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## **Measuring the effects of the sense of place on the level of social resilience in new towns (Case study: Mehestan new town)**

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### **Abstract**

The sense of place arises from the activities and interactions between people and places, as well as between people themselves, within a particular location. The high level of attachment among the residents of a place, neighborhood, or city emphasizes the significance of that place for individuals, leading to increased participation in civil and political activities, and enhancing citizens' social interactions. These emotional connections with the place also influence people's capacity to respond to changes, comprehend risks, and prepare for social resilience challenges. This research seeks to answer the question of the effects of the sense of place on social resilience in Mehestan. The research methodology is practical and developmental in its goal, and descriptive-analytical in its approach. Data has been collected through both library and field studies. The data analysis has employed descriptive statistics (including frequency distribution, mean, standard deviation, and dispersion coefficient) as well as inferential statistics such as structural equation modeling using SPSS and AMOS. The statistical population comprises all citizens of the new town, totaling 95,746 people. A sample of 380 individuals was randomly surveyed. The research findings indicate that the state of the spatial sense variable falls within the average range of 2.51 to 3.5. Similarly, the variable status of social resilience also falls within the average range of 2.51 to 3.5. Hypothesis analysis using AMOS software reveals that the effect of the sense of place on social resilience in Mehestan is significant at the 0.05 error level. Furthermore, the positive path coefficient (/276) indicates a direct and positive relationship.

**Keywords:** sense of place, resilience, social resilience, Mehestan new town.

## **Introduction and problem statement**

Cities, as the densest and largest human settlements, encompass a wide range of human activities that have undergone unprecedented changes in the physical environment and subsequent shifts in social structure since the Industrial Revolution period (Rezazadeh, 2015: 35). Currently, the world's urban population is increasing at an unparalleled pace. Comparing the first global population census in 1972 with the current population, we observe an increase from 3.8 billion to 6.6 billion people, with a forecast that by 2030, over two-thirds of the world's population will reside in urban areas (Safari, 2015: 27). Consequently, contemporary societies, particularly those in developing nations, are confronted with a complex array of social, environmental, and economic challenges. Addressing these challenges necessitates novel methods capable of providing a comprehensive understanding of the nature of the issues, to effectively restore balance by identifying individual, social, economic, physical, and environmental characteristics (Paton, 2016: 158) — an attribute commonly known as resilience. Resilience encompasses economic, social, ecological, managerial, and organizational dimensions. In this research, we focus specifically on its social dimension. The concept of resilience has evolved progressively, pivoting from its initial ecological concept to the socio-ecological concept, and ultimately to the social concept. Social resilience encompasses the conditions under which individuals and social groups adapt to environmental changes. In general, social resilience denotes a community's ability to return to balance or respond positively to adversity (Islami and Ebrahimi, 2018: 138). Social resilience varies across different stages and contributes significantly to the durability and strength of society. The flexibility and reactions of various groups within a community differ, especially in critical situations (Maguire & Hagan, 2007, 16). From the standpoint of social resilience, upon comparing different communities, it is evident that factors such as the sense of place lead to varied responses to similar disasters, thereby influencing the levels of societal resilience (Cumming, 2011). The sense of place is rooted in the interactions and activities among individuals within a specific location. A strong sense of belonging among residents of a place, neighborhood, or city underscores the importance of that locale for individuals, fostering increased participation in civil and political activities, and elevating the level of social interactions among citizens. Furthermore, the emotional connections with the place impact people's capacity to adapt to changes, perceive risks, and prepare for eventualities (Arvin, 2018: 77). Consequently, the sense of place engenders harmony between individuals and their environment, facilitating better utilization of the surroundings, enhancing user satisfaction, and ultimately nurturing their sense of attachment to the environment, thus perpetuating their presence within it. Beyond grounding a sense of place and imbuing life with meaning, belonging gives rise to responsive and committed behaviors towards a place, and may also catalyze social resilience (Keeley, 2007: 16). In this context, emerging towns like Mehestan, due to their proximity to the metropolis of Tehran and sizable population, necessitate assessment and evaluation of their resilience. Given its unique location and the substantial population influx, compounded by potentially unsafe constructions, the susceptibility to natural disasters is heightened. Consequently, scientific attention should be devoted to the sense of place of this significant population to bolster urban resilience, particularly social resilience.

