

# Assessing the readiness of hospitals in Kohgiluyeh and Boyerahmad provinces against disasters based on HIS

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## ABSTRACT

**Background:** Due to geographical, political and social conditions, atmospheric phenomena, as well as human hazards, are subject to various disasters. Disasters cause significant injuries to individuals and infrastructure such as hospitals. In fact, this indicator is a rapid screening and assessment of the hospital's disaster hazard, hospital risk management training (each educational load question), and the production of the indexes of hospital safety in disasters and, as a result, prioritizing the safety of a country's capital. Is a hospital and helps policy-makers to allocate resources. In this study, Disaster Hazard Assessment (HIS) has been used. In this study, the self-assessment approach of hospitals has been used. **Methods:** In this study, Disaster Hazard Assessment (HIS) has been used. In this study, the self-assessment approach of hospitals has been used. HSI contains 145 items in 3 groups. The groups include assessment of functional, structural and non-structural dimensions. Dimension scoring is done in 3 levels: non-secure (0) medium (1) safety and high safety (2). **Results:** In this study, all active hospitals in Kohgiluyeh and Boyerahmad were studied. The average overall safety score of these hospitals was 58.11%. **Conclusion:** According to the tables and charts obtained from the hospitals in Kohgiluyeh and Boyer Ahmad, none of the hospitals have high safety.

**Keywords:** disaster, HSI, hospital, safety.

## Introduction

Due to geographical, political and social conditions, atmospheric phenomena, as well as human hazards, are subject to various disasters. Disasters cause significant injuries to individuals and infrastructure such as hospitals. <sup>[1]</sup> According to the Global Assessment of Disaster Reduction, Iran's hazard class for natural hazards was 8 out of 10. Over the past four decades, these dangers have caused more than 109,000 deaths and 150,000 injuries <sup>[1]</sup>. The negative consequences of disasters in Iranian hospitals are severe. For example, in the Bam earthquake (2003), nearly all state and private hospitals were destroyed. Also, in the East Azarbaijan earthquake (2012), all the hospitals in the region were destroyed <sup>[1]</sup>. In all developing and developed countries, the safety of hospitals against disasters is a challenge <sup>[1, 2-4]</sup>, because hospitals should be able to continue to perform activities and provide services in the event of

disasters <sup>[5]</sup> Kohgiluyeh and Boyer Ahmad are not immune from these disasters and due to earthquakes such as earthquakes, natural and humanitarian hazards, as well as internal hazards of hospitals such as fire, explosion, ..., readiness and ability of Yasuj medical university Required to submit a response. The purpose of this study was to assess the safety of the state hospitals of Kohgiluyeh and Boyerahmad in disasters in 2017 using the Hospital Safety Assessment Tool (FHSA). In order to facilitate the process of assessing hospitals against disasters, the WHO, the Health Safety Index, the index is a cheap, reliable, easy-to-use tool. HSI provides an overview of the hospital's ability to deal with major disasters for decision makers and policy makers.

In fact, this indicator is a rapid screening and assessment of the hospital's disaster hazard, hospital risk management training (each educational load question), and the production of the indexes of hospital safety in disasters and, as a result, prioritizing the safety of a country's capital. Is a hospital and helps policy-makers to allocate resources. <sup>[5]</sup>. In 2011, a group of experts gathered at the University of Tehran and designed a Farsi version of the FHSA, FHSA. This tool, after verifying content content and formal validity, was used by universities for use. In this method, the conclusion is drawn to the identification of the damaging risks to hospitals and treatment centers, and the assessment of functional safety, non-structural

## Access this article online

**Website:** www.japer.in

**E-ISSN:** 2249-3379

**How to cite this article:** Jalal PouranFard, Zahra Sadeghian. Assessing the readiness of hospitals in Kohgiluyeh and Boyerahmad provinces against disasters based on HIS. *J Adv Pharm Edu Res* 2019;9(S2):108-110.

**Source of Support:** Nil, Conflict of Interest: None declared.

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safety and structural safety of the hospital, in order to provide an appropriate measure for prioritizing the objectives of operational planning to resolve problems, as well as an appropriate benchmark for policy making in corporate credit distribution programs.

