

# Effect of Green Space on Resident's Place Attachment in Residential Spaces

## (Case Study: Villa and Apartment Dwellers in Shiraz)

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**ABSTRACT:** Living space is a place of relaxation, and those with a sense of attachment to the environment are more satisfied with their living space. According to the literature, being in nature is very effective in creating positive emotions in people. In recent years, living in apartments has made people away from nature affecting their positive feelings about their living space. This study aimed to investigate to what extent and how direct relationship with nature affects dwellers' place attachment in residential areas? The main research question is that what is the relationship between the direct contact with nature in residential areas and level of place attachment? The research method in this article is mixed. Considering the qualitative method, the basic concepts of the research are presented based on the analysis of the content in the environmental psychology and nature-human interactions; and then the criteria for creating a sense of place attachment in the residential areas are extracted. This can be used as a basis for developing a questionnaire. In the quantitative method, the effect of nature on place attachment is measured using a questionnaire. Based on the findings, it can be argued that green space can form stronger relationships between individuals and the environment. Finally, according to the results of this study and confirmed the significance of green space, designers need to consider more clearly the relevance of this important natural element in their future designs.

**Keywords:** Nature, Green space, Residential space, Place attachment.

### INTRODUCTION

Place attachment is considered the intersection of physical elements, activities, and subjective concepts about a place. This sense of attachment turns a space into a place of specific sensory and behavioral characteristics for individuals (Sajjadzadeh, 2013: 6). Place attachment is the bond between an individual and a place (Raymond et al., 2011; Scannel & Gifford, 2010). The definition of residence is dependent on subjective feelings rather than on the usage and function (Tanner, et al., 2008: 197). Living space is a place of relaxation, and those with a sense of attachment to the environment will be more satisfied with their living space.

Being in nature creates positive emotions leading to the feeling of satisfaction and happiness in that space. However, people

have been unfortunately forced to move into apartments in recent years due to various reasons such as the overwhelming growth of cities leading to their departure from nature and less exposure to the natural environment. This in turn negatively influences residents' positive emotions and satisfaction with their surroundings. As a result, the residents do not feel attached to their home, where they spend most of their time in insecurity and dissatisfaction.

This study aims at investigating the role of nature in creating a sense of attachment to the residential areas in individuals through further concentration on environmental psychology, which has received much attention in recent decades. It also proposes to prove the significant relationship between nature and individuals' sense of attachment to take a step in improving

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mental health and promoting the sense of attachment to the residential areas.

Based on the statement of problem mentioned at the beginning of the research, the research questions were formulated as follows:

- What is the relationship between direct access to nature in residential areas and the level of place attachment?
- How is the sense of attachment developed in the residents of those residential areas through direct access to nature?

Based on the questions mentioned at the beginning of the research, the following hypotheses were formulated:

- It seems that there is a significant relationship between the sense of place attachment and nature in the residents of residential areas.
- The direct access to nature can create a sense of place attachment in people living in residential areas, as it promotes mental and physical well-being (Fig. 1).

### Literature Review

Hamid and Babamiri (2012) examined the effect of green space on mental health. According to their findings, long-term habitation in green spaces enhances mental health and plays

an important role in improving mental health components. Behzadpour et al. (2017) studied the role of nature in creating a sense of well-being in the residents of green spaces. They found that nature, as a substrate and a gathering place, may lead to social interactions and better relationships among users leading to greater happiness and a sense of vitality. Ghaleh Nooie et al. (2016) conducted a meta-analysis on place attachment and reviewed published scientific research articles in this area. They found the greatest impact of spatial interest in assessing place attachment. The assessment of place attachment is also influenced by place identity, social bonding with the place, and place dependence. Pirbabai et al. (2015) examined the process of place attachment in urban studies through a cognitive psychological approach. Their results indicated that cognitive psychology, as a scientific approach, can be effective in defining the cognitive process within the theoretical framework of place attachment to provide a more complete picture of the place attachment process. The impact of green space and nature on dwellers of residential complexes and also on the sense of place attachment have been investigated in all the above-mentioned studies. However, this study aims at investigating the effect of nature on the residents' place attachment in the residential areas.

