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Coronavirus disease-2019 risk management using strengths, weaknesses, opportunities, threats analysis approach in the health system: A qualitative multimethod study

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Abstract:

BACKGROUND: Utilizing the successful experiences of countries and local regions can be useful in the management and control of coronavirus disease-2019 (COVID-19), so the research team aims to determine and extract the strengths, weaknesses, opportunities, and threats of the health system in the risk management of COVID-19 using strengths, weaknesses, opportunities, threats (SWOT) analytical approach.

MATERIALS AND METHODS: This study was performed by a qualitative multimethod approach. In addition to reviewing the minutes of meetings and approvals of the Provincial Anti-Corona Headquarters, focused group meetings and in-depth semi-structured individual interviews were conducted. The results were extracted based on the SWOT analytical approach in the form of strengths, weaknesses, opportunities, and threats of the health system and then based on the SWOT matrix, the necessary strategies were identified.

RESULTS: In the necessary strategies, based on SWOT matrix in SO strategies: SO1, formation of regional health assessment teams; SO2, promotion of preparedness, resilience, and effective response; SO3, activation of research and training centers; SO4, integrated management, supervision, and coordination; in WO strategies: WO1, analysis and COVID-19 risk monitoring; WO2, communication and risk information management; WO3, people-based management; and WO4, activation of local economic institutions and manufacturing centers; in ST: ST1, comprehensive care system strategies; and ST2, enhancing social trust with a transparency approach; and finally in WT strategies; WT1, stress management; and WT2, specific financial system design for disaster management were identified.

CONCLUSION: Now, for the prevention and control of this disease, the need of empathy and participation of all human societies is felt more than anything else. These experience and analysis are based on the SWOT approach for the health system to be able to provide solutions and practical points that can be used by stakeholders.

Keywords:

Coronavirus SARS-CoV-2, COVID-19 virus disease, health system, pandemic, risk management, strengths, weaknesses, opportunities, threats analysis approach

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Introduction

An unknown form of pneumonia was diagnosed in Wuhan, the capital of China's Hubei Province, which was reported to the World Health Organization (WHO) in Wuhan in December 2019. The spread of the disease in China coincided with the Nowruz holiday and population movements. The WHO then declared the issue an international public health concern on January 30, 2020 and renamed it coronavirus disease-2019 (COVID-19) on February 11, 2020.[1-3] The first definitive death from COVID-19 pneumonia was reported on January 9, 2020 in Wuhan, China, and 41 definite cases were identified 2 days later.[4] The disease spreads rapidly throughout China and other countries.[2,5,6] With its widespread spread in most countries of the world, the WHO declared a pandemic of the disease.[3] Indicators such as mortality, economic and social damage, damage to mental health and public health, and even public panic are just some of the problems caused by COVID-19 that have affected the entire population of the world.[7] These consequences are due to the unknown nature of the disease, the variety of symptoms, different modes of transmission, and the inability of humans to respond appropriately and in a timely manner to prevent, treat, and control it.[8]

Simultaneously with the spread of COVID-19 in the world, Iran also contracted the disease. Although suspicious deaths have been observed in cities such as Tehran in recent months, on February 19, 2020, two deaths from coronavirus in Qom were approved by the Ministry of Health. As the New Year holidays was approaching, subsequent population movements, family visits, and population densities made by special ceremonies caused the disease to spread rapidly in Tehran and other cities of Iran.[9] Ilam province, which is located in the west of Iran and has been studied in this study, was severely affected by this disease and many cities of this province were in the red and critical condition of coronavirus and put additional pressure on all different areas of the health system. On February 20, 2020, the first definitive case of COVID-19 in Ilam province was approved by the Ministry of Health. The upward trend of the disease in the province with the approach of Nowruz and the opening of provincial traffic during this period caused one of the largest educational and medical centers in the province to be officially introduced as the selected corona treatment hospital on February 26, 2020 and all the other medical wards of this hospital had to be evacuated and transferred to other medical centers. It seems that due to the continuous spread and increasing prevalence of the disease, now is the time to be fully aware of the international challenges and concerns about COVID-19 so that we can make effective efforts and measures to prevent and control this disease.[10,11] In these efforts and measures, it is necessary to pay special attention to the health system staff as one of the most vulnerable groups in society, along with other sensitive groups, including children and the elderly, in order to reduce the transmission of the disease and manage to control its epidemiological process successfully.[12]

