

Assessing the Conceptual and Spatial Aspects of Persian Gardens through the Lens of the Qur'an: A Questionnaire-Based Survey

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ABSTRACT:

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The Holy Qur'an provides extensive descriptions of paradise as created by God for humanity. These descriptions not only emphasize material rewards but also highlight spiritual blessings that fulfill human emotional and psychological needs. This study investigates the realization of Qur'anic conceptual and spatial indicators of gardens in the design of Persian gardens, addressing the following questions: What are the conceptual and spatial indicators of gardens in Qur'anic verses? To what extent have these indicators been realized in Persian gardens? Using a

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descriptive-analytical methodology with a comparative approach, the Qur'anic verses and their interpretations were analyzed to identify key indicators of paradise gardens. These indicators were categorized into two groups: mental and intrinsic perceptions, such as feelings of security, wellbeing, eternity, spiritual tranquility, spiritual wealth, reflection on divine blessings, and recreation; and visual and spatial perceptions, including expansiveness, the attractiveness of greenery, scenic beauty, and decorative aspects of the garden. The study assessed these indicators through a survey of 200 visitors to 11 historical Persian gardens, utilizing an 11-item questionnaire. The data were analyzed using confirmatory factor analysis (CFA). The findings reveal a significant alignment between the Qur'anic descriptions of paradise and the perceptions of visitors to Persian gardens. Mental and intrinsic components were found to have a greater impact than visual and spatial components in reflecting the spirituality and Qur'anic teachings embedded in Persian gardens. Among the mental and intrinsic elements, the sense of security emerged as the most influential factor, while scenic beauty ranked as the most impactful visual and spatial feature.

KEYWORDS: The Qur'an and Architecture, Persian Gardens, Qur'anic Paradise, Conceptual Features of Gardens.

1. Introduction

The Holy Qur'an, as a book of guidance for humanity, offers extensive descriptions of paradise. These descriptions highlight both material blessings, such as vast gardens and flowing streams, and spiritual rewards, including peace, security, and closeness to God. Such imagery not only shapes the mental perception of paradise but also serves as a source of inspiration for many Muslim architects in designing Persian gardens as metaphors for paradise. Gardens have always held a significant place in Iranian culture and history and are recognized as a national symbol of Iran worldwide. In modern times, humanity's physical and emotional need to connect with nature has led to the perception of nature as a form of cultural heritage across societies. In this cultural context, natural elements are considered divine signs and symbols, a perspective reinforced by their repeated mention in Islamic texts (Zamani et al. 2009).

The Persian garden, as one of the most prominent achievements of Islamic architecture, provides a platform to visually and conceptually

manifest Qur'anic teachings. In these gardens, elements such as vast spaces, water, trees, and greenery are meticulously designed not only to meet physical needs but also to address spiritual and emotional well-being. The Qur'an contains numerous verses that vividly describe the gardens of paradise and the material and spiritual blessings they hold:

Allah has promised the faithful, men and women, gardens with streams running in them, to remain in them [forever], and good dwellings in the Gardens of Eden. Yet Allah's pleasure is greater [than all these]; that is the great success (Q. 9:72).

Indeed the God-wary will be amid gardens and streams, in the abode of truthfulness with an omnipotent King (Q. 54:54-55).

In these verses, it is evident that God first emphasizes the material blessings of paradise and then refers to its greater spiritual rewards (Ansarian 2004). This study aims to examine the extent to which the conceptual and spatial aspects of the Qur'anic descriptions of paradise have been realized in the concept of the Persian garden. It seeks to address the following questions: What are the conceptual and spatial indicators of gardens in the Qur'anic verses? To what extent have these indicators been embodied in the Persian garden?

To achieve this, the Qur'anic verses and their interpretations were analysed to extract the conceptual and spatial indicators of the gardens of paradise. These indicators were categorized into two groups: mental and intrinsic perception, and visual and spatial perception. Subsequently, a questionnaire was designed based on these indicators, and visitors to eleven significant historical Persian gardens were asked to respond to the questionnaire. Finally, an analysis of the visitors' perspectives revealed the extent to which the conceptual and spatial indicators of Qur'anic paradise gardens have been realized in the concept of Persian garden.

