



## The Relationship between Environmental Quality and Elderly Presence Ability in Urban Open Spaces, Case Study: Laleh Park, Tehran

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**ABSTRACT:** Parks and urban green spaces have always been places to spend hours away from the bustling life and its numerous problems. In the meantime, elderly people also have the same share from such spaces as other people. Elderly, including old social groups with old age and decreasingly activities, have very leisure time and the possibility of using the urban park for voluntary and community activities is more than other society's members. In this regard, this paper has been developed to improve the environmental quality of such spaces for the presence ability of vulnerable elderly population. Therefore by investigating the indicators and criteria of elderly presence ability at Laleh park of Tehran city which is one of the oldest parks in the 6th district of Tehran with the highest elderly populations, the gathered data were studied and then the quality of park was assessed. The Research method is descriptive analytical and gauging. Interviews were done with 384 elderly people over 60 years who were present in the park. Data were collected by using questionnaires and analysis was performed by using statistical software. It has been confirmed that According to ( $p\_value < 0/05$ ), there is a significant relationship between different levels of proposed model and dependent variable of quality of environment. Based on cognitive-behavioral studies approach, can be said that; preferences and requirements such social interactions in urban parks, quality of accessibility, equipment and services are the most important priorities for elderly presence ability in urban parks. Therefore, due to its importance in Laleh Park, It can be said that deficiency of accessibility quality is the most significant reason for elderly dissatisfaction and elderly had an approximate willingness about comfort, relaxation, image and sociability, as a result of remedies that they have been provided.

**Keywords:** Urban Park, Environmental Quality, Elderly, Presence Ability, Laleh Park.

### INTRODUCTION

Nowadays paying attention to the elderly life quality has employed the mind of many researchers. Meanwhile, the urban space as a public space is the place for appearance and vitalization of thoughts; meeting human social and individuals' needs; which is the most important center of human development of societies (Sadri, 2006). Despite of modern phenomenon trends such as: journalists, satellite and internet, using the urban open spaces don't lose its points, but it has gained its real position, it has been paid attention (Abbas Zadegan, 2004, p. 39). In one hand, the

urban open spaces include the existing green spaces, in the other hand, they are discussed as potential spaces for social and human developments of a broad range of users (Bahman Poor and Salajegheh, 2008). The nature of these spaces are such that all of social-classes can use it, among this case, the urban parks are public rest place (Saeidinia, 2000, p. 54) and the citizenries have equal rights to use these spaces. Thus, creating appropriate and desirable spaces consider as a part of the urban development plans for all of gender and different age groups, vulnerable groups for example: children, elderly people and physical inabilities. The global studies show that creating such

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spaces, in addition to the creating social active acts, it will provide social interaction and qualitative presence ability to reduce special groups neighborhood with the use of the urban public spaces (Rafiean et al., 2008). Elderly is an individual and social experience that appropriate framework environments can promote performance activity level of elderly people (World Health Organization, 2007). Beginning of the elderly time, main changes will occur in human mental and physical states. Despite of elderly population increase, one of the main problems of elderly people is the urban open spaces and environments shortages or their low quality. By passing the time and change of individual capacity level, their needs change and the place might become an undesirable and unavailable environment for them where were usable times ago. In Meantime, the elderly people problems are more than other society classes and even cripple (Zandieh, 2012). The study goal was to investigate elderly needs and preferences of public open spaces. It wants to proceed to the identification and evaluation of presence ability of elderly, and elderly mental and objective ideas. In order to expressing indicators and qualitative criteria of elderly presence ability, the urban park -as a case- study: Tehran Laleh Park was chosen as one of the most attendances of Tehran Parks. Hence, the article results and strategies can provide a noticeable support in the urban public open spaces to reduce their elderly problems.

## ELDERLY

Elderly is one of the delicate and crucial steps of human growth which is against the common belief: it is not the end of life, but it discusses as a natural trend of life- time. Thus, today, in many developed and developing countries, the mechanisms which provide the promotion of elderly life quality, are supported by organizations and social organizations (Poorjafar et al., 2010). Elderly is a natural way, anyone will face it and the some changes will occur in physical abilities and psychical- mental needs which requires special attention (Alalhesabi and Rafiei, 2012). According to Liang idea in 1973, old age is a non- stop process including biological, sociology, temporal and psychology process. In fact the old age is a process which physical and mental powers will reduce by passing times (Sonmez et al., 2006).