Acknowledging the aforementioned considerations as the research problem, the following hypotheses are proposed:

It seems that the effects of the perceptual cognitive factors of the sense of belonging to the place on the level of social resilience in the Mehestan new town are direct and significant.

It seems that the effects of social factors on the sense of belonging to a place on the level of social resilience in the Mehestan new town are direct and significant.

It seems that the effects of environmental and physical factors on the sense of belonging to a place on the level of social resilience in the Mehestan new town are direct and significant.

### **Research background**

This research aims to explore the impact of the sense of place on the level of social resilience. It adopts a survey-based approach to investigate the relationship between independent and dependent variables. The research is characterized as applied research in terms of purpose, and it has been conducted using a quantitative methodology. The data collection employed the documentary library method, with an analytical-descriptive approach utilized for data realization. Both descriptive and inferential statistics are employed for data analysis in this research. Following the extraction of questionnaire data, descriptive methods were initially used to conduct demographic studies on the variables under consideration. Subsequently, in the inferential statistics section, structural equation modeling was employed using the AMOS software.



**Table 1: Background of the research**

Title	Author	Year	Results
Social capital and social resilience in times of crisis	Luchini	2013	Prevention and preparedness of warning communication planning, physical and psychological effects of emergencies and response to accidents, recovery, and reconstruction with the specific aim of strengthening social resilience and trying to reduce social vulnerability are the most important social factors in dealing with crisis.
Institutional response to a reference to the development and resilience of social and ecological systems in Himachal Pradesh, India	Bingman et al	2009	Institutional response analysis helps to identify areas where resilience capacity exists, as well as areas where capacity building is needed to build social-ecological system resilience to create sustainable development.
Social resilience to the consequences of volcanic hazards in New Zealand	Patton et al	2001	The results show that there is a significant relationship between resilience variables (social sense of self-efficacy, coping style, and social support) and psychological vulnerability. Also, there was no significant relationship between dimensions of resilience and sense of community.
Evaluating the effects of spatial attachment on the level of social resilience in cities (case study: District 10 of Tehran)	Arvin	2019	The results show that the indicators of spatial attachment and social resilience in the 12 <sup>th</sup> district of Tehran are in poor condition. There is a significant correlation between indicators of place attachment and social resilience, and the result of univariate regression showed that place attachment has a high impact on social resilience.
The role of the sense of place on social resilience caused by the displacement of the settlement, a case study of the village of Dahouiye, the earthquake of 2004 (Zarand).	Sar Tipipur and Asadi	2018	Now, after 12 years since the earthquake, the high desire of the villagers to return to the previous village shows that they do not belong to the current place, which is caused by categories such as the loss of the place of community, the village, damage to social relations and neighbors, separation from environmental elements that have the value and attachment of the heart, such as Imamzadeh, cemetery, aqueduct and natural spring
Analysis and evaluation of the social resilience of the worn-out fabric of the 12 <sup>th</sup> district of Tehran in the face of natural disasters	Razovian et al	2017	The results showed that the state of social resilience in region 12 is in an unfavorable condition, it is worth mentioning that this was done by analyzing and evaluating the three components of citizenship education, social participation and sense of belonging, which is the component of sense of place in this region.
Evaluation of indicators of spatial belonging of the residents of the old context of Kashan city	Saraei et al	2016	The obtained results indicate that the old context of Kashan city does not currently represent the identity that was defined for it

