



ASSESSING THE FACTORS AFFECTING THE PROMOTION OF SOCIAL INTERACTION THROUGH GREEN SPACE OF RESIDENTIAL COMPLEX TO SOCIAL STABILITY APPROACH IN HAMEDAN

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Abstract. Social action or social interaction is the most important factor affecting the human communities and form of bilateral relations between people and it is one of the basic factors in achieving social sustainability. In this regard, there are grounds for the formation of positive social and efficient interactions to allow the people to form a relationship with others. Green space in residential complexes as the environment provides to the residents together can create a basis for interaction between them. The use of green space in residential housing, which directly influenced the indicators of quality of place and with acceptable quality can change the perception of the environment and also have a positive impact on people's behavior. This research hypothesis is whether by creating and understanding of the role of green space in residential complexes we can achieve indicators of improving social interactions residents and finally to social stability. In this study, several housing complexes in Hamedan city investigated as a case study to collect data and hypothesis testing was done to assess the factors affecting social interaction by promoting Green space residential complex approach to social stability. In the theoretical model of this study, the role Green space in the residential complex is independent variables and the dependent variable is the social interaction of residents. Data were analyzed using SPSS software. The results indicated that the three factors of physical, spatial - environmental and behavioral factors are the most important factor in creating social interaction among the residents of green space.

Keywords: Social Sustainability, Green Space, Physical Factors, Spatial-Environmental Factors, Behavioral Factors, Social Interaction

INTRODUCTION

Designing based on social stability is a response to basic human needs. In this regard, creating an environment that can make social interactions with the conscious thought, which is one of the needs of the residents of housing complexes current behavioral science, is very important. Due to space and environmental values and quality of life of the security, physical comfort and mental health, we can exploit their environment, can interact between humans and the environment, form our residents and establish cultural exchanges between them and also people with different mental characteristics to bring together. Social interaction between two or more means leading to a reaction between them and this type of reaction is known to both sides. [1]

Studies show that social interaction in public spaces allow different generations to be present. Achieving consistent and promoting social interaction and active participation of people in these places in order to achieve social stability, extensive studies have been done in different fields such as the study of interactions between race, the age, the sex and the class demands. [2]

This recognition, on one hand, requires content analysis, qualitative and quantitative research proportional to the time and place and on the other hand, it requires analysis of the context of the formation of these types of relationships. Therefore, it seems that green spaces around housing complexes can be a good platform to build beneficial relationships between people,

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places and the environment and has significant impact on improving social interactions of residents and finally social stability. Various processes shaping the sustainable development of an attitude change in lifestyle that cannot be focused only on environmental aspects, but also deeper issues of ethics against the interests of society, against the individual, and the quantity and quality. In a behavioral approach based on social sustainability of social interactions in residential setting, broad concept of sustainable development which is due to several factors, include the extent of the concept of sustainable development, so that any value should be different. In this regard, the purpose of this study was to determine factors affecting social interactions including physical, spatial - environmental and behavioral factors as causes of social interaction in green space residential complex with social sustainability approach.

