





# Situation analysis model of hospital emergency department promotion in Iran: A cross-sectional study

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## Abstract

**Background and Aim:** The present study was conducted to develop a situation analysis model for Iran's hospitals' emergency departments (EDs).

**Methods:** The current research was a descriptive cross-sectional applied study in three stages. The studies were reviewed in various library resources and valid sites in the first stage. In the second stage, the analysis model of the ED in Iran was presented. In the third stage, the model was validated based on the Delphi technique, and the final model was presented.

**Results:** The final situation analysis model of ED in Iran was approved in four main aspects, including goals, internal factors, external factors, and organizations and institutions participating in the situation analysis, and its implementation schedule was approved by 90% of experts.

**Conclusion:** Considering the importance of situation analysis in developing a strategic plan and improving the quality of health services in the ED of hospitals, implementing a coherent situation analysis model that includes all aspects leading to improving the ED quality and analyzing the internal and external factors is vital.

## KEYWORDS

analysis, emergency department, hospital emergency services, model

**Abbreviations:** 5C, company, competitors, customers, collaborators, climate; EBM, evidence-based medicine; ED, emergency department; EMS, Emergency Medical System; HTA, health technology assessment; LOS, length of stay; MCMC, Medical Care Monitoring Center; MOH, Ministry of Health; PAR, participatory action research; PESTEL, political, economic, social, technological, legal, and environmental; POC, point of care; RBV, resource-based view; SWOT, strengths, weaknesses, opportunities, and threats; VRIO, value, rareness, imitability, and organization; WHO, World Health Organization.

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## 1 | INTRODUCTION

The emergency department (ED) is one of the hospital's most critical and sensitive departments. Patients who refer to this department are in serious physical condition. One of the most critical roles of EDs is to provide prompt treatment and quality care to these patients. The ED should have an appropriate organized structure, and the service delivery processes should be carefully considered.<sup>1</sup> Improving the processes of the ED as the entry point for people's health and its type of structure can make it a place to improve the community's health system and reduce financial costs.<sup>2</sup> Some of these processes are controlled within the ED by its managers. However, some other processes may be controlled by stakeholders outside the ED who may not value optimizing patient care in the ED. Therefore, the patient may experience the inefficiency of operational processes in the absence of sufficient personnel, low access to hospital beds for patients admitted by emergency physicians, and other problems such as overcrowding of patients.<sup>3</sup> Overcrowding leads to an increase in the length of waiting to receive services and delays in receiving care services for patients, affecting patient satisfaction and the quality of services.<sup>4</sup> In addition, the quality of emergency services depends on the coordinated efforts between emergency physicians and nurses, other specialists, paraclinical staff, and inpatient units. Due to the coherency of these components, disruption in each process makes the provision of health care difficult.<sup>3</sup>

A study by Wong et al. in 2022 in America describes ED clients' experiences, dissatisfaction with the department's performance, and reluctance to attend again. The researchers believe that the most important reason is the adverse consequences of the ED and the inappropriate interactions and communication of the medical staff.<sup>2</sup> Taylor et al.'s study in 2002 in Australia also indicated many problems in the ED, including inadequate and delayed treatment, improper diagnosis, issues related to the communication of the treatment staff with patients and their families, and the growing dissatisfaction of patients. Finally, the researchers emphasized the need for principal changes in the methods and policies of the situation analysis-based sector.<sup>3</sup>

Bakhshi et al. in 2021 in Iran conducted a participatory action research (PAR) study in an ED using situation analysis to investigate the clinical attitude about drug management. Considering that the ED brings many patient safety challenges, including very unpredictable conditions and frequent use of high-risk drugs, and the process of drug management is still prone to risk and error, in this study, applying situational analysis in PAR, attention to the strengths and limitations were able to overcome the perceived barriers to the correct management of medication in the ED and positively affect the views and attitudes of physicians.<sup>5</sup>

Situation analysis is a comprehensive approach to determining the practical factors in the processes that lead to plans and strategies that are considered a key component for any environment and a prerequisite for improving the quality of all strategic processes.<sup>6</sup> From the WHO's (world health organization) point of view, situation analysis is a realistic assessment of the current situation done to create a basis for formulating future strategic directions.<sup>7</sup>

In a study conducted by Olyaeemanesh et al. in Iran in 2018, SWOT was used as one of the tools of situation analysis to evaluate health programs and plans and separate health priorities to make changes in the reform of the health system.<sup>8</sup> Situation analysis provides specific analyzes or a strategic map of the organization in the framework of strategic business management with different tools to carry out correct planning.<sup>9</sup>

Evaluation and analysis of hospitals' performance through implementing reforms can profoundly impact the health system, improving the accountability and transparency of planning.<sup>10</sup>

Even though the ED, as one of the vital components of the hospital, is subject to interactions between different departments of the hospital and management levels, it should pay special attention to improving the quantitative and qualitative levels of diagnostic and treatment services. In this case, the ED can be expected to provide desirable and effectual services.<sup>11</sup>

