

Investigation of the Relation Between Visual Pollution and Citizenry Health in the City of Tehran (Case Study: Municipality Districts No.1 & 12 of Tehran)

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Abstract: Visual contamination is a kind of environmental pollution that over time, its effects and consequences are increasing, and this pollution may gradually provide a good ground for nerve stress and psychological problems. In this study, we tried to study the status of visual contamination and its impact on the health of citizens in two urban areas of one and twelve using the distribution of questionnaires and field method. The results of the analysis of the data obtained from the questionnaire revealed a significant relationship between visual contamination and four health indicators of citizens including physical signs, social function, anxiety, insomnia and depression. This means that wherever the pollution is higher, the health of citizens is at a lower level. Accordingly, the average index of physical symptoms and anxiety - insomnia in district 1 in a healthy condition and in region twelve is in a mild injury situation. Also, the average social function index and depression in both regions indicate mild injury and favorable health status in them, and overall, the results indicate that the general health of District 1 in desirable situation and region twelve are in an unfavorable situation.

Keywords: Health, GHQ Questionnaire, Visual Contamination, Tehran Municipality Area, Tehran Twelve Municipality Area

1. Introduction:

There is a variety of promotional images on the streets of the city and we review them every day in our minds. But we are not aware that these images cause mental disturbances, reduce the intellectual concentration of individuals, and, in the long run, cause mental distress and mental illness, which is one of the main reasons for reducing the efficiency of work among citizens (1). Visual contamination means seeing anything that causes discomfort and does not feel good to see it (2).

The pollution in most communities located less attention and the main reason for this lack of attention is the prevalence of overdo it. In fact, it can

be said that because of the general or all-encompassing nature of this kind of pollution, citizens do not have much to do with it, usually they accept it as something real and react less to it (1). Indicators of visual contamination include the following: the presence of buildings with a dirty and confusing appearance, wall and wallpapers, wall paintings and pictures that are painted on the walls, the lack of coordination of the walls of the city, the lack of harmony and the integrity of the building volumes, widespread, uneven and non-uniform sidewalks, disruptions to city guide plans, as well as dirty and broken boards, trash bins and scrap trash, goods for merchants, heavy traffic and car parks, broken and colored tables going along the streets, the



permanent and temporary media of the city, including bill boards, banners mounted on temporary structures, heterogeneous buildings with a variety of extensions, such as cooler chambers, chimneys and accessories inside the balcony, unpopular urban furniture, turbulent and occasionally spoiled, greetings and etc. (3) Visual contamination in cities and villages is a self-inflicted pollution by citizens, institutions and organizations involved in work. Therefore, eliminating it requires collaboration and the attendance of all factors involved in its creation (1). Researches in the country and abroad have been conducted on the relationship between visual pollution and the health of citizens. In this regard, Pourmousavi and Safavardi studies have been carried out to study the status of the visually impaired and the health of citizens in four parts of Tehran city, namely, Geisha, Sattarkhan, Revolution Square and Hafez Square with different degrees of pollution, through the public health questionnaire. The results indicated that there was a significant relationship between visual contamination and the four health indicators of citizens in these four points (4). Amini and Darwish also examined the role of light and color pollution in the visual and behavioral health of citizens in Tajrish Square, which exposed light and color and its combination as important aspects of life, creating feelings of joy, discomfort, satisfaction, fear and Security knows (5). In another study, Ziabakhsh and Miri studied the role of visual factors in the psychological well-being of individuals and their encounter with the environment in 5 samples of artificial spaces, and concluded that the changes made in the environment were ineffective (especially in large cities) and due to the unbalanced development And the lack of attention to the qualitative visual qualities, citizens are faced with incredible effects that over time influence the unconsciously accepted by the inhabitants of the inhabitants, if the destructive effects of this phenomenon have not been eliminated and on the human psyche undesirable effects And ultimately disrupts the psychological well-being of the person (6). Jackson states that urban design is a powerful tool for improving human conditions, and many United States populations have become scattered and synergistic with human-made environments having a harmful effect on their health and well-being [7]. . Yilmaz and Sagsoz also examined the effect of the shadow of the buildings in Trabzon city center on visual contamination. The results of this study indicate that many cities are incompatible with buildings, and concrete shadows cause disturbances in the minds of people (8). In this regard, the aim of this study was to study the various aspects of visual

contamination in the first and twelfth districts of Tehran and to compare their results with each other.

