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Assessment of the Iraqi Health Staff Response to COVID-19 Outbreak: Basra an Example

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Abstract

Background: Assessment is a vital step in management, which aims at improving planning and implementation of processes, activities, campaigns, and programs. This was the motive behind conducting this study to evaluate the health system response in Basra Province, south of Iraq.

Method: This evaluative study included the selection of evaluation sites to obtain the relevant background information about the resources involved, policy and legislation documents, and the existing structure and process of COVID-19 crisis-management. The sample targeted included medical and stakeholder non-medical staff.

Results: A gap was determined in following-up the principles of scientific handling of epidemics including documentation, the absence of specialized staff in health-crises management was documented, shortage in planning and preparing protocols and guidelines for epidemic management was found.

Keywords: COVID-19, Epidemic, health-crises management

Introduction : Assessment is an approach used to determine the effectiveness of strategies, programs, projects and/or campaigns such as health service supply. It shows that healthcare activity is achieving predetermined measurable outcomes, such as preventing disease occurrence, treating cases, and preventing mortality/handicap[1]. It gives a systematic approach to investigate any healthcare activity to determine how good it achieves its objectives; i.e. determine what/who performs well and what/who needs to be improved. It is used to recommend amendments to the conducted tasks; determine the needed support to continue a healthcare activity; collect data about the approach, which can be shown as a form to be adopted by others[2]. This is true for any healthcare service supply or activity, including COVID-19 management. National health systems required efficient planning and implementation to prevent the occurrence of huge numbers of COVID-19 cases and mortalities. An effective intervention can lead to flattening of the epidemic curve, which means that the number of cases at any time remains below the maximum capacity of the system[3].

Regarding COVID-19 pandemic management, Iraq can be an example of many other developing countries in the world, where it was recommended that an in-depth assessment is needed mandatorily because of the non-competitiveness of the health system performance[4]. Till the time of conducting the current assessment, the cumulative number of total registered cases of COVID-19 was 74701, out of them 965 died[5].

Lowy Institute issued, at the beginning of 2021, a table contains ranked comparison of the average performance over time of countries in managing the COVID-19 pandemic in the 36 weeks

following their hundredth confirmed case of the virus. In total, 98 countries were evaluated, based on the availability of data across the six indicators used to construct this Index. Iraq scored 25.2% and came in the 83rd position out of 98 countries; i.e. it came within the list of the last poorest performance quarter of the list[6]. This study tries to clarify the situation in depth.

The aim of this study is to partially explore and understand policy successes and failures related to the health system response to COVID-19 by asking people knowledge about the system and to recommend public health solutions and alternatives.

Method : This evaluative study was conducted during 7 September 2020 to 16 March 2021. The process included the selection of evaluation sites to obtain the relevant background information about the resources involved, policy and legislation documents, and the existing structure and process of COVID-19 crisis-management. However, during the study period, it had been extremely difficult to assess using structure, process, and outcome approaches via comparing what was available on the ground to standard checklists. Therefore, the researchers, when possible used interviewing/ self-filling as an alternative to the checklists.

It was conducted, using a structured questionnaire form, by:

1. Sending self-administered questionnaire form to officials from Basra Directorate of Health and officials from the Basra Task Force Cell
2. Interviewing officials and service providers from sampled Basra hospitals
3. Reviewing the available non-classified relevant documents (legislations, decisions, official letters, …etc.)
4. Assessment was carried out through field visits to the administrative health offices in the Basra Directorate of Health and other interviewees. These visits were arranged with the relevant stakeholders of health-sector crisis management.

The pre-structured questionnaire was of 4 parts:

1. One for health system officials
2. One for relevant non-health officials
3. One for medical service providers
4. One for supportive non-medical service providers

A general sampling strategy was followed, which included collecting information from hospitals, the relevant laboratories, public health offices, and the task force cell offices. The participants were:

1. All relevant officials, whom were intentionally included persons because of their official position/ role
2. Two hospitals, out of the 6 major hospitals in the Center District. One of them was the only COVID-19 management hospital at the time of assessment; the other one, non- COVID-19 management, was chosen by lottery
3. Relevant staff on availability

A pilot study was conducted to pretest the questionnaire and feasibility of the study. The data analyzed, results discussed, and some amendments were made accordingly. The data collected from the pilot study was not included in the study proper.

The essential attributes to be assessed were identified in advance. On-site interviews, involved explaining the objectives of the assessment to the participants, clarifying the questionnaire questions, interviewing participants, observing methodologies, and collecting all the available non-classified documents, which support the respondent answers.

