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Evaluation of Quality of Public Open Spaces for the Elderly
Case Study: (sheet-e- Bazaar in Zanjan)

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ABSTRACT: In urban planning, access to public spaces provides social relations for citizens. The goal of this paper is to evaluate the elderly's requirements in public spaces (case study of Sheet Bazaar, Zanjan, Iran) in order to recognize and classify their strengths and weaknesses and present more appropriate and effective strategies for their improvement. In this research, the related literature on old age and requirements of the elderly in public open spaces was reviewed and the factors affecting their use of physical places were determined at the first stage of the study. After reviewing the literature, some observations on the elderly were made and questionnaires were given to 80 users with the age of over 65 years old to serve the purpose of this study. The results of the questionnaires indicate that the frequent problems of the elderly in public open spaces were identified as follows: pollution (24.8%), pavements and roads (24.6%), traffic (14.4%), safety (12.2%), insufficiency of maintenance and management (9.6%), and socio-cultural problems (5.3%). In addition, the result of the observations in the main research area shows that the design properties had the highest and maintenance-management services had the lowest success percentages. In the end, some solutions were presented for designing new public open spaces and developing the existing spaces.

Keywords: *Elderly, Open spaces, Public spaces, Urban design*

INTRODUCTION

Cities play fundamental roles in creation of a sense of satisfaction, actually form the human lifestyle as the living context of the human being, and specify human quality of life. Thus, paying attention to the physical environment of the city by the urban planners and managing it plays a great role in enhancing the humans' quality of life. At the same time, the living environment of human beings and the feeling of belonging to the environment are more important to the demographic and socio-economic factors on the quality life. Therefore, a city is the prepared and fundamental appearance of vital human life indicators in which human beings react with his/her peripheral environments since their lives contained the packs of urban circumferences (Ahadnejhad et al., 2016). Development of public spaces, which began with the Greek market-place called the agora, grew out of a pedestrian-oriented culture long before the invention of the automobile. These places create an image for the city in which they are located; also, they become a meeting place and a center for various activities that improve the physical and social environments (Rubenstein, 1992). Greatly simplified, outdoor activities in public spaces can be divided into three categories, each of which places very different demands on the physical environment: necessary activities (shopping, waiting for a bus or a person, going to school or work, etc.), optional activities (taking a walk to get a breath of fresh air, standing around enjoying life, or sitting and sunbathing), and social activities (children at play, greetings and conversations, communal activities of various kinds, and finally as the most widespread social activity-passive contacts: simply watching and hearing other people). These activities could also be termed "resultant" activities, because in nearly all instances, they evolve from activities linked to the other two activity categories. They develop in connection with the other activities, because people are in the same space, meet, pass by one another or are merely in view (Gehl, 1986).

Literature Review

Urban

In Geography, the psychology of the environment, urban sociology, and urban space refers to a physical place in which different social, cultural and economic strata exist (Lapinitie, 2007). The urban space is the sense concept that the public activities of urban living have occurred. Streets, squares, and parks of a city have formed the human activities. The city can be investigated from the viewpoint of scientific and philosophic.

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The scientific viewpoint has risen from the visual and body view in social, economic, body, spatial, and functional fields by the ponderable criteria, scales, and evaluated this phenomenon from the intellectual view through the identity finder approach (Heidari, et al, 2016).

Public Space

According to White (1980), urban public spaces are the expressions of human endeavors; artifacts of the social world are accommodated, communicated, and interpreted within the confines of this designed environment. This interdisciplinary perspective suggests that urban public spaces reflect the cultural order, not through a one-to-one correspondence between spatial arrangements and meaning, but through a complex "culture-making" process, in which cultural representations are produced, manipulated, and understood by designers, politicians, users, and commentators within the changing historical, economic, and sociopolitical contexts (Low, 1997).