2. Materials and Methods:

Tehran is a large city and capital of Iran, the fifth-most populous city in the world. The city is divided into 22 districts, 134 districts (including Rey and Tajrish) and 370 neighborhoods (9). The 12th district is one of the oldest cities in Tehran, which is located in the center of this city. The area with a total area of 16.66 square kilometers consists of 6 districts and 13 neighborhoods with a population of 365,000 inhabitants, with more than 80 percent of the commercial, administrative, government, workshop and warehouse facilities in Tehran. Also, more than 34% of the area is worn (10). District 1 is also located in Tehran high and with an area of 64 km² with 10 districts, 26 neighborhoods and a population of 379962 inhabitants. This area is in terms of urban design with a rural texture called the garden of the city (9). Considering the fact that these two regions have different urban, residential and commercial tissues, they have almost the same population and so far no research has been done to measure their visual contamination. They were selected for this research. The method of data collection in this study is using General Health Questionnaire (GHQ). The questionnaire is one of the tools widely used throughout the world and is based on self-report methodology used in the clinical diagnostic suite to track those who have mental disorders (11, 12). Version 28 of the questionnaire has the highest degree of credibility, sensitivity and specificity compared to other versions. For this reason, the present study has used this version. To use the questionnaire, first, according to the population of the urban areas of one and twelve, the number of samples was extracted from the Morgan table, which is equivalent to 384 samples from each urban area. Also, the criteria for selecting examples were the main streets in each area, where visual disturbances, as well as the high traffic of people and vehicles were available. Accordingly, due to the close vicinity of the population of the region of one and twelve to each other, the same number of main streets were selected by random sampling in each region, due to the large extent of area I compared to the area of twelve, this random sampling The spiral form was once in the one and twice zone in the 12th district and eight streets were selected randomly from each region. Out of every street, 48 questionnaires were submitted by the business community and people who were present at the site for more than 5 hours and were exposed to contamination Intuitive are completed.

Selected streets in area 1 include: 1 / Pasdaran Avenue (from Novobindad Square to Bahonar Square), 2 / Darabad Avenue (from Bahonar Square to Mohebbi Street), 3 / Niavaran Avenue (from Ghods Square to Bahonar Square), 4th Street (From the guard of the Pasdaran to Kabiri Street), 5 / Gheitariyah Avenue (from Pirouz Square to Metro Gheyariyeh), 6 / Shariati Street (from Sadr Bridge to Ghods Square), 7 / Valiasr Street (From Park to Tajrish Square), 8 / Velenjak Street (from Tabnak Street to Student Street).

Selected streets in the 12 area include: 1 / Iran Street (from the intersection of Amin to the Mujahedin-e Islam), 2 / Republic Avenue (from Hafez Bridge to Baharestan Square), 3 / Ferdowsi Street (from Imam Khomeini Square to Ferdowsi Square) , 4 / Amirkabir Street (from Imam Khomeini Square to the intersection of Amin Presence), 5 / 15th Khordad Avenue (from Avezoud to Rey Avenue), 6/ Rey Street (from Shoos Square to the intersection of Amin Presence), 7/ Street of Khayyam (from Square

of Imam Khomeini to Shoush Avenue), 8 / Molavi Street (from Vahdat-e-Islami Street to Qayyam Square).