2. Literature Review

Numerous studies and research have been conducted on Persian gardens and the manifestation of Qur'anic concepts in these gardens. Mirfendereski (2001) stated that garden creators, through a precise understanding of natural elements and their interrelationships, managed to create a spiritual space by utilizing material elements. Ansari and Mahmoudinejad (2006) explored and evaluated the allegorical nature

of the Persian garden as a representation of paradise. Bemanian et al. (2008) examined the factors influencing the Persian garden as a space aligned with environmental and spiritual values. Naghizadeh (2008) investigated the origins of the idea of creating paradise on earth. Zamani et al. (2009) analyzed the religious and ritualistic principles embodied in Persian gardens. Shahcheraghi (2010), emphasizing the importance of attention focus systems, explained the perceptual process of environmental fragmentation and its semantic connection in the garden. Goodarzisorush and Mokhtabad (2013) identified mental and physical similarities and the alignment of symbols in Persian-Islamic gardens with paradise. Bemanian et al. (2012) examined the wisdom of garden elements such as light and shadow, trees, plants, water, and other elements, which, based on sacred geometry and divine knowledge, guided humanity toward salvation. Mansouri and Heidar Nattaj (2011) critically analyzed the formal influence of paradise on the geometry of Persian garden layouts while emphasizing the semantic impact of paradise. Labibzadeh et al. (2012) investigated structural transformations in gardens based on changes in religious thought. Hamzenejad et al. (2014) explored the stronger inward-oriented aspect of Sassanian gardens compared to Islamic gardens. Medghalchi et al. (2014) explored the elements of Persian gardens and aligned them with spatial concepts and components to identify the qualities of the “spirit of place” in Persian gardens. Masoud et al. (2015) analyzed the meaning of Chahar Bagh and the features of Persian gardens within its semantic framework. Nafisi et al. (2016) demonstrated that religion had influenced the creation of gardens. Sheybani and Hashemi Zadegan (2017) focused on the sacredness and origin of Persian gardens, investigating their intrinsic validity. Meghdadi and Mousavi Gilani (2016) explored the religious, philosophical, and doctrinal aspects of Chahar Bagh architecture in the Safavid period. Haghighatbin (2017) discussed how paradise was embodied in the garden and the use of signs and symbols as representations of paradise. Lak and Jalalian (2022) examined the meaning of place in vibrant urban spaces. Belali Oskoui et al. (2020) addressed the structural and semantic complexities of the Persian garden in their article titled “Manifesting the concept of water in the paradise of Qur’an and Persian garden.” Belali Oskoui and Mahmoodi (2020) analyzed factors such as tranquility, comfort, and security in the garden in their article titled “Interpretive analysis of garden in Metraghchi’s miniature of Dargazin gardens.” Yahya et al. (2022) defined spirituality in Islamic literature as the use of reason, tendencies, and the ability to

experience awareness of the origin of the universe, worship of God, humility, submission, and trust.

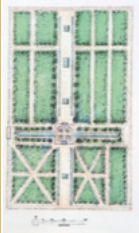
Given the research background, it can be concluded that the Persian garden has been influenced by the Qur'anic concept of paradise, and architects, drawing on these concepts, have designed Persian gardens accordingly. This study will examine the conceptual and spatial features extracted from the Qur'an and analyze these features in 11 Persian gardens.

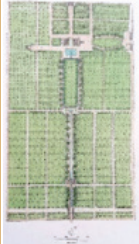
3. Research Methodology

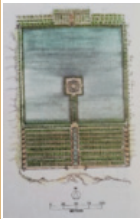
This research employs a descriptive-analytical methodology with a comparative approach to explore the realization of Qur'anic conceptual and spatial indicators in Persian gardens. The study integrates textual analysis of Qur'anic verses and their commentaries with library research and field surveys to address the research questions. Data were collected from 200 participants who visited 11 historical Persian gardens. The gardens include Chehel Sotoun palace, and Bolbol Garden in Isfahan, Eram Garden, Delgosha Garden, Afif-Abad Garden, and Narenjestan-e Ghavam Garden in Shiraz, Fin Garden in Kashan, Golshan Garden in Tabas, Dowlatabad Garden in Yazd, Shazdeh Mahan Garden in Kerman province, and El Goli Garden in Tabriz (Table 1). The selection criteria for these gardens were based on their construction post-dating the advent of Islam, their recognition as significant and historical Persian gardens, and their preservation, allowing them to be visited today.

