

Original Research Article

Promoting Neighborhood Satisfaction and Loyalty through Livability Indicators (Case study: Central Neighborhoods Adjacent to the Historic Shahrood Bazaar)

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Abstract

Problem statement: In recent years, the central and historical areas of cities have faced challenges, including physical deterioration, declining environmental quality, reduced livability, and the gradual departure of residents. These conditions have highlighted the need to understand residents' perceptions of neighborhood livability and examine their effects on residential satisfaction and neighborhood loyalty to support sustainable urban regeneration.

Research objective: The aim of this study is to investigate residents' perceptions of livability in Shahrood's central neighborhoods, explain its effects on residential satisfaction and neighborhood loyalty, identify environmental improvement priorities, and examine the mediating role of residential satisfaction in strengthening residents' loyalty.

Research method: The study combined Importance–Performance Analysis (IPA) and Structural Equation Modeling (SEM). Data were collected through a researcher-made five-point Likert questionnaire from 384 residents of central neighborhoods surrounding the historic bazaar of Shahrood. IPA identified intervention priorities, while SEM tested the direct and indirect relationships among perceived importance, perceived performance, residential satisfaction, and neighborhood loyalty.

Conclusion: The results showed that, despite performance deficiencies in some livability dimensions, especially social aspects, spatial quality, and the built environment, residents' loyalty exceeded residential satisfaction, indicating strong emotional and social ties. Perceived livability performance had a significant direct effect on residential satisfaction ($\beta = 0.56$), while residential satisfaction strengthened the relationship between perceived performance and neighborhood loyalty ($\beta = 0.89$). IPA identified security against crime, social cohesion and participation, street lighting, safety for women and children, and visual appeal of building facades as the highest intervention priorities. Overall, the findings emphasize human-centered environmental and social interventions to enhance satisfaction, strengthen loyalty, increase residential stability, and support sustainable regeneration of central neighborhoods.

Keywords: *Neighborhood livability, satisfaction, loyalty, Shahrood city, importance-performance analysis*

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Introduction and Problem Statement

The central fabric of Iranian cities, especially neighborhoods adjacent to historical markets, as the identity-giving centers of social interactions and economic-cultural activities, has faced serious challenges of livability in recent decades, such as physical deterioration, reduced environmental quality, traffic and accessibility issues, social insecurity, and the gradual departure of original residents. Despite the inextricable link between the historical market of Shahrood and the surrounding residential neighborhoods, the increasing development of commercial-service functions and neglect of residential needs have caused instability and reduced satisfaction of residents in these neighborhoods, and the change of use of residential houses to warehouses or commercial stores around the market (abandoning the place of residence and the desire to invest in other neighborhoods) is one of its objective results. Residents' satisfaction and loyalty are considered the main factors in maintaining the life and socio-economic sustainability of these valuable contexts (Besen et al., 2026; Zhong et al., 2026). When residents of a place, as a result of satisfaction and loyalty, promote that place and recommend it to others, it will have a much greater impact than incentive policies in the form of regeneration plans, and in this way, it will play a significant role in reducing the phenomenon of urban shrinkage and decline (Dunstan, 2007) and preventing the development of new neighborhoods or the waste of urban resources and infrastructure (Slingerland et al., 2023). It seems that many of the programs and interventions implemented in these neighborhoods have been carried out without considering the perceived priorities of residents and the mismatch between the subjective "importance" of livability indicators and the actual "performance" of the environment, and this gap between what residents consider important and what they actually receive has not only reduced their satisfaction, but also weakened their loyalty to the place and their desire to stay in the neighborhood (Mantey, 2021; Salaripour et al., 2021). According to previous studies, improving the

environment and promoting livability in degraded areas are fundamental to urban sustainability and urban regeneration (Dunstan, 2007; Lee, 2021). Therefore, the disregard for residents' perceptual priorities and the mismatch between the subjective "importance" of livability indicators and the actual "performance" of the environment and its impact on reducing satisfaction and loyalty to the neighborhood are the issues of the present study, which was conducted with the aim of identifying intervention priorities and led to the formulation of the following questions:

- Which of the livability indicators in the neighborhoods adjacent to the Shahrood historical market is of high importance from the residents' perspective, and is its current performance far from the importance expressed for it?
- In the neighborhoods adjacent to the Shahrood historical market, what is the relationship between the variables "perceived importance of livability indicators", "perceived performance of livability indicators", and "satisfaction" and "loyalty" of residents to the neighborhood?

This study used the Importance-Performance Analysis (IPA) matrix to examine the gap between perceived importance and performance. By prioritizing urban development criteria using IPA, the importance of a criterion can be identified in the minds of residents, and its performance can be assessed by residents (Lee et al., 2021); in this way, the provision, allocation of credit, and project definition can be made to address existing deficiencies. This can lead to reduced time and capital waste and to improved public participation and attention to public expectations and demands in changes and interventions in urban neighborhoods (Alikomak et al., 2024; Pasanen et al., 2024). According to previous studies, awareness of the subjective aspect of livability can clarify the situation beyond objective indicators and enable planners and policymakers to identify factors affecting resident satisfaction and what residents really need (Leby & Hashim, 2010).

Research Background

The research problem raised two issues: 1) the mismatch between the subjective “importance” of livability indicators and the actual “performance” of the environment, and 2) the impact of perceived importance and performance on satisfaction and loyalty to the neighborhood. Regarding the first issue, a review of the research background on livability in urban studies shows that it has been examined across various dimensions to date. In some studies, objective aspects of neighborhood livability such as housing quality, access to services, and safety have been considered (Stimson & Marans, 2011; Ahmed et al., 2019). In some studies, the perceptual aspects of indicator performance have also been considered (Norouzian-Maleki et al., 2015; Mouratidis, 2018; Pasanen et al., 2024). Looking at the scope of research conducted, although the objective and subjective dimensions of livability have been considered in various studies, the simultaneous examination of the perceived importance of indicators and the subjective evaluation of their performance has received less attention. It should be noted that attention should be paid to the importance of indicators (Okulicz-Kozaryn, 2013) as well as to the role of cultural and social contexts in residents’ subjective prioritization (Dunstan, 2007; Norouzian-Maleki et al., 2015; Campomanes V et al., 2026). In addition to differences in the importance of indicators across neighborhoods (Nasreldin et al., 2017; Mouratidis, 2018; Elmahdy et al., 2021; Tolfo & Doucet, 2022), this underscores the need to consider indicator importance alongside performance evaluation. Regarding the second issue, two general cases for “satisfaction” and “loyalty” can be examined. On the one hand, the examination is carried out as a general term “satisfaction and loyalty” in the marketing literature. Even though, in recent years, in the field of urban studies, some research has focused on examining various factors in the subject of “satisfaction and loyalty” to places (Plunkett et al., 2019; Ochoa Rico et al., 2022; Bose et al., 2023; Hou et al., 2026; Suhartanto et al., 2025), the impact of neighborhood

livability has not been given much attention. On the other hand, the examination of the background is carried out as two separate concepts and terms: “satisfaction” and “loyalty”. In the second case, a review of the literature shows that in some studies, the effect of neighborhood livability on residents’ satisfaction has been examined (Zhan et al., 2018; Mouratidis & Delclòs-Alió, 2026; Petrovic et al., 2026; Purwanto, 2026) and in some studies, the effect of neighborhood livability on residents’ loyalty to the neighborhood has been examined with similar literature (Fu et al., 2024; Olanrewaju et al., 2024; Li & Managi, 2025); also, in some studies, the effect of satisfaction with the place on the perception of the place and loyalty to it has been confirmed (Zenker & Petersen, 2014; Lee & Xue, 2020; Ochoa Rico et al., 2022). However, a look at the history of the subject shows that examining the three variables simultaneously has not received much attention in research. Considering the aforementioned input, in the present study, considering the variable “perceived importance” as an independent construct and explaining its relationship with perceived performance, as well as explaining the relationship between the variables of perceived importance and perceived performance with “satisfaction and loyalty” is a new and innovative aspect of the present study.

Theoretical Foundations

• “Neighborhood livability” and “satisfaction and loyalty” to it

Livability: In response to the excessive development of cities, urban decay and decline (Iyanda et al., 2018; Ahmed et al., 2019), and pressure on the limited space and resources of the urban environment (Sheikh & van Ameijde, 2022), the concept of urban livability has been proposed. With increasing urbanization and global concerns about sustainability and climate change, attention to the quality of local life and the design of livable neighborhoods has become a global priority (Sultana & Asad, 2021; Kourtiti et al., 2022; Mouratidis & Yiannakou, 2022). Livability refers to a place’s ability to meet the basic needs of

its inhabitants and to provide favorable conditions for living, working, social interaction, and personal growth (Hedayatnezhad Kashi et al., 2025; Rakhshaninasab & Salari, 2025). In other words, livable neighborhoods are communities with relatively high population densities that offer balanced, satisfying living conditions for their inhabitants (Tennakoon & Kulatunga, 2019). Livability reflects the quality of the person-environment relationship; how well the built environment or services available in a city meet the needs and expectations of residents (Kovacs-Györi et al., 2019). Livability is a measure of the objective quality of life and residents' satisfaction (Okulicz-Kozaryn, 2013; Badland et al., 2014). In some studies, the importance of neighborhood livability in achieving sustainability (Gough, 2015; Ahmed et al., 2019) and neighborhood resilience (Zyari & Hosseini, 2016) has been considered.

Livability and Satisfaction: Creating a livable environment is the beginning of satisfaction, and satisfaction is the cycle of space-to-place transformation; an event in which the role of the environment in creating a high-quality self-image leads to the formation of a deep emotional relationship between a person and a place. In urban studies, a place's strong livability can help distinguish it in the eyes of its residents. People who live in livable neighborhoods tend to be happier (Okulicz-Kozaryn, 2013). Neighborhood satisfaction is an important predictor of mental health, life satisfaction, perceived safety, and intention to move (Grogan-Kaylor et al., 2006). Neighborhoods that fail to adequately meet residents' perceived needs are prone to outmigration to areas that better meet these needs (Chapman & Lombard, 2006). Neighborhood satisfaction is not only an element of a socially sustainable neighborhood but also an intrinsic component of quality of life (reflected in life satisfaction), which is determined by both the opportunities created by the built environment and individual assessments of what is essential in life (Mantey, 2021). Neighborhood satisfaction and neighborhood happiness are key indicators of urban

livability and predictors of subjective well-being (Mouratidis & Delclòs-Alió, 2026).