On the other hand, organizations' performance is changing rapidly due to the influence of internal and external factors. Furthermore, managers have to prioritize situation analysis for the development and progress of their organization.<sup>12</sup> It is evident that the hospital and its various departments, especially the ED, should be evaluated and analyzed in sync with other units and, of course, at the top of them.<sup>13</sup>

By performing situation analysis, the goals of hospitals, especially the ED, are aligned, and the activities and processes of this department and the implementation of projects in it can be done faster.<sup>14</sup> For this purpose, various tools can be used individually or as a combination to perform situation analysis, like SWOT (strengths, weaknesses, opportunities, and threats) analysis, PESTEL (political, economic, social, technological, legal, and environmental) analysis, Porter's Five Forces (competitive rivalry, supplier power, buyer power, the threat of substitution), 5C (company, competitors, customers, collaborators, climate) analysis, and VRIO (value, rareness, imitability, and organization) analysis.<sup>15</sup> These tools facilitate a realistic, fact-based, and data-driven examination of strengths, weaknesses, and internal and external factors affecting various organizations. In the ED, situation analysis must be done accurately to achieve strategic goals and improve quality.<sup>16</sup> Considering the importance of situation analysis in developing a country's health, increasing the efficiency of the health system, and improving the quality of services in the ED, which together bring satisfaction to the health trustees and clients of the health system, and the lack of a coherent model in the ED of hospitals in Iran, the proposed model in the present study is based on a comparative study that has been used in different countries for situation analysis in the ED and healthcare institutions, therefore the present study aims to present a situation analysis model for this department.

## 2 | MATERIAL AND METHODS

The current research is of an applied and cross-sectional type in 2022, intending to design a situation analysis model to improve the ED in Iranian hospitals, which was carried out in three stages:

## 2.1 | Literature review

The present study adopted Arksey and O'Malley's framework to perform a scoping review, which comprises five main stages and one selective stage as follows:

1. Identifying the research question
2. Identifying relevant studies
3. Selecting the studies
4. Charting the data
5. Collating, summarizing, and reporting the results.<sup>17</sup>

The questions examined in this review study were as follows:

What are the components of situation analysis in the ED? What tools are used for situation analysis in the ED? What is the application of the tools used for situation analysis in the ED?

### 2.1.1 | Information sources and search strategy

Related articles published between 1985 and October 15, 2022, were extracted from PubMed, Science Direct, and Scopus databases and Google Scholar search engine using a combination of keywords (MeSH terms) as well as useful websites and library resources were investigated. Table 1 presents the keywords used in the search to retrieve related articles.

### 2.1.2 | Eligibility criteria

#### *Inclusion criteria*

The criteria for inclusion in the study were original research articles that investigated situation analysis and the application of its various tools in the ED of hospitals and the healthcare field.

#### *Exclusion criteria*

Articles that did not have enough details about the situation analysis tools were excluded from the study. Non-authentic articles (e.g.,

review articles, editorials, and protocols) were excluded. Furthermore, articles without full-texts (for any reason) were also excluded from this research.

### 2.1.3 | Study selection and data extraction

After retrieving the relevant articles, each article was independently reviewed by two authors (F. A., M. A.). Subsequently, both authors provided the reason for the rejection of each article. In case of disagreement, other authors reviewed the article (N. R., A. S.).

After selecting the articles with inclusion criteria, the required data were collected using a data extraction form per the objectives of the study. The data extraction form consisted of six main parts, as follows: situation analysis goals in the ED of hospitals, type of situation analysis tools, components of the situation analysis tool, type of assessment environment, description of the situation analysis tool, application of the situation analysis tool.

## 2.2 | Presenting the proposed model of situation analysis in the ED in Iran

Based on the first stage findings (scoping review), situation analysis tools, and their content were obtained to present the situation analysis model. Considering that the studies showed that the most common tool for analyzing the ED situation is SWOT, this tool was considered the primary tool of the model. Then, to complete the opportunities and threats part of the model, the PESTEL tool was used due to its comprehensiveness in examining external factors. The VRIO tool was used under the title of internal factors analysis to complete the strengths and weaknesses section due to its accuracy in examining these factors. This model has another part called institutions and people involved, which plays a fundamental role in implementing the proposed model in Iran.

Then, an initial model was designed based on a combination of PESTLE, VRIO, and SWOT tools regarding Iran's health system's conditions and organizational structure.

## 2.3 | Validation of the proposed model and presentation of the final model

The model was validated using the modified Delphi technique (Decision type) conducted in two rounds to reach experts' consensus.<sup>18</sup> For this purpose, a researcher-made questionnaire was designed in four main aspects: goals, internal factors, external factors, and individuals and participating executive institutions in the ED situation analysis model. The responses to each question were "agree" (a positive score) or "disagree" (a negative score). A blank space was also provided beside each question for experts to express their reasons and/or suggest modifications.

