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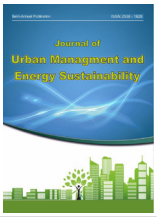

CASE STUDY RESEARCH PAPER

Evaluation of social indicators of a healthy city with a comparative approach of new and old urban fabric (Case study: Naeen city)

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ABSTRACT

Many Iranian cities are facing social and economic inequalities due to the destruction of the urban environment, and accordingly, the old urban contexts have lost their original identity. The purpose of this research is to evaluate the social indicators of a healthy city in the new and old contexts of the city of Naeen. The type of the present research is descriptive-analytical and applied in purpose. The research paradigm is also interpretive and the data collection method is documentary and library. The present research method was based on content analysis. First, 27 factors were extracted in the effectiveness of the social index with the healthy city approach in the sample. This was done using the fuzzy Delphi method in three rounds using a questionnaire and using the Google Pot tool using 15 elites. Finally, 12 indicators were confirmed in the final round, and then the population, education, and social participation indicators were finalized with an average score of 4.44, 4.45, and 4.54, respectively. In the next stage, each of the indicators was evaluated in the old and new context of Naeen using a qualitative questionnaire. The findings indicate that the new context had a higher score in the population and education index with a score of 35.71 and 33.74, but the old context had a higher score in the social participation index with a score of 33.33. The conclusion is that the new context, with an average score of 33.12412, is a healthier context.

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INTRODUCTION

Many cities, particularly in developing countries, have faced urban environment degradation and increased social and economic health disparities on a large scale among car inhabitants in recent decades (Arun et al., 2020). As a result, these cities have been dealing with urban poverty since the 1970s, and the quality of life and environmental standards in many urban areas have also encountered problems (Ziyari, 2012). During this decade, people worldwide increasingly expressed dissatisfaction with the inability of existing health services to meet their needs and expectations; thus, the member countries of the World Health Organization tasked the organization with developing a public health reform program (Huovila et al., 2019). The strategy that emerged from this, known as Health for All by the Year 2000, was adopted at the World Health Organization's General Assembly in 1979, reflecting the view that the main areas for action to improve health and well-being lie outside the health sector (Malanson, 2020). It must be acknowledged that defining health is very challenging, and even more difficult is measuring health. The prevailing thought and conventional understanding of health have predominantly focused on the physical aspect (Lak et al., 2020). Health, in its simplest definition, means the well-being of the body, mind, and spirit (Khomenko et al., 2020). The most widely accepted definition is from the World Health Organization (1948) in the preamble of its constitution, which states that health is a state of complete physical, mental, spiritual, and social well-being and not merely the absence of disease or disability. The physical aspect, which is the most commonly understood dimension of health, can be evaluated more easily than the other aspects. In fact, physical health results from the proper functioning of the body's organs (Helpman et al., 2020).

The World Health Organization defines a healthy city as a place where citizens help and support each other in their daily activities and enhance each other's capabilities in life (Arun & Holdsworth, 2020). Heritage, Doris, and Leo also believe that a healthy city is one where citizens participate in all urban affairs and contribute to its development and improvement (AlWaer et al., 2021). Based on an analysis of various theories and definitions of the concept of a healthy city, it can be stated that a healthy city is a public health issue that is influenced by social, environmental, and economic changes; it can be argued that merely the absence of disease does not indicate a healthy city. Instead, citizens of a healthy city must possess high levels of capability and quality of life (Yan et al., 2021). Human health is not only about physical and bodily health; a healthy person is one who, in addition to meeting their basic needs such as clean water, food, and air, enjoys a suitable quality of life and has stable and appropriate employment and income conditions (Wang et al., 2022). From a mental health perspective, individuals should experience minimal social stress and possess appropriate conditions in all dimensions—individual, social, economic, and environmental (Zhao et al., 2024). A city is considered healthy when its citizens are healthy (Kokiko et al., 2021). Furthermore, it can be said that a healthy city helps citizens engage in urban affairs and foster inter-agency cooperation to create a healthy environment where they can realize their potential by assisting each other and meeting their needs (Kim et al., 2023). Additionally, they can achieve their health goals. Given that the healthy city approach has been overlooked in Iranian cities and urban space development, particularly in new urban fabrics, significant attention must be given to the concept of a healthy city and its dimensions and indicators concerning urban issues in urban planning (Kalantari et al., 2019). This strategy has focused on areas of urban points that lie beyond the official domain of the health sector; in other words, this strategy deeply emphasizes the role of entities outside the formal realm of health organizations (Abdollahi et al., 2020). These entities have extensive