Elderly and Theit Requirements Public in Public Open Space

The criteria for determining a safe urban environment are its size, form, and level of comfort. The first two are related to physical features, while the third could be discussed from the perspective of “environment”. Visual and environmental types of comfort are among the fundamental components of man-made environments. "Cities are like houses on a greater scale in that just as houses need to have specific qualities to make habitation a pleasing and comforting experience, the same is also true with respect to cities”. In fact, visual and environmental comfort is found in places which are, as a result of its relative quality, made use in a more favorable fashion, and are subject to more formal and social monitoring, i.e. they are free of any kind of pollution (Nozari et al., 2015).

On the other hand, the existence of the relationship between place and identity and the impacts of environment on them, state that place as a set has the potential to contribute to develop the process in which people’s sense of place, belonging, and identity and preserve them. Place is at the center of the world or social world. When human beings interact with its environment and places have been formed or made from the spaces (Zeraatpisheh et al, 2016). According to Liang (1973), aging is a process which is impossible to stop and has biological, sociological, chronological, and psychological aspects (Elbas et al., 2003). One of the most important aspects is that the elderly have one or more illnesses and suffer from movement or function difficulties (Pakdil, 2001). The basic humanity actions of the elderly are the same as those of other age groups. However, aging process leads to special arrangements regarding certain necessities because of changes in the methods of realizing some actions. With aging, individuals suffer from thinning of bones, muscle disorders, exhaustion, balance and strength problems, as well as sight and hearing disorders. All of these factors put the elderly under some risk in city environments because of decrease in their movement capabilities, space perception, and mental capacity (Oguz, 2003). Considering all these health problems, according to Burby and Rohe (1990), the elderly's expectations of housing and environment are very different from those of other age groups (Kalinkara, 2001). Developing policies and strategies that will consider the needs of this age group can make these people participate in social life with equal conditions. "Universal design" and "accessible design" concepts must be taken into consideration for all age groups (Kalinkara, 2003). Planners and designers mostly consider aspects about physical welfare like comfort and security of the place to be lived in, while neglecting social aspects such as social interaction, crime rate, and satisfaction from close environment (Kalinkara, 2001). In Iran, reasons such as insufficient measures taken for the elderly and failure to make special programs for them in the design of public open spaces have limited the use of such spaces (Celem et al., 2001).

When asked why they do not walk, the elderly cite reasons such as distance between destinations, difficulty in walking, poor sidewalks, lack of resting places, and fear of crime (ICMA, 2003). Therefore, accessibility, mobility, ease of activity, safety and security outside the home, amenity, community and social connections, etc. are the features that must be taken into consideration while designing outdoor environments for the elderly (Harrison, 1997). Also, to create safe and comfortable walking routes for them, local governments can improve and maintain sidewalks, design safe street crossings, add streetscape amenities, address security concerns, evaluate the existing transportation options, add more accessible routes and vehicles, promote mixed-use and compact development through zoning, integrate new development into the existing communities, use development incentives and guidelines, and make the built environment more attractive (ICMA, 2003). Well-designed streets and public open spaces encourage walking and cycling and have the power to make our environment safer by reducing vehicle speed and use. "Home zones" have begun to demonstrate the benefits of redesigning streets for shared use by residents and pedestrians, not just cars (Anonymous, 2003). For many generations, streets have provided urban communities with public open spaces right outside their homes (Moughtin, 1999). Some design criteria that have to be applied in the outer space design for the elderly were taken from different references and presented below (Table 1).

Beside these standards for the accessibility of open spaces for the elderly, they also have some demands that need special design solutions like way finding and direction, legibility of directions in spaces, spatial preferences, sensual stimulation, and understanding the environment (Celem et al., 2001).

