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Title: Examining the Preparedness of Borujerd Public Hospitals in the COVID-19 Crisis: A Qualitative SWOT Analysis

Authors: Leila Shojaei¹, Mansour Zahiri², Iman Keliddar², Seyed Mohammad Hosein Javadi³, Amir Ali Nasirzade⁴, Sara Noruzi^{5,*}

1. *School of Health, Ahvaz Jundishapur of Medical Sciences, Ahvaz, Iran .*
2. *Department of Health Care Management, School of Health, Ahvaz Jundishapur of Medical Sciences, Ahvaz, Iran.*
3. *Department of Social Work, Mashhad University of Medical Sciences, Mashhad, Iran.*
4. *Lorestan University of Medical Sciences, Chamran Hospital, Borujerd, Iran.*
5. *Department of Social Work, Lorestan University Medical Sciences, Khorramabad, Lorestan.*

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Abstract

Background: The present study was conducted with the aim of the preparedness study of public hospitals in Borujerd city in the Corona crisis.

Materials and Methods: This study was a directed content analysis study. Information was collected by semi-structured interview method. The research community was a total of 19. The purposeful sampling method was used and the interviews continued until the information saturation.

Results: During the internal analysis, the most important strength of the preparation of hospitals in the corona crisis based on the WHO structure is in the area of increasing potential capacity (cooperation of human resources in the management of the corona disease) and the most important weakness in the area of resource management and logistics (lack of equipment and facilities) were identified. The existence of opportunities in the field of resource management and logistics (donor support) as well as threats such as the heavy rush of Corona and its effect on the performance of personnel and the hospital in the field of human resources. The study identified key strengths such as human resource cooperation in managing the crisis, but weaknesses in resource management and logistics.

Discussion: Strengths and opportunities are the factors that hospital managers must rely on to address strengths and reduce threats.

Conclusion: Strengthening resource management, improving inter-departmental coordination, and increasing crisis-specific training are critical for improving hospital preparedness. It is recommended that future studies address the development of protocols that have strong supportive, caring, and management aspects to overcome limitations and weaknesses.

Keywords: Healthcare Crew Resource Management, Crisis Resource Management, Healthcare, Healthcare Crisis Resource Management, CRM, Health Workforce

Introduction

With the spread of Covid-19 in the world and the sharp increase in deaths caused by it, hospitals are in dire must improve their preparedness.(1). Emergence of crises affects the lives of millions of people around the world and hampers the development process. The prevalence and severity of crises, both man-made and natural, are increasing, and their occurrence mainly destroys a society's ability to meet its health care needs and demands(2). Accidents and disasters are often uncontrollable, involuntary and unpredictable events and require management and planning and interventions of different professions to reduce possible consequences.

During the last thirty years, the rate of disasters around the world has doubled, and the damages and personal injuries caused by them has increased three times. Every year, around 200 million people are involved in crises and unexpected events and hundreds of people are lost. In this regard, disaster-prone countries suffer economic losses equal to 3% of their gross domestic product annually (3).

The knowledge and expertise of managers and manpower, facilities and equipment are among the factors that are effective in the preparation of managers in a crisis. While each crisis is unique, understanding common elements is crucial for effective planning. (4). One of the basic needs of humans in emergency situations is health and medical needs. In accidents and disasters, the role of hospitals and health care centers is very sensitive and they are among the first units whose provision of fast, optimal and timely health-treatment services can reduce mortality and increase the number of survivors(5-7).

Hospitals are also involved in complications, damages and shortages caused by the crisis and need to formulate a coherent plan to deal with it. Crises usually appear unexpectedly and have a series of hidden and obvious consequences, so managers should always be ready to deal with them appropriately. The ability to manage crises is one of the main elements of the success of hospitals and their development (8).