Satisfaction and loyalty: When residents are satisfied with a place, they are more likely to be loyal to it (Babalola, 2022). In the business literature, satisfaction is also a prerequisite for loyalty, and it results from a mental process in which the perceived performance of a product or service is compared with standards (Deng & Pierskalla, 2018). Satisfaction is considered a short-term goal, while loyalty is a long-term goal that includes continued purchases, recommendations to others, and sustained preference for a brand (Oliver, 1999; Haumann et al., 2014; Babalola, 2022), and in it, loyalty can be examined at three levels: attitudinal (expression of interest), behavioral intention (intention to revisit and positive recommendation), and actual behavior (number of visits and purchases) (Tanford, 2016). In urban studies, residents' willingness to recommend a place and their readiness to promote a place by sharing positive and engaging descriptions of it with others (Tsaor et al., 2019), participation and volunteering for its development, and willingness to invest extensively are among the factors that have been emphasized in place loyalty. Social and environmental psychology research has shown that residents' identification with a place leads to several desirable outcomes, such as increased commitment and satisfaction with residence (Zenker & Petersen, 2014).

• Conclusion and formulation of hypotheses

In view of the theoretical foundations presented, in response to excessive urban development and neighborhood deterioration, livability, as a platform for meeting residents' needs, provides a basis for satisfaction. Satisfaction also leads to attachment and loyalty to the place through positive emotional responses to the environment, including permanence, positive recommendations, participation, and investment in the neighborhood. Considering the variables of "perceived importance of livability indicators", "perceived performance of livability indicators", "satisfaction", and "loyalty", in the

research sample, the research hypotheses are stated as follows:

- **(H1):** In the case study, it seems that some livability indicators are more important from the residents' perspective, and the current performance is far from the residents' expected importance (importance-performance gap).

- **(H2):** It seems that there is a significant relationship between the variables "perceived importance", "perceived performance of livability indicators", "satisfaction", and "loyalty" to the neighborhood. Perceived importance affects perceptions of performance, and satisfaction mediates the relationship between performance and loyalty. Performance also serves as a mediating factor between importance and satisfaction.

Research Method

• Development of research metrics

In livability studies, some studies have emphasized "public services and neighborhood structures" as an important factor in livability and have introduced safety and socio-economic dynamism as important factors in realizing a livable city (Tapsuwan et al., 2018; Alikomak et al., 2024; Magnuszewski et al., 2025; Tennakoon et al., 2025). Some studies have focused on the "quality of the physical environment" (Raman, 2010; Satu & Chiu, 2017; Mouratidis, 2018; Guturu & Schwai, 2022). In some studies, "spatial qualities" have been considered (Kourtiti et al., 2022; Mouratidis & Yiannakou, 2022). Some studies have also been conducted focusing on different dimensions of "social components" (Slingerland et al., 2023; McClanahan et al., 2024; Pasanen et al., 2024; Zhong et al., 2026; J. Kim & Ware, 2026; Besen et al., 2026; Istrate et al., 2026). Considering the studies conducted, the components and indicators of livability in the four areas of "facilities and infrastructure", "built environment", "spatial qualities", and "social relations and neighborhood" can be presented, along with the indicators of satisfaction and loyalty components according to Table 1.

• Case study and reasons for its selection

According to Fig. 1, Shahrood is the center of Shahrood County and is located in Semnan Province; it lies between two types of climates: dry and desert in the south and humid and rainy in the north. According to the 2005 census, its population was 132,379. This city is located on the northern edge of the desert plain and the southern slopes of the Alborz Mountains. The area under study is also located in the central part of Shahrood City, and part of the city's initial core was formed there; subsequent development occurred in the 1950s and 1960s. Due to its historical background and commercial prosperity, the area under study has a special place. The presence of old buildings and textures has given this area a distinct cultural identity, and economic activities and local markets have made it one of the most prosperous urban centers. Historical monuments in this area include the bazaar, the Qale mosque and school, the Sheik Ali Akbar Mosque, the Tekye Saadat, the Haj Taghi bathhouse, and the Qale school reservoir. According to the Shahrood master plan, this area is in District 1 of the municipality, including neighborhoods 3 and 4. This area includes parts of the Shabdari and Qale Vali Abad neighborhoods (Tarh Memari Mohit Consulting Engineers, 2019). The study area is surrounded by 22 Bahman Street, Tehran, 15 Khordad Street, 17 Shahrivar Street, and Shahid Madani Street. Shabdari Street and Mazar Pedestrian Walk are the two main streets of this area, which, as important and busy urban axes, play a significant role in the neighborhood's physical and functional organization. The reasons for selecting the case study include:

- The study area is facing the departure of old residents from the area, and the houses are being converted into warehouses for commercial spaces,
- The existence of obvious challenges in reducing the quality of livability, such as physical deterioration, social insecurity, traffic problems, and access, and the reduction in the quality of the environment and public spaces,
- The possibility of generalizing the results due to

Table 1. Explanation of research metrics. Source: Authors.

	Indicator	Key References	Code
Public Services and Infrastructure	Access to public infrastructure (water supply, electricity, gas, sewage, etc.)	Saitluanga (2014), Norouzian-Maleki et al. (2015), Tennakoon & Kulatunga (2019), Lee et al. (2021), Nath & Karutz (2021), Sultana & Asad (2021)	I1
	Access to public services (healthcare, educational, cultural facilities, etc.)	Saitluanga (2014), Norouzian-Maleki et al. (2015), Mouratidis (2018), Tennakoon & Kulatunga (2019), Lee (2021), Lee et al. (2021)	I2
	Road and street safety	Chapman & Lombard (2006), Dunstan (2007), Saitluanga (2014), Norouzian-Maleki et al. (2015), Lee et al. (2021), Sultana & Asad (2021), Baobeid et al. (2021), Chan & Li (2022), Pasanen et al. (2024)	I3
	Quality of public transportation	Clark et al. (2013), Dunstan (2007), Norouzian-Maleki et al. (2015), Lee et al. (2021), Sultana & Asad (2021), Ochoa Rico et al. (2022), Pasanen et al. (2024)	I4
	Access to major road networks	Dunstan (2007), Pasanen et al. (2024)	I5
	Cleanliness and sanitation	Dunstan (2007), Lee et al. (2021), Nath & Karutz (2021), Sultana & Asad (2021), Ochoa Rico et al. (2022), Pasanen et al. (2024)	I6
	Availability and quality of green and recreational spaces	Dunstan (2007), Lee et al. (2021), Sultana & Asad (2021), Ochoa Rico et al. (2022)	I7
	Quality of sidewalks and pedestrian pavements	Dunstan (2007), Saitluanga (2014), Norouzian-Maleki et al. (2015), Ochoa Rico et al. (2022), Sultana & Asad (2021)	I8
	Traffic volume and vehicle speed	Norouzian-Maleki et al. (2015), Ochoa Rico et al. (2022), Sheikh & van Ameijde (2022)	I9
	Energy efficiency	Khorasani & Rezvani (2013), Radaei et al. (2020), Ommati et al. (2022)	I10
Neighborhood Livability	Satisfaction with housing conditions (ownership, views, spatial quality, etc.)	Dunstan (2007), Pasanen et al. (2024)	B1
	Quality of public green spaces	Dunstan (2007), Pasanen et al. (2024)	B2
	Availability of neighborhood resting spaces	Dunstan (2007), Saitluanga (2014), Satu & Chiu (2017), Pasanen et al. (2024)	B3
	Urban furniture	Taleshi Anbohi et al. (2019), Manuchehri et al. (2020), Dolatshah (2023)	B4
	Disaster safety and preparedness	Lee (2021), Sheikh & van Ameijde (2022)	B5
	Visual attractiveness of building façades	Sahachaisaeree (2012), Norouzian-Maleki et al. (2015), Lee et al. (2017), Prompayuk & Sheikh & van Ameijde (2022)	B6
	Physical quality of housing	Basolo & Strong (2002), Saitluanga (2014), Satu & Chiu (2017), Lee et al. (2021), Nath & Karutz (2021), Pasanen et al. (2024)	B7
	Conservation of historic buildings and heritage sites	Norouzian-Maleki et al. (2015), Lee et al. (2021), Sheikh & van Ameijde (2022)	B8
	Access to daily shopping facilities	Saitluanga (2014), Lee et al. (2021), Sultana & Asad (2021), Sheikh & van Ameijde (2022)	B9
	Absence of noise pollution	Mouratidis (2020b), Sultana & Asad (2021), Ochoa Rico et al. (2022), Pasanen et al. (2024)	S1
Spatial Quality	Air quality and pollution control	Lee et al. (2021), Sultana & Asad (2021), Ochoa Rico et al. (2022)	S2
	Spatial hierarchy (public-private transition)	Dunstan (2007), Raman (2010), Norouzian-Maleki et al. (2015), Mohrekesh et al. (2019)	S3
	Legibility and wayfinding	Raman (2010), Norouzian-Maleki et al. (2015), Ochoa Rico et al. (2022), Sheikh & van Ameijde (2022)	S4
	Quality of the street network	Norouzian-Maleki et al. (2015)	S5
	Safety of women and children	Khorasani & Rezvani (2013), Taleshi Anbohi et al. (2019)	S6
	Adequate natural lighting and ventilation	Zyari & Hosseini (2016), Mohrekesh et al. (2019), Veysi nab et al. (2023)	S7
	Appropriate enclosure and spatial proportions	Prompayuk & Sahachaisaeree (2012), Norouzian-Maleki et al. (2015), Sheikh & van Ameijde (2022)	S8
	Protection of natural landscapes and environmental assets	Dunstan (2007), Clark et al. (2013), Norouzian-Maleki et al. (2015), Lee (2021), Lee et al. (2021), Pasanen et al. (2024)	S9

Rest of Table 1.