Given the specific experiences of the international community and the diversity of measures taken in the risk management of COVID-19 in different regions, i.e., globally and at the national and local levels, it seems that the use of successful experiences of countries can be useful. In other words, the prevention and control of this disease definitely requires the intervention, help, and empathy of all human societies. The epidemiological trends of the disease indicate that human societies are likely to continue to be affected by the disease in the future and should redouble their resolve to combat it. Therefore, the research team conducted this study with the aim of determining and extracting strengths, weaknesses, opportunities, and threats in this field in risk management of COVID-19 with Strengths, Weaknesses, Opportunities, Threats (SWOT) analytical approach at Ilam University of Medical Sciences as an example of high-risk provinces in Iran (area with high risk of coronavirus, full access of the research team to the statistical community and research environment) to finally reach strategies and suggestions for better management of this disease from the perspective of the health system. It is hoped that by sharing these experiences, the whole country and even other communities will be able to better and more effectively use its results for the management and prevention of this pandemic in the future.

Materials and Methods

Study design , setting and participants

This study was carried out using a multimethod qualitative approach. In the qualitative phase for data collection, initially, the minutes and documents of the Provincial Anti-Corona Headquarters from February 23, 2020 to May 30, 2020 were evaluated. The meetings of the Provincial Anti-Corona Headquarters were attended by 24–50 full-fledged representatives of various organizations and institutions involved, and the meetings were chaired by the Governor himself. Within the specified time frame, 22 min and 229 approvals were obtained, which were reviewed (Phase 1). Then, the qualitative content analysis method was used to evaluate the implementation of the approvals. For this purpose, using in-depth semi-structured individual interviews, in-depth experiences of experts, service providers of different sectors of the health system, managers, and policymakers in this field were extracted (Phase 2). At the end, a focus group discussion session was held to summarize and validate the data (Phase 3). For

robustness of qualitative data, the focus group method and Guba and Lincoln criteria were used.

Research environment

The research environment was based on the health system in the context of Ilam University of Medical Sciences.

Inclusion criteria

All people with formal, contract, contract or manpower employment categories with any organizational position including managerial, staff, or operational and with any gender and with activity in any unit, deputy or organization affiliated to the University of Medical Sciences, including the field prehospital emergency department, deputy director of treatment and hospitals, deputy director of health and health centers, staff of the University of Medical Sciences, and deputy director of food and medicine, who have been active in the province at least since the beginning of the corona outbreak. They announced that they will enter our study.

Exclusion criteria

People with inclusion criteria who are reluctant to participate in the study will be excluded from our study at any stage of the research.

Data collection tool and sampling

Sampling was purposeful and managed to be done with maximum variety (age, gender, organizational category, and place of activity); interviews continued until complete data saturation. Interviews and data analysis were performed between May 30, 2020 and July 31, 2020. All interviews were conducted and recorded at the appropriate time and place according to the interviewees. It is noteworthy that according to the rules of social distance during the outbreak of coronavirus, face-to-face interviews were conducted while maintaining physical distance and using a mask. And, if the interviewee requests not to conduct a face-to-face interview, he/she was contacted by phone or through virtual software, and the necessary information was received. The interviews were conducted in coordination with the secretary and members of the board of directors of the Corona Anti-Corona Headquarters of the provincial health system. Each interview lasted an average of 25–65 min, and the interviews were conducted by two members of the research team who had received the necessary training in this field. The interview guide consisted of a shortlist of open-ended questions that were used as initiators of the interviews, followed by supplementary and more detailed questions based on the objectives of the study. Data analysis was performed simultaneously with data collection in each interview. The purpose of scientific accuracy in qualitative studies is to accurately reflect the real experiences of the participants. Recently, new criteria have been proposed to judge the scientific accuracy of qualitative research, but none of them are as widely used as the Guba and Lincoln criteria. To increase the power of the study, data validity and increase the accuracy of qualitative data, various methods (Guba and Lincoln criteria) such as prolonged engagement and persistent observation,[13] peer debriefing,[14] review by participants,[15] and member checking[16,17] were used.

Ethical considerations

When collecting data from participants, ethical considerations were taken into account, including receiving informed and voluntary consent from participants to participate in the study, maintaining confidentiality and nonidentification of participants, as well as using anonymous information,[18] maintaining trust between interviewers and interviewees at the beginning and during the interview and confirming the statements of the participants after being registered by themselves,[19] protecting the interests of the participants in the study and not harming them[20,21] and also considering the cultural conditions (environment, gender, communication, privacy, etc.) in the collection of information,[22] and recording the interviews with the permission of the participants; the participants had the right to leave the research at any stage of the study, if they wished so.

