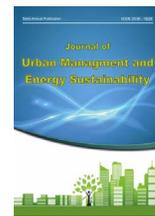


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ORIGINAL RESEARCH PAPER

Investigating and analyzing the components of urban vitality in sustainable residential spaces in order to achieve happiness and social welfare of citizens (Case study: Residential neighborhoods in Babolsar city)

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ABSTRACT

The expansion of urbanization and the accelerated growth of cities, followed by modernist thinking and the change in the life patterns of modern people, have created problems for cities, so that the city as a living entity has lost its freshness and vitality. The purpose of this research is to identify the desirable parameters of urban vitality and its role in stable neighborhoods and patterns of happy neighborhoods to achieve the happiness of citizens in coastal residential spaces in Babolsar city, so that, the residential neighborhoods provide the possibility of active presence of people to participate in various activities. This research is done by a descriptive - analytical method and is of applied research type. Documented studies (theoretical framework of the research) and field studies have been used to collect the required information. In order to check the hypotheses of the research, first through a semi-structured interview, then 383 questionnaires were distributed among the residents of residential areas, managers and academic elites. SPSS version 23 software was used to analyze the information and to advance the goals of this research. The results showed that the level of happiness of the citizens living in the studied localities is moderately high and the level of satisfaction of the residents with the current situation is moderately low. According to the respondents, collectivism and social interactions, protection of resources and the natural environment, green space management, governmental associations and urban management are among the most important factors affecting the happiness of the residents.

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1. Introduction

The neighborhood is one of the main elements of the urban body and the balance of social life in cities depends on maintaining the neighborhoods. (Lieskovsky et al, 2018) In recent years, the voluntary presence of people in public spaces has decreased, and the atmosphere of neighborhoods has turned into arenas devoid of vitality. (Beyzaie et al, 2017) The concept of vitality is one of the indicators of influence. The transition is in the quality of human life, its internal and external or social dimension, it connects our field of work with the concept of happiness.

Happiness is one of the central concepts of sustainable development, which has been considered in the discussions of the United Nations since 2000 (Helliwell et al, 2018). In such a way that if people of a society do not feel cheerful, happy and satisfied, that society cannot be considered developed. This shows the importance of vitality and happiness in society. Accordingly, the main goal of governments should be more happiness of the citizens, not more wealth (Gim, 2021). The Gallup survey (1979) also introduced happiness as one of the main priorities of society, and since the 1970s, several studies related to happiness have been conducted in industrialized countries, in Denmark in 2016 and Finland in 2018 (with a score of 7.63 from 0 to 10) were the happiest countries. According to the same polls, Iran has low vitality and happiness and is the second saddest country in the world (United Nation, 2016). Achieving happiness and vitality is considered. Moreover, the United Nations stated that 86% of the population will live in urban areas, according to the 2050 plan, and more than one third of the world's population live in coastal areas, and the population density in these areas is increasing exponentially (Barbier et al, 2008; Bali Swain et al, 2021). In Iran, based on the information about the Statistics Center in the field of the general population and housing census, 74% of the country's population live in urban areas and 26% in rural areas. The coastal areas of Iran with about 20% of the country's population and including a major part of social, economic and industrial activities, have an undeniable role in the growth and development of the country. Urban spaces are the places where people spend most of their time, so a lively and

dynamic environment should be formed by supporting the happiness of citizens (Moroke et al, 2019). When people of a society enjoy happiness, social belonging, favorable social relations and satisfaction with life and when motivation to work and effort increases, economic development increases, too. Such a society will follow the path of progress. Researchers believe that having a healthy and sustainable society is conditional on having healthy (happy) people. (Lee et al. 2022) Happiness and sustainability are related to each other. This issue also explains the desire of modern cities to have happy places. Therefore, cities that seek sustainability have placed their priorities on a happy city and the happiness of its residents, improving environmental quality and social justice. (Sharifi et al, 2021) In this connection, it can be said that achieving happiness, which is the goal of all humans, (Cloutier et al, 2020) has been neglected in all urban plans and planning, especially in developing countries (such as Iran). According to these researches and surveys among the countries of the world, the state of happiness in Iran is declining. For example, during the years 1977 to 2007, Iran ranked 56th among 97 countries in the world, ranked 157th among 205 countries in the 2016 survey (United Nation, 2016) and ranked 106th among 156 countries in the 2018 survey (Gallup, 2018). According to the Gallup Institute survey (2018), Iranian people are the second saddest people in the world. Furthermore, the Iranian Psychological Association reported the rate of depression in 1390, 12%, in 2013, 21% (fararu.com, 2015). Based on these statistics, it seems that happiness is a phenomenon that fades with the passage of time in Iran, and this expression requires attention to the discussion of social vitality and happiness. It seems that in addition to socio-economic factors influencing the low level of vitality and happiness in Iran, today one of the factors that have the greatest impact on the vitality and happiness of cities and citizens compared to the past few decades, is urban spaces (Cloutier et al, 2018). Due to the rapid growth of the population and the size of cities as well as traffic, visual pollution, unavailability of services, lack of public spaces suitable for recreation, lack of social communication, lack of suitable sidewalks and overall lack of crowd absorbing spaces.

Urban spaces have lost their real function (happy city). Therefore, the lack of vitality and feeling of happiness in urban places and spaces is considered as one of the basic challenges of contemporary urban planners and designers in Iran.

2. Vitality of Urban Spaces

For the concept of vitality, there are various equivalents in the West, among which we can refer to (Vitality, Liveliness, Livability). In Kowan's dictionary of urbanism, vitality and livability come together. The city's vitality and viability reflect its level of crowding at different times of the day and in different parts; and livability is a host to measure its capacity to attract capital to survive, improve and adapt to changing needs (Karimi et al., 2017). Vitality is an interdisciplinary keyword that can have different definitions in different fields (Mohammadkhani, 2015). For example, in sources of urban planning, architecture and geography, concepts such as "tolerability and vitality" are used for the literal definition of vitality (Samadi Todar, 2014). In the concepts of psychology, it is introduced as one of the inner experiences of full of energy, which is closely related to the feeling of happiness (Shaker Haqiqi, 2018). The bringer defines the desired quality of life (Fowers et al, 2016). Lynch enumerates the three main characteristics of the environment, which influence health and desirable biological characteristics and are considered as the functional axes of the vitality of the urban environment as follows:

Survival: having enough food, fuel, water, and air and a suitable way to dispose of waste (Lynch, 2020)

- Safety: in the discussion of safety, Lynch considers a good settlement to be a settlement in which dangers, poisons and diseases do not exist or have been controlled and therefore the fear of encountering them has been reduced to a minimum (Habibian et al., 2019).
- Compatibility: in this topic, Lynch refers to the compatibility between the space environment and the main biological structure of humans, heat and the internal functioning of the body (Lynch, 2015).