Studies have shown that when the elderly reach public open spaces, they stay in their vehicles or do not go far (Oguz, 2001). Thus, the distance of parking lots to the center of urban spaces and their entries, exits, panoramic points, and necessary streetscapes such as toilets, fountains, as well as benches should be close enough. On the other hand, some street furniture

Table 1: Some design criteria of open spaces for the elderly

Ramps	▪ Width min., 90 cm, slope 48% (1:12), if the length of the ramp is more than 10m, the slope should be maximum 6%. ▪ There should be straight and different textured, spaces with 150 cm length at the beginning & the end. ▪ There should be resting places with at least 250 cm length between the ramps or on the ramps which are longer than 10m and the altitude difference should be more than 50 cm. ▪ The cover material should be strong, stable, non-slippery, and slightly rough. ▪ There should be gunwale on either one or both sides if the altitude difference is more than 20 cm.
Stairs	▪ Height: 15 cm and width: 28 cm (width+2height ¼ 62 or 64 cm). ▪ There should be gunwales on both sides, the stair width from a gunwale to a gunwale should be 180cm and the height of the gunwale should be 80 cm. ▪ If the altitude difference is more than 180 cm, there should be landing with 200cm length between the stairs. ▪ The cover material should be rough and anti-skid. ▪ There should be landings with different colors and textures at the beginning and end of the stairs. ▪ The stairs should be ill
Pavements	▪ Maximum height: 15 cm. ▪ The width of the pavement should be at least 150cm in order to provide a proper place for all the pedestrians to walk. ▪ The texture of the pavement should be non-slippery, matte, and easy to walk. ▪ The pavements should be continuous and at the same level. ▪ There should be ramps with the minimum width of 90 cm and slope of 1:10 at the beginning and end of the pavements. ▪ There must be the minimum security of 25 cm in the pavements on the owned side and 50 cm on the bordure side, including bordure stone
Level crossing	▪ Minimum width: 180 cm. ▪ In level crossing zebra crossings with light control, crossing time must be appropriate for the elderly. ▪ For the ease of use of all users, traffic lights must have button and sound, and the button height must be maximum 120 cm. ▪ Material of pavement slope and vehicle road must have different in texture. ▪ When road wideness enables passing at two levels, there must be a building island that enables waiting in the middle
Underpass and overpass	▪ In underpasses and overpasses, there must be escalators for the elderly and elevators for the handicapped. ▪ For security, all the under and overpasses must be lighted for night use.
Orientation board	▪ Orientation boards must be in visible places, in enough number, well lighted, and according to international standards.
Street trees	▪ Roads must be planted with trees in order for pedestrians to feel safe in boulevards, avenues, and streets in terms of traffic technique. ▪ In order not to prevent pedestrian traffic, there must be at least 2.5 m height .

(e.g. illumination, bench, notice board, arbors, etc.), which are specifically inevitable for the elderly in public spaces, and optional furniture such as pond, sideboard, and fountains enrich the place and affect the elderly's desire for using outdoor spaces. For many elderly, lack of transportation means local or neighborhood parks are likely to be the most frequent used. However, investment features providing interest and pleasure are increasingly focused on large ‘‘showpiece’’ parks.

The factors that make a city or a public space suitable to the needs of the elderly are numerous: adequate offer of housing, goods, and services of daily use in the neighborhood, access to treatments, suitable places for outdoor and indoor meeting, ability to move independently, and in particular solid social network (Kreuzer, 2006; Steffen et al., 2007; Kreuzer et al., 2008). If an urban space does not meet the needs of the elderly nor does it provide a sufficient quality of life, the replacement interventions are important to offer. There are numerous ways for meeting these needs and covering transversally different sectors of public body: town planning, housing, as well as social and health services.

Theoretical Framework

The aim of improving the quality and quantities of public open spaces used by each group of people with different ages, genders, and occupations is to upgrade the users' life quality by equipping these places with various functions and to make the urban life more attractive and meaningful by creating livable environs. Also, the basic approach for developing public open spaces constructed based on users' expectations is to form environments which can be used by all age groups, because the ability of using public open spaces by different groups of people is a success indicator for those spaces. At the same time, the pedestrian network links the town together in a viable pattern: it links place to place by steps, bridge, and distinctive floor pattern, or by any means possible so long as continuity and access to be maintained (Cullen, 1962). The aim of this study is to evaluate the public open spaces which have a great importance in all communal life and the accessibility components of these places for the elderly. It is also aimed to find the problems of the elderly based on design and management actions in public open spaces and put forward solutions in order to facilitate the social life of this age group.