A structured questionnaire with 11 items, designed to capture both mental and intrinsic perceptions and visual and spatial perceptions, was used to gather data. Responses were measured on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree." A sample size of 200 participants, which meets the recommended threshold for structural equation modeling (SEM) (McQuitty 2004; Hoe 2008), responded to the questionnaire. Confirmatory factor analysis (CFA) was employed to analyze the data and evaluate the measurement model. CFA is particularly useful for testing hypotheses regarding the relationships between latent variables and their observed indicators, as well as assessing the goodness-of-fit of the overall model. The study applied both first-order and second-order CFA to account for the hierarchical structure of latent variables. This method is applied when the latent factors within a set of variables have two levels, such that the existing latent factors themselves are derived from other latent factors (Hakimzadeh & Abdolmaleki 2011).

Table 1. Characteristics of the Selected Gardens as the Statistical Population

	Gardens	Plan	Period	Description
1	Chehel Sotoun (Isfahan)		Safavid	Located within the urban fabric, with an approximate area of 52,000 square meters (Shahcheraghi 2016). The geometry is based on three main axes, with the pavilion situated in the western third of this axis (Nasr 2010). The reflection of the 20 columns in the pool creates the visual perception of the number 40 (<i>chehel</i>) for the viewer (Naeima 2006).
2	Bolbol Garden (Isfahan)		Safavid	This garden is the sole remaining component of the royal gardens along the Chaharbagh of Isfahan (Naeima 2006). The palace consists of a complex of four porticos. The pavilion is not centrally located within the garden but rather offset to one side (Nasr 2010).
3	Eram Garden (Shiraz)		Seljuk to Zand	Situated within the urban fabric, with an approximate area of 58,000 square meters (Shahcheraghi 2016). The broad dimensions of the planting beds in front of the pavilion form the most important space in the garden. The garden's primary structure is a water axis that enters from the highest part of the garden, forming a crucial element of its organization (Nasr 2010).

	Gardens	Plan	Period	Description
4	Delgosha Garden (Shiraz)		Zand	Located outside the city, with an approximate area of 74,000 square meters (Shahcheraghi 2016). This garden was restored by Qavam al-Mulk (Zangher 2012). It is an orange grove with abundant lemon, citron, and orange trees (Naeima 2006). The garden features a long stream and a large pool located opposite the southern side of the building (Zangher 2012).
5	Afif-Abad Garden (Shiraz)		14th century AD to Qajar	Located within the urban fabric, with an approximate area of 96,000 square meters (Shahcheraghi 2016). This garden is divided longitudinally into two sections by a watercourse. The overall plan of the building is rectangular (Zangher 2012). At the entrance of this garden, there is an elliptical driveway that extends to the front of the building's entrance steps (Naeima 2006).
6	Narenjestan-e Ghavam Garden (Shiraz)		Qajar	Located within the urban fabric, with an approximate area of 1,000 square meters (Shahcheraghi 2016). Due to the abundance of orange trees, it is called Narenjestan-e Ghavam (Qavam Orange Grove). Numerous palm and orange trees are planted there (Naeima 2006). The watercourse that runs alongside the regular flowerbeds is interrupted by pools of varying shapes, forming the central and main part (Zangher 2012).

	Gardens	Plan	Period	Description
10	Shazdeh Mahan Garden (Mahan, Kerman)		Qajar	Located outside the city, with an approximate area of 29,000 square meters (Shahcheraghi 2016). The garden's location was chosen on a sloping terrain suitable for creating a terraced garden. The display of water on horizontal and vertical surfaces is achieved through repeated cascades throughout the garden's length. The highest level, in front of the upper chamber (<i>bala-khaneh</i>), was created to provide a wider view (Naeima 2006).
11	El Goli Garden (Tabriz)		Safavid	Located within the urban fabric, with an approximate area of 112,000 square meters (Shahcheraghi 2016). The prominent feature of this garden is its artificial lake. An octagonal structure is located in the middle of the large water pool (Naeima 2006). The south of this garden borders scenic hills (Zangher 2012). The surrounding trees form a hedge around the pool (Naeima 2006).

4. *Qur'anic Theoretical Framework*

The Persian garden has consistently served as a terrestrial representation of paradise. Long before such a connection between humanity and the environment was established elsewhere in the world, Iranians cultivated a profound relationship with nature through their gardens (Wilber 1969). Upon its advent in various regions, Islam did not oppose existing beliefs, practices, rituals, and spaces that were not inconsistent with its tenets; rather, it often reinforced them.