			from the beginning and the mental image of this context is imprinted in the minds of the residents of this context, Due to its unorganized and unplanned condition, it is very chaotic, and readability, aesthetic dimensions, texture, scale, shape of texture, rows of windows, materials, etc., which are the main characteristics of identity, are not respected in this context.
Evaluation of the sense of belonging to the place of the residents of new cities (Case study: Hashtgerd New Town)	Meshkini et al	2013	There is a significant relationship between the four variables of length of residence, residents' sense of security in the place, satisfaction with access to urban services, and the amount of social and collective activities with the sense of place.
Investigating the effect of the sense of belonging to a place on social capital and participation in the neighborhoods of Mashhad	Rahnama and Razavi	2012	The influence of the sense of place belonging in the increase of social capital through the mediating variable of participation explains better than the rest of these relationships, in other words, in an indirect causal relationship, strengthening the sense of place increases participation and increases social capital.

Source: authors

## Theoretical Principles

If paying attention to social aspects in resilience is not more important than paying attention to physical and physical infrastructures in crisis management, it is at least equally important (Lucini, 2013: 255). Where crime, homelessness, unemployment, and discussions related to inadequate nutrition and inadequate education are visible, disaster prevention issues cannot be given much importance anymore (Cutter et al., 2008: 1). Therefore, the concept of resilience evolved step by step and attention was drawn from its initial ecological concept to the socio-ecological concept and then to the social concept (Keck & Sakdapolrak, 2013: 9). The term social resilience was first proposed by Edgar. He defines social resilience as the ability of groups or societies to deal with external tensions and disturbances in the face of social, political and environmental changes (Adger, 2001: 1). Social resilience includes conditions under which individuals and social groups adapt to environmental changes. In general, social resilience is the ability of a community to return to balance or respond positively to adversity. Although there are still many ambiguities in defining and indexing this concept (Sapirstein, 2006: 4). But all existing definitions of social resilience pay attention to the capacities of individuals, organizations or societies to tolerate, absorb, adapt, and transform against social threats of any kind (Keck & Sakdapolrak, 2013: 9). Social resilience has different stages and significantly contributes to the durability and strength of society. The level of flexibility of different groups in a community is different and their reactions are also different in critical cases (Maguire & Hagan, 2007: 16).

Comparing different communities leads to the conclusion that factors like identity result in varying responses to similar disasters among different communities, thereby influencing the societal resilience levels (Cumming, 2011). Within a community, the presence of social groups with differing socio-economic

conditions and levels of vulnerability contributes to varying resilience levels in response to incidents. Vulnerable societal groups, including the elderly, children, and individuals with disadvantaged social conditions, often have fewer resources and facilities to cope with disasters. The social conditions can render certain segments of society less affected by calamities, while others face greater impact (Mohammadi and Nasiri, 2023: 6). Therefore, creating favorable conditions to empower socially vulnerable groups is considered crucial in fostering social resilience (Maguire & Hagan, 2018). For instance, the existence of close-knit social networks enhances the resilience of adults against the adverse aspects of aging, despite some overlap between factors causing vulnerability and those contributing to resilience. It should be noted that vulnerability does not universally equate to a lack of resilience (Cutter et al.). To build a resilient city, a comprehensive investigation into the potential for responding and rebuilding in the face of societal risks is essential. Though high vulnerability may be present in a society, strong social connections can expedite recovery from a distressed state, which in turn elevates resilience. Empirical studies on social resilience typically begin by addressing fundamental questions: resilience for what purpose? What threats, typically presumed to be external, do communities face, such as the impact of prices on household expenses, or they could be internal, like vulnerability to an influenza pandemic due to lack of experience, social resources, and awareness. The dimension of social resilience underscores the realization of social stability against disasters, as well as the formation and preservation of social groups and local communities during the rehabilitation process post-disasters through the promotion of social capital. It also contributes to fostering a sense of attachment to place, local community, resident participation in regeneration, and the formation of social bonds, all of which facilitate the rehabilitation and reconstruction of the local community by maintaining existing social systems during and after disasters (Lak, 2012). Maguire and Hagan (2007) established criteria for measuring social resilience, including trust, management, social capital, resident involvement, social cohesion, division of labor, values, attitudes and norms, and communication and information regarding required resources (Maguire & Hagan, 2007)