MATERIALS AND METHODS

The research method consists of four phases: Conceptual analysis, data collection about the research area and topic, evaluation of results and discussion (Fig. 1).

This paper was a part of research project conducted by Municipality of Zanjan and University of Zanjan. The nature of the survey was applied; the method was analytic-descriptive; data were gathered via documentary studies, questionnaires, and observations. In addition, the authors conducted stakeholder interviews and a series of street surveys. After the conceptual analysis in which the concepts of aging, elderly, and public space design for the elderly were ensured, the research area was chosen. Also, some questionnaire and observation forms related to the research method were formed for the research area at this stage. After researching and giving different questionnaires to the elderly of this historic context, the gathered information as comparable numbers was considered for revision.

The questionnaires were filled out near Zanjan's historical Bazaar, as the center of the research area. By the results of the questionnaires, the preferences of the elderly in public open spaces and their problems were determined (Table 2). Then, some studies were done around Zanjan's historical Bazaar in terms of the elderly's accessibility criteria and the observation forms were completed. SPSS (v. 10) software was used for the statistical analysis of the data obtained from the questionnaires at the evaluation stage of the results. The results, which were gained at the end of the observation studies, were analyzed comparatively by the Evaluation Gravity Coefficients. After interpreting the whole data obtained from the study, some recommendations were made on the research area.

Sheet- E- Bazaar

Zanjan city, the capital of Zanjan Province, lies between 47° 10'- 90° 26' E and 35° 33' - 37° 15'N with the altitude of about 1340 m above sea level. According to the last census of Iranian Statistics Center in 2006, Zanjan city has the population of more than 1,015,734 (Geographical Culture of Iranian Counties: Zanjan County, 2001). Zanjan Province is located in the Northwest of Iran and its existence dates back to 2000

Table 2. Questionnaire form

:Female:	Male:	Age:	Residence:
1- Do you have any health problems which obstruct you from using public open spaces? For what purpose do you use public open spaces?			
Eating	Socio–cultural activities (cinema, visiting, etc.)	Recreational activities (walking, strolling, cycling, etc.)	
Necessary requirements (shopping, bank, health, etc.)	Other activities		
2- How often do you use public open spaces?			
Once a day	More than once a week	Once a week	Once a month	Once a year
3- What are the most frequent problems you have in public open spaces? In which time period do you mostly prefer using public open spaces?			
24.00–21.00	21.00–17.00	17.00–11.00	11.00–07.00

