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Interior in Residential Premises That Support Ageing in Place for Older Users

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Abstract

One of the effective factors in enabling individuals to age in place and to spend their old age periods more actively and with better quality is the physical environmental characteristics of the dwelling and its immediate surroundings. In this study, which is based on the assertion that individuals prefer to live in their own homes in old age, it is aimed to determine the features that should be carried by the houses that will support the aging in place of elderly individuals and to reveal the design principles. For this purpose, semi-structured interviews were conducted with 70 elderly users aged 65 and over in their residences. General frequency distributions and chi-square test analyses of the obtained data were performed in SPSS statistical program and descriptive content analysis was performed on open-ended questions and the data were examined with the comparison tables created. Then, all the data obtained from the field study are evaluated together with the literature information and the principles that should be considered in the renovation of the houses for the use of elderly users in line with the new needs are presented. With the design principles presented, it is envisaged that elderly users will continue their lives in a better quality and active way in their residences by extending the time they can be self-sufficient.

Keywords: *Aging, aging in place, residential, interior design.*

Yaşlı Kullanıcılar İçin Yerinde Yaşlanması Destekleyen Konutlarda İç Mekân

Öz

Bireylerin yerinde yaşlanabilmelerinde, yaşlılık dönemlerini daha aktif ve kaliteli geçirebilmelerinde etkili faktörlerden biri de konut ve yakın çevresinin fiziksel çevre özellikleridir. Bireylerin yaşlılık döneminde kendi evlerinde yaşamayı tercih ettikleri savı üzerine temellenen bu çalışmada, yaşlı bireylerin yerinde yaşlanmalarını destekleyecek konutların taşıması gereken özelliklerin belirlenerek tasarım prensiplerinin ortaya konması amaçlanmaktadır. Bu amaç doğrultusunda 65 yaş ve üzeri 70 yaşlı kullanıcı ile yaşamlarını sürdürdükleri konutlarında yarı yapılandırılmış görüşmeler gerçekleştirilmiştir. Elde edilen verilerin SPSS istatistik programında genel frekans dağılımları ve ki-kare testi analizleri edilmiş ve açık uçlu sorularda betimsel içerik analizi yapılarak veriler oluşturulan karşılaştırma tablolarıyla irdelenmiştir. Ardından alan çalışmasından elde edilen tüm veriler literatür bilgileriyle birlikte değerlendirilerek yaşlı kullanıcılar kullanımına yönelik konutlarda yeni ihtiyaçlar doğrultusunda tadilatında dikkat edilmesi gereken prensipler sunulmaktadır. Sunulan tasarım prensipleri ile yaşlı kullanıcıların kendi kendine yetebildikleri süreyi uzatarak konutlarında daha kaliteli ve aktif bir şekilde yaşamlarını sürdürmeleri öngörülmektedir.

Anahtar kelimeler: *Yaşlılık, yerinde yaşlanma, konut, iç mekân.*

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1. Introduction

One of the most prominent demographic phenomena in the last century is that the proportion of the elderly population is increasing throughout the world. The world population is rapidly aging as a result of decreased fertility, rising living standards, and prolonged life span due to developments in the field of health and technology. As a multifaceted and multidimensional process, the phenomenon of old age is defined in different ways depending on the discipline in which it is addressed. In its definition of chronological old age, the World Health Organization considers the beginning of old age as 65 years of age and defines the 65-74 age range as young old age, 75-84 years of age range as advanced old age, 85 years and above very advanced old age (World Health Organization, 1989; World Health Organization, 1999).

Depending on the increasing age in old age, there are many changes in physical, sensory, social, and psychological aspects in individuals. Physiological changes and loss of power during this period make it difficult for individuals to perform their daily activities. Losses in muscle mass and elasticity, various joint disorders due to kneeling, bending, and lying movements become difficult to do, while pain in the joints, weakness, etc. caused by the weakening of the grip and holding movements of the elbows, hands and fingers caused by the weakening of the grip and holding movements of the elbows, hands and fingers are experiencing a decrease in dexterity. However, during this period, due to the loss of strength in the arms and legs, there is a decrease in physical exertion, and difficulties in lifting, pushing and pulling objects (Arpacı, 2005; Çakır, 2004; Hazer, 2012; Johnson, Duncan, Gabriel & Carter, 1999; Kalınkara, 2017; Terakye & Güner, 1997). With the increase in age, there are also various sensory losses such as loss of vision, hearing, smell and taste abilities, and loss of sense (Johnson et al., 1999; İmamoğlu, 2015; Pinto, De Medici, Zlotnicki, Bianchi, Van Sant & Napou, 1997). Along with old age, individuals also experience several changes in perceptual and cognitive aspects. During this period, with deformations in the central nervous system, a decrease in learning, perception, reasoning ability, short-term memory loss, forgetfulness, and decreases in behavior and reflexes occur (Çakır, 2004; Hazer, 2012; Kalınkara, 2017).

