Elderly-oriented Environment Construction Strategy Based on Survey and Hierarchical Analysis of Elderly Activity Participation in Community

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Abstract

This paper analyzes how to improve the participation of elderly people in community activities, investigates the willingness, participation and space utilization of elderly people in both old and new communities, and obtains six environmental construction factors that affect the participation of activities in communities through research and data analysis, namely, the safety of activity space, quantity and area, convenience of activities, richness of activity content, environmental comfort and community soft environment construction, and use AHP analysis method sorts their importance, finally puts forward the strategies of community environmental construction.

Keywords: activity participation; elderly-oriented community; environmental construction

1. INTRODUCTION

China has been regarded as an aging society since 2000, having the world's largest elderly population. Faced with the rapid speed of aging, getting old before getting rich and other phenomenas. China implements the "9064" old-age policy, which is mainly based on home and community old-age care. However, in practice, there are still many problems in community old-age care, which can not fully meet the diversified physical and mental needs of the elderly.

In 2002, WHO introduced the "Active Aging Theory", which emphasizes mobilizing older people to participate in social activities in accordance with their capacities and needs to extend their period of health and self-help independence[1]. In 2005, WHO introduced the concept of "Global Old Age-Friendly Cities", and in 2020, our country launched a demonstration community creation of friendly communities for older persons, all of which will encourage broad and full social participation of older persons.

Research shows that elderly themselves have the needs for activities[2], entertainments and communications. moderate outdoor activities are conducive to delaying physical aging, maintaining cognitive ability, reducing loneliness and having happy mood. A good social environment can stimulate the participation of older people in activities. Therefore, it's necessary to analyze the environment construction strategy from the perspective of the elderly activity participation in community.

2. RESEARCH BASED ON THE ACTIVITIES IN TWO COMMUNITIES

The activities of older persons in the community are first classified. according to organization type they can be divided into Spontaneously leisure activities[3] and community organized activities, according to the specific content they can be divided into public affairs (including management, construction and other public service activities), education promotion affairs(including learning, communication, lectures, re-education and other activities), leisure activities(including walking, chatting, sunbathing, taking care of children, raising flowers and so on), entertainments (including chess, singing and dancing, Interest activities such as book reading) and fitness activities (including soothing sports such as equipment, jogging, sword dancing, etc.).The study surveys six communities in Kunming, with old communities in the 1980s and 1990s and newer
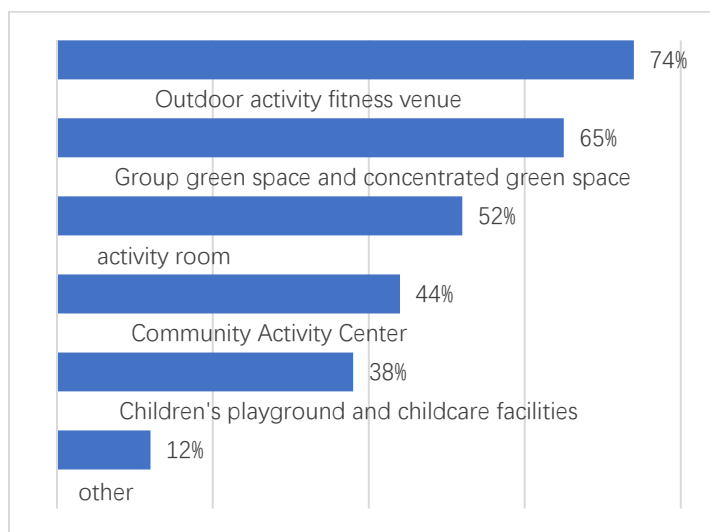
communities built at the beginning of this century.The
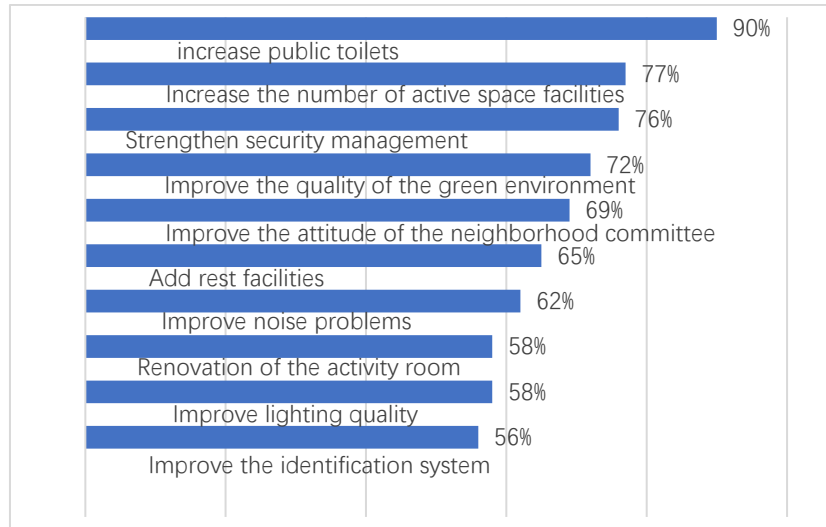data of the survey sample are shown in Table 1.