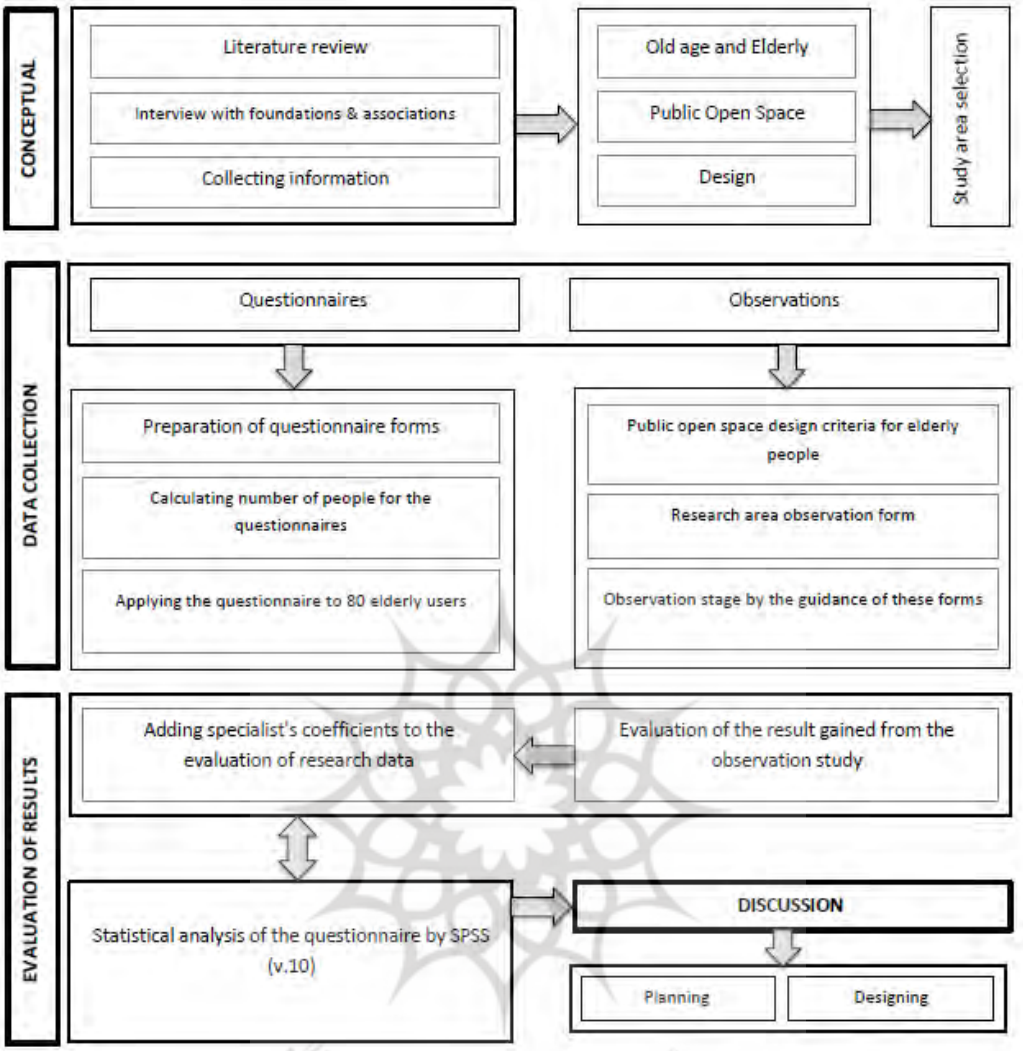

Fig.1: The research method's chart

Table 3: Answers given by the participants to the question "What are the most frequent problems you meet in public open spaces?"

Pollution: Noise, visual and air pollution, residential garbage, etc.	24.8%
Pavements and streets: Pavement—road maintenance works, height of pavements, etc.	24.6%
Traffic: Vehicle density, parking vehicles in narrow roads, etc.	14.4%
Safety: Beggars, snatchers, animals, etc.	12.2%
Insufficiency of maintenance and management	9.6%
Other: Climatic factors, individual reasons, etc.	6.7%
Socio–cultural problems: Inappropriate user behaviors, etc.	5.3%
None	2.4%

B.C. After remapping the country in 1997, Qazvin and Takistan cities were separated from Zanjan.

The studied area was located in the Southwest context called "Sheet Bazaar". In fact, Sheet Bazaar included the surrounding of Zanjan's historical Bazaar. The extent of this range with 9 historical zones was about 53 ha (Fig. 2).

The area around Jame' Mosque as well as old bazaar and its surroundings seems to have gained specific importance after Islam. In the early centuries of Islam, this area was the center of residence and the heart of the city. Zanjan's bazaar is one of the most important historical complexes in Iran and is a great attraction for tourists. It is one of the oldest bazaars in the Middle East and the largest covered bazaar in the world. Dating back to the Qajar dynasty (l779-1925), this bazaar was located in the heart of the old fabric of the city and consisted of two sections: the upper bazaar and the lower bazaar. With the area of 150000 m2, the bazaar currently has 940 shops and two bathrooms called Boloori and Moini. There are 56 entrances to the bazaar. This bazaar has met all the needs of the people since long time ago (Sobouti, 1987). Sabzeh Meidan as a public open space has local, social, and economic centrality in the structure of this city. In the past, the existence of governmental sector in the north of the square, Bazaar and Jame' mosque (humanity sector) in the South part, and the police station (political power) in this square had doubled its importance. Today, considering the local position of the square and existence of elements such as Bazaar and Jame' mosque, it is still counted a critical point in the city's structure.