authority and capabilities in decision-making concerning health and the interaction between the health sector and the concept of sustainable development (Zarabi et al., 2011; Pineo et al., 2018). This is particularly important given the lack of many necessary infrastructures, which has led to uncontrolled urban area development, the creation of new habitats, decreased human welfare (Lowe et al., 2020), increasing environmental problems, threats to community health indicators, restricted access to recreational facilities, and ultimately a further decline in access to sustainable development (Yang et al., 2018). Therefore, considering the alarming and increasing health-threatening factors affecting citizens' well-being, city and health planners have introduced a relatively new term called health planning, which seeks to link the urban environment with the physical and mental health of urban residents. This approach focuses on strengthening decisions related to essential issues like urban ecological health, social welfare, and improving human quality of life (Fong et al., 2020). In light of these challenges, theories on maintaining urban ecological environments have emerged, leading to the development of various cities in industrial countries and subsequently in developing countries (Zamanzadeh, 2019). The living conditions in many countries worldwide, especially in developing nations, are a result of low investment levels in development (Wong et al., 2018). Social indicators include the square meters of living space per resident, the percentage of the population living in substandard housing (Ahmadi et al., 2021), estimated numbers of homeless individuals, unemployment rates, absenteeism rates, the percentage of households below the national poverty line, the total percentage of employments provided by ten major economic activities, the percentage of single-person households, the percentage of single-parent households, the percentage of children dropping out of school after compulsory education, illiteracy rates, the percentage of budget allocated for social activities in the city, crime rates, the percentage of homes equipped with emergency alarm systems for the elderly, the main reasons for emergency calls, the percentage of preschoolers on waiting lists for child care facilities, the average age of women at first childbirth, the abortion rate relative to total births, the percentage of individuals under 18 under police supervision, and finally, the percentage of employed individuals with disabilities compared to the total number of individuals with disabilities (Heidar et al., 2021; Yvonne & Brunning, 1997; Nicholas et al., 2021). It would also be useful to add the percentage of people exposed to occupational diseases, tobacco addiction, opioid and alcohol use, and high-risk behaviors to this list (Zhou et al., 2020). Given that the definition of a healthy city is dependent on the definition of a city, and since there is no comprehensive definition accepted by all scholars that encompasses all cities (Mitra et al., 2020), the definition of a healthy city is also varied and lacks a comprehensive image (Panda, 2020). Hancock argues that we still face a lack of a set of indicators for a healthy city (Hancock, 1993). Nevertheless, the World Health Organization has proposed 54 indicators for having a healthy city (Ramezani & Nastern, 2022). These indicators, which are organized into four sections, include: health indicators, healthcare service indicators, environmental indicators, and social-economic indicators (Verikios, 2020; Wamukoya et al., 2020).

MATERIALS AND METHODS

Methodology

The present research is descriptive-analytical and has an applied goal. The research paradigm is interpretive, and the data collection method is documentary and library-based. The current research method is based on content analysis, in which 27 factors influencing social indicators with a healthy city approach were initially extracted from the sample. Using the fuzzy Delphi method in three rounds with questionnaires and the Google Forms tool, data was collected from

15 experts. Ultimately, a specific number of indicators were established in the final round, and the final social indicators were determined afterward. In the next phase, each of the indicators will be evaluated in the old and new contexts of Naeen city using a qualitative questionnaire method. The statistical population, considering the Cochran formula, includes 365 residents from the old and new areas of Naeen city, who will be evaluated in the next phase and subsequently lead to conclusions.

Study area

This research was conducted in Naeen County, located between 52 degrees and 35 minutes to 55 degrees and 2 minutes east longitude and between 32 degrees and 30 minutes to 34 degrees and 15 minutes north latitude, at a distance of 145 kilometers east of the provincial center.

The foundation of Naeen city dates back to the first millennium before the arrival of Islam in Iran. On the other hand, the continuity of the city's development throughout its history can be seen up to the Qajar period and the early Pahlavi period. However, after this period, the concept of development for Naeen, like many other cities in Iran, cannot be applied in the same way, as it only considered the expansion of the city from a limited perspective. The environmental, social, and economic dimensions, which are the foundations of sustainable development, were not taken into account. The physical environment reflects the climatic influences, views, and worldviews of its creators. Today, due to advancements in various fields of human science, there appears to be a relative ability to confront nature, and the results of this are evident in the high energy consumption due to a lack of consideration for compatible climatic conditions, the mismatch between the physical form and the natural setting, and neglect of environmental capacities and features (such as limited groundwater resources, fault lines, earthquake hazards, floods, etc.). Unfortunately, our cities today are affected by these issues, not only in their physical form but also in their culture and mindset. Naeen city, like many cities with a rich historical architecture and urban planning, exhibits two types of physical environments. One is valuable in terms of historical, cultural, and architectural beauty, while the other emerged after the seemingly modernist period in Iran and lacks any trace of Naeen's identity. Therefore, investigating the quantity and quality of the physical forms and various urban functions in Naeen city reveals two urban fabrics, each with its own distinct characteristics.

The historical and culturally valuable fabric of Naeen and Mohammadiyeh

New fabric after 1951

Considering the examination of the urban fabric of Naeen, two urban blocks have been selected as pilot areas from both the old and new urban fabrics of Naeen for evaluation and comparative analysis. In the map below, the selected blocks of the new and old fabrics in the historical core of the city and the surrounding areas are highlighted.