**Materials and Methods:**

In this study, Disaster Hazard Assessment (HIS) has been used. In this study, the self-assessment approach of hospitals has been used. HSI contains 145 items in 3 groups. The groups include assessment of functional, structural and non-structural dimensions. Dimension scoring is done in 3 levels: non-secure (0) medium (1) safety and high safety (2).

**1) Functional safety of hospitals** in cooperation with the Hospital Crisis Committee, while informing the team members about the content of the questions, including: integrating the hospital program into the crisis management program of the university, city, city and province, co-ordinating with other parts of the hospital, defining the activity Pre-incident, risk assessment, design and implementation of risk mitigation, education (and awareness) activities during the activation incident (activation and implementation of the operation and activity) After the accident and return to normal conditions (recovery) and assessment of the effectiveness of the program (Evaluation).

The questions in this section are in 5 items:

1. Organization of the Hospital Crisis Committee
2. Operational Response Program to respond to internal and external hazards
3. Implied medical program activities
4. Availability of the Operational Program for the preservation and reconstruction of vital services
5. Access to drugs, equipment and supplies required.

**2) Non-structural safety of the hospital:**

This section examines the safety of non-structural hospitals that are not defined in terms of walls, ceilings and columns that do not contribute to the weight of the building. In the evaluation of this section, which is carried out in collaboration with the colleagues of the hospital facility, the following main groups are examined:

1. Vital systems
2. Electric system
3. Communication system
4. Water storage system
5. Fuel storage
6. Hospital heating and cooling system
7. Fixed and mobile office equipment
8. Architectural components
9. Medical and laboratory equipment and supplies of treatment-related equipment.

**3) Structural safety assessment of the hospital:**

The purpose of the rapid assessment of the structure of the hospital, which includes the columns, the beam, the walls, the concrete plates of the floor of the building bearing its weight, and the questions in two parts:

1. Previous events affecting hospital safety
2. The safety of the structure of the system and the type of materials used in it.

In IRAN, HIS has become a tool for becoming an information management system and has components including: data collection tools, data collection, data entry, transfer and analysis processes, electronic data analysis, capacity building and manufacturing of hospital safety indicators at the national and local levels; after data collection in the system, the results of the safety assessment of the hospitals in Kohgiluyeh and Boyerahmad Province in 2017 were analyzed statistically.

**Table 1: Evaluation of 145 Hospital Items against Disasters**

Safety item	Safety component	Number
<b>Structural safety</b>	Previous events affecting hospital safety	
	The safety of the structure and the type of materials used in the building	
	Communication system	
	electrical system	
	water storage	
	Fuel storage	
	Medical gases	
	Hospital Heating & Cooling System	
	Office equipment	
	Medical and laboratory equipment and diagnostic and medical equipment	
<b>Non-structural safety</b>	Architectural components	
	Organization of the crisis committee	
	The operational plan responds to internal and external hazards	
	Medical operations plan	
<b>Functional safety</b>	Availability of critical services operational plan	
	Access to drugs, equipment and supplies needed	
<b>Sum of questions</b>		

**Results:**

In this study, all active hospitals in Kohgiluyeh and Boyerahmad were studied. The average overall safety score of these hospitals was 58.11%.

**Table 2: Provincial Hospital Preparedness Indicators for Accidents and Disasters in 2017**

Assessing hospital safety against disasters and emergencies	
Functional level of safety	58.79
Level of safety of unauthorized elements	48.67
Level of safety of structural elements	66.88
<b>Safety Rating</b>	<b>58.11</b>

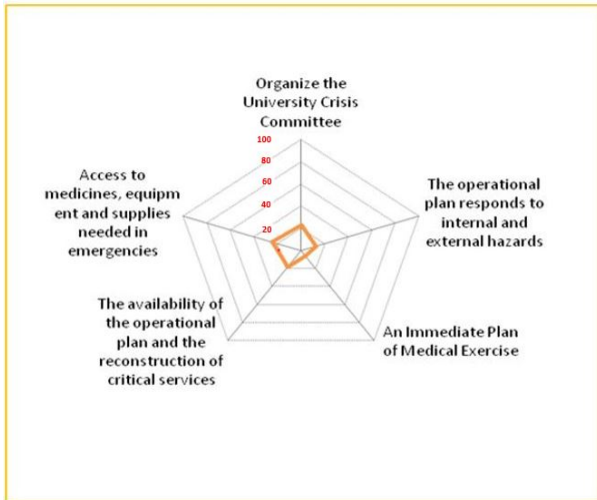


Figure 1: Functional Readiness of Provincial Hospitals against Accidents and Disasters in 2017