Table 1. The overall structural characteristics of the sample of older persons interviewed

Age structure		Gender composition		Education		The community in which they are located	
content	classify	content	classify	content	classify	content	features, the age of construction
Low age (55-65 years old)	48%	men	45%	Low level of education: below primary school	40%	Xizi Camp Community, JiangAn District, Donghua District	Multi-layered, 1990s
Medium age(65-75 years old)	35%	women	55%	medium level of education: junior high school and secondary school, high school, technical school	45%	YunDa community, YueYaTang community	Multi-layered, early 21st century
Advanced age (over 75 yrs)	16.8%			High level of education: above university	15%	HeTangYueSe District	High-rise, early 21st century

2.1. Research on the activities of the elderly in the old community

Table2. The needs of older persons for community activities space

74%
Outdoor activity fitness venue
65%
Group green space and concentrated green space
52%
activity room
44%
Community Activity Center
38%
Children's playground and childcare facilities
12%
other

Table3. Recommendations for upgrading spaces and facilities in older communities


This kind of old community was mainly built in the 1980s and 1990s, because the living standard was not high then, they have common following problems, (1) lack of space for activities, parking occupies and traffic mixed. (2) The activity space are not suitable and humane for old people. (3) Poor quality of community environment. (4) The large turnover of people affects the psychological security and belonging of the elderly to the community.

According to the survey of the willingness of the elderly in the community to participate in activities[4], only 35 percent of the elderly are willing to participate activities, and factors such as inconvenient access to venues or lack of venues, shabby activity facilities and lack of familiar companions in the community all affect the willingness of the elderly to participate in activities. Residents are most in demand for outdoor activities and fitness venues(Table 2), and the need to improve the mixed traffic of people and vehicles in the community, increase activity space and public toilets, increase accessibility and rest facilities, improve community committee's attitude, streetlight, noise and other issues(Table 3).

2.2. Research on the activities of the elderly in new communities

The other kind is newer communities built after 2000, which generally have a better environment and more space and facilities. However, the participation and enthusiasm of the activities are not ideal.

Table 4. Percentage of older persons involved in community activities
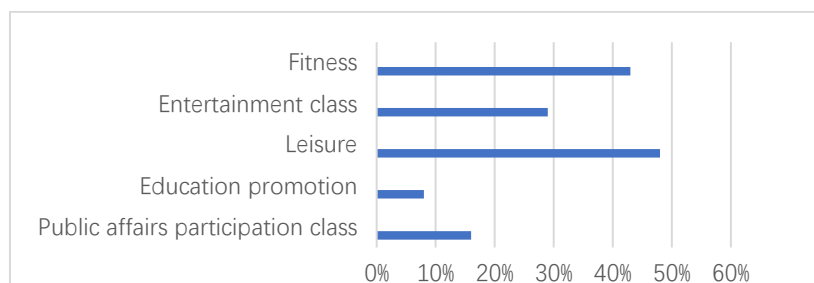
Through the research, it can be seen that the old residents in the new community are more willing to participate in activities than the old residents in the old community. The reason why residents don't want to participate in activities are that the community doesn't organize activities, there are no familiar companions, the unreasonable design of facilities accounted for a certain proportion.
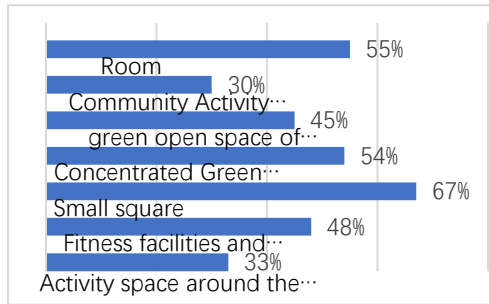
It can be seen from the survey that participation in leisure activities is relatively high, while participation in public affairs and educational promotion activities are relatively low. This phenomenon reflects that insufficient organization and quantity of these two activities led to the suppression of the original willingness of older persons to participate(Table 4).

Older persons have different activity choices depending on their individual characteristics. Women prefer daily leisure activities, men are more interested in playing chess, jogging and other fitness activities; middle- and young-aged elderly are more focused on chatting, walking, dancing and other dynamic leisure activities, more than 75-year-olds prefer small-scale and chronic leisure activities.

The research also found that the participation of older persons in community activities is also related to factors such as their sense of community belonging[5], the older people who have Language barrier communication with others and less knowledgeable are less likely to have a sense of belonging, extroverted older people who have strong sense of belonging participate in activities more active.