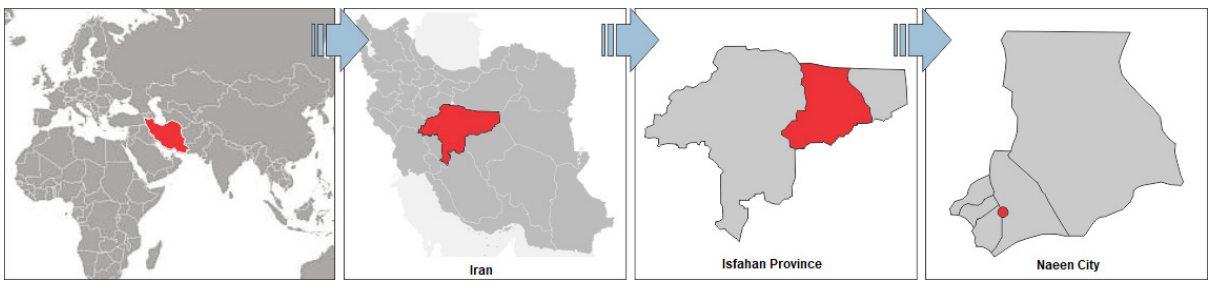

Figure 1: Geographical location of Naeen County

Old (historical) fabric

In the old fabric of Naeen and Mohammadieh, we encounter a structure that has been significantly damaged over time but still reflects the thoughtful design of its creators. The specific form and arrangement of houses, inward orientation, and dense fabric aimed at adapting to the climate, enhancing the resilience of buildings, and the limited yet valuable arable land surrounding the city are some solutions offered by the architects of this region. Naeen and Mohammadieh have distinct neighborhoods, each with similar facilities and establishments located at their centers around small squares. However, in terms of their urban edges and bodies, there is no difference between them. Generally, organic human-made fabrics in cities around the world include four features, and Naeen also exhibits these four

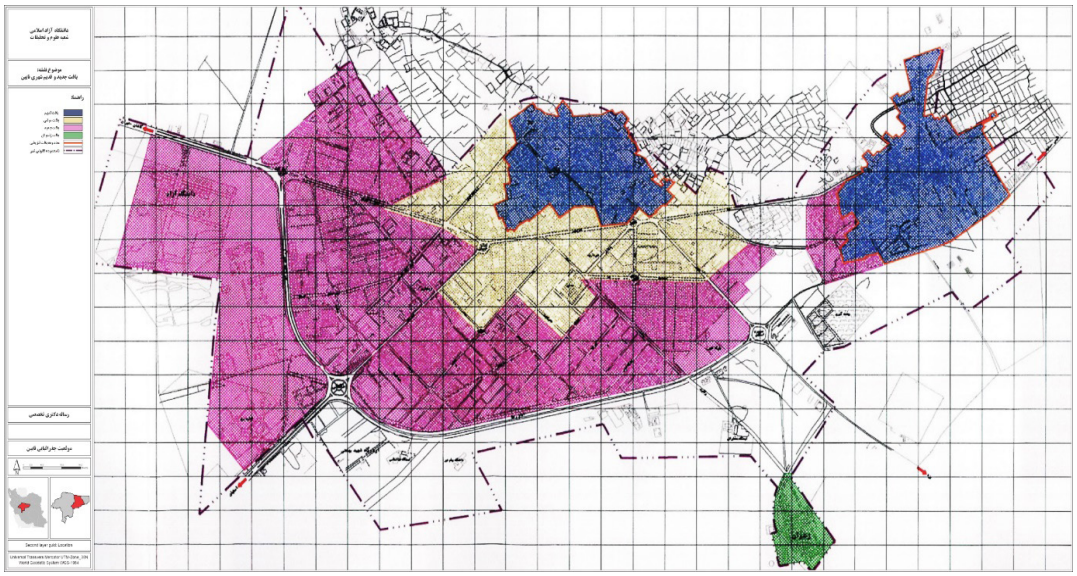

Figure 2: Old, new and middle fabric of Naeen city, detailed plan of Naeen city, 2006

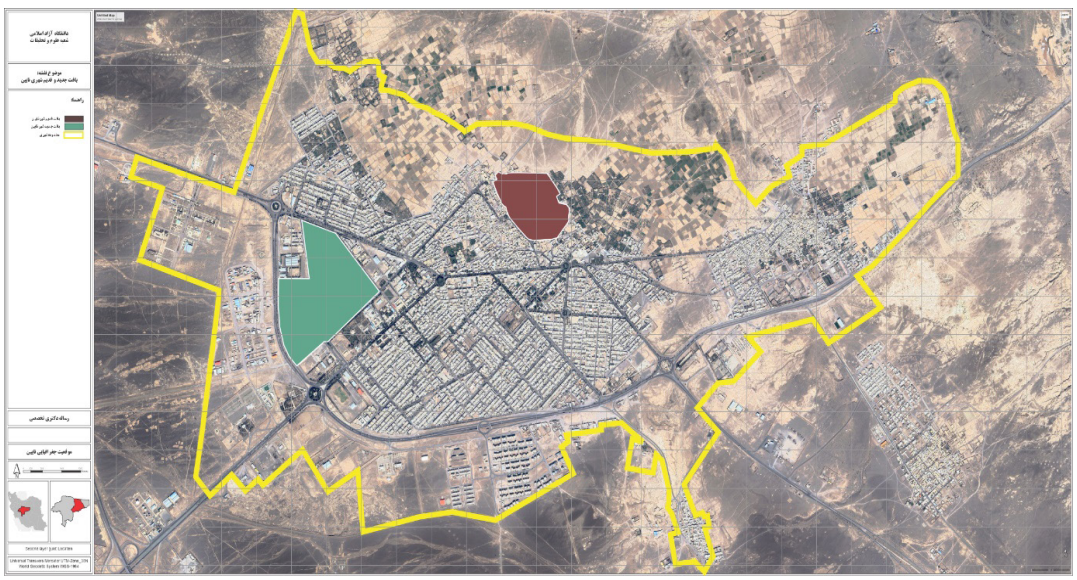

Figure 3: Selected blocks from the new and old fabric of Naeen city

characteristics within its historical fabric and in Mohammadieh:

1. Complexity of non-geometric forms of residential blocks and the winding pathways within the fabric, which can be attributed to various reasons, including evolution over time. This characteristic also enhances the environmental quality. This must be balanced with modern urban design considerations, such as variability in space and visual sequences.
2. The orientation of the fabric concerning the placement of buildings in the city, particularly residential buildings that dominate much of the urban area. The orientation of these plots is mainly influenced by natural factors or significant urban landmarks. This can be observed in the proximity of plots to the bazaar, the main mosque, and small squares. The fabric's orientation should be considered in new interventions, and urban planning actions should commence accordingly. Otherwise, we may witness disasters similar to street constructions in the 1930s that disregarded the orientation of the historical urban fabrics of Iran.

