

Evaluating the Satisfaction Rate in Affordable Housing Case Study: Ardabil Mehr Housing in Ardabil Province of Iran

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Abstract

Providing appropriate housing for the people is one of the responsibilities of the governments such as Islamic republic of Iran government. In recent years the government decided to implement the mass housing for low-income households, that this project was called "Mehr housing". The aim of current research was evaluation the satisfaction rate of Mehr housing residents in Ardabil city, northwest of Iran. Heads of 120 household residents of Ardabil Mehr housing were selected randomly and asked some questions about characteristics of households and level and general aspects of satisfaction according Van Poll's model and social factors. Residents were generally dissatisfied with the most of surveyed indicators such as cultural status, housing cooperatives function, Maskan bank function, accessing to city center, lacking facilities out of unit, lacking area for vehicle parking and costs issue. Majority of the households stated that their housing problem has not been resolved by the Mehr housing. In contrast, good quality of internal conditions, security of complex building open space and social participating of residents were reported as the main advantages of the sites.

Keywords: Housing satisfaction; Ardabil city; Low-income households; Van Poll's model; Mehr housing

Introduction

Residence has been the most important human need which has been reformed repeatedly, and influenced and inspired by many factors including social, cultural, environmental, psychological, and economical ones. One of the main goals of architects is to create a desirable relationship between people and their physical settings. In architecture people satisfaction are the most basic factor. Therefore, the meaning of each architectural work is subject to the extent it provides the relief, relaxation, and satisfaction of people and also to the extent it would meet their needs [1]. The Islamic republic of Iran constitution has been considered a suitable and ideal shelter as a right for each Iranian household. It also emphasizes that an appropriate housing is not only a shelter, but also provides an ideal condition, such as skylight, environmental hygiene, structural stability, urban and architecture principles and promoting social as well as human values [2].

Always housing has been one of the basic problems of the people. Housing provision has been one of the greatest concerns of many low-income families in urban areas. Different countries for resolving the housing problem have carried out some different techniques, some have tried to rehabilitate slums around the cities, some of them gave mortgage to eligible, and some gave land with cooperation of municipalities to eligible, some taking tax on uninhabited houses, giving facilities to mass manufacturers etc. [3].

To decrease or eliminate housing problem in Iran the ninth and tenth government has been giving mass housing to eligible households. Eligibility requirements include: No ownership of housing or ownership records of housing or residential lands that hasn't used governmental sources for housing and is in charge a house. State solution for reduce people's concern about housing was implement the mass housing project called Mehr housing in all cities. Thus after passing the Mehr housing project in cabinet in 2007 and passing the official process, the government started to build housing cooperative in cities and enrolling eligible individuals who lived in desired city for 5 years [4].

The main objective is, to understand the problem of the desirability of Mehr housing scheme and low-income household's satisfaction level.

The basic hypothesis in this study is that level of satisfaction among residents of Ardabil Mehr housing project is down. In this paper, we first will review policies about affordable housing for low-income communities in Iran. Then, the results of a descriptive case study on residential satisfaction of Ardabil Mehr housing will be discussed. So the research questions are as follows:

RQ1: How is the satisfaction level of residents in terms of above-mentioned separate factors?

RQ2: How much Ardabil Mehr housing project has been able to meet the demands of low-income people?

H: Ardabil's Mehr buildings residents are not satisfied with affordable housing that was provided for low income families.

Literature Review

The concept of satisfaction refers to the wide domain of utilities and demands to meet the human essential needs. Parker and Mathews state that satisfaction is a subjective evaluations of the performance of the products in meeting customers' needs and expectations. In other words, we can measure the level of satisfaction by assessing difference between the actual and expected performance of products in order to see whether the customers' needs are meet or not? [5] This issue is true with buildings. Buildings should be designed and constructed with expectations by customers. Preiser mentioned one basic expectation is that buildings will meet residents' needs by supporting their daily activities [6]. Thus, when we tend to choose and achieve what we want, our satisfaction is obtained [7]. Housing factor is one of the important component of life satisfaction. According limited knowledge about

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life satisfaction domain, physical environments has large effect on housing satisfaction. So that, Sirgy and Cornwell believe that housing satisfaction is a significant predictor of community satisfaction, which is a predictor of life satisfaction [8]. In fact, since residential satisfaction is assumed as a part of life satisfaction in general meaning, is considered as one of the most studied topics in the field of residential environment [9].