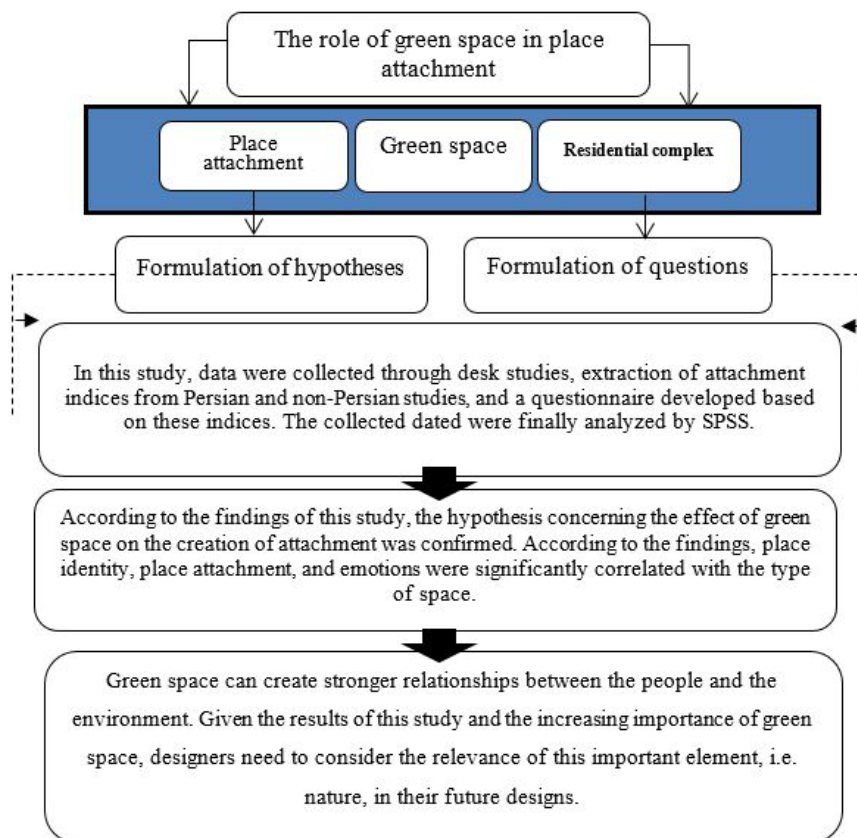


Fig. 1: The process of article development and the results

## MATERIALS AND METHODS

In any research, it is necessary to know the theoretical foundations, which include definitions and concepts, as well as to analyze the views of various theoreticians. It is also required to introduce a research methodology.

### Effect of Green Space

Humans have always been in contact with nature and have tried to exploit it optimally through manipulating t nature. This kind of coexistence is seen throughout human history.

In other words, mankind has always been aware of nature elements since constructing and exploiting shelters, housing, and the environment, and has used nature as an essential element in his plans and projects (Kiani, 2001; cited by Nasr, 2001). Greenspace has very positive effects on different aspects of human life including physical health, mental peace, and social interactions between individuals.

### The Concept of Place Attachment

In Dekhoda's dictionary, attachment is defined as love, affection, friendship, kindness, and tendency (Dekhoda, 1998). As a concept, place attachment is the relationship and connection point between people and places (Giuliani, et al., 2003; Altman & Low, 1992; Sajjadzadeh, 2013). If an environment meets your physical and psychological needs or your goals and lifestyles, you will develop a stronger bond with that environment. If an environment reinforces your identity, you will become emotionally attached to that environment (Tuan, 2001). Theoretically, attachment to an environment involves caring for and interesting in that environment (Altman & Low, 1992, 56; Peyvastegar et al., 2015). Place attachment is an important aspect of the human–environment relationship (Brehm et al., 2006, 142). Place attachment is a type of positive emotional attachment between people and a place (Shumaker & Taylor, 1983). Ralph also defines place attachment as an emotional and authentic interaction with an environment capable of satisfying one's need for belonging to a particular

phenomenon (Relph, 1976, cited by Heydari et al., 2018) (Table 1).

### Factors Influencing Place Attachment

Place attachment leads to people's connection with a place so that they consider themselves a part of that place and assume a role for that place in their minds based on their experience of signs, meanings, actions, and personality leading to the importance and a sense of respect for that place (Falahat, 2006; Sadeghi Fereshteh et al., 2012). Attachment to an environment creates positive attitudes towards that environment as well as environmental protection (Pretty et al., 2003, 265; Continent et al., 2015). People–environment attachment creates a two-way relationship between them; therefore, the positive effects of this relationship will also be mutual. The literature on place attachment reveals a variety of factors including the role of cultural, social, and individual factors (Altman & Low, 1992; Heydari et al., 2018), physical factors (Marcus & Sakissian, 1986), and time factors (Sadeghi Fereshteh et al., 2012).

### Individual Factors

According to the nature of place attachment, this concept involves bonds at the individual level, including individuals' relationships with a place. For example, environments evoking personal memories are thought to be contributed to the creation of a fixed sense of place attachment (Twigger-Ross & Uzzell, 1996) in explaining individual characteristics. These are followed by their role in the interaction of spaces with various factors such as age, gender, income, marital status, education, social class, and occupation (Pretty et al. 2003; Bonaiuto et al., 1999; Sanoff, 1970; Cohen & Shinar, 1985), individuals' mental and physical abilities (Halpern, 1995), individuals' thoughts, perceptions, imaginations, and intentions regarding the place (Gifford, 2002, 27; Pirbabai et al., 2015). Place is one of the factors influencing human–place and human–human activities, and interactions (Altman & Low, 1992, cited by Heydari et al., 2018).