Description of analysis tool

The results of the review of minutes, focus group discussions, and individual interviews based on the SWOT model including strengths, weaknesses, opportunities, and threats to the health system were identified and then based on the SWOT matrix table, strategies, and suggestions for better management of the COVID-19 pandemic in the future were extracted. SWOT analysis is a tool used for strategic planning and management in organizations.[23] This tool can help organizational management to identify opportunities such as advantage and benefit and by understanding the strengths and weaknesses as internal factors, be able to manage opportunities and threats as environmental and external factors. In this way, by examining the current situation, and using creative participatory techniques such as brainstorming, group meetings, etc., it can adopt strategies based on two-by-two matrices and make optimal decisions for the organizational future.[24-26] This analysis can be used at all levels of individual, organizational, local, national, and international.[23,27]

Results

In the qualitative content analysis phase, 48 people from different areas of the health system, including prehospital emergency center and university disaster management, hospitals and medical centers, health centers, and the

Food and Drug Administration, were interviewed from the lowest organizational levels to the management team. Their information is summarized in Table 1. The results of minutes, focus group discussions, and semi-structured individual interviews were extracted in the form of a SWOT analytical approach, the results of which are shown in Table 2.

Strength analysis

Motivated and young employees to deal with the crisis

Crisis management requires motivated, active, and energetic forces. These characteristics, along with the promises made by the authorities for the future of the job, job security, and financial support, caused that in the first waves of response to corona, the high morale of the health system staff was maintained and they could face the difficulties of working in stressful environmental conditions with severe limitations of personal protective equipment.

Successful experience of managing gatherings and mass movements in Arba'een religious ceremonies

Annually and due to its proximity to the Iraqi border, the health system of Ilam province in all its fields has gained, valuable experiences of managing millions of mass gatherings and massive human movements for more than 6 years (due to Arba'een religious ceremonies) in prevention and control over various aspects of health.

Strengthening and gradually improving the performance of the health system

Recognizing the first positive case of COVID-19 in the province, the health system has gradually and in proportion to the prevalence waves attempted to strengthen its capacity for better management in all areas, especially the health system. This improvement has been felt in all different areas of the health system.

Table 1: Demographic characteristics of qualitative content analysis participants

Demographic profile		*n*
Gender		
Male		31
Female		17
Age groups, *n* (%)		
20-30		19 (39.6)
30-40		13 (27)
40-50		12 (25.1)
Over 50		4 (8.3)
Demographic profile		***n***
Field of activity in the health system	**Position**	
Prehospital emergency medical centers	Management	3
	Operation unit	5
	Dispatch and dispatch coordination unit	3
	EOC	1
	MCMC	3
	Equipment and resources expert	1
	Infection control expert	1
	Education and research expert	1
Hospitals centers	Management and policy making	3
	Physician	3
	Corona ward nurse	7
	Triage nurse	1
	Diagnostic laboratory	1
	Patient safety expert	1
	Environmental health expert	1
	Infection control expert	1
Health centers	Management	1
	Environmental health unit	2
	Disaster and emergency unit	3
	Mental health unit	2
Food and medicine centers	Food and cosmetics supervision manager	1
	Drug manager	1
	Director of food and drug control laboratory	1
	Manager of equipment and consumables	1
Total		48

EOC=Emergency operation center, MCMC=Medical care monitoring center

Table 2: Analysis of strengths, weaknesses, opportunities, and threats of the health system

	Helpful	Harmful
Internal origin	S	W
	Motivated and young employees to deal with the crisis	Lack of rapid response teams
	Successful experience of managing gatherings and mass movements	Improper management of supply, distribution, and consumption
	Strengthening and gradually improving the performance of the health system	Lack of comprehensive use of the capacity of private medical centers and ambulances
	Essential medical infrastructure and resources	Inconsistency in management decisions or making momentary decisions of center managers
	Regular health system management meetings to combat corona	Lack of preplanned protocols for managing employees in the health system
	traffic management and thermal screening	
	Locating, forecasting, and equipping medical and nonmedical infrastructures outside the corona center	
	Complete evacuation of the educational and medical hospital and its selection as the main center of corona	
External origin	O	T
	Setting up factories for the production of personal protective equipment at the national and local levels	General panic of the disease
	Using the capacity of health donors and health professionals in disasters	The displacement of people and the risk of spreading the disease
	Upgrading equipment technology	Extensive involvement of health system personnel and the challenge of closing medical centers or the challenge of replacing personnel
	Education and research	Unknown course of the disease
		Lack of accurate tracking of definite and suspected patients or late updating of patient information
		Decreasing the purchasing power of people due to lack of equipment or increasing the price of personal protective equipment and disinfectants
		Fatigue and decreased motivation of health system employees
		Significant decline in revenues of hospitals and medical centers
		Social stigma of disease
		Disruption of the normal course of the grief reaction

