Evaluation of Spatial Quality in Elderly Housing Facilities

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Abstract
The elderly population in Iran has dramatically increased in recent decades. Therefore, housing needs of the elderly are becoming more diverse than in the past, in terms of household types, economic status, health status, education level, family relationships, and housing experiences throughout their lifetimes. Most of older people expect to live in a house layout appropriate to their preferences. In reality, however, there is a lack of sufficient housing alternatives to suit their needs. Thus, various housing alternatives need to be developed to allow Iranian elderly to live as they like. This study surveyed the opinions of elderly housing facility staff in selected facilities to identify the opinions of residence-related characteristics and to investigate current problems, difficulties and improvement needs of the social issues and quality of physical space. Results of this study can provide useful information that can facilitate the improvement of alternative plans for elderly housing facilities in the future.

Keywords: architecture, elderly, housing, quality.

1. Introduction

Cities are composed of people's main habitats in the contemporary world, playing a critical role in the discourse of sustainable development (Moosavi, 2016). One of the biggest challenges of sustainable development worldwide in the 21st century is the emergence of aging societies. In particular, Iran shows an unprecedented increase in the elderly population. Many other advanced countries, as well as some member countries in Organization for Economic Cooperation and Development (OECD), have shown a slower increase in the elderly population, giving them sufficient time to prepare their infrastructure to address related issues through trial and error, and have adopted appropriate measures. For Iran, however, the situation is different. As Iran has experienced a rapid increase in its aging population, it is not as well prepared for this new phenomenon. Therefore, a number of problems exist, including family fragmentation due to the nuclear family, a reduced birth rate and a weakened tradition of children supporting their parents, due to changes in the traditional filial piety system. As a result, the welfare of the elderly needs more attention, especially in terms of residence environment.

The Iranian government has actively implemented a number of policies focused on assisting the elderly, such as increasing the supply of welfare facilities, and supporting the cohabitation of family members and the supply of related facilities. Nonetheless, the supply is far below demand. Providing new and diverse housing alternatives for older members of society is an urgent issue for preparing an aging society.

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Hence, this study surveyed the opinions of researchers and facility staff in several elderly housing facilities to identify the opinions of residence-related characteristics and to investigate current problems/difficulties and find the improvement needs of the social issues as well as quality of physical space. Results of this study can be useful information to improve the housing situation of facilities and also the development of alternative plans for elderly housing in the future.

2. Literature Review

The World Health Organization (WHO) has promoted the concepts of age-friendly cities and lifetime neighborhoods through its Age-friendly Environments Program. WHO describes an age-friendly city as one that is an inclusive and accessible urban environment that promotes active ageing. An age-friendly city adapts its structures and services to be accessible to and inclusive of older people with varying needs and capacities. A lifetime neighborhood has been described as a place where a person's age doesn't affect chances of having a good quality of life. The people living there are happy to bring up children and to grow older – because the services, infrastructure, housing, and public spaces are designed to meet everyone's needs, regardless of how old they are (Cairncross, 2016).

During the 20th century, socio-political reforms reoriented the type of architecture that is used for residential care homes from an institutional environment into a home- like milieu. Moreover, the residential care homes have shifted from being mainly intended for older people with low a financial income to becoming an integrated civil right of the modern welfare state (Brodin, 2005; Andersson, 2011). This changed ideological-political view on how to accommodate older frail people has called for new architectonic visions. The positive effect of the homelike environment has empowered architectural thinking since 1907. In most cases, these reforms have preceded necessary changes of the care work that is based upon the routines of the hospital environment in the same direction (Se-lander, 2001; Andersson, 2011). Consequently, this paper assumes that architecture is a type of social art: It is made for social purposes, and as such it reflects society (Hillier, 1996; Andersson, 2011).

What the conventional looking residential settings—usually multiunit apartment buildings have in common is that they are occupied by a critical mass or sizable population cluster of low-income older adults who have at least some difficulties living independently because of their physical or cognitive impairments and chronic health problems. Onsite staff hired by the housing provider, outsourced or partnered home and community-based health and service providers, or a combination of these service delivery approaches supply these elder concentrations with an array of supportive services (Golant, 2008). In Iran, in the last two decades, the aging of population will dramatically increase due to the reduction in fertility and mortality level in infants and increase in the life expectancy (Koosheshi et al., 2016). For the time being, there is an increasing appeal for new knowledge in the humanities and social sciences to help solve problems and understand humanity's relationship within the complex modern society (Moosavi, 2017). Needs and requirements of older members od the society are among

the most significant issues in humanities and social sciences necessitating further attention and research, especially in countries like Iran.