Each hospital must prepare a unique plan and at the same time according to the international laws and standards, and as the first and most important treatment and referral centers for patients and injured, they must have the necessary preparation before the crisis so that they can, when it occurs, Provide health care in the best possible way with appropriate and quick response(9). Azadmeher et. Al showed that hospital preparedness against the Covid-19 pandemic in most countries and different regions in Iran is not optimal. Hospitals should be prepared in terms of personal protective equipment, staffing, and beds. Rapid response management and hospital equipment should be strengthened(10). The speed of the Covid-19 pandemic was such that the resilience of the health system in most countries to respond to this issue faced significant challenges, which caused the average death rate due to this disease to exceed what was estimated at around 2%, and in On March 18, 2021, the World Health

Organization announced that the average death rate in the world was 3.4% (11-13). This study aims to assess the state of preparedness of government hospitals against the Covid-19 crisis by relying on the experiences of those directly involved in these medical centers from different aspects in the form of a qualitative research.

Methods

This qualitative study was conducted in 2022-2023 in three public hospitals of Borujerd city. All three hospitals were in charge of accepting and providing medical services to patients with covid. Purposeful sampling continued until reaching theoretical saturation. In this research, an attempt has been made to collect data from the most informed people. Hospital managers, nursing directors, and supervisors with at least 10 years of experience were selected. Continuous presence and active participation in planning and awareness of the hospital's programs and shortcomings were among the characteristics considered in selecting these individuals. At first, the researcher explained the purpose of the study to the participants.

Table 1: Characteristics of the participants

Code	Organizational Position	Education	Work Experience	Age	Gender
P1	Department Head	Bachelor's Degree	22	45	male
P2	Department Head	Bachelor's Degree	17	45	female
P3	Department Head	Bachelor's Degree	23	47	female
P4	Department Head	Bachelor's Degree	22	47	female
P5	Department Head	Bachelor's Degree	19	42	female
P6	Nursing Director	Master's Degree	27	50	female
P7	Department Head	Bachelor's Degree	17	43	female
P8	Department Head	Bachelor's Degree	19	47	female
P9	Department Head	Bachelor's Degree	14	43	female
P10	Hospital Director	Bachelor's Degree	14	38	male
P11	Hospital Director	Master's Degree	24	49	male
P12	Department Head	Bachelor's Degree	21	46	male
P13	Department Head	Bachelor's Degree	15	45	male
P14	Department Head	Bachelor's Degree	13	42	female
P15	Hospital Director	Master's Degree	25	51	male
P16	Nursing Director	Bachelor's Degree	20	48	female
P17	Clinical Supervisor	Bachelor's Degree	22	46	female
P18	Clinical Supervisor	Bachelor's Degree	24	48	female
P19	Nursing Director	Bachelor's Degree	22	52	female

A total of 19 interviews were conducted. The interviews were conducted at the workplace of the interviewees (11 face-to-face interviews) or by telephone (8 telephone interviews) during a period of four months and at the time and place desired by the interviewees. The study objectives were explained to the participants and informed consent was obtained from them. During the interview, in addition to taking notes by the researcher, with the permission of the interviewee, the interviews were recorded so that the information can be written down more accurately. The analysis of the data started at the same time as it was collected, and according to their point of view and as necessary, the necessary corrections were made for improvement. According to the objectives of the research, the most appropriate method of analyzing the collected data was directed content analysis. The duration of each interview was between 25 and 65 minutes based on the situation, cooperation of the participant and environmental conditions. The researcher collected information during his initial interviews,

then used the signs obtained from the first ideas to design and conduct subsequent interviews. This means that as the research progressed, the interviews became more focused and specific. In the analysis of information, the SWOT method was used, which examines the organization's strengths and weaknesses, in fact, this method is an analysis of the organization's resources and capabilities, and opportunities and threats, which indicate the organization's environmental factors(14). Since the study is a directional content analysis, the WHO-model is one of the best models for explaining the state of preparedness of hospitals. Data collection continued until no new codes were obtained (theoretical saturation). All the interviews were categorized based on the research objectives and in the form of 4 main dimensions of SWOT analysis (Strengths and Weaknesses, Opportunities and Threats). The research evaluates reliability using Dahlgren et al.'s (2007) criteria for reviewing qualitative research. These criteria include: 1. Credibility (value of correctness or validity) 2. Transferability (applicability) 3. Reliability (stability) 4. Neutrality (influence)(15).