**TABLE 1** Search strategy in scientific databases.

Time limitation	1985 to October 15, 2022
Language limitation	Only full text in English
#1	"Emergency Service" OR "Emergency Department" OR "Hospital Emergency Services" OR "Hospital Emergency" OR "Hospital Service" OR "Emergency Room**"
#2	"Situation Analysis" OR "Situation Analysis Tools" OR "Analysis Tools" OR "Situation Analysis Model"
Search	#1 AND #2

The validity assessment of the questionnaire was done based on content validity and obtaining opinions from health information management specialists and ED experts. The reliability of the questionnaire was evaluated using Cronbach's  $\alpha$  ( $\alpha = 94\%$ ). In the first stage of the Delphi technique and to extract the views and opinions of experts, using the expert sampling method,<sup>19</sup> the questionnaire was given to 15 experts with at least 5 years of experience including five health information management specialists, five healthcare service management specialists, and five emergency managers, who were faculty members of medical sciences universities. The selection criteria for the panel members was sufficient expertise regarding the subject under review.

The researcher (M. A.) personally attended the participants' workplaces and explained to them about the objectives of the study.

Consensus was defined as  $\geq 85\%$  of the experts agreeing with a statement. This way, if an option had an agreement of less than 85%, that option was removed. If it was more than 85%, it remained unchanged in the questionnaire. In the second stage of the Delphi technique, another questionnaire was compiled based on the suggestions presented. The items mentioned above were discussed and re-examined with a specialized panel of five experts (three experts in health information management and two in the emergency). The final result was obtained in the application model and experts' agreement. Data analysis was done using descriptive statistics and frequency distribution using SPSS software.

The experts' identities and responses were kept confidential during model validation. Moreover, their participation in the validation stages was voluntary, and they were free to withdraw from the study at any stage. Their suggestions and comments, in cases of agreement and disagreement, were kept without any partiality.

## 3 | RESULTS

### 3.1 | Findings related to the literature review

In the first stage of the literature review, 148 articles related to the title were examined. With a more profound review of the abstract and text, forty-seven articles that were the most relevant to the ED or hospital were selected, in which at least one of these tools for evaluating the organization was employed. Eventually, nine articles were selected to complete and analyze (Table 2).

The findings from the study of sources showed that various tools had been designed to perform situation analysis in the healthcare industry and the ED, and the principal purpose of all these tools is to create a basis for the development and progress of the healthcare industry. The results of the comparative study of different situation analysis tools are illustrated in Table 2.

### 3.2 | Findings related to the presentation of the proposed situation analysis model in Iran

The proposed model was presented in four separate tables containing the goals of situation analysis, internal and external factors under analysis, and people and participating executive institutions (Tables 3–6).

### 3.3 | Findings related to the validation of the situation analysis model of the ED of the hospitals in Iran

The findings related to validating the situation analysis model of the ED of the country's hospitals showed that the goals received 100% of the experts' opinions. In the internal factors review section with VIRO and SWOT tools, the option of new technologies (such as electronic health records) was added to the value item for accurate data collection and recording. In the rarity item, the option of having trained emergency staff and using new technologies such as health technology assessment HTA (health technology assessment), a tool for effectively allocating resources) was suggested. In the organization item, the option of deploying a particular emergency supervisor around the clock and not fully implementing the processes according to evidence-based medicine (EBM) was suggested. Experts approved this section with 95% agreement. In examining the external factors section, with PESTEL and SWOT tools, in the item Environmental factors, the presence of suitable roads and roads to access the ED, the option of air emergency, and the possibility of transporting patients by air were suggested. Moreover, in the Legal factors item, the option of not having a specific law to determine the relationship between performance and incentives among emergency workers and quickly changing the rules without specific procedures was suggested. This section was approved with 97%. In the section on people and institutions involved, the option of working groups (including all stakeholders, whether inside or outside the hospital) and periods for conducting situation analysis in the ED of hospitals were added to the proposed model. Experts agreed on this part with 95%. Generally, the findings demonstrate that all the components of the proposed situation analysis model of the ED of hospitals were confirmed with 90% agreement of the experts. Then, all the suggested items were added to the model. In the second stage, the Delphi technique was implemented in a specialized panel of experts, and the added suggestions were highlighted, the model was re-examined, and 100% approved.

Based on the findings of this phase, the proposed model of situation analysis of the ED of hospitals was presented with four main components: goals, internal factors, external factors, people and institutions involved (Figure 1).

TABLE 2 Comparative study of different situation analysis tools.