	Indicator	Key References	Code
Neighborhood Livability	Safety from crime and urban violence	Dunstan (2007), Grogan-Kaylor et al. (2006), Lee (2021), Lee et al. (2017), Saitluanga (2014), Satu & Chiu (2017), Sultana & Asad (2021)	N1
	Social cohesion	Basolo & Strong (2002), Grogan-Kaylor et al. (2006), Saitluanga (2014), Norouzian-Maleki et al. (2015), Lee et al. (2017), Mouratidis (2020b), Lee (2021), Nath & Karutz (2021)	N2
	Community participation and influence	Grogan-Kaylor et al. (2006), Dunstan (2007), Saitluanga (2014), Pasanen et al. (2024), Alikomak et al. (2024)	N3
	Access to social opportunities	Dunstan (2007), Norouzian-Maleki et al. (2015), Saitluanga (2014), Satu & Chiu (2017), Pasanen et al. (2024)	N4
	Informal social surveillance	Grogan-Kaylor et al. (2006), Sheikh & van Ameijde (2022)	N5
	Social trust	Grogan-Kaylor et al. (2006), Saitluanga (2014), Sheikh & van Ameijde (2022)	N6
	Opportunities for religious practices	Saitluanga (2014), Tennakoon & Kulatunga (2019)	N7
	Control of social overcrowding	Saitluanga (2014), Lee et al. (2021)	N8
	Neighborhood reputation and social image	Tennakoon & Kulatunga (2019), Mouratidis (2020b)	N9
	Accessibility for people with disabilities	Mohrekesht et al. (2019), Taleshi Anbohi et al. (2019), Veysi nab et al. (2023)	N10
	Security of property ownership	Nath & Karutz (2021), Babalola (2022)	N11
Residential Satisfaction	Overall satisfaction with the neighborhood	Lee et al. (2021), Chan & Li (2022), Ochoa Rico et al. (2022)	R1
	Strong willingness to continue living in the neighborhood	Lee et al. (2021), Chan & Li (2022)	R2
	Positive emotional attachment to the neighborhood	Mouratidis (2020a, 2020b)	R3
	Low intention to relocate to another neighborhood	Chapman & Lombard (2006), Chan & Li (2022)	R4
	Positive overall evaluation of the neighborhood	Tsaur et al. (2019), Chan & Li (2022)	R5
Neighborhood Loyalty	Willingness to recommend the neighborhood as a place to live		L1
	Encouraging relatives and friends to live in the neighborhood	Tsaur et al. (2019), Lee et al. (2021), Ochoa Rico et al. (2022)	L2
	Preference for this neighborhood over other neighborhoods		L3
	Intention to continue living in the neighborhood in the future	Comstock et al. (2010), Lee et al. (2021)	L4
	Willingness to invest in the neighborhood	Comstock et al. (2010), Weaver & Lawton (2011)	L5

the similarity of the present model with the model of the central neighborhoods of most historical cities in Iran,

- The existence of economic and social diversity and the possibility of benefiting from a variety of perspectives,
- The inextricable link between the market and neighboring neighborhoods, and the possibility of developing intervention strategies to preserve and continue this identity.

• Field study and analysis methodology

In this study, livability indicators were designed as a researcher-developed questionnaire with a Likert scale that measures both the “perceived importance” and the “actual performance” of the indicators from

the perspective of residents. Based on statistical data from Shahrood, the study area’s population is approximately 4,800. The minimum sample size was determined to be 384 people, based on a 95% confidence interval, an estimated variance of 50%, and a margin of error of 5%. The questionnaire was distributed using a two-stage cluster sampling method in neighborhoods adjacent to Shahrood Bazaar. The sampling was designed to select a minimum number of participants from each alley to achieve maximum coverage of people living in the neighborhood; however, due to practical and accessibility constraints, only available participants from each alley participated in the study. The research team clarified the questions

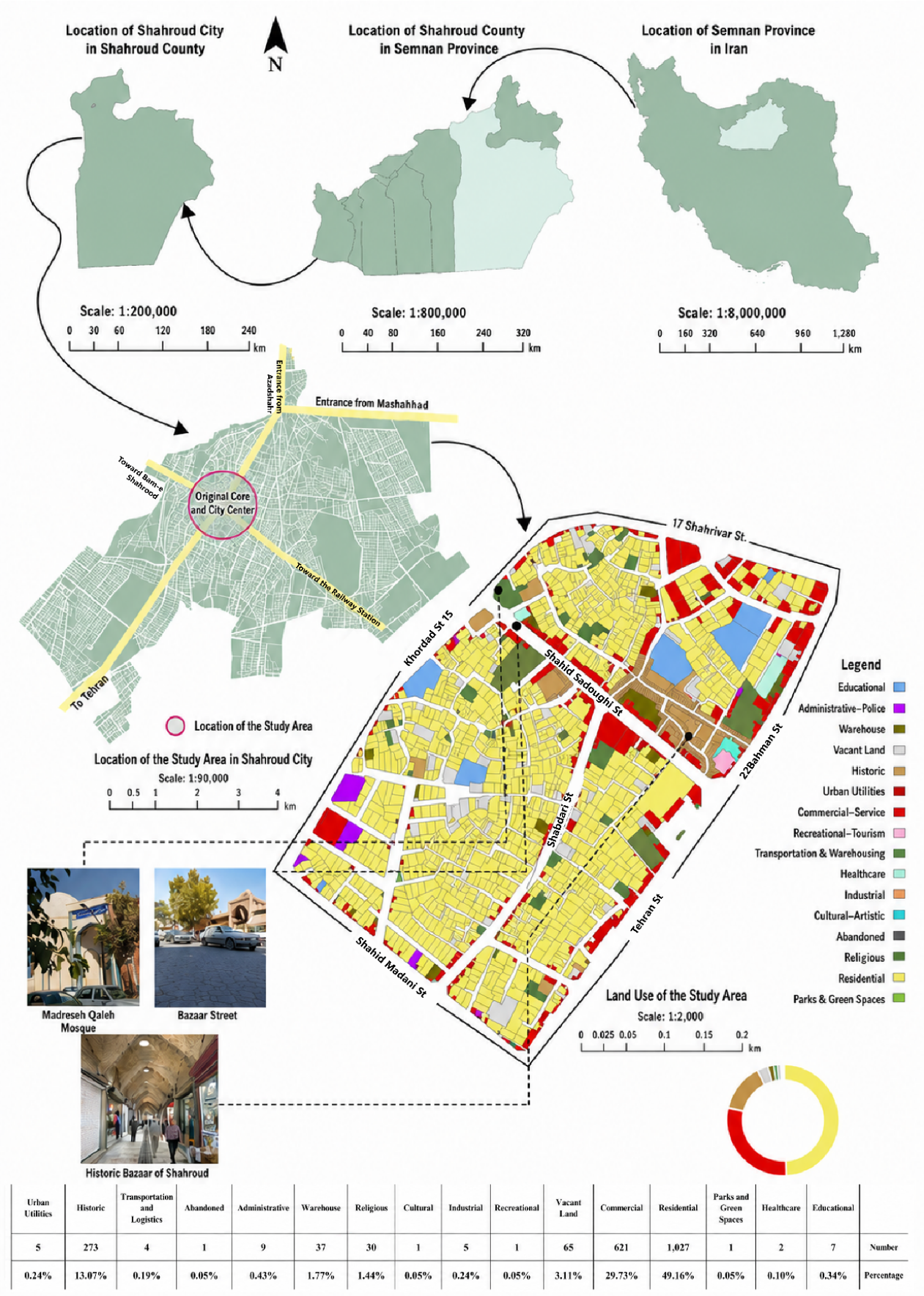


Fig. 1. Introduction to the case study: Location and urban land use map. Source: Authors.

as participants completed them. After collecting the questionnaires, the status of the livability indicators was assessed using the Importance-Performance Analysis (IPA) method. In this method, the average of the total scores is determined by intersecting lines in a matrix grid, yielding four quadrants. The Q¹ quadrant focuses on high importance and high performance. The Q² quadrant is characterized by low importance and high performance. The Q³ quadrant has a low priority, indicating low importance and performance. Finally, the Q⁴ quadrant indicates high importance and low performance (Lee et al., 2021). In this study, confirmatory factor analysis with SPSS Amos software and the structural equation modeling technique were used to analyze the effect of perceived importance-performance of livability indicators on satisfaction and loyalty to the place. The values related to reliability and validity are presented in the hypothesis-testing section.

Findings

• Descriptive statistics

The study's demographic variables are presented in Fig. 2. In general, the descriptive results indicate that the study's statistical population is relatively concentrated and homogeneous with respect to demographic

characteristics. The majority of respondents are men, and in terms of age, the data indicate the dominance of the young population and those in socially and professionally active ages. Finally, households are mainly small, and the highest frequency is in small families. The dominance of tenants over owners in the distribution of the questionnaire reflects the migration of owners from the neighborhood and their replacement by tenants, which is probably due to the low rent compared to other urban neighborhoods.

• Hypothesis review

- Review of hypothesis 1: Analysis of indicators from the perspective of importance and performance To examine the first hypothesis of the research, the mean test and IPA analysis were used. Fig. 3 shows that the average overall livability of the studied neighborhoods (2.96) is lower than their average importance (3.03), indicating a gap between the current situation and residents' expectations. Among the livability dimensions, "quality of the built environment" with an average importance of 3.10 has the highest priority from the perspective of residents, while "social and neighborhood relations" with a performance of 2.87 and a gap of -0.17 shows the greatest distance from the desired level and is

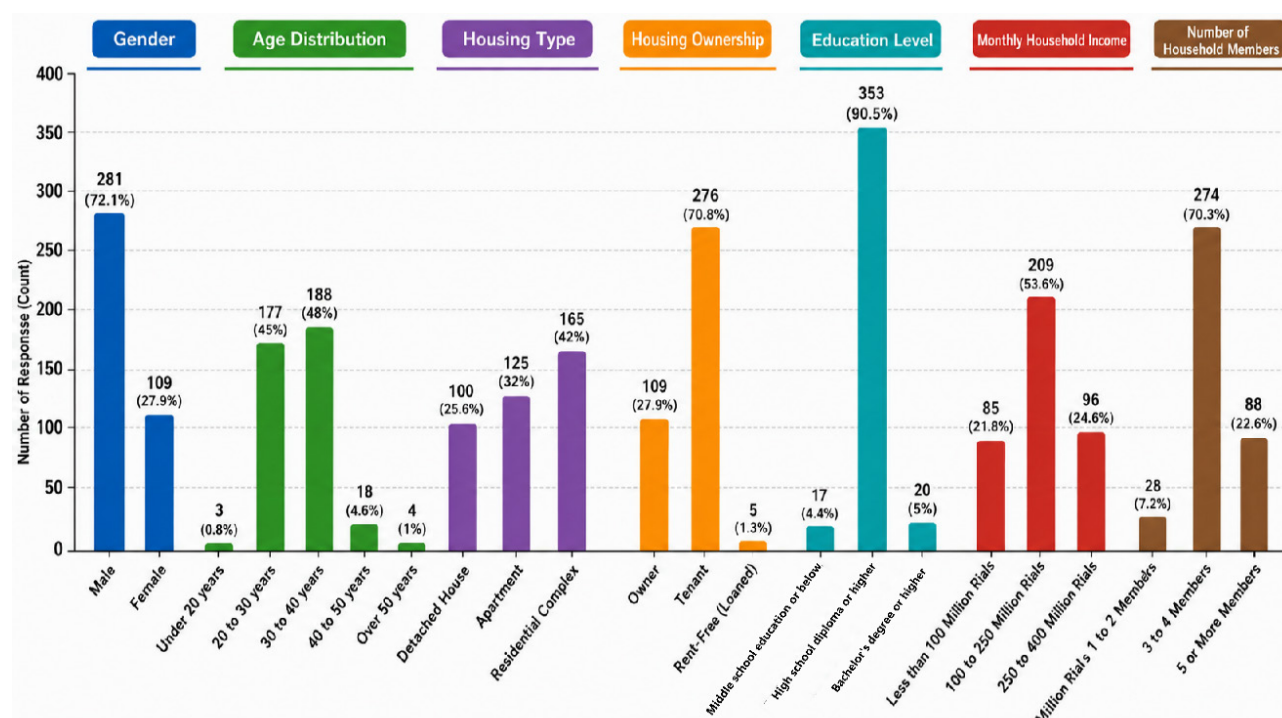


Fig. 2. Demographic characteristics. Source: Authors.

