

Assessment of the level of Navab inhabitants discontent with urban environment quality values

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Abstract

The importance of urban residential environments as the main habitat of people is increasing. Firstly, they provide important means for the development of various other attributes of life, such as health, family, work and leisure. Secondly, a large number of people lives or will live, in the near future, in strongly urbanized areas. Finally, urban environments provide areas in which people are confronted with various adverse environmental conditions, such as noise, air pollution, external safety risks, crowding, litter and lack of facilities. For these reasons, managing the quality of urban residential environments is of vital importance. A first step toward this is to assess urban environmental quality. The purpose of this essay is to measure the level of Navab district inhabitants discontent with four social-environmental factors (include components of lack of environment hygiene, feeling of insecurity, noise pollution and air pollution) the under study sample content, included 270 questionnaires and data were analyzed by SPSS software. The outcomes of research presented there is a meaningful relation between all the under study factors in the empirical model and inhabitants discontent with their residential environment ($P < 0.05$). Totally, level of Navab inhabitants discontent with sum of the under investigation factors were assessed high and more than its average ($1 < 3.41 < 5$) with the theoretical mean value of 3. Level of inhabitants' annoyance with sum of under investigation factors was high and more than its average. Maximum level of inhabitants annoyance is belong to annoyance of air pollution ($1 < 2, 89 < 3$) with theoretical mean value of 2 and minimum level is belong to annoyance of lack of environmental hygiene ($1 < 2.02 < 3$) with the theoretical mean value of 2 which was assessed as medium level. Also, in study of the level of efficiency of three independent factors: gender, age and duration of dwelling in the area, on the level of discontent, outcomes presented that none of these variables affected the percept feeling of annoyance by inhabitants.

Keywords: SPSS; environmental values; feeling of annoyance; discontent

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1 INTRODUCTION

The built environment has an important effect on the natural and human environment [1]. Today, the significance of residential environments has increased especially in the urban areas as the main habitat of inhabitants.

The environmental impact on the residential dwelling is influenced by the following identified environmental factors: energy consumption, dust, gas, carbon emission, noise pollution, waste generation, water discharge, misuse of water resources, land misuse, pollution and consumption of nonrenewable natural resources [2].

Many factors contribute to such a climate phenomenon. Wong and Chen [3] summarized the most important factors based on previous research outcomes worldwide as follows: canyon geometry, building materials, greenhouse effect, anthropogenic heat source, evaporative cooling source and wind pattern [4]. The wane of environmental values and the fact the inhabitants are under influence of various kinds of pollution, are factors which created the fields of discontent in these areas. One of these plagues is emission of greenhouse gas which is attributed to several reasons such as development in industrial activities, growing rate of fossil fuels consumption and so on. Several solutions are represented to decrease the growing rate of CO₂ emission including enhancement in the efficiency of energy systems, heat recovery and developing renewable energies [5]. Based on the IPCC Fourth Assessment Report, it was pointed out that carbon dioxide (CO₂) emissions arise from anthropogenic activities [6].

In the meantime, due to environmental problems related to using fossil fuels and limitations in the sources of these types of fuels, renewable energies have sharply developed in recent decades. Renewable energies have been growing in recent decades due to their advantages such as lower greenhouse gases emissions compared with fossil fuels [7]. Moreover, in urban areas, the heat flux that contributes to the air warming contains a component related to human activity. Urban densification results in increasing the proportion of impervious artificial surfaces and in changing the urban fabric morphology [8]. One of the ways to maximize environmental performance is adopting living building strategies [1]. Sustainable development values are the important performance indicators needed for sustainable performance assessment of building envelope such as energy efficiency, material efficiency, environmental impact, external benefit, regulation efficiency and economic efficiency [9]. In recent years, renewable energy development has become more appealing to policymakers due to concerns over both the air pollution created by the burning of fossil fuels and the rapid depletion of these fuels [10]. The number of renewable energy power plants is growing significantly as a result of falling costs and evolving technologies. Moreover, awareness of the level of intensity of the factors unfavorable outcomes on life quality and human health emphasized on the significance of this problem. In this research, one tries to recognize all the factors caused the discontent and feeling of Navab inhabitants' annoyance and presents it quantitatively.