Many factors affect the social life of individuals, such as the decrease in income level with the termination of the active work process in old age, the relative distancing from social life, the change in social roles and status (Günay, Aydıner, Şahin, Demirci & Oğuz, 2016; Hablemitoğlu & Özmete, 2010; Kurt, Beyaztaş & Erkol, 2010). From a psychological point of view, the feeling of fear of death can be seen in individuals in old age, changes in emotional status, loneliness, and increased age (Kemppainen Ozer, 2006; Kimmel, 1988; Koşar, 1996).

User requirements are directly related to the characteristics of the user, and the physical, sensory, social and psychological changes that occur in individuals in old age differentiate their physical and psycho-social requirements or, sometimes, within these requirements, priorities may change. Specifically, the spatial requirements defined about the user characteristics, the actions performed in that space and the furniture/equipment/equipment needed when performing these actions differ depending on the changes occurring in old age. Static and dynamic anthropometric dimensions, which change about physiological changes occurring in old age, make it necessary to consider these dimensions in determining formal and dimensional features in spatial or furniture/equipment scale designs for the use of older individuals. Similarly, changes in the capability of holding, grip, etc. make it necessary to evaluate the equipment characteristics in this context, especially in kitchens where the use of various equipment is intensive. Increased age-related movement restriction and rapid fatigue entail the types of actions of individuals, the way they perform actions, the frequency of use of spaces in housing, and changes in inter-spatial relationships. The old age period is a period where both health problems and various household accidents are more intense with changing physiological characteristics and loss of yeti. When determining the conditions for meeting health and safety requirements, it is very important to consider the sensory characteristics that change in old age. During this period, due to decreased vision due to the increased age, the level of luminance needed and the need for the use of various color and texture contrasts is increasing. Again, age-related hearing loss modifies the auditory requirements, while audible stimuli

in various equipment used in residential buildings are supplemented with visual stimuli, or some acoustic arrangements are necessary. In old age, the decrease in body temperatures causes an increase in the temperature degree needed in space. Bathrooms are spaces where the need for thermal comfort of individuals in old age is prominent. Besides these, sensory changes in individuals also influence visual requirements and play a role in material, color, texture, and lighting preferences. It is important to meet the visual requirements of individuals in performing food preparation actions such as cutting, and chopping, especially in the kitchen space. The safety requirement is defined as primarily associated with the feeling of being safe, both physically and psychologically. Due to the higher risks of accidents such as slipping, falling, etc. in old age, the feeling of physical security and emotional security with loneliness comes to the fore. Along with all these physical requirements, as well as the changes experienced in old age, psycho-social requirements also change.

Many studies show that in old age individuals prefer to continue their lives in their own homes (Burr, Mutchler & Warren, 2005; Kalınkara & Arpacı, 2013; Kalınkara & Kalaycı, 2019; Lansley, Flanagan, Goodacre, Turner-Smith & Cowan, 2005; Lecovich, 2014; Peek, Luijkx, Rijnaard, Nieboer, Voort, Aarts, Hoof, Vrijhoef & Wouters, 2016; Pinto, De Medici, Van Sant, Bianchi, Zlotnicki & Napoli, 2000; Rioux, 2005; Tang & Pickard, 2008; Tanner, 2001). It is defined as aging in place when individuals continue their lives independently, actively, and socially in their existing dwellings and the environment they are accustomed to for as long as possible, regardless of age, income, and abilities. Aging in place allows older individuals to be able to self-enough, allowing individuals to keep control and control rights over their lives in their own hands (Cook, Yearns & Martin, 2005; Fiessel, Kulyk, Peel, Pfeifer, Robert & Statler, 2013; Kalınkara & Arpacı, 2016; Low, Molzahn & Kalfoss, 2008; Pynoos, Nishita & Kendig, 2007; Salomon, 2010). Aging in places, which encourages individuals to grow old in a familiar environment/where they are accustomed, makes individuals feel peaceful and happy, as well as reduces the need for corporate care (Gillis, 2011; Kalınkara & Arpacı, 2013; Kalınkara & Kapıkıran, 2017; Vasunilashorn, Steinman, Liebig & Pynoos 2012; Wiles, Leibing, Guberman, Reeve & Allen, 2011).

In the environment where individuals belong, in their own homes, aging in place with another expression, and the physical environment possibilities that support it positively affect their life satisfaction. Life satisfaction, in other words, subjective quality of life, is an important element of quality aging. To increase life satisfaction, first of all, living conditions must be improved. In this sense, the characteristics of housing and its immediate surroundings are also one of the main elements affecting life satisfaction. Depending on the extent to which the home and neighborhood in which older individuals live meet the individual's needs, daily life activities, leisure time assessment and levels of participation in social life differ. Since the living space in old age is often limited to the housing and its immediate surroundings, it depends on the fact that the physical characteristics of the housing and its immediate surroundings are compatible with the physical characteristics, needs, and expectations of older individuals (Zorlu & Onur, 2019).