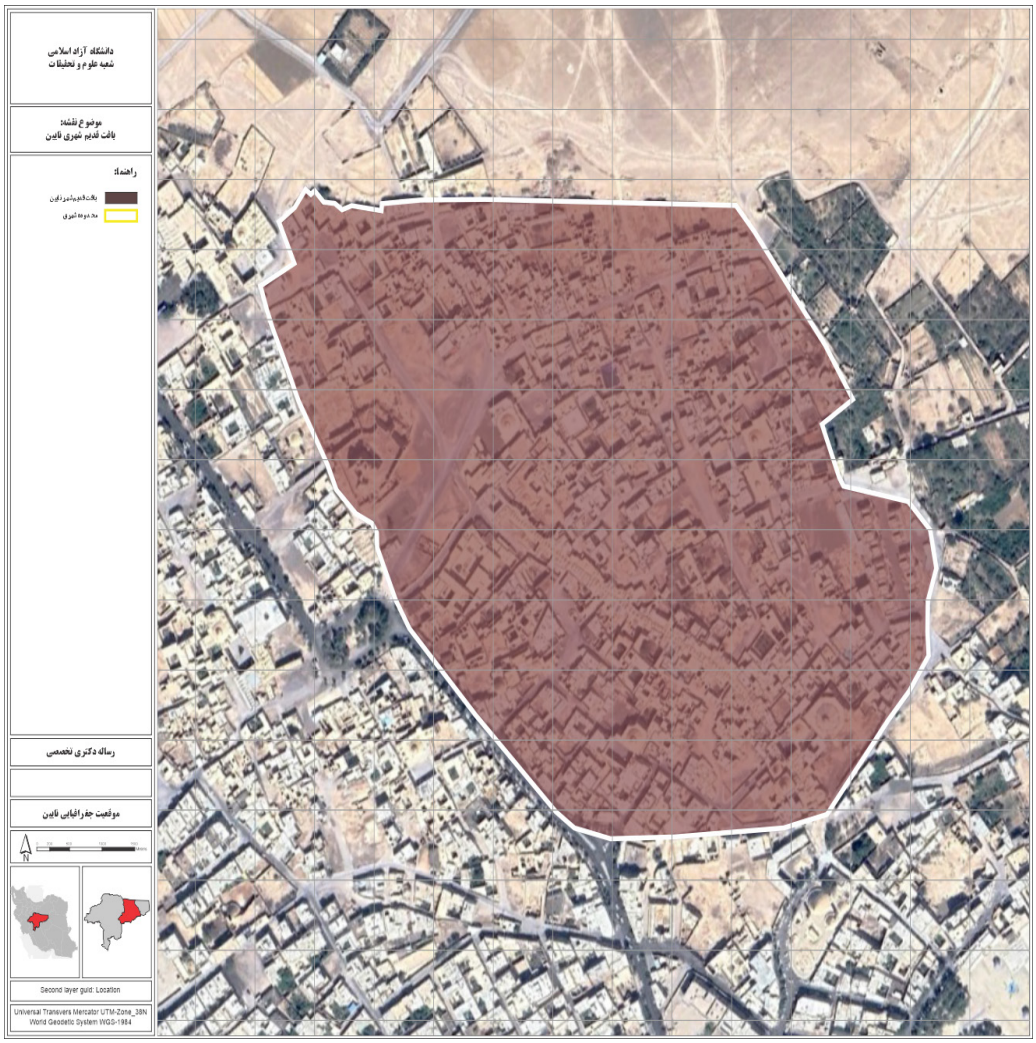

Figure 4: Selected block of the old fabric of Naeen city

3. Central points are formed at the intersections of major streets in urban areas, and this is also the case in Naeen. It is worth noting that urban centers are the junctions of important axes along with pathways that structure the cities. In fact, the centers in Naeen and Mohammadieh correspond to the neighborhood centers and openings in front of the main mosque.
4. Density is another characteristic of this fabric, which is currently referred to as compact city and sustainable city concepts and has gained attention.

New fabric (surrounding)

The new fabric of Naeen, which began to develop in the late Pahlavi era and continued to grow in subsequent periods, is located south of the old fabric and the former Imam Khomeini Boulevard. The quality of the new fabric is in no way comparable to the valuable fabric of Naeen and Mohammadieh. Its significance stems mainly from the addition of various functions, such as urban services and modern uses including municipality, judiciary, higher education, schools, and healthcare, which were added to the fabric after 1948, mainly for quantitative rather than

Figure 5: Selected block of the new fabric of Naeen city

qualitative reasons. In 1992, when the first urban planning scheme was developed for Naeen, the area was 425.5 hectares. By 2002, when the urban planning scheme was updated, it had increased to 570.4 hectares, and in 2006, at the time of the comprehensive plan, it reached approximately 1001.2 hectares, indicating the rapid growth and expansion of Naeen, particularly in the southern part of the contemporary fabric of the city. The mentioned area (1001.2 hectares) in 2006 corresponds to the total of net and gross urban areas. The net urban area of Naeen is 608 hectares, leading to an urban per capita area of 249 square meters.

