

Analysis of Safety on Sidewalks and Surrounding Contexts in the Historic Areas (Case Study: Alam al-Hoda Sidewalk)

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Abstract- Sidewalk is one of the most important urban spaces in cities, and because of having a nature which attracts people, plays a major role in the vitality of urban activities. Therefore, it can be said that improving security in these areas can contribute to the growth of the city because security is also listed in subsets of creating sustainability in cities. Hence, the amount of security in sidewalks and principles provided to promote it can have a vital role in making a vivacious and active city. This research aims to analyze the amount of security in sidewalks that Alam al-Hoda sidewalk in Rasht city is investigated as case study in the present research. Research method is descriptive-analytic and data were collected using library and field methods through questionnaires and surveys. To analyze data, SPSS software was applied. The research results show that after converting Alam al-Hoda Street to sidewalk, some strategies have been considered in structural terms which have led to increasing security in this space. One of these strategies is increasing brightness at night; in addition to this category, other components are also effective in promoting security which will be discussed in this research.

Keywords— Security, Crime, Urban Spaces, Sidewalk, Alam al-Hoda Sidewalk.

I. INTRODUCTION

The concept of safe urban space is discussed against unsafe urban space. The phenomenon of insecurity consists of two objective and subjective aspects and encompasses all areas of life. Objective aspect of insecurity includes all forms of insecurity, such as theft, murder, violence and etc., and subjective aspect of insecurity includes judgments on regional and space security. Insecurity refers to a phenomenon like poverty, and it can be said that poverty is the source of other pathological phenomena, such as insecurity, urban violence and something like that. Certainly, safe urban area is a space that provides security and comfort to the audiences, pedestrians and observers in both objective and subjective terms [1]. On the other hand, the active participation of people in the city is one of the factors of increasing security in urban space. Spaces have high quality, which make possible the wisest range of pedestrian's activities. The main basis of Newman's defensible spaces theory is definition and protection of boundaries of an environment that depends on the following factors: 1. Building tall complexes, 2. Type of blocks arrangement compared to each other, 3. Size of blocks and housing units.

Urban planning culture considers defensible space as an area that can be controlled and monitored by residents of neighboring buildings. It can be said that spaces without urban defense are generally formed due to three factors: 1. Lack of compatibility among form, function and meaning, 2. Spaces with no function or with periodic function (in some periods of a day, season or year, they turn out to be dead spaces). 3. Lack of visual view [2]. that addressing causes of insecurity and security is very important, especially in sidewalks because a majority of people spend their time on these spaces due to the nature of these tracks, and providing their security is one of

the main goals of environmental fields.

This research aims to analyze the amount of security in Alam al-Hoda sidewalk. In this research, criteria that are effective on providing security in the sidewalk are first identified and principles are then provided to promote security in these spaces. To analyze data, questionnaire and SPSS were applied; finally, Friedman test was used and rank of each criterion was determined and then principles were provided to create and promote security.

II. THEORETICAL FRAMEWORK OF THE RESEARCH

The concept of crime

Durkheim believes that crime is a natural and social phenomenon resulting from each community's system, culture and civilization, and as long as there is a society and a prevailing system, crime will have a permanent feature, and any act which offends public conscience is considered as crime [3]. In other words, all human societies and groups have their own special norms created by certain continuity in a long time; rules that breaking them lead to punishments, and change in these norms are regarded as crime [4].

Principles of crime prevention through environmental design

In this part, six principles have been used in certain environmental situations that by observing them a large extent of committing crimes can be prevented

1) Territory: Territory is a concept that clearly distinguishes private space from semi-private one and creates a sense of ownership. Therefore, ownership creates an environment where presence of strangers and intruders can be determined in and it can be defined more easily through following ways [5].

A: Sense of expanding legitimate ownership by improving

natural monitoring in natural access control strategies by symbolic (non-physical) or social factors.

B: Space design to allow constant use and intended purposes

C: Making use of sidewalk, landscape, visual arts (painting, sculpture), plaques, plates and fences determines the space ownership.