The Persian garden, deeply rooted in Iranian reverence for nature and further supported by Islam's own emphasis on the natural world, continued to flourish after the advent of Islam. It is plausible that the Qur'an's descriptions of paradise may have accentuated certain characteristics of these gardens. In other words, while these descriptions did not originate the form of the Persian garden, they likely enhanced its development. Islamic teachings thus served as a guiding principle for architects in designing these spaces.

In Table 2, diverse characteristics of the paradise gardens described in the Qur'an are extracted based on the perspectives of several interpreters (*mufasssirūn*) and categorized into two groups: mental and intrinsic perception; visual and spatial perception.

Table 2. Conceptual and Spatial Features of Paradise Gardens in the Qur'an

Qur'anic Features of the Paradise Garden		Verses
Mental & Intrinsic Perception	The eternal and everlasting nature of the gardens of Paradise (Ansarian 2004; Kāshānī 2009; Tabataba'i 1996).	Q. 2:82; 3:15; 4:57; 7:42
	Security and well-being in the gardens of Paradise (Kāshānī 2009; al-Ṭabrisī 1994; Ansarian 2004; Tabataba'i 1996).	Q. 6:127; 10:25; 13:23-24; 15:46; 34:37; 44:51; 52:19
	Spiritual comfort and tranquility in the gardens of Paradise (Kāshānī 2009; Qara'ati 2006).	Q. 55:52, 54; 56:89; 76:13
	The freshness resulting from the constant presence of water in the heavenly gardens, which softens the air and creates spiritual and psychological effects (Makarem Shirazi 1992; Qara'ati 2006; Ansarian 2004).	Q. 2:25; 14:32; 16:10; 78:15
	Spiritual tranquility and human vitality through fragrant plants and flowers (Makarim Shirazi 1992).	Q. 55:12
	Paradise is the inheritance of the believers with the right to choose their dwelling as one of the blessings and privileges of Paradise (al-Ṭabrisī 1994; Kāshānī 2009; Ansarian 2004; Qara'ati 2006).	Q. 7:43; 23:11; 39:74; 43:72
	The existence of spiritual blessings such as forgiveness, purification of the heart, spiritual growth, and closeness to God, alongside material blessings like expansive gardens and flowing rivers (Makarim Shirazi 1992; Ansarian 2004).	Q. 3:136; 47:15; 54:55
	Remembrance of God when encountering the beautiful landscapes of nature (Qara'ati 2006).	Q. 18:39
	Providing pleasure and recreation (Qara'ati 2006).	Q. 22:14, 23; 9:72

	Qur’anic Features of the Paradise Garden	Verses
Visual & Spatial Perception	The vastness of the heavenly gardens, likened to the expanses of the skies and the earth (Kāshānī 2009; Ansarian 2004; al-Ḥarrānī 2001; al-Ṭūsī 2009).	Q. 3:133
	Enjoyment of the freshness and beauty of greenery, flowers and flowing water (al-Majlisī 1982; al-Ḥarrānī 2001; Qara’ati 2006).	Q. 27:60; 9:72, 89
	The remarkable natural landscapes of the gardens, plants, flowers, and flowing waters (al-Ṭabrisī 1994; Makarim Shirazi 1992; Qara’ati 2006; al-Majlisī 2009).	Q. 55:66; 47:12; 7:43; 6:141; 39:20; 83:23; 56:31; 50:7
	The adornment provided by diverse and colorful plants and all forms of vegetation (Makarim Shirazi 1992; Qara’ati 2006; Ansarian 2004; Kāshānī 2009).	Q. 10:24; 41:39

5. Findings and Discussion

In line with the research objective of examining the conceptual and spatial aspects in Persian gardens, a questionnaire was employed to avoid relying solely on logical analysis. The questionnaire, as an effective tool for assessing opinions, beliefs, and attitudes of a large number of individuals, was used to gather data. The aspects of Qur’anic Paradise Gardens identified in Table 2 were presented in a questionnaire. Two hundred visitors of the 11 selected Persian gardens were asked to answer it. The participants represented different age groups and held academic qualifications from various fields of study. The questionnaire consisted of 11 items based on a 5-point Likert scale ranging from “strongly agree” to “strongly disagree”. Among the respondents, 56% were female, and 44% were male. Regarding educational background, 14% held a doctorate, 38% had a master’s degree, 38% a bachelor’s degree, and 10% had a high school diploma. In terms of familiarity with the gardens, 36% had visited fewer than five gardens, 48% had visited more than five gardens, and 16% were familiar with all the gardens (Table 3).

