

Evaluating the Physical Functional Indicators Affecting Women's Safety in Urban Spaces (Case study: Shahin Area 5th Region, Tehran)

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ABSTRACT: Safety of urban spaces has an important role in improving society welfare in all citizens, but among the urban population, some special groups like women, old people, kids and people who has disabilities are living that their safety needs remarkable attention, for example, women for their active participation in society, need to have a city in which they feel safe. Therefore, the main objective of this research is evaluating the effective physical functional indicators on improvement of women's safety feeling and as a result, their active participation in city. In this study, after general statements and theoretical foundations related to women's safety in urban spaces, the effective physical functional indicators extracts by research's literature review and it will measure by the women's participation in form of a questioner. The main hypothesis in this research is: "it seems there is a direct relation between the level of, cohesion and verity of usage and urban activities in public spaces with the increase of level of women's safety "which is evaluated by descriptive method and Spearman correlation coefficient. For field study, the region of Shahin in 5th area of Tehran has been chosen. Finally after recognition of this space and statistical analysis derived from questioners, the main hypothesis of research is confirmed and required strategies to improving the women's safety in urban public spaces are expressed. The results of current study, show that, the appropriate physical situation of urban public spaces has remarkable role in amount of women's tend to quartering in this spaces and as a result, their level of safety plays and important role. On the other hand, evaluation of experimental perceive model indicate that with the increase of legibility and space familiarity, promotion of famousness or Infamousness of spaces, monitoring spaces and access to rescue promotion of night life in space and applicability of public transportation the amount of perceived safety feeling from space will increase as well.

Keywords: Safety, Urban Spaces, Women

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INTRODUCTION

Improvement, development and evaluation of a society and efflorescence of talents are depending on safety and peace of that society. The social development, creativity and worthy activity is not possible without safety. Nowadays by increasing the urbanization and increase of the population of citizens, the human interactions with each other in urban structure is getting increase and this makes the importance of attention to urban safety higher. In providing urban safety, different urbanism's criteria are considered that are public and particularly are not belong to the special gender or age. Some of the commentators of urbanism believe that, dominate approaches and urban rules will make different social, economic, age and gender discrimination among the citizens. Women as the half of human societies in comparison with men have different perception and requests form spaces and for the effective participation in society, they need a city in which feel safe and relax. So planning and presenting programs to develop women's safety in urban spaces, in all cultural, social and economic aspects will have lots of advantages. Hence, active people in urbanism are always seeking some proper solution to improve women's safety. In our country, some studies have been done in this field that make it possible to extract some effective criteria on improvement of women's safety feeling in urban space through these researches outcome and successful experiments have been

done and use these indicators practically to make the city safe for women.

Theoretical foundations

Safety in urban spaces: Safety is a word that has special mental dimensions and indicators that are pointing to Inner peace and satisfaction with relax based on environment. According to Buzan, safety will be to challenges by threats and these threats are derived from the issues that People live in a social environment and that's the economic, social and political pressures of this environment that impair safety of the citizens. These threats can be expressed in form of physical threats such as physical aggression, economic threats, such as: lack of access to jobs and threat to citizen's right or threat to social status (Buzan, 1999).

Jane Jacobs, the great urban theorist paid attention to interaction of physical space and social processes that make environment in explaining urban safety and emphasizes on activation of space as a factor in creating a safe and successful environment (Jacobs, 1961). He refers to safety and effective spatial and physical deterrents of cities in his book, *The Life and Death of America's major cities* and asserts that peace in urban space, primarily is maintained by unconscious and complex social networks and the existing standards among the people. This peace is ensured by the police (Jacobs, 1961) it's necessary to note that the urban safe spaces, that some call these spaces as "defensible space" in fact are the spaces in which people

have more activities on that and more safety and security is perceived from that and criminal activities occur less. Some of the features of a safe urban space include following factors: 1. People tend to see each other in a safe and comfortable space and that space is able to be social. 2. Connections to the surrounding space (access) are made easier. 3. The space will be attractive and remains in the mind. Such situation is justice, and there is no fear for any citizen about entering use of a safe urban space. 4. It will be a great place to do some activities and in another words, they will take advantages of urban life (Zabetian and Khodayi, 2009).