3. Methods

In the present study, an opinion survey of experts in the area of elderly living arrangements was conducted from March to May of 2017. A survey questionnaire, consisting of open-ended questions, was submitted to 50 housing and elderly-related topics researchers and elderly facility staff members working in relevant fields, and 24 respondents (A1~A8: facility staff members, B1~B16: researchers) returned their completed questionnaires.

4. Results

In terms of what was the most satisfactory to residents about living in a facility, staff members indicated the various program activities. They also mentioned the provision of regular meals and a healthy diet, as well as the provision of medical services and convenient access to hospitals. Also, the elderly residents felt that they were safe and enjoy "being protected" by the facility staff. They might also perceive that their health improved after moving-in and that life became brighter than when they lived on their own. The results related to reasons of movement to elderly housing facilities are summarized in Table 1.

Table 1: Main Reasons for Moving into Elderly Facilities (as revealed by answers of facility staff)

	Reasons for moving into facility	Reasons for selecting facility	Reasons for leaving facility
Nursing Center	- Limited provision of care from family members (A1), (A5), (A7) - Decrease in negative perception of facilities (A5)	- Surrounding environment and convenient transportation (A2), (A3), (A7) - Word of mouth (A2), (A3)	- Death or health deterioration (A1), (A2), (A3), (A4), (A5), (A6), (A7), (A9) - Problems related to facility cost (A6), (A8) - Problems with other residents (A8)
Elderly Housing	- Anxious about lack of ability to deal with emergency situations (A6) - Loneliness (A9) - Difficulties living alone (A9) - Healthcare and prevention (A6) - Recommendation by children and financial support from children (A8)	- Facility is located in the city and has high accessibility (A6), (A9) - Positive assessment of facility by others (A9) - Expectation of services in the luxurious facility and of community activities with other senior citizens (A6)	

To the questions related to special requests and complaints from the elderly residents, the staff responded that some residents ask for additional care and services from staff, beyond what is normally provided. These requests were caused by the residents'

perception that not enough staff are available, even when more staff are present than is required by the related law. Staff reported that some residents requested food distribution and food care when that they are incapable of free movement. When residents request special services but do not intend to pay more, some conflicts can arise between residents and facility managers. In addition, as the many residents living together have different backgrounds, some have a hard time with interpersonal conflict, limitations to privacy, and infringement on their private life.

To discover any current problems and difficulties related to operating residential and medical welfare facilities for the elderly in Iran and to identify possible plans for improvement, we asked staff members about management problems and also asked questions from expert researchers regarding improvement needs in the facilities as shown in Table 2.

Table 2: Satisfactory and Unsatisfactory Aspects of Studied Elderly Housing Facilities

Satisfactory
•   Various program activities (A2), (A6), (A6), (A7), (A8)
•   Provision of meals and a healthy diet (A3), (A4), (A6), (A8)
•   Provision of medical services and convenient access to hospitals (A3), (A5), (A8)
•   Feeling of safety and security ("protected," "not alone") (A1), (A6)
•   Suitable configuration of spaces and living environment (A5), (A7)
Unsatisfactory
•   Lack of sensitive care (A1), (A5), (A6), (A8)
•   Tension between residents due to different personalities (A1), (A5), (A8)
•   Restricted freedom and invasion of privacy (A3), (A5)
•   Food unsuited to residents' tastes (A3), (A8)
•   Spatial limitations (A4)

To analyze the contents of the answers, we have classified their answers into three categories of social, physical and management.

a) Social Dimensions

The staff in the elderly care facilities pointed out difficulties caused by "Limited medical support (vehicle and labor)" and "Difficulty in participation in programs due to old age," which appear to be caused by the fact that the elderly care facilities such as nursing homes care for many elderly in the later stage of life who require more intensive care. On the other hand, elderly welfare housing staff pointed out that they face difficulty acquiring new customers because of a lack of customers having sufficient financial resources.