As it is concluded, territory plays a major role in the realm of ownership. For example, in the apartment settlement, the category of joint ownership or determination of boundaries between two properties in regard with agricultural lands can be mentioned.

2) Natural monitoring: Natural monitoring is a concept of designing by which intruders can be controlled. Natural monitoring can contribute to the creation of an environment which provides more opportunities for normal behavior of people. Spaces can be designed in a way that they are readily observed. These ways are as follows (Amiri Raskati, 2010):

A: Design and position of physical properties to achieve maximum possibility of vision

This category could include building orientation, windows, entrances and exits, parking space, sidewalks, gate guards, landscaping trees and shrubs, use of fences or walls, signs and other physical barriers.

B: Assigning people or activities to maximize the possibility of monitoring

C: Preparing Minimum standards to provide and maintain lighting; it is necessary to provide lighting at night in parking spaces, sidewalks, entrances, exits and other related areas to create a secure environment.

3) Access control: Access control is a concept in designing basically used to reduce the availability of committing crimes. It means to provide natural access control and increase natural supervision to restrict the criminal entry, especially in areas that are not easily observed. Intruders can easily be detected by following ways [5]:

A: Use of sidewalks, different floor coatings, gates, and lighting and landscaping for giving clear guidance to public in regard with entrances and exits.

B: Use of gates, fences, walls, landscaping and lighting to prevent or discourage people from having access to dark areas or spaces without any monitoring.

An environment which has been designed for a private space prepares two categories as follows:

First: It creates a sense of ownership. Owners share common interests and it is more likely that they fight with intruders or report them to the police.

Second: Sense of ownership provides an environment where strangers or intruders can easily be detected and distinguished in. Natural realm is strengthened by use of buildings, fences, floor coatings, signs, lighting and landscaping with the aim of determining owner and defining private and semiprivate space.

4) Supporting activities: They refer to activities planned for the space. Activity support means considering activity where people are involved in an activity, and this will be part of the natural monitoring system. Some examples are as follows [5]:

A: Considering safe activities in spaces where intruders do not dare to intrude; to increase natural monitoring of the activities and the sense of safety for normal users and sense of danger for intruders.

B: Considering high-risk activities in safer areas to overcome the vulnerability of these activities using natural surveillance and controlling availability to secure space.

C: Considering social spaces where natural monitoring or access control has been provided or areas which are out of intruders' sight.

D: Modifying spatial planning to provide possibility of effective use and develop appropriate density for acceptable behaviors.

5) Repair and maintenance: Proper repair and maintenance of landscaping, lighting and other categories can facilitate natural monitoring and natural access control. It can include:

A: Proper repair and maintenance of lighting equipment in accordance with standards.

B: Recognizing these fundamental concepts can guide owners, architects, planners and developers in the design of environment constructed.

A multi-storey office building with a lobby and several lifts a center for information is designed and it is organized to be self-service. After a while, crimes such as sabotage, purse snatching and etc. are committed in the lobby. Building owner installs closed-circuit television to monitor the situation. Eventually, some people are recruited to control closed-circuit television and individuals' traffic. So far, people who have come here have felt unsafe and all the time can be seen by CCTV. Now, the condition is bad enough, so that a security guard should be present during monitoring all the time [6].

Physical safety: In regard with physical safety in most construction projects, there is the fact that people who are the project designer do not perceive crimes and how crimes are committed; therefore, the result of this behavior can simply be seen in the rate of theft in commercial areas (installing metal security alarm).

Intellectual planning of physical safety can play a considerable role in overall success of the project. Proper use of safety hardware and elimination of security weaknesses in structural terms can have a significant impact on crime issue in future [6].

6) Lighting: Appropriate lighting is one of the most effective barriers of crimes. When the light is effectively used, it causes fear in offender and prevents criminal activities, and natural monitoring can be expanded and consequently, people's fear of darkness is reduced. Type and quality of lighting vary from one user to another, but the goal is the same in all cases. A constant level of lighting should sensibly be considered at night. The pure rate of lighting which provides standards for minimum visibility is less important than lighting consistency. Highly vulnerable areas and spaces which can conceal a potential aggressor should be more lighted than those designed for normal activities. The project should reveal the crimes without victimizing anyone. Lighting also plays a role in creating a sense of territory. A bright and cheerful environment is much more favorable than the space which seems dark and dead. Ability to create a pleasant sense in regard with the environment is important in increasing sense of pride and ownership [7].

