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Documenting and recording the empirical knowledge of how to mobilize resources, prepare and set up a biological defense base against the crisis of the COVID-19 disease

Reza Tavakkol[1], Reza Mohebbi[1], Mehdi Ebrahimnia[2], Sayyed Morteza Hosseini Shokouh[2], Hadi Esmaeili Gouvarchin Ghaleh[3], Abolfazl Shakibaee[4], Maryam Yaghoubi[5], Mohammad Mohammadian[6*]

[1] Nursing and Midwifery school, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
[2] School of Health, Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran
[3] Applied Virology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran
[4] Exercise Physiology Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran
[5] Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran
[6] Behavioral Science Research Center, University of Baqiyatallah Medical Sciences, Tehran, Iran

*** Corresponding author email: dr.mohammadian@outlook.com**
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Abstract

The emergence and increasing expansion of organizations has made the management in the effective and efficient performance of tasks require more awareness and knowledge. The present research was conducted to document and record the empirical knowledge of how to mobilize resources, and prepare and set up a biodefense camp against the COVID-19 disease crisis at Baqiyatullah University of Medical Sciences (AS). The current qualitative study was conducted in 2021-2022 at Baqiyatullah University of Medical Sciences (AS). Data collection was done face-to-face using a semi-structured interview with an experienced nutrition expert and converted into text. Then statistical analysis was done using MaxQDA software. The present empirical results lead to the identification and extraction of 193 open codes in 7 areas of incidents, problems, measures, decisions, results and consequences, suggestions, scenarios, and modeling and lessons learned about how to mobilize resources, prepare and set up a biodefense camp against The COVID-19 disease crisis happened at Baqiyatullah University of Medical Sciences (AS). The results of this study can be used as a basis for managers' planning in the implementation of documentation and recording of empirical knowledge on how to mobilize resources, prepare and launch a biodefense camp against the crisis of the COVID-19 disease in Baqiyat University of Medical Sciences.

Keywords: empiricism, biological defense, lesson learned.

Introduction

In the past, growth and development relied on tangible or visible resources, such as physical and financial assets. However, in recent years and up to the present day, this process is based on intellectual capital, such as knowledge and the experiences of human resources (1, 2) This includes how the creation, identification, sharing, and application of knowledge has been proposed as an influential factor in organizational performance (3). Among the intellectual capital, we can mention the experience of people, which is considered one of the most important sources of knowledge and is the result of solving past problems and issues. One of the practical measures to exploit experiences is to record and document them (4). Documenting the experience is a process in which the empiricist tries to accurately document the appearance of an event according to the available statistics and information, the way it was dealt with, and finally the results of it (5, 6). Empiricography aims to accumulate people's experiences and technical knowledge for reuse in the future and can create innovation in products, methods and commercialization of organizations (7, 8). Knowledge sharing plays a vital role in the success of any organization, and the dynamics of organizations in this direction is in the acquisition of knowledge and experience of employees and the application of these experiences and skills in the implementation of organizational tasks and roles (9). Knowledge sharing is a process through which people mutually exchange their knowledge with each other, individual knowledge is transformed into organizational knowledge and potentially through this process an opportunity to learn new experiences and an opportunity to practice and implement experiences and skills and abilities are provided (10). Since human capital lies mainly in the minds of individuals, this vital and important knowledge is available to the organization when the employees are willing to share it, and, in addition, effective arrangements and mechanisms in this regard are also provided by the organization Therefore, it can be said that the successful advancement of knowledge management requires that employees share what they know with others in the organization (11). As a result, knowledge sharing is considered as the most basic function of knowledge management in the organization. On the other hand, sharing knowledge in organizations has brought positive results and led to the improvement of the organization's indicators (12). The growth of organizations depends on updating and applying their knowledge in order to increase the learning capacity of people. Managers have performed different and numerous methods in the field of treatment, education, research, general and specific support, and command and leadership. Management experiences, if recorded and documented, can solve similar problems in the future and lead to improved organizational performance (13). The importance of documenting the experience of mobilizing resources, preparing and setting up a biodefense camp against the COVID-19 disease crisis in Baqiyatullah University of Medical Sciences (AS) is because it leads to the storage of information in the organization's memory and prevents their loss and is available. It is necessary to conduct the present study in the direction of the emerging phenomena of organizations. Documenting the experiences of how to mobilize resources, prepare and set up a biodefense camp against the COVID-19 disease crisis in Baqiyatullah University of Medical Sciences (AS) is one of the tools that enable organizations to take more effective measures in the face of problems, from Avoid repeating the mistakes of the past and move faster towards organizational goals and thus achieve a sustainable competitive advantage.