The book "Life in the space between buildings" (Welsch et al, 2017), emphasizing the human

aspect of architecture and the interaction between architecture and urban planning, sociology and psychology.

Gehl classifies the activities in the public space into three groups:

- 1) Necessary activities: they are those activities that people feel the need to do throughout the year, in any weather condition, regardless of the quality of the physical environment (Montgomery, 1998) (Zakavat et al., 2019).
- 2) Voluntary activities: activities that are done voluntarily without any compulsion or necessity (Sharifi et al, 2017). Some of these activities include: walking, sitting and sunbathing, standing and enjoying the view.
- 3) Social activities: activities depend on the participation of others in public spaces. Social activities depend on necessary and optional activities. Because when people meet each other in special places, these activities are formed spontaneously (Helliwell et al, 2018; Schroeder et al, 2018; sang et al, 2018).

According to Krier, one of the effective factors in the vitality of urban spaces is among the entrances of buildings adjacent to such spaces, which should be opened to the street or square; so that the urban space is not deprived of its vital activity (Krier, 2021). According to the studies that have been done in the research literature in the field of urban vitality, it can be concluded that in order to achieve a lively neighborhood, attention should be paid to ecological, physical, architectural and social indicators (Table 1). Therefore, the main principles to achieve vitality in the public space are:

These cases, which have been repeated the most in people's theories, are proposed as the most important factors for promoting vitality in the urban space, which is a subset of social, physical, and environmental vitality.

2.1. Environmental principles and criteria in sustainable neighborhood development

Sustainable development is a concept that emerged due to the negative environmental and social consequences of unilateral economic development approaches after the industrial revolution and the change of human attitude towards the concept of growth and development

Table 1. Indicators of urban vitality based on past research

	Jacobs	Krier	Chapman	Ghel	Viker Sham-ji	Sai	Henry	PPS	Biber	Lenard	Showai	Vanchori	Thomas	Voarez	Tribalds	Mamford	Lynch	Indexes	
																		Safety	Physical vitality
																		Environmental comfort	
																		Collectivism	Social Vitality
																		Flexibility	Environmental Vitality
																		Reducing environmental pollution	
																		Monitoring and maintenance	

(Maryanti et al, 2020). The goal of sustainable development is to create a balance between the effects of any development on the environmental, economic and social dimensions. Urban and decision-making help is to do or not to do actions (Li et al, 2019). But the most comprehensive definition of sustainable development relates to the Brantland report, which was expressed by the Prime Minister of Norway, Harlem Brantland. They suggested that sustainable development is increasing people's ability to meet their current needs without jeopardizing the ability of future generations to meet their needs. According to this definition, the use of these reserves is not fair and principled, if the security of the lives of all humans is endangered in the present and the future (El Ghorab et al., 2016). Therefore, the three dimensions of the sustainable development of the economy, society and environment improve the economic conditions with self-sufficiency, growth and development. Social conditions are created by creating intergenerational equality through responding to different social groups and environmental conditions by creating intragenerational and intergenerational equality and justice in the use of resources (Figure.1) (Cloutier et al., 2014).

In line with the strategic process of sustainable development to achieve sustainability goals, one of the possible strategies is to pay attention

to the criteria and considerations of vitality. According to the studies, vitality and sustainable urban development have a positive, close relationship and considerable overlap with each other (Leyden et al, 2011; Florida, 2010; Ballas et al, 2013; Zidnasek, 2007). Sometimes, they are used interchangeably. One of the features of a desirable and sustainable urban neighborhood is the active and lively presence of people in it and, accordingly, the participation of people in local and urban activities. Such neighborhood where the continuous presence of people is its most important feature can be called lively and considering that the continuous and active presence of people in a neighborhood indicates that the characteristics of that neighborhood are aligned and compatible in meeting the needs of the citizens, it can be concluded that creating a happy neighborhood by improving the vitality of a neighborhood is in line with the goals of sustainable development. The graph below shows the relationship between vitality and sustainable development.

3. Happiness

Happiness is one of the most important human emotions, if emotions are divided into six categories of anger, fear, hatred, surprise, sadness and happiness, then happiness is the most basic emotion that people seek to achieve

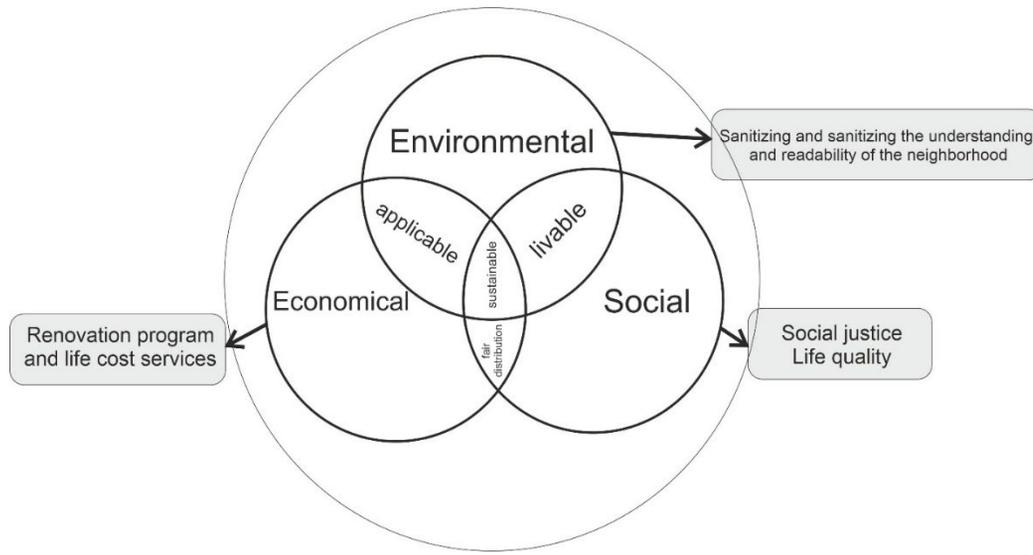


Figure1. Criteria and sub-criteria for the realization of a sustainable urban neighborhood (Londoño-Pineda et al. 2021)