III. ENVIRONMENTAL DESIGN ROLE IN PREVENTION OF URBAN CRIMES

By the time of mankind's progress achieved in various fields, subsequent transformation of huge communities, particularly the development of urbanism, industrialization, cultural changes, lifestyle changes and developments in the construction of social institutions and their tasks and functions have led to social problems and making decision about them requires a lot of research [8]. In most cities around the world, crimes are usually considered as serious threats to life, personal integrity and human properties. Excessive crimes committed in urban environments not only conflict with the basic tenets of the social system, but result in many withdrawals, human hardship and suffering, loss of economic resources, citizens frustration and general deterioration in the quality of life [9]. Why a criminal act is committed is a question that has always been discussed, and contemporary criminologists are required to respond it. Questions and issues arisen by committing crimes are like topics discussed in philosophical discourse of modernity. It can be noted that increase in robberies and drug trafficking affecting most Western countries are very closely associated with increase in wealth and property, welfare, free circulation of money, free commuting, the complexity of urban architecture and granting widespread freedom in some areas [4].

Today, crime is a problem of all countries and it affects lives of all people directly or indirectly. In addition to the issue of crime, fear of crime is also a serious problem in today's societies which has caused severe psychological effects such as anxiety, mistrust and isolation in people's lives and has prevented people's participation in the environment [10]. "Motivation, time and place" are three main factors of committing crimes. Therefore, differences in spatial and temporal characteristics and behavioral patterns lead to different spatial distribution of crime in urban areas. Since, criminals act very reasonably and deliberately in regard with choosing a place and select areas for their criminal acts in which crime is committed with less risk and greater speed, physical structure of cities will have a major impact on committing crimes and change in spatial characteristics results in forming time and place patterns related to crime committing [11] & [12]. Hence, it requires providing strategies for crime prevention to reduce crime rates committed in cities. Urban planning is considerably important, because urban planning as a science of organizing cities can play an important role in changing spatial and physical conditions in order to reduce crime rate, and urban planners can minimize crimes rate in urban areas by recognizing spatial features and facilities of crimes in cities and through changes applied in the environment as well as environmental planning and designing in order to remove environmental facilities of crime. To achieve this goal, architects' and urban planners' experiences should be applied in this regard, and structure of control system should be designed or changed with the aim of crime prevention and crime reduction and repetition. Several approaches have been represented in this field that crime prevention through environmental design (CPTED) is one the most famous ones proposed since 1960 [12]. This approach is based on this claim that crime prevention can be achieved by proper design

and effective use of environment and consequently, in addition to improving the quality of life, fear caused by crime can be overcome [13]. The rapid growth of urban population has led to many problems in cities that occurrence of a variety of social disorders is one of them, so that today, increase of crimes committed threatens citizens' security and welfare. Criminal acts are usually committed in some parts of city more than other areas, because criminals act very reasonably and deliberately in regard with choosing a place and select areas for their criminal acts in which crime is committed with less risk and greater speed; hence, urban planners should have special attention to this issue. CPTED (crime prevention through environmental design) is one of the techniques that can help planners in this regard. CPTED emphasizes on proper design and effective use of space and environment constructed to reduce criminal acts. In fact, this course can be considered as critical period of current architectural condition with more emphasis on paying attention to the role of environment in committing crime.