2. Material and Method

It is important that in old age the dwellings are designed in properties that will support on-site aging. For this, first of all, the planning scheme of housing must comply with the norms of housing use of elderly individuals. In this context, it is important that the location of the spaces within the housing and the relationship with other spaces are correctly established. In addition, each space must be organized by the purpose of use and the actions taking place in it. The changing characteristics of individuals should be taken into account in the provision of physical comfort conditions in housing, in the selection of furniture/equipment and materials, some architectural details (Zorlu, 2017). In this study, the needs, desires, and expectations of individuals in their dwellings in everyday life during old age are determined and the features that should be considered in the interior design of dwellings to support in-place aging are discussed.

2.1. Participant Group

This study, which is based on the argument that individuals prefer to live in their own homes in old age, aims to determine the design principles by determining the characteristics of the housing that will

support their aging in place of elderly individuals. For this purpose, within the scope of the study; It is aimed to determine the requirements of individuals regarding housing in old age, determination of desires and preferences, and the characteristics that they are not satisfied about their existing housing. Within the scope of the study, answers are sought to the questions to determine what are the factors that affect the choice of aging in the place of individuals, which space they spend the most time in their dwellings, and what the norms of space use are. Based on the results of the analysis of the data obtained, the principles to be considered in the housing intended for elderly users or in the revision of existing housing in line with new needs are presented.

The study was carried out in the provincial center of Trabzon in Turkey. According to the data of the Turkish Statistical Institution for 2018, 27,516 elderly individuals live in Trabzon provincial center. 90% reliability and 10% error margin were observed in determining the number of participants, and the study was carried out with 70 participants aged 65 years and older in the framework of the World Health Organization's chronological definition of old age. 8 participants aged 20, 85 years, and older were interviewed in the 65-74 age range 42, 75-84 years. In determining the participants, the criteria of having lived alone or together with his wife in the Ortahisar district, being mentally healthy, having the ability to communicate, and having been living in the same housing for at least 10 years were taken into account. The snowball technique, which is one of the sample selection methods in qualitative research methods, was used in sample determination.

2.2. Research Design

In accordance with the goals and objectives determined within the scope of the study, the research design was established in 3 stages. In the first stage, literature related to old age, quality of life, life satisfaction, active aging, and on-site aging was scanned about the study topic. In the second stage of data collection, semi-structured interviews and identification studies/observation were conducted with 70 elderly participants from qualitative research methods. Before the study, a pilot study was conducted to test the comprehensibility of the questions in the interview and the questions were revised by the data obtained. The interviews were conducted face-to-face by attending the residences where they live in line with appointments received in advance from 70 elderly participants. Interviews lasted about 60 minutes with each participant. The answers to the interview questions were converted into text after the interview and listened to the voice recording of the permissions received from the participants. Questions in the interview form are collected in 3 main headings. The first group of questions is aimed at determining the user profile/properties. This title includes questions related to age, gender, marital status, educational status, occupation, working status, and level of economic income. The second group of questions is aimed at identifying users' housing preferences in old age and their reasons for choosing this preference. The third group of questions includes usages/norms and assessments both in general and in particular of living space, kitchen, bathroom, and bedroom spaces related to the current housing in which users live. The fourth group of questions is aimed at learning the assessment of users about how they want to have a residence. Answers to open and closed-ended questions in the interview form and the needs, desires, and expectations of elderly users related to their housing were identified. In addition, the current status of living space, kitchen, bedroom, and bathroom spaces in their residences was determined by photographs by obtaining permission from the users during the interviews to be used in the evaluations.

The third stage of the study relates to the analysis of data obtained from semi-structured interviews. In the answers given to the open-ended questions, the answers showing similarities with each other were grouped under the same headings by descriptive content analysis, and a data grouping was made. The grouped data were analysed in the SPSS statistical program used in quantitative data analysis and general frequency distributions were calculated. Considering that participants had multiple responses to open-ended questions, instead of predominantly determining the answers, their weight was proportioned to the number of participants (70). However, whether it is statistically related among the responses given to questions related to each other (the properties that are loved in the spaces located in their current residences, unloved properties, and the space of their dreams) were analyzed by the chi-square test in the SPSS statistical program and also analyzed by creating comparison tables. Finally,

all the data obtained from the field study and the information contained in the literature were evaluated together and the results of the study were revealed.