Interpretation and rating of the General Health Questionnaire (GHQ): The questionnaire has four sub-scales: physical symptoms, anxiety and insomnia, social inability and depression, with a total score of their scores. The existence of four subscales has been proven based on the statistical analysis of the responses (factor analysis) (11). The findings in this study are based on Likert's approach, which indicates that the low score on this scale indicates the health and high levels of infertility . The total score of 14 to 21 at each sub-scale indicates the deterioration of the subject's condition in that factor. The overall score of 21 and above indicates a lack of general health and a score below 21 indicates mental health, as shown in Table 1 (12, 13).

Table 1: Health status in each of the four scales divided by the score obtained from the psychological tests (14)

Total scores in the questionnaire	Scores in subscales	Subscales
0-21	0-6	Minimum limit
22-42	7-11	light
43-63	12-16	medium
64-84	17-21	severe
0-9 10-15 16-21	Indicates the physical health of individuals in the context of psychosomatic diseases. Indicates the average person's physical health. This group of people is more or less suffering from physical symptoms due to psychological conditions. Indicates the severity of the symptoms of these psychosomatic diseases. You should check with a specialist to check your physical complaint.	1) Scale of physical signs
0-9 10-15 16-21	Indicates that you are in good condition in terms of keeping calm and controlling anxiety. Indicates that you occasionally encountered anxiety problems. Indicates your severe anxiety in different locations. Learning how to control anxiety and relaxation is recommended to you.	2) Anxiety and Insomnia Scale
0-9 10-15 16-21	Indicates your complete health in interpersonal relationships and relationships in the workplace. Indicates your relative health in interpersonal relationships and your work relationships. Indicates that you were in an interpersonal relationship, and also in your workplace, you were in a queue. Therefore, learning	3) Social Function Scale

	interpersonal skills is advisable.	
0-9 10-15 16-21	It is a sign of your vitality and vitality in everyday life. Indicates that you sometimes experience depression. Changing your life can make a difference. Indicates that you are likely to have depression. Referring to relevant specialists is advised to you.	4) Depression Scale
0-21 22-42 43-63 64-84	Indicates that you are in a very good mood in terms of mental health. It indicates that your mental health has been threatened and threatened in some areas. Indicates that your mental health has been damaged at many times and you should consider improving your mental health and well-being. Indicates a severe condition in your mental health. Referring to the relevant specialist, you are strongly advised.	Total points

The data is analyzed using the SPSS software 16 of comparative type. In the comparative analysis, in addition to the fact that the information collected is analyzed descriptively, they are compared, the question that arises in this analysis is whether the calculated statistical index is larger or smaller than another statistic indicator. This means that two or more descriptive statistics such as mean, median, standard deviation and variance are compared. Also, to study the status of each health and general health index of each region with the status of environmental

beauty criteria such as number of parks, per capita green space, number of benches, number of lighting, number of trash bins and the amount of advertising in each area, the correlation coefficient Pearson is used.

3. Results and Discussion:

The status of people sampled in terms of gender, residence, education, age, and history of illness are presented in Table 2.

Table 2: Status of sampled individuals from completed questionnaires in each region

District 12	District 1	Status of sampling
12	102	Female
372	282	Male
208	250	Residents
176	134	Non-residents
78	16	Education is under the diploma
174	100	Diploma education
64	60	Postgraduate Education
54	150	Bachelor's degree
14	58	Masters Degree and above
10	12	Less than 20 years
306	290	Between 40 and 20 year
68	82	More than 40 years
20	8	Has a history of disease
368	376	Lack of disease history

Based on the results of completing the questionnaires in the above areas, men were more likely to participate than women, more people than non-

residents, age was more in the range of 20-40 years, and healthy people were much more than those with a history of disease. Also, the general health status of

people sampled in the first and twelfth are presented in Tables 3 and 4, respectively.