Totally, attention to the issue of urban safety is so important in aspect of view to the urbanization growth and increase of citizen's number that is associated with disruption of most of the people in city's structure. It's perceived that this issue has a close and cohesive relation with national safety and unity of people in a society against the internal and external threats which are during the formation to that system. This expansion can note the issue that each population's increment in urban structure, can change to various action and reaction in public that finally can include the possibility of decreasing of the safety from the citizen's point of view in economic, cultural and even physical and religious aspects (Bahamian and Mahmoodi nejad, 2009).

The relationship of space and gender and causes of this discriminatory attitude

Individual's features and various factors have an effect on perception of security and use of urban spaces. Some factors like, gender, age, pervious experiences about crime, environment and geography, culture and race have a great colorful role. But gender is considered as the most important personality factor in safety perception. Type of crime and feeling of safety in men and women is completely different but generally, women have more fear although they may become scarify less than men (Howard, 1999). Part of this difference is related to perception of safety by men and women to the way of designing and construction of urban spaces. In Castles (1982) gender difference is derived from the economic priority of men to women and their increasing power in providing house and job. Men can easily claim about urban space in a way that requesting the power for men typically will be involve with space requirement. Susan Faynshtayn in explanation of the roots of this discriminatory view express that within the urban territory, men design cities to serve men (Faynshtayn, 1992). In two important areas of programming , including economic development and regulation of land use, accepted analyzed Framework have the inherent bias that show the women isolated and downplay. By describing the economic status of women, he concluded that, less important and insignificant role of women in the economy, arising from the recognition of women in personal field instead of public that is reinforced by common social structures related to special role of women in biological reproduction (Habibi, 2012).

Physical programing approach to urban environment's safety

Based on what the American Planning Association express in form of urban planni9ng and programing

standards ,to evaluate the spatial spaces against threats and problems internal and external conditions of space such as, movement patterns, space boarders ,potential places for hiding, lighting of the space and preventing disruption must be considered. In addition, its needed to attention to the pedestrian surrounded the space and vehicles' movements and accesses and then make the space to security layers to control based on these layers (Etemad, 2008).

Effective physical –functional indicators on process of urban safety improvement

In general the elements and factors influencing the physical approach can include the following:

Uses and activities derived from: Security of space depends on its surrounding uses and some measures should be considered o reduce the negative effects of solitude and abandonment uses that are problematic. The idea of Combined uses in was raised in 1960 has by Jane Jacob and still has not penetrated well in knowledge of design. It was discussed about the making the environment that consider women. Generally, some of the expressed general principles in this field are a follow:

Uses of floor must be active (must not be passive and not stagnant and can affect the environment). Attention to the theory of street's eyes and use of active view for monitoring the spaces and improving their safety. Good maintenance (broken windows theory), which if one window breaks, it leads others to break more quickly and generally a declining spiral movement will appear. For instance, in England ,to develop security in urban public spaces, combined applicable strategies have been encouraged and mixture of small jobs, houses and administrations in urban centers and creating apartments in upstairs of shops have been done in designs to increase the amount of activities and therefore increase the security. In fact in preparing land uses plans, some urban structure must be create that can provide the mixture of attractive urban spaces and this is to ensure that existing spaces will make better the urban life and have some share in making attractive urban spaces. Effective properties on safety of Safety experiences of women that is related to their hesitancy, is different form men in urban environment. Women, particularly make a mental map with more details form different eras of city in which feel safe and the section must be avoiding from them, in their mind. This mental framework will be the basis of measurement, judgment and designing the pattern of women's movement in urban public environments (Bell, 1998).

Legibility of urban spaces: Legibility mostly refers to the degree of perception form a space and its clearness and considered space has the harmonies pattern. When a space is legible, it helps to the feeling of comfort ability and security and vice versa, when there are not guidance signs and the space is confusing, feeling of safety will disappear (Russ, 2006).