After analyzing the data and determining the main topics and sub-topics, Our findings revealed internal and external factors that significantly influenced hospitals in Borujerd city in ten key categories (including communication, continuity of essential health services and patient care, increasing potential capacity, human resources, resource management and logistics, maintenance of essential support services, infection prevention and control, case management, surveillance: monitoring and early warning and laboratory services) and based on the multidisciplinary incident management system (IMS) in the structure proposed by WHO to deal with in-hospital Covid-19 crises were categorized (Chart 1) and the proposed strategies for the preparation of Borujerd public hospitals in the Corona crisis were presented(16).

Sample questions:

What problems did you face during the pandemic?

What skills and abilities did you use to deal with the problems during the pandemic in the hospital?

What factors make it easier for you to deal with critical situations?

Figure 1 shows WHO's proposed framework for dealing with in-hospital COVID-19 crises.

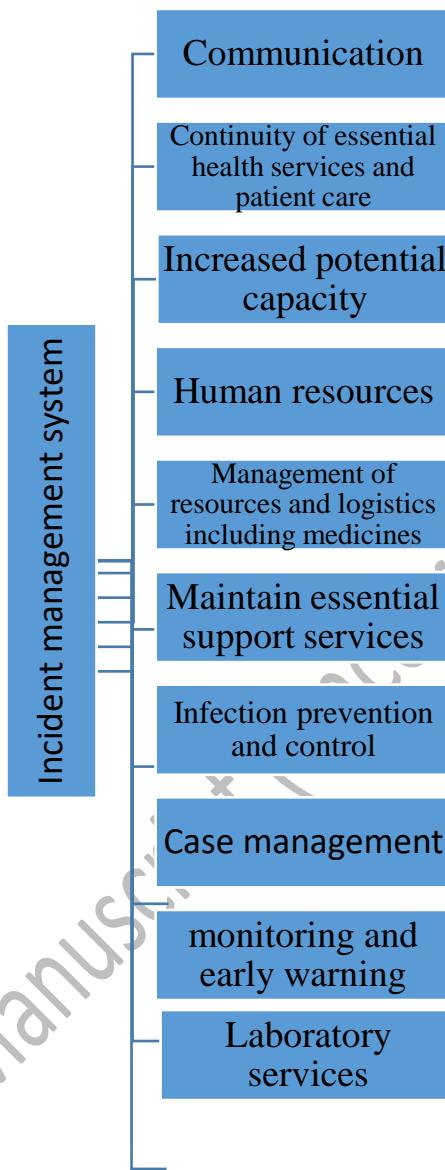


chart 1: WHO's proposed structure for dealing with in-hospital covid-19 crises

Results

The result of the analysis of the obtained data was 1363 primary or open codes. By continuously comparing the codes and raw data based on similarities and differences, similar codes were placed together in one class and the initial classification of codes was obtained.

the codes were organized into 174 primary categories and the initial 43 classes were classified as strengths, the initial 50 classes were classified as weaknesses, the initial 39 classes were classified as opportunities, and the initial 42 classes were classified as threats. Based on the questions in the checklists, these factors were classified in each of the ten areas of the WHO structure for hospital preparedness in the Corona crisis. And finally, they were displayed in the form of tables.

Of the 19 participants in this study, 15.78% had a master's degree and 84.22% had a bachelor's degree. 5.26% of the interviewees were 40-35 years old, 36.84% were 41-45 years old, 47.36% were 46-50 years old, and 10.52% were over 50 years old. 15.78% of the interviewees had 10 to 15 years of work experience, 26.31% had 15 to 20 years of work experience, 52.63% had 20 to 25 years of work experience, and 5.26% had more than 25 years of work experience. Among the interviewees, 31.58% were men and 68.42% were women.