DISCUSSION AND FINDINGS

Delphi method

The most important task in the Delphi method is to select experts and specialists in the field. In this way, the selected individuals are given information about the Delphi method and invited to participate in this research. Anonymity is an important component of this research approach, and questions from the selected experts are followed up by successive questionnaires (Aalizadeh, 2014, 33). In this research, the initial model is first developed based on theoretical foundations and the use of existing models around the concepts of urban landscape and green roof structural factors. After the initial design, this model was tested and developed through the Delphi method. The use of open questions in the Delphi questionnaire and their analysis in the subsequent stages was used to judge whether consensus was reached among the experts and to reach theoretical saturation of the qualitative methods used in the analysis of the data obtained in the present study. Field data collection in the present study began with the collection of questionnaires for the first stage of the research, and the extracted data were analyzed using descriptive statistics and qualitative analysis.

Delphi method findings

In this research, the dimensions of a healthy city and urban fabric were used as a premise in the first stage, extracted from the theoretical foundations for the subject, and then the dimensions of new and old urban fabrics were presented according to the research hypothesis. These sub-components were expressed based on the assumption of the experts' awareness dimension and the perceptual process of citizenship with inclusion. These factors were set as a proposed package in the panel of experts and elites so that the Delphi method could be planned and applied to it. A total of 27 factors that were tested in this method to reach the final indicators include: demographic factors, education, security, safety, participation and social ties, access to urban facilities, ownership, cultural context, sense of belonging, employment, housing, poverty, pollution, environment, water quality, urban facilities, environmental protection, green infrastructure, transportation, access to urban spaces, urban space facilities, quality of urban spaces, safety of urban spaces, urban services, birth and death rates, access to health services and health promotion. But obviously, these codes (factors) are not homogeneous as factors, and to perform the Delphi method, homogenization is required. Therefore, the following table can be mentioned as a homogenizing table for use in the Delphi method:

Table 1: Homogenization of extracted codes from the content analysis method for the primary data of the Delphi method

No.	Extracted concept (code)	Homogenized concept (factor)
1	Population	Population
2	Education	Education
3	Security	Security
4	Safety	Safety
5	Participation and social connections	Social participation
6	Ownership	Ownership
7	Cultural context	Cultural identity
8	Sense of belonging	Sense of belonging
9	Housing	Housing

No.	Extracted concept (code)	Homogenized concept (factor)
10	Employment	Household income
11	Poverty	
12	Air Pollution	Environmental quality
13	Water Pollution	
14	Water quality	
15	Urban equipment	Urban equipment
16	Access to urban facilities	
17	Environmental protection	Vegetation
18	Green infrastructure	
19	Transportation	Accessibility
20	Access to urban spaces	
21	Facilities of urban spaces	Quality of urban space
22	Quality of urban spaces	
23	Safety of urban spaces	
24	Municipal services	Municipal services
25	Birth and death	Population change
26	Access to health services	Environmental health
27	Health promotion	

Therefore, the input factors in the Delphi method can be listed as follows: population factor, education, security, safety, social participation, ownership, cultural identity, sense of belonging, housing, household income, environmental quality, urban equipment, vegetation, accessibility, quality of urban spaces, urban services, demographic change, and environmental health. This array of 18 factors is used in the Delphi method.

Findings from implementing the Delphi method

In the first round, the panel members identified 15 factors out of 18 factors extracted from successful research as having a medium, high, and very high impact on developing a sustainable urban landscape framework based on the concept of a healthy city in the urban context. The detailed results related to the implementation of the first stage of questionnaire distribution are given in the table below. The factors of household income, ownership, and safety were eliminated from the Delphi process due to their average importance of less than 2.5. (Table 2)

After the first stage of measuring and evaluating the panel experts' views on the factors proposed and extracted from the theoretical foundations and also receiving the suggestions of the panel members, in this round, in order to be cautious, all the factors extracted from the theoretical foundations were again made available to all panel experts, along with the average of the members' opinions in the first round and the previous opinion of the same member. The panel members identified 12 factors out of the 15 factors presented in the second round as having a high and very high impact (with an average greater than 3.5) on the research framework. The detailed and extensive results related to the implementation of the second stage of questionnaire distribution are given in the table below. The Kendall coordination coefficient for the members' responses regarding the order of the 12 factors that had a high and very high impact in this round was 0.765. In this stage, three factors of demographic change, urban facilities, and cultural identity were eliminated. (Table 3)

In the third round of developing the research framework, the final indicators, along with the average of the members' opinions in the second round and the previous opinion of the same member, were made available to all panel experts. The detailed results related to the implementation of the third stage of questionnaire distribution are given in the table below. The Kendall coordination coefficient for the members' responses regarding the order of the 12 factors was obtained as 0.790. (Table 4)

Considering the purpose of the current research, which is to examine the social criterion of a healthy city in a case study, the table of indicators under study is as follows.