Francescato et al., mentioned that residential satisfaction indicates people’s response to the environment in which they live. In this definition the term environment refers not only to physical aspects of residential setting such as dwelling, housing developments, and neighborhoods, but also social, economic and organizational or institutional aspects of such settings. Therefore, we can define housing satisfaction as the feeling of contentment when one person achieved to what his needs or desires in a house. Table 1 shows the main elements of the three theories about residential satisfaction [10].

The issue of assessing residents' satisfaction with the residential environments can play a great role in achieving to the goals of urban projects. So as it can be seen in Figure 1, "the theory of residential satisfaction" is used in order to determine a framework to identify structural characteristics of households and their residential fabrics (including house and neighborhood) that affect various aspects of satisfaction [11,12].

Residential satisfaction is also presented as a concept with multiple features. Overall, Residential satisfaction depends on the satisfaction level of two general components comprising satisfaction of neighborhood and residential units directly and also personal, cultural, social features indirectly. Some of the listed indicators were on basis

of Van Poll model but others were based on social and cultural area context.

Mehr Housing Scheme

For years after the Islamic republic revolution, the need to housing was the most contested issues in Iran. Since, the various factors such as social, economic and political are involved in housing issue so country faces with a complex problem. Mehr housing scheme is known as one of the country's major projects to solve housing market problems. This plan has been considered in terms of transferring land use right for the construction of small housing with 75 square meter average infrastructure per unit and allocation of long-term loan to eliminate and reduce the land cost from cost of building for adapting to the financial ability of low-income and middle-income households [13]. In other words, Mehr housing program was designed to provide appropriate housing for low-income communities, to implement social justice, to support governmental role to empower low-income communities through housing cooperatives, housing donors, and supportive institutes, to achieve integrated management, decrease land contribution in the cost price of residential units, and to encourage mass housing. This program was prepared and suggested by the Housing and Urban Development Ministry as the main organization of planning and guiding the housing sector in Iran and got approved by the cabinet in May 2007 [2].

Case Study Region

Ardabil is the center of Ardabil Province. At the 2011 census, its population was 564,365, in 156,324 families where the dominant

Author(s) and Year	Name of theory	Main elements
Rossi (1955)	Housing needs theory	a) Life cycle stages and changing housing needs. b) Discrepancy between current and desired housing needs creates housing stress or dissatisfaction. c) Residents respond to this distress through migration.
Morris and Winter (1978)	Housing deficit theory	a) Individuals judge their housing conditions according to some norms. b) Incongruity between actual and familial housing norms results in housing deficit. c) Housing deficit is mitigated through some form of housing adjustments.
Galster (1985)	Psychological construct theory	a) Individuals cognitively construct a referencell condition of their residential situation. b) Satisfaction prevails when current housing is proximately congruent with the reference situation. c) Incongruence will lead to either adaptation or dissatisfaction/modification.

Table 1: Summary of residential satisfaction theories (Abdul Mohit and Al-Khanbashi, 2014) [15].