In this qualitative study, an internal and external analysis of the preparedness of hospitals in the Corona crisis was carried out using the opinions of the participants. By internal analysis of strengths and weaknesses, and by external analysis of threats and opportunities, the preparedness of these hospitals in the Corona crisis was obtained. (Table No. 2,3). Human resource collaboration, holding online training sessions, and identifying unintended events were among the most important strengths. Also, lack of facilities and equipment and technical weakness were among the most important weaknesses identified in this study.

Table 2: Internal analysis of hospitals' readiness in the Covid-19 crisis

Internal analysis	Strengths	Weaknesses
Communication	Implementation of preparedness programs against the Corona crisis, maneuvers and scenarios	Problems of the preparation stage against the Corona crisis
Continuity of essential health services and patient care	Prepare for possible mass events	Problems with the facilities and supplies needed by the hospital in possible mass cases
Increased potential capacity	Cooperation of human resources in the management of corona disease	The problem of admitting corona patients
Human resources	Holding virtual training sessions	Lack of manpower
Resource management and logistics	Drug supply management	Lack of equipment and facilities
Maintain essential support services	Management of corpses	Not having a separate program in the hospital to feed patients during the Corona era
Infection prevention and control	Monitoring the implementation of disinfection protocols of spaces, equipment and taking precautionary and protective measures	Lack of personal protective equipment in corona conditions
Case management	Equipping isolation rooms for departments	Problems of isolation areas for suspected covid patients
Monitoring: monitoring and early warning	Identify unusual events	Problems of hospital communication methods for unusual events
Laboratory services	Management of paraclinical measures and staff sampling	Lack of laboratory support staff and problems of staff cooperation in corona conditions
A sample of participants' talks	P4 “ <i>We were constantly forming classes and committees, quickly communicating new protocols to staff, and prioritizing protective equipment.</i> ”	P9 “ <i>There was not enough protective equipment, which caused staff to protest. Some staff were very cooperative and behaved selfishly.</i> ”

Table 2: External analysis of hospitals' readiness in the Covid-19 crisis

External analysis	Opportunities	Threats
Communication	Communication of instructions and protocols of Corona through the university	The problems of creating a culture of public participation with hospitals in corona conditions
Continuity of essential health services and patient care	Using the experiences of previous Corona couriers and university consultation to attract the cooperation of experts	National problems in the field of crisis management
Increased potential capacity	Allocation of license and facilitation of conditions by the university for the use of students	Cancellation of hospital surgeries
Human resources	Helping volunteers to hospitals	The heavy peaks of Corona and its effect on the performance of employees and the hospital
Resource management and logistics	Donor support	The problems of distribution of facilities between Corona center and non-center hospitals by the university
Maintain essential support services	Prohibition of traveling companions	Influx of patients and people to hospitals in Corona conditions
Infection prevention and control	Provision of equipment and personal protective equipment by the university	Lack of quota of personal protective equipment received from the university and problems of the university in providing this equipment
Case management	Taking care of corona patients for mild cases in clinics	Early Corona misconceptions
Monitoring: monitoring and early warning	Participation of the media in informing people about unusual health events in corona conditions	The global crisis of Corona and the conflict of all hospitals in the country
Laboratory services	Cooperation of reference laboratory for corona sampling	The problem of kits and answering paraclinical tests
A sample of participants' talks	<p>P13: <i>"The cooperation and empathy of personnel and the participation of the public and donors was one of the great opportunities during the Covid era, and in a short time, all of this will be together."</i></p> <p>P 14: <i>"People donated all their good deeds to hospitals, and a lot of people's money was spent on buying masks and shields for hospitals."</i></p>	<p>P 2: <i>"As the infection rate rose and the number of patients increased, burnout and fatigue among staff became evident."</i></p> <p>P 11: <i>"All the hospital equipment is worn out and broken and needs to be replaced or repaired, which requires a lot of funding and is itself considered a kind of post-crisis."</i></p>

Discussion

Strengths: The preparedness of the public hospitals of Borujerd city in the Corona crisis was categorized into ten main issues based on the WHO structure.