Materials and Methods

The present qualitative study was conducted from March 2021 to March 2022 at Baqiyatullah University of Medical Sciences (AS). In terms of philosophy, this study is interpretive, approach:

inductive, study strategy: case, methodology: complex combination, time horizon: single segment and technique and processes using interview tools (14). This study was conducted in 5 stages. In the first stage, by reviewing the studies and holding various meetings with the research working group in order to identify the categories related to the subject, principles, concepts and its different dimensions were extracted and documented. In the next step, by using review studies and holding various meetings with the research working group, the empiricism protocol of the hospital's paraclinical services staff was determined. Delphi method was used to evaluate the empirical model. In this approach, the identified cases underwent assessment and review by experts and were then revised and corrected by those experts. In the third step, using the interview tool, the experience of the employees was recorded and the code was extracted. Then the open codes were categorized and analyzed using the conceptual model. In the last stage, in order to evaluate the findings and collective agreement, the Delphi method was used, and the items underwent evaluation by experts for revision and correction. The statistical population of this study included managers, experts, and supervisors in the field of resource mobilization, preparation and launch of the biodefense camp against the COVID-19 disease crisis at Baqiyatullah University of Medical Sciences (AS). Also, according to the qualitative approach of this study, sampling was purposeful and data collection was done until the saturation limit was reached. Based on this, the present study was carried out with the participation of 8 managers, experts and supervisors in the field of resource mobilization, preparation and launch of the university's biological defense camp. In this study, the method of interviewing the participants was used to collect information.

In the present study, for the purpose of content analysis, MaxQDA24 software was used, which is a professional software for analyzing mixed and qualitative data for analyzing unstructured data such as interviews. Also, in order to analyze the data, descriptive statistical tests (frequency, frequency percentage, average) were used. SPSS v29, Microsoft EXELE 365 and MaxQDA 24 software were used to interpret and analyze the data in this research.

The present study was conducted based on the ethical guidelines of Baqiyatullah University of Medical Sciences (AS) and has the code of ethics under the number IR.BMSU.REC.1400.121. The researchers in this study made a concerted effort to apply ethical considerations effectively. As such, they prioritized elements such as selecting appropriate studies, interpreting results objectively, obtaining consent from participants, safeguarding the confidentiality of their personal information, respecting their right to withdraw from the study at any point, and ensuring the acquisition of essential information to proceed with the research. These considerations were carefully integrated and implemented throughout the various stages of the study.

Results and Discussion

In this study, 8 managers, experts, and supervisors from the field of resource mobilization, preparation and launch of the biodefense camp of Baqiyatullah University of Medical Sciences (A.J.) participated in facing the crisis of the COVID-19 disease. Of these, 7 people were faculty members and one was non-academic faculty member. Here, using MaxQDA2020 software, the data were first classified according to the pattern and then analyzed. After analyzing the data, the results were divided into three categories: open codes, central codes, and selective codes. In the end, the results of the present study led to the extraction of 193 open codes in the seven dimensions of events, problems, measures and decisions, results and consequences, suggestions, scenarios, modeling, and lessons learned. Tables 1 to 7 show open and central codes and their frequency in the

Table 1. Axial and open coding of the event dimension

area	Axial code	open source
The event	COVID-19 disease occurred in China	1-There are rumors about the spread of the disease 2- Suspicious cases 3- Many cases of symptoms based on corona 4- Considering the flu, the outbreak of the
	Coronavirus epidemic	5- Arrival of the first COVID-19 patient 6- Lack of timely identification 7- Increasing trend of patients suffering from covid 19 8- Confusion of managers and specialists 9- Inconsistency in the upstream decision-making levels
	Safety and health threats	10- Mental burden and fear of illness 11- Manpower fatigue 12- Weak awareness of the disease 13- Lack of necessary preparation in facing the crisis 14- Illness of a large number of employees 15- Increasing sick leave 16- Testimony of several health defenders
	Basic changes in normal activity	17- Fundamental changes in care services 18- Significant reduction of normal (elective) patients 19- Change in normal working hours (mandatory limitation) 20- Conflict beyond normal power 21- Dealing with a large volume of patients 22- Exit, control of patients
	Disturbance in classical education	23- Restrictions on holding training courses 24- Closure of face-to-face training classes 25- Impossibility of classical planning,
	Need for medicine and medical equipment	26- Medicinal needs of affected patients and lack of care equipment 27- Lack of knowledge of diagnosis and prescription of medicine 28- High use of corticosteroids 29- Increasing the use of antibiotics, different

mentioned dimensions.