Table 3. Descriptive Information of Respondents

	Gender	Percentage (%)	Educational Level	Percentage (%)	Familiarity with the Gardens	Percentage (%)
Respondents	Female	56.0	Doctorate	14.0	All gardens	16.0
	Male	44.0	Master's Degree	38.0	Five or more gardens	48.0
			Bachelor's Degree	38.0	Fewer than five gardens	36.0
			High School Diploma	10.0		

To analyze the collected data and evaluate the research model, a multi-step statistical approach was applied. First, the data were examined for their reliability and validity to ensure the accuracy and consistency of the questionnaire as a measurement tool. Confirmatory factor analysis (CFA) was employed as the primary data analysis technique to test the relationships between latent variables and their indicators and to assess the overall goodness-of-fit of the proposed model. This method provided insights into the extent to which Qur’anic conceptual and spatial indicators of paradise gardens align with the design features of Persian gardens.

The reliability index measures the precision of an instrument in assessing the intended constructs. This means that if the study is repeated under the same conditions, the results obtained from the questionnaire will remain consistent. Cronbach’s alpha is an indicator used to measure internal consistency by calculating the average correlation between the items of a survey instrument. It serves as a metric for reliability, indicating the extent to which the observed score reflects the true score of the construct under investigation. Convergent validity is assessed using the Average Variance Extracted (AVE) index, which measures the variance explained by a construct relative to the variance due to measurement error. Fornell and Larcker (1981) proposed the AVE index as a criterion for assessing convergent validity, with a minimum threshold of 0.5. This threshold indicates that at least 50% of the variance in a latent variable is explained by its indicators.

Given that the values for Cronbach’s alpha, composite reliability (internal consistency), and other indices fall within the acceptable

range, the reliability and convergent validity of the research model can be deemed satisfactory. Specifically, Cronbach’s alpha and composite reliability values exceed 0.7 (Table 4).

Table 4. Reliability and Validity of the Model

Constructs	Cronbach’s Alpha	rho-A	Composite Reliability	Average Variance Extracted (AVE)
Visual and Spatial Perception	0.687	0.724	0.808	0.517
Mental and Intrinsic Perception	0.828	0.834	0.872	0.527
Core Concept of Persian Gardens	0.878	0.888	0.901	0.519

Divergent validity, another crucial criterion, was also evaluated (Table 5). Divergent validity assesses the extent to which a construct is more strongly associated with its own indicators than with those of other constructs. Acceptable divergent validity indicates that a construct interacts more strongly with its indicators than with indicators of other constructs.

Table 5. Divergent Validity

Constructs	Visual and Spatial Perception	Mental and Intrinsic Perception	Core Concept of Persian Gardens
Visual and Spatial Perception	0.719		
Mental and Intrinsic Perception	0.814	0.784	
Core Concept of Persian Gardens	0.621	0.769	0.677

As shown in Table 6, in mental and intrinsic perception, the standardized coefficients (factor loadings) for items such as eternity, security, wellbeing, spiritual tranquility, divine blessings, and joyfulness exceed 0.4. Similarly, in visual and spatial perception, items such as garden expansiveness, the attractiveness of greenery, scenic beauty, and decorative aspects exhibit values more than 0.4. Furthermore, the

T-statistics for all items are greater than 1.96. The AVE for mental and intrinsic perception was calculated as 0.527, while for visual and spatial perception, it was 0.517, confirming the validity of the Persian garden construct.

Table 6. Factor Loadings of Indicators Influencing the Familiarity Scale with Persian Gardens

	Indicator	Factor Loading	T-Statistic	Significance Level	Result
Mental & Intrinsic Perception	Eternity	0.626	14.556	P < 0.05	Confirmed
	Sense of Security	0.763	25.374	P < 0.05	Confirmed
	Feeling of Wellbeing	0.746	27.202	P < 0.05	Confirmed
	Spiritual Tranquility	0.733	19.248	P < 0.05	Confirmed
	Spiritual Wealth	0.599	10.914	P < 0.05	Confirmed
	Reflection on Divine Blessings	0.720	21.108	P < 0.05	Confirmed
	Joy and Recreation	0.723	17.640	P < 0.05	Confirmed
Visual & Spatial Perception	Garden Expansiveness	0.626	13.047	P < 0.05	Confirmed
	Greenery Attractiveness	0.778	25.626	P < 0.05	Confirmed
	Scenic Beauty	0.839	38.514	P < 0.05	Confirmed
	Decorative Aspects	0.607	11.339	P < 0.05	Confirmed

Based on the model, the standardized regression coefficient for mental and intrinsic perception is 0.670, while for visual and spatial perception, it is 0.376. These coefficients represent the impact of the independent variable on the dependent variable, ranging from -1 to +1. It can be concluded that mental and intrinsic perception has a greater

influence on the concept of Persian gardens than visual and spatial perception, with an influence rate of 67%. Meanwhile, visual and spatial perception also has a positive impact, albeit with a lower influence rate of 38%.

