

## **Evaluating the role of urban morphological factors affecting the reduction of vulnerability in social policies (Case study: historical context of Kerman)**

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### Extended Abstract

#### **Introduction:**

Urban development has long been intertwined with the historical, natural, and socio-cultural structures of cities. When development proceeds without consideration for these foundations, the result is often a fragile urban form vulnerable to both physical and social crises. This problem is especially acute in cities with unique historical identities, where the pressures of modernization and industrialization disrupt established urban patterns. The city of Kerman, one of the oldest urban settlements in Iran, exemplifies this challenge. Its historic fabric has endured centuries of adaptation, yet contemporary growth, capital-driven development, and car-oriented planning have weakened its resilience. Social and physical vulnerabilities now manifest in dilapidated housing, rising crime, uneven access to services, and migration-driven sprawl.

This study aims to examine how urban morphological factors can mitigate such vulnerabilities. More specifically, it investigates how residents of Kerman's historic center perceive the relationship between physical form and social resilience, and whether these perceptions can be categorized into meaningful planning priorities.

#### **Methodology:**

The study employs a quantitative, survey-based approach. Field data were gathered through the distribution of 384 questionnaires among long-term residents (over 10 years) of Kerman's historic district. Respondents rated their perceptions of

vulnerability across a wide set of morphological and social indicators, including:  
Permeability of the urban fabric (street geometry, pedestrian and vehicular access, dead-ends)

Building quality and density (number of floors, lot size, abandoned structures)

Demographic indicators (population density, age distribution)

Neighborhood structure and social cohesion (community participation, spatial hierarchy)

Access to social services (health facilities, public spaces, mosques, schools)

Land-use characteristics (density of high-population uses, open spaces)

Policy dimensions (urban services, education, planning regulations).

Responses were measured on a Likert scale, and exploratory factor analysis (EFA) was conducted to identify latent categories. The reliability of the instrument was confirmed by a Cronbach's alpha of 0.93, while sampling adequacy was verified with a KMO value of 0.905.

### **Findings:**

The analysis revealed three overarching categories of morphological factors:

#### Stable Factors in the Existing Situation

These factors contributed positively to resilience, reinforcing social cohesion and reducing vulnerability. They included:

Planning-related variables (urban services, accessibility programs, educational initiatives)

Neighborhood-based cohesion (strong neighbor relations, spatial hierarchy of neighborhoods)

Certain physical aspects (larger plot sizes, moderate building heights, manageable population density).

Residents perceived these features as protective, especially during crises, because they facilitated cooperation, resource distribution, and access to services.

#### Challenging Factors in the Fabric

This category comprised elements strongly correlated with heightened vulnerability:

Poor access to health facilities (loading factor 0.932)

Limited permeability (geometry of streets and pedestrian routes, 0.926 and 0.664)

High-density land uses such as crowded commercial zones (0.905)

Poor building quality and prevalence of abandoned or derelict structures (0.866 and 0.781)

Limited access to public spaces (0.729).

These features increased risks during emergencies, constrained mobility, and amplified social tensions.

#### Neutral Factors with Dual Functions

Some variables displayed mixed or context-dependent effects. Examples included:

Lot configuration and building alignment

Ratio of open to built space

Access to recreational open areas

Residents' age distribution

Prevalence of cul-de-sacs.

These factors could act either positively or negatively depending on context. For instance, cul-de-sacs may enhance neighborhood security but hinder emergency access.

### **Discussion and Conclusion:**

The results underscore that urban morphology is not a neutral backdrop but an active determinant of social vulnerability. In Kerman's historic district, planning-related variables emerged as the strongest levers for resilience. Respondents recognized that formal planning and provision of services—particularly education and infrastructure—directly reduced their exposure to risk. At the same time, the presence of dilapidated housing, abandoned plots, and poor access to health facilities emerged as pressing challenges. These findings suggest that physical interventions such as restoration, adaptive reuse, and improved connectivity can have substantial social benefits.

Interestingly, the dual-function variables highlight the complexity of urban morphology. Features like open spaces or cul-de-sacs cannot be judged in isolation; their effects depend on integration with broader networks and policies. This emphasizes the need for context-sensitive planning rather than one-size-fits-all solutions.

**Keywords:** evaluation, urban morphology, social damages, historical context of Kerman, social policies.

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