### **Indicators of measuring social resilience according to some scientists**

Edgar (2000) argues that societies with diverse resources display greater resilience due to their increased flexibility. He views immigration and population displacement stress as indicators of social resilience failure, as immigration often exerts a negative impact on the social infrastructure of any society. Edgar's theories posit that cooperation and civic participation, social cohesion through a shared identity, a sense of belonging, security, and social inclusiveness are essential elements affecting social resilience (Adger, 2000: 18). Pelling and High (2005) contend that informal social relations serve as the primary source for maintaining capacities and fostering social resilience, leading to collective change (Pelling & High, 2005: 31). Cutter (2008) asserts that social resilience can be enhanced through wealth, insurance, access to financial resources, social networks, social participation, and societal risk perception (Cutter et al., 2008: 9). Cinner et al. (2009) introduce flexibility, self-organizational capacity, and learning ability as the key components for measuring social resilience and propose that social resilience can be evaluated at three scales – local, regional, and national. They emphasize the interconnectedness of these three levels (Cinner et al., 2009: 3).

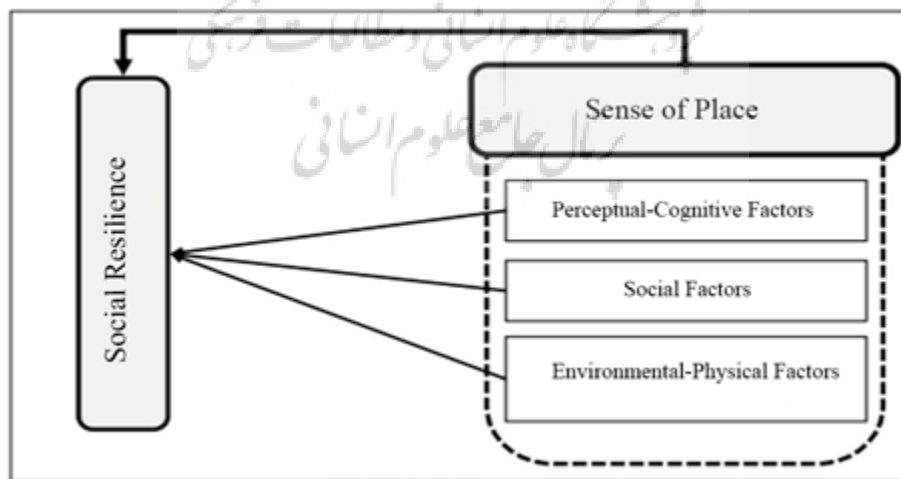
**Table 2: indicators of social resilience**

researcher	Indicator
<b>Maguire &amp; Hagan</b> 2007	Trust, leadership, collective efficiency, social capital, social cohesion and solidarity, social participation, attitudes and values, communication and information, dependence on resources.
	Social participation; Education, learning, information sharing, social support, trust, collective feeling, information exchange
	Trust, collective feeling, social participation, social capital, social solidarity, communication and information, learning, creativity, social support, knowledge, collective efficiency.
<b>Kwok et al</b> 2016	New friendship, participation and cooperation, trust, beliefs and values, satisfaction and belonging to the neighborhood, social support, cohesion and responsibility.
	Knowledge, information, participation, attitude, skill, social capital, awareness, understanding and knowledge of risk
<b>Khalili et al</b> 2015	Awareness, knowledge, skill, attitude, social capital, social networks, community values, local perception of risk, place attachment, social involvement
	Social solidarity, social support, safety and security, social relations, participation, awareness, diversity of resources, justice and equality, identity, local community efficiency and trust, flexibility, attachment to place.

Source: Authors

According to the theoretical issues, a conceptual model was presented for the above research. In the mentioned model, the components related to the spatial sense variable are used from the researcher-made questionnaire. This variable is measured based on a five-point Likert scale and includes 3 components: cognitive, social, and physical environmental factors. The dependent variable is social resilience, which is used from a researcher-made questionnaire and includes 4 components (components of skills, abilities and knowledge, quality and welfare facilities of society, values and perceptions of society, and processes of society).