Table 3: Health status of people in the area result of completion of questionnaires

The number of selected streets district 1 in	Number of samples per street	Streets	First index (Physical signs)	Second index (Anxiety and insomnia)	Third index (Social function)	Fourth index (Depression))	Total general health)
1	48	Velenjak	5.54	5.12	5.83	3.88	20.38
2	48	Darabad	5.46	6.83	6.46	3.38	22.12
3	48	Niavaran	5.46	5.04	5.92	3.17	19.58
4	48	Pasdaran	5.42	5.75	6.12	2.58	19.88
5	48	Shariati	5.33	5.66	6.38	4.38	22.25
6	48	Valiasr	4.67	6.79	6.50	3.92	22.00
7	48	Gheitariyeh	5.88	6.25	6.38	3.00	21.50
8	48	Farmaniyeh	5.21	4.25	5.79	4.17	19/41
Total samples	384	-	-	-	-	-	-
minimum			4.67	4.25	5.79	2.58	19.41
maximum			5.88	6.83	6.88	4.38	22.25
mean			5.3690	5.7125	6.2338	3.5570	20.8898
Total			42.95	45.70	49.87	28.46	167.12
median			5.4370	5.7050	6.2500	3.6250	20.9395
Standard deviation from the mean			0.12140	0.31754	0.13524	0.22018	0.42622
variation range			1.21	2.58	1.08	1.79	2.84
Variance			0.118	0.807	0.146	0.388	1.453

According to Table 3, in the first and fourth indices, the scores for each of the eight streets are less than 6, which indicates the healthy status of individuals in this index. In the second indicator, the scores of Darbad, Valiasr and Qeyreari streets and in the third indicator of Valiasr, Darabad, Shariati, Qeyeryya and Pasdaran streets have been more than 6, indicating a slight damage in this index. In total, the streets of Shariati, Darbad, Vali Asr and Qeyreari, respectively, have earned more than 21 points, indicating the existence of damage and threats to some of the public health indicators in these streets. Also, the general average of general health for the whole region is equal to 20.88, which indicates the favorable general health situation in the region.

Table 4: Health status of individuals in region twelve following the completion of questionnaires

The number of selected streets in district 1	Number of samples per street	Streets	First index (Physical signs)	Second index (Anxiety and insomnia)	Third index (Social function)	Fourth index (Depression)	Total (general health)
1	48	Rey	6.66	8.75	8.45	6.71	30.58
2	48	Iran	4.71	6.04	5.17	3.38	19.29
3	48	Jomhori	5.41	6.45	6.54	4.71	23.12
4	48	Qayyam	6.58	7.79	6.54	5.33	26.25
5	48	Ferdousi	6.95	7.25	6.70	4.79	25.70
6	48	Amirkabir	6.04	7.16	5.41	3.66	22.29
7	48	15 Qordad	6.58	6.58	5.83	3.70	23.17
8	48	Molavi	6.79	8.17	8.83	5.38	29.17
Total samples	384	-	-	-	-	-	-
minimum			4.71	6.04	5.17	3.38	19.29
maximum			6.95	8.75	8.83	6.71	30.58
mean			6.2152	7.2738	6.6852	4.7058	24.9462
Total			49.72	58.19	53.47	37.65	199.57
median			6.5815	7.2050	6.5400	4.7490	24.4330
Standard deviation from the mean			0.27673	0.32543	0.47099	0.39483	1.38017
variation range			2.24	2.71	3.66	3.33	11.29
Variance			0.613	0.847	1.775	1.247	13.912

Based on Table 4, the streets of Ferdowsi, Rumi, Ray and Khayyam in the first and third indices, the streets of fifteen Khordad and Amir Kabir in the first index, Republican Street in the third index, Rey Avenue in the fourth index, and in the second index, all the streets they have had scores above 6, which indicate mild damage to these indices. In total, the streets of Rey, Rumi, Khayyam, Ferdowsi, 15 Khordad,

Republic and Amir Kabir, respectively, have earned more than 21 points, indicating the existence of harm and threat to some of the public health indicators in these streets. The general average of general health for the entire twelve is 24.49, which indicates that their general health is in an unfavorable situation. The results of comparing general health indicators between regions one to twelve are shown in Chart 1.