Table 1: The concept of place attachment from the perspective of Iranian and foreign experts

Experts	The concept of attachment and attachment to place
Dekhoda, 1998	love, affection, friendship, kindness, and tendency
Relph, 1976	An emotional and authentic interaction with an environment, and a factor to meet one's need for belonging to a particular phenomenon
Shumaker & Taylor, 1983	A kind of positive emotional attachment between an individual and a place
Giuliani et al., 2003; Altman & Low, 1992	A concept, relationship, and a connection point between people and places
Altman & Low, 1992	The emotional impact of a place that attracts people sensually and culturally and provides caring for and interesting in the environment
Brehm et al., 2006	An important aspect of the relationship between mankind and the environment

### **Social Factors**

The social atmosphere of the environment influences the formation of individuals' attachment to a place (Altman & Low, 1992). If an environment matches, what one expects, from the perspective of social indicators, the tendency to engage in social interaction with inhabitants of that place increases? This ultimately leads to an increase in the attachment to that place (Marcus & Sarkissian, 1986; cited by Heydari et al., 2018). Social characteristics and the way people live in a place together are considered a key factor in their decision to stay there. A positive sense of social bond creates a world for people making them anxious if they have to leave it (Oswald & Wahl, 2001; Fried, 1963; Cohen & Shinar, 1985; Sadeghi Fereshteh et al., 2012). Social context also significantly affects the sense of place attachment (Proshansky et al., 1983; Hughey & Speer, 2002: 65). In deprived regions with a higher population density, the higher level of crime fear is associated with higher crime rates and decreased environmental attachment in individuals (Giuliani, 2003; Peyvastegar et al., 2015).

### **Cultural Factors**

Place attachment is dependent on activities performed by people in their cultural contexts (Altman & Low, 1992). In general, culture influences the type of group interaction with place, due to its key role in the formation of spatial preferences (Newell, 1997 and Pirbabai et al., 2015). At the group level, attachment involves common symbolic meanings of a place among the residents of that place. Place attachment differs from different group contexts of cultures, genders, and religions so that as far as place attachment is concerned, the groups become attached to places, where they can operate and maintain their cultures. Culture connects people to a place through shared experiences, values, and historical symbols. In addition to cultural and symbolic or value-related issues, collective and group experiences of different communities in a place can be mentioned as effective factors because of importance of an event or experience for the members of a group. Groups, families, community members, and similar cultures share the sense of attachment to a particular place (Hummon, 1992; Low, 1992, Lawrence, 1992; Pirbabai et al., 2015).

### **Physical Factors**

Some scholars have emphasized the role of physical elements in the creation of the sense of place attachment, and considered the necessity of attention to physical dimensions in the process of place attachment (Pirbabai et al., 2015). Stedman studied the influence of physical dimensions of an environment on place attachment and found its direct impact on people's satisfaction with the environment (Stedman, 2003). These factors include space, its scale, spatial composition, and its adjacent elements, perspective, and type of equipment and elements used and, so on (Lewika, 2010; Heydari et al., 2018).

### **Temporal Factors**

The length of time a person resides in an area has the strongest impact on environmental attachment (Tuan, 1974, 165). The longer time people stay in an environment, the more likely they feel more positive about that environment. A sense of ownership of an environment like owning a home is also positively associated with environmental attachment (Tuan, 2001, cited by Sadeghi Fereshteh et al., 2012).

### **The Views of Experts on Place Attachment**

Place attachment is influenced by a variety of factors, all based on the people's characteristics and how they interact with the environment, both individually and socially, in different contexts. These factors are divided into individual, social, cultural, physical, and temporal factors as shown in the table below. As the basis for people-place interaction, these factors can be effective in reducing or increasing the level of place attachment (Table 2).

The research method in this article is mixed. Considering the qualitative method, the basic concepts of the research are presented based on the analysis of the content in the environmental psychology and nature-human interactions; and then the criteria for creating a sense of place attachment in the residential areas are extracted. This can be used as a basis for developing a questionnaire. In the quantitative method, the effect of nature on place attachment is measured using a questionnaire.

In this study, the direct relationship between residential spaces and nature is an independent variable, whereas the sense of attachment to a place is considered a dependent variable. The data collection tools include: (a) desk studies, (b) direct observations and recorded data, (c) determination of statistical population (the population includes the residents of villas with high and very direct access to nature and the residents of residential apartment complexes with low access to nature. Sampling was conducted randomly, and a sample size of 150 was considered), and (d) questionnaire development: the first section of the questionnaire includes questions regarding Environmental Attachment (EP) consisting of 22 questions, and cognitive (place identity), emotional (emotional attachment) and behavioral (place attachment and social bonding) aspects of place attachment. A Cronbach's alpha of 0.7 was considered for this questionnaire (Sajjadzadeh, 2013).

The second section of the research-made questionnaire measures the level of residents' place attachment based on the level of access to the green space. These questions were designed based on the literature in this area, the factors creating place attachment, and indicators influencing the presence of green space (Table 3). A Cronbach's alpha of 0.92 was obtained for this section, and the data were collected by presenting the questionnaire to 150 residents of villas with very high and direct access to green spaces, and residents of apartment spaces with very little access to green spaces. The collected data were ultimately analyzed with the help of SPSS.