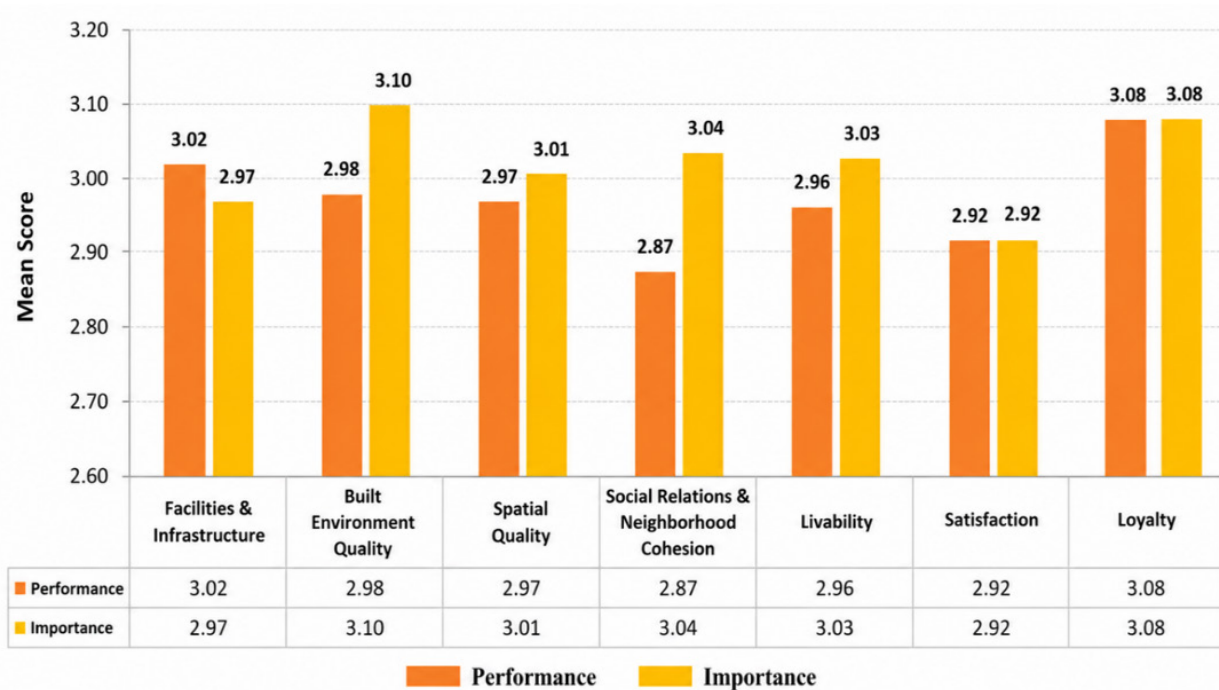


Fig. 3. Mean scores of the research variables. Source: Authors.

recognized as the most important area requiring intervention. In contrast, “facilities and infrastructure” is the only component whose performance (3.02) is slightly higher than its perceived importance (2.97) and has a relatively favorable status. Also, the average resident satisfaction (2.92) was lower than desirable, while neighborhood loyalty was higher, averaging 3.08. This finding indicates that, despite relative dissatisfaction with some environmental conditions, residents still have strong loyalty to their neighborhood due to social ties, historical identity, and a sense of place.

Fig. 4 presents the status of livability indicators in an IPA (Importance-Performance Analysis) network, which visually depicts the relative positions of indicators based on residents’ perceptions of their importance and performance. The comparative analysis of performance and importance shows that, across many indicators, performance is lower than perceived importance. That is, there is a gap between importance and performance in the neighborhood. These findings highlight the need for targeted planning and resource allocation based on residents’ real priorities. Also, indicators with high standard deviations should be examined more carefully, as they may indicate inequalities. According to

the importance-performance matrix, the livability indicators can be classified into the following quadrants based on their location:

Indicators located in Q1 (consolidation): Satisfaction with road safety (I3), cleanliness (I6), adequate green or recreational spaces (I7), public green spaces (B2), urban furniture (B4), safety against natural disasters (B5), quality of housing conditions and necessary amenities (B7), noise level (S1), informal social control (N5), social and religious restrictions (N7).

Indicators located in Q2 (revision): Satisfaction with housing, building type, ownership, residential floor and having a green landscape and abundant views of it (B1), outdoor recreation areas (B3), preservation of historical sites and buildings (B8), public services (government, cultural and commercial institutions and health centers) (I2), access to traffic routes (I5), air pollution control (S2), opportunities for recreational activities Common (N4), Crowd Control (N8), Security of Property (N11).

- Indicators located in Q3 (Release): Access to basic services (such as water, electricity, toilets, sewage) (I1), Public transport (I4), Proper condition of sidewalks and pavements (I8), Vehicle volume and speed (I9), Energy efficiency (I10), Sense of hierarchy between public and private spaces (S3),



Fig. 4. Importance–performance analysis (IPA) of neighborhood livability indicators in the case study. Source: Authors.

Readability (visibility and clarity (S4), Usability of paths (S5), Preservation of natural areas (S9), Access to daily necessities (B9), Ease of access for people with disabilities (N10).

Indicators located in Q4 (focus): Sense of security and fear of facing crime and insecurity (N1), social cohesion (N2), possibility of influencing neighborhood decisions (N3), social trust (N6), neighborhood reputation (N9), street safety for women and children (S6), proper lighting and ventilation of buildings (S7), proportion and enclosure (S8), attractiveness of building facades (B6).

- Examination of the second hypothesis: Structural relationships between the variables of importance, performance, satisfaction, and loyalty

To examine the second hypothesis, validity and reliability were first examined. Cronbach's alpha

was 0.87, indicating a very favorable reliability of the research instrument. In addition, the Kaiser-Meyer-Olkin sampling adequacy criterion for the data set was 0.83, and Bartlett's test of sphericity was significant at $p < 0.001$. These results indicate that the data are suitable for factor analysis. According to Table 2, the confirmatory factor analysis improved the measurement models, and items with factor loadings below 0.5 were removed. In the second stage of the confirmatory factor analysis, the latent variable of importance and performance, which included 4 other latent variables, was examined and then entered into the model. Finally, the final model, including the latent variables of importance, performance, satisfaction, and loyalty, was entered into the structural equation modeling analysis. For the importance construct, which is a second-order latent

Table 2. Standardized factor loadings of the measurement model.
Source: Authors.

Importance		
Perceived Importance		Standardized Factor Loading
IM1: Public Services and Infrastructure		0.65
	I1	0.72
	I2	0.76
	I3	0.68
	I5	0.69
	I6	0.74
	I9	0.73
IM2: Built Environment		0.54
	B1	0.74
	B3	0.73
	B4	0.74
	B6	0.70
	B7	0.75
	B8	0.76
IM3: Spatial Quality		0.67
	S1	0.71
	S2	0.72
	S4	0.77
	S5	0.67
	S6	0.73
IM4: Social Relationships and Neighborhood Cohesion		0.66
	N1	0.74
	N2	0.73
	N3	0.71
	N4	0.70
	N7	0.69
	N11	0.72

Rest of Table 2.

Performance		
Perceived Performance		Standardized Factor Loading
PE1: Public Services and Infrastructure		0.69
	I1	0.60
	I2	0.56
	I3	0.52
	I4	0.69
	I6	0.67
	I7	0.63
	I9	0.55
	I10	0.61
PE2: Built Environment		0.69
	B4	0.71
	B5	0.76
	B6	0.73
	B7	0.65
	B8	0.69
	B9	0.69
PE3: Spatial Quality		0.69
	S2	0.76
	S6	0.79
	S8	0.76
	S9	0.71
PE4: Social Relationships and Neighborhood Cohesion		0.54
	N1	0.73
	N2	0.74
	N3	0.69
	N4	0.76
	N6	0.52
	N8	0.71
	N9	0.75
	N11	0.66

variable explained by four other latent variables, the chi-square ratio to degrees of freedom is 0.948, the goodness-of-fit index (GFI) is 0.953, the comparative fit index (CFI) is 1.000, the normalized fit index (NFI) is 0.944, the Tucker-Lewis index (TLI) is 1.000, and the root mean square error of approximation (RMSEA) is less than 0.001, all of which indicate an acceptable fit of the model to the data (Table 3). Also, for the performance construct, which consists of one second-order latent variable and four first-order latent variables, the chi-square ratio per degree of freedom is 1.08, the goodness-of-fit index (GFI) is 0.946, the comparative fit index (CFI) is 0.993, the normalized fit index (NFI) is 0.92, the Tucker-Lewis

index (TLI) is 0.992, and the root mean square error of approximation (RMSEA) is 0.015, all of which indicate an acceptable fit of the model to the data. According to Table 3, the average variance extracted (AVE) values indicate favorable convergent validity. Composite reliability (CR) values are also high, indicating acceptable composite reliability for the measured constructs. Although the AVE value should be equal to or greater than 0.5, in some studies, AVE values less than 0.50 have been considered acceptable when the composite reliability (CR) is greater than 0.60 (Huang et al., 2013; Pervan et al., 2017; Maruf et al., 2021; Jiang et al., 2025). The conceptual model presented in Fig. 5 examines

Table 3. Convergent validity, composite reliability, and discriminant validity of the measurement model. Source: Authors.