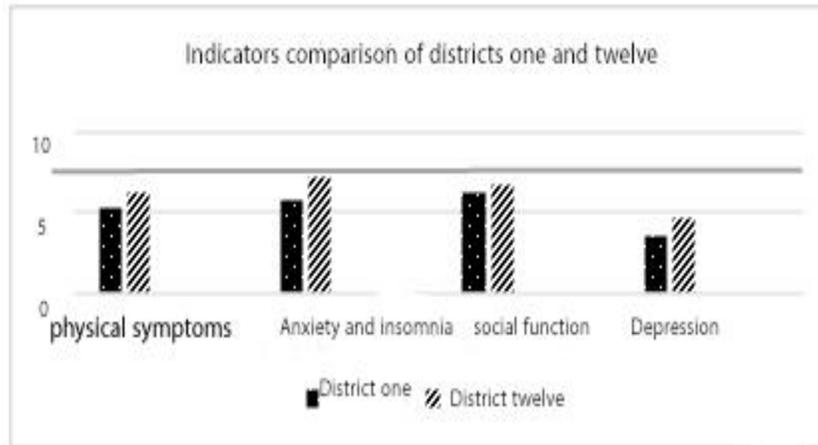


Fig. 1. Comparison of health indicators of one and twelve regions

According to Figure 1, the average index of physical symptoms and anxiety and insomnia in the region is less than 6 (healthy) and in the twelve region more than six (mild injury). The average social function index in both regions is more than 6 and the depression index in both regions is less than 6, which indicates mild injury and favorable health status

respectively. Also, in order to influence the environmental condition of an area in determining its visual contamination, the status of indicators that affect this area, such as the status of gardens and green spaces, production wastes, urban furniture and beautification, are presented in Table 5 for regions one and twelve.

Table 5: Comparison of the environmental conditions of the 1st and 12th regions (15, 16)

District 12	District 1	The situation of the regions
1)The state of the gardens and green space		
61 numbers The area is 674543 square meters	191 numbers An area of 1952126 square meters	Number and area of the gardens
The area is 1403287 square meters Per capita 5,6 square meters per person	Area 38031137 sq.m. Per capita 8.2 square meters per person	Area and Green space per capita In Iran, per capita green space is between (7-12 m ³ per person)
615948 square meters 85715 square meters 45,929 square meters	3518000 square meters 255726 square meters 164000 square meters	Trail gardening area Shrubs Lechki
1)The status of manufactured waste		
350 pcs Daily 420 tons in one turn 11 o'clock till 6 o'clock in the morning Storage in temporary tanks Loading and transport by mechanized machinery	400 pcs Daily 440 tons in two turns 21pm until 5am, 13 o'clock to 15 o'clock Storage in temporary tanks Loading and transport by mechanized machinery	Number of trash bins Domestic waste production Hours of gathering Way of collecting
1)Urban Furniture Status		
96 Number	170 Number	Number of couches

1) Beautiful setting		
47 cases	52 cases	lighting
14400 square meters	125 cases per 9378 square meters	Mural painting
131 pcs 8 ones 121 pcs -	104 number number 4 - number 2	Promotional space includes: portable billboard banner Bridge deck
-	30 number	Urban Civic (Installation Size)

According to this table (No. 5), District 1 has a better park than the Twelve green spaces, more parks and better urban furniture, while the Twelve area in the Beautification section has more advertising space than Area One This can be important in people's mental health or visual disturbance. Regarding the condition of waste production, both regions are in the same position, but due to the smaller area of the twelve, compared with the area of the region, this volume of waste is very high and can cause visual pollution.

Also, in this research, the status of each of the indicators of the general health status of each region was studied with the status of environmental beauty criteria such as the number of parks, per capita green space and ...the Pearson correlation coefficient between health indicators and the factors affecting the beauty of the environment is presented in Table 1 for one to twelve regions.