Considering this intent, one of the most important aspects of old age is that old people have one or maybe more diseases and they have some difficulties when they want to move and work. The main activates of old people are the same as other groups- ages. Hence, the old age process results in special preparations due to the change

of recognition methods of some matters and with respect to the first special cautions. Along old age, some people suffer from osteoporosis, muscle disturbance, languor, ability problems, balance and eyesight and hearing disturbances.

In all of these cases, due to the reduction of walking capabilities, environment and mental capability perception, the elderly people endanger some injuries resulted from the shortage of environmental quality of urban spaces.

## ENVIROMENTAL QUALITY IN THE URBAN SPACES

There is a variety in the definition of Human hierarchical perceptions which make quality of two resources: subjective and objective areas, Due to them, we face a variety of qualities (Golkar, 2001). Generally, the quality is the state of phenomenon which affects special emotional- rational on human (Rafieyan and Khodaei, 2009, p. 48). The environment quality obtained from the components quality resultant of a certain area, it implies more on the place formative components. The formative components include nature, open spaces, substructures, construction human environment (artifact), framework environment facilities and natural resources and any items that have their own special characteristics and qualities (Van Kamp et al., 2003). In fact, the quality of a space is obtained from the resultant components in the city which can offer some strategies to improve the urban space quality with identifying functions and appropriate effects of them on the space (Alipoor et al., 2012). Citizen formation as its real meaning with its features such as civil society, urban identification, sprightly, desirable, humanity, diligent and liveliness of cities completely depend on the urban spaces quality (Rahnamaei, 2007). In recent years, many studies have been done relating to the indicators of environmental quality improvement (Hourihan, 1984, p. 370) while many commenters have yet introduced numerous qualities to achieve an urban space with good quality. We briefly have shown it in the table 1.



**Table 1. Introduced Environmental Qualities from the Perspective of Researchers**

A.Ian Bentley and et al 1985 in the Book “Responder Environments”		
1- Concentration	2- Diversity	3- Readability
4- Intuitive Enrichment	5- Flexibility	6- Visual Proportions
7- Attachment State		
John Punter and Methio Carmona 1997 in the Book “Design Dimension of Urban Planning”		
1- City scenery quality	2- Environment Sustainable Quality	3- City from Quality
4- Building form quality	5- Environment sustainable Quality	6- Public Arena Quality
Methio Carmona, Health and Tiesdell, 2003 in the Book “Public Places Urban Spaces”		
1- Access	2- Safety and Security	3- Integration and Concentration
4- Hard Space and Soft Space	5- City Scenery	6- Public space
7- All Included		
Allen Jacobe and Donald Applyard 1967 Narrated by Golcar 1390		
1- Identity and control	2- Liveliness	3- Originality
4- Access to the Opportunities, Imagination and Happiness’s	5- Public and Social Life	6- Urban Self- Reliance an Environment for us

But the investigations show that the most successful and effective urban public spaces have four qualitative main components: first of all, these spaces are available, second individuals are involved to have activates, third it includes human comfort and convenience and it had a pretty scenery, fourth it is thought as a social place, it means where individuals with various features for example age, gender and ability can visit each other with their presences in these spaces, achieve their desires, make real their various activities, and spread their social communications (Rafiean et al., 2008, p. 45 and Rafiean and Khodaei, 2009).