Table 2: Factors affecting place attachment

	Factors influencing place attachment	Theorists	
Individual	Personal communication with the place	Twigger-Ross & Uzzell, 1996	
	Habitat-, shared memories-, and time-dependent identity	Chawla, 1992	
	Man–place and man–man activities and interactions in that place	Altman & Low, 1992	
	Conscious preferences stemming from individual traits and characteristics	Low & Mc Donogh, 2001	
	Experiencing desirable events in the place	Riley, 1992	
	Experiences and events related to individual emotions	Tuan, 1980; Rubinstein & Parmelee, 1992	
	Individual distinctions, needs, life occupations, individual definition of life		
	Age, gender, income, marital status, education, social class, ethnicity, religion, and occupation	;Pretty <i>et al.</i> , 2003; Bonaiuto <i>et al.</i> , 1999 Cohen & Shinar, 1985; Sanoff, 1970, Marcus & Sarkissian, 1986	
	Positive relationship between people and physical place, and their emotional satisfaction	Chavis & Pretty, 1999	
	Mental and physical ability	Halpern, 1995	
	How individual thoughts, perceptions, imaginations, and personal intentions are related to the place	Gifford, 2002	
	Individual backgrounds, beliefs, and values	Pretty <i>et al.</i> , 2003; Bonaiuto <i>et al.</i> , 1999; Cohen & Shinar, 1985; Sanoff, 1970; Marcus & Sarkissian, 1986	
Social	Lifestyles of inhabitants of a place Adaptation of environment to people's expected social indicators How people are present in a place together	Marcus & Sarkissian, 1986	
	Increased positive interaction and social adjustment of people in a place Formation of social networks in social places and conditions Perception of a desired social space by individuals Increased satisfaction and encouragement of informal communication	Mesch & Manor, 1998; Altman & Low, 1992; Chavis & Pretty, 1999; Oswald & Wahl, 2001; Fried, 1963 Cohen & Shinar, 1985 Fisher <i>et al.</i> , 1977; Rohe & Stegman, 1994	
	People's past life within the social group and their "self" How to express and present in your former place and type of residence	;Sanoff, 1970; Rohe & Stegman, 1994 Bonaiuto <i>et al.</i> , 1999	
	Social context	;Proshansky <i>et al.</i> , 1983 Hughey & Speer., 2002	
	Place identity as part of social elements	Proshansky, 1978	
	Attachment to people	Marris, 1996	
	Social dimension of environment and semantic factors	Gifford, 2002	
	Lower population density	Giuliani, 2003	
	Cultural	Group framework in different cultures, genders and religions Common cultures, experiences, values and historic symbols	Hummon, 1992; Low, 1992; Lawrence, 1992
		Activities formed in the context of cultural needs	Altman & Low, 1992
The role of culture in shaping spatial preferences		Newell, 1997	

Continuous of Table 2: Factors affecting place attachment

<b>Physical</b>	The physical elements of the environment as part of the subjective and individual identity	Riger & Lavrakas,1981; Proshansky 1978
	Cultural, social, and physical symbols of the environment	Rapoport, 1982
	Background and context, services and facilities, location of a place in the urban setting, and how it is connected with surroundings	Bonaiuto <i>et al.</i> , 2002; Lansing <i>et al.</i> , 1970
	The direct impact of physical dimensions of environment on satisfaction with the environment	Stedman, 2003
	Having a good view, physical, and aesthetic qualities of the environment	Shumaker & Taylor,1983
	The compatibility between social interactions and physical characteristics	Lewika, 2010
<b>Temporal</b>	Length of stay in an area	Tuan, 1974; Oswald & Wahl, 2001; Fried, 1963; Cohen & Shinar, 1985; Tuan, 2001
	A sense of ownership of an environment	

Table 3: Place attachment indicators for designing a questionnaire

<b>Individual</b>	<p>Personal communication with the place</p> <p>Experiences and events that are tied to individuals' emotions</p> <p>How individuals' thoughts, perceptions, imaginations, and personal intentions relate to the place</p> <p>Habitat, common memories, and time-related place identity</p> <p>Man–place activities and interactions and man–man activities, and interaction in that place</p>
<b>Social</b>	<p>The social atmosphere of the environment</p> <p>The consistency of an environment with expected social indicators of individuals</p> <p>How to be in a place with others</p> <p>Place identity as part of social elements</p> <p>A positive relationship between people and physical places as well as their emotional satisfaction</p> <p>The enhancement of people's positive interaction and their social compliance with a place</p> <p>Sociocultural interactions and relationships in a place</p> <p>Explaining attachment to place from the perspective of social attachment</p> <p>Attachment to people</p> <p>Increased satisfaction and encouragement of informal communication and participation in social activities</p> <p>The social dimension of environment and semantic factors</p> <p>Higher crime rates and reduced environmental attachment</p> <p>The level of engagement in social media and cultural interaction based on people's participation</p>
<b>Cultural</b>	<p>Common cultures, experiences, values, and historical symbols as well as cultural issues</p> <p>Activities that people do in the context of their cultural needs</p> <p>The role of culture in shaping spatial preferences</p>
<b>Physical</b>	<p>Physical elements of the environment as a part of subjective and individual identity</p> <p>The direct role of physical dimensions of the environment in satisfaction with the environment</p> <p>The good view as well as the physical and aesthetic qualities of the environment</p> <p>Dimensions of space, its scale, spatial composition, and its adjacent elements</p>
<b>Temporal</b>	<p>Length of stay of people in an area</p> <p>A sense of ownership of an environment</p>

**RESULTS AND DISCUSSION**

Finally, the questionnaire was distributed among 150 residents of different types of dwellings to find out how green space affects different indices of place attachment. After harmonic analysis of the collected data by SPSS, the frequency percentage of data on villas with direct access to nature, and apartments with little access to nature was obtained as follows in Table 4.