**Figure 1: Conceptual model of the research**

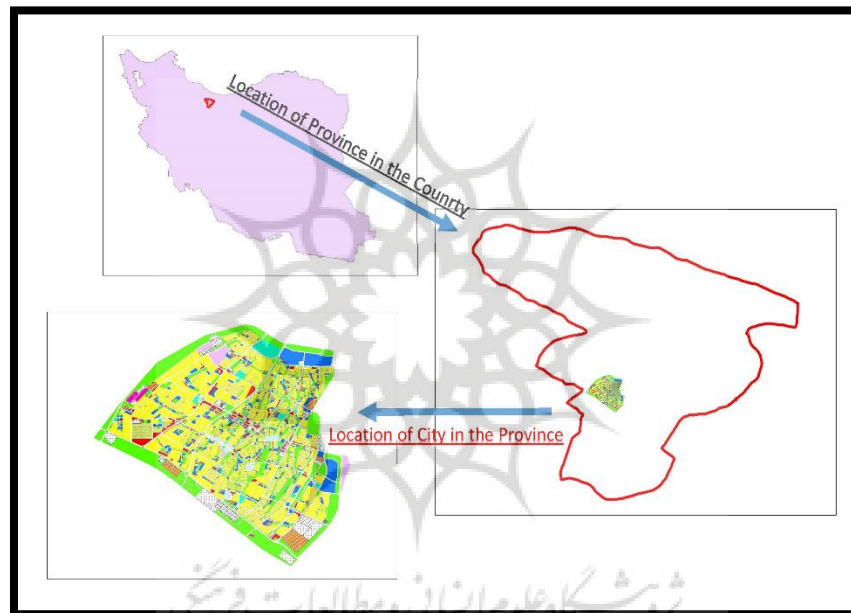


Source: Authors

### Conditions and situation Situation of Case Study

The town of Mehestan is situated 65 kilometers from Tehran and 25 kilometers from Karaj, and as of the 1400 census, it had a population of 95,746. Field studies indicate that, like many new cities, Mehestan has experienced an influx of people from various regions of the country, resulting in a heterogeneous social structure. The majority of the town's population commutes from surrounding cities such as Tehran, Karaj, Old Hashtgerd, and Qazvin. Furthermore, residents of Mehestan often work outside the town, in locations including the industrial zone of the new town, the industrial and workshop units along the Qazvin-Tehran axis, as well as in Karaj and Tehran. The town serves largely as a residential and dormitory area (Detailed Plan of Mehestan New Town).

**Figure 2: Location map of the Mehestan new town**



Drawing: Authors

### Research findings

#### Variable Quantitative Description of Sense of place

The assessment of the independent variable, namely spatial sense, incorporates 3 components: perceptual-cognitive factors, social factors, and physical and environmental factors. This evaluation is conducted using a range from 1 to 5, where 1.5 to 1 signifies complete opposition (very weak), 1.51 to 2.5 indicates opposition (weak), 2.51 to 3.5 signifies indifference (moderate), 3.51 to 4.5 represents agreement (good), and 4.51 to 5 indicates complete agreement (very good). The results are presented in the table and figure below. The findings reveal that 2.3% of the responses indicated complete agreement, 25% showed agreement, 51% demonstrated moderate agreement, 20.5% expressed disagreement, and finally, 0.8% indicated complete disagreement. Consequently, the overall assessment places the state of the sense of place



variable in Mehestan city, along with all its components, within the average range of 2.51 to 3.5 based on the 5-level Likert spectrum. Moreover, the coefficient of dispersion index indicates that the component with the highest dispersion is related to physical and environmental factors (0.402), while the component with the lowest dispersion in comparison to the average is associated with cognitive-cognitive factors (0.138).