Table 1 shows the frequency of post-event selective codes with 6 core codes of the spread of the COVID-19 disease in China, the corona virus epidemic, threats to safety and health, fundamental changes in normal activities, disruption in classical education and the different need for medicine and medical equipment, and 29 open codes. Also, Table 2 shows the frequency of selective problem codes with 8 core codes of unpreparedness in facing the crisis, lack of approval of medicine and medical equipment, weak coordination of the queue and headquarters, weak planning, weak infrastructure, excessive patient referrals, disruption of financial resources. There is no information system and 23 codes are open.

In Table 3, the frequency of selective codes after measures and decisions with 10 core codes: launching a biological defense station in a university, launching a biological defense station in a hospital, activating the vice of treatment, launching a 1000-bed convalescent home, organizing human resources, using students, setting up counseling services, setting up a health center, setting up a mental health center, setting

up a public relations and information system, and 66 open codes are shown.

Table 4 shows the dimensions of the results and consequences and suggestions. The selection code of the results and suggestions includes 6 central codes of starting a convalescent home, revival of jihadi passion, reduction of bureaucracy, human resources capital management maneuver, disorganization, hasty

Table 2. Open axial coding of the problem dimension

Area	Axial code	Open source
Issue	lack of preparation in facing the crisis of the issue	1-Lack of preparation at the level of the country and university 2- Lack of previous experience in facing biological crisis 3- Weak recognition of critical situations 4- Incorrect formation of the hierarchy of the crisis headquarters of the country
	lack of supply of medicine and medical equipment	5- Lack of personal protective equipment 6- Facing drug shortage
	Weak coordination of line and headquarters	7- Multiple and contradictory upstream orders 8- The psychological pressure of the upstream on the subordinates 9- Insistence of the headquarters to carry out line work 10- Inconsistency of line and headquarters
	planning weakness	11- Lack of plan in the beginning 12- Improper guidance
	weak infrastructure	13- Emergency buildings and facilities 14- Supplying the required force
	too many patients	15- Excessive reference 16- Unreal crowding
	disruption of financial resources	17- Reduction or elimination of normal services and elective surgeries 18- Increase in cost due to compliance with health protocols
	lack of information system	19- Weakness of needs assessment 20- Weakness of estimation 21- Weakness of statistics and information 22- Lack of recognition of real performance 23- The variety of numerous and diverse software and their lack of efficiency

decisions and 25 open codes. Also, the selection code of the proposals consists of 5 core codes of coordination of headquarters and queue, creation of crisis infrastructure, reorganization, inspection and continuous monitoring, scientific support and 15 open codes.

Table 5 shows the dimensions of the scenario and modeling and the lessons learned as the last identified dimensions of experience in the areas of resource mobilization, preparation and launch of the bio defense base in the COVID-19 crisis. The dimension of scenario and modeling includes 7 core codes and 13 open codes. The core codes of this category include pattern making, creating a foundation, effective and efficient use of jihadi forces, suitable infrastructure, simulating the era of holy defense, creating a multi-purpose standard space and flexible and multi-purpose equipment. The dimension of lessons learned is also identified as the last dimension, including 10

core codes of exercise, burning opportunity, overcapacity, preventing trial and error, drowning in information but thirsty for performance, unit management, being a pioneer in all fields, virtual structure in the form of camp, similar Wartime Chemical Attacks use Holy Defense experience and 22 open codes.

The present study was conducted with the aim of documenting and recording the empirical knowledge of how to mobilize resources, prepare and launch a biodefense camp against the COVID-19 disease crisis at Baqiyatullah University of Medical Sciences (AS). The results of this study led to the identification of 7