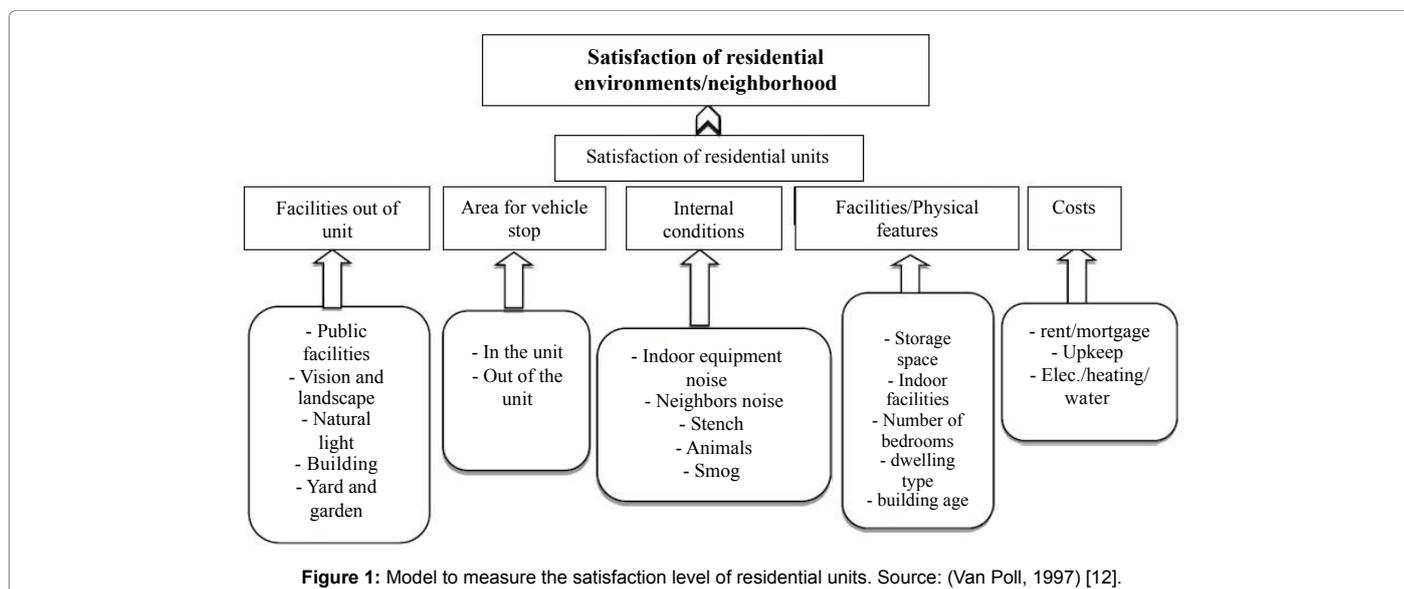


Figure 1: Model to measure the satisfaction level of residential units. Source: (Van Poll, 1997) [12].

majority are ethnic Iranian Azerbaijanis (Iran Statistics Center, 2011). It is located on an open plain 1,500 metres (4,900 ft) above sea level, just east of Mount Sabalan (4,811 m). Ardabil Mehr housing (Niaiesh town) is located in the southwest of the city. The south hand of this land is open without any residential development and from west near to small village (Figure 2).

According to plan of Ardabil, this land is near to main road and access to city by that, with suitable width from 1 sides. Niaiesh town is one of the three project of Arabil's Mehr housing 2000-unit project comprises estimated population of 8000 people, which has located in the western part of Ardabil city. This complex is in a land of 300,000 square meter including 258 blocks.

According to related criteria, household size in Ardabil in 2006 was about 4.2 people. The site involves 17 building blocks which contains four-floors and five-floors and apartments type. Occupation level of each building block is about 300-400 m² with 60% of occupation level. There are 8 and 10 residential units in 4-floor and 5-floor blocks, respectively. The 2000-units project of Ardabil Mehr housing is located in a land with 30 hectares' area and 75-110 square meters' area for each unit. It has been formally started in 2010.

Classifying of the Settlements

Land use characteristics of the site including: estimated surface area, it's percent from total site, and average per person are demonstrated in Table 2. Based on the collected amounts more than 60 percent of the total area of settlements dedicated to two factors street network and residential.