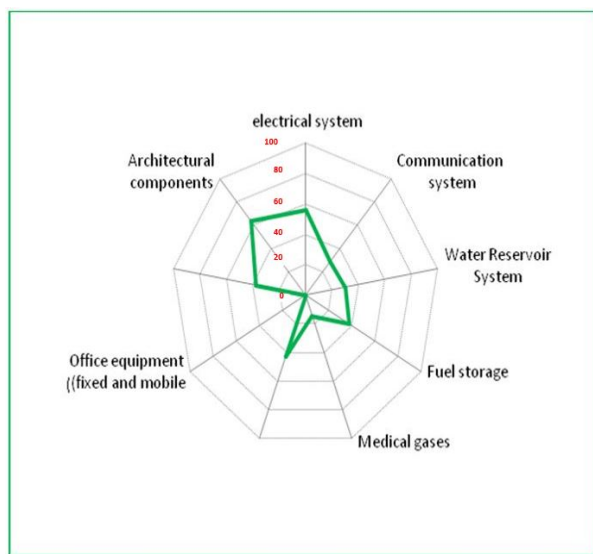


Figure 2: Non-structural safety of provincial hospitals against accidents and accidents in 2017.

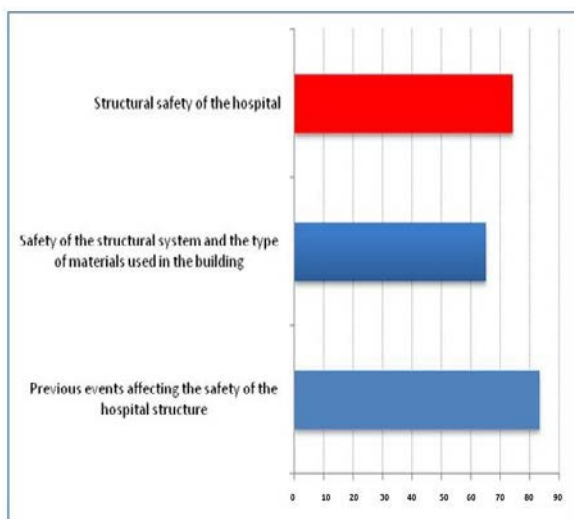


Figure 3: Structural Safety of Provincial Hospitals against Accidents in 2017.

### Conclusion:

According to the tables and charts obtained from the hospitals in Kohgiluyeh and Boyer Ahmad, none of the hospitals have high safety. (Table 1). On the other hand, given that information on the risks that could potentially cause harm to people and hospital staff, or to destroy hospital equipment and disrupt the functioning of the hospital, is not available in summary form or information Existing, technical, or general technical, and access to them requires inter-organizational correspondence. The criteria for completing this form are the information on the best available and current status of the individual (Figure 1). In hospitals' functional readiness review, according to (Table 2), hospitals have a moderate level of safety, which, according to the belief in incidents and the need for hospitals to respond to accidents and incidents, based on operational plans, can be effective in improving it. In the non-structural safety assessment of hospitals, attention is drawn to the sustainability structure of supporting backup and storage systems needed for accidents and incidents. In addition, in assessing structural information and previous events that affect the structure, the need to improve and improve the structure should be considered. Considering the information obtained and the necessity of disaster preparedness of hospitals, the participation and cooperation of all relevant organizations at different levels of executive and structural, as well as more accurate monitoring of the implementation of standards in newly established hospitals, attention to improving functional and non-functional safety Structural and rehabilitation of hospitals, direct intervention and the formation of provincial and national teams to examine the information provided and verify its accuracy, and to strengthen the existing structures of hospitals.

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