S=Strengths, W=Weaknesses, O=Opportunities, T=Threats

Essential medical infrastructure and resources

Despite the fact that the health system in normal conditions, especially in the main units of medical services, lacked specialized human resources and equipment, including doctors, nurses, and emergency technicians based on the necessary standards, but with proper management and the use of motivated young and highly skilled forces, it was able to bring treatment management indicators, such as nurse-to-patient ratio, physician-to-patient ratio, and even ventilator-to-population ratio, close to standards, at least for the management of coronary patients. Appropriate capacities of physical space, hospital beds, and necessary equipment were also created in the main center of corona. Necessary capacities were also created in other health fields and emergency medical centers.

Holding regular meetings of the health system management in the fight against coronavirus disease-2019

Regular meetings on a weekly basis, raining of ideas for success, and operational plans in various areas of health were usually held with the presence of university administrators and decision-makers to evaluate the implementation of the resolutions and the challenges of their implementation.

Traffic management and thermal screening

At some point in time, traffic control and management of transportation routes at the entrances and exits of the province and thermal screening (thermometry) of all passengers and people from the health and medical fields who intended to enter the province were carried out with the cooperation of law enforcement forces.

Location, forecasting, and minimal equipment of medical and nonmedical infrastructures outside the main center of coronavirus disease-2019

Simultaneously with the outbreak of coronavirus, and based on previous experiences with the management of mobility and crowds, several public and high-capacity treatment facilities were foreseen, identified, and equipped for the possible hospitalization of patients. In addition, a field hospital with a capacity of 50 beds with full equipment and another space was considered as convalescence for the quarantine of patients was available to the system on standby.

Complete evacuation of the hospital and its selection as the main center of coronavirus disease-2019

One of the main measures of the health system was to focus on definite and suspected coronary patients in the main hospital in the center of the province, to facilitate their management and control measures. In this regard, only the main internal and heart center of the province was completely evacuated and its specialized wards were transferred to other hospitals in the city so that the hospital would be fully available to coronary patients. This action increased the appropriate capacity for mass management of patients. In addition, for each of the city hospitals, a completely separate and isolated ward was considered for the hospitalization of suspicious and definite patients in order to reduce the increase in the burden on the hospital in the center of the province.

Weakness analysis

Lack of rapid response teams

Despite the fact that before the outbreak of the coronavirus, the provincial emergency organization had trained rapid response teams at the university level and the people who should have been included in these teams had been finalized, but this action was not implemented.

Improper management of distribution, supply, and consumption

Although the efforts of the management team in providing personal protective equipment are commendable, problems have been reported in the area of personal protective equipment and resources. Restrictions on the production of personal protective equipment, the small number of manufacturing companies in the province, and even the country had caused problems in the distribution of this equipment to various areas of the health system. While there was a challenge in supplying equipment based on the estimation of required items, sometimes even despite the supply, personal protective equipment was not of the required quality, and in some cases, it was observed that personnel due to lack of this equipment according to standard protocols have not had an encounter with suspicious and definite patients. Another problem in this area was that although resources and equipment were provided to the operational units, the consumption of these resources was not commensurate with the activities of the units or it was observed that personnel who needed less protocol used equipment with higher protection and vice versa.

Lack of comprehensive use of the capacity of private medical centers and ambulances

According to the information received from the interviewees, private ambulance centers have very good ambulance capacities, medical equipment, ventilators, electroshocks, and even experienced manpower. While the additional burden was on the prehospital emergency system and even the hospital dispatch center, this capacity could be used appropriately. Unfortunately, these capacities were not given special attention during corona response and management.

Inconsistency in management decisions or making instant decisions of center managers

The hasty and momentary decisions of the managers of some health or medical centers to better manage the COVID-19 response not only did not play a role in prevention and control but also increased the risk of transmission of the disease while also increasing the additional burden on the staff.

Lack of preplanned protocols for managing affected personnel

Although it was predicted that the health system staff would be affected, the management team did not have a specific protocol and program in place to manage this problem, and by dealing with this challenge at once, decisions were made instantly and without a plan.