Desirable inter-departmental interaction was one of the most important sub-topics of strengths in the field of communication. It seems that in the studied hospitals, the inter-departmental cooperation in the hospitals was good, but they were not very satisfied with the inter-hospital cooperation. In their study, Abbasi and colleagues emphasized planning for the cooperation of health-treatment centers with each other in dealing with the crisis(16) which is in line with the results of the present study. In the studied hospitals, there was poor planning regarding personal protective equipment in the beginning of Corona, and then, based on the experiences gained from previous couriers, acceptable conditions were created. The cost of providing consumable equipment is also provided from the dedicated income of the hospital and the university has only purchased personal protective equipment in a wholesale and centralized manner, on the part of the participants regarding the distribution of these equipment and also the lack of fair allocation of this equipment to the administrative, diagnostic and support departments. They were also dissatisfied with the lack of a quota for outpatients, because in the discussion of health promoting hospitals, hospitals should also play a role in improving the health of the community in addition to providing medical services. The results showed that an unknown crisis like Corona caused hospitals to focus more on their main role, which is to provide medical care, due to the shortages in the country. The two hospitals of Shahid Chamran and Imam Khomeini (RA) are more than 50 years old, and the equipment used was worn out, while in Ayatollah Boroujerdi Hospital, which is a newly established hospital, the lack of equipment was not noticeable, but in terms of human resources, the majority of the forces of this hospital They were young and inexperienced. In this hospital, the educational challenges in the use of information, distribution and management of human resources were evident, and the findings of this study are in agreement with the results of the study by Malekzadeh et al. It is consistent and it is not consistent with the results of Yavari et al.'s study in evaluating the special care departments of Shahid Beheshti University hospitals(17). The participants of the research stated the issue of managing paraclinical actions and sampling of employees as another strengths of hospitals' preparation. Ambat assessed the preparedness of private hospitals in India against emerging infectious diseases. The findings indicated the need for hospitals to prepare against emerging infectious diseases. The results indicated that there are gaps in the implementation of various programs and protocols for staff training, risk communication, capacity building, laboratory capacity and infection control in hospitals(18) which is not consistent with the results of the present research, one of the reasons for which may be due to the type of hospitals under study, which seems that it is not cost-effective to provide laboratory services in government hospitals with the current tariff, but because the main philosophy and goal of government

hospitals is not to make a profit, so creating The capacity in the field of paraclinical measures in private hospitals may not be a priority from the point of view of the beneficiaries of these hospitals due to the aforementioned reasons.

Weaknesses: It includes the negative factors in the hospital that have been problematic in the implementation of the preparedness plan against the Corona crisis.

The research participants expressed the problems of lack of human resources, especially doctors and nurses, and the imposition of intensive shifts on the forces as the most important weaknesses of preparation in the field of human resources. The results of Gol and Yuchsán's study were that the fight against this epidemic is done with proper management of human resources, equipment, materials and information(19). The results of a new study by colleagues showed the lack of appropriate presence of anesthesiologists and resident doctors in the intensive care unit (20) Kaito et al. concluded that to build preparedness, each hospital should establish an incident management system and a designated multidisciplinary medical team (21) It seems that the lack of coordination in the crisis chart was evident in the studied hospitals. Not having a database of the forces was another weak point, which is consistent with the results of the study by Sohri et al. that the creation of a database is helpful in dealing with the Corona crisis (22).