Construct	AVE	CR	Importance	Performance	Satisfaction	Loyalty
Importance	0.400	0.73	0.632			
Performance	0.430	0.75	0.119	0.656		
Satisfaction	0.580	0.87	0.640	0.700	0.762	
Loyalty	0.730	0.93	0.650	0.750	0.870	0.854

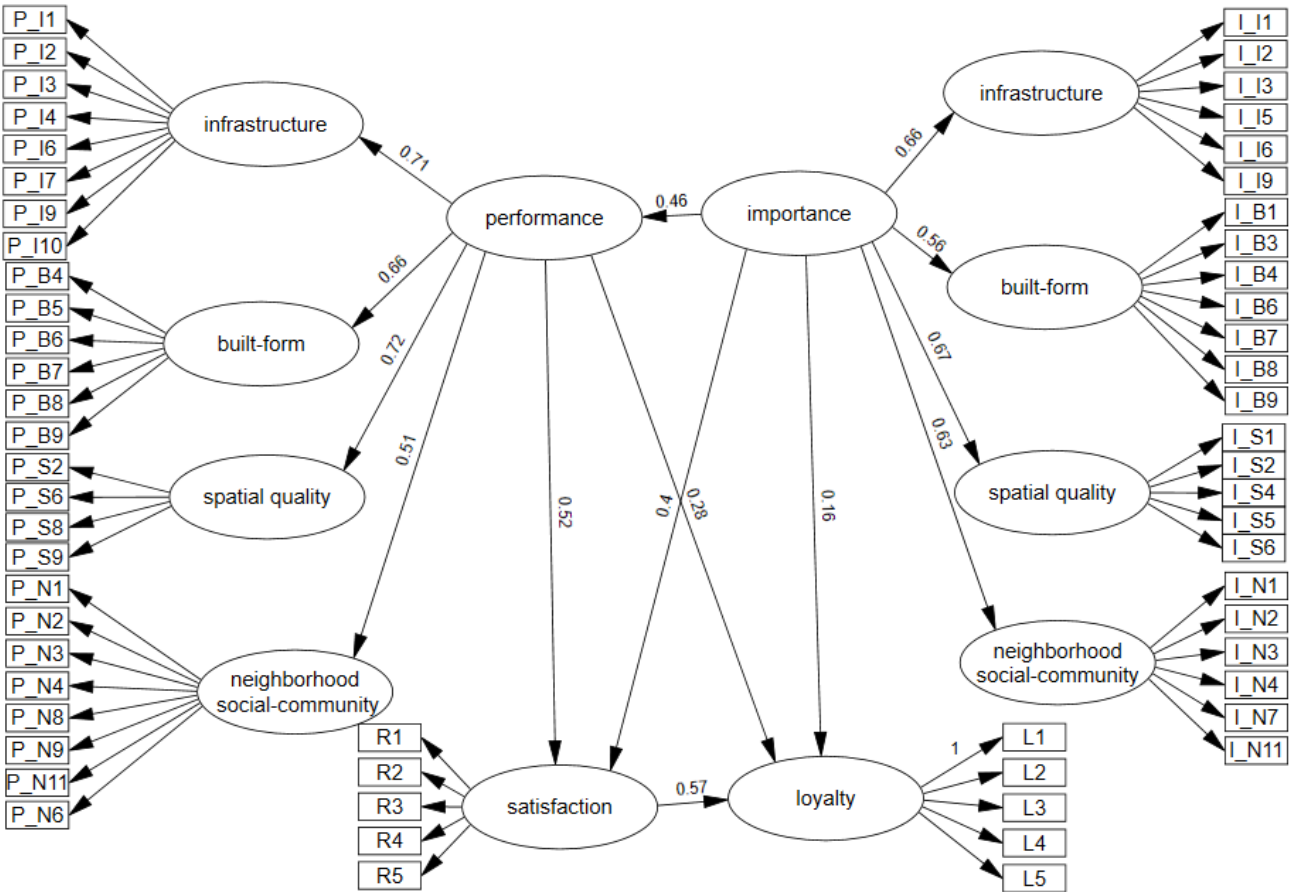


Fig. 5. Structural Equation Model of Neighborhood Livability, Satisfaction, and Loyalty. Source: Authors.

the relationships between the latent variables of importance, performance, satisfaction, and loyalty in the four main dimensions of infrastructure, built form, spatial quality, and social characteristics. In evaluating the structural model, the chi-square ratio to degrees of freedom is 1.101, the goodness-of-fit index (GFI) is 0.868, the comparative fit index (CFI) is 0.984, the normalized fit index (NFI) is 0.852, the Tucker-Lewis index (TLI) is 0.984, and the mean square error is 0.016. These indices indicate that the structural model has a good fit to the data. On the right side of the model, the importance construct, as residents' subjective perception of the value and priority of each dimension, is related to the four dimensions through direct path coefficients. These coefficients for infrastructure (0.66), physical form (0.56), spatial quality (0.67), and social dimension (0.63) indicate the perceived importance of each component in the minds of the respondents. On the left side of the model, the performance construct, standardized path coefficients for infrastructure (0.71), physical form (0.66), spatial quality (0.72), and social relations (0.51) indicate that the perception of actual performance, especially in spatial quality, has the greatest impact. This perception of performance is also directly related to the satisfaction construct, with a coefficient of 0.⁵² and a test statistic of 7.3, indicating that improving performance in environmental dimensions directly increases resident satisfaction. According to the structural equations, the following can be examined in the second hypothesis:

- Importance had an effect on performance with a coefficient of 0.46 (test statistic 4.91) and was statistically significant. Also, from a correlation perspective, a strong relationship between performance and satisfaction was observed, with a coefficient of 0.7. Also, performance had a strong, direct effect on loyalty, with a coefficient of 0.75, indicating its importance as the main prerequisite for residents' loyalty.
- Although the relationship between satisfaction and loyalty was positive and significant, the correlation coefficient of this relationship was higher compared to

the effect of performance on loyalty, with a coefficient of 0.87, indicating the main role of satisfaction in affecting loyalty.

- According to the correlation coefficients, the moderate relationships between importance and loyalty ($r = 0.65$) and importance and satisfaction ($r = 0.64$) indicate the indirect effect of importance on these variables through performance, the increase of which simultaneously increases residents' satisfaction and loyalty.
- The mediating role of performance on the relationship between importance and satisfaction was examined. The findings showed that performance has a mediating role in the relationship between importance and satisfaction. The overall path coefficient is 0.64 (test statistic 3.93), which is statistically significant. Also, the mediating role of performance in the relationship between importance and loyalty was examined. The findings indicate a weak relationship, with a coefficient of 0.07 (test statistic = 3.24). That is, performance does not mediate between importance and loyalty. Importance also has no effect on loyalty. In other words, the importance of indicators for residents has little relationship with loyalty to the place of residence.
- The role of satisfaction as a mediator between performance and loyalty was examined. The findings showed that satisfaction acts as a mediator between performance and loyalty. The overall path coefficient is 0.58, and the Sobel test statistic is 5.03. Also, satisfaction acts as a mediator between importance and loyalty. The overall path coefficient is 0.7, and the Sobel test statistic is 4.33. It is worth noting that if performance and satisfaction both mediate the relationship between importance and loyalty, the path is statistically significant, and the overall path coefficient (test statistic) is 3.83.

Discussion

The most important finding of the present study is that despite some functional shortcomings, residents' willingness to stay or recommend the place to others remains high. This means that hidden loyalty occurs

in historical contexts in which emotional, identity, and social ties can sustain loyalty despite dissatisfaction with environmental performance. This could be due to emotional factors, social capital, a sense of attachment to the place, and even historical features and belonging to the neighborhood. This has been confirmed in several previous studies (Grogan-Kaylor et al., 2006; Tsaour et al., 2019). It seems that the existence of social capital and collective memories, the formation of deep emotional bonds with elements such as the market, mosques, and takayas, and the attachment formed towards the place over many years, make residents unwilling to leave the neighborhood or express negative attributes about it, even in conditions of dissatisfaction with the performance of some indicators. Living in a neighborhood with a historical identity is still considered a social status because it signifies authenticity and historical roots. However, other factors, such as low rent, may lead to a false sense of satisfaction, and loyalty may not stem from satisfaction but from necessity. In such a way, direct performance does not lead to loyalty, but the path from satisfaction to loyalty is meaningful. Therefore, the current loyalty of residents is mainly based on habit, historical attachment, and economic constraints, rather than satisfaction with the environment's performance. This type of loyalty depends on the continuity of external factors, and as soon as a suitable economic opportunity or better housing is provided to residents, the likelihood of their departure increases. Therefore, urban management should not consider the existing relatively high loyalty as sustainable, but should increase real satisfaction by reducing the importance-performance gap in the Q4 indicators and transform loyalty from a type of "inevitability" to a "sustainable emotional commitment". The findings showed that the importance of livability indicators does not lead to loyalty. This is possible only when this path passes through "satisfaction" or both "performance and satisfaction". Consistent with the present study's findings, other research has shown that resident satisfaction mediates the relationship

between perceived overall performance and resident loyalty, while the relationship between perceived overall importance and resident loyalty is mediated by perceived overall performance and resident satisfaction (Lee et al., 2021). A comparative analysis of performance and importance also shows that, across many indicators, performance is lower than perceived importance, which could indicate spatial inequalities or significant differences in user experience. In other words, in the neighborhoods of the central context of Shahrood, the "importance" of livability indicators is a subjective perception; but loyalty is an emotional and behavioral commitment that is formed only when this awareness crosses the path of "desired performance" and becomes "emotional satisfaction." The lack of a direct path from importance to loyalty indicates that a positive mindset or the importance of being convinced cannot alone be replaced by a positive lived experience that is the result of a positive perception of performance and satisfaction. Any urban intervention in this historical context should first focus on improving performance on indicators that residents have identified as important, rather than on expert opinions or predetermined budgets. This approach, while respecting people's priorities, will bring about sustainable housing and loyalty. In this regard, a study found that emotional reactions to the neighborhood environment can also shape neighborhood satisfaction, and an unsafe neighborhood environment can elicit negative emotions, which in turn may lead to lower neighborhood satisfaction (Mouratidis, 2020a). According to the findings, high performance does not lead to loyalty; this path is only possible when it passes through satisfaction. It can be said that functions that fail to meet the social needs of residents cause "absence of dissatisfaction", not "existence of satisfaction". Any performance improvement should positively affect residents' satisfaction. The mediating role of satisfaction in the relationship between positive perceptions of environmental performance and loyalty to the place of residence has also been

