

An Analysis of Individual Resilience of Informal Settlement Residents against Environmental Hazard (Case study: Urmia City)

Hadi Hakimi^{1*}, Mohammad Taqhi Mabudi², Parya Alizadeh³

1. Assistant Professor of Geography and Urban Planning, Faculty of Geography, Tabriz University, Tabriz, Iran
2. PhD Student in Geography and Urban Planning, Faculty of Geography, Tabriz University, Tabriz, Iran
3. MA in Geography and Urban Planning, Faculty of Geography, Tabriz University, Tabriz, Iran

Received: 02 February 2016 Accepted: 09 September 2017

Extended abstract

Introduction

The cities in all stages of development are faced with the pressures due to globalization, urbanization, climate change, and resource depletion. Environmental threats (climate change, earthquakes, floods, landslides, etc.), environmental degradation, and resource shortages are just some of the threats that are different in nature and affections. Some of them may cause long-term changes in urban systems (such as lack of resources) and some other can create shock to the city (such as earthquakes, hurricanes, etc.). Hence, the ability to return to normal state in the face of these shocks of urban settlements is different and may have a direct correlation with socio-economic status dwellers. Informal settlements are one of the biggest challenges that the urban sustainable development threatens a global scale. The settlements dependent upon socio-economic situation of residents and their physical characteristics are the most vulnerable cities against the environmental hazards. The urban poor as a most vulnerable group in natural hazards (floods, earthquakes, climate change, etc.) are a new dimension to the challenges and create more difficulties in achieving the millennium development goals.

Therefore, it can be said that in the event of environmental hazards, individual resilience of informal settlements is low. Given that individual resilience is one of the levels of social resilience that affects the mental characteristics of individuals, it can be affected by socio-economic characteristics. Hence, identification of the factors affecting individual resilience in informal settlements can lead to an increase in social resilience. In fact, explaining the resilience of societies against the threats is to understand how social, economic, institutional, political and executive capacities are influenced by the resilience of societies.

* Corresponding Author, Email: h.hakimi@tabrizu.ac.ir, Tel: +989141607815

Methodology

The purpose of the study is to analyze the differences in socio-economic indices and individual resiliency on the informal settlements residents in Urmia. This is an applied research by a descriptive and analytical method. We have used documentary and surveying (questionnaire) method to collect data. The study area of the research is Haji Pirlo, Vakilabad and Islamabad as 2 informal settlements of Urmia city, in the West Azarbaijan Province. Therefore, to complete the questionnaire on the basis of revised expenditure using Cochran, 380 households have been selected for the survey to respond questionnaire. To analyze the data, we have also used Analysis Of Variance (ANOVA).

Results and discussion

The purpose of this present research is to analyze the different aspects between the economic and social indicators in the resiliency of households in informal settlements of Urmia. Characteristics of respondents have been presented as following in aspects of gender, 58.3% of the respondents are men and 41.3% are women, in aspect of age, 23.4% are 19-30 years old, 27.1% 31-40 years old, 21.3% 41-50 years old, 28.2% more than 51 years old and in terms of education level, 26.3% of the respondents have diploma, most of the respondents are also illiterate (2.6%). In addition, among respondents in term of marital status, 83.4% are married, 16.1% were single and 0.5% of undeclared, in terms of staying time, 81.3% were residents here less than twenty years, 18.7% more than twenty years. In terms of gender of household, 95.3% were male and 4.7% women.

The result of this study showed that among the economic indicators, the employment index has relationship with the components of "Self-sufficiency" and "Feeling unique" in 0.000 sig and 0.002 sig, respectively. Income index is related with "Self-efficacy" and "self-confidence" components in 0.002 sig and 0.000 sig, respectively. Housing ownership index has also relationship with "positive emotions" component in 0.000 sig. and car ownership index with "sense of sociality" component in 0.001 sig. These have indicated significant differences. Among the socio-demographic indicators, only the education index has relationship with the components of "Self-sufficiency" and "confidence", respectively.