Table 5. New Community Activity Space Usage

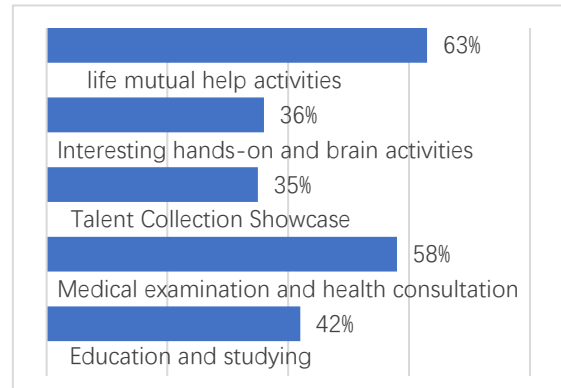**Table 6.** The further willingness beyond existing activities

To observe the frequency of community activity space usage at 3 peak time activities per day(Table 5), it is found that the choice of activity space for the elderly is related to climatic factors, activity content, environmental comfort, distance of activity place, whether the rest facilities are complete and comfortable. for instance, The rest facilities in the green space should have a good view and location [2] .

because the central activity area in the square can not only meet the needs to carry out dynamic activities without interference in different time per day, the surrounding area can also meet the elderly's needs to static chat and rest, so the use of the central square is higher.

By investigating the willingness of demand beyond existing activities(Table 6), we learn that the needs of the elderly have developed to a higher level, such as caring for each other, helping to solve life problems, exercising hands-on ability, improving self-confidence, and some activities that are beneficial to health.

3. COMMUNITY ACTIVITY PARTICIPATION FACTOR RANKING AND ENVIRONMENTAL CONSTRUCTION STRATEGY ANALYSIS

According to community research, on the basis of ensuring the number and area of activity space, the five important factors affecting the activity participation are the environmental comfort, convenience, rich content of community activities, safety, community soft environment construction, which are subdivided into 22 evaluation indicators, using the hierarchical analysis method to compare these indicators, to obtain a general order of the relative importance of all elements, to provide a quantitative basis for subsequent analysis(Table 7).

Table 7. Weighted values of factors that influence community activity participation among the elderly

The target layer	The criteria layer	weight	Single sort	Evaluation factor layer	weight	Total sort
Degree of impact on community activity participation A	Environmental comfort B_1	0.086	4	Environmental temperature and humidity is suitable (winter warm and summer cool)C_1	0.251	6
				Outdoor activity space to keep out wind and rainC_2	0.055	13
				The environment is beautifulC_3	0.541	2
				Avoid noiseC_4	0.055	13
				Environmental sanitation, fresh	0.098	11

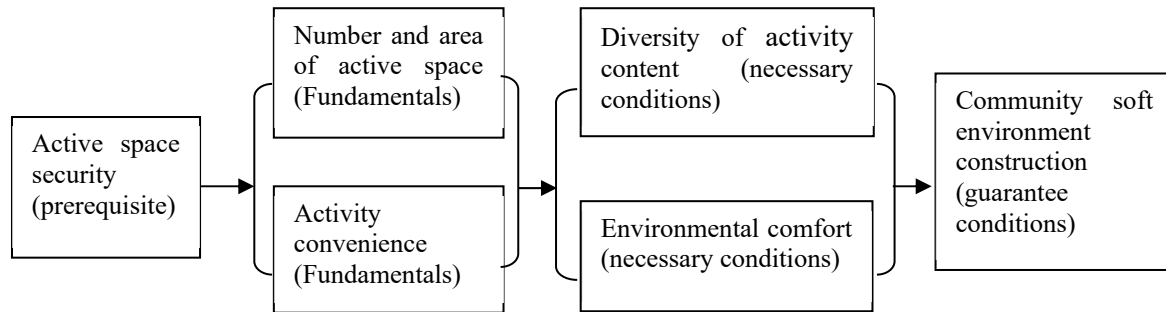|				$airC_5$		
	Activity convenience B2	0.161	3	The activity space is close to the residential buildingC_6	0.241	7
				Activity venues are fully equipped (bathrooms)C_7	0.589	1
				AccessibleC_8	0.17	9
	Diversity of activities content B_3	0.282	2	Diverse space for activitiesC_9	0.526	3
				Activities are rich in content, according with the interests of the elderlyC_{10}	0.282	5
				The activities of community organizations embody the sense of meaning and value, and have the characteristics of community cultureC_{11}	0.193	8
	Active space securityB_4	0.434	1	The roads next to the activity space are seperate roadsC_{12}	0.371	4
				Outdoor activity space is semi-publicC_{13}	0.08	12
				Community security is well managed C_{14}	0.371	4
				There are accessible facilities in the activity space C_{15}	0.16	10
	The construction of community soft environmentB_5	0.036	5	The community neighborhood has a good atmosphere C_{16}	0.371	4
				Community organizers have good care of the elderly and consider their individual needs C_{17}	0.371	4
				Community organizers take the initiative to encourage the elderly to participate the activities C_{18}	0.16	10
				Form the concept of building a characteristic community cultureC_{19}	0.08	12

It can be seen in the ranking that the safety of activity space is the most important, followed by the diversity of activity content, activity convenience, environmental comfort and community soft environment construction.