Security and its role in urban life

Since crime and committing it depends on the way of thinking, culture, progress and backwardness of the society and current context, a precise definition has not been provided. When the institutionalized order is impaired, human faces with normative problems, and then security is raised as an issue in the society [14] & [15]. According to Durkheim, normative disorder refers to a situation which can be associated with social structure; control and inhibition of social norms on people's actions are destroyed and their desires and wishes become limitless over a period of time [16]. Two environmental (natural and manmade) and non-environmental factors (cultural, socioeconomic) are effective on the emergence of such situation [1]. Security means "being immunized, safety and lack of fear". "safe and secure" and "lack of fear, freedom from danger and fear or calmness and comfort" and "being safe and protected, peace and tranquility". Therefore, security can be described as mind comfort. Hence, it means "freedom from danger, threat, harm, fear or presence of calmness, confidence, comfort and reliability" [17]. Also, two important components of security, freedom from demands and fear have exactly been mentioned in Quran: "Who provides them with food against hunger, and with security against fear (of danger)." (Quraysh, verse 4) Security with the concept of "a sense of comfort and confidence in regard with life, property and other human rights is an exclusive value and one of the requirements of individual and social life". Response to fear of victimization causes that many people avoid risks; consequently, it can lead to the absence of people not only in a certain place, but in more public spaces [18]. In historical cities of Iran, the issue of urban defense was one of the design priorities. The most notable example can be seen in the barriers surrounding cities which have provided peace of mind and living experience in a safe city in addition to social and physical structure. Institutional commitment to the principles of shared values and beliefs and social and cultural cohesion are most important factors leading to security; while, the impact of the environment constructed on this field is [1] & [19]. Jane Jacobs has emphasized on the subject of bringing people to

the street and training them to make street self-disciplinary and has considered it as a factor of street's vitality and dynamics. Oscar Newman has put an emphasis on active monitoring and defining areas and raises defensible space theory. He mentions three factors of alienation of neighbors to each other, lack of supervision as well as availability of escape routes which result in increasing crime in residential areas, and Hiller also emphasizes on this subject.

Urban space context and safe urban space

Each city's context shows way of formation and stages of development of a city, especially in physical and functional terms over time. Passages are considered as the simplest components and elements of urban planning that constitute the most important public places and vital organs in city [20]. Urban space consists of social and physical spaces [21]. that its social and functional dimensions have particular importance. Urban space is common ground in which people fulfill seasonal and functional activities connecting community members to each other [1]. Urban space is an organized and orderly construction that acts as a platform for human activities and behaviors [22]. According to Trancik, urban space refers to an environment that provides best proportionality among cultural, physical and users' needs and expectations to people show an appropriate behavior in regard with them.

IV. RESEARCH METHODOLOGY

This research aims to evaluate security in Alam al-Hoda sidewalk and surrounding contexts in Rasht city. Research method is analytic-descriptive and data were collected using library and field methods. Library data were obtained through a variety of methods, including referring to books, magazines, research projects, maps and Internet search. It was aimed to make use of the latest information available on the subject investigated. Field studies include interviews with people and questionnaires containing different questions to survey the public. To prepare questions, different components related to the safety and physical factors resulting in security have been extracted from related research literature. Questions have been designed in the way that there is possibility of quantifying them using SPSS to draw appropriate conclusions in regard with the amount of security in this space.

V. FINDINGS AND DATA ANALYSIS

To evaluate security in Alam al-Hoda sidewalk, factors affecting security in this space were first investigated and these factors were then assessed through citizens' viewpoint. For this purpose, criteria questioned in this research are shown in the charts below:

Chart 1. Factors affecting design of safe spaces (source: the researcher)

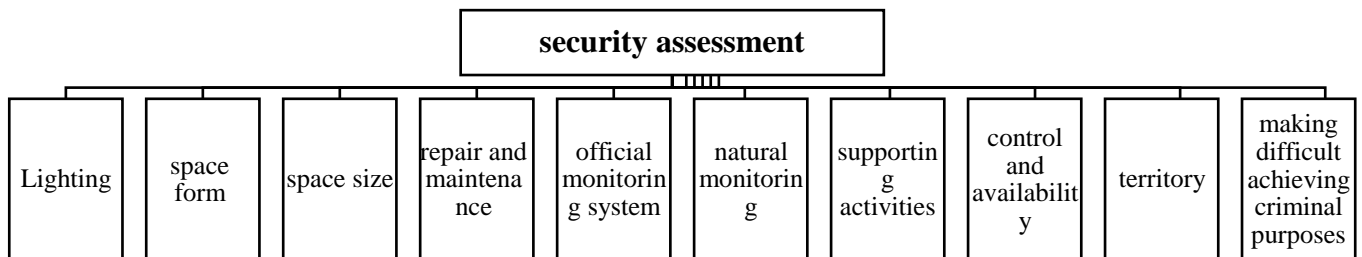
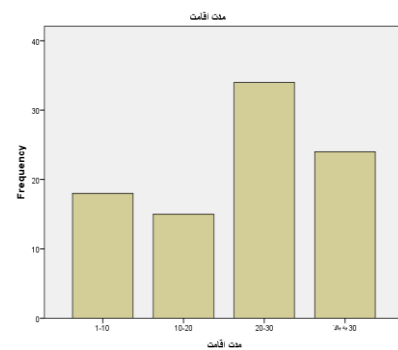