According to the results in Table 4, the frequency percentage of each variable, in both types of housings, i.e. apartments and villas, is shown in Fig. 2. As clearly seen, regarding the positive feeling of people when entering their residential place (place identity), the percentage of agreement with the variable among villa dwellers is significantly higher than that of the apartment dwellers. Chavis and Pretty (1999) found that a positive relationship and a sense of satisfaction with the environment can lead to a people's attachment to a place. Thus, the findings of this study are consistent with those reported by Chavis and Pretty (1999). The frequency percentages associated with this index are shown in Fig. 1.

Tables 5 and 6 respectively show the results of the Chi-square and Cramer's V tests. As seen, the significance level of place

identity with the type of residential area (villa or apartment) is equal to 0.01; therefore, this relationship is considered significant.

According to the results obtained from the harmonic analysis of emotional attachment (Table 7), the frequency percentage of emotional attachment, in both villa and apartment dwellers, is shown in Fig. 3. As seen, considering the variable measuring the sense of security after entering the place of residence (emotional attachment), the percentage of agreement is much higher among villa dwellers than apartment dwellers. According to Giuliani (2003), an improved sense of security towards an environment will cause an increase in the sense of attachment to that environment. Therefore, the findings of the present study are consistent with those reported by Giuliani.

The frequency percentages of this index are shown in Fig. 3. Tables 8 and 9 respectively present the results of the Chi-square and Cramer's V tests. As seen, the significant level of emotional attachment (1) with the type of residential space (villa or apartment) is equal to 0.042 indicating a significant relationship between these two factors.

The results of the harmonic analysis for the frequency percentage

Table 4: The harmonic analysis of place identity

I feel good when I get to my place of residence		1	2	3	4	5	Total	
Type of space	Villa	Percentage of place identity	0.0%	16.7%	20.0%	66.7%	77.3%	61.4%
	Apartment	Percentage of place identity	100.0%	83.3%	80.0%	33.3%	22.7%	38.6%

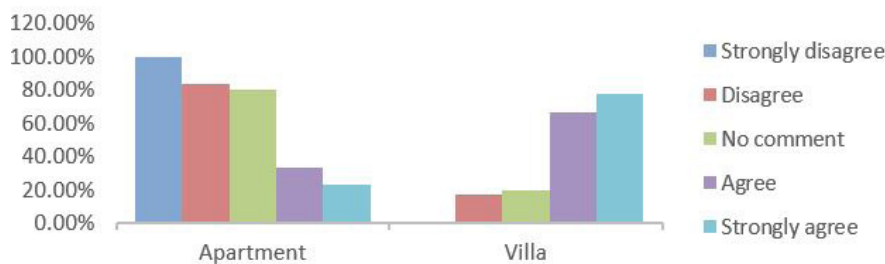


Fig. 2: The frequency percentage of responses to the place identity

Table 5: Chi-square tests of place identity

Significance level	Degree of freedom	Value	
.011	4	13.03 6 <sup>a</sup>	Chi-Pearson Square

Table 6: Cramer's V test, place identity

Significance level	value		
.011	.432	Phi	Nominal by nominal
.011	.432	Cramer's V	

Table 7: The harmonic analysis of emotional attachment 1

			1	3	4	5	Total
Type of space	Villa	Percentage of emotional attachment (1)	100.0%	40.0%	46.9%	78.1%	61.4%
	Apartment	Percentage of emotional attachment (1)	0.0%	60.0%	53.1%	21.9%	38.6%

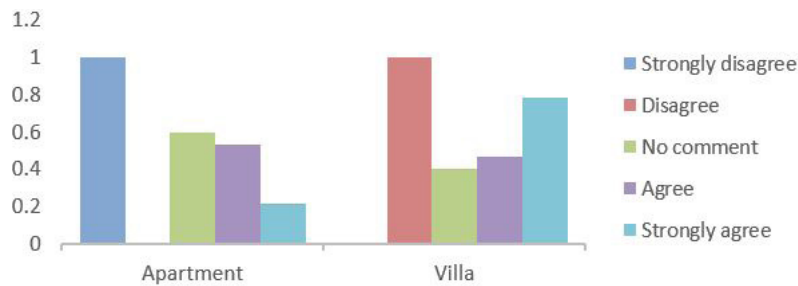


Fig. 3: Frequency percentage of responses to emotional attachment 1

Table 8: Chi-square tests of emotional attachment 1

Significance level	Degree of freedom	Value	
.042	3	8.222a	Chi-Pearson Square

Table 9: Cramer's V test, emotional attachment 1

Significance level	Value		
.042	.343	Phi	Nominal by nominal
.042	.343	Cramer's V	

of each variable in both villa and apartment dwellers (Table 10) are displayed in Fig. 3. As seen, considering the variable measuring the interest in the place of residence (emotional attachment), the percentage of agreement is significantly higher among the villa dwellers than the apartment dwellers. Altman & Low (1992), Twigger-Ross & Uzzell (1996), Tuan (1980) and Rubinstein & Parmelee (1992) found that man-place, and man-man activities and interactions in that place, people's relationships with the place, and experiences and events linked to one's emotions are respectively considered the factors influencing people's attachment to a place confirming the related hypothesis. The frequency percentages of this index are shown in Fig. 4.