### **ELDERLY PREFRENCE AND NEEDS TOWARDS THE ENVIROMENTS AND URBAN SPACES**

The aim is to improve the used urban open spaces quality for all age and job groups including men and women, equipping these places with more various, attractive and effective to create livable social environments. The essential method is to create environments where all groups- age can use it, for improving and developing urban and public open spaces which are built with respect to the user’s expectations is very important because one of the successful indicators of those places is their usage by different people. According

to Borby and Rouh (1990), because of mental and physical problems, the elderly expectations of home and outside environments are more different than other group- age expectations. Death is inevitable; it is possible to result in abandoning the elderly social roles in the urban environments. The development of policies and strategies which considers elderly needs, can share these individuals in social mutual life with equal conditions (Sonmez et al., 2006). For some of old people the only times of independence and greatness and glory feeling are those which spend with their friends and of the same ages out of home, do some things, even inconsiderable (for example going out with grandchildren or paying bills) and feel that they’re effective. In addition, it will promote walking, sport and communication with nature, elderly physical health. Walking is one of the most important measurements of physical activity among old people, especially when road transportation and using the automobiles are applying a lot (Borst et al., 2009). Encouraging citizens to walk can be one of the supportive ways to keep the general health and physical state. Lack of enough physical activates as an important factor for creating hygiene and health dangerous states is known like overweighting or being fat, enough physical activates among old people will result in reduction of health danger or increase of physical performance. Many old people like to go out for exercising, airing, especially walking



in a group, fresh air and sport which have high influence on their mental and physical health increase (Zabetian, 2009). Many factors potentially might affect the state of walking among old people like related features to the age such as walking, be needed, mobility limitation and fear of falling. But the effect of constructed environment on the elderly walking manner might be as important as individual features (Borst et al., 2008). Basically, when we ask the old people why they don't walk; they state these reasons: interval between distance, walking difficulties, pavement weakness, accessibility, movement power, activity comfort, safety and security out of home, welfare facilities, social and population relations (Sonmez et al., 2006). Minor- continent, orientation sense, opportunities for emotion stimulation, control and supervision of environment, some opportunities to enjoy nature and participate in the athletic and activity for being healthy (Cooper- was narrated by Alalhesabi and Rafei, 2012)

should be considered during outdoors environments designs for elderly people. Also, paying attention to the places to spend daily time easier, breathing different air out of home, using sun, seeing green space and even more important looking the world around and people, talking to friends, of the same ages and social interactions are the most important preferences (Nozari et al., 2008). Thus, among these urban public areas, parks are one of positions as the urban open spaces, if they have the better preferences, due to having calm spaces and without mental and physical tensions, they will receive more attention more than the public spaces.

According to the carried out investigations about the urban spaces quality and elderly needs to become present in the public open spaces and also accommodation of these factors with each other, we can offer the evaluation model of urban open space with good quality in the form of table 2.

**Table 2. The Conceptual Model of Urban Open Space Evaluation with Good Quality for Elderly Presence Ability**

Elderly Presence in Space		
Quality	Definition	Criteria
Comfort and Convenience	Easy Use of Space and Comfort of Elderly Mental in the Space	Number and Manner of Sitting Places, Being Call Box and Information Panels, Pavements, Material and Flooring, Suitable Flooring of Stairs and Ramps, Existing Suitable Hygienic Services, Lighting of Sitting Places and Walking Directions, Existing Guard and Fencing for Keeping Balance, A Space Which Is Not Scarey, Having Behavioral Dominion and Lack of Interference in the Space for Elderly Comfort and Convenience
Access	Being Some Physical and Visual Potential Ways	Possibility of Physical Communication with the Environment, Ways Readability, Safety Arriving and Going Out of Space, Access to the Public Transportation
Activity	Having Some Conditions Which Result in the Elderly Attraction for Doing Things	Facilities of Athletic Activities and Walking Capability in the Space, Possibility of Looking at Green Space, Using Sun and Some Favorable Climate Factors
Beautiful Scenery (Image)	Elderly Perceptions of Space	Features and State of Trees, Cleanliness and Hygiene of Space, Variety of Floriculture and Pleasant Visual Stats
Social Place	Capability to Gather and Meet Old People	Cultural Facilities (Monitor Set Up, Program Broadcasting in the Open Spaces,...) Capabilities of Talking and Haunting, Face to Face Visits, Having Long- Term Fair or Market