Material and Methods

In this study triangulation technique was applied. Triangulation involves the data collection through different methods in order to gain

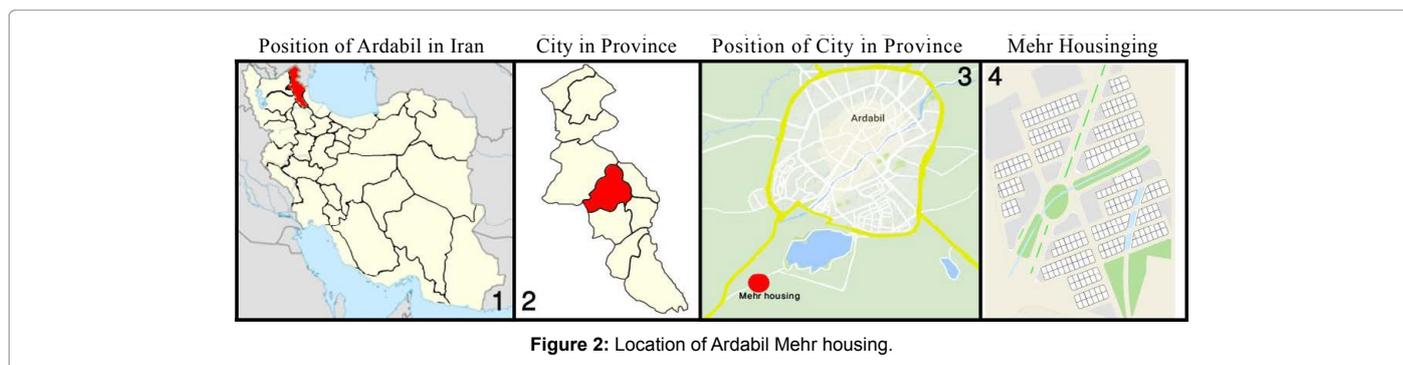
a valid estimate of qualitative research. This study shows how we used three qualitative methods of data collection to examine the satisfaction of residents toward Mehr housing, observation, studying documents, and filling questionnaire are techniques using triangulation method. It is worth noting, observation method was used for identify local factors that influence on housing satisfaction also in the case of documents, data were collected by studying department of housing and urban development and Iran statistics center's articles for access to quantitative amounts and the questionnaire was used to measuring the level of satisfaction.

The items of the questionnaire were as follows: The first section sought to obtain information on characteristics of the studied households. The second section elicited level of satisfaction according Van Poll's model including variables such as: perspective, connections, dimensions, ventilation, natural light, arrangement of spaces, materials type, facilities, conditions, costs. The third section look into level of satisfaction from contributing factors of the complex that composed via observation by the authors such as: function of housing cooperatives and banks, security, social and cultural needs, access to the city. The fourth section extract general aspects of Mehr housing residents' satisfaction.

Validity of questionnaire in Van Poll's model section has been proven and the validity of the rest questionnaire that some factors were added by researcher was assessed by specialists' opinions. The reliability of questionnaire was calculated by Cronbach's alpha coefficient (0.806), that indicating the good reliability of the questionnaire.

Statistical Analysis

120 households of Ardabil, located in the center of Ardabil province, Iran, who were residents of Mehr housing for at least one year were randomly selected.



Land use	Surface area	Percent	Average per person (Per capita)
Street network	106748.78	35.69	13.34
Residential	90504.64	30.26	11.32
Green and park	48776.25	16.31	6.10
Educational	15870.95	5.31	1.99
Sport	14842.92	4.96	1.85
Commercial	9223.85	3.08	1.15
municipal utilities	4774.15	1.60	0.60
useless	3173.04	1.06	0.40
Cultural	3142.03	1.05	0.39
Therapeutic	2020.50	0.68	0.25
Total	299077.11	100	37.38

Table 2: Land use characteristics.

