability among elderly users. Furthermore, visual clarity, tactile feedback, and ergonomic design emerged as critical components for maintaining both physical safety and psychological well-being. Experts also highlighted the importance of integrating local cultural characteristics into design, as such elements strengthen users' sense of identity and emotional connection with their living environment.

The results of this study strongly correspond with the theoretical foundations discussed in Chapter 2, particularly the **Colour Theory** and the **Theory of Emotion**. According to the Colour Theory, color evokes emotional responses through qualities such as clean versus dirty, tense versus relaxed, and heavy versus light tones. These attributes directly influence the mood, behavior, and comfort level of elderly users (Linton, 1999; Day, 2004). The present findings confirm that warm and contrasting color combinations—such as soft yellows, muted oranges, and pastel hues—can stimulate positive emotional reactions, promote a sense of warmth, and reduce anxiety within elderly care environments. Similarly, high-contrast color schemes improve visual clarity, which is essential for those experiencing age-related visual decline. Therefore, the application of color psychology is not merely aesthetic but also functional, fostering both safety and emotional stability in daily activities.

In relation to the **Theory of Emotion**, emotion is viewed as a purposive mode of behavior comprising three interconnected mental dimensions: feeling, belief, and desire. These aspects collectively shape the elderly's perception of their environment and their sense of well-being. The study's results support this theory by demonstrating that design elements—such as spatial openness, ergonomic furniture, and the inclusion of natural materials—stimulate positive emotional experiences. Spaces designed to evoke comfort, security, and belonging help fulfill the elderly's emotional desires for stability and connectedness. Moreover, the presence of

culturally familiar design motifs further enhances emotional resonance, fulfilling the cognitive dimension of belief and reinforcing psychological attachment to place.

In summary, this research affirms that **environmental design directly affects emotional and physical responses** among elderly users. Theories of color and emotion collectively explain how sensory perception, visual harmony, and spatial configuration influence both safety and psychological comfort. Therefore, the successful design of elderly daycare centers must integrate these theoretical principles to ensure that spaces are not only physically safe but also emotionally supportive. This approach contributes to a holistic understanding of design—one that bridges functionality, aesthetics, and emotional well-being—ultimately fostering a sustainable and dignified living environment for China's aging population.

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