(Veenhoven, 2017). In the second half of the 20th century, happiness became the subject of social science research, starting from positive psychology and expanding to a wide range of sciences (Ortega-Momtequín, 2021). Happiness and its pursuit are an issue that researchers of urban areas and urban policy should consider them. The findings show that social connections within the city and aspects of urban planning are associated with individual happiness (Lamiaa et al, 2021). Kevin et al. (2011) concluded in the research that cities that provide easy access to suitable public transportation and recreational and cultural facilities, increase happiness. Cities that are affordable and also serve as good places to raise children have happier residents. Such places foster the kind of social connections that can improve happiness and ultimately increase the appeal of city life. (Pringle et al, 2018). Happiness may be faced with a number of persons, demographic and contextual factors such as the physical, social, economic and political environment. (Wikantiyoso et al. 2020). Cloutier et al. (2020) found the relationship between happiness with personality traits, heredity, environmental and cultural factors, interpersonal relationships, marriage, social capital, self-

esteem, religious beliefs, kinship factor, economic status, job satisfaction, and recreation and leisure. These elements have been reviewed. Perhaps the most comprehensive social science research on happiness is using a public survey. The seven factors of financial status, family relationships, work, community and friends, health, personal and social freedom affect people's happiness. There is a positive correlation between income and happiness, but it is not simple. However, when the income of the whole society increases over time, happiness does not increase. (Ross et al, 2019). (Table 2)

4. Investigating The Dimensions of The Spatial Structure in A Happy City

The happy city is against zoning, these cities have people who most of them need to walk for five minutes to reach their destination (Mirzaei et al, 2021) and also their houses have yards, these yards are also a place to play. It is their children, and both parents fully supervise the behavior of their children who are playing in the yard or even in the alleys. Using the yard along with gardening is another suggestion that psychology has a positive effect on the lives of the residents (2015, Montgomery).

Table 2. Research-related indicators based on past studies and theoretical foundations

Dimensions	Strategies	Resources
Social	Recreational activities, age, gender, interaction of residents, participation, security, communication with different cultural groups, attention to popular participation and democracy, competence of local government and government associations	(Savageau,2007 ; Ballas,2013 ; Marans & Stimson, 2011 ; Dolan et al., 2008 ; Mackerron & Mourato,2009 ; Argyle & Lu, 1990 ; Amorim et al., 2017 ; Vinson & Ericson, 2014 ; Hsu & Chang,2015 ; Cloutier et al,2018 ; Mantey, 2021)
Economical	Income, employment, growth and trade, quality of the work environment, job security, proportionality of income and expenses, local business, employment aspect, flexibility of working conditions, diversity in land and housing	(Welsch & Kuhling, 2009; Maddison &Rehdanz,2011 ; Gudmundsdottir,2013, Asgarizadeh, 2013; Habibzadeh & Abounoori & Allahviridiyani, 2011; Lane,2017; Cloutier et al,2015)
Physical	Quality of construction, suitable transportation, service, safety, quality of infrastructure and facilities, access to common spaces, foundation and building, urban design planning	(Dolan et al.,2008; welsch,2006; searns,1995; et al.,2004; Diener et al.,2009; Moro et Milligan al., 2008; Engelbrecht, 2009; Vemuri & Costanza, 2021; et al,2021) Praag, 1998; Swain
Environmental	Access to green space, water space (water, soil and air quality), access to natural and open environment, waste management, monitoring and maintenance, sense of belonging	(Gowdy, 2005; welsh,2009; Brereton et al,2008; Frijters &et al,2007; White et al.2013; Easterlin, 2013; king et al.,2014; Cloutier et al,2018; Cloutier et al,2020; Mouratidis et al,2021)

4.1. Investigating the dimensions of the ecosystem in a happy city

The natural elements needed in the happy city include parks, large-scale gardens for all members of the community, strip parks, potted plants as urban furniture and green walls (Montgomery, 2015) to spend a day without worries (Mirzaei et al 2016).

4.2. Investigating the social dimension in a Happy city

In examining the social dimension of a happy city, special attention has been paid to urban public spaces, Chermayov divided the areas of collective life and private life into six categories: public spaces of the city (highways, urban parks), semi-public urban spaces (municipal building), passenger terminals, parking lots), special public spaces, special private spaces (public gardens, storage), family private spaces, individual private spaces (Paralkar et al, 2017). The importance of socialization in a happy city is such that it can be called the concept of life. He pointed between the buildings and considered cities to be places for people to meet each other and do different activities.

4.3. Investigating the visual dimension in a Happy city

In examining the visual dimension of the happy city, attention has been paid to the relationship between the architecture of buildings and urban spaces, the attention to the quality of beauty in cities has been one of the factors emphasized in the happy city (Nourian et al., 2018). Likewise, the rational and regulated use of light in the city creates a kind of nightlife in urban spaces, which makes the city dynamic and lively. In addition to creating security, the use of light can create beauty in the city, this beauty ultimately brings happiness to the citizens, and the happiness created increases the interaction of a person with the environment. These spaces always provide the citizens with a special calm (Gim, 2021).

4.4. Investigating the dimensions of transportation in a Happy city

In terms of transportation in the city of happiness, special emphasis has been placed on pedestrians, bicycles and trams. In order to create living cities, Yan Gol suggests that the more people in a city are attracted to walking, cycling

and being in urban spaces, the city will eventually become livelier (Jafari & Rahimi et al, 2018). The use of the bicycle transportation system has been mentioned as an alternative to the use of a personal car, the reason for emphasizing and recommending the use of this transportation system is that cycling is exciting and joyful based on daily movements (Montgomery, 2013).

4.5. Happiness: The missing link between sustainable development and community well-being

Existing efforts are based on the premise that happiness and sustainable development are positively related. Therefore, a potential definition for sustainable development, as adapted from Weston (1992) and the Brundtland Commission (1987), is a process of change in which investment, technological orientation, resource allocation, and the development and performance of institutions provide an opportunity to achieve. They provide happiness while preserving the opportunity for future generations to achieve their own happiness (Ameli et al, 2015). Although it is often misleading, happiness is something that humans strive for. Therefore, planners, architects, engineers and designers of society should consider happiness as a goal for their designs (Montgamery, 2015). Sustainability is part of the scientific mainstream. In this research, we connect it with the phenomenon of happiness, which is becoming a discussed concept not only among researchers but also among the public (Cloutier et al, 2020). (Table 3.)