Conclusion

Table 3. Axial and open dimensional coding of measures and decisions

Area	Axial code	Open source
Issue	Setting up a bio defense camp in the university	1- Activation of the university incident management system 2- Continuous meetings on Saturdays and Tuesdays 3- Providing consulting services in diagnostic fields 4- Activate the virus research center 5- Activate training 6- Activating health 7- Activating public relations 8- Activating mental health
	Setting up a biological defense station in the hospital	9- Transferring recovering patients to the convalescent home 10- Allocation of NBC department to corona patients 11- Creating the necessary inpatient capacity 12- Making preparations in Najmia and Kalb Jamaran hospitals
	Activation of the treatment assistant	13- Holding weekly sessions of specialized treatment 14- Preparation of responsibility orders for the members of the treatment working group 15- Announcing full readiness to university affiliated centers 16- Forming an inspection team consisting of treatment representatives 17- Sending a specialized team on a daily basis 18- draft instructions 19- Setting up a treatment status room and monitoring statistics and information 20- Preparation and supply of personal protection items
	Setting up a 1000-bed convalescent home	21- Converting the dining hall to the convalescent home of Shahid Soleimani 1 22- Converting multi-storey parking lot to Shahid Soleimani 2 convalescent home 23- Acceptance of patients in the convalescent home 24- Installation of beds by Jihadi groups 25- Setting up and equipping a sacrifice residence for medical personnel
	Organization of manpower	26- Determining the temporary structure of manpower in crisis 27- Organization based on membership, military and employee nature

		28- Writing processes in normal and crisis situations 29- The formation of the second organization 30- On call shift
	Use of students	31- Organizing students of the 8th semester of nursing, health and medicine 32- Voluntary attendance of students in fever clinics
	Setting up consulting services	33- The country's non-operating defense organization 34- Laboratory diagnostics 35- Triage protocol and standards 36- Daily epidemiological investigation and reporting 37- Compilation of various protocols and instructions 38- Compilation of health guidelines for corpse management 39- Compilation of waste management guidelines for corona patients 40- Notification of protective and security measures 41- Production of virtual education content
	Setting up a health camp	42- Health executive measures 43- Daily visits to hospitals 44- Daily visit to bakery, sanatorium 45- Disinfection and disinfection 46- Disinfection of places 47- Car disinfection 48- Screening and fever measurement of employees 49- Performance evaluation of production masks 50- Modifying the method of preparation, packaging and distribution of food 51- Daily visit to catering 52- Food hygiene monitoring checklists 53- Continuous monitoring of the use of personal protective equipment
	Setting up a mental health center	54- Setting up a mental health center 55- Development of guidelines for psychological interventions 56- Compilation of instructions for telephone consultation 57- Setting up a phone counseling system 58- Preparation of numerous clips 59- Continuous communication and coordination with health jihadists 60- Providing psychological services to discharged patients 61- Setting up an online consultation 62- Continuous follow-up of the approvals of the mental health camp council
	Setting up a public relations and information system	63- Notices 64- Clips 65- Movies 66- Radio and television interviews

dimensions of the incident, problem, measures and decisions, results and consequences, suggestions, scenario and modeling, and lessons learned with a total of 193 open codes in the fields of resource mobilization, preparation and launching of the biodefense base. These results were reviewed, completed and revised by experts during several stages until finally the final results of the work in the above areas were extracted. The difference in the number of central and open codes related to each selective code varies according to the topic and areas under investigation. These cases have been specified by experts and experts in detail. Among the identified dimensions, dimensions of measures and decisions and lessons learned with 10 core codes each had the largest amount of core codes, which shows the extent of the dimensions mentioned in the investigated areas and the high importance of these selective codes compared to others. Also, the open codes proposed in connection with each selective code are proof of this issue because most of the open codes proposed are related to the planning and decisions dimension and the lesson learned dimension also gave a significant amount with 22 open codes. Also, after suggestions, the least amount of central code (5 codes) was included, and in terms of the frequency of open codes, this category of selective codes was placed in the category of the least open codes with 15 open codes.

Studies show that the speed of crisis management operations in Iran's governmental and public institutions has been higher compared to the countries involved in the COVID-19 crisis, and Iran's crisis management method has been

Table 4. Axial and open coding of the dimensions of results and consequences and suggestion

Area	Axial code	Open source
Results and consequences	Setting up a convalescent home	1- Evidence-based measures 2- The measures were not research oriented 3- Admission of more than 100 patients
	Revival of jihadi enthusiasm	4- Back to the memories of the Holy Defense era 5- Entry of jihadist forces into the organization 6- Creating a collective spirit 7- Empathy and cooperation
	Reduction of bureaucracy	8- Reducing absorption steps 9- Shortening the organization path 10- Carelessness in work 11- Removal of restrictions on the type of shifts 12- Importance of medical centers from upstream point of view 13- Preparation for various threats 14- Competency assessment 15- The brilliance of people's capabilities
	Maneuver of capital management of human resources disorder	16- disproportionate distribution of forces 17- Absence of employees 18- Irregular illness
	Hasty decisions	19- Planning without studying 20- Failure to pay attention to safety and security issues 21- Not paying attention to the legal consequences of individuals 22- Hasty payment of bonuses 23- Removal of some inquiries from regulatory authorities 24- Indiscriminate recruitment of human resources 25- Planning for sisters and canceling it
Suggestions	Coordination of headquarters and queue	1- Coordination between medical centers 2- Constructive interaction between the headquarters and the ranks 3- Recording records at the time of the event 4- Facilitating recruitment and use 5- Proper organization 6- Effective notification system