Continuous variables (age of household heads and monthly income) were expressed as means \pm standard deviations (SD) and categorical variables (previous settlement and ownership situation and employment status of household heads) as percentages. Table 3 shows the characteristics of the studied households like: age of household heads, monthly income, household size, previous settlement, ownership situation and employment status of household heads. According to the last central bank of Iran's official compliments about poverty line in Iran (less than 27,000,000 Riyals [690 \$] per month), entire of the studied households fall below the poverty line. The previous settlement of 96% of the studied households was from Ardabil city and the remaining 4% had lived in the suburb. This data showed, site residents have same cultural status.

Findings and Results

To measure the satisfaction level of dwellers under each category of satisfaction attributes, the 31 selected attributes of satisfaction were sub-classified into 11 elements. Van Poll's model is considered as overall benchmark to measuring general factors. But van poll's model doesn't include contributing local factors that Obtained by observing

the lifestyle of residents. So, in order to measure level of satisfaction, indicators are divided into two categories:

Based on Van Poll's model that general factors include: Facilities out of unit (public facilities and vision and landscape and natural light and...), Area for vehicle stop in/out of the unit, Internal conditions (indoor equipment noise, neighbors noise, smog and...), Facilities/physical features (number of rooms, indoor facilities, dwelling type and...), Costs (rent/mortgage, upkeep and Elec/heating/water) (Table 4).

According to Figure 3, most of the residents' dissatisfaction related to costs issue specially paid money for delivering units. Residents reported that they paid more than the amount agreed in the contract for delivering home and this issue was the reason of their dissatisfaction. In contrast more than fifty percent of the respondents believed that internal conditions indexes are satisfactory. This satisfaction was due to good quality of materials and good construction methods. According to the heads of households' reporting lacking out of unit facilities and lacking area for vehicle parking are the reasons of their dissatisfaction. These mentioned factors that lead to residents' dissatisfaction derive from failing to follow standards in complex building designing. Residents had no idea about physical features factor and declared neutrality about this issue.

In addition to Van Poll's indexes other social and contributing indexes that were added to questionnaire were written by architecture professionals through observation. These factors include native effective components like: function of cooperatives, assigning loans by Maskan bank, making security for complex open spaces, matching town structure with local cultural beliefs, participating of residents in social activities, accessing of residents to city center (Table 5 and Figure 4).

Majority of the respondents were not-satisfied with the Housing cooperatives and Maskan bank function. The reason of this dissatisfaction can be found in 1) Poor performance of housing cooperatives in the delivery to households, which in some cases delay of delivery period reaches up to 5 years 2) High interest loans and

Age of household heads (mean \pm SD, years)	38.16 \pm 16	
Monthly income (mean \pm SD, Riyals)	17,000,000 \pm 3,600,000	
Household size (person)	3.6	
Previous settlement (%)	Ardabil city	96
	Country side	4
Ownership situation (%)	Owner	89
	Tenant	11
Employment status of household heads (%)	Self-employed	17
	Employee	58
	Labor	23
	Unemployed	2

Table 3: Characteristics of the studied households.

Factors	Very Satisfied	Moderately Satisfied	Neutral	Moderately Dissatisfied	Very Dissatisfied
Facilities out of unit	2	25	19	38	16
Area for vehicle stop	8	14	25	43	20
Internal conditions	11	51	9	27	2
Facilities/physical features	13	20	50	10	7
Costs	0	2	6	32	60

Table 4: Level of satisfaction with indexes of Van Poll's model.