According to Tables 11 and 12, the results of the Chi-square and Cramer's V tests showed that the significance level of emotional attachment (6) with the type of residential space

(villa or apartment) is equal to 0.034 indicating a significant relationship between these two factors.

As reported by the harmonic analysis of social bonds (Table 13), the frequency percentage of each variable in both villa and apartment dwellers is shown in Fig. 5. As seen, considering the variable measuring the memorability of the residence (social bonds), the percentage of agreement is much higher among the villa dwellers than the apartment dwellers. Chawla (1992) who studied shared memories and time; Bonaiuto et al. (1999) who studied the past life of individuals in the social group; Riley (1992) who examined the experience of desirable events in a place, Gifford (2002) who analyzed the social dimension of the environment and its semantic factors, as well as Mesch & Manor (1998), Altman & Low (1992), Chavis & Pretty (1999), Oswald & Wahl (2001), Fried (1963) Cohen, and Shinar (1985), Fisher et al. (1977), Rohe & Stegman (1994)



Table 10: The harmonic analysis of emotional attachment 6

Interest in the living space		1	2	3	4	5	Total	
Type of space	Villa	Percentage of emotional attachment (6)	0.0%	75.0%	54.5%	46.4%	85.7%	62.3%
	Apartment	Percentage of emotional attachment (6)	100.0%	25.0%	45.5%	53.6%	14.3%	37.7%

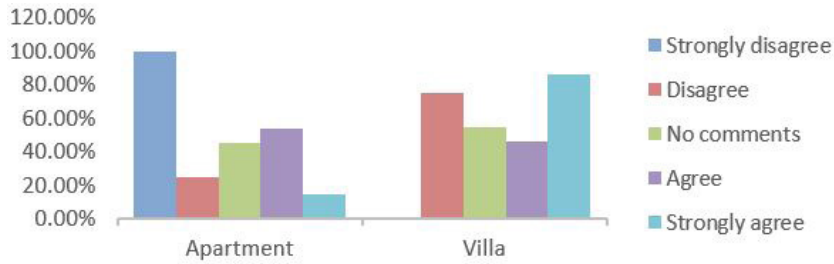


Fig. 4: Frequency percentage of responses to emotional attachment 6

Table 11: Chi-square tests of emotional attachment 6

Significance level	Degree of freedom	Value	
.034	4	10.390 <sup>a</sup>	Chi-Pearson Square

Table 12: Cramer's V test, emotional attachment 6

Significance level	Value		
.034	.388	Phi	Nominal by nominal
.034	.388	Cramer's V	

Table 13: Harmonic analysis of social bonds

Memorability of the residential place		1	2	3	4	5	Total	
Type of space	Villa	Percentage of social bonds	20.0%	23.1%	62.5%	75.0%	93.3%	62.3%
	Apartment	Percentage of social bonds	80.0%	76.9%	37.5%	25.0%	6.7%	37.7%

who conducted studies on related fields, all acknowledged that social conditions, increased positive interactions among people and their social compliance, as well as the formation of social networks in a place, are among the factors leading to place attachment. Therefore, the findings of this research are consistent with the above-mentioned studies. The frequency percentages of this index are shown in Fig. 5.

According to Tables 14 and 15, the results of the Chi-square and Cramer's V tests showed that the significance level of social

bonds with the type of residential space (villa or apartment) is equal to 0.01 indicating a significant relationship between these two factors.

The aspects of place attachment obtained for both villas (with access to the green space) and apartment dwellers (with the least access to the green space) are shown in Fig. 6, indicating the higher level of place attachment among the villa dwellers than the apartment dwellers.

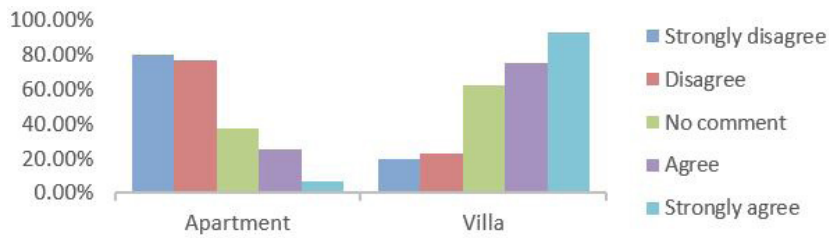


Fig. 5: Frequency percentage of responses about social bonds

Table 14: Chi-square tests of social

Significance level	Degree of freedom	Value	
.001	4	19.853 <sup>a</sup>	Chi-Pearson Square

Table 15: Cramer's V test, social bonds

Significance level	Value		
.001	.536	Phi	Nominal by nominal
.001	.536	Cramer's V	



Fig. 6: Micro comparison of place attachment in residences of villas and apartments