### Quantitative description of social resilience variables

The assessment of the independent variable, namely sense of place belonging, encompasses 4 components (skills, abilities, and knowledge; quality and welfare facilities of the community; values and perceptions of the community; and processes of the community) using the scale (1.1-5) in which 1 to 1.5 indicates complete opposition (very weak), 1.51 to 2.5 denotes disagreement (weak), 2.51 to 3.5 represents a neutral stance (moderate), 3.51 to 4.5 signifies agreement (good), and 4.51 to 5 indicates complete agreement (very good). The results are presented in the table and figure below. The findings revealed that the evaluation of this variable yielded the following percentages: 0.8% indicated complete agreement, 16.8% showed agreement, 50.5% were neutral, 29.8% expressed disagreement, and 2.3% showed complete disagreement. Consequently, the overall assessment places the state of social resilience variables in Mehestan New Town, along with all its components based on the 5-level Likert scale, within the average range of 2.51 to 3.5. Furthermore, the coefficient of dispersion index indicated that the greatest dispersion is related to the community processes component (0.383), while the component with the lowest dispersion compared to the average is related to skills, abilities, and knowledge (0.123)

### The structural equation model of research

Structural Equation Model in Research The examination of the structural equation model in the research aims to establish whether the theoretical relationships between the variables, as defined by the researcher in the conceptual framework phase, have been validated by the data. The following figures illustrate the structural equation model of the effects of the research variables on each other, based on the path coefficients and significance coefficients for the standardized model and the non-standard model of the research, respectively. The analyses were conducted using the AMOS 24 software.

Figure 3: Diagram of structural equations model of research based on path coefficients (standardized model)

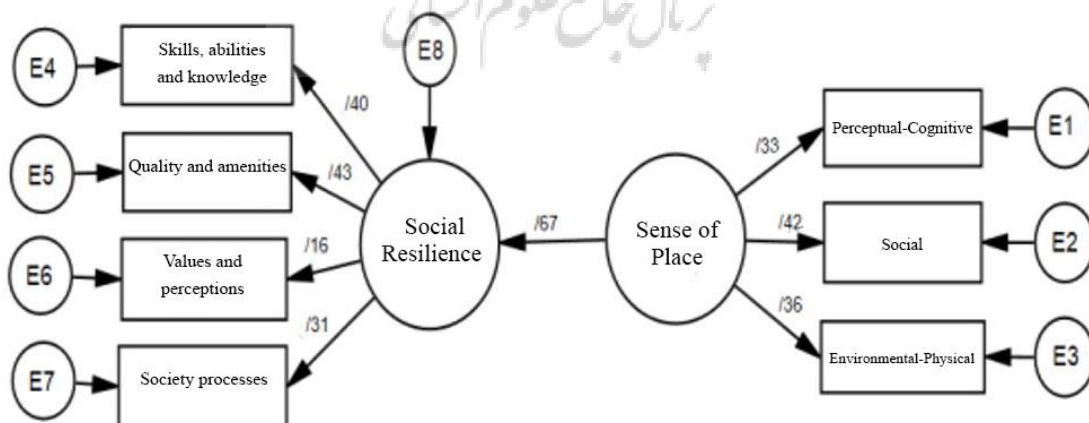
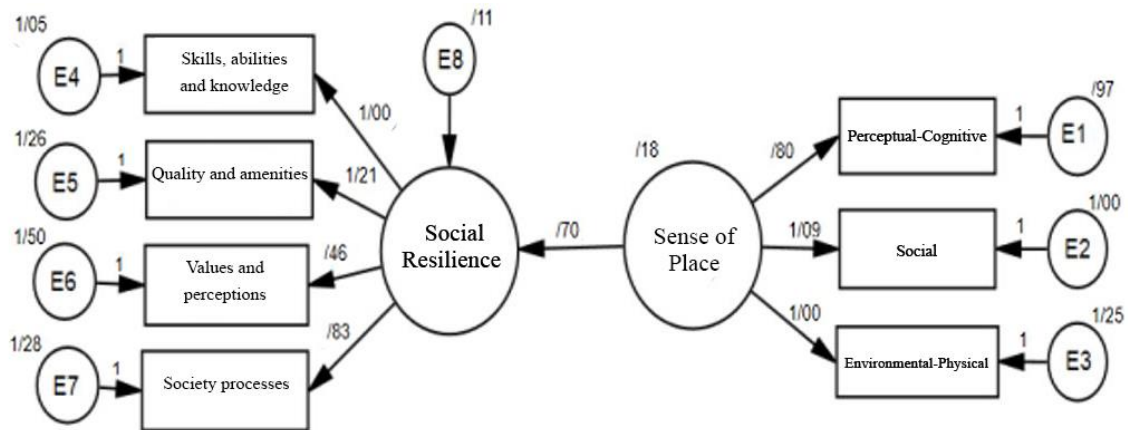