Access to help

Relief supplies (even if they are symbolic) caused to relaxation and mental security. For example, some strategies like providing public phone in visible places will cause to disappearing the feeling of Abandonment and separation. Although they may be used rarely but

causes to develop the possibility of help access. In fact phones may have mostly the symbolic usage and of course sometimes these telephones are really considered as the tools of help. In these situations, it's better for phones to have a code or character of position to identify the person who call by them emergency and rapidly to identify the geographical situation and the place of the phones, it's better to sign them by guidance light (at night) and guiding signs (that must be clear from 20 meter) to ensure the pedestrians. The important point in this field is the issue that relief equipment's design must be such a way that doesn't encourage any disruption activity because the existence of any damaged resource result from sabotage activity in urban environment can have negative effect on sense of transferred security to citizens. Seeing the police patrol can also increase the sense of security.

Natural and artificial cares and maintenance

Adding extract of "street's eyes" to programming and planning, provides the opportunities for invisible cares from the released places that crime may take place on that. When people are in expose of observation, or their voice is hearing, they have more safety feeling. This is a general rule in which all new developments should be design in a way that increases the opportunities to natural care (Monahan, 2006). Using active perspective is one of the main elements of physical disrupting to control the safety of urban public spaces. Also, using modern tools of monitoring, like, CCTV cameras as the most common tools through the world to achieve the safe spaces especially in places in which, natural monitoring is not possible (Bemanian et al., 2009).

Familiarity of space

Repetition of familiar landscapes in urban public space eliminates the sense of alienation and anxiety and also helps the people to prevent the probability of loss and the fear. This issue, in addition to making the familiar places and spaces, can be accessible as the urban furniture with familiar styles such as benches and bins, telephone kiosks and bus shelters and something like those that are consider as additional elements of the environment. But using the familiar styles doesn't mean to reject of modern design and innovation and of course means the combing of familiar styles in such a way they can be perceivable and usable for people (Burton and Mitchell, 2006).

Night life and the idea of 24 hours cities

Night as a natural element of environmental change can impact on fear of crime. That is why a lot of women don't come out of the home to use public spaces after the weather getting dark or wants someone to company them. As a solution, around what was investigated in Australia, and also generalized to most of the countries, night economic movement has major effect on city centers and specially on women's security and makes bringing combine of people to the city centers and this will affect lighting improvement and public transportation services. Cultural programs alive at night will revive the streets and as a result, empty spaces can be used as the cultural activities to the goal that field of crime for example lighting continually can direct and lead people to the center of city (Bell, 1998). One of the known ideas in this field is "the idea of 24 hours cities". This idea was

expressed in late twentieth century after analyzing the problems of various cities. Concept of 24 hours cities is dealing with presenting solution to planning and creating a safer and more secure urban centers rely on mixed approach of the uses in a wide timeframe.

Public transportation

Regular public transport services and security of stations and terminals spaces, is one of the main components of public trust in this type of transportation. Several items have been expressed for improvement of public safety and security coefficient in urban transportation components that emphasize on the issues that have physical aspect beside of mental aspects of uses of urban transportation components. Using night services for ladies, for example a successful sample of "taxi designated for women 20" in London and attracted to their trust completely and are well organized and under control. Also provide lighting at night for the stations and use of transparent body for them can affect the increase of public transportation. (London Conference Report, 2005).

Hypotheses and research methods:

The current study is theoretical-practical, the library, documentary, descriptive -analytical method has been used in its formulation 5th area of Tehran, Shahin region has been selected as the study area. This neighborhood is one of the most densely populated and relatively young areas that are located in northwestern Tehran that daily receive crowd of people as pedestrian or urban travel. Diversity and density of urban land uses in this area are in good condition. Certainly in per day, a large percentage of the population referred to the region, are women. Point is worth attention in this discussion is how the mentioned spaces impact on contained population in spaces and vice versa. Obviously, problem of strength or weakness of the security has great importance to investigate the roots in an active and young urban space such as selected area. Regarding statistical population of research, since the main focus of the research on women's urban safety, therefore, the main approach is on the basis of popular participation and use of women's idea of investigated area in security upgrades planning. In selecting the statistical population among the women of studied area (District 5 Shahin, Tehran), it was attempted to use people with different attitudes and characteristics to the point that questioner doesn't have any problem both in conceptually and structurally aspects and it can be responsive to research needs. So after reviewing the various classes of women in this neighborhood, 8 general groups were considered. These groups include housewives, students, teacher, doctor (or health care), clerk, shopkeeper and members of local councils. To achieve to the attributable results, it was tried to use comments from people who has the required accuracy and sensitivity related to the research's topic and can understand the needs and problems completely. In line with the present study, 50 women of Shahin district were identified as emotional and active people in neighborhood. Among these numbers, 43 people announced their agreement to participate in surveys and they had the questioner. Finally, 36 questioners were completed and have been provided for author. It should be noted that the conceptual description to clarify the purpose of the