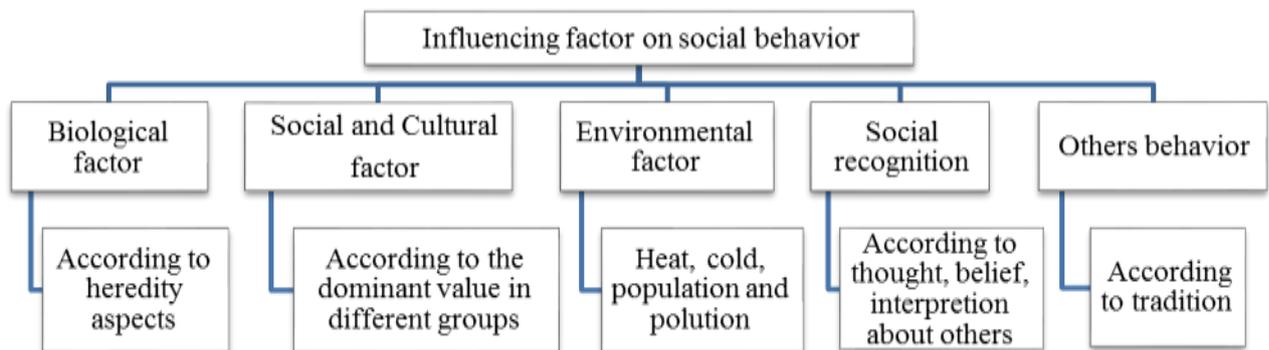
Background of the study

Behavioral factors

Behavior is continuous interaction between the persons and the environment. Environmental conditions shape the behavior through learning and attitudes, the relationship between the environment and is a two-way interaction and environment affecting behavior; this is also the kind of environment that we choose is effective, which in turn affects the behavior. Since a large part of the identity and human life is collective and connected to others, another issue that causes behavioral approach of social interactions can be studied and understanding how people think and feel about their social world and how they interact and influence social relations and relations with the physical environment. Social behavior does not occur in a vacuum; therefore, different ways of social behavior is related to the physical environment. Social interactions in the natural environment is artificial, and on the other hand reflects this behavior of the physical world. Human, due to living in environment of the fellow and objects in the environment exposed to interaction and continuous interaction. [11]

Urban space not only consists of the physical elements, but also it include people’s activities and behaviors. Based on the type and how to influence, the behavior consists of two important factors: the environment and the individual. In practice, the foundation of our behavior and characteristics of the individual properties to be combined. So, our behavior is the outcomes of needs, motivation, ability to environment, perception, image and finally on the type of people who are involved in the event. Personal behaviors are those actions that can be done alone, while social behavior involves communication between two or more people. [3] Social life is an opportunity to get away from the stress of daily living, leisure, social interaction and meeting different people and groups and the basis for the freedom of expression in space. Social life depends on public open spaces promote social interaction [4] attract individuals and groups [5] Social security and thus encourage the increased tolerance of different groups in space, [6] and the atmosphere is vibrant and lively. Since social behavior in relation to the others, feelings, reactions and thoughts of man's social status affects the factors that will be discussed briefly in Table 1.

Table 1. Factors affecting the formation of social behavior [7].



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Physical factors

The characteristics of the physical environment are an important source of human social behavior. The environment collection of behavioral Camp, which is located within each other and share with each season. This station has two basic elements of behavior, a pattern of behavior and physical environment. In the phenomenological perspective, the different people together leads to a social world in which meaning is created through interpersonal relationships. [8] Also, physical environment is the physical structure, consisting of interrelated levels and specific patterns of green open space, buildings and rooms and setting up the space. [Functional relationship between the different parts are said to be difficult. John Leng believes that direct communication paths and corridors are established activities reducing this distance as well. As long distances, traffic congestion and interference activities is one way to increase distance functional areas.