Type of tool	Tool components	Type of assessment environment	Description of the tool	Application of tool
SWOT Analysis	Strengths Weaknesses Opportunities Threats	Evaluation of the internal environment (Strengths and Weaknesses) Evaluation of the external environment (Opportunities and Threats)	SWOT analysis arms the organization against future obstacles and reveals untapped opportunities. SWOT is a great organizer. Discussion is encouraged, the exchange of points of view between different departments of a hospital and various groups outside the hospital, and the dissemination of information between them. <sup>20,21</sup>	Presenting a big picture of the organization with an emphasis on internal and external factors affecting the organization's performance. <sup>20,21</sup>
PESTEL Analysis	Political factors Economic factors Social factors Technological factors Environmental factors Legal factors	Evaluation of the external environment at the level of the general climate of the organization (PESTLE)	Effectual evaluation of external factors and main forces that affect the organization's activities indirectly. It is a suitable tool to create the adoption capability for environmental changes and ensure service delivery. <sup>15,22</sup>	A professional tool for analyzing the external environment of organizations to maximize opportunities and minimize threats. <sup>15,22</sup>
VRIO Analysis	Value Rarity Imitability Organization	Evaluation of the organization's internal environment (VRIO)	The VRIO model is a part of the resource-based view (RBV). This model examines the link between the organization's internal characteristics and performance. <sup>23,24</sup>	Analyzing how to use the organization's resources to achieve a competitive advantage <sup>23,24</sup>
5C Analysis	Company Customers Competitors Collaborators Climate	Evaluation of the internal environment (Company) Evaluation of the external environment (Customers, Collaborators, Climate, and Competitors)	It is an integrated framework for analyzing the internal and external environment in which an organization operates. With 5C, an organization can achieve a more precise and accurate insight into the environment in which it operates. <sup>15</sup>	Analyzing the organization's performance in different fields to identify and evaluate the main success factors and potential challenges facing the organization. <sup>15</sup>
Porter's Five Forces	Threat of substitute Internal Rivalry Buyer power Bargaining power of suppliers New Entrants	Evaluation of external factors at the level of the specialized environment (Porter's Five Forces)	It provides an in-depth insight into the current situation of the hospital's ED or the conditions related to the emergency for a dream with various competitive positions. <sup>25-27</sup>	Accurate identification and analysis of the actual impact of competitive elements in a competitive environment <sup>25-27</sup>

**TABLE 3** Situation analysis goals in the emergency department (ED) of hospitals.

Goals	<p>Realistic assessment of the ED according to strengths, weaknesses, opportunities, and threats<sup>28,29</sup></p> <p>Assessing the root causes of problems and their effects<sup>7</sup></p> <p>An evidence-based basis for responding to the needs of the ED and patients<sup>28</sup></p> <p>A base for formulating future strategic directions in the ED<sup>28,30</sup></p> <p>A base for developing policies and processes<sup>7</sup></p> <p>Improving the quality of services in the ED<sup>28</sup></p>
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## 4 | DISCUSSION

Situation analysis is the first step in a conscious effort to change and improve the organization.<sup>20</sup> It is a process that helps the hospital to have a common understanding of the content of their activities and work context.<sup>40</sup> The studies conducted so far have analyzed the ED by relying on one of the tools, but in this research, the model presented is based on the main goals of the ED, using a combination of (SWOT), (PESTEL), and (VRIO) tools for designing situation analysis of the ED.

According to the study of Conservancy in 2007 in America, the fundamental elements of designing and implementing a situation analysis in the first stage include identifying the stakeholders and the people who influence the situation analysis program. In the second stage, the goals are identified and defined. The next step is to evaluate the dynamicity and examine the key features of the surrounding environment that affect the situation analysis. Identifying internal and external factors, opportunities, and threats to the organization is the final step, continuously needed for strategic planning.<sup>41</sup> Accordingly, one fundamental element of designing the proposed model is goals. In the proposed model, the main goals of situation analysis include a realistic assessment of the ED regarding its SWOT. A science-based assessment of the root causes of problems and their effects is needed to meet the needs of the ED. Additionally, a science-based assessment of patients that have been presented as a basis for formulating future strategic directions and policies, and processes and improving the quality of services in the ED.<sup>13,28</sup>

In a 2022 North American study, Navas et al. stated that there are barriers and facilitators to optimal emergency care and patient experience of service delivery, which were organized into three general themes: (1) Interpersonal factors, including communication, patient-staff interactions, and attitudes and behaviors. (2) Environmental factors, including accommodation, waiting time, and utilization restrictions, and (3) System-level factors, including discharge planning, resources and policies, and knowledge and expertise. Interpersonal factors and factors related to the system have somehow included the internal factors of the ED in their sub-topics, and the environmental factors have examined the environment around the patient in the ED, which demonstrates the vital role of internal and environmental factors in providing optimal care.<sup>42</sup>

Optimizing the delivery of applicable and effectual services depends on a correct analysis of the existing internal and external factors, creating a suitable management structure, designing efficient

processes, and effective performance in the analyzed unit of the organization.<sup>27</sup> M. Halley's study in 2019 in Las Vegas to examine the internal factors of the ED concluded that its strengths and weaknesses should be considered, such as planning to reduce the access time to the doctor and reduce the LOS, leading to timely treatment of patients. Correspondingly, examining the external factors (threats and opportunities of the ED) increases the efficiency of the health system and improves the delivery of health services.<sup>43</sup>