survey, along with a complementary interview of questionnaire was presented to them. After collecting questionnaire, data were entered in SPSS software and has been analyzed and the main and special components were determined based on priority. Analysis was conducted with the help of SPSS software and statistical methods such as validity and reliability test of alpha coefficient, Method of Spearman and Landa correlation and Friedman ranking test. The main hypothesis of research is “it seems that there is a direct relation between level of attraction, physical integrity and diversity of urban land use and activities in public space with level of security. To confirm this hypothesis, after field observation of uses of scope of the study, level of attraction, physical integrity and diversity of urban land use and activities along with public spaces of this area and the level of created safety by these uses have been measured in form of research questioners questions (With other effective components on the urban security in view of elected women of district). After explaining the impact of land uses and activities on women's sense of security respondents in this study, some of the physical-functional indicators effective on women's safety improvement in public spaces of Shahin district have been measured in form of separate question. Indicators such as: Legibility of urban spaces, access to help, natural and artificial environment care, level of familiarity with space, , reputation and local reputation, sense of belonging to the neighborhood, the night life of the city, public transportation. Finally, after summing up the results of the theoretical studies, investigation of universal experiences and field study and after statistical evaluation of mentioned indicators and approval of research's hypothesis, some suggestions and strategies to improving the women's safety in public spaces have been provided and finally the research's report has been documented.

RESULTS

The eras that was selected to study, means Shahin district 5 of Tehran, is located in area 7 of the seven areas. According to the extracted information from interview with old residents and authorities and base on what they said, lands of Shahin district are parts of Janat Abad's lands, In spite of rise in urbanization, the old texture of district is still visible in some places. Despite the long history of the original core, this district had the severe shortage in aspects of security, basic functions depends on living and leisure in a way that living in that place didn't have any benefit for them nus based on the field observation of author and the interviews, as Shahin district is newly one in its development in comparison with older areas in other places of Tehran and people and the authorities are trying to improve the various urban performances in this area and also they gained great results. In evaluation of statistical results derived from questioners regarding the physical functional indicators effective on sense of safety of women in this area the following results have been gained.

Components affecting the willingness to traffic in public spaces:

Flooring used in these eras like other areas of Tehran is not desirable in terms of quality and this will

cause damage and shorten the life of flooring. Another issue which adds to undesirability of sidewalks is the existence of holes, covers of wells, atmospheric of water and water Circle embedded in pedestrian. Wasteland and ruined buildings in the neighborhood is one of the effectiveness components on women's willingness to walking in neighborhood. Places that are not properly supervised and according to police and local residents is the item to make sense of insecurity among the people, especially women. It is worth noting that most of these places are in good health and just lack of covering and monitoring on them is causing the problem. Lack of adequate supervision on the buildings being constructed is another factor affecting on that in terms of problems that can caused for residents and passersby. The existence of many buildings' debris in most alleys and streets, annoying metal scaffolds, damage of pedestrian's flooring, blocking the path of passersby are those problems that can be observed during the project of the construction of these buildings. Little Width of pedestrians and the possibility of collision to passerby and the presence of unemployed people are the other effective components on women's safety and their willingness to walking in the mentioned area and based on Spearman correlation coefficients, each of these factors have a direct and significant relation with the willingness of women to walk in the neighborhood and by mean of 22.88 it has the highest rank in level of effectiveness on women's safety among the other functional physical components.

Physical integration and diversity of users and urban activities: Density and diversity of uses make the vitality of public spaces in a city that will lead to the increase of citizen's safety in these spaces. This item affect the women's safety in investigated area in this research with mean of 9.00 has the third grade of effectiveness and as it was mentioned in section of second hypothesis approval ,there is a significant and direct relationship between diversities and density of uses and extent of women's security in the neighborhood.