Table 1. Questions to assess factors affecting security in Alam al-Hoda sidewalk (source: the researcher)

Factors affecting security	Questions
Making difficult achieving criminal purposes	To what extent has sidewalk entrance been defined?
Territory	How much do you have sense of attachment to this sidewalk?
	To what extent are sidewalk's territory and privacy specified?
	How much fence and hedge have been used to determine private scopes (e.g. pedestrian privacy and etc.)?
Control and availability (ability to penetrate)	To what extent are there dark alleys and dead ends in sidewalk?
	To what extent is sidewalk labyrinthine which is leading to increase in crime?
	To what extent is there possibility of access to several places in sidewalk?
Supporting activities	To what extent are these availabilities controlled by different people like the police?
	To what extent are there day and night activities (clinics, agencies and etc.) in sidewalk?
Natural monitoring	To what extent are there activities that attract people such as cinema, park and etc. in sidewalk?
	To what extent are people present at different spaces in sidewalk and there are no silent and dark spaces?
	To what extent is it possible to see different spaces of sidewalk through the windows of residential houses?
Official monitoring system	To what extent has commercial affair been fulfilled in the ground floor?
	To what extent are there CCTV cameras in sidewalk and to what extent do the police have control over spaces?
Repair and maintenance	To what extent are urban furniture (tables and benches), lights ant etc. monitored (cleaned and repaired)?
Space size	To what extent are there large-scale and high-rise buildings in sidewalk?
	To what extent has crowding led to the increase of crime in sidewalk?
Space form	To what extent are there significant buildings in sidewalk?
	To what extent have regular shapes and distinct forms been applied in the design of sidewalk?
Lighting	To what extent is lighting level appropriate in sidewalk?
	To what extent has context lighting led to security?

To determine sample size, a procedure that did not depend on statistical population was applied. Confidence level was considered 95%; namely, 5% error was accepted. Sample size was achieved 96 using Cochran formula; therefore, 96 questionnaires were completed. To assess reliability of the research tool, Cronbach's alpha was applied. Cronbach's alpha obtained from 96 questionnaires with 21 questions was reported 0.861; since it is higher than 0.7, questionnaire will be reliable (Table 2). 50% of respondents are women, and 50% of them are men who have randomly been selected. The following charts are related to these statistics. The largest number of respondents aged between 30-40 years; they have taken up residence in this place for 20-30 years. Most of them held bachelor's and master's degree. Related charts are as follows (Charts 3-6):