Table 3 is a summary of studies that have found a connection between happiness and aspects of sustainability, and in each study, special attention is paid to the discussion of the body and the urban environment. The topics of happiness and sustainable development have both become active research topics, especially in the last decade. Previous studies have shown that the happiness of the residents of the neighborhood is related to the important aspects of the living place and how to maintain these places, and there is a greater relationship between happiness and living places than the variables that have been identified up to now (income, health, social relations). These aspects of the environment also affect social communication. It seems that people's feelings of

belonging to the neighborhood and its conditions affect their level of happiness. Based on the results of the present research, the main goal is to investigate the stability of the neighborhood and urban vitality and determine the specific and special indicators that affect the happy neighborhood in order to achieve happiness, and the factors that play an important role in this pattern are specified below. (Figure. 2)

5. Methodology

In order to achieve the theoretical goals of the research (the role of vitality indicators and sustainable neighborhood frameworks for happiness), a documentary method has been used, after studying the main sources, articles and studies, key indicators were extracted. Field studies were conducted to analyze the physical conditions and architectural typology of residential areas. These field studies are based on the observation of the researcher, these cases include typology of residential architecture and comparative studies following it. In order to check the hypotheses of the research, first through the interviews with 15 researchers and expert architects and urban planners, and then 383 questionnaires were distributed. The statistical population in the context of conducting the questionnaire consists of all managers, deputies and experts of departments and organizations, academic elites and residents of the studied residential areas of Babolsar city. After going through the above steps in order to analyze the information of the main variables under investigation, the degree of influence of each of the factors and variables, which are qualitative variables with the qualitative concepts of "very high, high, medium, low and very low" in the form of a spectrum Likert have been valued (Hafez Nia, 2007). In this regard, in order to convert these valuable concepts into measurable and quantitative concepts, a numerical value was given to each of the concepts. So that, answers with effect including very high value 5, high value answers 4, answers with medium effect value 3, answers with low effect value 2 and answers with very low effect value 1, were given. After that, according to the number of comments regarding each of the variables in the survey

Table 3. Summary of studies on the relationship between aspects of sustainable community development and happiness

Researchers	Design/Notes	Place	Main Conclusion
Vinhoven 1992	Cross-sectional / collection and analysis of several different surveys on quality of life and other indicators of happiness; Controlled for quality of life, income level	countries 66 of the world	Livability (community design) is associated with happiness
O'Brien 2001	Cross-sectional / survey of 6000 elementary students	Ontario, Canada Several	The ability to walk is associated with happiness
Zidansk 2007	A cross-sectional / survey of at least 1000 residents of many countries to compare three measures of happiness with two indicators of sustainability	countries of the European Union and the United Nations	Happiness is associated with sustainable development
Leyden <i>et al.</i> 2011	Cross-sectional/quality of life survey data collected in 10 cities since 2008. Controlled for differences in urban form (e.g., cleanliness, access to transport) and personal characteristics (income, marital status, employment, a sense of connectedness, Health, personal view of the government) residents	New York, London, Paris, Stockholm, Toronto, Milan, Berlin, Seoul, Beijing, Tokyo	The design and conditions of cities are associated with happiness
White <i>et al.</i> 2013	Longitudinal 18 years / survey of 5000 households and 10 thousand adults. Controls for income, employment status, marital status, health, housing type, and local-level variables (e.g., crime rate)	United Kingdom	People are happier when they live in green cities
Cloutier <i>et al.</i> 2014	The relationship between happiness and sustainable development using the Health Road Index (2012), and four city sustainability indicators: Green City Index (2011), Our Green Cities (2012), People's City Ranking of the United States of America (2008). And (2007) sustainable urban ranking of Lin Shahr Sabz	United States	Based on the examination of non-parametric and rank-based relationships, we found a positive relationship between sustainable development and happiness in all scales and a significant statistical correlation for two of the four SD measures.
Paralkar <i>et al.</i> 2016	The Happy Neighborhoods (SNfH) decision-making tool is presented as a prototype for assessing sustainability and happiness at the neighborhood level, in order to empower local stakeholders to make decisions in their community.	United States	According to surveys, measuring stability and happiness at the neighborhood level and creating a strong potential helps to promote and develop a sustainable society.
Cloutier <i>et al.</i> 2018	Describes the need for early development and a new comprehensive research assessment tool for sustainable and happy neighborhoods	United States	Sustainable neighborhood development should promote the pursuit of happiness while rebuilding local economies and ecosystems, strengthening social connections, and reviving or preserving desirable cultural traditions.
Iriarte <i>et al.</i> 2019	It creates an Aggregate Happiness Index (AHI) based on five indicators in use and applied at different levels of governance	Greece	Major gaps have been found in social areas and social support, mental well-being and balance, and a lack of the mental criteria in other areas, including the economic standard of life and health
Yumna <i>et al.</i> 2021	Analysis of the relationship between happiness and sustainability and adopting a psychological approach and reflecting individual perceptions of quality of life and life satisfaction	Data collected from 152 countries	Happiness can lead to more responsible behavior and greater adherence to sustainability considerations

stage (questioning experts and officials), the total quantitative value (weight) of each of the variables was extracted and based on this, their rank and relative weight were calculated.

6. Case Study

Babolsar, one of the coastal cities of Mazandaran province, is located in the north

of Iran, between the Mazandaran Sea and the Alborz Mountain range. According to the census of Iran Statistics Center until the end of 2018, the population of this city was equal to 150,223 people. Fig. 3

The city of Babolsar includes 19 neighborhoods. The largest area of your neighborhood is Bala Bala with an area of 144.3 hectares and the smallest area