3. Findings and Discussion

The findings from the study were collected in two tables: demographic information on users, users' housing preferences, assessments of their current housing, and assessments of how they wanted to own housing. The majority of participants in the interview are in the 65-74 age range, women, high school graduates, housewives, and income status between 2,500-5,000TL. Part two findings correlate to users' housing preferences. When older users were asked where they wanted to spend their old age periods, almost all (97.1%) expressed their desire to live in their own homes or grow old on the spot. Among the reasons for users prefer their own homes, mainly because they feel more comfortable and free in their homes, feelings of being independent and not wanting to be a burden on another person were found to be effective. When considering users' reviews about their existing housing, users are predominantly (41%) living in the same housing for at least 25 years and are satisfied that their dwellings are mainly close to public transport, green spaces, and shopping facilities. When older users were asked what the home they live in meant to them, a large part expressed a sense of being peaceful and happy. Users have stated that they have the most living space in their homes and spend time on the balcony. The physical environmental factors related to the location such as being on the street, being close to the park, and seeing the sea are at the forefront (Table 1).

Table 1. Users' housing preferences and reviews about the housing they live in

User Profile		**(%)**
Age	65 - 74	60,0
	75 - 84	28,6
	85 and above	11,4
Gender	Female	67,1
	Man	32,9
Educational status	Primary School	10
	Middle School	18,6
	High school	48,6
	University	21,4
	Graduate Education	1,4
Profession	Housewife	40,0
	Civil servant	37,1
	Private sector	22,9
Working status	Retired	55,7
	Not working	40
	Working	4,3
Economical situation	0 - 2.500	41,4
	2.500 - 5.000	51,4
	5.000 - 10.000	7,2
	10.000 ve üzeri	0
Housing preference and reasons of users		**(%)**
Housing preferences	Own house	97,1
	Care	2,9
	New housing estates designed for elderly people	0
	Next to your child	0
Reasons for choosing where they want to live	A sense of comfort, freedom, not being a burden	65,7
	Feeling happy and peaceful	21,4
	Connection with the past, habit	17,1
	Neighborly relations	10,0
General evaluations of users regarding their residences		**(%)**
Residential period of use	25 years and above	41,0
	20-24 years	18,6
	15-19 years	21,4

	10-14 years	18,6
Features they like in the immediate vicinity of their home	Proximity to public transport	54,3
	Green spaces	54,3
	Shopping opportunity	50,0
	Landscape	40,0
	Proximity to healthcare	24,3
	Proximity to the city center	20,0
	Proximity to public service	7,1
Meaning of house	Peace and happiness	57,1
	Home	28,6
	Freedom	28,6
	Memory and belonging	20,0
The place where they spend the most time in their homes	Living space	74,3
	Other (balcony)	15,7
	Kitchen	10
	Bedroom	0
	Bathroom	0
Favorite feature of the house	Positive physical environmental characteristics of the location	54,3
	Proximity to public service in the immediate vicinity	27,1
	Physical factors related to housing	20
	Positive social environment factor	14,3
	Daylight	12,9
	Semi-open space use	10,0
	Garage, parking lot, parking space	5,7

When users are asked about their favorite and disliked features related to living space, kitchen, bathroom, and bedrooms; expressed features of living space in living space and kitchen space dimensions and organization of space in the kitchen come to the fore, while the features of the bathroom, daylight in the bedroom, space dimensions and the way of organization are insufficient is expressed as a higher priority. When asked how users want to continue their lives in a dwelling, the answers to the size, reinforcement features, and organization were mainly at the forefront of all the spaces discussed within the scope of the study (Table 2).

Table 2. Findings on users' current housing evaluations

Users' evaluations of their current residences		**(%)**
The features they like/satisfy in their living space	Space size and placement	32,9
	Positive characteristics of furniture and accessories	27,1
	Orientation and scenery	20,0
	Positive features of daylight	20,0
	In-residential location	11,4
	Semi-open space use	10,0
	Furniture and accessories with a moment value	10,0
Features that they do not like/are not satisfied within their living space	Small space size and layout	41,4
	Negative features of furniture and accessories	20
	Thermal comfort	12,9
	Lack of daylight	11,4
	In-residential location	7,1
	Semi-open space use	7,1
	Orientation and landscape	2,9
Features they like/satisfy in their kitchen	Space size and placement	27,1
	Positive attributes of equipment, work, and storage space	25,7
	Semi-open space use	22,9
	Positive features of daylight	17,1
	Orientation and landscape	15,7
	In-residential location	15,7
	Thermal comfort	7,1
	Accessibility	2,9