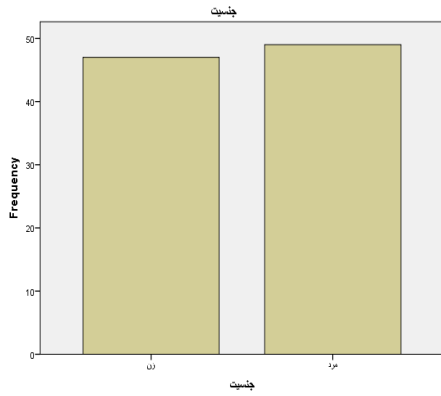
Cronbach's Alpha	N of Items
0.861	21



Tables 2-3: Cronbach's alpha for assessing reliability of questionnaire

	N	%
Valid	96	94.1
Cases Excluded ^a	6	5.9
Total	102	100.0

a. Listwise deletion based on all variables in the procedure

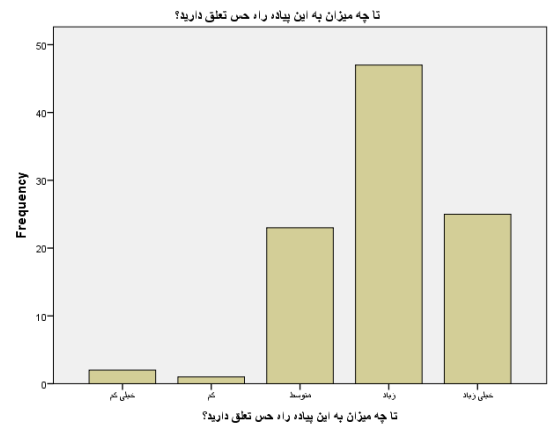


Charts 3-6: Age, gender, education and residence time (Source: The researcher)

For example, most people, about 40 percent have chosen “average” option in responding to this question: “To what extent has the sidewalk’s entrance been defined?” Most people, about 70 percent have chosen “much” and “very much” options in responding to this question: “To what extent is there sense of attachment to this sidewalk?” This also shows that citizens have a high sense of belonging to this sidewalk. Most people, about 35 percent have chosen “average” option in responding to this question: “To what extent are sidewalk’s territory and scope specified?” Other questions can be observed in following parts. Therefore, to determine the rank and degree of each component, Friedman test was applied.

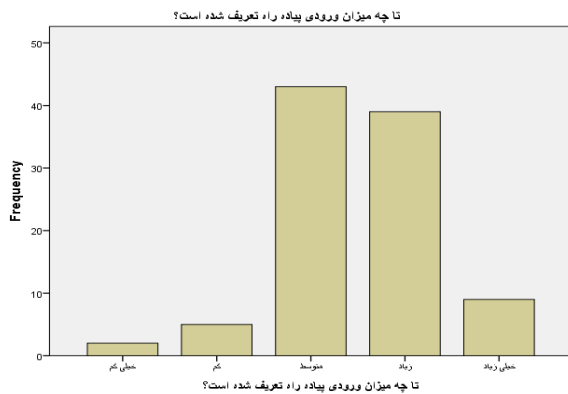
To what extent is there sense of attachment to this sidewalk?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very little	2	2.0	2.0
	Little	1	1.0	3.1
	Average	23	22.5	26.5
	Much	47	46.1	74.5
	Very much	25	24.5	100.0
Missing System Total	4	3.9	100.0	



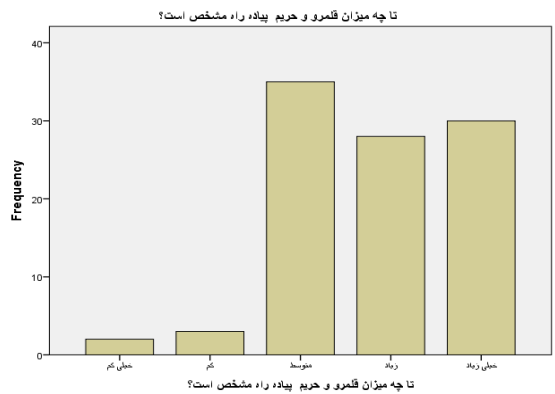
To what extent has the sidewalk’s entrance been defined?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very little	2	2.0	2.0
	Little	5	4.9	7.1
	Average	43	42.2	51.0
	Much	39	38.2	90.8
	Very much	9	8.8	100.0
Missing System Total	4	3.9	100.0	



To what extent are sidewalk’s territory and scope specified?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very little	2	2.0	2.0
	Little	3	2.9	5.1
	Average	35	34.3	40.8
	Much	28	27.5	69.4
	Very much	30	29.4	100.0
Missing System Total	4	3.9	100.0	



Charts 7-9 & Tables 4-6: Components assessed to analyze the security level in Alam-al-Hoda sidewalk (Source: The Researcher)

Table 7. People’s opinion in regard with factors affecting security (Source: The Researcher)