2 RESEARCH THEORETICAL FRAMEWORK

Environmental problems have been studied and analyzed from different aspects and in various levels, universal level to rural level [11]. One of the important under investigation levels, is rural level (includes residential units and individuals living environment), which its inhabitants are under influence of large amount of various environmental pollutions [12]. In this level, one argues about the difficulties are created in human life.

People, who are regularly under influence of such difficulties and disadvantages, have emphasized on importance of this problem. The real physical damage may be limited only in individual level, but the scale, frequency of outcomes occurrence, has made this issue be one of the basic arguments about environmental protection [11]. The outcomes which were implied in this quotation, are called annoyance. The harmful health outcomes arisen from environmental quality degradation differ from annoyance levels to deaths. Though the annoyance derived from environmental quality degradation about health includes lower intensity than about epidemics or death, nevertheless as it has not affected a large amount of people, problem does not seem worrying [12]. Moreover, the outcomes of environmental influences, on the public health has been left unrewarded [13]. As you see in the health pyramid, an extensive level of people is under influence of environment pollutions, which is considerable in compare to the level of death, diseases, etc. (Figure 1). For example, in 1981, death rate derived from cancer in Netherlands had been 235 from per 100 000 individuals [12]. Also, according to a study by Doll and Peto in 1981, 2% of deaths caused by cancer can be referred to environmental pollutions, especially air pollution.

The foresaid environmental factors may be percept as stressors. The ambient stressors are a group of persistent, immanent and global environmental conditions which generally represent an aversive nery stimulation that as a stimulus forced individuals to correspond with or overcome them [14]. Thus, annoyance has been defined as a feeling of discontent with along any factors or conditions that we believe have a bad effect on individual or a group [15]. Implicitly it means limitation, Barriers (troublesome), in concinnity, discomfort, antipathy and disappointment [14]. It has been often used as a criterion for measuring the negative outcomes of sensing stimuli which are under influence of various environmental factors (such as noise, stench, safety (social) hazards and rush). Therefore, it is the most prevalent outcome of environmental characteristics which has negative influence on the residential content [12]. The quality of urban environments is measurable by assessing all negative and positive factors that affected inhabitants perception in

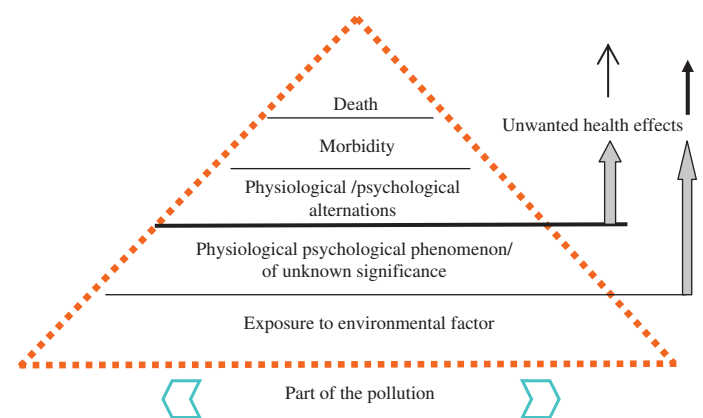


Figure 1. Health pyramid [12]. Reference: Authors, 2019.

the field of recognition of all effective negative factors in residential discontent of inhabitants, researches have been broadly done by researchers that have been investigated in the following pages, and also, a discontent index in related to the under study district has been defined.

The quality of rural environments is not determined only by physical factors, but by physical characteristics, socio-psychological characteristics and constructed environment characteristics, which are very important characteristics, must be analyzed in the study of environment quality [12]. The social-psychological characteristics of residential environment consist of feeling of community [14], rush and crowdedness [16] and social safety hazards [17]. It is of artificial environment particulars that facilities and neighborly unit services, exist and are available [18]. Besides industrial hazards, the hazards, which in term are called social safety hazards, have been also argued. One can imply to other hazards

in neighborly unit such as thievery, vandalism, aggression, being offended and addicts [19, 20]. One of the other kinds of safety hazards is traffic, and we can also hint to all various kinds of pollution such as air pollution (aerosols, dust, etc.), water pollution [21] and soil pollution. The aversive outcomes of productive and spreader stench resources, on the inhabitants of urban residential environment have been broadly studied [12]. Garbage, sewage, surface waters and animal excrement are the most prevalent resources of stench in residential environments. Creation of giant industrial factories (chemical, atomic) acting in transportation, maintenance and processing dangerous materials are main resources of industrial hazards [22, 23]. In 1990, a questionnaire study from the answers of 488 individuals among Grouning inhabitants has been performed by Puls, Stag and Duter-kemerling. In this study, addressees were asked to express their level of discontent with their dwellings and the very neighborly unit. The