Opportunity analysis

As a principle, disasters are always seen as an opportunity and a factor for development, despite all the consequences and bad effects that they have on various areas and dimensions, including human injuries, economic, social, and environmental damage. Taking advantage of these limited opportunities, in addition to preparing for the current crisis, it is possible to achieve relative readiness to face future disasters. Here are some examples of these opportunities gained from participants' conversations:

Setting up factories for the production of personal protective equipment with the necessary standards at the national and local levels

The number of factories available at the national and provincial levels was limited, and in the beginning, medical and health personnel faced serious problems in protecting themselves. The establishment and operation of these workshops and of course, the careful monitoring of the quality of their products according to the required standards, can help both the next possible waves and other biological threats.

Utilizing the capacity of health charities and health in disasters professionals

There are very good capacities in the province as an association of health donors and emergency and disaster specialists, and with the help of this group, suitable solutions can be achieved for better decision-making in all phases of risk management of COVID-19.

Upgrading equipment technology

By infecting a large number of health-care workers with coronavirus, or by having a range of employees with specific vulnerabilities and underlying diseases, and due to the minimal presence of staff at work at the peak times of coronavirus prevalence to minimize contact between employees and in order for people and customers to benefit from the services, it seems appropriate to take measures such as upgrading equipment and updating technology to develop telecommuting. This can even be effective in preparing the health system for other possible pandemics.

Education and research

COVID-19 disease has shown to human society how far the world science is from the unknown components of this virus. The need to acquire theoretical knowledge about the coronavirus and update information about this disease was declared an essential need from the perspective of various areas of the health system, and this issue was proposed as a necessity both in terms of educational and research needs.

Threat analysis

General panic of the disease

The existence of various clips and videos in cyberspace and on the Internet about this disease, as well as the numerous rumors that were published in the virtual media, even the fear of quarantine conditions, whether in the hospital, at home, or in convalescence, lead to public panic. This, in addition to having a negative impact on people's mental health, can put them at risk for psychiatric disorders and consequently lower immune function and other diseases.

Movement of people and spread of disease transmission

Traveling and moving people both inside and outside the province, especially during the holidays, and trying to attend celebrations and mourning have led to the rapid spread of coronavirus in various places, which subsequently put a heavy burden on the health system at once. Obviously, the high prevalence was reported in several weddings and funerals through health network managers.

Extensive infection of the health system personnel and the challenge of closing medical centers or replacing personnel

Over time, with the important steps taken by the health system in managing and responding to COVID-19, a significant percentage of the health personnel have become infected with COVID-19, and this issue, especially in prehospital and hospital centers that have to provide emergency services around the clock has become a serious challenge for the temporary closure of centers and even the replacement of these personnel despite the shortage of manpower. The reduction in the number of on-call corona personnel and even the tightening of on-duty personnel to compensate for the shortage of medical personnel has been a consequence of this challenge.

Unknown course of the disease

The variety of symptoms in different people and even carriers without any specific symptoms, and also the involvement of all age and sex groups in the disease, have caused new information about this disease to be published every day through world research centers and the WHO. This failure to fully identify the disease does not seem to be due to a lack of human knowledge but to the unknown nature of the virus.

Lack of accurate tracking of definite and suspected patients due to late update of information or delay in announcing test results

Late updating or not updating the information of a number of suspicious patients in the system of medical care monitoring center, despite the follow-up of the experts of this unit and the nonpublication of information on the latest status of infected and suspicious people, made further follow-ups too difficult. These follow-ups are often aimed at controlling the disease to track calls and identify vulnerable groups.

Decrease in people's purchasing power due to shortage or increase in medical equipment rates

One of the serious social threats posed by coronavirus was financial poverty and economic hardship. In addition to the poor economic situation of most families, many people lost their jobs due to the corona and the closure of jobs created. This issue, while reducing people's purchasing power and predisposing them to disease, has increased the price of medical equipment (personal protection, masks, alcohol, and disinfectants) or has caused their lack in the market, leading to a decrease in the use of the mentioned equipment by this group of people. Therefore, being outside the home due to compulsion in earning a living by not observing health protocols and even not observing social and physical distance, resulted in increased disease spread and the influx of patients to medical centers and hospitals, and increased burden on the health system

Fatigue and decreased motivation of health system employees

COVID-19 is considered a kind of disaster with its heavy consequences at the international level and has

imposed a lot of psychological pressure, especially on the personnel of the health system as the front line of the fight against this virus. This means that stress and psychological pressures along with not meeting the material and economic needs of staff, as well as the fatigue caused by tight work shifts and the difficulty of continuous work with personal protective equipment, had caused a gradual decline in their motivation.