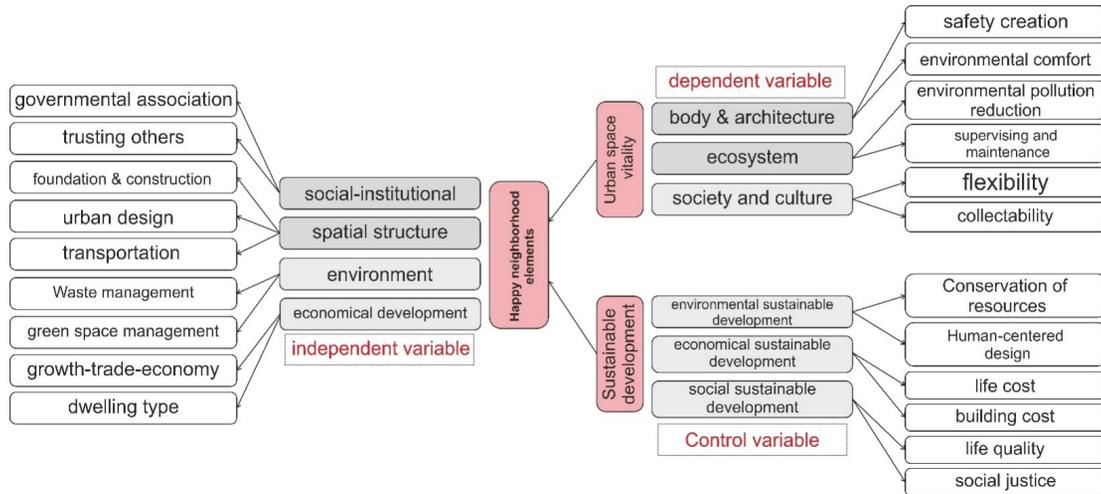


Figure 2. research variables

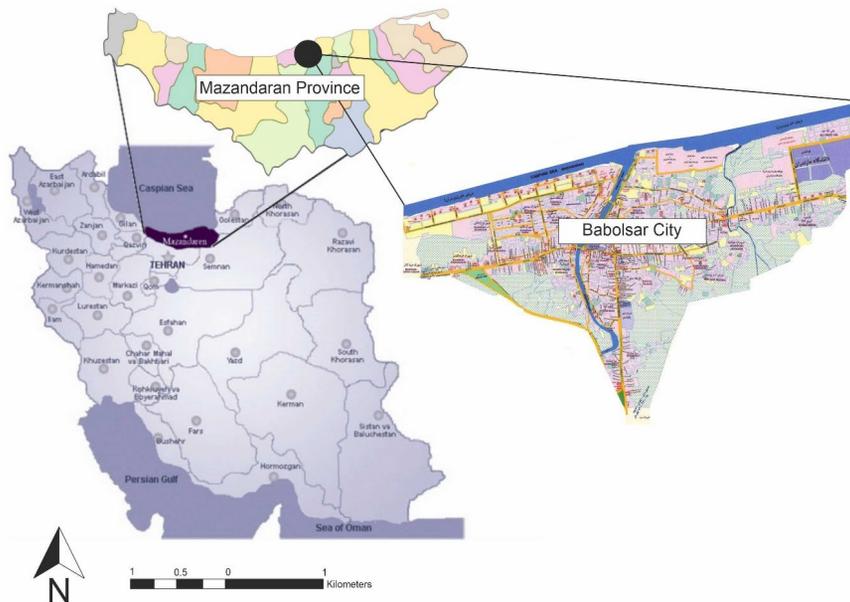


Figure 3. Location of neighborhoods in Babolsar city (Iran Statistics Center, 2016)

relates to Shahrak Ghaem neighborhood, the largest population relates to Hematabad neighborhood with 7331 and the smallest population relates to Parkings neighborhood with 194 people. The results of examining the sustainability levels of development in the neighborhoods of Babolsar city, in terms of composite indicators, show that the sustainability coefficient was different among the neighborhoods of this city. So that, out of a total of sixteen neighborhoods, first Vaziri has ideal stability, but Asr and Jawaheri have strong stability, and the parking lots, your neighborhood and your upper neighborhood are semi-stable (Table 4).

7. Findings

In the age group index, men are older than women. In the education index, men have higher education and also more work experience than women (Table 5, Figure 4, Table 6, Figure 5).

7.1. Model testing:

7.1.1. Direct effects

1) The most significant effect is related to the direct effect of “urban vitality of stable neighborhoods” (0.68), which is significant at the 0.001 level. It shows that with the expansion of vitality indicators in residential areas, the level of sustainability in these areas increases (Table 7).

Table 4. Sustainable neighborhoods, according to past researches

Researcher	Year	Ideal Sustainability	Strong Sustainability	Semi-Sustainable
Shari and <i>et al.</i>	2010	Nokhost vaziri, Vali asr	Javaheri, Your Mahaleh, Your Mahaleh Bala	Parkings
Nikpour and <i>et al.</i>	2017	Nokhost vaziri, Vali asr	Javaheri, Azadeghan Bala	Shahrake Ghaem
Firozjah and <i>et al.</i>	2022	Your Mahale, Your Mahle Bala	Nokhost vaziri, Shohada, Javaheri, Valiasr	Sadat Mahale, Aliabad Mir

Table 5. Frequency and percentage of people in the neighborhood

		Abundance		Percentage	
		Male	Female	Male	Female
Your Mahale Bala	80	47	33	75/57	25/41
Nokhost Vaziri	76	51	25	11/67	89/32
Javaheri	76	39	37	32/51	68/48
Valise	75	41	34	67/54	33/45
Your Mahale	76	44	32	89/57	11/42
Total	383	222	161	96/57	04/42

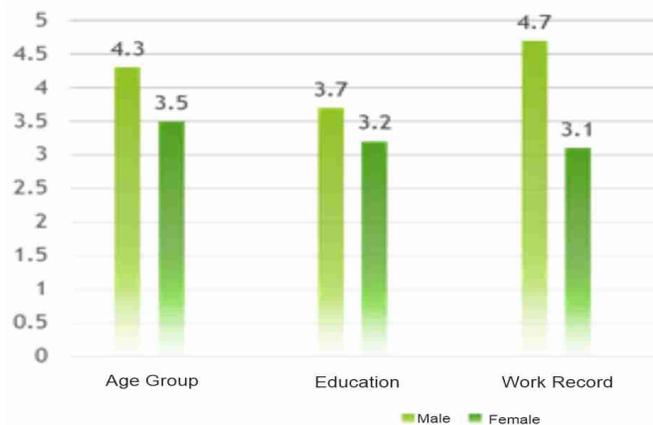


Figure 4. Descriptive statistics

Table 6. The greatest impact on citizens' happiness in descriptive statistics

Statistics	Component	The most impact
Descriptive statistics on respondents' age	With age	Economic components
Descriptive statistics of gender	Male	Economic and environmental component
Descriptive statistics of degree	Female	Environmental component
Descriptive statistics of length of stay	Bachelor's level of education to 10 years and 10 to 15 years 5	Services and institutions
Descriptive statistics of work history	More than 20 years of work experience	Environmental component Management and environmental component

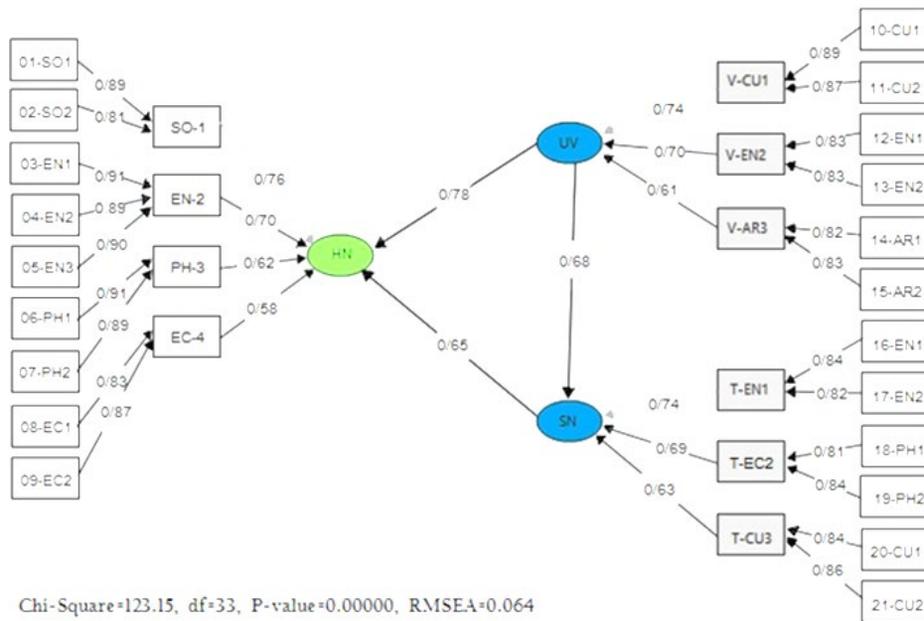


Figure 5. The greatest impact on citizens' happiness in descriptive statistics, examined research model

Table 7. Estimation of coefficients of direct effects

Variables	Path coefficient	(T-value >2) T Test	The significance level
The effect of urban vitality on the stable neighborhood	0/68	7/78	0/001

In the discussion of sustainable development of residential areas, environment (0.74), economic (0.69) and cultural (0.63) variables have the most impact, respectively. In the "Urban Vitality" variable, cultural variables (0.74), ecosystem (0.70), and physical and architectural variables (0.61) have the greatest impact, respectively.