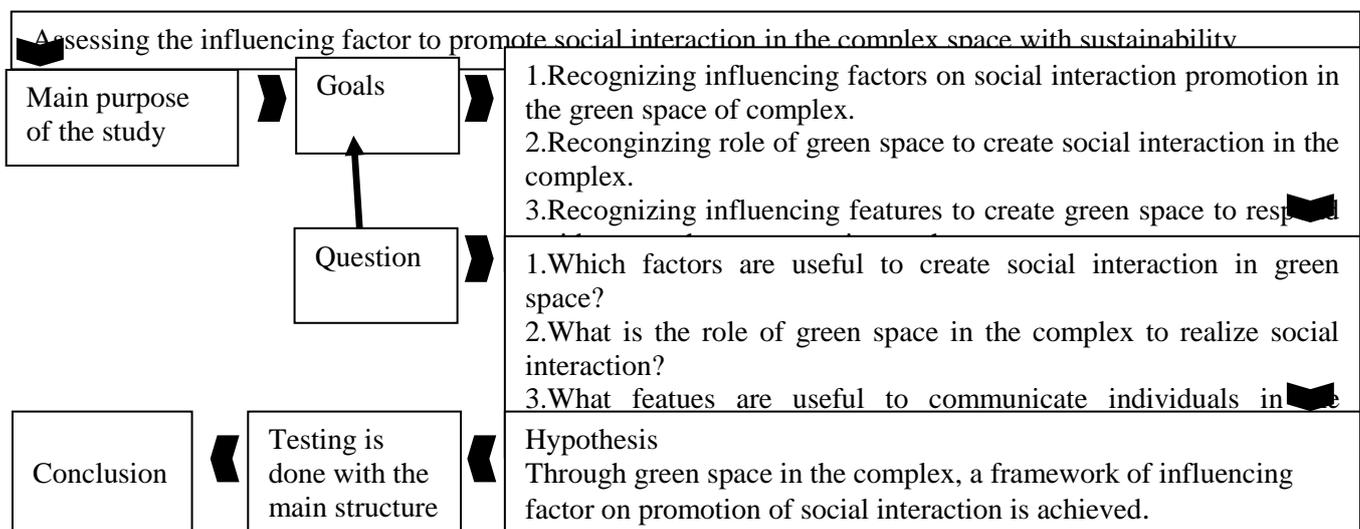
Space-environmental factors

We always include both quantitative and qualitative characteristics of the surroundings. Because the quantity of material is measured while the quality is related to the human mind, are objective. The purpose of space is designed to achieve optimal quality of life, so we can say that the high quality of visual and aesthetic space is an important factor in the experience of human consciousness. The design is based on a functional analysis including the nature of space activities and conditions that should be placed in space such as area, minimum width and depth, physical conditions (temperature, light, noise) requirements accepted psychological environment, including visibility, privacy, social communication, the realm of politics, identity and diagnosis. [10]

Structure and theoretical framework of research

Promoting social interaction in green space housing complexes with social sustainability approach of sustainable development issues tries to promote social factors in housing complexes, in terms of subjective and objective assessment of the residents. Due to the space-environment elements in housing complexes, as well as green space, promoting the cause of shaping social behavior seems important. Studies conducted show that 3 factors of behavioral, physical, spatial-environmental, social interactions can be directly creating green space for residents of housing complexes. The present study seeks to consider green spaces and evaluating its impact on improving social interactions in its different aspects to an element mentioned in the review. In other words, we want to see whetehr green space can improve social housing complexes and social sustainability.

Diagram 1. Pluralization (References: authors).



Study review

The study selection and implementation promoting social interaction in the field of green housing complexes, social stability was measured with the approach. In this research, a residential complex in the city of Hamedan was determined randomly; as defined in the complex in order to meet the need for people to use open spaces and the establishment of social interaction measures such as green space with elements of the area was the site collection.

Data collection tools

In the present study, to assess the factors affecting the promotion of social interaction in the use of green space in residential housing complexes and social sustainability approach Hamedan questionnaire were analyzed using correlation analysis, green creating an atmosphere in a way that sets residential real variable and the dependent variable was used to create and promote social interaction. The questionnaire was randomly distributed among the residents of the complex. In the first phase, 30 questionnaires were distributed to residents in the afternoons in the fall of 2014 and its validity and reliability by Cronbach's alpha was 0.799. In the second stage, based on the sample size obtained from Morgan table and krejcie population was estimated to be 860 people, prioritizing different behavioral characteristics, physical space-environment..

Table 2. Drafting a questionnaire with considering above factors physical, behavioral, space-environment.

Questions factors affecting social interactions green space housing complexes Hamedan
1. Availability of green space in your residential complex have provided with comfortable resting place for residents
2. Considering the corner of green space around the building you can stop and visit the residents.
3. Availability of green space in your residential complex had positive effects accumulation of residents in the area.
4. In Set your housing, green spaces are not overlooking created the social interaction in residents.
5. The green space around the building you created proper domain for residents in the area.
6. The green space around the building through a barrier to entry other people in the area will induce a sense of security to residents.
7. Availability of green space in your residential complex, leads to a tendency of people to group interaction.
8. Availability of green space in your residential complex has caused a small community of cultural interaction.
9. Availability of green space in your residential complex enhance the interaction between residents.
10. Interaction of residents in housing complexes have been designed with green space and increased diversity.
11. Residential complex green space, enjoying the natural elements (water and the sound of birds) in collaboration residents bracing is effective.
12. Environmental health care green space around the building can motivate individuals interact with each other.
13. Residential complex your green space, residents are passages in the course of social interaction.
14. Residential complex green space weeds the decorative beauty of the environment and continuously provides fresh environment.
15. Residential complex green space isoptimal maintenance of fruit trees caused by the residents.
16. Residential complex green space is provided recreation and sports equipment orientation of most of the environment residents .