In the researchers' opinions, "various programs suitable for elderly are required," "The proper facility and medical staff are provided at all times," and "Provision of various kinds of meals is needed." These services are required for the healthy and active life of the elderly" and shall be the basics for the elderly residential facilities.

b) Physical Dimensions

The staff of elderly care facilities mentioned that problems related to space planning include "Privacy problems arising from joint living in 4-person rooms" and "Lack of

programs and conversation space," while the staff of elderly welfare housing revealed that problems include "prompt action is hard to take in an emergency as the space is private" and "active senior residents hate the equipment which makes the facilities look like a hospital or welfare facility."

In addition, researchers pointed out the opinion that "Design is required to take into consideration the elderly (universal design for disabilities)" and "Reduction in size and variation of public spaces are required," thus emphasizing the necessity of improving elderly residential facilities and the efficiency of space planning.

c) Management Dimensions

In the area of operation and management, the staffs of elderly care facilities pointed out that the caring fee should be raised to reflect the real situation, while elderly welfare housing staff answered that there is a "financial difficulty as the resident elderly hates to pay the additional fee," thus indicating that they suffer from financial difficulty. The researchers mentioned that there is a "Lack of regulations concerning management and operation." Thus, as Iran lacks the same experience running an elderly welfare system compared to advanced nations, more emphasis should be placed on the preparation of government regulations regarding management and operation of facilities. In addition, a number of opinions were offered on the need for preparation of "Indicators of assessment on the soundness of the owners of the facilities." As a result, the transparency of operation should be enhanced, so that consumers can trust in and take advantage of the benefits offered by the facilities.

In the area of resident management, nursing home staff and elderly welfare housing staff answered that "The facility cannot evict the residents even if they fall under the conditions of eviction as they have no place to go" and "It is hard to evict residents who are not complying with the regulations for joint living." On the other hand, the researchers answered that improvements are needed, such as "Formation of relations between staff and residents," "The residents organization needs to be organized and activated," and "A committee is required for the confirmation of new residents and leaving residents and an auditing system is required." Therefore, a means of communication and mutual understanding of the positions of staff and residents is needed. The detailed results of the study are categorized in Table 3.

Table 3: Problems with Selected Elderly Housing Facilities

	Difficulties in operation (staff opinions)		Areas of improvement (researcher opinions)
	Elderly welfare housing	Elderly care facilities	
Social dimensions	- Limited medical support (A1), (A3) - Limited support for the program manager (A2), (A3) - Difficulty participating in	Limited acquisition of new customers is due to the lack of customers having sufficient financial resources (A5) - High cost associated with the	- Various programs appropriate for the elderly are required (B3), (B4), (B5), (B6), (B7), (B10), (B15) - Provision of appropriate facilities and medical staff at all times (B2), (B8), (B16) - Provision of various kinds of meals (B4), (B6), (B9) - Strengthened service for individuals, such as cleaning and laundry (B4), (B14)

	programs due to old age (A2), (A4)	provision of good facilities and services (A5)	- Difference in the service of leisure/culture, depending on the facilities (B11), (B13) - Introduction of home doctor and health management system (B6)
Physical Dimensions	- Privacy problem arising from joint living in 4-person rooms (A1), (A4) - Fire extinguishing equipment (A4), (A6) - Problems in the traffic line in emergencies (A1) - Lack of programs and conversation space (A2) - No elevator in the building (A4)	- Difficulty in taking prompt action in emergencies, as the space is private (A5) - Resident dislike of equipment that makes the facilities look like a hospital or welfare facility (A5) - Threshold is not removed/ the sprinkler is not installed (A8)	- Design that takes into consideration the needs of the elderly (i.e., universal design for disabilities) (B2), (B6), (B7), (B8), (B10), (B13), (B15), (B16) - Reduction in size and variation of public space (B2), (B4), (B5), (B7) - Plan for privacy (plan for 1-person or 2-person rooms) (B2), (B3), (B11) - Location in or near the city (B2), (B3), (B11) - Activation of relations (between community and residents) (B5), (B6), (B10) - Enlargement of leisure space (outdoor space or garden) (B2), (B6) - Home-like design (B9), (B14) - Conversion to small-sized facility or enlargement of the facility (B3) - Diversified residential forms (B6)
Management Dimensions	Need to raise the caring fee reflecting the real situation (A1), (A2), (A4) - Difficulty of the facility evicting residents even if they fall under the conditions of eviction as they have no place to go (A4) - Difficulty in raising the salary for staff due to the lack of operating funds (A2), (A4), (A5) - Difficulty in operating the facilities due to the high rate of staff turnover	- Difficulty in achieving profitability, as residents hate to pay additional fees (A5), (A7), (A8) - No support from the government for fee-based facilities, yet strengthening of regulations (A8) - Difficulty evicting residents who are not complying with the regulations for joint living (A5), (A8) - Excessive service requests by residents result in difficulty keeping the service at a	- Lack of regulations concerning management and operation (B2), (B5), (B12), (B13), (B14) - Provision of different services, depending on the manager of the facilities (B2), (B6), (B14), (B16) - Indicators of assessment on the soundness of the owners of the facilities (B2), (B3), (B4), (B10) - Increase of donation (B1) - Expansion of private operation system (B7) - Formation of relations between staff and residents (B2), (B5), (B10) - Committee for the confirmation of new residents and exiting residents and an auditing system are required (B11), (B13), (B16) - Need of the system of staff in charge (B1), (B6) - Regular meetings between residents and family (B4) - An active residents' organization is needed (B7)