Table 2: Results of the first round of the Delphi survey with 15 factors

No.	Factors	Number of responses	Average	Standard deviation	Min.	Max.
1	Population	19	3.58	0.52	1	5
2	Education	19	4.38	0.63	1	5
3	Household income	19	4.11	0.45	1	5
4	Safety	19	2.12	0.76	1	5
5	Social participation	19	3.32	0.51	1	5
6	Ownership	19	2.10	0.34	1	5
7	Cultural identity	19	3.72	0.38	1	5
8	Sense of belonging	19	3.34	0.45	1	5
9	Housing	19	3.58	0.65	1	5
10	Security	19	1.98	0.48	1	5
11	Environmental quality	19	3.67	0.42	1	5
12	Urban equipment	19	3.22	0.24	1	5
13	Vegetation	19	3.20	0.71	1	5
14	Accessibility	19	3.85	0.46	1	5
15	Quality of urban space	19	3.45	0.35	1	5
16	Municipal services	19	3.44	0.54	1	5
17	Demographic change	19	2.80	0.34	1	5
18	Environmental health	19	4.10	0.45	1	5

Table 3: Results of the second round of the Delphi survey with 15 factors

No.	Factors	Number of responses	Average	Standard deviation	Min.	Max.
1	Population	19	3.28	0.55	2	4
2	Education	19	4.38	0.65	2	4
3	Household income	19	4.11	0.55	2	4
4	Social participation	19	3.32	0.41	2	5
5	Cultural identity	19	3.22	0.32	2	3
6	Sense of belonging	19	3.34	0.28	2	5
7	Housing	19	3.58	0.32	2	5
8	Environmental quality	19	3.67	0.32	2	4
9	Urban equipment	19	3.22	0.25	2	4
10	Vegetation	19	3.20	0.58	2	5
11	Accessibility	19	3.85	0.35	2	5
12	Quality of urban space	19	3.45	0.28	2	5
13	Municipal services	19	3.44	0.35	2	5
14	Demographic change	19	2.80	0.45	2	4
15	Environmental health	19	4.10	0.35	2	5

Table 4: Results of the third round of the Delphi survey with 10 factors

No.	Factors	Number of responses	Average	Standard deviation	Min.	Max.
1	Population	19	4.44	0.35	3	5
2	Education	19	4.45	0.25	3	5
3	Household income	19	4.15	0.32	3	5
4	Social participation	19	4.54	0.45	3	5
5	Sense of belonging	19	4.65	0.35	3	5
6	Housing	19	4.80	0.35	3	5
7	Environmental quality	19	4.77	0.45	3	5
8	Vegetation	19	4.25	0.25	3	5
9	Accessibility	19	4.90	0.26	3	5
10	Quality of urban space	19	4.75	0.27	3	5
11	Municipal services	19	4.45	0.36	3	5
12	Environmental health	19	4.95	0.35	3	5

Table 5: Social criteria indicators

Indicator	Index
Social	Population
	Education
	Social participation

Evaluation of the main research criteria

Due to the mixed nature of the research method, the type of scoring for each criterion in each case sample is done according to the Likert scale structure. In a way that each criterion ultimately has an average score between 1 and 5. Accordingly, the demographic statistics related to the questionnaire method include the following: of the 365 respondents to the questionnaire, 37% of them are people who live or work in the selected new context and 63% are people who live or work in the old context of the city. Among the people who were willing to respond from the new context, 57% of the respondents were men and 43% were women, and from the old context, 58% of the respondents were men and 42% were women. Of these, all respondents from the new context and 58% of the respondents from the old context were married, and 42% of the respondents from the new context were single. Of the survey participants in the new context, 28.57% were employees, 28.57% were self-employed, and 42.86% were unemployed. Of the participants in the old context, 25% were employees, 8.33% were workers, 41.67% were self-employed, 8.33% were students, and 16.67% were unemployed. The level of education of the respondents was as follows: from the new context, 14.29% had a master's degree and a doctorate, 41.67% had a post-graduate diploma and a bachelor's degree, and 16.67% had a diploma. From the old context, 14.29% had a master's degree and a doctorate, 71.43% had a post-graduate diploma and a bachelor's degree, and 14.29% had a diploma.

Population index assessment

The population index in the concept of a healthy city includes factors such as population density, households, the number of people living in a residential unit or a neighborhood, and the number of people using the services provided for a

specific area. This index also manifests itself in the form of undesirable residential density that causes a decline in environmental and service quality. The lack of balance between the population growth rate and physical development is a negative manifestation of this index. The results of the study conducted in two parts of the Naeen urban fabric indicate that the outcome of this index in the new fabric is more favorable than in the old fabric.

Education index evaluation

The first layer of the education index assessment examines the level of education of the people living and working in this context, which in a way reflects the attitude of the people as well as their culture and behavior in the city and neighborhood. From another perspective, the level of interest in continuing education among families and also among the students themselves who are of school age is also a qualitative manifestation of this index that is considered in the assessment. One of the definitions of a healthy city is the quality of life in the urban environment and family environment, which is achieved with high life expectancy and growing actions and decisions of the residents. Based on the results

Table 6: Population index evaluation results

Fabric	Population questions	Number of comments given based on population					Total points for each question	Final average score
		Very little (1)	Low (2)	Medium (3)	Many (4)	Too much (5)		
Old	1	0.00	0.00	58.33	16.67	25.00	366.67	32.78
	2	0.00	33.33	50.00	8.33	8.33	291.67	
	3	8.33	8.33	50.00	16.67	16.67	325.00	
New	1	0.00	0.00	57.14	14.29	28.57	371.43	35.71
	2	0.00	14.29	57.14	14.29	14.29	328.57	
	3	0.00	14.29	28.57	28.57	28.57	371.43	