Features they dislike/dissatisfied in their kitchen	Small space size and layout	48,6
	Negative characteristics of equipment, work, and storage space	25,7
	Accessibility	18,6
	Thermal comfort	8,6
	Lack of daylight	7,1
	In-residential location	4,3
	Orientation and landscape	2,9
Features they like/satisfy in their bathroom	Positive features of the bathing area	31,4
	Space size and placement	25,7
	Positive characteristics of the equipment	20,0
	Thermal comfort	18,6
	In-residential location	15,7
Features they dislike/dissatisfied with within their bathroom	Negative features of the bathing area	38,6
	Small space size and layout	37,1
	Thermal comfort	18,6
	Accessibility	12,9
	Insufficient storage	7,1
Features they like/satisfy in the bedroom	Positive features of daylight	38,6
	Positive features of fittings, furniture, and accessories	35,7
	Relationship with the bathroom	15,7
	Space size and placement	14,3
	Orientation and landscape	12,9
	Semi-open space use	4,3
Features they dislike/are dissatisfied with in the bedroom	Small space size and layout	35,7
	Negative features of furniture and accessories	21,4
	Orientation and landscape	17,1
	Access to storage volumes	14,3
	Lack of daylight	10,0
	In-residential location	2,9
Features of the type of residence that users want to live in		**(%)**
Features they want to have in their living space	Space size and placement	64,3
	Daylight	44,3
	Orientation and landscape	40,0
	Semi-open space use	35,7
	Positive characteristics of furniture and accessories	21,4
	Single volume solution of living room and kitchen	18,6
	Aesthetic factors	11,4
	Special field of action	10,0
Features they want to have in the kitchen	Space size and placement	60,0
	Features of fittings, furniture and accessories	38,6
	Daylight	31,4
	Semi-open space use	25,7
	Single volume solution of living room and kitchen	24,3
	Accessibility	20,0
	Orientation and landscape	10,0
	Aesthetic factors	8,6
Features they want to have in the bathroom	Suitability and nature of the bathing area	64,3
	Space size and placement	54,3
	Relationship with the bedroom	22,9
	The nature of the reinforcement and storage space	22,9
	Thermal comfort	12,9
	Grab bar and seating element	10,0
	Aesthetic factors	4,3
Features they want in the bedroom	Features of fittings, furniture and accessories	52,9
	Space size and placement	38,6
	Daylight	37,1
	Orientation and landscape	21,4
	Relationship with other places	17,1
	A special area of activity	17,1
	Access to the bed and closets	10,0
	Aesthetic factors	8,6

4. Discussion

In the analysis of data obtained from semi-structured interviews with elderly individuals, it was first questioned whether there was a statistically significant relationship between the answers to the questions by chi-square test in the SPSS statistical program. In the second stage, the relationships between the most beloved, unloved and desired characteristics for living space, kitchen, bedroom and bathroom spaces in the residential area were compared with comparison tables prepared with data based on the general frequency distributions of the answers to the questions.

Age, gender, marital status, educational status, occupation, working status, each of the variables, housing preferences, housing close environment characteristics, meaning of the house, the most time spent and the living space of their dreams, whether there is a statistical correlation between the answers to the questions of kitchen, bathroom and bedroom, whether there is a statistical correlation between the questions of the SPSS statistical program chi-square tested by the test. According to the applied Likelihood Ratio test, only a significant relationship between age and residential close environmental characteristics was found. (LR:6,684, df:2, p:0,035 p<0,05) (Table 3). The source of the difference is that elderly users over 85 years of age emphasized the importance of proximity to health services near housing. This situation was considered as an indication that proximity to health services near housing in the advanced old age period is more priority than shopping opportunities and social activities.

Table 3. The relationship between the characteristics of the residential neighborhood and age

Pleasant features in the residential neighborhood		**Age**						**LR**	**df**	**P**
		65-74		**75-84**		**85 and above**				
		%	Adj. Res.	%	Adj. Res.	%	Adj. Res.	6,684	2	,035
Proximity to healthcare	Mentioned	10,0	-1,8	7,1	,1	7,1	2,7			
	Didn't mentioned	50,0	1,8	21,4	-,1	3	-2,7			

When the answers given by older users about what they like, dislikes and how they want to continue their lives in a living space, the dimensions of the space and the layout of the furniture in the space were the first highlighted feature. Users were first expressed in the ranking of the positive and negative characteristics of their living spaces, while daylight and landscape were other issues that stood out in the characteristics of the living space they wanted to have. Regarding the size and organization of the living space in their dwellings, users expressed their positive characteristics with phrases such as *"big and wide", and "big enough to walk comfortably*", and negative features with *phrases such as "cramped and narrow constantly strike my leg against the coffee table in the middle"*. These statements reveal the importance of furniture placement as well as the size of the space to be able to move comfortably in the space due to decreased mobility due to age. Another issue that is being discussed about the living space they want to have is the characteristics of the seating facilities in the space. About the furniture in their living space, users note their positive characteristics with phrases such as "having a comfortable and spacious seat where I can lie down..", "having a coffee table next to my seat where I can put my medicine", "my seats are not too hard and very soft", "easy to *carry", "my furniture is very soft", "my seats are very soft expressed negative properties with phrases such as "be"*. Due to decreased muscle mass and loss of elasticity in old age, users have difficulty performing actions such as lifting, lying down, and pulling. The inability of furniture and equipment to meet the changing physical characteristics of elderly users is one of the main reasons for complaining. It is important that the dimensional and formal characteristics of the seats in this space are suitable for users. Users want their seats to be at a height where they can sit and get up comfortably, not too hard or too soft. However, the landscape and the daylight factor are other prominent topics in the living space. Users noted that *they care about turning to the landscape in their residences with expressions such as "Sun is my joy* to life", "Sun is my joy to life", "sun adds *life to my life", "it's nice to see the garden through the window", "Passing cars sound to me, I don't feel lonely", "it's nice to see the garden through the window", "I love watching people passing through the street*". The relationship of living