Significant decline in revenues of hospitals and medical centers

People's fear of going to the hospital, people's insecurity about transmitting the virus in medical settings, a significant reduction in the admission of patients with other health problems, cancellation of elective procedures, and other causes, have caused hospitals to face challenges in managing their costs. In the prehospital area, there was a significant decrease in the number of missions, according to dispatch staff.

Social stigma of the disease

According to the context of Iran, unfortunately, this disease is still considered a social stigma and people try to hide it even if they are infected. The compulsion to observe the social distance and distance of others from the infected person and the negative thoughts that exist about this disease, have caused the infected person to hide this issue, avoid hospitalization or receiving medication and strict observance of protocols, and according to the source of the disease, this is a serious threat to the transmission of the disease in society.

Disruption of the normal course of the grief reaction

In the context of Iran, ethnic and tribal solidarity is very high in joys and sorrows, especially when the death of a person occurs. The presence of relatives and friends of the deceased, for their sympathy and consolation, and the presence of the family of the deceased at the funeral and burial have played an important role in calming the minds of people. Since, at the time of the corona outbreak, all ceremonies for those who have lost loved ones due to this disease or for other reasons have been forbidden, this has disrupted the process of psychological reactions caused by mourning, and this can put people at serious risk of mental disorders and endanger people's mental health.

Result Strategies (Based on Strengths, Weaknesses, Opportunities, Threats Analytical Approach Matrix)

After identifying and extracting the strengths, weaknesses, opportunities, and threats of the health system and based on the SWOT analytical approach matrix, the strategies of the health system for controlling and managing COVID-19 risk were determined in the form of SO, WO, ST, and WT strategies [Table 3].

Strengths-Opportunities strategies

Strengths-Opportunities 1, formation of a regional health assessment team

Determining the basic needs of the health system in biological events, especially COVID-19, including essential drugs, personal protective equipment, masks, alcohol, and other disinfectants and even possible vaccinations should be based on scientific methods to avoid excessive or insufficient depot, unprincipled distribution, and estimation and unconventional requests of different units of the health system. The standard quality of this equipment should also be evaluated by the team.

Strengths-Opportunities 2, Promoting health system preparedness, resilience, and effective response

Strategies such as improving protection systems for health system personnel, designing hospital decontamination sites, designing a system for storing and employing health-care workers, training programs for these personnel, increasing the capacity of existing medical centers, identifying, completing, and equipping spaces with therapeutic-usability for possible future waves can be considered. In the field of personnel training, several programs for managing volunteers, obtaining temporary recruitment contracts or a program for managing retired health system personnel, a program for using personnel and equipment of private centers (private ambulances, corpses, hospitals, and private clinics) can be considered. Cooperation and close interaction with the Health Donors Association can be helpful in providing equipment and other support programs.

Strengths-Opportunities 3, Activation of research and training centers on coronavirus disease-2019 and biological events

A better understanding of the disease requires extensive research studies around the world. It is necessary for the strong research centers at different local, national, and international levels to identify and carry out their research projects in various dimensions of disease control and prevention. In addition to research studies, the role of theoretical and practical training is undeniable. It is necessary for all employees of the health system to update their information in this field based on all phases of risk management (prevention, harm reduction, preparedness, response, and rehabilitation), at least in terms of their professional activity. It is obvious that sharing experiences, lessons learned, technology, local initiatives, medical achievements, and any useful information in this field can lead to the production of knowledge and play a pivotal role in optimizing effective decisions to reduce the risk of disease and facilitate controlling the disease.

Strengths-Opportunities 4, monitoring management

As mentioned above, serious challenges and problems concerning personal protective equipment and

Table 3: Results strategies based on strengths, weaknesses, opportunities, threats matrix

	S	W
O	SO	WO
	Forming regional health assessment teams	Analysis and monitoring of COVID-19 disease risk
	Promoting preparedness, resilience, and effective response	Communication management and risk information
	Activation of research and educational centers	Community-based risk management
	Supervision management	Activation of local economic institutions and production centers
	Integrated command and coordination	
T	ST	WT
	Comprehensive care system	Stress management
	Increased social trust with a transparency approach	Designing a specific financial system for disaster management

S=Strengths, W=Weaknesses, O=Opportunities, T=Threats

disinfectants were observed in the field of consumption management, distribution, and supply. One of the important ways to minimize these problems is to have strong and specialized monitoring teams in all areas of the health system. In selecting these teams, in addition to the expertise dimension, staff needs to have successfully passed the necessary training on COVID-19 in order to be able to focus on the latest protocols, accredited and approved by the ministry, with high concentration and mastery in accurate monitoring and appropriate consultations in this field to carry out principled and correct supervision and to help the management teams in reducing the problems.