MATERIALS AND METHODS

This research consisted of descriptive statistics and inferential statistics. In the first section, demographic variables and assumptions related to research and descriptive statistics presented in tables and charts. In the statistical analysis of the test Kolmogorov - Smirnov, t one example, and Friedman used. To analyze the extracted data from SPSS software version 22 has been exploited. Obtained results in the form of analytical tables and charts are depicted. The obtained results suggests that 266 questionnaires used to determine factors affecting social interactions green space housing complexes Hamedan in. In terms of gender, 46.6% of women and 53.4% men. Most of those involved in the research have a frequency of 23.7% daughter and

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their minimum frequency of 3.8% grandmothers family. Older people had a frequency of 28.2% between 26 to 40 years and then with a frequency of 27.1% between 19 to 25 years. They also have the lowest percentage of 2.6% are younger than 11 years. On the other hand, we can say that 44.4% of the total sample are less than 25 years. Education level of residents with frequency 28.6% high school diploma and then the frequency of 42.4% have a high school education . They also have the lowest frequency of 0.4% of doctoral study. On the other hand, we can say that 61.3% of the sample evaluated, they did not have a college education. Features used in this study included: age, sex, education and family status of respondents is that the obtained results based on descriptive statistics in Table 3.

Table 3. Frequency distribution of residents based on the characteristics of users.

Sex	Female	Male	Total	Grandmother	Daughter	Son	Total	
Abundance	124	142	266	10	63	61	266	
Percent	46/6	53/4	100	3/8	23/7	22/9	100	
Position in the family	Father	Mather	Grandfather	26 to 40 years old	41 to 60 years old	Higher	Total	
Frequency	61	53	18	75	49	24	266	
Percent	22/9	19/9	6/8	28/2	18/4	9	100	
Age group	7 to 11 years old	12 to 18 years old	19 to 25 years old	72/6	91	100	-	
Abundance	7	39	72	Associate degree	BA	MA	PHD	Total
Percent	2/6	14/7	27/1	47	45	10	1	266
The cumulative percentage	2/6	17/3	44/4	17/7	16/9	3/8	0/4	100
Education	Illiterate	Under diploma	Diploma	78/9	95/9	99/6	100	-
Frequency	22	76	65					
Percent	8/3	28/6	24/4					
The cumulative percentage	8/3	36/8	61/3					

Also, in this research, frequency distribution of residents, based on the use of green space set examined that figures available suggests is that most residents have plenty of green space set 219 as their residence, and only 47 of these spaces are not used. Table 4 indicates the results obtained based on descriptive statistics.

Table 4. Frequency distribution of residents based on the use of green space set.

Using complex green space	Yes	No	Total
Frequency	219	47	266
Percent	82/3	17/7	100

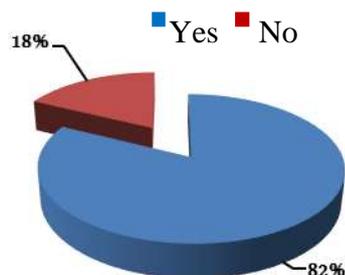


Diagram 2. Frequency distribution of the population pie chart based on the use of green space set.

According to the survey, as well as the frequency distribution of the population, the main reason for the use of green space was adjusted In Table 5.

Table 5. Frequency distribution of people on the main reason for the use of green space.

	Seating, stop, walking	Group activities and social interaction	Using views	Total
Number	150	206	190	546
Percent	27/47	37/72	34/81	100

From the table above, it can be concluded that most of the population, with a large number of 206, agreed for the establishment of social activities and social relations use of green space and the least of them, with large numbers 150 people benefit from this space by seating, stopping and walking.

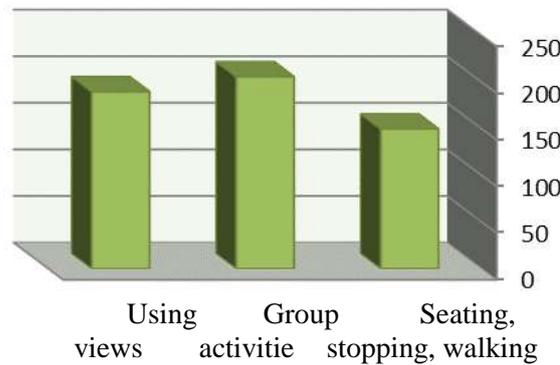


Diagram 3. Frequency distribution of the population, based on the main reason for the use of green space.