In the SWOT analysis, important internal and external factors affecting the strategies of the organization or hospital are identified. Based on this, external opportunities and threats, as well as internal weaknesses and strengths of the investigated unit, such as the hospital ED, are identified by its resources and strengths analysis.<sup>13</sup> Therefore, several external factors may affect any business, including the healthcare industry, such as political, economic, social, technological, environmental, and legal factors that must be investigated in the situation analysis. Healthcare organizations must adapt to these rapid environmental changes to ensure the sustainability of service delivery. Therefore, an effective strategy such as the PESTEL analysis model is necessary for this healthcare system to evaluate various external factors.<sup>22</sup>

According to Adzhienko's study in Russia in 2021, the PEST (political, economic, social, and technological) tool has been used to investigate the role of external factors in the depression of the medical staff working in the health care system. The treatment staff's motivation and effort undoubtedly play a fundamental role in providing optimal treatment services. The PEST tool revealed that external environmental factors, including economic and socio-cultural factors, influence this field. However, internal factors are crucial in encouraging the medical staff to provide quality medical services; there should be plans to prevent this. Therefore, this tool is one of the main factors in examining external factors in designing the proposed model.<sup>40</sup> On the other hand, the healthcare industry is facing intense competition. Successful situation analysis of this environment requires deep insight into its competitors. The vital task of the healthcare organization is to accurately identify competitive elements in a competitive environment, facilitated by Michael Porter's five forces model.<sup>22,25-27</sup>

In the proposed model, due to the complete coverage of the analysis of external factors by the PESTEL tool, the PESTEL is preferably used instead of Michael Porter's five forces model.

According to Pour Ahmadi's study, unlike the PESTEL analysis, Porter's analysis examined environmental factors at a micro level.<sup>22</sup> The PESTEL tool has been used to cover more



**TABLE 4** Internal factors analyzed in the situation analysis model of the ED of hospitals based on VRIO and SWOT.

Internal factors analyzed based on VRIO analysis	Valuable	Strengths	Establishment of triage with trained nurses with the correct distribution of patients, resulting in their timely treatment <sup>30,31</sup> Eliminating additional processes and strengthening the emergency services delivery in the shortest possible time <sup>13,32</sup> Improving the quality of health services delivery to patients <sup>28</sup> Reducing LOS and preventing wastage of valuable financial and human resources <sup>32,33</sup> Having skilled human resources and experienced work <sup>1</sup> The loyalty of employees toward performing their duties in the emergency room <sup>1</sup> Having suitable para-clinical facilities around the clock for emergency patients <sup>1,34</sup> Availability of medical resources available in the ED <sup>1</sup>
		Weaknesses	Increasing acceptance of patients with not-so-serious physical conditions Not leveling emergency triage <sup>33</sup> Inadequate training of personnel regarding the use of new technology, resulting in medical errors <sup>1</sup>
	Rarity	Strengths	Removing additional steps in the process of patient transfer from the emergency room to the inpatient wards <sup>34</sup> Using the latest scientific and research resources <sup>20,35</sup> Increasing the presence of specialist doctors in the emergency room and reducing the time to reach the doctor <sup>30</sup> The existence of new portable medical equipment, such as POC(point of care device) devices <sup>1</sup> Providing new treatment methods, such as alternative medicine in the emergency room <sup>27</sup> Providing palliative counseling in the emergency room <sup>31</sup>
		Weaknesses	Overcrowding of visitors to the department emergency <sup>32</sup> Limited financial and human resources <sup>23</sup>
	Imitability	Strengths	Increasing accuracy in performing the necessary tests and preventing their repetition <sup>13</sup> Providing unique financial and human resources in the emergency room and provoking competition among other hospitals <sup>8</sup> Implementation of standardized protocols in an emergency <sup>30</sup> Preventing the patient's return by correctly determining the patient's condition in case of discharge from the ED or referral to inpatient departments <sup>30,36</sup> Using the referral system and emergency medicine <sup>20,28,30</sup>
		Weaknesses	Failure to correctly diagnose the doctor, repeating tests and procedures as a result of increasing the patient's waiting time <sup>28,31</sup> Increasing the referral of doctors with different specialties to each other and thus increasing the number of admissions and patient waiting time <sup>28,30</sup> Failing to diagnose the emergency triage nurse correctly and repeating the patient's referrals <sup>28,36</sup>
	Organization	Strengths	Compilation of vision of the ED of the hospital <sup>30</sup> Analysis of the organization's culture and goals <sup>34,36</sup> Management approach and supervision from top to bottom <sup>14</sup> Establishing a regular reporting system for emergency and hospital officials <sup>14</sup> Clarity of responsibility and accountability Creating motivation to improve the performance of healthcare workers <sup>8,13</sup> Financial and moral support to ensure that the skilled emergency forces are not replaced <sup>30</sup>
		Weaknesses	Managers' limited view of emergency problems <sup>14</sup> Limited financial and human resources in an emergency <sup>30</sup> Losing the time of direct supervision of the ED by the head of the ED due to ordering side processes <sup>14</sup> Lack of proper planning of specialist doctors' work shifts <sup>31</sup> Unbalanced attention to specialized and subspecialized medical/surgical strains <sup>21,30</sup> Failure to pay attention to the increase in structural and ancillary costs of the hospital, staff, especially ED staff <sup>14</sup> Lack of strategic planning and allocation of financial resources <sup>23</sup>