2) According to the table below, the direct effect

of "stable neighborhood" on "happy neighborhood" is significant with the path coefficient (0.65) and at the 0.001 level, which shows that with the increase in the sustainability indicators. In a residential area, the amount of "neighborhood residents' happiness" also increases (Table 8).

It also shows which of the "happy neighborhood dimensions" have the greatest effect on their

local variables, which social dimension (0.79) and economic dimension (0.58), respectively, have the highest and lowest effect on the “happy neighborhood pattern”, and environmental (0.76) and physical (0.62) variables are also ranked second and third in their influence on the happy neighborhood pattern.

7.1.2. Indirect effects

The indirect effect of “urban vitality” on “happy neighborhood” (0.78) was significant at the level of 0.001, which has the highest effect. The mediating role of “urban vitality” is confirmed in “Happy Neighborhood” (Table 9).

7.1.3. Fitting the experimental data with the default or theoretical model of the test. (Table 10).

According to the above criteria and indicators,

the tested model has a good fit with the collected data. Based on this, it can be concluded that the tested theoretical model is valid and also it is valid in the society and the sample used in this research.

7.1.4. The happiness of citizens

There is an inverse relationship between education and the level of happiness, in other words, the lower the education, the higher the level of happiness. According to Spearman’s correlation coefficient, it has been shown that the length of time people live in their neighborhood also relates to happiness. It has a positive and meaningful relationship and there is no relationship between gender, age, job, work history and happiness in this research (Table 11).

Table 8. Estimation of coefficients of direct effects

Variables	Path coefficient	(T-value >2) T Test	The significance level
The effect of stable neighborhood on the happiness of residential areas	0/65	7/78	0/001

Table 9. Estimation of indirect effect coefficients

Variables	Path coefficient	(T-value >2) T Test	The significance level
The effect of urban vitality on the happy neighborhood	0/78	3/96	0/001

Table 10. General fit indices of the tested model

Index	Criteria	Estimate
Square ratio to degrees of freedom (X2/d.f)	Almost less than 3	3/62
Root mean square error estimate (RMSEA)	Less than 0.08	0/064
Goodness of fit index (GFI)	Almost more than 0.90	0/91
Adjusted goodness of fit index (AGFI)	More than 0.80	0/80
Comparative Fit Index (CFI)	More than 0.90	0/93

Table 11. Relationship between demographic variables and happiness to Spearman test

Contextual variables	Spearman's rho	Sig.(2-tailed)	Number	Reject or approve
Sex	0/013	0/79	383	Reject
Age	-0/016	0/75	383	Reject
Education	-0/138	0/007	383	Approve
Job	-0/089	0/08	383	Reject
Work record	-0/102	0/07	383	Reject
Residency duration	0/217	0/001	383	Approve

7.1.5. The relationship between urban vitality and citizen happiness

Among the dimensions of urban vitality under the topic of reducing environmental pollution, there is an inverse and significant relationship with happiness, and there is a direct and meaningful relationship between the rest of the sub-items with happiness. In the meantime, the relationship between social characteristics and happiness has been higher (Table 12).

7.1.6. The relationship between the sustainable development of the neighborhood and the happiness of citizens

Among the dimensions of sustainable neighborhood development, the sub-items cost of living and construction cost have an inverse and significant relationship with happiness, and the next sub-items have a direct and significant relationship with happiness (Table 13).

7.1.7. The connection between a happy neighborhood and the happiness of citizens

There is a direct and meaningful relationship between the dimensions of the happy

neighborhood, except for the sub-item of waste management (inverse and meaningful relationship) with happiness. Meanwhile, the relationship between social indicators and happiness is more (Table 14).

7.1.8. Prioritizing factors affecting happiness in the entropy model

All the factors investigated in this research do not affect happiness in the same way, that's why Shannon's entropy model is used here to determine the weight and importance of each factor on happiness. The factors of happy neighborhood and urban vitality have an equal effect on the happiness of citizens, and the factors of sustainable neighborhood development have less influence than these two factors (Table 15).

7.1.9. Descriptive findings of satisfaction questions and review of the current situation

In the results obtained from the questions related to satisfaction, about 73% of the citizens evaluated the performance of the trustee organizations, the physical, economic and social

Table 12. The relationship between variables of vitality and happiness of people in neighborhoods

Dimensions	Variables	Spearman's rho	Sig.(2-tailed)	Number	Reject or approve
Social	Collectability	0/716	0/000	383	Approve
	Flexibility and adaptability	0/642	0/021	383	Approve
Physical	Safety level	0/739	0/000	383	Approve
	Environmental comfort	0/572	0/000	383	Approve
Ecosystem	Monitoring and maintenance	0/345	0/000	383	Approve
	Reducing environmental pollution	-0/428	0/000	383	Approve

Table 13. The relationship between sustainable neighborhood development variables and people's happiness in neighborhoods

Dimensions	Variables	Spearman's rho	Sig.(2-tailed)	Number	Reject or approve
Sustainable socio-spatial development	Quality of Life	0/310	0/008	383	Approve
	Social justice	0/152	0/000	383	Approve
Sustainable economic development	Cost of Life	-0/351	0/007	383	Approve
	Construction cost	-0/504	0/006	383	Approve
Environmentally sustainable development	Conservation of resources	0/645	0/000	383	Approve
	Human-centered design	0/614	0/017	383	Approve

Table 14. The relationship between the variables of the happy neighborhood and the happiness of people in the neighborhoods