(A5)	certain level (A5) - Friction between residents with respect to financial resources (A7) - Insufficient staffing, due to the lack of operating funds (A6), (A8), (A9)	- Total residents' management system required (B9) - Training for the strengthening of staff capabilities (B1), (B4), (B7), (B11), (B12), (B14), (B16) - Insufficient number of staff members (B2), (B7), (B10), (B11), (B14) - Preparation of a stable welfare system for the staff (B10), (B11), (B13), (B14), (B15) - Guarantee of flexible employment system, such as part-time, service personnel, and residential staff (B2), (B5) - Option for reducing the physical burden of staff (B3), (B6) - Professional education for volunteers (B7) - Monitoring of staff behavior required through CCTV (B11)

In terms of staff management, nursing home staff pointed out that there are problems such as "The raising of salaries for staff is hard due to the lack of operating funds" and "Due to the high rate of staff turnover, it is hard to operate the facilities." As for elderly welfare housing, the staff answered, "Due to the lack of operating funds, there are not sufficient staff," thus indicating many problems with respect to the lack of staff and financial difficulties. In addition, the researchers suggested that there is a need for "Training for the strengthening of the capability of staff" and that improvement is needed related to "The insufficient number of staff" and "Preparation of a stable welfare system for staff." These responses indicated that job stability within the welfare facilities is not adequate, due to the working environment, which includes low wages and non-regular work, and shall be improved.

Conclusion

This study was designed to discover experts' opinions to improve the quality of elderly housing situations and provide information for developing better housing alternatives for Iranian seniors in the future. Based on the results of this study, the following suggestions can be presented to improve the quality of life for elderly living in housing facilities.
First, various kinds of facilities should be developed that consider the needs of diverse consumers. Depending on the situation, facilities could be combined to achieve a better result in provision of higher quality. More welfare facilities should be designed and constructed for the low and middle-income elderly in urban areas. For the elderly who have no or lack financial resources, private facilities also need to be expanded. In addition, for convenient movement between facilities, depending on the health situation of the elderly, it is recommended to introduce especial architectural guidelines in design and construction as well as assisted living units or a concept that is a combination of

residential welfare facility and elderly care facility, to create a continuing care retirement community (CCRC), which has been introduced in some advanced welfare countries. This concept has not yet introduced in Iran.

Second, facilities should have a stable environment with respect to location and surrounding conditions. When welfare facilities for the elderly were first introduced in Iran, they were mainly located in areas far away from the city or downtown. However, if elderly residential facilities are located near or inside the city, as recommended, so that the elderly do not feel alienated from other members of the society or the local community with which they are familiar, location will be an issue that needs to be addressed.

Third, in terms of architectural space planning, it is recommended that the universal design concepts be introduced in which guidelines for the facilities are systemized and education, control, and supervision be strictly applied. As indicated by the staffs' answers to the need for the installation of an elevator, fire extinguishing equipment, sprinklers, and the removal of the threshold, priority shall be given to promotion of safety and independent living of the elderly when planning and designing elderly housing. Moreover, the design of elderly housing should avoid elements that create the atmosphere of a hospital or institution.

Fourth, facilities should be converted to create more small-sized spaces. In most cases in Iran, many elderly care facilities typically have a 4-person room system. However, this arrangement creates a problem related to visual or acoustic aspects of privacy for the elderly. Thus, to preserve the privacy, creating more 1-person and 2-person rooms, as well as small-sized elderly housing units are potential solutions.

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