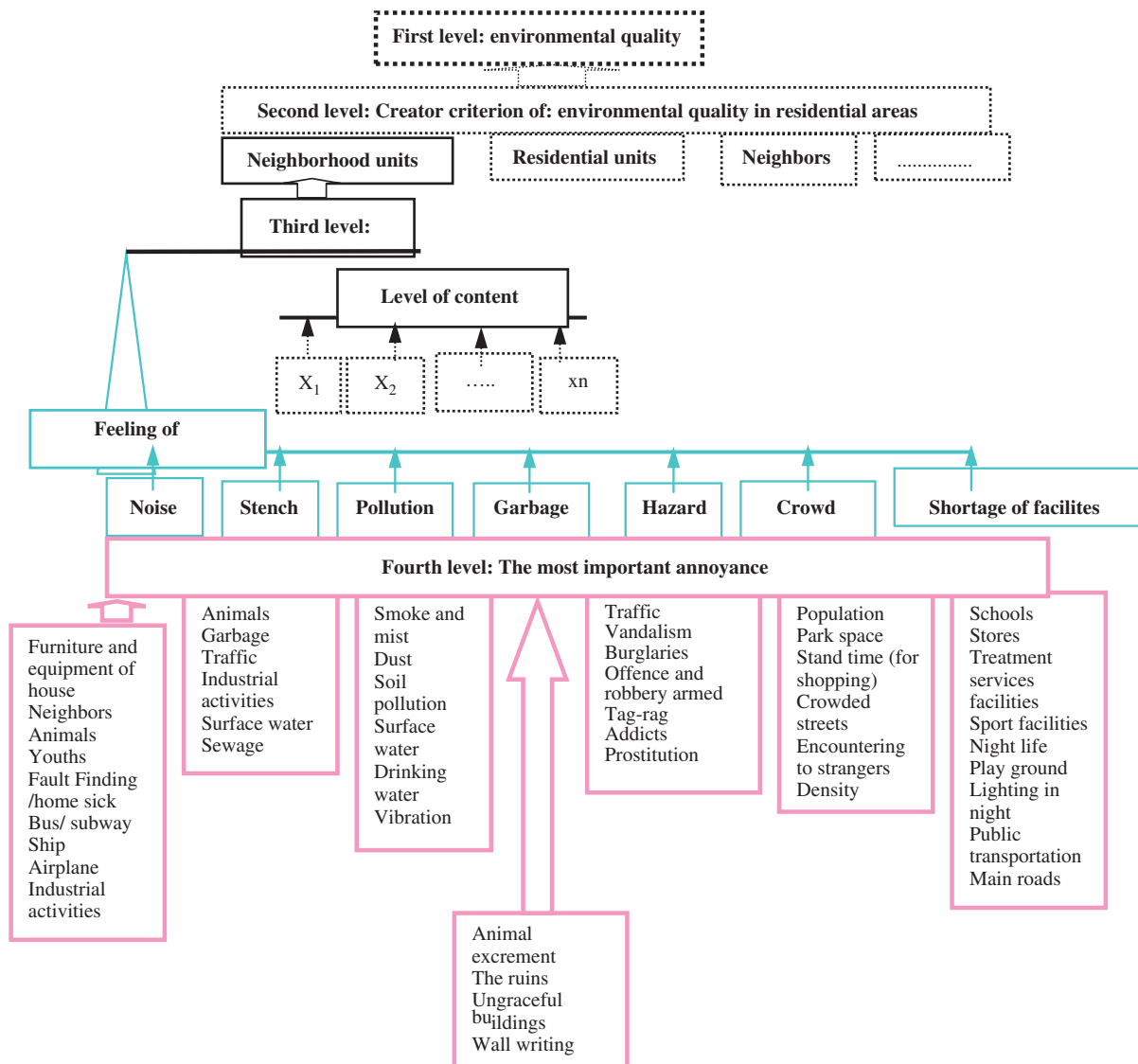


Figure 2. The main sources of feeling annoyance in the model of evaluation theory of residential environment quality [12]. Reference: Authors, 2019.