## RESEARCH METHOD

The present study is a descriptive, analytical and gauging based on indicators, criteria and analysis to research process, as you can see in the Fig. 1, and considers the investigation of environmental quality concepts and definitions with the purpose of getting the environmental quality indicators. After drawing out the environmental quality indicators by using theoretical principles and document study, the criteria and preferences of elderly presence ability quality were drawn out in the urban open spaces, finally they are emphasized in the term of conceptual model. So the information collection tool is both library (document, evidence, books study) and field

forms. The studied statistics population of the research is those who go to Tehran Laleh Park, they do different activities. The statistics popular include the usage of 684 individuals comments who are more the 60 years old as the control group, they are random and in the form of pretest and post- test. They are designed with respect to the research indicators and criteria; they were analyzed based on the statistics software. For individuals, he was used Cronbach alpha coefficient to measure the research tool validity in the case of economic- social state. The Cronbach alpha coefficient was more than 0/7 in the measured indicators, accordingly. The research validity was confirmed.

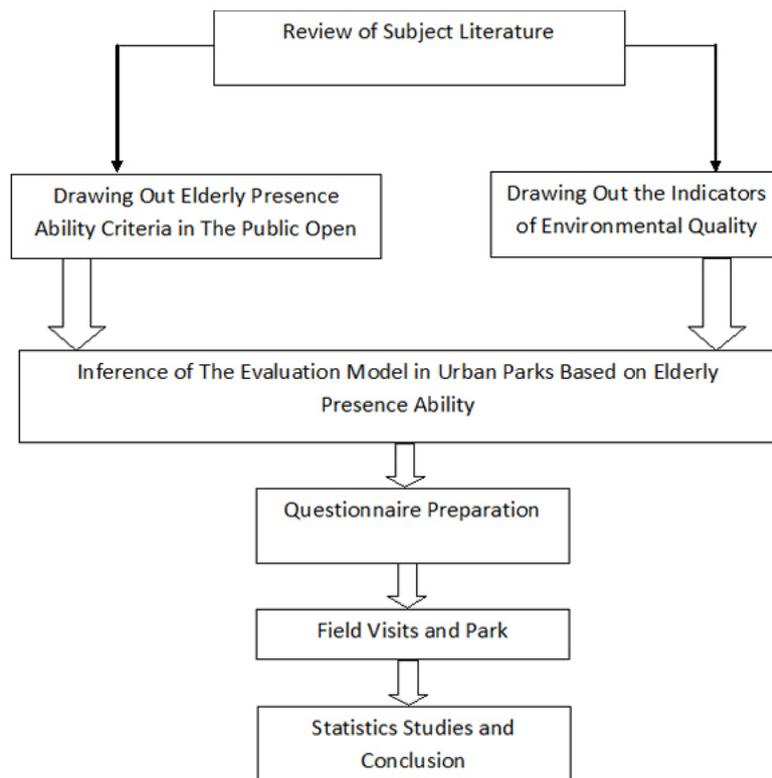


Fig. 1. Research Structure

With respect to the research trend, the correlation method was used as a methodology in the statistics analysis. The correlation research is one of the descriptive research methods (it is not experimental) which investigates the relation among variables based on the research purpose. The correlation researched can be divided into three groups: correlation to investigate type and level of variables' relation. The correlation coefficient

is in the indicator form, the mathematic which describes direction and relation between two variables.

In correlation models, coefficient applies for some distributions with two or multi-variables. If the amounts of two variables change the some as each other, that is, if one becomes less or more, the other will become less or more, too. Such that we can express their relation as on equation, we say that there is a correlation between



these two variables (Habib, 2012). Also as you can see in the table 3, the respondent's information and characteristics are given: 5% of respondents are men; about 88% of respondents are younger than 80; about

35% of respondents were between 60-70; 12% of them were more than 80 years old; and about 65% got married.