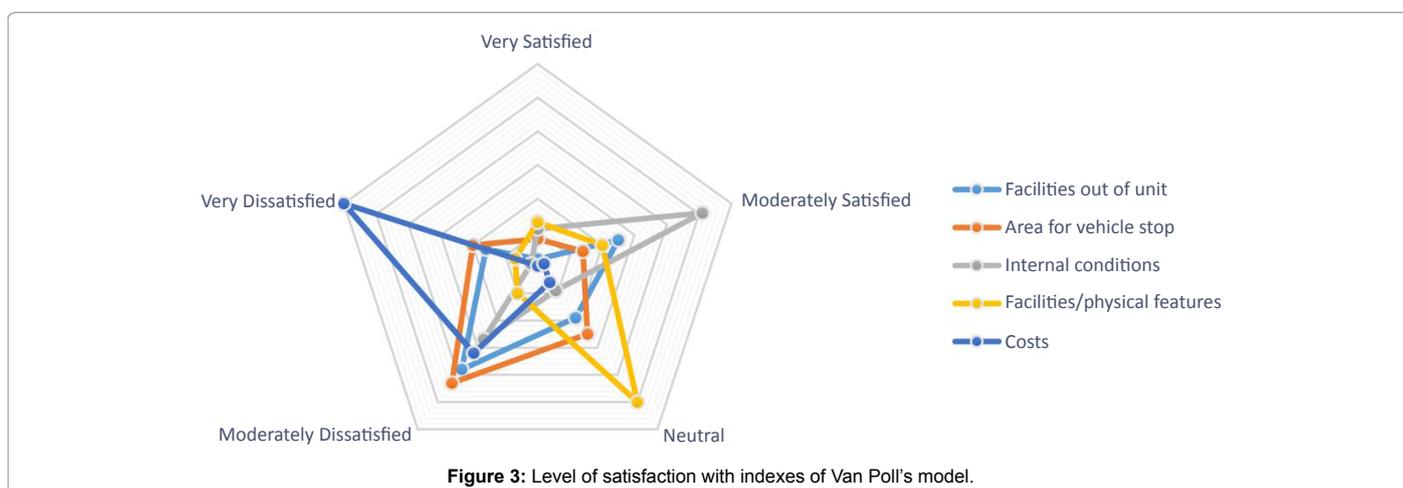


Figure 3: Level of satisfaction with indexes of Van Poll's model.

Factors	Very Satisfied	Moderately Satisfied	Neutral	Moderately Dissatisfied	Very Dissatisfied
Housing cooperatives function	0	0	2	16	82
Maskan bank function	3	7	11	10	69
Access to city center	1	4	8	30	57
Cultural status	5	8	25	45	17
Social participating of residents	5	54	11	16	13
Security	4	55	36	3	2

Table 5: Social quality rate and contributing factors of the complex.