Sense of belonging to area

Familiarity of the space and omitting the sense of unfamiliarity, (which makes fears and tension) has an important role in strength of mental safety feeling in individuals. Moreover, positive or negative mental context remains from space, can be effective on the overall perceived feel of the space. So here, the level of familiarity of space and memory and mental background of person in relation to the environment has been examined. Analyzing the statistical results show that, this space is relatively familiar with them (mean of 3.11) and makes the positive memory for them.

Legibility of Environment

Regarding to the legibility of environment (mean of 4.77) it becomes clear that, most of the responsive people found this environment legible and full of signs that help them in finding their path, in a way that little percent of these people lose their path till now.

Access to the Rescue

Also on the availability of relief in space (mean of 2.08) based on interviews that have done, a lot numbers of

patrons said that they were not aware of type of rescue and according to the issue that the public monitoring on environment is weak ,in case of mistake ,they predict the space so unsafe and mostly, the only tool of Disaster relief was personal telephone.

The extend of artificial and natural monitoring on space, (street’s eyes)

As it mentioned, this monitoring is conducted in form of street’s eyes (windows), active participation of passerby and their care about space. But on the basis of results, the extend of public monitoring on space in form participants’ point of view in the research with mean of 2.41 and police monitoring and the performance with the mean of 2.44 is low and this shows their lack of trust in natural monitoring in environment. On the other hand, the extend of women’s willingness to control the urban space through surveillance cameras in the study area with a mean of 4.36 is high and this is will clear the necessity of programming to develop this type of artificial monitoring on space. Regarding to the lightening of the spaces of this area it’s needed to mentioned that in idea of responsive women, the quality of light with the mane of 2.66 is low and they will not evaluate the lighting of the public spaces in this area specially minor passages and dead-ends properly. Components related to public transportation. According to increase of air pollution of capital, citizens

are already required to use public transportation more. on the other hand, mostly women are more dependent to public transportation than men, so the safety and efficiency of public transportation and its effect on attracting population and feeling of safety is very important, the feel of safety of many women who participated in research in public transportation’s terminal with mean of 2.97 is high. However, the level of access to public transportation after darkness decreases (mean of 2.13) and this issue is one of the reasons of encouragement and anxiety of them after the darkness. Also the interviews from participants indicate that the level of access to transportation like taxi, bus in a day in this area is appropriate in a way that their movement to the other points of Tehran was made easier.

Fame and reputation of the area

In evaluation of relationship between fame and reputation of the area, in view of responsive person (with mean of 3,3) and fame of the area in public view (with mean of 3,50) with Spearman correlation coefficients, this is clear that there is a significant and direct relationship between these variables and by increasing the level of fame in public view, the extend of this variable will increase as well and the other points that as this area is fame in public’s idea its fame in idea of responsive women in this study.



Figure 1. View of uses in Shahin district

Urban Night Life

Despite of the prevailing use of Shahin district, is residential, public spaces of this area is very quiet suddenly at night. Uses and night an activity in this area is not too much and this will lead to increase of insecurity of women. It became clear in the interviews of the local women, the number of crime and insecurity increases because of darkness and public spaces quietness at night. Tendency of responsible women to increase of night activities in public space of this area is a lot and the existence of these activities (with mean of 3.35) is a lot as well. In ranking of physical functional indicators, problems and conflict related to pedestrian has the most effect on women's safety in public spaces of Shahin district. Artificial and natural monitoring on environment is in the second grade and diversity of use and urban activities I sin the third grade. Public transportation, extend of fame and reputation of the area. Night urban life, sense of belonging, legibility of environment and access to rescue are respectively in the next ranks.

Evaluation of Research's Hypothesis:

To evaluate the research's hypothesis, Amount attractiveness, physical integrity and diversity of urban activity adjacent to public spaces is considered in Shahin district. Then the level of created safety by uses has been asked. In evaluation of relationship of these two variables to approve the research's hypothesis Spearman correlation coefficients is used. Based on this issue, correlation coefficients is 0.414 and in level of significance 0.05 with the amount of indicators of decision 0.012 and it show the significance relationship between these two variables. It means that there is a significance relation between extend of diversity and physical cohesion of uses and urban activities adjacent to public spaces of Shahin district and women's safety in these spaces and since the correlation coefficients is positive, the relation is direct, it means that by increase of density and diversity of uses and activities in public spaces of this district, the extend of women's safety increases as well.