Table 6 shows frequency distribution of residents based on the use of green space set.

Table 6. Frequency distribution of residents based on the use of green space set.

Kind of using green space	Shallow	Presence	Visual	Total
Frequency	109	113	44	266
Percent	41	42/5	16/5	100

The above table shows that most residents with a frequency of 42.5% use green space, and then the transmission types are visual. These statistics are clearly observable in Figure 4.

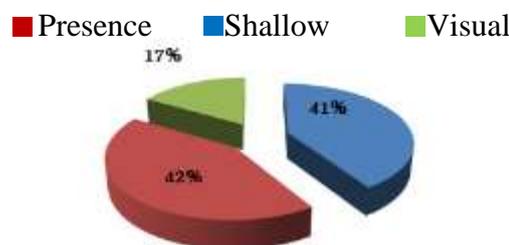


Diagram 4. Frequency distribution of the population pie chart based on the use of green space set.

Also, Table 7 shows the frequency distribution of population according to the frequency of the use of green space .

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Table 7. Frequency distribution of residents based on the frequency of use of green space set.

Number of using green space	Once or twice a month	Every day	More than 3 times a day	1 to 3 times a day	Total
Frequency	131	97	18	20	266
Percent	49/2	36/5	6/8	7/5	100

The table above suggests that the majority of people with large numbers of green space of 131 limited use and their lowest, with the number many 18 more than 3 times during the day. Statistics obtained in Figure 5 is shown in the pie chart.

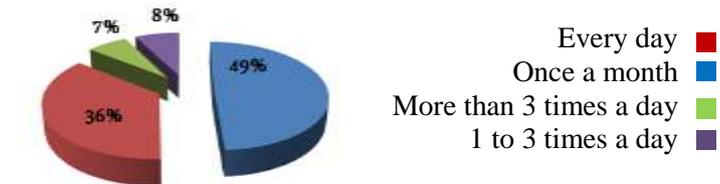


Diagram 5. Distribution frequency of residents pie chart based on the frequency of use of green space set.

Also, Table 8 shows the frequency distribution of residents based on the use of green space.

Table 8. Frequency distribution of residents based on time.

	Morning	Evening	night	Morning and evening	Morning and night	Evening and night	Morning, evening, night	Total
Number	221	189	244	212	255	253	224	1598
Frequency	13/82	11/82	15/26	13/26	15/95	15/83	14/06	100

Most residents with large numbers of 255 people in times of morning and evening benefit and their lowest, with large numbers afternoon and evening, 189 people took advantage of these opportunities. These statistics also represented in Figure 6.

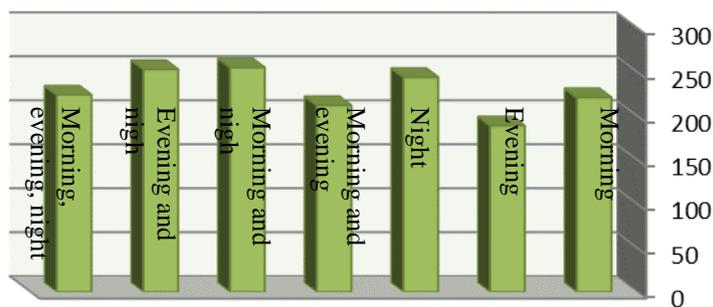


Diagram 6. Frequency distribution of residents based on the time column chart.

Finally, social interactions from the perspective of residents were evaluated according to Table 9.

Table 9. Statistical indicators of social interaction and its dimensions.