Furthermore, based on factor loadings, it can be asserted that within the mental and intrinsic perception index, the sense of security indicator has the highest factor loading of 0.763, making it the most significant contributor to this perception. Factor loading measures the correlation between the indicators of a construct and the construct itself. Among the indicators of mental and intrinsic perception, the spiritual wealth indicator has the lowest factor loading of 0.599, indicating the weakest correlation.

For the visual and spatial perception index, the scenic beauty indicator shows the highest factor loading of 0.839, while the decorative aspects of the garden indicator have the lowest factor loading of 0.604. Overall, the scenic beauty indicator, with a factor loading of 0.839, demonstrates the strongest correlation across all indicators and provides the most significant explanation of the overall concept of Persian gardens (Figure 1).

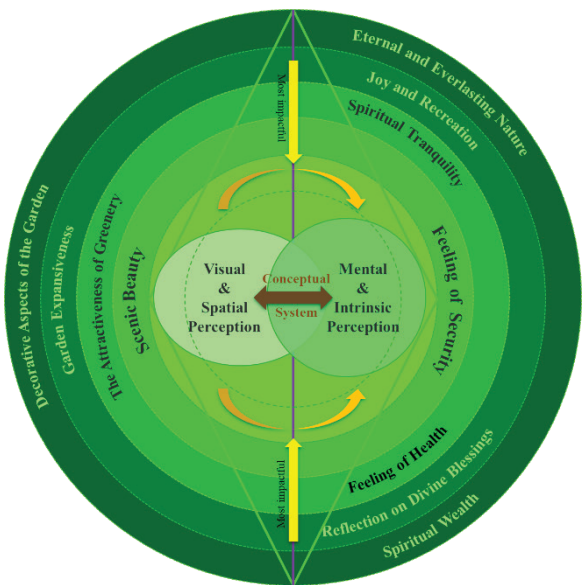


Figure 1. Conceptual Model of Persian Garden Perception

6. Conclusion

Garden architecture is both a cognitive and a visual phenomenon, facilitating the transmission of spiritual concepts both intrinsically and extrinsically. Despite changes in the physical form and function of Persian gardens over time, they have retained their conceptual and spatial aspects. Designers have crafted Persian gardens according to their understanding and talent, and each individual, by being present in these gardens, interprets Islamic teachings based on his or her own understanding and feelings, fulfilling human spiritual needs within these spaces. In this study, the conceptual and spatial components of paradise gardens, based on Qur'anic descriptions, were initially extracted. Subsequently, the extent to which these components were realized in Persian gardens was examined from the perspective of visitors to 11 historical Persian gardens. The conceptual and spatial components of paradise gardens were categorized into two groups: mental and intrinsic perception—including the eternal and everlasting nature, sense of security, feeling of wellbeing, spiritual tranquility, spiritual wealth, reflection on divine blessings, and joy and recreation—and visual and spatial perception—including expansiveness, the attractiveness of greenery, scenic beauty, and decorative aspects of the garden. To evaluate these components, an 11-item questionnaire using a five-point Likert scale was distributed among two hundred visitors of 11 historical Persian gardens, representing diverse age groups and educational backgrounds. The collected data were analyzed using confirmatory factor analysis. The results showed that the mental and intrinsic perception index plays a more prominent role in conveying the spirituality of Persian gardens compared to the visual and spatial perception index. Among the mental and intrinsic components, a sense of security had the highest impact, while spiritual wealth had the least impact. Among the visual and spatial components, scenic beauty had the highest impact and was also recognized as the most important component in the overall concept of the Persian garden.

These findings demonstrate a significant alignment between visitors' experiences of Persian gardens and the Qur'anic descriptions of paradise gardens. It shows that Persian gardens, in addition to their visual beauty, serve as a space for reflection, tranquility, and the experience of spirituality based on Islamic teachings. The architecture of these gardens, by integrating natural elements with religious concepts, provides visitors with a spiritually enriching and inspiring experience.

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