Strengths-Opportunities 5, integrated command and coordination

Establishing an integrated management and command working group with the necessary subworking groups (finance, operations, logistics, support, etc.) and precise definition of roles and responsibilities can be helpful. This team must have the legal authority to be able to make the right and effective decision in the shortest possible time. This type of command and control system has been seen in the framework of the National Response Framework and its details have been communicated to the university crisis management centers.

Weaknesses-Opportunities strategies

Weaknesses-Opportunities 1, analysis and monitoring of coronavirus disease-2019 disease risk

The health system should strengthen scientific monitoring of the epidemiological trends of the disease while accurately assessing the risk of the disease. Achieving this goal requires daily risk management through daily analysis of information in this area. Even the smallest data should be considered, monitored, and analyzed. To increase the focus on data analysis, it is desirable that this information be properly documented to prevent it from being deleted or lost. Programs for managing and documenting data should be also considered. This helps the health system to identify and properly notify appropriate warning options. In COVID-19 risk analysis, appropriate and standard tools should be used to obtain the results and analysis with higher accuracy. Risk analysis requires a professional assessment team; specialized capacities in this field should be taken into account. By identifying hazards and drawing appropriate risk maps (especially vulnerable groups), strict regulations should be put in place to minimize the route of transmission.

Weaknesses-Opportunities 2, communications management and risk information

The role of risk information in proper risk management is undeniable. Contradictory news in various media outlets had disturbed social opinion and confused the public. Social media has the ability to inform people moment by moment. To create the right behavior in the event of a disaster, managers must provide accurate knowledge-based information. It is better for the health system to introduce the approved national and provincial media and to inform the public as well as the risk in various health fields based on all phases of risk management (prevention, harm reduction, preparedness, response, and rehabilitation) through these channels. Accurate information, issuing timely warnings, and positive correlations between managers and policymakers of the health system with social media can play an important role in controlling and managing the disease.

Weaknesses-Opportunities 3, active people participation (community-based risk management)

Obviously, disease management is not possible without the active participation of the people. Unless people understand the danger and actively accompany it, nothing positive will happen to control the disease. Regional managers and decision makers can identify all influential and socially acceptable stakeholders and parties and encourage them to make positive behavioral and social changes. Local nongovernmental organizations, religious boards, schools, neighborhood halls, and the House of Public Participation can be active and involved in this field.

Weaknesses-Opportunities 4, Activation of local economic institutions and production centers

On the one hand, the lack of personal protective equipment, disinfectants, and antiseptic compounds, and on the other hand, the low and inadequate quality of this

equipment had caused several challenges and problems for the protection of health system staff and had also created challenges for managers. Encouraging local factories to launch and mass-produce personal protective equipment and protection-related equipment, albeit with close monitoring of product quality, can be the key to the COVID-19 crisis and other biological disasters.

Strengths-Threats strategies

Strengths-Threats 1, comprehensive care system

The care system, while limiting disease transmission, enables regional managers and policymakers to better manage the risk of COVID-19 with an evidence-based approach. This system also plays an important role in identifying long-term epidemiological trends of the disease and behavioral changes of the virus. Caring at the primary care level in the community is very important for the rapid detection of suspected and definite cases, subsequent identification of the transmission chain, and the termination of this chain. It is very important to identify as soon as possible. Delays in announcing results help to expand the transmission chain. The same care system with the same power should be established in hospitals. Vulnerable and high-risk groups should not be forgotten. While they may not be able to take care of themselves for a variety of reasons, they can potentially spread the virus. In the care system, it is necessary to identify and test these groups quickly so that if they are infected, they can be effective in controlling the disease and reducing transmission to others in the early stages. A protocol should be considered for continuous evaluation of health-care workers and reducing the risk of transmission between health-care workers.