Factors affecting security	Questions	Very little	Little	Average	Much	Very much
Making difficult achieving criminal purposes	To what extent has sidewalk entrance been defined?	2	4.9	42.2	38.2	8.8
Territory	How much do you have sense of attachment to this sidewalk?	2	1	22.5	46.1	24.5
	To what extent are sidewalk’s territory and privacy specified?	2	2.9	34.3	27.5	29.4
	How much fence and hedge have been used to determine private scopes (e.g. pedestrian privacy and etc.)?	2	4.9	42.2	38.2	8.8
Control and availability (ability to penetrate)	To what extent are there dark alleys and dead ends in sidewalk?	25.5	70.6	2	-	-
	To what extent is sidewalk labyrinthine which is leading to increase in crime?	9.8	87.3	1	-	-
	To what extent is there possibility of access to several places in sidewalk?	2	2.9	34.3	27.5	29.4
	To what extent are these availabilities controlled by different people like the police?	2	2.9	32.4	27.5	29.4
Supporting activities	To what extent are there day and night activities (clinics, agencies and etc.) in sidewalk?	25.5	66.7	2	-	-
	To what extent are there activities that attract people such as cinema, park and etc. in sidewalk?	-	-	4	65.7	24.5
Natural monitoring	To what extent are people present at different spaces in sidewalk and there are no silent and dark spaces?	-	-	17.6	44.1	32.4
	To what extent is it possible to see different spaces of sidewalk through the windows of residential houses?	-	2.9	35.3	45.1	10.8
	To what extent has commercial affair been fulfilled in the ground floor?	-	-	12.7	35.3	46.1
Official monitoring system	To what extent are there CCTV cameras in sidewalk and to what extent do the police have control over spaces?	25.5	63.7	4.9	-	-
Repair and maintenance	To what extent are urban furniture (tables and benches), lights ant etc. monitored (cleaned and repaired)?	-	-	14.7	47.1	32.4
Space size	To what extent are there large-scale and high-rise buildings in sidewalk?	2	2.9	32.4	27.5	29.4
	To what extent has crowding led to the increase of crime in sidewalk?	27.5	64.7	2	-	-
Space form	To what extent are there significant buildings in sidewalk?	-	1	6.9	53.9	32.4
	To what extent have regular shapes and distinct forms been applied in the design of sidewalk?	2	4.9	40.2	38.2	8.8
Lighting	To what extent is lighting level appropriate in sidewalk?	1	1	2	45.1	45.1
	To what extent has context lighting led to security?	-	-	8.8	52.9	32.4

To determine security level in Alam al-Hoda sidewalk, Friedman test was applied. To investigate the factors affecting the security of historical contexts, according to the results of the questionnaires shown on tables and charts, this analysis was conducted. The results obtained from the table below, indicate that the mean rank calculated for the question of “To what extent is lighting level appropriate in sidewalk? (Lighting component associated with establishment of security in context) has the highest value, and the lowest value relates to the question of “To what extent has crowding led to the increase of crime in sidewalk?”, and it is statistically approved because significance level is less than 0.05. Based on two open-ended questions asked from citizens, these categories are fully confirmed because all citizens evaluated the security created in the context positive, after its turning to

sidewalk and considered some factors leading to more security as follows:

1. Presence of police
2. Creating a variety of applications to attract more people
3. Increasing hours of purchase and sale (creating 24-hour applications and paying attention to nightlife)
4. Reducing crowdedness
5. Constructing new buildings instead of run-down buildings
6. Paying attention to all groups of people (disables ones and etc.)