space with the environment becomes more important for them to spend a very large part of their daily lives in the living spaces of the residential living space. For users to feel happier and not isolated from society, the orientation of the living space to a street, road, or street is very important. Besides these are the features that users want to have in the living space that they do not mention in their existing residences but want to have; the setting of the living space in the same area as the kitchen and the presence of areas related to the free time activities of users. When the table is evaluated in general, the characteristics that users complain about in their living space and the characteristics of the living space they want to own/live in show consistency (Table 4).

Table 4. Users' evaluations of living spaces

Features liked/satisfied in the living space	%	Dissatisfied/disliked features in the living space	%	Features they want to have in their living space	%
Space size and placement	32,9	Small space size and layout	41,4	Space size and placement	64,3
Positive features of furniture and accessories	27,1	Negative features of furniture and accessories	20,0	Positive features of daylight	44,3
Orientation and landscape	20,0	Thermal comfort	12,9	Orientation and landscape	40,0
Positive features of daylight	20,0	Lack of daylight	11,4	Positive features of furniture and accessories	35,7
In-residential location	11,4	In-residential location	7,1	Semi-open space use	21,4
Semi-open space use	10,0	Semi-open space use	7,1	Single volume solution of living room and kitchen	18,6
Furniture and accessories with a moment value	10,0	Orientation and landscape	2,9	Aesthetic factors	11,4
				Special area of action	10,0

When the answers given by elderly users about what they like, dislike and how they want a kitchen in the kitchen of the dwelling they live in are evaluated together, the space size and placement and the features of equipment, equipment, work, and storage space in the space are the first two issues expressed in all three groups. Satisfaction was expressed with the use of semi-open space in third place for their favorite properties in their kitchens, while the difficulties in accessing storage areas were highlighted in the ranking of negative features. Regarding the kitchen they want to have, enough daylight requests are indicated. The *fact that users express their positive characteristics with expressions such as "large and spacious", "wide, square and rectangular*", "*small", "being in the form of a narrow and long corridor"* and negative properties, reveals that the size and geometry of the space are an important factor in the comfortable use of space. Users note that countertop space, kitchen cabinets, and dining tables in their kitchens are convenient for performing food preparation, cooking, and eating actions while complaining about a lack of adequate storage space in the kitchen and a lack of countertop spaces. Users should be happy with statements such as *"having a bench area", "having a low bench", "having a large number of large cabinets", "having a low bench", "having a large number of* large cabinets", "*having a narrow and small countertop", "upper cabinets high", "not having enough cabinets" have emphasized the* negative characteristics associated with the facets. The height shortening, and limiting the stretching and bending distances, which are common in old age, make it difficult for users to perform their actions in the kitchen. This situation reveals the importance of designing the equipment, equipment, and working areas in the kitchen taking into account the changing anthropometric dimensions and power losses of users. Users expressed the use of daylight factor and semi-open space in the kitchen as well as in the living space, both among the favorite features of their existing kitchens and among the features of the kitchen they want to have. Users note that their kitchen is bright positively affects their visual comfort, especially in the actions of preparing food in the kitchen. Users often consider semi-open spaces associated with the kitchen as storage space if kitchens also have insufficient storage space. The fact that the kitchen is directly related to the semi-open space is also a highlight of the kitchens they want to have. Users have expressed problems

with accessibility to storage units in their kitchens as a negative feature and emphasized that they can easily access the kitchens they want to have. Factors such as neck shortening with increasing age, loss of flexibility of muscles, various joint disorders, and loss of strength cause limitations in lying down and squatting movements and cause access problems in kitchens, especially in the use of storage units. Users have stated that they want to have an open kitchen in the same space as the living space of their kitchen within the features of the kitchen they want to have, although they do not express it as a negative feature in their existing Housing (Table 5).