Strengths-Threats 2, planning to increase social trust with a transparency approach

Managers and decision makers must be accountable to the people. Any information and data on which managers make decisions should be very clear. Otherwise, it will lead to confusion and misleading for both health management and ordinary people, leading to public distrust. Accurate and disaggregated information on age, gender, and other useful information is not available to the public. This kind of secretive attitude of managers (perhaps for economic or political reasons) to issues that people are very involved in reduces social trust. Having strategies for transparency and honesty in providing information, providing accurate information about patients without anonymity, being open with people can also be effective in limiting the spread of the disease while improving this weakened trust.

Weaknesses-Threats strategies

Weaknesses-Threats 1, stress management

By planning through psychologists and psychiatrists and through reputable and approved media (both public and virtual media), talking to people, and ways to calm the thoughts, the fear and panic of people is minimized and people can be brought to a level of peace of mind both mentally and psychologically. On the other hand, health-care workers who are directly or indirectly in contact with COVID-19 patients, especially those who have contracted the coronavirus themselves, should be monitored and followed up for mental health. It should be noted that risk employees should also be identified and given serious consideration. Disseminating information and talking to people who have been successfully treated can increase people's self-confidence and reduce their stress.

Weaknesses-Threats 2, designing a financial system with a specific line for disaster management

The results of the present study, as shown in the weakness analysis, revealed that in most different areas of the health system, there are shortages of equipment, facilities and human resources, and so forth. Personnel complaining about the poor quality of personal protective equipment and other resources may also be due to this problem of poor financial capacity. Given the catastrophic nature of Iran, it seems that designing a systematic financial system with specific financial lines, except for the issue of corona, can be helpful for disaster management with an all-hazard approach.

Discussion

In the study of JiaWang and Zhifeng Wang, entitled "Prevention and Control of COVID-19" in China in 2020 with a SWOT analytical approach, strengths points include the gradual improvement of China's health system, an advanced and comprehensive emergency response system, and effective and rapid coordination between the various departments of national prevention and control, the weaknesses points include the increase in COVID bags in different areas and in a short period of time, the very large population of China, the weakness of public alerts and rumors, opportunities points include the improve the health system in the future, new education on infectious diseases, Among the threats points was the increase in people's psychological problems, the impact on the national economy, further mentioned strategies such as informing the public, integrating the health information system, increasing scientific research, and supporting educational systems.[28]

In the study of Baker, entitle "New Zealand's elimination strategy for the COVID-19 pandemic and what is required to make it work," the essential elements of an elimination strategy for COVID-19 are likely to include: (1) border controls with high-quality quarantine of incoming travelers; (2) rapid case detection identified by widespread testing, followed by rapid case isolation,

with swift contact tracing and quarantine for contacts; (3) intensive hygiene promotion (cough etiquette and handwashing) and provision of hand hygiene facilities in public settings; (4) intensive physical distancing, currently implemented as a lockdown (level 4 alert) that includes school and workplace closure, movement and travel restrictions, and stringent measures to reduce contact in public spaces, with potential to relax these measures if elimination is working; (5) a well-coordinated communication strategy to inform the public about control measures and about what to do if they become unwell, and to reinforce important health promotion messages.[29]

In the study of Davey, entitle "Impact of Social Distancing on Curtailing COVID 2019 Epidemic in India: A Systematic Review by SWOT Analysis Approach," SWOT analysis reveals that despite being a good strategy, lack of its strict implementation due to many failures on part of public such as carelessness during many religious meetings and migrants travel is possibly shifting us into Stage 3 of community transmission of the epidemic among many states of India which is a cause a great worry for Indian community existence in World.[30]

Limitation and recommendation

The main limitation of this study was that due to the spread of the coronavirus, researchers had to carry out some of the interviews through video calls which had its own difficulties. Furthermore, due to the limited environment of the hospital and treatment centers, as well as the busy schedule of managers and staff, a number of interviews were conducted in an outdoor environment that was agreed on by the participants.

Conclusion

The COVID-19 pandemic has severely affected most parts of the world. Now, to prevent and control this disease, the empathy and participation of all human societies is felt more than anything else. This experience and analysis is based on the SWOT approach for the health system to be able to provide solutions and practical points that can be used by stakeholders. The results of this study may be the basis for the management of COVID-19 disease. This study helps health system managers and decision makers to design health-care methods with appropriate methods. It also helps the community, in close contact and cooperation with the health system, to overcome the disease faster and limit the transmission chain. Using the results of this study, economic institutions and manufacturing factories should direct their activities and focus on the design and production of equipment, as well as technology for the control and prevention of the COVID-19 pandemic.

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Conflicts of interest

There are no conflicts of interest.

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