Abbreviations: ED, emergency department; LOS, length of stay; SWOT, strengths, weaknesses, opportunities, and threats; VRIO, value, rareness, imitability, and organization.

**TABLE 5** External factors analyzed in the situation analysis model of the ED of hospitals based on PESTLE and SWOT.

External factors analyzed based on PESTLE analysis	Political factors	Opportunities	Constructive policymaking and strategic planning to improve emergency services and thus increase the efficiency of the health system <sup>7</sup>
		Threats	Political sanctions and political stagnations <sup>22</sup>
	Economic factors	Opportunities	Plan to finance new needs and thus maintain financial performance <sup>7</sup>
		Threats	Economic sanctions resulting in the economic recession <sup>8,22</sup> Reducing the budget and reducing the funding of the department <sup>23,33</sup> Increasing the number of low-income or uninsured people <sup>22</sup>
	Social factors	Opportunities	Increasing the budget following increasing patient satisfaction and upgrading the emergency level <sup>33</sup> Focus on patient experience and increase patient satisfaction <sup>32</sup>
		Threats	Increase in the elderly population referring to the ED <sup>30</sup> Increasing patient expectations from emergency services <sup>37</sup> Increasing referrals of patients with sober conditions during the pandemic <sup>34,37</sup> Increasing referrals of patients with different health cultures in conditions of infection transmission <sup>34</sup>
	Technological factors	Opportunities	Providing remote emergency services and consultations following technological upgrades <sup>22,28</sup> The existence of reporting systems of emergency indicators at the hospital and national level <sup>27</sup>
		Threats	Non-use of data exchange and registration standards in electronic systems <sup>22</sup>
	Environmental factors	Opportunities	Due to the importance of time, considering the appropriate geographical location and easy access to the ED <sup>1</sup> Considering the appropriate physical space and the possibility of expanding new capacities as needed <sup>1</sup> Effective and appropriate communication with the emergency center <sup>38</sup> Proper interaction and communication with the pre-hospital emergency (EMS) (Emergency Medical System) <sup>28,38</sup> Effective communication between medical centers for accepting emergency patients through the medical care monitoring system (MCMC) (Medical Care Monitoring Center) and the Ministry of Health's Treatment Guidance Headquarters <sup>38</sup>
		Threats	Limitation of emergency beds <sup>31</sup> Limitation of physical space during a crisis <sup>1</sup> Lack of specialist staff <sup>3</sup> Limitation of insurance coverage <sup>8</sup> Lack of emergency equipment and medical supplies <sup>3</sup> Failure to pay insurance financial debts and delay in insurance payments to government hospitals <sup>8,22</sup> Failure to increase the defined budget for emergency services and failure to accept certain obligations from insurance <sup>8,33</sup> Failure to collect insurance funds <sup>8,16</sup> Stagnation of the ED following the dissatisfaction of some shareholders and beneficiaries <sup>33</sup> Increasing debt to pharmaceutical companies <sup>8,16</sup>
	Legal factors	Opportunities	Existence of supporting laws to increase the budget for emergency analysis <sup>31</sup>
		Threats	Failure to fully implement processes in light of evidence-based medicine <sup>16,22</sup> Non-alignment of performance characteristics and emergency indicators with the goals of the hospital <sup>1</sup>

Abbreviations: ED, emergency department; SWOT, strengths, weaknesses, opportunities, and threats; VRIO, value, rareness, imitability, and organization.