RESULTS AND DESCUSION

Totally, 80 people filled out the questionnaires and 73 of the questionnaires were evaluated. In general, 65% of the questionnaires were taken from male users of the park and 35% from the female ones. Regarding the question "Do you have any health problems which obstruct you from using public open spaces?" 43.7% pointed out some health problems such as rheumatism, walking problems, eye problems, etc. 56.3% answered "no". The result indicates that approximately two-thirds of the elderly use open public spaces without any health problems. To the question "For what purpose do you use public open spaces?", 46.2% said "necessary requirements" as shopping, health, bank, etc., 37.8% "passive recreational activities" like walking, strolling, etc., 5.8% "eating", 5.5% "socio–cultural activities", and 4.7% "other activities". The big ratio of the answer which relating to "necessary requirements" showed that using the public open spaces were inevitable for the elderly and also the big ratio of "passive recreational activities" importantly demonstrated that these kinds of activities were very necessary for them. The frequency results of public open space use of participants (70.4% uses once a day and 22.8% uses more than once a week) strengthened this determination. This situation could reveal that most of the elderly (93.2%) used public open spaces regularly. Also, it was found that they preferred to use public open spaces mostly between 07:00 and

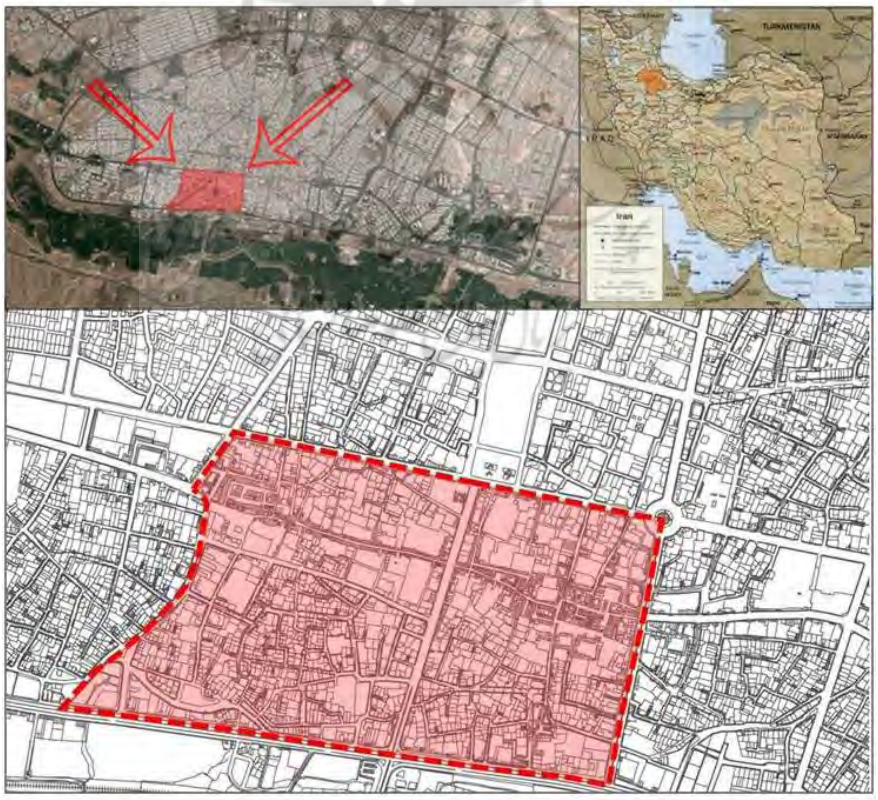

Fig.2: Location of Sheet Bazaar in map

11:00 h (38.6%) or 17:00 and 21:00 h, during which sunlight was not bothering. According to the results of the questionnaires, Table 3 shows the frequent problems of the elderly in public open spaces, and there are many kinds of problems in terms of quality and quantity of using public open spaces; mostly insufficient municipal services caused these problems.