confirmed in several previous studies (Haumann et al., 2014; Lee & Xue, 2020; Ochoa Rico et al., 2022; Babalola, 2022). The findings showed that perceptions of importance can affect perceptions of indicator performance. In line with this study's findings, research has shown that residents of deprived neighborhoods may still experience lower levels of neighborhood satisfaction and emotional responses to the neighborhood due to differences in neighborhood characteristics such as safety, noise, and place attachment (Mouratidis, 2020b). When residents assess an indicator as important, attention to that indicator increases, the assessment is carried out more carefully, and if its performance is poor, residents rate it lower. Therefore, it is necessary to improve objective performance on the same indicators that residents assess as important, and, secondly, to inform residents so that these changes are reflected in their subjective assessments. According to the findings, the strongest path is the direct path from satisfaction to loyalty. In the neighborhoods adjacent to the historical market of Shahrood, satisfaction is an emotional perception resulting from the sum of positive and negative experiences of living in the neighborhood and is the strongest and most direct predictor of loyalty. As a result, the most effective strategy to retain original residents, prevent population outflow, and reverse the trend of residential use change in the historic context of Shahrood is to comprehensively improve resident satisfaction by addressing key priority indicators, rather than directly increasing loyalty through sectional incentives. A study found that the perceived quality of urban public services, including physical and environmental aspects, has a significant impact on citizen satisfaction, and that satisfaction plays a key mediating role in fostering loyalty, such as the desire to stay in the city (Ochoa Rico et al., 2022). According to the findings, increasing performance can simultaneously increase resident satisfaction and loyalty. In this regard, the average performance and importance scores in the infrastructure dimension indicate a relatively favorable alignment of infrastructure services with residents' expectations. In

addition, in the built environment quality component, the significant difference between importance and performance indicates a gap in user experience compared to their expectations. In line with the research findings, a study also found that place attachment is related to factors such as social ties, greenery, local amenities, environmental quality, and even architectural style and physical identity (Aksel & İmamoğlu, 2020). In line with the present study, a study found that access to amenities, streetscape diversity, and walkability in neighborhoods with lower levels of resident satisfaction are critical issues that necessitate place-based policies (Kourtit et al., 2022). In the central neighborhoods of Shahrood, the significant gap between importance and performance in the spatial quality component, especially in the indices of proportionality and enclosure, light and ventilation, and traffic safety for women and children, stems from the difference between traditional spatial design patterns and contemporary residential needs. Today, the historical texture has suffered from disruptions in proportionality and enclosure due to increased motor traffic, marginal parking, and the installation of heterogeneous facilities such as air conditioner ducts and commercial signs, so that it no longer conveys a sense of a safe, relaxing space to residents. The deterioration of the fabric and the lack of compliance with modern building standards have deprived many residential units of sufficient light and ventilation, and narrow streets are considered unsafe, especially for women and children, due to inadequate lighting and uneven surfaces. Also, the influx of shoppers to the market by car at different times of the day has reduced the possibility of safe traffic for vulnerable groups. As a result, although residents consider "desirable spatial quality" important, everyday experience has taken place in spaces that are far from today's livability standards, and this gap does not stem from the lack of awareness of designers, but from the conflict between the commercial-traffic function of the market and the residential needs of the neighborhood. In line with the present study, a study identified low deprivation, green and blue spaces, safety, and resident influence

as key factors in urban and suburban livability in Finland (Pasanen et al., 2024). Also, based on the findings, the social component has the largest gap between importance and performance, underscoring the need for social interventions or strengthening social ties at the neighborhood level. It can be said that residents, based on the neighborhood's historical memory and identity, expect high levels of social cohesion, trust, participation, and security. However, factors such as the change of residential to commercial use, the increase in temporary tenants, and the decrease in social capital have caused the performance of the neighborhood security, cohesion, participation, trust, and reputation indicators to be far below their importance. Unlike the dimensions of infrastructure or the built environment, which can be improved to some extent with physical interventions, social weaknesses cannot be compensated for simply by defining development projects and require the reconstruction of neighborhood networks, strengthening informal supervision, and creating opportunities for participation. Therefore, to increase residents' satisfaction and loyalty, urban management should prioritize reducing social gaps through participatory, community-oriented approaches, the development of collective spaces, and the organization of public areas. In line with this, a study finds that social structures have a powerful influence on the practicality of policies to improve livability (Slingerland et al., 2023).

Conclusion

This study showed that livability is not simply a set of objective features; rather, residents' subjective perceptions of the importance and performance of these features are the main determinants of the quality-of-life experience in a neighborhood. Satisfaction acts as a connecting link between environmental quality and loyalty to place, and without it, physical improvement alone will not bring the desired result. The findings show that aspects such as security against crime, social cohesion, local participation, night-time street lighting, the safety of women and children, and the attractiveness of facades are very

important to residents but are weak in practice; therefore, these should be prioritized in regeneration programs. The existence of a deep emotional and social connection with the neighborhood, even in conditions of low overall satisfaction, indicates strong social capital and a sense of belonging to the historical context that encourages residents to stay; however, when the performance of the environment improves, satisfaction increases, and this satisfaction leads to commitment, recommendation to others, and long-term investment in the neighborhood. Finally, the central neighborhoods of Iran's historic cities, despite the challenges of deterioration and commercial pressures, have a high capacity for revitalization through simultaneous attention to the objective quality of the environment and residents' subjective perceptions, and by prioritizing social and safety aspects.

The adverse economic conditions prevailing in the society, increasing inflation, and the orientation of residents' mental priorities towards subsistence needs and its effect on assessing the importance of indicators; chronic dissatisfaction with the performance of the urban management institution and its effect on the negative bias towards the evaluation of the performance of indicators and even reducing the score of components with relatively desirable performance; unsuccessful experience of participating in previous research and not observing tangible changes in the neighborhood environment, and as a result, respondents' distrust of the effectiveness of surveys and considering the questionnaire as a useless activity; fatigue, lack of motivation, and limited literacy in part of the target community; and the focus of distributing the questionnaire to younger and more educated age groups; observing ethical considerations and respecting the privacy of residents; and the researchers' inevitability of sampling in public places and residents present in alleys; and the inability to access all resident groups; limited generalizability to other cities; unavailability of data or the inability to provide them due to some considerations, limitations, and obstacles to the present study. Also, using combined interview and observation methods along

with questionnaires to gain a deeper understanding of the causes of the gap between importance and performance, conducting similar research in newly developed neighborhoods and dilapidated contexts to generalize the findings, including moderating variables such as age and gender, etc. in structural equation models, using expert weighting along with residents' opinions, conducting longitudinal research to monitor changes before and after urban interventions, examining the role of social capital, collective memories, and place attachment as alternative mediating variables to comprehensively explain high loyalty despite low satisfaction, and using stratified random sampling and distributing questionnaires at different times and days to cover a more diverse range of residents are suggestions for future studies.

Declaration of No Conflict of Interest

The authors declare that they have no conflict of interest in conducting this research.

References list

- Ahmed, N. O., El-Halafawy, A. M., & Amin, A. M. (2019). A critical review of urban livability. *European Journal of Sustainable Development*, 8(1), 165–165. <https://doi.org/10.14207/ejsd.2019.v8n1p165>
- Aksel, E., & İmamoğlu, Ç. (2020). Neighborhood location and its association with place attachment and residential satisfaction. *Open House International*, 45(3), 327–340. <https://doi.org/10.1108/ohi-050035-2020-050035>
- Alikomak, F., Bakar, N. A. A., Aziz, F. A., & Ujang, N. (2024). The impact of public infrastructure on neighborhood livability: A study of residents' perceptions and satisfaction. *A/ Z ito Journal of the Faculty of Architecture*, 21(3), 499–515. <https://doi.org/10.582780.2024.67>
- Babalola, T. O. (2022). Land tenure security, place satisfaction and loyalty in the peri-urban area of Ibadan City, Nigeria. *Regional Sustainability*, 3(4), 346–355. <https://doi.org/10.1016/j.regsus.2022.11.004>
- Badland, H., Whitzman, C., Lowe, M., Davern, M., Aye, L., Butterworth, I., Hes, D., & Giles-Corti, B. (2014). Urban liveability: Emerging lessons from Australia for exploring the potential for indicators to measure the social determinants of health. *Social Science & Medicine*, 111, 64–73. <https://doi.org/10.1016/j.socscimed.2014.04.003>
- Baobeid, A., Koç, M., & Al-Ghamdi, S. G. (2021). Walkability and its relationships with health, sustainability, and livability: elements of physical environment and evaluation frameworks. *Frontiers in Built Environment*, 7, 721218. <https://doi.org/10.3389/fbuil.2021.721218>
- Basolo, V., & Strong, D. (2002). Understanding the neighborhood: From residents' perceptions and needs to action. *Housing Policy Debate*, 13(1), 83–105. <https://doi.org/10.1080/0511482.2002.9521436>
- Besen, P., Burgess, A., Vallis, S., Morrison, A., Marks, S., Piri, I., & Shafiei, M. (2026). Contrasts within New Zealand cities: perceived liveability across five neighbourhoods in Tāmaki Makaurau Auckland. *Urbanization, Sustainability and Society*, 3(4), 1–26. <https://doi.org/10.1108/uss-120090-2024-00320--025x>
- Bose, A., Basak, D., Roy, S., Chowdhury, I. R., Abdo, H. G., Aldagheiri, M., & Almohamad, H. (2023). Evaluation of urban sustainability through perceived importance, performance, satisfaction and loyalty: An integrated IPA–SEM-based modelling approach. *Sustainability*, 15(12), 9788. <https://doi.org/10.3390/su15129788>
- Campomanes V, F., Abascal, A., Oliveira, L. T., Kuffer, M., Dijkstra, A. M., Stein, A., & Belgiu, M. (2026). Whose city is it? Mapping perceived urban livability with citizen-guided AI. *npj Urban Sustainability*, 6(1), 1–14. <https://doi.org/10.1038/s42949-00320--025x>
- Chan, E. T. H., & Li, T. E. (2022). The effects of neighbourhood attachment and built environment on walking and life satisfaction: A case study of Shenzhen. *Cities*, 130, 103940. <https://doi.org/10.1016/j.cities.2022.103940>
- Chapman, D. W., & Lombard, J. R. (2006). Determinants of neighborhood satisfaction in fee-based gated and nongated communities. *Urban Affairs Review*, 41(6), 769–799. <https://doi.org/10.1177/1078087406287164/>
- Clark, H. E., Aranoff, M., Lavine, E., & Suteethorn, K. M. (2013). LEED for neighborhood development: does it capture livability? *Berkeley Planning Journal*, 26(1), 150–167. <https://doi.org/10.5070/BP326115820>
- Comstock, N., Miriam Dickinson, L., Marshall, J. A., Soobader, M.-J., Turbin, M. S., Buchenau, M., & Litt, J. S. (2010). Neighborhood attachment and its correlates: Exploring neighborhood conditions, collective efficacy, and gardening. *Journal of Environmental Psychology*, 30(4), 435–442. <https://doi.org/10.1016/j.jenvp.2010.05.001>
- Deng, J., & Pierskalla, C. D. (2018). Linking importance–performance analysis, satisfaction, and loyalty: A study of Savannah, GA. *Sustainability*, 10(3), 704. <https://doi.org/10.3390/su10030704>
- Dolatshah, S. (2023). Livability with a right to the city approach: Concepts, dimensions and indicators. *New Ideas In The Geographical Sciences*, 1(1), 45–68. <https://doi.org/10.717871071787//ntigs.2023.783247>
- Dunstan, K. (2007). Creating an indicator of liveability: The Neighbourhood Liveability Assessment Survey (NLAS). In *The vital city: Book of abstracts (p. 86). European Urban Research Association (EURA) 10th Anniversary conference*, Glasgow,

Scotland.