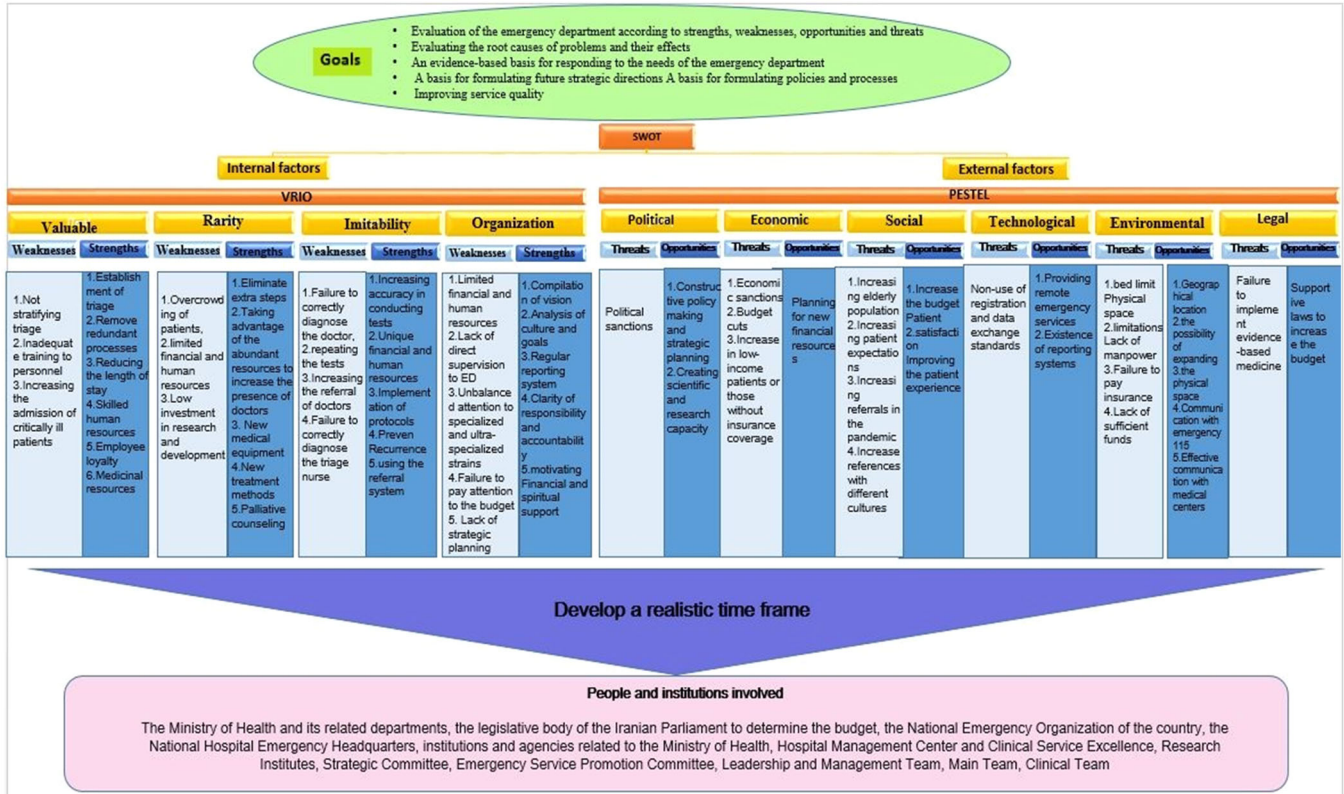
environmental factors in the proposed model. According to the study by Henderson E in 2020 in England, in addition to the importance of environmental factors, internal organization resources and factors are as significant as external factors in

designing the situation analysis. VRIO analysis is a method to evaluate the organization's resources and their advantages (or disadvantages) in competitive arenas.<sup>23</sup> Based on this, VRIO analysis was also added to the proposed model.



**TABLE 6** People and executive institutions participating in the situation analysis model of the emergency department (ED) of hospitals.

People	Executive institutions
The Minister of Health, the head of the vice department of treatment, the presidents of the universities of medical sciences, the head of the management of medical accidents and emergencies in the country, and the expert center in charge of emergencies <sup>38</sup>	Ministry of Health (MOH) and related departments such as (Deputy of Medicine, Center for Management of Medical Accidents and Emergencies of the country, Deputy of Medicine of Medical Sciences Universities, Hospital ED, Department of Expert in charge of Hospital Emergency) <sup>38</sup>
The head of the parliament and members of the parliament <sup>8</sup>	The legislative body of the Iranian parliament in providing support laws in determining particular budgets for the ED of hospitals <sup>8</sup>
Head of the Center for Hospital Management and Clinical Service Excellence <sup>38</sup>	Hospital Management and Clinical Service Excellence Center (Hospital Management Office under the supervision of the Deputy Director of Treatment in the Ministry of Health) <sup>38</sup>
1. The members of the emergency clinical team include (an emergency medicine specialist, resident specialist doctors in the hospital, a general practitioner, emergency nurse) <sup>14,38</sup> 2. The members of the emergency clinical team include (an emergency medicine specialist, resident specialist doctors in the hospital, a general practitioner, emergency nurse) <sup>14,38</sup>	ED
Department heads of the Ministry of Health and heads of involved organizations or other managers of ministries <sup>7,38</sup>	Strategic committee <sup>7,8</sup>
Emergency doctor and nurse, executive director, head of the emergency nurse, head of ED <sup>38</sup>	Hospital emergency service improvement committee <sup>32,39</sup>
Members of the project management team led by the Ministry of Health <sup>7</sup>	Core team <sup>7,31</sup>