One of the proposed questions in the present research questionnaire was related to the environmental quality of Sheet Market to provide a bed to promote environmental quality followed by shaping proper social interactions by exploring effective reasons and factors. According to the obtained information from the questionnaire, mostly all the residents of this area felt dissatisfaction with the environmental quality, which is shown in Table 3.

Old age is a part of life similar to childhood, adolescence, or maturity. Since the 18th century, developments in science and technology as well as improvements in medicine and quality of health services have caused an increase in average life expectancy and, thus, the population of the elderly and their ratio to the total population has been increasing (Gungor, 1995). World Health Organization (WHO, 1946) considers human health not just as protecting from diseases, but also achieving quality of environment. Specifically, maintaining the social relations of the elderly and their communication with others can only be possible by the urban common living environments like public open spaces (parks, plazas, pedestrian zones, etc.) together with other citizens (Oguz, 2001). Nevertheless, increase in the population of the elderly has caused new requirements in urban environments, which depend on their age.

As the public open spaces were evaluated in terms of the elderly's requirements and their social life, both the public open spaces and the connection routes obtaining the access are thus insufficient in this research. It can be also concluded that the insufficiency of those spaces is not only caused by wrong/deficient designs, but also inappropriate applications, maintenance, and managements. The wrong applications (incorrect sidewalks, staircases, and ramps which do not fit the standards and have insufficient material choices, etc.) which is not noticed in the rush of daily life could cause big problems for the elderly by separating them from social life and narrowing down their life circles. Therefore, the fact of everyone becomes old one day is considered, and the necessity of planning and designing urban environments become incontrovertible. In this context, some responsibilities must be assumed by planners and designers, local governments, and non-governmental organizations (NGO). Based on the observations of Sabzeh Meydan and its surrounding, it can be concluded that Sabzeh Meydan and the access components at the walking distance to Sabzeh Meydan do not include any special equipment for the elderly or any necessary standards for the healthy younger people. Planners and designers as well as local governments should be taken into account this point indicating human–space relation in public open spaces was not successful. Therefore, the urgent thing, which has to be done immediately, is to improve urban public open spaces for the elderly and develops new projects in order to include the social life. Local governments must cooperate with planners and designers and the space requirements of the elderly must be taken into consideration. Also, in the existing and following projects, nursing and maintenance studies should be done as carefully as the applications of designs to the spaces. In addition, as can be seen in the observations, security and cleaning services, which were found as a problem by the elderly, must be developed. By establishing/improving private new units of these services in the structure of governments, the management of the existing spaces can be strengthened, because the success of a space depends not just on the design and application of urban public open spaces, but also on keeping these spaces alive. The life styles of the elderly show that they are even retired or they cannot work because of their age-related problems. This situation provides them with the opportunity of using urban public open spaces at any time of a day. If the possibility of the elderly using the urban spaces the most is taken into consideration, then the priority of this age group gains much more importance. Accordingly, new

Table 4: Answers given by the participants to the question "Does Sheet Bazaar provide the following conditions for you generally"?

	Fully	Relatively	Not at all	I do not know	Missing
Security	5.5%	27.4%	65.8%	1.4%	-
Recreation possibility	5.5%	16.4%	74%	4.1%	-
Congestion possibility	8.2%	27.4%	58.9%	4.1%	1.4%
Activity possibility	13.7%	35.6%	45.2%	2.7%	2.7%
Attraction	1.4%	42.5%	49.3%	1.4%	2.7%
Public services	16.4%	38.4%	41.1%	2.7%	1.4%
Interaction spaces	4.1%	30.1%	58.9%	4.1%	2.7%