Table 6: Pearson Correlation Coefficient between Health Indicators and Environmental Indicators

Pearson Correlation Coefficient between Health Indicators and Environmental Indicators		Number of parks	Green space per capita	Number of benches	Number of lighting	The Advertising	Number of trash bins
Indicators of physical symptoms	Pearson Correlation Sig. (2-tailed) N	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	1.000 0.01 2	-1.000 0.01 2
Anxiety and Insomnia index	Pearson Correlation Sig. (2-tailed) N	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	1.000 0.01 2	-1.000 0.01 2
Social Function Index	Pearson Correlation Sig. (2-tailed) N	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	1.000 0.01 2	-1.000 0.01 2
Depression Index	Pearson Correlation Sig. (2-tailed) N	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	1.000 0.01 2	-1.000 0.01 2
general health	Pearson Correlation Sig. (2-tailed) N	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	-1.000 0.01 2	1.000 0.01 2	-1.000 0.01 2

According to Table 6, between each health index with the number of parks, per capita green space, the number of benches, the number of lighting and the number of trash bins, the coefficient of correlation is -1 in which the correlation coefficient is strong,

which means that the above mentioned items have lower general health scores and better health status, but the rate of advertising with health indicators is a +1 correlation coefficient which indicates a decrease in health status by increasing the amount of

advertising. It should be noted that in addition to the number of benches, parameters such as base number of the flag, fitness equipment, children's play equipment, urban hours, waterway, bus station, etc. were also evaluated in the quality assessment of urban furniture in two regions, whose results indicate

Based on the research, two urban areas of one and twelve were investigated. The results of the analysis of the data obtained from the questionnaire showed that visual contamination has a direct positive relationship with the physical, psychological and social health of the citizens. This means that everywhere the pollution is higher, the health of citizens is lower, and in the region, the status of four health indicators (physical symptoms, anxiety and insomnia, social function, and depression) is at a better level than the twelve. The results of this research are consistent with the results of Pourmousavi and Safaroodi, as well as Amini and Darwish. The researchers found that there is a meaningful relationship between visual contamination and health indicators such as physical signs, social function, which can be coordinated between the space built with human psychological dimensions and the visual environment with the psychological expectations of the observers. To make the physical environment and urban landscape appealing to the observer, both dissatisfaction and negative influences such as stress anxiety, fear of insecurity and lack of vitality in individuals are reduced. It is also consistent with the results of the Yilmaz and Sagsoz work that the researcher also concluded in his study that the increase in high-rise buildings had a negative effect on the visual and physical quality of the environment and caused visual contamination. It should be noted that the results of this study do not mean that only visual contamination has an impact on health and its indicators, but other factors such as: air pollution, noise pollution, traffic

better situation in area 1 than in the twelve region and the number of benches as a random index is selected among other parameters of urban furniture. Also, the number of elements of beautification status, such as billboards, banners, etc., is also combined to get the correlation coefficient with environmental indicators.

volume of vehicles, daily waste generation and financial problems, and People's livelihood can also be involved. Accordingly, information about these parameters was collected at the time of completing the questionnaire (one month) for each area, which confirms the absence of air pollution and the presence of disturbing sound pollution for both regions. The amount of daily waste production in both regions is approximately equal, due to the small size of the twelve area compared to the area of the first one, this amount of waste is very high. On the other hand, as most people in the region have a relatively better financial situation than those living in the twelve region, livelihoods can also contribute to the health of the people of the region.

4. Conclusion:

Based on the results, it can be deduced that the visual contamination produced in cities has a negative and long-term impact on the body and spirit of the citizens, as well as one of the main factors of reducing efficiency and decentralization and even the reason for many conflicts and conflicts in The city is Therefore, in order to reduce the visual contamination, especially in the region of twelve, the use of solutions such as the regulation of advertising and images on the streets, the institutionalization of urbanization culture, the purification of contaminated landscapes and the creation of green spaces, the development of public transportation, the creation of furniture An appropriate city, and the urban environment's adornment seems necessary.

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