Figure 4: Diagram of structural equations model of research based on path coefficients (unstandardized model)



In the structural equation model, the relationships between the observed and hidden variables are illustrated using the path coefficients diagram. The graph of coefficients, the path, can be regarded as a way to demonstrate which variables cause changes in other variables. All independent variables have arrows pointing toward the dependent variable, with the weight coefficient positioned above the arrow (Homan, 1998: 19).

### Conclusion

In conclusion, the comparison of the research findings with those of Paton et al. (2001) yields similar results. The study by Paton et al. indicated a significant correlation between location attachment indicators and social resilience, with the univariate regression results highlighting the substantial impact of location attachment on social resilience. Furthermore, the outcomes are consistent with the study by Sartipi pour and Asadi (2017), which revealed a positive and significant influence of place belonging on social resilience resulting from residents' relocation in the examined area. The findings also align with the research conducted by Roosta et al. (2017), indicating that the average scores of both social capital (2.24) and place belonging (2.09) were lower than the overall average (3) across all regions. Finally, the current research results are in line with those of Rahnama and Razavi (2011), demonstrating that the model illustrating the influence of the sense of place belonging on the enhancement of social capital through the intermediary variable of participation provides a better explanation compared to other relationships. In essence, a strengthened sense of place and belonging indirectly fosters increased participation and enhanced social capital.

### Suggestions

The first hypothesis: the effects of the perceptual-cognitive factors of the sense of place on the level of social resilience:

- Since the mental perceptions and level of awareness of the residents of an area about an accident are very important and they should not consider themselves far away from the accident, it is

necessary to create a culture of security and social resilience among the residents through public information and education.

- Informing people about their legal rights and informing the society about damages, vulnerability, possible risks and appropriate and effective measures to reduce the risk and how to manage them by the society itself.
- Encouraging and persuading citizens to use all kinds of insurance, especially earthquake insurance.

The second hypothesis: the effects of social factors, the sense of place belonging, on the level of social resilience:

- Improving the sense of place in the direction of social resilience in the form of people's participation methods to create and improve social capital in the direction of the sense of place in the city, which can be boldly said to be one of the most important or perhaps the most important component in reducing damages caused by accidents.
- Conducting training courses on dealing with earthquakes by various institutions in the form of workshops, so that the majority of urban areas have the opportunity to participate in these courses.
- Informing all sections of society about the skills of services and available facilities, before, during and after the incident and how to access them.

The third hypothesis: the effects of environmental and physical factors on the sense of place belonging to social resilience:

- Organizing the objective space of this can increase the social resilience of the residents; As a result, this institutional trust strengthens the sense of citizenship and, as a result, increases the sense of place.
- Increasing the monitoring and support of strong and resistant constructions for prevention, reducing the danger caused by earthquakes and increasing the safety factor, as well as granting special and low-interest credits and loans to worn-out and destructive urban structures.
- Coordination of activities to reduce the effects of disasters with local communities can create a society with greater adaptability when disasters occur.
- Attention to the discussion of the location of uses such as industries and urban facilities in Mehestan, which are one of the influencing factors in the level of urban resilience.

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