## CONCLUSION

The positive psychological impact of nature on human beings is further highlighted when it comes to direct contact with nature. Direct contact with each component of nature such as green space, affects most aspects of individual psychology, including the sense of place attachment. The sense of place attachment, as an important emotional relationship between people and place, will lead to the formation of a positive mutual people–place relationship, leading to emotional well-being and environmental protection. Living space is a place where people spend most of their time, and there is a need for maintaining an emotional relationship with this space because people will not feel comfortable in an area where there is no peace and positive feeling. Therefore, the lack of an emotional bond between people and the environment will be established in such an environment. This study aims at proving the role of green space as a cause of attachment to a place in creating a stronger

relationship between people and an environment. According to our findings, the green space can affect some subscales of place attachment such as positive emotions of interest and security, creation of a meaningful environment (by getting identity from the environment and memorability of the environment), and formation of social interactions. Consequently, the hypothesis concerning the role of the green space in the formation of stronger relationships between people and the environment is confirmed. According to the results of this study and considering the growing importance of green space, designers need to consider the relevance of this important element of nature in their future designs by considering the yard in height and the green roofs or roof gardens. Accordingly, designers and architects will be able to form a stronger emotional connection between the green space and living place, which can eventually lead to positive psychological consequences.

## REFERENCES

- Altman, I. & Low, S. (1992). Human Behavior and Environments. *Advances in Theory and Research Place Attachment Journal*, 12(2), 85-89.
- Behzadpour M., GorjiMehlabani Y., & Soheili J., (2016) The Role of Nature in Residents' Happiness in Residential Complexes, *Urban Management*, 48, pp.361-376.
- Bonaiuto, M. Aiello, A. , Perugini, M. , Bonnes, M. , & Ercolani, A.P. (1999). Multidimensional perception of residential environment quality and neighbourhood attachment in the urban environment. *Journal of Environmental Psychology*, 19, 331-352
- Bonaiuto, M., Fornara, F. & Bonnes, M. (2002). Indexes of perceived residential environment quality and neighborhood attachment in urban environments: a confirmation study on city of Rome. *Landscape and Urban Planning*, 988, 1-12.
- Brehm, J. M., Eisenhauer, B. W., & Krannich, R. S. (2006). Community attachments as predictors of local environmental concern: The case for multiple dimensions of attachment. *American behavioral scientist*, 50(2), 142-165.
- Chavis, D.M. & Pretty, G. (1999). Sense of community: A vances in measurement and application, *Journal of Community Psychology*, 27(6), pp. 635-642.
- Chawla, L. (1992). *Childhood place attachments*. In Place attachment (pp. 63-86). Springer, Boston, MA.
- Cohen, Y.S. & Shinar, A (1985). *Neighborhoods and Friendship Networks*, Chicago: The University of Chicago,
- Dehkhoda A.A., (1998). *Dictionary of Dehkhoda*. Volume 1. Tehran: University of Tehran Press.
- Falahat M.S. (2006). The Concept of Place Sense and its Shaping Factors, *Fine Arts*, 26 (1). 57-66.
- Fisher, C; Gerson, K & Stueve, C.A (1977). *Networks and Places: Social Relations in the Urban Setting*, In C. Fisher (Eds.), New York: Free Press.
- Fried, M. (1963). *Grieving for a lost home*. Duhl LJ, Ed. The urban condition: people and policy in the metropolis. The urban condition: People and policy in the metropolis. New York: Simon and Schuster.
- Ghalenoie M., Zamani B. & Peymanfar S., (2016). Meta-analysis of Place Attachment Studies, *Urban Management*, 48, pp. 87-98.
- Gifford, R. (2002). *Environmental Psychology: Principles and Practice*, Canada.
- Giuliani, M. (2003). Theory of Attachment and Place Attachment. *Psychological Theories for Environmental Issues*, 32, 137-170.
- Giuliani, M. V., Ferrara, F., & Barabotti, S. (2003). One attachment or more?. *People, Places and Sustainability*, 111-22.
- Halpern, D. (1995). *Mental health and the built environment: More than bricks and mortar?* London: Taylor and Francis.
- Hamid N. & Babamiri M., (2012). The Relationship between Green Space and Mental Health, *Armaghane Danesh, Yasuj University of Medical Sciences*, 17(4), pp.309-316.
- Heydari A.A., Teimouri P. & Moradian S., (2018). Assessing the Impact of Place Scale on Degree of Attachment in Three Scales of Home, Neighborhood and City Based on Two Variables of Age and Gender, *Urban Studies*, pp. 3-16.
- Hughey, J., & Speer, P. W. (2002). Community, sense of community, and networks. In *Psychological sense of community* (pp. 69-84). Springer, Boston, MA.
- Hummon, D. (1992). *Community attachment: local sentiment and sense of place*, In I. Altman and S. Low (Eds), New York: ace Attachment.
- Kiani, M. (2001). Nature in the works of architects: The role of symbols of nature and the universe in the formal view Architects. *Collection of Human Articles, Nature, and Architecture*. Mashhad: Ferdowsi University
- Lansing, J.B; Marans, R.W and Zehner, R.B (1970). *Planned residential Environments*, Survey Research Center, University of Michigan.
- Lawrence, D. L. (1992). *Transcendence of place*. In Place attachment (pp. 211-230). Springer, Boston, MA.
- Lewicka, M. (2010). What makes neighborhood different from home and city? Effects of place scale on place attachment. *Journal of environmental psychology*, 30(1), 35-51.
- Low, S. M. (1992). *Symbolic ties that bind*. In Place attachment (pp. 165-185). Springer, Boston, MA.
- Low, S. M., & McDonogh, G. W. (2001). Introduction to remapping the city: Place, order, and ideology. *American Anthropologist*, 103(1), 5-6
- Marcus, C.C. & Sarkissian, W. (1986). *Housing as if People Mattered*, Berkeley: University of California Press.
- Marris, P (1996). *The Politics of Uncertainty: attachment in private and public life*, New York: Routledg.
- Mesch, G.S. & Manor, O (1998). Social ties, environmental perception, and local attachment, *Environment and Behavior*, 30(4), 504-519.
- Nasr S.H, (2001), *Man and Nature (The Crisis of the Modern Man)*, Dr. Abdul Rahim Gavahi, Tehran: Islamic Culture Publishing House.
- Newell, P.B. (1997), *A Cross-Cultural Examination of Favorite Places*, *Environment and behavior*, 29(4), 495-514.
- Oswald, F., & Wahl, H. W. (2001). Housing in old age: Conceptual remarks and empirical data on place attachment. *Bulletin on People-Environment Studies*, 19, 8-12.
- Peyvastegar M., Darvizeh Z. & Tavousi S., (2015). The Relationship between Environmental Attachment and Mental Health and Social Adaptation of Students, *Armanshahr*: 15(8), 195-203.
- Pirbabai M.T., Gharabagloo M., Alinam Z., (2015). The Impact of Individual Factors on the Process-Oriented Place Attachment with Cognitive Psychological Approach, *honarhaye ziba*, 21(2), pp. 55-68.
- Pretty, G. H., Chipuer, H. M., & Bramston, P. (2003). Sense of place amongst adolescents and adults in two rural Australian towns: The discriminating features of place attachment, sense of community and place dependence in relation to place identity. *Journal of environmental psychology*, 23(3), 273-287.
- Proshansky, H. M., Abbe, K. F., & Kaminoff, R.) (1983). Place-Identity: Physical World Socializations of the Self, *Journal of Environmental Psychology*, 3, 57-83.
- Proshansky, H. M. (1978). The city and self-identify. *Environment and behavior*, 10(2). 147-169
- Rapoport, A. (1982). *Meaning of the Constructed Environment: Approach to Nonverbal Communication*. Beverly Hills: Sage Publications.
- Raymond, C. M., Brown, G., & Robinson, G. M. (2011). The influence of place attachment, and moral and normative concerns on the conservation of native vegetation: A test of two behavioral models.