Tables 9-10: Friedman test to rank people’s opinion in regard with security and factors affecting security in Alam al-Hoda sidewalk (Source: The researcher)

Ranks	
Questions	Mean Rank
<i>To what extent has sidewalk entrance been defined?</i>	10.65
<i>How much do you have sense of attachment to this sidewalk?</i>	13.64
<i>To what extent are sidewalk’s territory and privacy specified?</i>	12.91
<i>How much fence and hedge have been used to determine private scopes (e.g. pedestrian privacy and etc.)?</i>	10.65
<i>To what extent are there dark alleys and dead ends in sidewalk?</i>	3.29
<i>To what extent is sidewalk labyrinthine which is leading to increase in crime?</i>	3.58
<i>To what extent is there possibility of access to several places in sidewalk?</i>	12.91
<i>To what extent are these availabilities controlled by different people like the police?</i>	12.91
<i>To what extent are there day and night activities (clinics, agencies and etc.) in sidewalk?</i>	3.29
<i>To what extent are there activities that attract people such as cinema, park and etc. in sidewalk?</i>	14.76
<i>To what extent are people present at different spaces in sidewalk and there are no silent and dark spaces?</i>	14.55
<i>To what extent is it possible to see different spaces of sidewalk through the windows of residential houses?</i>	11.58
<i>To what extent has commercial affair been fulfilled in the ground floor?</i>	15.22
<i>To what extent are there CCTV cameras in sidewalk and to what extent do the police have control over spaces?</i>	3.43
<i>To what extent are urban furniture (tables and benches), lights ant etc. monitored (cleaned and repaired)?</i>	14.71
<i>To what extent are there large-scale and high-rise buildings in sidewalk?</i>	12.91
<i>To what extent has crowding led to the increase of crime in sidewalk?</i>	3.24
<i>To what extent are there significant buildings in sidewalk?</i>	15.01
<i>To what extent have regular shapes and distinct forms been applied in the design of sidewalk?</i>	10.65
<i>To what extent is lighting level appropriate in sidewalk?</i>	16.26
<i>To what extent has context lighting led to security?</i>	14.86

Test Statistics^a	
N	96
Chi-Square	1245.526
Df	20
Asymp. Sig.	0.000

a. Friedman Test

VI. CONCLUSION

In this research, individuals’ opinion about the amount of security in Alam al-Hoda sidewalk was discussed. Data were analyzed using SPSS, and factors affecting security in Alam al-Hoda sidewalk were evaluated using Friedman test. The research results indicate that the mean rank calculated for the question of “To what extent is lighting level appropriate in sidewalk?”

(Lighting component associated with establishment of security in context) has the highest value, and the lowest value relates to the question of “To what extent has crowding led to the increase of crime in sidewalk?” Therefore, after changing

this street to sidewalk, security in the sidewalk and its surrounding contexts has highly been increased due to the structural revival of elements. In addition to these factors, citizens consider other factors leading to more security in this sidewalk, including presence of police, creating a variety of applications to attract more people, and increasing hours of purchase and sale (creating 24-hour applications and paying attention to nightlife).

Based on the results obtained from questionnaires and Friedman test, the proposed principles for enhancing security in sidewalks and urban contexts are as follows:

Table 11. Suggesting principles to enhance security in sidewalks

Components studied in order of rank obtained in the Friedman test	Suggesting principles to enhance security in sidewalks
Making difficult achieving criminal purposes	Defining sidewalk's entrance Creating significant elements in the place of entrances, including significant application or structure Using the elements defining corners and places for enhancing legibility
Territory	Determining private scopes in the sidewalk Determining the scope of those with and without vehicles Determining moving directions for different people Using fence and hedge to determine the place scope (e.g. privacy of pedestrians and etc.)
Control and availability (ability to penetrate)	Designing straight and flat paths Removing narrow and tight routes Use of police to control the situation
Supporting activities	Creating day and night activities (clinics, agencies and etc.) in sidewalk Creating activities attracting people such as cinema, park and etc. in sidewalk
Natural monitoring	Visibility of public spaces by putting residential use on the top floor (watching eyes) Creating commercial uses on the ground floor of buildings Creating activities attracting people such as cinema, park and etc. in sidewalks to increase public participation and supervision
Official monitoring system	Use of CCTV cameras Use of police to monitor the space
Repair and maintenance	Continuous monitoring (cleaning and repairing) urban furniture (tables and benches), lights ant etc.
Space size	Creating open spaces for the presence of different people and avoiding large crowds
Space form	Designing legible forms and shapes in the sidewalk
Lighting	Increasing lighting level, especially in the corners and silent places Use of point lighting in different parts of the sidewalk

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