- Elmahdy, N. M., Kamel, R., & Nasreldin, R. (2021). Contextualizing urban liveability indicators to create liveable neighbourhoods. *International Journal of Engineering Research and Technology*, 14(1), 56–68. https://www.researchgate.net/publication/350801418_Contextualizing_Urban_Liveability_indicators_to_create_liveable_Neighbourhoods
- Fu, X., Adejoke, A. B., Salaripour, A., Zali, N., & Reihani, Z. S. (2024). Does urban livability lead to place attachment and behavioural intentions? Case study: Isfahan City. *Environment and Urbanization ASIA*, 15(1), 156–174. <https://doi.org/10.117709754253241233781/>
- Gough, M. Z. (2015). Reconciling livability and sustainability: Conceptual and practical implications for planning. *Journal of Planning Education and Research*, 35(2), 145–160. <https://doi.org/10.11770739456/X15570320>
- Grogan-Kaylor, A., Woolley, M., Mowbray, C., Reischl, T. M., Gilster, M., Karb, R., MacFarlane, P., Gant, L., & Alaimo, K. (2006). Predictors of neighborhood satisfaction. *Journal of Community Practice*, 14(4), 27–50. https://doi.org/https://doi.org/10.1300/J125v14n04_03
- Guturu, K., & Schwai, M. (2022). Are dense residential neighborhoods liveable? A comparative analysis of old and new neighborhoods in Trondheim. *Journal of Architecture and Civil Engineering*, 7(11), 124–138. https://www.researchgate.net/publication/376644731_Are_dense_residential_neighborhoods_liveable_A_comparative_analysis_of_old_and_new_neighborhoods_in_Trondheim
- Haumann, T., Quaiser, B., Wieseke, J., & Rese, M. (2014). Footprints in the sands of time: A comparative analysis of the effectiveness of customer satisfaction and customer-company identification over time. *Journal of Marketing*, 78(6), 78–102. <https://doi.org/10.1509/jm.13.0509>
- Hedayatnezhad Kashi, S. M., Sharifi, A., Azari, M., & Tabrizi, N. (2025). Spatial analysis and ranking of urban districts based on a comprehensive livability approach: the case of Tehran. *GeoJournal*, 90(216). <https://doi.org/10.1007/s10708-025-8-11465>
- Hou, F., Hedayati Marzbali, M., & Abdullah, A. (2026). CPTED, satisfaction and loyalty in urban wetland parks: how gender matters. *Landscape Research*, 51(1), 117–133. <https://doi.org/10.108001426397.2025.2511976/>
- Huang, C. C., Wang, Y. M., Wu, T. W., & Wang, P. A. (2013). An Empirical Analysis of the Antecedents and Performance Consequences of Using the Moodle Platform. *International Journal of Information and Education Technology*, 3(2), 217–221. <https://doi.org/10.7763/IJNET.2013.V3.267>
- Istrate, A. L., Lao, X., & Sonet, U. N. (2026). Contrasts of liveability and vulnerability analysed spatially and non-spatially in a historical Chinese context. *Cities*, 172, 106909. <https://doi.org/10.1016/j.cities.2026.106909>
- Iyanda, S. A., Ismail, O., Fabunmi, F. O., Adeogun, A. S., & Mohit, M. A. (2018). Evaluating neighborhoods livability in Nigeria: A structural equation modelling (SEM) approach. *International Journal of built environment and sustainability*, 5(1), 47–55. <https://doi.org/10.11113/ijbes.v5.n1.245>
- J. Kim, A., & Ware, J. (2026). Northend neighborhood livability by residents' life conditions. *International Journal of Community Well-Being*, 9(2), 19. <https://doi.org/10.1007/s424131-00296-026->
- Jiang, J., Simon, P. D., & Fryer, L. K. (2025). Capturing students' LMS experience: measurement invariance across Chinese and English versions. *Journal of Computing in Higher Education*, 37, 419–441. <https://doi.org/10.1007/s125288-09402-024->
- Khorasani, M. A., & Rezvani, M. R. (2013). The identification and the analysis of livability discrepancies' regarding adjacent villages of Varamin. *Space Economy & Rural Development*, 2(4), 55–74. <https://system.khu.ac.ir/serd/article-11659--en.html>
- Kourtiti, K., Nijkamp, P., Türk, U., & Wahlstrom, M. (2022). City love and place quality assessment of liveable and loveable neighbourhoods in Rotterdam. *Land Use Policy*, 119, 106109. <https://doi.org/10.1016/j.landusepol.2022.106109>
- Kovacs-Györi, A., Cabrera-Barona, P., Resch, B., Mehaffy, M., & Blaschke, T. (2019). Assessing and representing livability through the analysis of residential preference. *Sustainability*, 11(18), 4934. <https://doi.org/10.3390/su11184934>
- Leby, J. L., & Hashim, A. H. (2010). Liveability dimensions and attributes: Their relative importance in the eyes of neighbourhood residents. *Journal of Construction in Developing Countries*, 15(1), 67–91. https://www.researchgate.net/publication/46817848_Liveability_dimensions_and_attributes_Their_relative_importance_in_the_eyes_of_neighbourhood_residents
- Lee, K. Y. (2021). Factors influencing urban livability in Seoul, Korea: Urban environmental satisfaction and neighborhood relations. *Social Sciences*, 10(4), 138. <https://doi.org/10.3390/socsci10040138>
- Lee, S. M., Conway, T. L., Frank, L. D., Saelens, B. E., Cain, K. L., & Sallis, J. F. (2017). The relation of perceived and objective environment attributes to neighborhood satisfaction. *Environment and Behavior*, 49(2), 136–160. <https://doi.org/10.11770013916515623823/>
- Lee, S. W., & Xue, K. (2020). A model of destination loyalty: integrating destination image and sustainable tourism. *Asia Pacific Journal of Tourism Research*, 25(4), 393–408. <https://doi.org/10.108010941665.2020.1713185/>
- Lee, S. W., Seow, C.-W., & Xue, K. (2021). Residents' sustainable city evaluation, satisfaction and loyalty: Integrating importance-performance analysis and structural equation modelling. *Sustainability*, 13(12). <https://doi.org/10.3390/su13126766>
- Li, C., & Managi, S. (2025). Impacts of community attachment and community livability on environmental activity according to XGBoost and SHAP. *Cities*, 156, 105559. <https://doi.org/10.1016/j.cities.2024.105559>
- Magnuszewski, J., Beecham, R., & Burns, L. (2025). The Auckland Urban Liveability Index: A mechanism for quantifying

and evaluating modern urban densification. *Applied Spatial Analysis and Policy*, 18, 43. <https://doi.org/10.1007/s12061-025-9-09643>

- Mantey, D. (2021). Objective and subjective determinants of neighborhood satisfaction in the context of retrofitting suburbs. *Sustainability*, 13(21), 11954. <https://www.mdpi.com/2071-11954/21/13/1050>
- Manuchehri, A., Ahar, H., & Musavi, M. (2020). Spatial analysis of the impact of social capital on the viability of urban neighborhoods. *Geography*, 65(18). <http://rimag.ir/fa/Article/9173>
- Maruf, T. I., Manaf, N. H. B. A., Haque, A. K. M. A., & Maulan, S. B. (2021). Factors affecting attitudes towards using ride-sharing apps. *International Journal of Business, Economics and Law*, 25(2), 60–70. <https://doi.org/10.5281/zenodo.13763494>
- McClanahan, W. P., Sergiou, C. S., Siezenga, A. M., Gerstner, D., Elffers, H., van der Schalk, J., & van Gelder, J.-L. (2024). Neighborhood crime reduction interventions and perceived livability: A virtual reality study on fear of crime. *Cities*, 147, 104823. <https://doi.org/https://doi.org/10.1016/j.cities.2024.104823>
- Mohrekesh, R., Saberi, H., Momeni, M., & Azani, M. (2019). Explaining the effective factors on livability of urban areas of Isfahan. *Geographical Urban Planning Research (GUPR)*, 7(2), 411–429. <https://doi.org/10.22059/jurbangeo.2019.276471.1063>
- Mouratidis, K. (2018). Is compact city livable? The impact of compact versus sprawled neighbourhoods on neighbourhood satisfaction. *Urban Studies*, 55(11), 2408–2430. <https://doi.org/10.1177/0042098017729109/>
- Mouratidis, K. (2020a). Commute satisfaction, neighborhood satisfaction, and housing satisfaction as predictors of subjective well-being and indicators of urban livability. *Travel Behaviour and Society*, 21, 265–278. <https://doi.org/https://doi.org/10.1016/j.tbs.2020.07.006>
- Mouratidis, K. (2020b). Neighborhood characteristics, neighborhood satisfaction, and well-being: The links with neighborhood deprivation. *Land Use Policy*, 99, 104886. <https://doi.org/10.1016/j.landusepol.2020.104886>
- Mouratidis, K., & Delclòs-Alió, X. (2026). Urban vitality versus urban livability: Does vibrancy matter for neighborhood satisfaction and neighborhood happiness? *Cities*, 168, 106473. <https://www.sciencedirect.com/science/article/pii/S0264275125007747>
- Mouratidis, K., & Yiannakou, A. (2022). What makes cities livable? Determinants of neighborhood satisfaction and neighborhood happiness in different contexts. *Land Use Policy*, 112, 105855. <https://doi.org/10.1016/j.landusepol.2021.105855>
- Nasreldin, R., Fattah, D., & Aboubakr, D. (2017). Urban livability dimensions in the Egyptian new cities: Case study: Sheikh Zayed city. *International Conference for Sustainable Design of the Built Environment*, London. https://www.researchgate.net/publication/322288772_Urban_Livability_Dimensions_in_the_Egyptian_New_Cities_Case_study_Sheikh_Zayed_city