**Table 3. Respondents' Individual Characteristics**

	Component	Frequency	Percent	Cumulative percentage
<b>Gender</b>	Men	230	59	59
	Women	154	41	100
	Total	384	100	100
<b>Age</b>	50-60	107	28	28
	70-60	138	35	63
	70-80	93	25	88
	More than 80	46	12	100
	Total	384	100	100
<b>Marriage status</b>	Single	138	35	35
	Married	246	65	100
	Total	384	100	100

The sample number was calculated based on the calculated variance in the 6th district of Tehran in a particular hour and the confidence level of 95% and U/U= error.

$$n = \left[ \frac{z \frac{\alpha}{2} \cdot s}{d} \right]^2 = \left[ \frac{1/96 \times 0/62}{0/07} \right]^2 = 384$$

Generally, of 64 main factors of research, 32 questions were designed, as it was expressed in the research method, the questionnaire was designed based on Likert scale. With respect to the analysis stability in the considered questionnaires, the indicator rate was calculated by Cronbach alpha statistic which is shown in the table4:

**Table 4. Level of Questionnaire Questions Stability**

Statistics Analysis Stability	
Items Number	Cronbach Alpha
6	0/927

As it was determined, the amount of statistics is more than 0/70; it shows that the questionnaire was reliable and stable to do the next analysis.

**INTRODUCTION OF CASE STUDY: LALEH PARK- TEHRAN**

Laleh Park is located in the 5th area of 6th district of Tehran mayoralty which is about 642172 m<sup>2</sup>. It considers as a district scale as Laleh Park is the oldest and most equipped park in Tehran and Iran. With respect to the park location and elderly statistics in the 6th district of Tehran, we have to study and investigate the features of Park (Elderly user point of views). According to the studies of Tehran planning and study center, the lowest percent of elderly is 4/6% which belongs to the 19th district. The highest percent is 15/9% which belongs to the 6th district. The highest percent of old men are 6, 7, 1, 3, and for women 1, 3, 6. Also, based on the company studies, the 5th area (Laleh Park location) of 6th district has a highest percent of old people (Tehran planning and study center, 2010). Fig. 1 shows the floor scenery map of Laleh Park, presence ability way and old people activity in the Park district.



Fig. 1. The Floor Scenery Map of Laleh Park, Style of the Presence and Activities of the Elderly in the Park

**ANALYSIS OF RESEARCH FACTORS**

As we mentioned in the principle part, access quality, possibility level of doing activities, service state, present equipment and natural scenery state and park social

interaction quality as criteria to evaluate the presence preferences in the urban open spaces, they are considered by stating old people point of views by the questionnaire about Laleh park, which is shown in the table 5.

Table 5. Environmental Quality Relation in Laleh Park with General Indicator Elderly Presence

Analytic Model	Non- Standard Coefficient		Standard Coefficient	t Value	Significant Level
	b Value	Standard Deviation	Beta Value		
Access Quality	-0/023	0/07	-0/059	2/12	0/035
Activates Quality	0/032	0/10	0/060	1/95	0/045
Comfort and Convenient	0/195	0/09	3/463	4/22	0/000
Beautiful Scenery Quality	0/077	0/07	0/211	2/54	0/002
Social Place	0/149	0/0062	0/420	3/95	0/000

As it is specified in the table 5, according to the P-value of indicators which are less than 0/05, there is a significant relation between every five factors including access quality, activates quality, comfort and convenient, beautiful scenery quality and social place, in Laleh park with the park quality and elderly presence ability preference, such that the comfort and convenient quality with standard coefficient  $\beta=0/463$ , is the first preference

includes the need for elderly presence ability in Laleh park. It shows the fact that the present service and equipment have suitable state for comfort and convenient in the park. In elderly point of view, the next the social place indicator coefficient  $\beta= 0/420$  is the preference and need for presence ability in Laleh park, which shows the elderly satisfaction of park social state. Then, regarding to the standard coefficient  $\beta= -0/059$ , the access state to



the park is the highest dissatisfaction factor of old people in the park. It shows this fact that the access state to the park is not desirable for old population class. It's better to be paid attention. As you can see in the table 5, the park scenery state is evaluated fairly weak in users point of view with respect to the standard coefficient  $\beta=0/211$ . It shows that in the old people views the park scenery is not desirable. The last indicator is the quality of activates and the standard coefficient indicator of  $\beta= 0/060$  is obtained which shows the weak state of facilities for doing activates for the elderly in the park.