Table 5. Users' evaluations of the kitchen

Favorite features in the kitchen	%	Uncomfortable features in the kitchen	%	The features they want to have in the kitchen	%
Space size and placement	27,1	Small space size and layout	48,6	Space size and placement	60
Positive characteristics regarding equipment, working and storage space	25,7	Negative characteristics regarding equipment, working and storage space	25,7	Positive characteristics regarding equipment, working and storage space	38,6
Semi-open space use	22,9	Accessibility	18,6	Positive features of daylight	31,4
Positive features of daylight	17,1	Thermal comfort	8,6	Semi-open space use	25,7
In-residential location	15,7	Negative features of daylight	7,1	Single volume solution of living room and kitchen	24,3
Orientation and landscape	15,7	In-residential location	4,3	Accessibility	20
Thermal comfort	7,1	Orientation and scenery	2,9	Orientation and landscape	10
Accessibility	2,9			Aesthetic factors	8,6

When the answers of older users about what they like, dislike, and want a bath in their existing bathroom are considered together, the first highlight is the characteristics of the bathing section, and the second is the size and placement of the space. Users are satisfied that the area where they carry out the bathing action *is large, convenient, and convenient to them, emphasizing their positive properties with phrases such as "without bathtubs", "being flat", and "being on the same level as the floor", "it is bad to have a bathtub", "difficult to enter by stepping into the place of bathing*". They have voiced.

The most common complaints about users in the bathroom are mainly the bathtub in the bathing section. Increased age-related power losses, weakening of muscles, shortening of steps, and balance problems cause users to have difficulty getting in and out of the bathtub. Difficulties with movement constraints and the possibility of accidents such as slipping and falling reveal the importance of the physical nature of the washing area.

Users are satisfied that their bathroom is the size they can perform their actions, and complain about the fact that it is small. This suggests that the size of space is an important factor for users in the comfortable use of their bathrooms, as in other spaces in the residential area. About their bathrooms, users listed the size and characteristics of equipment and equipment, and thermal comfort conditions as positive characteristics, while they noted access difficulties and inadequacy of thermal comfort conditions as negative characteristics.

The fact that the bathroom is cold when performing the bathing action for thermal comfort is an aspect that users complain about. For the bathrooms they want to have, they have expressed that they want the bathroom to be close to the bedroom, different from the characteristics of the equipment and storage areas. The proximity of the bathroom to the bedroom is among the characteristics that are desirable to have a directly related bathroom, especially since they often need to go to the toilet at night (Table 6).

Table 6. Users' evaluations of the bathroom

Positive features in the bathroom	%	Negative features in the bathroom	%	Features they want in the bathroom	%
Positive features regarding the bathing area	31,4	Negative features regarding the bathing area	38,6	Positive features regarding the bathing area	64,3
Space size and placement	25,7	Small space size and layout	37,1	Space size and placement	54,3
Positive characteristics regarding reinforcement and equipment	20	Thermal comfort	18,6	Adequacy of reinforcement and storage space	22,9
Thermal comfort	18,6	Accessibility	12,9	Relationship with the bedroom	22,9
In-residential location	15,7	Insufficient storage space	7,1	Thermal comfort	12,9
				Grab bar and seating element	10
				Aesthetic factors	4,3

When we looked at the answers that older users gave in their existing bedrooms about what they like, dislike and how they want a bedroom, different from other spaces, the characteristics they love in the existing bedrooms, the aspects they complain about, and the characteristics of the bedroom they want to have are similar, but it has been seen that their rankings are different from each other. Users expressed that they wanted their bedrooms to receive plenty of daylight so that when they woke up in the morning, they started the day fitter and happier. Daylight also increases their psychological state and quality of life. They complained when their room didn't get as much sun as they wanted and emphasized the importance of getting sun when sorting out the characteristics of the bedroom they wanted to have. Another aspect that users are most uncomfortable with in the bedroom is the small size of the space. Regarding the smallness *of space, users noted that there is not enough space to move around the bed, especially with phrases such as "the bed is too cramped and narrow"*.

The most positive and negative aspects of the furnishings and furniture in the bedroom were the characteristics of the bed and dressing closet. With *their furniture, users have highlighted features that they are pleased with such phrases as "having a comfortable bed that can sleep", and "the bed is neither too high nor too low*".

Users want the bed height to be at the appropriate height for them and that their beds are not too rigid. In old age, complaints of body aches and rapid fatigue increase. Therefore, the necessary conditions for quality sleep must be provided both to relieve body aches and to wake up fit. They complain about the lack of storage space in the bedrooms and because they have problems with access to high shelves. In addition, some users expressed satisfaction with the opening of the bedroom window into a green area, while some users complained that they were only seeing another building when they looked through the window. Orientation to the view in the bedrooms as well as in living spaces has emerged as a feature that is cared for by users. Because users want to reach the bathroom as soon as possible when they wake up at night, they care that the bedroom is as close to the bathroom as possible, or a bathroom inside the room. In addition, the bedroom has a space that allows them to perform other activities such as reading books, prayers, etc., which is another issue that users emphasize (Table 7).