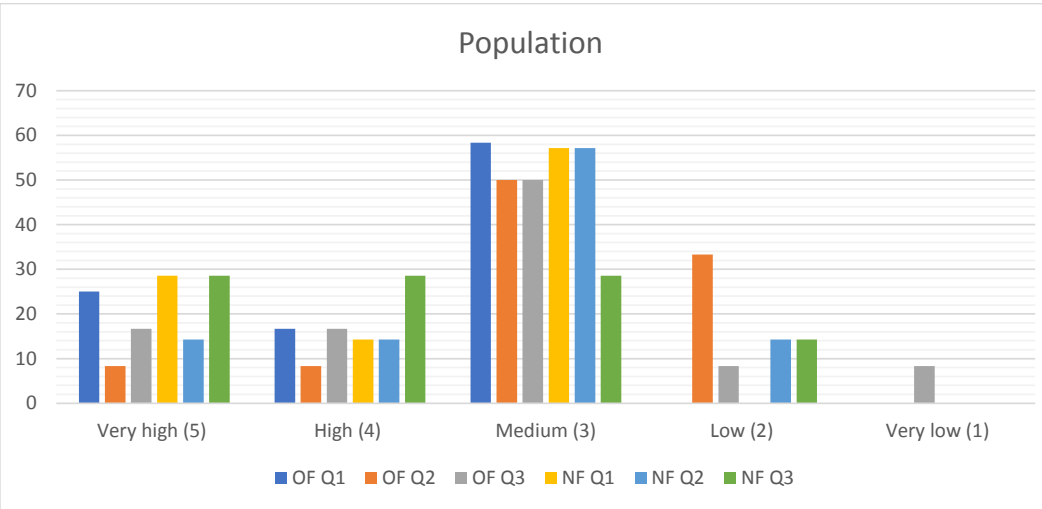

Figure 6: Frequency chart of participants' responses to population indicator questions

of the survey, both from the perspective of the level of education of the residents and from the perspective of interest and action in continuing education, as well as the provision of educational facilities and educational assistance for the residents, the new context has a better and more ideal situation than the old context.

Social Participation Index Evaluation

The social participation index is one of those qualitative indicators that has a significant impact on the quality of life in our culture. In a way, the physical elements that make up the neighborhood also each express a form of social participation. Therefore, it has both an identity aspect and many advantages from a functional perspective. The evaluation of this index is done by examining issues such as relationships between neighbors, neighbors' participation in solving problems and taking actions and decisions, and neighbors' helping and assisting each other. As expected, this index is better in the old context.

Table 7: Results of the education index assessment

Fabric	Education questions	Number of comments given based on population					Total points for each question	Final average score
		Very little (1)	Low (2)	Medium (3)	Many (4)	Too much (5)		
Old	4	41.34	12.00	30.00	16.67	0.00	222.00	29.81
	5	17.25	26.43	11.33	28.32	16.67	300.72	
	6	0.00	0.00	57.14	14.29	28.57	371.43	
New	4	10.29	56.43	17.29	0.00	16.00	255.00	33.74
	5	0.00	28.57	0.00	28.57	42.86	385.71	
	6	0.00	14.29	28.57	28.57	28.57	371.43	

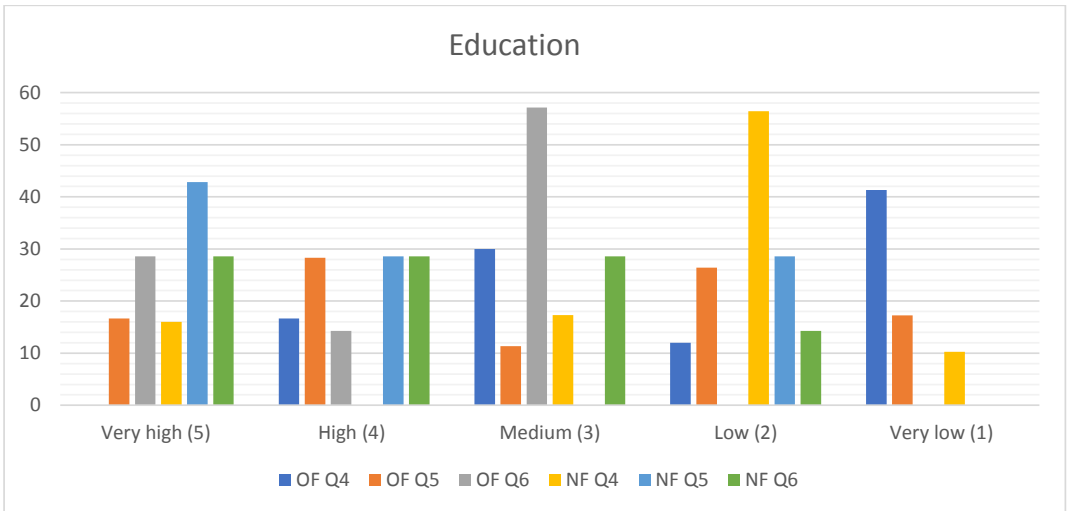

Figure 7: Frequency chart of participants' responses to education indicator questions

Table 8: Results of the Social Participation Index Evaluation

Fabric	Social Participation questions	Number of comments given based on population: Very little (1)	Low (2)	Medium (3)	Many (4)	Too much (5)	Total points for each question	Final average score
Old	7	14.29	14.29	71.43	0.00	0.00	257.14	33.33
	8	0.00	14.29	28.57	14.29	42.86	385.71	
	9	14.29	14.29	0.00	42.86	28.57	357.14	
New	7	16.67	25.00	50.00	8.33	0.00	250.00	29.80
	8	7.00	9.33	41.67	25.00	17.00	335.67	
	9	0.00	16.67	66.67	8.33	8.33	308.33	