So with respect to the visit and interviews with old class, the access indicator has the highest dissatisfaction for old people in the park, includes lack of bus stations positioning, lack of having a slow traffic of automobiles in the arrival port of park from Kargar street and Keshavarz boulevard, having uncontrollable levels of difference especially in the park arrival with respect to the elderly physical features resulted in the lack of safety for their presence in the park. The comfort and convenience have a suitable state in the park, but, as you can see in the picture some factors including using material like stone in the bench construction which make them become cold or warm in the summer and winter, also results elderly dissatisfaction. But we can point to the activity facilities in the park: they always choose the park central square for their presence rather than neighbor parts due to crime and lack of the possibility to have social control. Which this matter disturbs the activity of dominions, it has been influenced the elderly comfort and safety.

Also lack of small stores in the park resulted in a situation that old people pass transverse to buy things, this matter just has an appropriate effect on the user comfort and their safety has been influenced. Lack of waterfront suitable coloring and trees pruning with formal types are some dissatisfaction factors for elderly in the park. Also the differences of in appropriate levels and of course dangerous in all parts make some problems of elderly problems to walk and use all the park space. As a result, Gathering of this class is mostly in the center of park. Thus it seems that with respect to the carried cut studies, recognition and perception of different needs of elderly are investigated to respond and respect to them in the Laleh Park.

## CONCLUSION

Achieving the elderly satisfaction requires to pay attention to the objective and subjective preferences and needs in the public open spaces. According the

public open spaces, especial preferences for the elderly successful presence ability can be expressed in the form of (variety and quality of service), (social interactions quality), (natural scenery quality), (possibility of doing activities) and (quality of accesses inside and related to the public open spaces).

Accordingly, access factor is one of the main factors for presence ability and elderly satisfaction in the urban open spaces and outside access desirable quality of these spaces. Thus, one of the elderly main judgments and preferences to choose the open space is having the space with access safety and its importance to continuous presence.

Another important factor is (interaction quality and elderly varieties) in the public open spaces. Visiting and talking different classes of old people in the space, not only caused the elderly mental safety promotion, but also resulted in motivation and belongings to space. 60 these face to face communications and this level of interactions will create a kind of affection relation among them which can't compare with the other factors to create the presence motivation and participation on the space.

"Variety and quality of services" is one of the comfort criteria in the public spaces; the old people really need them.

Some public services which are available for example health services, suitable furniture, food and even services and medical emergencies, they will increase environment capability for the elderly presence ability, it will double their comfort and convenient.

Paying attention to the "possibility of doing activities" will be effective in the choice process and old people preferences in the public open spaces. This factor involves old people and it will provide variety and entertainment causes in the environment. One of these activates is to see children or enjoy the special behaviors and environmental motives in these spaces which will promote the happiness and mobility feelings.

Natural scenery quality will provide satisfaction among old people in urban space. The quality also includes the environmental pollution and provides the attraction and comfort for elderly constant presence ability. So the variety of vegetable covering and natural scenery quality play an important role in the space liveliness for elderly. It will help elderly to deepen the space environmental relations. Using light, birds sight, various and attractive colors and flowers will have, attachment and place association.

In the operational cases, we can offer strategies as following to promote the park quality and elderly presence increase:



- Slowing the street transverse cross in the parks arrivals specially Kargar street and Keshavarz boulevard.
- Putting the smart traffic light in the park arrival.
- At least using the level difference and when it's necessary, we have to use guards near the directions for elderly handles.
- Using good material including wood,... in the park bench which don't transfer warmth and cold.
- More lighting of spaces at night to increase safety and security of elderly mental in the space.
- Using suitable and safety flooring in the directions to improve old people safety.
- Creating change in the pavements tissue and cross-sections especially in the stairs part.
- Increasing the directions readability by some plans to better understand and read including signs uses.
- Designing special spaces for soft sports and leniency for old people along more active regions and organizing them.
- Applying commercial usages in different parts and creating nobility and liveliness in the performance.
- Creating variety in the soft texture of space (floriculture) to improve spaces enjoyment and scenery quality.
- Time management for clearing and offering services in the park to reduce the interference with elderly presence ability.



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