Table 7. Users' evaluations about the bedroom

Favorite features in the bedroom	%	Uncomfortable features in the bedroom	%	Features they want in the bedroom	%
Positive features of daylight	38,6	Small space size and layout	35,7	Positive features of fittings, furniture, and accessories	52,9
Positive features of fittings, furniture, and accessories	35,7	Negative features of fittings, furniture, and accessories	21,4	Space size and placement	38,6
Relationship with the bathroom	15,7	Orientation and landscape	17,1	Positive features of daylight	37,1
Space size and placement	14,3	Accessibility	14,3	Orientation and landscape	21,4
Orientation and landscape	12,9	Insufficient daylight	10	Relationship with other places	17,1
Semi-open space use	4,3	In-residential location	2,9	A special area of activity	17,1
				Access to the bed and closets	10
				Aesthetic factors	8,6

5. Conclusion and Suggestions

One of the factors that are effective in enabling individuals to age in place and to spend their old age periods more actively and with high quality is the physical environmental characteristics of housing and its immediate surroundings. The characteristics, requirements, wishes, and expectations of older users should be considered both in the overall planning of the housing and in the arrangements to be made on the scale of individual space and furniture characteristics. Within the scope of this study, the results obtained by examining the data obtained from semi-structured interviews for determining the needs, desires, and expectations of elderly individuals on the scale of Trabzon city center are transferred.

According to these results, users prefer to age in their own homes, in other words, to age in place, for reasons such as being independent and comfortable regardless of the conditions, the feeling of home, and neighborhood relations. This result shows that psycho-social factors are relatively more effective in the reasons for preferring aging in place. Although elderly users want to have public transport facilities, proximity to parks and gardens, and shopping opportunities near the residence, the desire to be close to health services comes to the fore, especially in advanced old age.

Users spend most of their time in the living spaces of their houses in their old age. In the living spaces of the houses, the size of the space, the formal and dimensional features of the furniture, and the layout are the most important features that users emphasize when expressing their complaints, wishes, and expectations. In addition, the desire for living spaces to be bright and spacious is another prominent issue. In order to be able to socialize even passively in periods when the living space is limited and not to be isolated from society, it is also of great importance that the living space opens to a semi-open space and is directed to the street or street. For this reason, living spaces for the use of elderly users should be of a size where users can easily perform their actions without difficulty in movement. Comfortable circulation should be ensured in the furniture placement in the space and walking routes should be left empty. For elderly users living alone not to feel lonely, there should be a comfortable seat by the window where they can watch the outside. The seats in the space should be placed by considering the necessary distances for chatting and watching television. The seats should be of such a nature that users can rest by lying down when they want and allow them to sit and get up comfortably. Light-colored furniture should be preferred as much as possible in the living space so that the eyes of the users do not get tired perceptually and mentally. Living spaces should be orientated towards the view and should receive sufficient natural light. In addition, living spaces should be designed to be directly related to semi-open spaces.

The most important aspects that users pay attention to in kitchens are the size of the space, the adequacy-dimensional suitability of the working area, and the accessibility of storage areas. Users have access problems, especially to the upper cabinets in the kitchen. This situation causes many parts of the existing cabinets to remain dysfunctional in daily use. In line with this information, to support aging in place, kitchens should be large enough for elderly users to comfortably prepare, cook, and eat food. Square or rectangular kitchens should be preferred for ease of use. Functionality should be prioritized in the kitchen, considering that users can get tired quickly due to increasing age. Since users have difficulty standing for a long time, a second counter area should be created in the counter area that allows sitting. These benches should be considered as an area where users can prepare food and eat their meals at the same time. In addition to these, attention should be paid to access to storage units in kitchens. In particular, the height of the storage units on the counter should be suitable for the access distances of elderly users, and in-cabinet systems that facilitate access should be used in sections where access is difficult.

The most emphasized issue in the bathroom space is related to the characteristics of the washing area. Users have difficulty bathing in the bathtub and prefer both floor shower areas for bathing actions. Due to the limitations in their mobility, users especially want grab bars in the shower and toilet areas. For this reason, newly designed or renovated bathrooms should be large enough to meet the daily needs of elderly users, and the shower area/washing area should be designed as both floors and include a fixed seating element and grab bars to be supported during sitting and getting up. Grab bars should be installed on the sides of the toilet bowl and washbasin to help users feel safe by reducing the risk of falling.

The most satisfying point for the users in the bedrooms is that they receive daylight. In addition to this, the features related to the bed and wardrobe in the bedroom are at the forefront for the users. It is especially important for users that the bed they sleep in is comfortable and comfortable. In addition, easy access to the upper shelves of the dressing cabinets should also be taken into consideration. Bedrooms should be large enough for the actions to be performed in the space, bright, and directly related to the bathroom as much as possible. A bed with a size and height suitable for the physical characteristics and anthropometric dimensions of elderly users should be preferred and bedside tables should be placed on both sides of the bed for personal belongings such as telephone, medicine, etc.

In summary, for elderly users to be able to continue their lives in their own homes, their dwellings should be accessible and have functions that support comfortable and safe living by the needs of elderly users. New dwellings designed for this purpose should be designed by taking into account the design principles defined in this section and existing dwellings should be organized in this direction as much as possible.

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