The participants expressed the problems of the physical space and the hospital building as another weakness of preparation in the field of resource management and logistics; that with the results of the study of Yavari et al. in the evaluation of the special care departments of Shahid Beheshti University hospitals, where the axis of physical space was in poor condition with a score of 46% And it is consistent with Rabiyan et al.'s study, which showed the lowest level of preparedness against the risk of earthquakes in the field of construction risk reduction planning (23). The reason for this similarity can be seen due to the old structure of the two hospitals, which cannot be expected to meet the standards of the world. This study is not consistent with the results of Malekzadeh et al.'s study, which showed that the axis of space, structure and facilities in terms of compliance with the desired standards and won the fourth place in the evaluation of the special care department (24). The participants of the research stated the problem of human resources training as another weakness in the field of human resources. In the study of Al-Sahafi and Cheng (2016), the knowledge of healthcare workers in the Kingdom of Saudi Arabia regarding the MERS virus and other emerging infectious diseases is weak, and there is a need for education and training programs on the use of personal protective equipment, quarantine measures and infection control has(25) Also, the results of Mohammadi's research showed that public hospitals in Ilam province are not sufficiently prepared for crises in terms of attitudinal and knowledge preparedness (26). Lestari et al concluded that for the hospital's preparedness in emergencies and disasters, preparedness control measures such as communication and information management;

education; And the awareness of the relevant stakeholders should be considered that these results are in line with the researchers' findings (27).

The participants of the research in the field of resource management and logistics expressed the problems of cooperation and implementation of psychological, motivational-well-being programs, which Azermi et al.'s research shows that high stress and psychological pressure and fear of contracting a disease, desertion and desertion of some official forces. Infecting employees and their family members with the covid-19 disease, improper management of the number of working hours that caused long shifts and heavy workload, and employee burnout were some of the challenges of covid-19 nursing management in the field of staff management in military hospitals, which is consistent with the findings of the present study.

Opportunities: There are factors outside the hospital that play a positive role in the implementation of the Corona crisis preparedness program. The participants expressed the issue of providing medicine and personal protective equipment by the university as one of the most important opportunities in the field of resource management and logistics and infection prevention and control. In their research (28) Dost Mohammadi et al. addressed the strategies to deal with Covid-19 in the European continent and stated that the European Union took action through four large international tenders for the purchase of new corona virus diagnostic equipment and kits, which in terms of external support in the direction of preparing medicine and equipment is in line with the results of the present study (29). The participants of the study expressed the issues of allocating the right to corona, granting sick leave and issuing incentives for employees by the university as preparation opportunities in the field of human resources. In their research, Yousefi and colleagues have stated the use of quarantine leave for infected employees and written appreciation for employees involved with the coronavirus as one of the areas of satisfaction with organizational support services, which is in line with the results of the present study (30).

The participants stated the existence of cooperation agreements, the support of the health network, donors, departments and organizations, cooperation and assistance between hospitals as the most important preparation opportunities in the field of resource management and logistics. Vasenhove et al stated that one of the best ways to reduce storage costs and response time is to conclude cooperation agreements (31). The participants expressed the notification of Corona guidelines and protocols as the most important opportunity in the field of communication. In the report of the United States Health and Human Services Organization, the use of evidence-based guidelines and guidelines based on accurate information from hospitals is mentioned as practical strategies to solve the challenges of hospitals in dealing with the Covid-19 crisis (32). Alikhani et al.'s research considers a combination of face-to-face and online training, holding seminars, training workshops and information resources to be effective in increasing employee awareness (33). In their study, Woremb et al mentioned the use of online programs as a solution to deal with disasters, which

is in line with the results of the present study(34). Also, providing support packages and protective devices and disinfectants by companies to the hospital is another opportunity. Labaf et al.'s study in examining the management challenges of hospitals showed that financial incentives for employees involved in the crisis were very effective in increasing their cooperation. Support systems and incentives are considered an important source for managing the conflict between family and professional roles of personnel, the results of which are in line with the results of the present study (35). Covering insurance costs in a crisis is another preparation opportunity, and the results of Zalund et al.'s study also showed that changing insurance policies was one of the successful strategies to control the effect of COVID-19 on hospital financial management.