	Creating crisis infrastructure	7- Marfouk Crisis System (EOC)
	rearranging	8- Formation of critical structure (ICS) 9- Formation of the second organization 10- Forming a composite emergency team
	Inspection and continuous monitoring	11- Field visits 12- Holding performance control and monitoring meetings 13- Coordination of activities
	Scientific support	14- Conducting studies 15- Forming a specialized working group in the field of education and research

able to control the problem more calmly, more selflessly and more popularly. The difference between the decision-making pattern of the Islamic Republic of Iran and the pattern of other countries in crisis management is due to the difference in religious views and beliefs, common sentiments in the people and the culture of the countries. In the revolutionary spirit, forgiveness, sacrifice, self-sacrifice and public presence are the basis of work and encourage and create spiritual spirit in government and public institutions and reduce the fear of death; but in the system, capitalism and culture of Western countries, the idea of acquiring wealth and

Table 5. Open axial coding of scenario dimensions and model making and lessons learned

Area	**Axial code**	**Open source**
Scenario and modeling	modeling	1-Crisis management 2- Indexing 3- Policy making
	Creating "bone"	4- For the depot of equipment needed in crises
	Effective and efficient use of jihadist forces	5- Forming a second organization in a crisis
	Adequate infrastructure	6- Multipurpose parking lot 7- Emergency Room (EOC)
	Simulation of the era of holy defense	8- The behavior of war conditions 9- Using the experience of holy defense 10- Using the experience of the axis of resistance 11- Preparation for crisis
	Creating a multi-purpose standard space	12- Existence of numerous but ineffective software in the crisis
	Flexible and multi-purpose equipment	13- Interdepartmental coordination
Learned	Combat training	1- The commander's front 2- Setting up a convalescent home as an exercise 3- Discovering talents and building courage capacity in crisis
	loosing oportunitites	4- Losing 2 months of opportunity after the outbreak in China 5- Insensitivity of the government and low sensitivity of the IRGC 6- Lack of serious action by the university
	overcapacity	7- The multipurpose capacity of forces
	Avoid trial and error	8- Recording past experiences 9- Minimal study before action 10- Evidence of methods based on trial and error
	Drowning in information but thirsty for action	11- Tendency towards obtaining personal experience 12- Existence of numerous but ineffective software in the crisis
	Unit management	13- Interdepartmental coordination 14- Coordination of queue and headquarters
	Being a pioneer in all fields	15- Basic attention to jihadist forces 16- Promoting jihadi spirit
	Virtual structure in the form of camp	17- Formation of the second organization 18- Organization of jihadist forces

	Similar to wartime chemical attacks	19- Clients more than the capacity of medical centers 20- Lack of knowledge about the disease and its treatment
	Use the Holy Defense experience	21- Collaborating with the retirees of the Holy Defense era to set up a convalescent home 22- The successful experience of sanatoriums in responding to the wounded of the holy defense

economic power is the basis of work. Iran, as a revolutionary country and adherent to Islamic selfless and selfless human resources, and this spiritual factor is the reason for achieving a relatively high level of success in the model of fighting against COVID-19. The research showed that the administration of the Islamic Republic of Iran acted relatively quickly and successfully in detecting and controlling the first wave of COVID-19 and this success was due to the revolutionary spirit of the Muslim nation of Iran and the organization experienced in the war, therefore, in line with the findings of this study, the mobilization of resources and the size of the biological defense camp in the face of the COVID-19 crisis, along with the revolutionary spirit of the Muslim nation of Iran, can help to better manage the crises of acute respiratory infections in the future (15).

The following documentation and research were conducted to identify challenges in mobilizing resources and establishing a biological defense camp during the COVID-19 crisis. The results aim to provide insights for managers to enhance structures, functions, and services in the future. In this regard, a detailed checklist is compiled to record experiences and empirical components in seven sub-groups: events, problems, measures and decisions, suggestions, scenarios and models, and finally lessons learned. Due to the novelty of the present study, the results of this study can include lessons learned and models for managers and supervisors, and can be useful and solve problems in the occurrence of similar problems in the future.

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teachings, is practically able to apply the model of crisis management with skilled, dedicated,

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