Conclusion

Individual resilience is the primary level of social resilience that has been addressed in recent years in crisis management issues. This aspect of resilience is directly related to the economic, social, cultural, psychological, and social characteristics, beliefs, and so on. These characteristics can enhance or weaken an individual resilience. Therefore, individual resilience can be considered as the pillar of social resilience. Informal settlements in Iran, due to the weakness of physical structures as superstructures and socioeconomic structures as infrastructures, are more vulnerable to the environmental hazards than the formal part of the cities. Socioeconomic characteristics of inhabitants of these settlements, such as unemployment, informal employment, low incomes, lack of social services, etc. can undermine their individual resilience including confidence, anxiety control, problem solving, coordination, positive emotions, self-esteem, etc., against environmental hazards. Thus, this can lead to difficulties in returning to normal state. The results of the research showed that employment, income, housing ownership, automobile ownership and education of individuals with some of the components of individual resilience, such as self-efficacy, feeling of uniqueness, self-efficacy, self-confidence, positive emotions, social feeling and trust is a meaningful difference. This could make the settlement more vulnerable to natural hazards. Therefore, in order to increase the individual's resilience to residents of these settlements, the following suggestions are presented:

- Planning for job empowerment of these settlements as one of the important components to achieve a resilience society, especially in informal settlements.
- Providing basic services such as health insurance and retirement communities.

- Preparing comprehensive crisis management program for informal settlements due to their different structure than the formal sector of the city.
- Training courses and informing the public about environmental hazards and the need to prepare for them.

Keywords: individual resilience, informal settlements, environmental hazard, Hajipirlo, Vakil Abad and Eslam Abad 2.

References

1. A'verria Sirkin Martin, Brian Distelberg, Barton W. Palmer & Dilip V. Jeste (2014): Development of a new multidimensional individual and interpersonal resilience measure for older adults, *Aging & Mental Health*, DOI: 10.1080/13607863.2014.909383
2. Adger, W. N. (2000), Social and ecological resilience are they related? *Progress in Human Geography*, 24 (3), 347-364
3. Ahsan, SH, (2013), *Resilient cities for the poor or by the poor? A case study from Bangkok*. PP. 1-119.
4. Ahsan, Shaikh Muhammad Mehedi (2013), *Resilient Cities for the Poor or by the Poor? A Case Study from Bangkok*, Submitted in partial fulfilment of the requirements for the 'Degree of Master of Science' at the University of Technology, Berlin.
5. Alexander, D. E, (2013), Resilience and disaster risk reduction: an etymological journey, *Nat. Hazards Earth Syst. Sci.*, 13, 2707–2716.
6. Bastaminia, Amir; Rezaei, Mohammad Reza; Dastoorpoor, Maryam (2017), Identification and evaluation of the components and factors affecting social and economic resilience in city of Rudbar, Iran, *International Journal of Disaster Risk Reduction* (22)269-280.
7. Bonanno, G. A. Galea, S. Bucciarelli, A. and Vlahov, D, (2006): Psychological Resilience after Disaster: New York City in the Aftermath of the September 11th Terrorist Attack. *Psychological Science* 17(3): 181– 186.
8. Bruneau, M. et al. (2003). A Framework to Qualitatively Assess and Entrance the Seismic Resilience of Communities, *Earthquake Spectra* 19 (4) 737-738.
9. Egeland, B., & Carlson, E., & Sroufe, L. A. (1993). Resilience as process. *Development and Psychopathology*, 5(4), 517-528.
10. Farzad Behtash, Mohammad Reza; Kaynezhad, Mohammad Ali; Pierre Babaei; Mohammad Taghi; Asgari Ali (2013). Evaluation and Analysis of Dimensions and Resiliency Components of the Metropolis of Tabriz, *Journal of Fine Arts, Architecture and Urban Development*, (3) 33-42.
11. Fleming, John; Ledogar, Robert J (2008), Resilience, an Evolving Concept: A Review of Literature Relevant to Aboriginal Research, *Pimatisiwin.*; 6(2): 7–23
12. Fletcher, D. and M. Sarkar (2013): Psychological Resilience: A Review and Critique of Definitions, Concepts, and Theory. *European Psychologist* 18(1):12–23.
13. Fletcher, D. and Scott, M, (2010): Psychological stress in sports coaches: A review of concepts, theory and research. *Journal of Sports Sciences* 28: 127–137.
14. GALDERISI, Adriana, (2014), Urban Resilience: A framework for Empowering Cities in Face of Heterogeneous Risk Factors, *ITU A/Z, VOL: 11, NO:1, 36-58, 2014-1*
15. Holling, C.S. (1973) Resilience and stability of ecological systems. In: *Annual review of ecology and systematics*, vol. 4 p. 1-23.