Variables	Average	Percent	Standard deviance	Variance
Social interaction	3/06	76/5	0/39	0/153
Physical	3/09	777/25	0/476	0/227
Space - Environmental	3/03	75/75	0/573	0/329
Behavioural	3/04	76	0/452	0/205

The above table indicates that the amount of social interactions in green space of about 76.5%. Also the dimensions of social interaction, as components of physical, behavioral and space-environment have the highest average. Also, lowest scores on the behavior and distribution of the highest space-environment, that this amount of social interactions from the perspective of residents, according to the Diagram in Figure 7

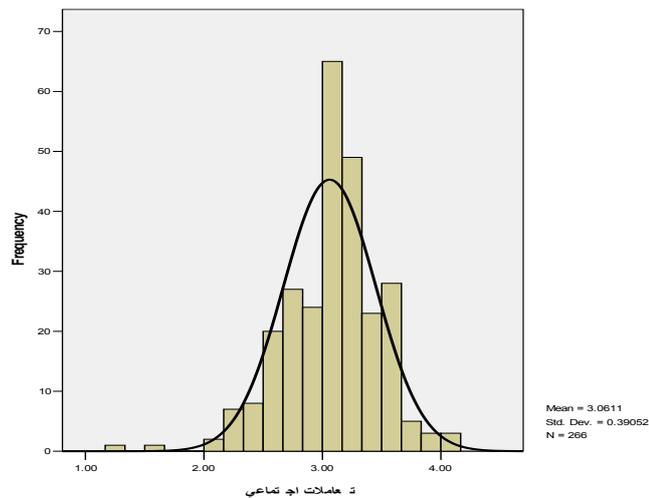


Diagram 7. Histograms of social interaction of residents.

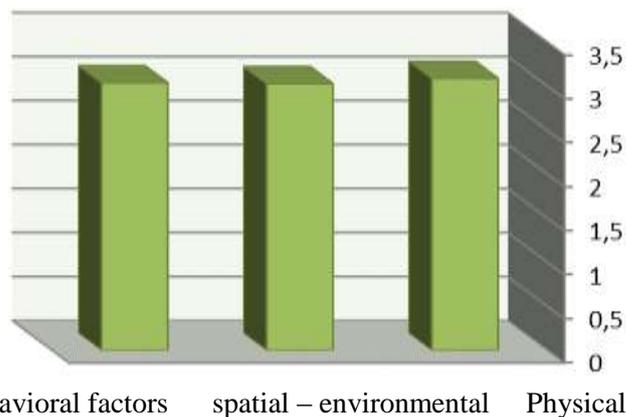


Diagram 8. Column Diagram of social interaction of residents.

Normality distribution of variables

Initially, in order to see whether the data have normality distribution, Kolmogorov - Smirnov was used. Therefore, Table 10 examines its normal variables.

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Table 10. The normality of variables.

Variables	Social interaction	Physical	Space-environmenta	Behavioral
Z score	0/623	0/175	0/559	0/513
Confidence level	0/103	0/554	0/19	0/205

Given the above it can be concluded that significant levels of all variables are greater than 0.05. Therefore data variables are normal, so normality of these variables using parametric tests to justify the deduction of research hypotheses.

Research hypothesis Testing

The hypothesis in this research were adjusted based on three components: physical, spatial-environmental and behavioral.

The first research hypothesis

Physical features are effective on social interactions in residential green space of the city of Hamedan.

Assumption H_0 : physical features of social are not effective in interactions in a residential green space of the city of Hamedan

Assumption H_1 : physical features are effective on social interactions in a residential green space of the city of Hamedan.

$$H_0 : \mu \leq 2.5$$

$$H_1 : \mu > 2.5$$

To confirm this hypothesis, one sample t parametric test used. Table 11 shows descriptive statistic of the first research hypothesis.

Table 11. Descriptive statistic of first hypothesis

Average of standard deviance	Standard deviance	Average
0/029	0/476	3/09

The table above shows that the mean of all questions related to varied physical features is higher than average. (value of test) Also, Table 12 examines the first research to confirm its hypothesis.

Table 12. T-test for the first hypothesis research.

Result	Average difference	Significant level	Freedom degree	T statistic	Test value
Approved H_1	0/592	0/000	265	20/29	2/5

As obvious, the significance level obtained from the t-statistic is less than 0.05, which show a significant difference between the mean values of the society. Also, due to the fact that the average sample values in Table 12 is slightly higher than scores (Average difference = 0.592) Therefore ,physical features of social interactions in residential green space of Hamedan are effective. So, the first hypothesis is confirmed and the null hypothesis is rejected.

The second research hypothesis

Space-environmental features are effective on social interactions in residential green space of the city of Hamedan.