Dimensions	Variables	Spearman's rho	Sig.(2-tailed)	Number	Reject or approve
Social-institutional	Government associations	0/681	0/000	383	Approve
	Trusting others	0/233	0/000	383	Approve
Spatial organization	Foundation and building	0/504	0/000	383	Approve
	Urban Design	0/388	0/000	383	Approve
	Transportation	0/137	0/031	383	Approve
The environment	Waste management	-0/310	0/008	383	Approve
	Green space management	0/673	0/034	383	Approve
Economical	Growth-trade-economy	0/536	0/000	383	Approve
	Housing type	0/479	0/000	383	Approve

Table 15. Prioritization of factors affecting happiness with the entropy model

Happy neighborhood	Sustainable neighborhood development	Urban Vitality
0/238	0/163	0/238

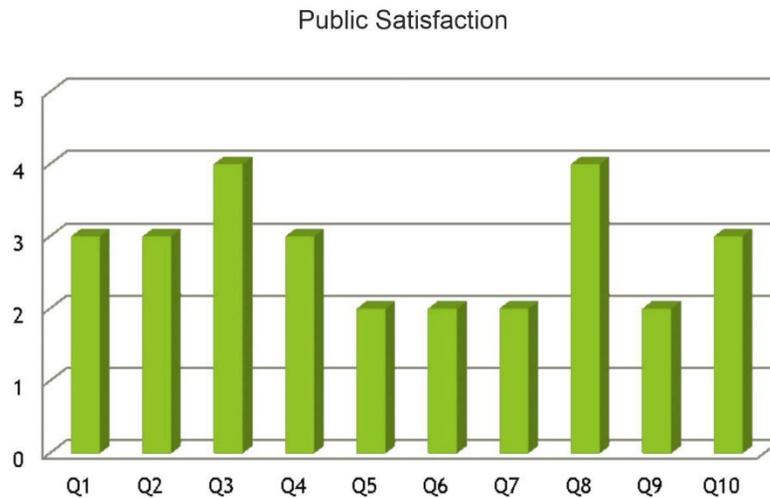


Figure 6. Satisfaction with the current situation

status as average or lower. Four questions have a low score, four questions have an average score, and two questions They got a high score which shows that the level of satisfaction in the studied neighborhoods is not good (Figure 6).

Residents' satisfaction in the areas of municipal/ board of directors' performance, environmental condition (resource protection) of the region, access to green spaces and natural environments

is in an unfavorable condition. Transportation has been average. Realization of the sense of "trust" and the social security situation in the living environment of the residents have been evaluated as relatively favorable, and the residents are satisfied with the spatial diversity (conversation, circulation, shopping and work) in the living environment and local business opportunities for the family members were satisfied.

8. CONCLUSION

Based on the results, the following factors have been observed: collectability, security, protection of resources and human-centered design, management of green space and government associations as important factors obtained from urban vitality, sustainable development of the neighborhood and happy neighborhood in line with the happiness of citizens in the residential areas are studied. More importantly, this study proves that the desired performance of social institutions is a fundamental factor that should be used in residential areas. Among the mentioned components, the indicators of management, environment and economy have the highest value. There is a positive and meaningful relationship between management dimensions and happiness, which is consistent with the results of Moratidis et al. 's work (2021), which shows that proper management and executive management of neighborhoods in terms of physical and environmental dimensions makes residents happy. There is a significant relationship between economic dimensions and happiness, and it is consistent with the results of Sideris et al. (2016) and Ghanbari (2014). Also, according to Layard (2005), there is a positive relationship between income and happiness, and people who work with a secure job are happier than those who are unemployed, which is consistent with the results of the present study. But Lutmer (2005) believed that when people's income is higher, lower happiness is reported, and the work of Helvik (2003) which showed that the improvement of the financial situation has no effect on the level of happiness, which is against the result of this research. There is a positive and significant relationship between environmental dimensions and happiness, and with the result of Ortega et al. (2021) which shows that a suitable environment and city spaces attract population, it is consistent.

8.1. Promoting urban vitality in the direction of a happy neighborhood and citizens' happiness

Urban vitality is one of the main concerns of research because it has a significant impact on other parameters of happiness. The results show that among the indicators of vitality

(collectability, flexibility and adaptability, safety level, environmental comfort, monitoring and maintenance, reduction of environmental pollution), the participants completely agreed with collectability (76%) and the level of safety ranked next. Yes. (64%) Similar to the result of the present study, Kozarin et al. (2018) showed in their article that many researchers have proven collectability and interactions in their research. Therefore, it can be said that the most important criteria for decision-making to improve vitality is improving collectability in neighborhoods.

8.2. Collective interaction

As we know, neighborhoods have public spaces where citizen interactions take place. This space is a place for peaceful coexistence, trading, conversation, sports, etc. The neighborhood, as one of the foundations of social life, must create conditions for creating social interactions in different ways. These platforms include streets, parks, intersections and buildings that enclose them. Regarding the satisfaction of the residents, their level of satisfaction with the communal spaces is relatively favorable and has been evaluated at an average level. In addition, in the results obtained from the questionnaire, collectability is the component that has the most value in the discussion of vitality according to the respondents. Therefore, in order to make the current situation more favorable, the following points are proposed:

Holding cultural-artistic or sports events (concerts and firework shows) to gather citizens and to participate in these events and attract public participation, so that, they consider themselves part of that event and not mere spectators!

The presence of special places such as cultural centers, indoor places for friendly meetings and collective intellectual activities such as playing bingo for the elderly or children is effective, which currently does not exist in the study area (through the observation of the researcher).

8.3. Safety

One of the most important factors in creating happiness and social welfare is the sense of security that people need in a living environment.

Regarding the satisfaction of the residents, their level of satisfaction with the safety level is relatively favorable and has been evaluated at an average level. Also, in the results obtained from the questionnaire, the level of safety is a component that has an effective influence in the discussion of vitality in the opinion of the respondents. Therefore, in order to make the current situation more favorable, the following points are proposed:

Access control and their limitation, physical change or modification, mechanical (lighting and camera, etc.) and natural (holes, windows, and natural barriers) surveillance, creating security kiosks, organizing public transportation, lighting and how lighting at night, creating shops and shopping centers in the neighborhoods, widening the passages and sidewalks, and turning the streams into underground channels are among the measures that can be taken to improve the physical body of the neighborhood to strengthen and improve the sense of security.

The active and continuous presence of the police force and the police, the presence of people and public supervision, the improvement of the cultural level of the community and the strengthening of the social fabric are among other issues that strengthen social security and ultimately the feeling of participation and social interaction, the feeling of peace and freedom of movement and safety. They create the environment.

8.4. Distinguishing the urban vitality of residential areas with factors affecting the sustainable development of the neighborhood

According to the previous research from the literature on the sustainable development of the neighborhood, it has a favorable performance in the happiness of the citizens. According to the results of the questionnaire, the participants significantly (89%) agreed with the parameter of protecting resources and environment in temperate and humid climate and providing "protection" of green spaces and increasing greenness in residential neighborhoods. Also, in relation to human-centered design, the evaluation of people has a high level (76%). This result has been confirmed by researchers

before. Cloutier et al. (2020) considers the protection and monitoring of resources and the environment as one of the best measures for the sustainable development of the neighborhood in the direction of happiness.