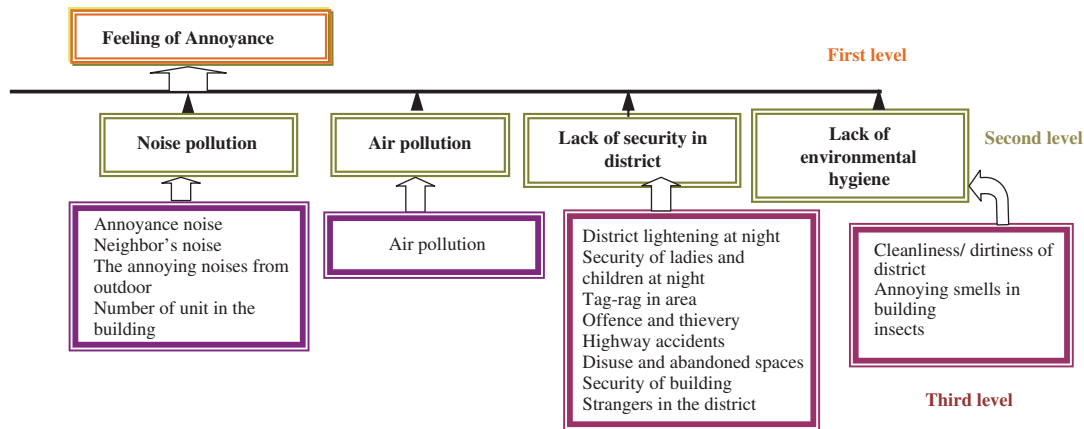


Figure 3. Theoretical models of measuring the level of discontent with social- environmental annoyance in under study area.

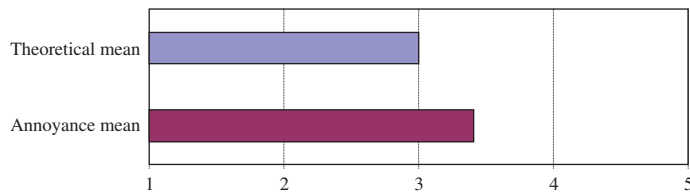


Figure 4. Comparison of the dissatisfaction of Navab residents with the theoretical center.

outcomes presented that stench, animal excrement, social safety hazards, annoyance of neighbors' noise, garbage, traffic noise and inappropriate situation of neighborly unit maintenance were the most aversive residential characteristics. The factorial analytic outcomes classified residential characteristics annoyance scores to five groups: traffic, situation of maintenance/garbage of neighborly unit, noise annoyance, social safety hazards and stench annoyance [12]. In 2006, Robin and his colleagues performed a study in France (926 individuals). For the purpose of measuring the perceived environmental annoyance in residential environments, a scale was made and authenticated. The scale included all situations, which were potentially aversive, and urban inhabitants had encountered them in their daily life. According to the outcomes acquired by classifying factorial analysis, there are seven basic dimensions: feeling of insecurity, discontent with transportation, traffic, environmental annoyance and limitation of using private car, uncivil conducts of public spaces users and high density of population [24].

Another group of assessment argues about resources generated various forms of discontent. For example, main resources of noise pollution are road traffic, trains, airplane and industrial activities. Noise pollution with the source of traffic, airplane [12] and train and also furniture, neighbors, youths/children playing is the potentials of creation and inspiration of annoyance [25].

In third level of the theoretical model of environment quality measurement (Figure 2), seven factors of aversive environment

Table 1. Number of cases in any of six under study districts.

Total number	Phase number
100	Phase 1
90	Phase 2
80	Phase 3
270	Sum

have been posed which in the lowest level (level 4), the most important resources of feeling of discontent are mentioned.

Level of annoyance of a special resource is under influence of resource frequency, its occurrence, intensity and permanency. The experienced level of annoyance by people can be measured directly or indirectly [26]. In direct method, addressees are questioned about how much they are suffering of under investigation issues. In indirect method, inhabitants are asked to assess a specific source according to level of its frequency, intensity and continuity time and, thus, the sum of addressees' assessments suggests an estimative criterion for calculating the level of annoyance feeling [12].