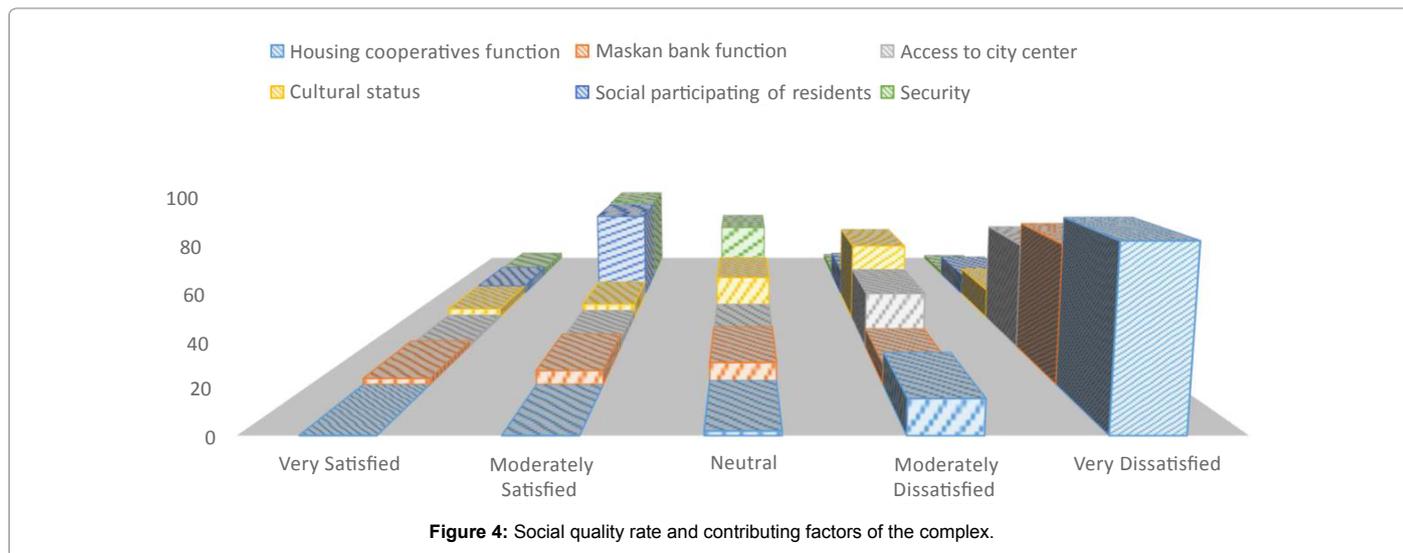


Figure 4: Social quality rate and contributing factors of the complex.

The aspects	Yes	No
Is the family housing problem solved by assigning Mehr housing?	27	73
What was introduced to residents as Mehr housing is similar to what they currently being accommodated?	8	92

Table 6: General aspects of residents' satisfaction.

non-compliance loan repayment installments with the family monthly income. In addition of these factors most of the residents' complaints related to inadequate access to city center. Placement Mehr housing at outside of the metropolitan area is the main cause of this problem.

According to studies, interviewees are not satisfied about the cultural status. This consent can be concluded that condition of Mehr housing networking doesn't match with the original structure of Ardabil town. In contrast, more than 50% were satisfied with the security and participating of residents in social activities.

General aspects of Mehr housing residents' satisfaction was examined by measuring axes such as: resolving the problem of housing by providing of this kind low-income homes, adaptation delivered housing for low-income families with a house that had been introduced (Table 6).

Regarding residents of Ardabil Mehr housing answers, 73% of respondents stated that their housing problem has been not solved by this approach. 92% of household headers believed that what was introduced to them as Mehr housing is not similar to what they currently being accommodated.

Conclusion

Mehr housing is consistent with macroeconomic policies of Iran government in providing housing for low-income households, but it

suffers from a number of disadvantages that deserve special attention. The level of resident satisfaction factors can assist to understand the strengths and weaknesses of these projects. Using Van Poll's model and the native criteria used in this study can measure the satisfaction level of Ardabil Mehr housing residents.

This study showed that the housing problem of majority residents of Ardabil Mehr housing has not been solved by this kind of the affordable housing. Therefore, the hypothesis of this study that is Ardabil's Mehr buildings residents are not satisfied with affordable housing that was provided for low income families, was supported. Also, Mehr housing household complained of the cultural status, housing cooperatives function, Maskan bank function, accessing to city center, lacking of facilities out of unit, lacking area for vehicle parking and costs. In contrast, internal conditions, security and social participating of residents were reported as the main advantages of the sites. It can be claimed Ardabil Mehr housing project has not been able to meet the demands of low-income people and Ardabil's Mehr buildings residents are not satisfied from their affordable houses. The result of this study is in contrast with obtained result of Karimzadeh, Shahriar, and Keshtkaran's study, that showed Abadeh and Sarvestan's residents problem has been solved by the affordable housing [14,15].

To increase satisfaction of Ardabil Mehr housing residents and according to the policies of Mehr housing (provision of housing for low-income communities), the following strategies can be suggested:

- Monitoring and quality control the performance of cooperatives by the state organizations;
 - Government's commitment to approved price for obtaining each residential unit;
 - Attention to cultural status in the design of residential units and the main structure of town;
 - Designing of complexes in the metropolitan area;
 - Increasing public facilities and services in the area of town;
 - Reducing the profit of banks;
 - Establishment of consult centers to reduce social problems of the residents;
 - Providing bank loans based on the residents' incomes;
 - Providing good public transport facilities to access the city center;
 - Constructing of the pre-designed parks and green spaces of the complex;
 - Reduce project execution and timely delivery of residential units;
 - Attention to car spaces in the design of residential units.
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