RESULTS AND DISCUSSION

Safety of urban spaces has the main and important role in improvement of Social welfare of citizens, and women are the vulnerable groups against the effects of urban insecurity. Studies conducted to evaluate the main hypothesis of research that is dealing with the investigation of physical integrity and diversity of uses and urban activities in public spaces with women's safety in these spaces through the Spearman correlation coefficients, shows that the security of a space is effected by its activities and urban spaces with various uses and activities have more safety (Proving the hypothesis). So by giving life and vitality to public spaces of the district by diversity and different uses of densities through keep flooring uses active and preventing the stagnation and passivity, identification of multifunctional-usage locations is include of various administrative sections, commercial and banks adjunct to training ,cultural and religious uses with parks and green spaces to improve the park's safety, good caring of uses and use of active and dynamic perspective and preventing spread of failure based on broken window theory, more attention to residential

texture and implementation of retail shops such as bakeries and supermarkets in side streets and dead - ends will help to the increase of district's safety.

Table 1. Ranking of effective physical functional sub indicators on women's safety in Shahin District

Sub criteria	Mean	Grade
Problems of traffic and walking	9.00	1
Monitoring the Environment	7.65	2
Variety and density of land uses	6.29	3
Public transportation	5.58	4
Fame and well knowing	4.51	5
Urban night life	4.25	6
Sense of belonging	4.10	7
Legibility of environment	2.57	8
Access to rescue	1.01	9

As it mentioned, after Conceptualization of research foundations, the physical functional indicators affecting women's urban safety extracted and finally results derived from measurement of these indicators are as follow: Regarding to the measuring the effective components on willingness of women's movement in public spaces of mentioned area it should be say that, this component with mean of 22.88 has the highest grade of effectiveness in women's safety among the other physical-functional components. So to decrease the problems of women's willingness to movement in urban spaces some strategies like, correcting deficiencies and proper maintenance of passages' flooring and public spaces and using resistant and durable material for that, monitoring on buildings under construction, preventing traffic from crossing the roadway within a residential context, supervision and regulation of wasteland, abandoned buildings, passages widening must be used. As the women of mentioned district know the extent of access to rescue in space so weak (with mean of 2.08), organizing the rescue instruments of district and improving the performance of aid agencies in district is so necessary. Installation of public telephones in different locations and especially in minor and quiet passages, installation of guidance signs to public telephones ,the existence of police patrols at different times of day an all places of district ,are the ways to increase access to emergency. Also based on result gained from research, extent of public supervision on space in view of participants in this research with mean of 2.41 and police monitoring and its performance with mean of 2.44 is in the low level. So increase of visibility in space, improve of people and police monitoring on public spaces and developing the quality and quantity of supervision systems through.

Encourage residents to actively monitor the neighborhood, and their effective attendance in public spaces, Installation of guard kiosks at night, especially in quiet neighborhood and side passages entrance, Using appropriate vegetation cover that does not foreclose the possibility of seeing and being seen from passers-by, using proper lighting systems, installation of surveillance cameras at all intersections and neighborhood streets and sensitive dead ends which are suitable place to crime is necessary. In investigation of the effect of public transportation on women' safety, it made clear that, most of them feel more safe in public transportation terminals (mean of 2.97) but after darkness ,their access to public transportation will decrease (mean of 2.13). To solve this

problem, proper time management of public transportation services in all time of the day, considering special services for women and using women drivers, suitable lightening of bus, taxi stations, are parts of appropriate solutions. In assessing the night life of district, especially in public spaces it clears that women tendency to nightlife thriving (with mean of 3.35) is high.

CONCLUSION

Attractive and appropriate lightening of public spaces at night, improve and development of night economy through attracting domestic and foreign investors for construction of circadian commercial centers adjacent to main thoroughfares and neighborhood parks and employ local residents in order to run these centers, making catering services including restaurants and coffee shops opened at night, continuous activity of religious and cultural centers for convening recreational, Educational and Sports activities, will be effective to encourage pedestrians to walking and keeping the safety and lightening of city at night. Finally it's needed to note that, all mentioned strategies in this study, need active and continuous participation of citizens to increase the women's safety in urban public spaces in order having secure and great city for all residents, especially women.

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