**FIGURE 1** Presenting the final situation analysis model of the emergency department.

The study by Rosenberg Hansen and colleagues in 2016 in one of the German hospitals showed that the use of the VRIO model has many benefits due to the focus on the hospital's internal resources, including increasing the efficiency of scarce and valuable resources, using the hospital's scientific bases and developing resource-based view (RBV) strategies. In addition, the organization item in this model is closely related to RBV, which is the first step in applying the hidden knowledge of the organization in resource management.<sup>41</sup>

Situation analysis can be implemented with different tools. However, it must have a series of key features, including the participation of all members, data analysis, integration of various internal and external considerations, and comprehensiveness.<sup>44</sup> In the current proposed model, the participation of people and institutions involved in the situation analysis of the ED of hospitals was considered. Regarding the people and institutions involved, the participation of the Ministry of Health in creating a strategic committee, core team, and working groups is essential. In the strategic committee, it is of great importance to have department heads of the Ministry of Health as well as managers of other ministries who have a close relationship with the activities of the ED of the hospital.<sup>7,45</sup> Establishing a "core team" is essential to ensure coordination. This team must have good organizational skills, including communication skills to make relationships with the right people to form work groups, determine budgets, hold meetings with different methods such as brainstorming, and have technical capabilities to implement activities and processes. The Ministry of Health should lead the core team.<sup>7,29</sup> Ideally, the stakeholders can be organized as working groups, which are formed to create a balance between the different institutions involved, determining the root causes of the problems and expressing various points of view. Members of working groups include all stakeholders, such as patients, emergency workers, nurses, doctors, and hospital and emergency managers.<sup>29,46</sup>

Several separate elements should be examined by working groups to ensure comprehensive results in the ED, including analysis of data on how to provide quality services to patients and satisfy them, measuring the ED's performance according to its indicators, and analysis of the implementation of activities and processes.<sup>37,46</sup> Budgeting and financing issues, analyzing the effectiveness of conversations with other areas related to the ED, and interested groups to obtain the strengths and weaknesses of the ED were examined by working group.<sup>20</sup>

Analyzing ED budget data provides an essential link between the performance and progress of its activities. Customarily, this type of analysis is done with a wide range of stakeholders, mainly composed of financial experts. Working groups are responsible for reviewing and interpreting the results of these data.<sup>46</sup> Another analysis that should be included in the data analysis report is the analysis of data related to policymaking in the ED. In this analysis, evaluating programs, sub-policies, and strategies are based on the participation of all members related to the ED.<sup>21</sup> Evaluating the strengths and weaknesses of the various elements of the ED and implementation plans is not only done by technical experts and specialists but also by health service providers, representatives of patients, and stakeholders.<sup>21,28</sup> In other words, emergency strategies and plans should

not be based only on the experts' opinions but also on the patient's perceptions, opinions, preferences, and expectations so that they can help formulate long-term strategies.<sup>47</sup> A situation analysis should be an initial and critical step in a strategic plan development, which should be done at least once a year during the policy and planning processes and updated according to the environmental changes. Updating the goals and strategies is obtained through technical issues analysis and receiving the stakeholders' points of view, which is valuable for future planning.<sup>7,30</sup>

Furthermore, developing the strategic plan depends on various factors such as data availability, vital information obtained according to the evaluation objectives, budget, and technical and support issues. Other factors affecting this issue include the government and stakeholders' expectations and the desired goals in implementing the proposed situation analysis model.<sup>27</sup> If the strategic plan in the ED is defined based on a realistic time frame and the components in the situation analysis, providing services to patients will be done with a better approach. As a result, the quality of services provided in the ED will improve.<sup>7,48</sup>

The only limitation of this study was the non-cooperation of the emergency staff due to their busy schedule, so the researchers used the free time of the emergency medical staff to solve this problem.

## 5 | CONCLUSION

Considering the importance of situation analysis in developing a strategic plan and improving the quality of health services in the ED of hospitals, implementing a coherent situation analysis model that includes all aspects leading to improving the quality of ED and analyzing internal and external factors is vital.

### AUTHOR CONTRIBUTIONS

**Farkhondeh Asadi:** Conceptualization; data curation; writing—original draft; writing—review and editing. **Mahrokh Anvari:** Conceptualization; data curation; formal analysis; writing—review and editing. **Nahid Ramezanghorbani:** Data curation; writing—original draft; writing—review and editing. **Azam Sabahi:** Data curation; writing—original draft; writing—review and editing.

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### CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

### DATA AVAILABILITY STATEMENT

All data generated or analyzed during this study are included in this published article. All authors have read and approved the final version of the manuscript had full access to all of the data in this study and

takes complete responsibility for the integrity of the data and the accuracy of the data analysis. The data that support the findings of this study are available from the corresponding author, [Farkhondeh Asadi], upon reasonable request.

### ETHICS STATEMENT

This study obtained a favorable ethical opinion from the ethics committee of the Shahid Beheshti University of Medical Sciences (IR.SBMU.RETECH.REC.1401.437).

### TRANSPARENCY STATEMENT

The lead author Farkhondeh Asadi, Nahid Ramezanghorbani affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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