*Journal of Environmental Psychology*, 31(4), 323-335.

Relf, E. (1976). *Place and Placelessness*. London: Pionnt.

Riger, S., & Lavrakas, P. J. (1981). Community ties: Patterns of attachment and social interaction in urban neighborhoods. *American journal of community psychology*, 9(1), 55-66.

Riley, R. B. (1992). *Attachment to the ordinary landscape*. In *Place attachment* (pp. 13-35). Springer, Boston, MA.

Rohe, W. M., & Stegman, M. A. (1994). The impact of home ownership on the social and political involvement of low-income people. *Urban Affairs Quarterly*, 30 (1), 152-172.

Rubinistein, R.L & Parmelee, P.A. (1992). *Place attachment and representation of the life course by the elderly*. In *place Attachment*. Edited by Altman, I & Low, S.M., New York: Plenum Press.

SadeghiFereshteh R., DaneshgarMoghadam G., & Dejdard O. (2012). The Relationship between Physical Design in Residential Complexes and Residents' Sense of Attachment, *Urban Management*, 30, 253-264.

Sajjadzadeh H., (2013). The Role of Place Attachment in Identifying Urban Squares, *BaghNazar*, 25(10), 79-88.

Sanoff, H (1970), *Residential Patterns of Racial Change: A Study of a Southern City*, Urban Affairs and Community Services Center, Raleigh.

Scannell, L., & Gifford, R. (2010). Defining place attachment: A

tripartite organizing framework. *Journal of Environmental Psychology*, 30(1), 1-10.

Shumaker, S.A., and Taylor, R.B. (1983), *Toward a clarification of people-place relationships: A model of place attachment*, In N. R. Feimer and E. S. Geller (Eds.), *Environmental Psychology: Directions and perspectives*, New York: Praeger,

Stedman, R. C. (2003). Is it really just a social construction? The contribution of the physical environment to sense of place. *Society & Natural Resources*, 16 (8), 671-685.

Tanner, B., Tilse, C., & De Jonge, D. (2008). Restoring and sustaining home: The impact of home modifications on the meaning of home for older people. *Journal of Housing for the Elderly*, 22(3), 195-215.

Tuan, Y. F. (1980). Rootedness versus sense of place. *Landscape*, 24, 3-8.

Tuan, Y. F. (2001). *Space and place: The perspective of experience*. Minneapolis: University of Minnesota.

Tuan, Y.F. (1974). *A Study of Environmental Perception, Attitudes and Values*. Minneapolis: University of Minnesota.

Twigger-Ross, C. L., & Uzzell, D. L. (1996). Place and identity processes. *Journal of environmental psychology*, 16 (3), 205-220.