Assumption H_0 : space-environment features are not effective interactions in green space social housing complexes in Hamedan.

Assumption H_1 : space-environment features are effective interactions in green space social housing complexes in Hamedan.

$$H_0 : \mu \leq 2.5$$

$$H_1 : \mu > 2.5$$

To confirm this hypothesis, one sample t parametric test used. Table 13 shows descriptive statistic of the second research hypothesis.

Table 13. Descriptive statistic of second hypothesis.

Average of standard deviance	Standard deviance	Average
0/035	0/573	3/03

The table above shows that the mean of all questions related to space- environmental features is higher than average. Also, Table 14 examines the second research to confirm its hypothesis.

Table 14. T-test for the second hypothesis research.

Result	Average difference	Significant level	Freedom degree	T statistic	Test value
Approved H_1	0/533	0/000	265	15/183	2/5

As it is clear, the significance level obtained from the t-statistic is less than 0.05, which show a significant difference between the mean values of the society. Also, due to the fact that the average sample values in Table 17 is slightly higher than scores (Average difference = 0.533) Therefore, environmental features of social interactions in residential green space of Hamedan are effective. So, the second hypothesis was confirmed and the null hypothesis is rejected.

The third research hypothesis

Behavioural features are effective on social interactions in residential green space of the city of Hamedan.

Assumption H_0 : behavioral features are not effective interactions in green space social housing complexes in Hamedan.

Assumption H_1 : behavioral features are effective interactions in green space social housing complexes in Hamedan.

$$H_0 : \mu \leq 2.5$$

$$H_1 : \mu > 2.5$$

To confirm this hypothesis, one sample t parametric test used. Table 15 shows descriptive statistics of the third research hypothesis

Table 15. Descriptive statistics of the third hypothesis research.

Average of standard deviance	Standard deviance	Average
0/027	0/452	3/04

The table above shows that the mean of all questions related to behavioral features is higher than average. Also, Table 16 examines the third research to confirm its hypothesis.

Table 16. T-test for the third hypothesis research.

Result	Average difference	Significant level	Freedom degree	T statistic	Test value
Approved H_1	0/545	0/000	265	19/648	2/5

As it is clear, the significance level obtained from the t-statistic is less than 0.05, which show a significant difference between the mean values of the society. Also, due to the fact that the average sample values in Table 16 is slightly higher than scores (Average difference = 0.545)

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Therefore, behavioral features are effective on social interactions in residential green space of Hamedan. So, the third hypothesis is confirmed and the null hypothesis is rejected.

CONCLUSION

According to obtained used of the research using freid man test, the components of interaction in the space is examined and is shown in table 17.

Table 17. The priority of social interaction components.

Significant level	Freedom degree	Chi-square	prioritize	Average of score	Interaction component
0/032	2	2/296	1	2/05	Pysical
			2	2/02	Environmental
			3	1/93	behavioral

As shown in the study, which environmental components provide promoting possibility in the complex and how environmental complex share in the interaction.

Physical component in the green space compared behavioral components providing the promotion of socail interaction of residents and physical components are in the first level in the study and behavioral components are in the last level of proority.

Freidman test was used to prioritize the indicators of the study and physical components with high social interaction are in the first level and domaining definition component is in the last level. Study of environmental indicators showed cleanness components are in first level and attractive component is the last level.

Finally, in prioritizing behavioral indicators, neighborhood component is in the first level and flexibility is the last level. The summary of the study is shown in table 18.

Table 18. Prioritizing physical, environmental and behavioral indicators.

Significant level	Freedom degree	Chi-square	prioritize	Average of score	Physical indicators
0/000	2	34/984	1	2/25	Top features of social interaction
			2	1/95	Physical Features
			3	1/8	Defined territory
Significant level	Freedom degree	Chi-square	prioritize	Average of score	Spatial-environmental indicators
0/039	2	6/482	2	2/03	Vision and perspective
			3	1/9	Attractive
			1	2/07	Cleaning the environment
Significant level	Freedom degree	Chi-square	prioritize	Average of score	Behavioral indicators
0/000	3	23/208	1	2/66	Neighborhoods
			2	2/58	(reason)
			3	2/56	Neighborhoods
			4	2/2	(Length of stay)

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