Zayed_city

- Nath, S., & Karutz, R. (2021). Using fuzzy cognitive maps to assess liveability in slum upgrading schemes: Case of Pune, India. *Urban Science*, 5(2), 44. <https://doi.org/10.3390/urbansci5020044>
- Norouzian-Maleki, S., Bell, S., Hosseini, S.-B., & Faizi, M. (2015). Developing and testing a framework for the assessment of neighbourhood liveability in two contrasting countries: Iran and Estonia. *Ecological Indicators*, 48, 263–271. <https://doi.org/10.1016/j.ecolind.2014.07.033>
- Ochoa Rico, M. S., Vergara-Romero, A., Subia, J. F. R., & Del Rio, J. A. J. (2022). Study of citizen satisfaction and loyalty in the urban area of Guayaquil: Perspective of the quality of public services applying structural equations. *PloS one*, 17(2), e0263331. <https://doi.org/10.1371/journal.pone.0263331>
- Okulicz-Kozaryn, A. (2013). City life: Rankings (livability) versus perceptions (satisfaction). *Social Indicators Research*, 110(2), 433–451. <http://www.jstor.org/stable/24718714>
- Olanrewaju, T. D., Amos, O. T., Omoniyi, S. S., Tongo, S. O., Oladehinde, G. J., & Awolola, M. O. (2024). Livability and residents attachment to a typical Nigerian riverine settlement. *Journal of the Nigerian Institute of Town Planners*, 29(2), 16–30. https://www.researchgate.net/publication/383560188_Livability_and_Residents%27_Attachment_to_a_Typical_Nigerian_Riverine_Settlement
- Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing*, 63(4), 33–44. <https://doi.org/10.1177/002224299900634/s105>
- Ommati, M., Zabihi, H., Khatibi, M. R., & Shoormaje, R. (2022). Presenting a model to improve livability in underground public spaces of cities. *Geography and Territorial Spatial Arrangement*, 12(43), 207–230. <https://doi.org/10.22111/gaij.2022.39753.2960>
- Pasanen, T. P., Lanki, T., Siponen, T., Turunen, A. W., Tiittanen, P., Heikinheimo, V., Tiitu, M., Viinikka, A., & Halonen, J. I. (2024). What makes a liveable neighborhood? Role of socio-demographic, dwelling, and environmental factors and participation in Finnish urban and suburban areas. *Journal of Urban Health*, 101, 1207–1220. <https://doi.org/10.1007/s11524-00927--024y>
- Pervan, M., Curak, M., & Pavic Kramaric, T. (2017). The influence of industry characteristics and dynamic capabilities on firms' profitability. *International Journal of Financial Studies*, 6(1), 4. <https://doi.org/10.3390/ijfs6010004>
- Petrovici, N., Bourdin, S., & Torre, A. (2026). What shapes a livable city? Subjective and objective determinants of city satisfaction in Romania. *Cities*, 169, 106565. <https://doi.org/https://doi.org/10.1016/j.cities.2025.106565>
- Plunkett, D., Fulthorp, K., & Paris, C. M. (2019). Examining the relationship between place attachment and behavioral loyalty in an urban park setting. *Journal of Outdoor Recreation and Tourism*, 25, 36–44. <https://doi.org/10.1016/j.jort.2018.11.006>
- Prompayuk, S., & Sahachaisaeree, N. (2012). Unity in

- environmental design and livable neighborhood. *Procedia - Social and Behavioral Sciences*, 50, 812–817. <https://doi.org/10.1016/j.sbspro.2012.08.083>
- Purwanto, E. (2026). Assessing urban livability in coastal cities facing tidal floods: A quantitative study of public satisfaction factors. *Civil Engineering and Architecture*, 14(1), 426–441. <https://doi.org/10.13189/cea.2026.140128>
 - Radaei, M., Salehi, E., Faryadi, S., Masnavi, M. R., & Zebardast, L. (2020). Codifying the rules of ecological wisdom in planning for the regeneration of livability in the neighborhoods of desert cities (case study: City of Yazd). *Urban Structure and Function Studies*, 7(25), 193–219. <https://doi.org/10.22080/usfs.2020.17205.1867>
 - Rakhshaninasab, H. R., & Salari, Z. (2025). Analysis of the urban liveability situation with emphasis on housing indicators (case study: Sixteen neighborhoods of Jiroft City). *Sustainable Development of Geographical Environment*, 7(15), 54–68. <https://doi.org/10.48308/sdge.2025.239806.1253>
 - Raman, S. (2010). Designing a liveable compact city: Physical forms of city and social life in urban neighbourhoods. *Built Environment*, 36(1), 63–80. <https://doi.org/10.2148/benv.36.1.63>
 - Saitlunga, B. L. (2014). Spatial pattern of urban livability in Himalayan Region: A case of Aizawl City, India. *Social Indicators Research*, 117, 541–559. <https://doi.org/10.1007/s112053-0362-013->
 - Salaripour, A., Mehrjou, M., & Jaliliasdrabad, S. (2021). Evaluation of urban neighborhood regeneration based on urban liveability criteria case study: Kolapa Neighborhood, Hamedan City. *International Journal of Architectural Engineering & Urban Planning*, 32(2), 1–17. <https://doi.org/10.22068/ijaup.573>
 - Satu, S. A., & Chiu, R. L. (2017). Livability in dense residential neighbourhoods of Dhaka. *Housing Studies*, 34(3), 538–559. <https://doi.org/10.108002673037.2017.1364711/>
 - Sheikh, W. T., & van Ameijde, J. (2022). Promoting livability through urban planning: A comprehensive framework based on the “theory of human needs”. *Cities*, 131, 103972. <https://doi.org/10.1016/j.cities.2022.103972>
 - Slingerland, G., Nikolic, I., & Brazier, F. (2023). It's in the social network: The Social Neighbourhood model to unravel local social structures for liveable and safe neighbourhoods. *Cities*, 135, 104215. <https://doi.org/10.1016/j.cities.2023.104215>
 - Stimson, R., & Marans, R. (2011). Objective measurement of QoL and quality of urban life. In R. W. Marans, Stimson, R.J (Ed.), *Investigating quality of urban life* (pp. 33–54). Springer. https://www.researchgate.net/publication/284980889_Objective_measurement_of_QoL_and_quality_of_urban_life
 - Suhartanto, D., Fadhilurrahmah, S. N. A., & Chaerunisa, K. A. (2025). Faith-aligned experience in urban parks: linking satisfaction to loyalty and responsibility among Muslim visitors. *Journal of Islamic Marketing*, 17(7), 2469–2485. <https://doi.org/10.1108/JIMA-060357-2025->
 - Sultana, R., & Asad, A. (2021). Evaluation of urbanites' perception about livable city using analytic hierarchy process (AHP): A case study of Dhaka City. In Huong, L.T.T., Pomeroy, G.M. (Eds.), *AUC 2019. Advances in 21st Century Human Settlements*. Springer. https://doi.org/10.100729_1-5608-15-981-978/
 - Taleshi Anbohi, M., Aghaeizadeh, E., & Jafari Mehrbadi, M. (2019). Assessment on livability of urban deteriorated fabrics: A case study of Qazvin. *Journal Sustainable City*, 2(3), 59–78. <https://doi.org/10.22034/jsc.2019.195007.1072>
 - Tanford, S. (2016). Antecedents and outcomes of hospitality loyalty: A meta-analysis. *Cornell Hospitality Quarterly*, 57(2), 122–137. <https://doi.org/10.11771938965516640121/>
 - Tapsuwan, S., Mathot, C., Walker, I., & Barnett, G. (2018). Preferences for sustainable, liveable and resilient neighbourhoods and homes: A case of Canberra, Australia. *Sustainable Cities and Society*, 37, 133–145. <https://doi.org/10.1016/j.scs.2017.10.034>
 - Tarh Memari Mohit Consulting Engineers. (2019). گزارش طرح توسعه و عمران (جامع) و حوزه نفوذ شهر شاهرود (ج. ۱: بررسی کل [Report on the development and construction plan (comprehensive) and the area of influence of Shahrood City (Vol. 1: Review of the whole region and the city's area of influence)]. Edareh-ye Koll-e Rah va Shahrsazi-ye Shargh-e Ostan-e Semnan (Shahrood) [General Directorate of Roads and Urban Development of East Semnan Province (Shahrood)]. [in Persian]
 - Tennakoon, M., Rathnasinghe, A., & Kulatunga, U. (2025). Reconceptualising urban liveability: a quantitative assessment of inhabitant needs in Colombo, Sri Lanka. *Urban Design International*, 30, 130–146. <https://doi.org/10.1057/s41289-024-7-00242>
 - Tennakoon, T. M. M. P., & Kulatunga, U. (2019). Understanding liveability: Related concepts and definitions. In Y. G. Sandanayake, S. Gunatilake, & A. Waidyasekara (Eds.), *Proceedings of the 8th World Construction Symposium* (pp. 578–587). Colombo, Sri Lanka. <https://doi.org/10.31705/WCS.2019.57>
 - Tolfo, G., & Doucet, B. (2022). Livability for whom?: Planning for livability and the gentrification of memory in Vancouver. *Cities*, 123, 103564. <https://doi.org/10.1016/j.cities.2022.103564>
 - Tsaor, S.-H., Wang, Y.-C., Liu, C.-R., & Huang, W.-S. (2019). Festival attachment: Antecedents and effects on place attachment and place loyalty. *International Journal of Event and Festival Management*, 10(1), 17–33. <https://doi.org/10.1108/IJEFM-020014-2018->
 - Veysi nab, B., Rahmani, A., Delouchi, P., & Amirian, S. (2023). Evaluation of urban livability condition with an emphasis on environmental indicators (case study: Tabriz metropolis). *Environmental Researches*, 14(27), 179–197. <https://doi.org/10.22034/eiap.2023.179860>
 - Weaver, D. B., & Lawton, L. J. (2011). Visitor loyalty at a private South Carolina protected area. *Journal of Travel Research*, 50(3), 335–346. <https://doi.org/10.11770047287510362920/>

- Zenker, S., & Petersen, S. (2014). An integrative theoretical model for improving resident-city identification. *Environment and Planning A: Economy and Space*, 46(3), 715–729. <https://doi.org/10.1068/a46191>
- Zhan, D., Kwan, M.-P., Zhang, W., Fan, J., Yu, J., & Dang, Y. (2018). Assessment and determinants of satisfaction with urban livability in China. *Cities*, 79, 92–101. <https://doi.org/10.1016/j.cities.2018.02.025>
- Zhong, S., Lee, H., & Yang, H. (2026). What makes neighborhoods livable? Neighborhood environments, intergenerational interactions, and perceived neighborhood livability among older adults in Austin, Texas. *Journal of Intergenerational Relationships*, 1–26. <https://doi.org/10.1080/5350770.2025.2607396>
- Zyari, K., & Hosseini, M. (2016). Evaluate the relationship between viability and resilience in the neighborhoods metropolitan Mashhad. *Journal of Greate Khorasan*, 7(32), 11–26. https://jgk.imamreza.ac.ir/article_137862_en.html

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