Among the small elements, the first important aspects are the full-equipped venues, beautiful environment, diversification of activity space, separate roads and other factors.

Based on the above five factors, combined with the necessary factor of the number and area of activity space, I summarize six elements of community environment construction to improve the participation of the elderly's activities and analyze the logical relationship among them (Table 8), putting forward the strategies of environmental construction to enhance the participation of the elderly's activities:

Table 8. the logical relationship of the six-elements to enhance activity participation

Active space security (prerequisite)	→	Number and area of active space (Fundamentals)	→	Diversity of activity content (necessary conditions)	→	Community soft environment construction (guarantee conditions)
		Activity convenience (Fundamentals)		Environmental comfort (necessary conditions)		

3.1. Enhance the security of community activity spaces

Community should achieve the separate roads and eliminate interference of parking on the activity space. Community security should be well managed. Venues and facilities should be designed to remove as many obstacles as possible and to safeguard elderly's life health and psychological security [1] .

3.2. Guarantee a sufficient number and area of activity place

In accordance with *the Living Area Planning and Design Standards*, a sufficient number and area of activity place are guaranteed.

3.3. Ensure diversity of activity content

The functions and forms of the activity space are varied and multi-level, and are designed for different ages, genders and health levels of the elderly. for instance, the space near home shoule be more considered meet the needs of the very elderly, leisure space should be more considered of the hobbies of the elderly women, convenient to chat and do housework.

Activities should have rich content, according to the elderly's different characteristics, education, regional, etc. , organizing activities which in line with the personality needs and hobbies, so that they can use their talent to share experience skills, activities can also be designed convenient for elderly to exercising hands-on and brain ability and strenthening self-care ability.

Activities that make older persons manage community and facilitate the lives can be organized, Such as caring help and supporting to eachother, taking care of empty nests and the very elderly, etc. , volunteers can also be organized to send packages, purchase online and open canteens. conduct medical and health consultations, lectures, physical examinations regularly, etc.

3.4. Improve activity convenience

Activities site location should be easy to arrive from each building, located between the community center and the residential buildings, smaller activity places can be reached in 5 minutes, larger one can be reached in 10 minutes, equipments should be complete and meet the ergonomics of the elderly, the toilet should be set up beside.

3.5. Improve comfort of the active environment

Outdoor environment landscape design beautiful, create a good climate environment, squares and other activity place should be selected in the sun, nearby should be planted with large tree shade. And in the windward side in summer we can plant tall deciduous trees to block the wind. In addition, maintain environmental sanitation, regularly clean up garbage, keep the air fresh and avoid noise.

3.6. From community soft environment construction to a higher level of demand

As the guarantee of hardware environment, the construction of soft environment is also very important. A good neighborhood atmosphere accords with traditional Chinese values and is an important factor for the activity participation of the elderly. More space for activities to promote their contact can also enhance neighborhood relations. Community organizers have intimate care for the elderly, build a mutual friendly atmosphere, exchange emotion between the elderly and between different generations, the future community can also use intelligent system for self-help activities, when the community forms a good atmosphere of active participation, care and mutual assistance, it also can

increase the sense of belonging of the elderly to creat a unique community culture together.

4.   CONCLUSION

As ageing of population increases，community activities will play a important role in the lives of the elderly. because there were problems such as insufficient activity space, poor environmental quality, imperfect hardware facilities and so on, the communities construction is not available to meet the needs of the elderly, nor can it motivate older persons to participate in activities. the future community environment construction should adopt strategies to enhance community participation among older persons. through research based on two kinds of communities, some strategies can be suggested: (1) Enhance the security of activity spaces; (2) Guarantee a sufficient number and area of activity place; (3) Ensure diversity of activity content; (4) Improve activity convenience; (5) Improve comfort of the environment; (6) enhance the community's cultural atmosphere and sense of belonging. We have now carried out a partial transformation, the implementation of these strategies also requires the government planning department, community grass-roots organizations and the masses to work together. to promote more elderly people to participate in community and social activities, then they may have good Psychological and physical health, achieve the value of life in later years, it can also contribute to the family and society, then elderly care will become a more relaxed thing, which is the needs of the age- friendly city and age-friendly community, but also the needs of a harmonious society.

Acknowledgement

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