16. ICLE, (2012), *Resilient Cities 2012: Congress Report*. Bonn, Germany.
17. Iftekhhar, A, (2014), Factors in building resilience in urban slums of Dhaka, Bangladesh. *Procedia Economics and finance*, 18, pp. 745-753.
18. Kaplan, Carol P, Turner, Sandra, Norman, Elaine, Stillson, Kathy (1996), Promoting Resilience Strategies: A Modified Consultation Model, *Child Sch*, 18 (3): 158-168.
19. Lee, H. H. and Cranford, J. A, (2008): Does resilience moderate the associations between parental problem drinking and adolescents' internalizing and externalizing behaviours? A study of Korean Adolescents. *Drug and Alcohol Dependence* 96: 213–221.
20. Leipold, B. and Greve, W, (2009): Resilience: A conceptual bridge between coping and development. *European Psychologist* 14: 40–50.
21. Linnenluecke, M. K. Griffiths, A. and Winn, M. (2012): Extreme Weather Events and the Critical Importance of Anticipatory Adaptation and Organizational Resilience in Responding to Impacts. *Business Strategy and the Environment* 21: 17–32.
22. Moberg, Fredrik & Hauge Simonsen, Sturle, (2011), *what is resilience? An introduction to social-ecological research*. Stockholm Resilience Centre, Stockholm
23. Pitrenaitė.B.Z. Torresi.F (2014). Integrated Approach to a Resilient City: Associating Social, Environmental and Infrastructure Resilience in its Whole, *European Journal of Interdisciplinary Studies*, Vol. 6, Issue 2, 1-13.
24. Pitrenaitė-Zilienienė, B. and Torresi, F. 2014. Integrated approach to a resilient city: Associating social, Environmental and Infrastructure Resilience in its Whole. *EUROPEAN Journal of Interdisciplinary Studies*, 6, pp. 1-13.
25. Polk, LV (1997), toward a middle-range theory of resilience, *ANS Adv Nurs Sci*, Mar; 19(3):1-13.
26. Rafiean, Mojtaba, Rezaei, Mohammad Reza; Asgari, Ali; Parhizkar; Akbar; Shayan Siavash; (2010). Explaining Resilience and Indicating it in Community-Based Disaster Management (CBDM), *Planning and Space Approach*, (4) 20-41.
27. Ravallion, M. Chen, S. & Sangraula, P, (2007), New Evidence on the Urbanization of Global Poverty. *Population and Development Review*, 33 (4), 667-701.
28. Rezai, Mohammad Reza (2010). *Explaining the Resilience of Urban Communities in order to reduce the effects of natural disasters (earthquake); Case study: Tehran metropolis*, PhD dissertation, Faculty of Literature and Humanities, Tarbiat Modares University, Tehran.
29. Rezai, Mohammad Reza (2013). Evaluation of Economic and Institutional Resilience of Urban Communities against Natural Disasters Case Study: Tehran's Neighborhoods, *Quarterly Journal of Crisis Management*, 27-37.
30. Rutter, M., (1987): Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry* 57: 316–331.
31. Saleebey, D (1996), the strengths perspective in social work practice: extensions and cautions, *Soc Work*. 1996 May; 41(3):296-305.
32. Wikstorm, Anna (2013), *The Challenge of Change: Planning for social urban resilience an analysis of contemporary planning aims and practices*, Master's Thesis in Urban and Regional Planning, Department of Human Geography, Stockholm University.