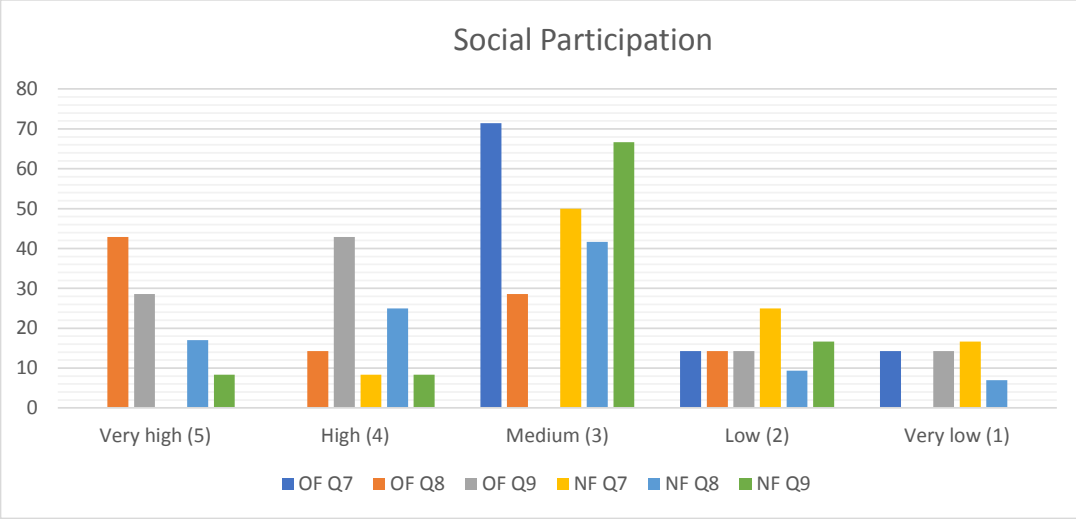

Figure 8: Frequency chart of participants' responses to social participation index questions

Table 9: Overall results of the assessment conducted in the old and new context of Naeen city

			New Fabric: Too much (5)	Many (4)	Medium (3)	Low (2)	Very little (1)	Old Fabric: Too much (5)	Many (4)	Medium (3)	Low (2)	Very little (1)
Social	Population	1	0.00	0.00	57.14	14.29	28.57	0.00	0.00	58.33	16.67	25.00
		2	0.00	14.29	57.14	14.29	14.29	0.00	33.33	50.00	8.33	8.33
		3	0.00	14.29	28.57	28.57	28.57	8.33	8.33	50.00	16.67	16.67
	Education	4	10.29	56.43	17.29	0.00	16.00	41.34	12.00	30.00	16.67	0.00
		5	0.00	28.57	0.00	28.57	42.86	17.25	26.43	11.33	28.32	16.67
		6	0.00	14.29	28.57	28.57	28.57	0.00	0.00	57.14	14.29	28.57
	Social participation	7	16.67	25.00	50.00	8.33	0.00	14.29	14.29	71.43	0.00	0.00
		8	7.00	9.33	41.67	25.00	17.00	0.00	14.29	28.57	14.29	42.86
		9	0.00	16.67	66.67	8.33	8.33	14.29	14.29	0.00	42.86	28.57

Table 10: Average frequency of participants' responses to questions related to each indicator

Dimension	Index	Old Fabric	New Fabric	Old Fabric Average	New Fabric Average
Social	Population	32.77778	35.71429	33.08413	33.12412
	Education	29.80517	33.7381		
	Social participation	33.33333	29.8		

RESULT AND CONCLUSION

To present the conclusion, two stages can be noted: the first refers to the results of the Delphi method, and the second to the findings of the evaluation in the case study. Therefore:

1- The results of the three rounds of the Delphi method implementation in the research indicate that consensus among the panel members has been reached for the following reasons, allowing the termination of the repeated rounds:

- In the second round, more than 50 percent of the members selected 15 influential factors in developing the indicators for a healthy city in new and old contexts, with an average greater than 2.5, among their factors.
- The standard deviation of the members' responses regarding the importance of factors in the third round changed significantly compared to the previous rounds.
- The Kendall's coefficient of concordance for the members' responses regarding the order of factors in the third round is 0.790. Given that the number of panel members exceeded 10, this level of Kendall's coefficient is considered highly significant.
- The Kendall's coefficient of concordance for the order of the 12 influential factors in developing the research framework in the third round increased by only 0.025 compared to the second round, indicating that there was not a significant increase in consensus among the panel members between the two successive rounds.
- The scores given to the factors by experts and elites indicate that the indicators of environmental health, accessibility, quality of urban space, and sense of belonging received the highest scores, and thus had the most significant impact on extracting the model for the study.

2- The indicators of population, education, and social participation were evaluated with average scores of 4.44, 4.45, and 4.54, respectively. The findings indicate that in terms of population and education, the new context had higher scores of 35.71 and 33.74, while in terms of social participation, the old context attained a higher rank with a score of 33.33. The conclusion is that the new context, with an average score of 33.12412, considering the current situation and the increase in infrastructural facilities in the economic and educational sectors, is a healthier environment, while the identity factor, which forms the basis for social participation, can improve over time with greater interactions.

Clearly, the healthy city approach must be considered in all its criteria; however, the purpose of this research is solely to examine the social criteria, and other important criteria such as economic and managerial factors also influence the type of internal evaluation. Future studies must comprehensively evaluate all relevant criteria and examine their internal relationships in the type of indicator establishment to challenge the healthy city concept in any context.

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