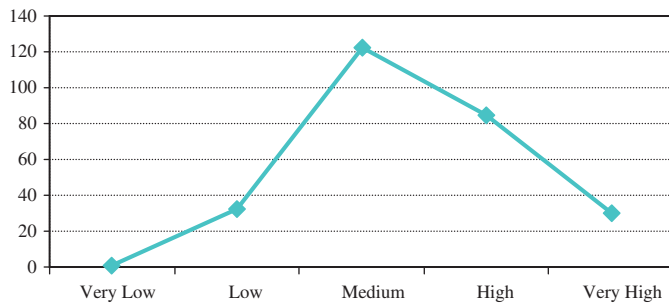
3 METHODS OF RESEARCH

In measuring the level of percept annoyance by Navab inhabitants about aversive social-environmental components, direct method was used; in this method, some questions are posed about the level of pollution annoyance. Thus, a theoretical model hierarchically in three levels was applied, corresponding to Figure 3, ~4 components.

Level of annoyance of lack of security, lack of environment hygiene, air pollution, noise pollution and Navab inhabitants were asked to assess the level of discontent with under investigation factors in 5-choices Likert spectrum from 'very high' to 'very low'. A total of 270 questionnaires sample content was used in purpose to collecting information. Method of distributing the questionnaires

Table 2. Outcome of one sample *T*-test of discontent of Navab residential area.

	Test value = 0					
	<i>t</i>	df	Sig. (two tailed)	Mean difference	95% confidence interval of the difference	
					Lower	Upper
Level of discontent	65.770	269	0.000	3.41111	3.3090	3.5132

**Figure 5.** Level of discontent with social-environmental factors of Navab inhabitants.

in every Navab phases, was based on the number of unit that chosen randomly.

The addressees filled in questionnaires in two ways: face to face interview or giving and taking back the questionnaires in next references. The number of any cases is presented in Table 1. Data were analyzed by SPSS software or statistics methods such as one sample *T*-test, Tukey test and two sample *T*-test.

4 DEFINITION OF UNDER STUDY DISTRICT

The great project of Navab with special urban renovation view points is located in the western bounds of district 11 and eastern bounds of district 10. Under study district includes three performed phases of Navab district between Azarbayejan crossing and Beryanak crossing that is as follows:

First phase—from Azerbayejan crossing to Emam khomainsi crossing in the length of 793 m.

Second phase—from Emam khomainsi crossing to Sina crossing in the length of 105 m.

Third phase—from Sina crossing to Beryanak [27].

The old contexture of under reconstruction Navab area anatomically has a compact and granular contexture with high population and building density. One can hint to another characteristics of this contexture like as traffic jam and formation of constructions proportional to the transportation and its dependant services along this rout [28] and an area which mainly attracted the immigrant workers and inferior clerks [29]. Since years ago, it had been suggested to construct an express way, which could connect the south of Tehran to the north, and the necessity of performing the project had been confirmed in all

Table 3. Descriptive statistics outcomes of the level of discontent with social- environmental factors of Navab inhabitants.

	Percentage	Number
Very low	1	0.4
Low	32	11.9
Medium	122	45.2
High	85	31.5
Very high	30	11.1
Total	270	100.0

studies and researches [27]. The first project in which Navab district was paid attention to, was the first comprehensive project of Tehran approved in 1967 [30]; then, it was followed in other project such as 'Suferto' [31]. In 1990, Tehran city hall, set it in agenda to draw and construct the foresaid Highway with especial priority and for the first time anatomically Navab axis was constructed. The project actually started in 1994. Renovation and drawing of Navab Highway project is one of the project has been operated in 2 late decodes. It seems the wane of values and discontent of newcomers has derived from the interferences in old contexture of Navab district. One can suggest some problems like as; over loading population in the project area, project location in the minimum distances from traffic area, problem of air and noise pollution for inhabitants, lack of facilities for making gardens, formation of inquietude and abnormal activities among residential buildings because of their scatterings and abandonment the social contexture and creation of unsafe and indefensible social areas in cortex and contexture [27]. As mentioned earlier, this essay argues about measurement of the level of discontent with social-environmental annoyance, which the very inhabitants are under its influence.