Table 5: Research area observation form

Name District:	Location type:		
Construction year:	Size:		
Accessibility	**Sufficient**	**Insufficient**	
Parking facilities	☑		
Accessibility of urban transportation systems	☑		
Safety in entrance and exit		☑	
Physical connection to the nearby environments	☑		
Perceiving environment		☑	
Effective symbolic element for preference		☑	
Necessary urban furniture	**Sufficient**	**Insufficient**	**Absent**
Lightening	☑		
Seating		☑	
Trash containers	☑		
Information- communication panels			☑
Tents		☑	
Fences			☑
Toilets		☑	
Optional urban furniture	**Present**	**Absent**	
Pool		☑	
Plastic element			☑
Bicycle park element			☑
Kiosk	☑		
Pots		☑	
Clock			☑
Fountain			☑
Phone booths		☑	
Design features	**Sufficient**	**Insufficient**	**Absent**
Transparency in design	☑		
Continuity in design		☑	
Connection to other socio-cultural spaces		☑	
Pavement	**Successful**	**Unsuccessful**	**Partially**
Material choice			☑
Application techniques			☑
Supporting the design			☑
Maintenance services	**High**	**Medium cared**	**low**
Structural quality			☑
Planting quality		☑	
Management services	**Successful**	**Unsuccessful**	**Partially**
Security		☑	
Maintenance applications		☑	
Organization of socio-cultural facilities		☑	
Cleanliness			☑

Table 6. Evaluation form of the elderly's accessibility status to the research area

	Sidewalks					Stairs								Level crossing	
	Height	Width	Pavement's material	Pavement's application	Continuity	Height	Width	Pavement's material	Pavement's application	Continuity	Gunwale	Landing	Sitting possibilities	Differences between start and end point	Crossing time	Voiced warning opportunity
Suitable					☑					☑	☑	☑			☑	
Unsuitable	☑	☑	☑	☑		☑	☑	☑	☑				☑	☑		☑

	Ramps					Underpass & overpass						Street trees	
	Slope	Width	Pavement's material	Pavement's application	Gunwale	Escalator	Elevator	Lightening	Orientation boards	Length	Position Right	Plant species	Planting position Right
Suitable					☑			☑	☑			☑	☑
Unsuitable	☑	☑	☑	☑		☑	☑			☑	☑		

spaces in district scale must be constructed in order to enrich the elderly's social communication.

The results of the questionnaires indicate that the most important problems of the elderly with public open spaces were as follows: traffic and high speed, pollution, dirty streets and spaces, and inappropriate directions. Others have also pointed out problems such as lack of footbridges and green space, farness of facilities and public accesses, inappropriate furniture, passing motorcycles, existence of juvenile delinquents and the youth unemployment, and lack of observing senior citizens' rights by others. This issue shows that designers and urban management officials also play an important role in creating desirable urban spaces.

CONCLUSION

Elderly's satisfaction with public spaces is influenced by several factors that should be considered in the design public spaces:

Reducing environmental pollution to ensure comfort (control/ mitigation);

Increasing quantity and quality of urban green spaces through the creation of new spaces or restoration and enhancement of natural compartments to ensure adequate public space;

Developing integrated city and neighborhoods that allow short paths and ensure proximity;

Creating spaces easily travelled on foot or by bike through a dense network of attractive pedestrian pathways;

Developing new buildings with mixed uses and integration into urban fabric, which reduces the polarization of the area and the consequent traffic;

Improving the accessibility of services, public space, and residence without having to resort to private transportation.

Consequently, to achieve the appropriate space and environment for the elderly, the following topics should be considered:

Accurately identifying the needs of the elderly and their problems in urban spaces;

Providing criteria for designing urban spaces to meet the needs of the elderly;

Establishing relevant organizations to implement these criteria in urban spaces;

Accurate and comprehensive monitoring of the implementation of relevant regulations;

Holding special training courses associated with professional design and space planning for people;

Creating college courses on inclusive design for the related fields;

Increasing public awareness and education about the needs of the elderly

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