Threats: There are factors outside the hospital that have a negative effect on the implementation of the preparedness program. The participants stated that the university's lack of financial support for hospitals and the unbalanced distribution of facilities between Corona center and non-center hospitals are among the most important threats in the field of resource management and logistics. From the point of view of Azermi et al.'s research participants, the limitation of financial resources and lack of funds, the lack of timely provision of funds, the reduction of hospital revenues during the outbreak of Covid-19, the incorrect prioritization of expenses, the lack of funding at once and complete, insufficient and timely provision of equipment for some The challenges raised were in the field of budget and equipment (28). which is consistent with the findings of the present study. Research participants on the issues of heavy peaks of Corona and its effect on the performance of personnel and hospitals in the field of human resources, the influx of patients and people to hospitals in the conditions of Corona in the field of maintaining essential support services, the wrong views of the beginning of Corona in the field of case management and the unknown nature of the disease in They pointed out the field of monitoring and early warning as important threats to preparedness. Mustafa et al emphasized the positive relationship between long-term strategy and preparedness for crisis in their study in Egyptian hospitals. It seems that the sudden nature of the corona crisis is one of the reasons for the lack of preparation in this crisis in the studied hospitals. The participants of the research stated the issue of the limited assistance of nursing volunteers as another threat to the readiness of the public hospitals of Borujerd city in the corona crisis in the field of human resources. Azermi et al.'s research indicates that the nursing management of Covid-19 in the field of volunteer management was faced with challenges such as the limited acceptance of volunteers in military hospitals and the lack of a suitable program and mechanism for the presence of volunteers in these hospitals. which is consistent with the results of the present study in this regard. The participants called the problems of welfare, support and financial programs for employees in corona conditions as another threat to preparedness. The results of Yousefi et al.'s study showed that the level of employee satisfaction with individual, family and organizational support packages is at an average level (30)Several factors are effective in

employees' satisfaction with welfare and support services, some of them refer to the personality characteristics of employees, some to job type and characteristics, and some to organizational characteristics (36). In general, hospital managers should plan and make necessary predictions about resources, equipment, and human resources before a crisis occurs. Otherwise, they will face many challenges and problems during a crisis. It is necessary for human resources in various fields to prepare for a crisis and to follow up on training exercises seriously. The discrepancy between the findings of this research and the findings of the current study may be due to the special and critical conditions of the Corona pandemic and the greater support needs of employees in this crisis.

Strengths and opportunities are the factors that hospital managers must rely on to address strengths and reduce threats.

Limitations

Although senior staff may have different perspectives than frontline staff, this study attempted to select staff who, in addition to having an understanding of macro issues, also had direct clinical interventions. Since this study was conducted in one of the hospitals in the country, which is different from other hospitals in terms of facilities, culture, and geographical location, it is necessary to generalize the findings with further studies.

Conclusion

In this research, the preparedness of public hospitals in Borujerd city during the Corona crisis was analyzed according to the opinions of the managers and officials of the departments who directly cooperated with the hospital during this crisis. The result of this research was the identification of internal and external factors, both positive and negative, that existed in hospitals during the Corona crisis. Most of the officials mentioned the provision of necessary equipment and drugs despite the cruel sanctions against the country, but incorrect implementation methods, weakness in forecasting and the allocation of required resources and the lack of proper coordination, organization and cooperation of other relevant departments and bodies during the Corona crisis caused it to have negative consequences in addition to its positive effects and overshadowed the mentality of hospital executives. Planning and getting prepared in the field of possible crises, establishing memorandums of understanding with departments and organizations in accordance with the conditions and problems of each hospital, attracting cooperation and organizing donations from donors, volunteer forces, doctors and private and non-profit organizations in times of crisis, empowering and managing human resources in crisis. Continuous training of employees regarding possible crises, culture building, public education and cultural acceptance of crisis, considering incentive and support programs for employees participating in crisis, using the experiences of other countries in the field of crisis management, allocating crisis budgets in hospitals, fair distribution Facilities for hospitals, compiling and updating the plan to increase

hospital capacity in the areas of physical space, medical equipment and manpower for times of crisis and Signing inter-sectoral cooperation agreements in the field of resource and human resources provision are among the solutions that can help better prepare hospitals in a crisis. It is recommended that future studies address the development of protocols that have strong supportive, caring, and management aspects to overcome limitations and weaknesses. It is also recommended that similar studies be conducted in other hospitals.

Ethical considerations

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