5 OUTCOMES AND ANALYSIS OF DATA

The most significant outcomes of measuring the level of Navab inhabitants Annoyance from environmental-social annoyances are as follows:

- Outcomes of one sample *T*-test signify the annoyance of Navab inhabitants from social-environmental annoyances of their living place. The average of Navab inhabitants' discontent is equal to 3.41. As hinted before, in the questionnaires, 5-choices Likert spectrum was applied and the grades were assigned from 1 to 5. Number 1 shows the minimum level of the inhabitants discontent with the related question, and

Table 4. Outcome of one sample T-test of discontent with social- environmental annoyance in Navab district.

	Test value = 0					
	t	df	Sig. (two tailed)	Mean difference	95% confidence interval of the difference	
					Lower	Upper
Noise pollution	56.429	269	0.000	2.29259	2.2126	2.3726
Air pollution	139.974	269	0.000	2.89630	2.8556	2.9370
Lack of security	58.793	269	0.000	2.20741	2.1335	2.2813
Lack of environmental hygiene	49.672	269	0.000	2.02593	1.9456	2.1062

number 5 shows the maximum level of discontent. Thus, number 3 is chosen as the theoretical mean value of answers. Then, the average of discontent grades was compared with number 3. Higher average of discontent with understudy district than the theoretical mean value presents that level of inhabitants' annoyance is 0.41 score higher than mean value.

This level can be generalized with 99% confidence to the statistics community (Table 2 and Figure 4).

- Outcome of descriptive statistics showed that almost 45% of inhabitants have assessed the level of annoyance from total investigated factors as medium, 42.6% of inhabitants assessed it as very high and high and 12.3% of inhabitants, low and very low. Thus, the highest percent (~87%) of inhabitants considered Navab area with the medium to very high level of annoyance. (Table 3 and Figure 5).

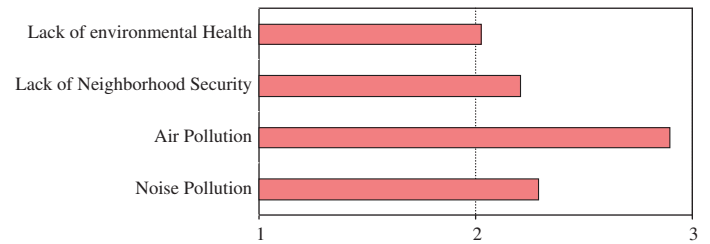
- According to the acquired outcomes from one sample T-test, every main variables of research: 'lack of environment hygiene', 'lack of feeling of security in the area', 'air pollution' and 'noise pollution' has a meaningful relation with dependent variable of 'Navab inhabitant's discontent' ($P < 0.01$) and can be generalized with 99% confidence to statistics community (Table 4).

- In investigation of the level of Navab inhabitants discontent with environmental-social annoyances, while the theoretical mean of Navab inhabitants annoyance of their living place had been 2, 'air pollution' with the average of 2.89, had the maximum level, 'noise pollution' with average of 2.29 and 'lack of environment hygiene' with 2.02, had the minimum level that was assessed as medium level. Foresaid amounts can be generalized with 99% confidence to the statistics community (Figure 6).

- In investigation of situation of inhabitants' discontent levels comparison of all sorts of pollution, in every three phases, outcomes showed that the maximum annoyance has been caused by air pollution and minimum annoyance by environment hygiene (Table 5).

- In using Tukey test, there was no meaningful difference between Navab 1, 2 and 3 phases in relation to 'lack of environment hygiene', 'air pollution' and 'noise pollution'.

- There is a meaningful difference between 1, 2 and 3 Navab phases in relation to the variable of 'area security'. Phase 1 has a favorable situation with 2.2 scores in proportion to Phase 2 and with 3.58 scores in proportion to Phase 3. It means by moving from Phase 1 to Phase 2 and from phase 2 to Phase 3, the level of security has been decreased (Table 6).