8.5. Conservation of resources

Preservation, restoration, development and optimal exploitation of resources such as forests, natural groves, coastal lands and protection of the country's water and soil are essential in the direction of sustainable development. In sustainable development, the principle is to protect resources in such a way that future generations can benefit from it at least as much as the current generation. Regarding the satisfaction of the residents, their level of satisfaction with preserving the natural resources and environments of their place of residence is not favorable and has been evaluated at a lower level. Also, in the results obtained from the questionnaire in the field of sustainable development, the protection of resources is a component that has an effective impact in the opinion of the respondents. Therefore, in order to make the current situation more favorable, the following points are proposed:

In terms of natural resources, the studied area has a wide biodiversity, which is a platform for biological security, prosperity and economic development of the region, as well as a support for sustainable production, therefore, wise management and sustainable exploitation of these valuable resources is necessary. Since the first step to achieve wise management is to know its components and mechanism, therefore, the role of scientific and practical processes is necessary to improve this knowledge and expand implementation solutions regarding the preservation of these resources. Holding training courses for managers of organizations and companies, people and officials related to regional resources (from the lowest level to the highest level), interacting with agricultural research centers, paying attention to economic efficiency, employing expert and skilled managers, reviewing relevant laws, design and application of local standards. It is one of the effective measures to protect resources.

8.6. Human-centered design

Anthropocentrism is something in which humans have a central role, in other words, it is anything in which humans and humanity are the main core. In terms of residents' satisfaction, their level of satisfaction with the human-centeredness of their place of residence in the fields of living and physical environment is favorable and has been evaluated at an average to high level. Also, in the results obtained from the questionnaire in the field of sustainable development, human-centered design is a component that has an effective impact on the respondents. Therefore, in order to make the current situation more favorable, the following points are proposed: strengthening human-centered views instead of body-centered in the development of neighborhoods and special attention to sustainable physical development, regeneration through the reconstruction of neighborhood centers and improved and quality design for them, as well as regeneration in the aspect of transportation, system clear movement signs (for drivers and pedestrians) and marking of key sections with suitable visual signs, regeneration in the social dimension by improving and improving the status of education and health services are effective solutions in relation to human-centered design.

8.7. Factors affecting the patterns of happy neighborhood

According to the main purpose of the research and the desired parameters extracted from the research literature, governmental associations and green space management have been given more attention, the participants also gave the most value to the options of governmental associations and green space management in their answers with similar percentages (64%). As many researchers mentioned this point in their research and were in complete agreement with it, such as Moratidis et al. (2021) who emphasize the use of these features in their article.

8.8. Government associations

In the political and geographical literature, the administration of affairs in urban areas by elected people of the same areas is called "Government Associations". The direction of movement of institutions and associations is towards devolution

of powers to regions, central neighborhoods and also decentralization. But at the micro (neighborhood) level, most of them have local governments with different levels of efficiency. In the discussion of residents' satisfaction, their level of satisfaction with governmental associations is not favorable and has been evaluated at a low level, and in the results obtained from the questionnaire, governmental associations are the component that has been assigned the highest value according to the respondents. In order to improve the current situation, the following points are proposed:

Attracting public participation to manage neighborhood affairs and supporting local councils and public institutions with a neighborhood-centric approach in the direction of sustainable development is one of the solutions that will lead the neighborhood to the happiness of the residents. It is from the overlap of the functions of the organs at two structural and process levels and strengthening the appropriate platforms for the creation of non-governmental organizations and non-governmental organizations as an effective and effective mechanism to attract people's participation; strengthening comprehensiveness, flexibility and dynamism of local plans through aggregating needs and comprehensively looking at the development of the happy neighborhood based on opportunities with the participation of citizens in it, is among other things. Moreover, the preparation of special plans for the revival of native architecture in the studied neighborhoods and the modification of the structure of the executive and supervisory organizations in the management of the neighborhoods, looking at the definition of the management structure based on the happiness of the citizens, are factors that can help government associations at the neighborhood scale in Help the residents to be happy.

8.9. Increasing greenness is the commonality between sustainable development and happy neighborhood

The index of green space and the increase of greenness in the field of sustainable neighborhood development and happy neighborhood criteria have attracted the attention of people. The positive effect of neighborhood and access to green spaces

on the happiness of the residents has been confirmed by Cloutier et al. (2020), who point to the regeneration of the environment through the promotion of green spaces and environmental measures, and believe that neighborhoods should be created by creating whatever more green spaces, parks and planting as many trees and shrubs in the streets make this possible. In the section related to descriptive statistics, the greatest impact was related to environmental components. Besides, in the question related to satisfaction about green spaces, it was shown that the studied area is not in a good condition and the residents' satisfaction is evaluated at a lower level. And in the results obtained from the questionnaire, greenness is the component that has the most value according to the respondents in the field of sustainable development and happy neighborhood, and the following points are proposed to improve the current situation:

The first step for the implementation of green space sustainable development plans (after investigating water resources) is to know the morphological, physical, chemical and biological limitations and capabilities of the soil. For the sustainable development of green space, use the local standards and the number and structure of the population. Neighborhoods are important in the distribution and the extent of urban green spaces. Development of appropriate infrastructure to improve the quality of life of citizens and increase the quality of urban green space so that the increase in quality is not temporary and is implemented in a sustainable manner (such as a suitable irrigation system, implementation of native architectural designs compatible with the environment). Creating departments in some organizations to deal with issues related to green space development plans, information system (which can be done by relevant organizations or even local associations), a partnership between the private and public sectors, citizen participation in the development of green space (attracting citizens' participation in various matters of the neighborhood, including in the development of green space, leads to dynamism and vitality, maintaining the added value of activities in the region and for local people, preventing migration, and ultimately seeks greater satisfaction and happiness of citizens).

8.10. Limitations

- 1) The results of the current research are only based on a single region in a country. Because culture is an important factor influencing the findings, the results cannot be generalized to the entire world. It is possible that the results of this research in a similar climate in another region with a different culture may not have results similar to these research findings.
- 2) The second limitation is the possibility of including variables that are not considered in the model (for example, specific characteristics of the unique industry and technology that can affect the happiness of citizens).
- 3) Third, in each region, there is a specific goal and thinking to pursue people's happiness. In this case, it is necessary to find the main goals of the pursuit of happiness for that area.
- 4) In this research, elderly people did not want to answer the questionnaire.
- 5) Happiness has not yet penetrated many professional fields, especially engineering.

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