**Figure 6.** The degree of dissatisfaction with social-environmental disturbances within the residential area of Navab.

- Outcomes of two samples T-test showed, in investigation of the level of independent variables influence, such as gender, age and duration of dwelling in the area; none of these variables have affected the level of content and discontent of Navab inhabitants. It means that the level of feeling of inhabitants' annoyance, male or female, from any age, was equal in all sorts of pollution and did not depend on duration of dwelling in area (Table 7).

6 CONCLUSION

Inhabitant's assessment of all factors which caused discontent with living place, is an effective step in improving the desirability of process of quality promotion programming and creation of favorable residential environment for citizens. Measurement of the factors that created the feeling of annoyance (air pollution, noise pollution, lack of environment hygiene, lack of security, etc.) is comparable by direct and indirect methods. By using inhabitants' ideas and their view points about factors created discontent and its level, direct method is one of the most appropriate methods which has been applied in this research in the framework of discontent measurement of Navab inhabitant's theoretical model. The research outcomes signified the high level of discontent, wane of environmental values and Navab inhabitant's annoyance with investigated factors.

Also, maximum level of discontent sequentially is belong to air pollution, noise pollution and lack of security in area and the minimum level of discontent is belong to lack of environment hygiene, which has been assessed as medium level.

Improvement and promotion of the qualitative level of under investigation factors, because of high level of discontent

Table 5. Comparison of the level of discontent with social-environmental annoyance in Navab phases.

Phase number	Lack of environmental hygiene	Lack of security	Air pollution	Noise pollution
1	2.0300	2.0400	2.9100	2.1500
2	1.9889	2.2667	2.8778	2.4111
3	2.0625	2.3500	2.9000	2.3375

Table 6. Outcome of Tukey test—comparison of discontent situation with lack of security in various phases of Navab-dependent variable: Security district.

	Phase number (I)	Phase number (J)	Mean difference (I–J)	Std. error	Sig.	95% confidence interval	
						Lower bound	Upper bound
Tukey HSD	Phase 1	Phase 2	–2.4211*	0.8978	0.020	–4.5373	–0.3050
		Phase 3	–3.5850*	0.9269	0.000	–5.7696	–1.4004
	Phase 2	Phase 1	2.4211*	0.8978	0.020	0.3050	4.5373
		Phase 3	–1.1639	0.9495	0.439	–3.4018	1.0740
	Phase 3	Phase 1	3.5850*	0.9269	0.000	1.4004	5.7696
		Phase 2	1.1639	0.9495	0.439	–1.0740	3.4018

The mean difference is significant at the level 0.05 level.

Table 7. Comparison of the relation between independent variables on discontent factors.

Relation between	N	Correlation	Sig.
Sex and environmental hygiene	270	0.005	0.939
Sex and security	270	0.005	0.941
Sex and air pollution	270	–0.037	0.546
Sex and noise pollution	270	0.096	0.116
Age and environmental hygiene	270	0.095	0.120
Age and security	270	–0.017	0.778
Sex and noise pollution	270	0.006	0.917
Age and environmental hygiene	270	0.091	0.136
Age and security	270	0.054	0.376
Age and air pollution	270	0.114	0.062
Age and noise pollution	270	0.094	0.125
Duration of dwelling in district and environmental hygiene	270	0.052	0.392
Duration of dwelling in district and security	270	0.005	0.939
Duration of dwelling in district and air pollution	270	0.005	0.941
Duration of dwelling in district and noise pollution	270	–0.037	0.546

feeling, seem necessary, in order to reducing the negative influences on the public health of inhabitant's life quality, welfare and promotion of content feeling of inhabitants as said before, maximum level of discontent is belong to air pollution and then noise pollution, it seems that performance of such necessary actions and also, suggestion of anatomical and none anatomical solutions, is effective in order to increasing the feeling of security, satisfactory feeling promotion, creation of welfare and comfort of inhabitants. Promotion of quantitative level of environment hygiene and inhabitant health plays a crucial role.

Multi-attribute evaluation according to methods and procedures from behavioral decision theory may provide an important tool for the conceptual analysis of various multi-attribute policy and research concepts.

It is advisable, in future multi-attribute evaluations, that all relevant attributes are inventoried in advance. First, a separate survey may be conducted on the relevant attributes among residents. This should lead to a complete list of all relevant attributes. Only after this is done, respondents should be presented with the possibly relevant attributes for further evaluation.

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