The sample targeted included medical staff (Doctor, Nurse/ medical assistant, Internist, Community physician, Pharmacist, Bacteriologist, Chemist, Immunologist) and non-medical staff (Senior auditor, Computer Systems, Governmental employee, Traffic Police Officer, Police Officer, Human Rights, Electrical engineer). They were from the Ministry of Health (Basra Teaching Hospital, Al-Fayhaa Teaching Hospital, Al-Mewani' Teaching Hospital, Directorate of Health headquarter) and Basra Province Task Force Unit members (Governor's office, Basra/South Technical University, Directorate of Education, Traffic Directorate, Police Directorate, Human Rights Office, Pharmacists Syndicate).

During conducting the research, a high level of ethical behavior was carefully followed by the team members; in visiting facilities, the assessors did not interfere with the daily work.

To improve the validity and efficiency of the assessment process, 3 of the first line officials at the Basra Directorate of Health were interviewed according to a structured form to extract reference answers to compare the respondents' answers with them (Table 1).

Results

The characteristics of the respondents include about 79.5% of the respondents were of medical background, 65.9% from the Basra Directorate of Health. They occupy different positions and play different roles in the process of COVID-19 control (Table (1)).

Table (1): Characteristics of respondents (Total respondents= 44)

Characteristic		Frequency	Percent
Specialty	Medical	35	79.5
	Non-Medical	9	20.5
Place Of Work	Ministry Of Health Staff	29	65.9
	Basra Province Task Force Unit Members	15	34.1
Role In COVID-19 Control	Medical/ Health Staff In Direct Contact With Patients	21	47.7
	Medical/ Health Staff Not In Direct Contact With Patients	3	6.8
	Managerial Staff	5	11.4
	Support Staff From Outside The Health System	15	34.1

Table (2) shows the information held by the participants about the existence of a preparedness plan to control epidemics. Fifteen out of 44 (34.1%) mentioned they know that there had been a written detailed preparedness plan at the Basra Directorate of Health to control epidemics, however, only 10 mentioned they have been familiar with it, 6 know that it was assessed by an authorized body, and 6 mentioned that they were trained and only 3 of those mentioned the numbers of trainees they know.

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Table (2): The presence of a preparedness plan

Preparedness Plan	Yes No. (%)	No No. (%)	Don't Know No. (%)	Total No. (%)
The Presence Of Written Preparedness Plan At The Basra Directorate Of Health	**15 (34.1)**	**19 (43.2)**	**10 (22.7)**	**44 (100.0)**
To Control Epidemics	***10 (71.4)***	***4 (28.6)***	***1 (6.7)***	***15 (100.0)***
• ***The Staff's Familiarity With It***	***6 (60.0)***	***1 (10.0)***	***8 (53.3)***	***15 (100.0)***
• ***The Carry Out Of Assessment***	***6 (46.2)***	***7 (53.8)***	***2 (13.3)***	***15 (100.0)***
• ***The Carry Out Of Training On It***				

Seventeen (38.6%) mentioned that there had been staff members at their work who were specialized in crisis management and 9 out of the 17 mentioned that the crisis management specialists have played a role in the response to COVID-19 crises (Figure 1).

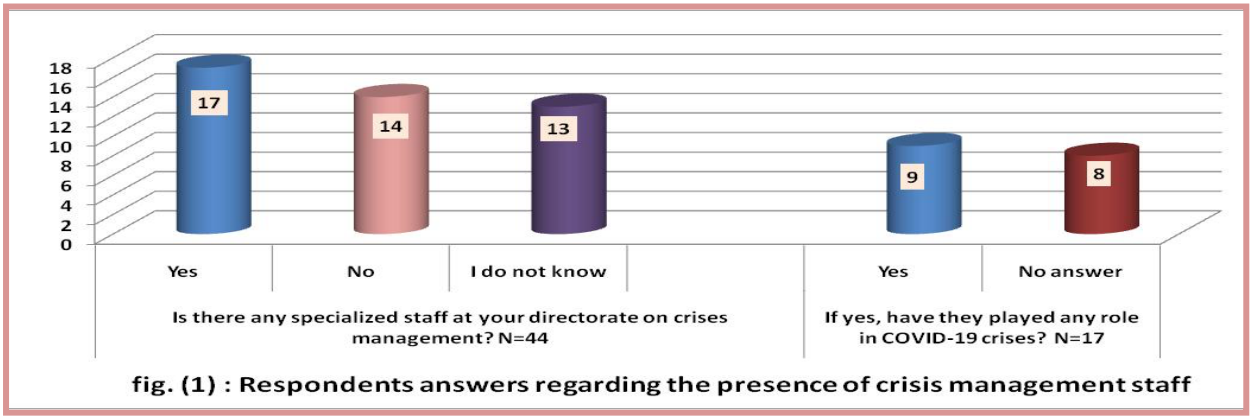

fig. (1) : Respondents answers regarding the presence of crisis management staff

About 84.1% of the respondents mentioned that after COVID-19 cases were registered, a written plan was put depending on different bodies. However, the main source of this plan was not well recognized by the respondents.

About 89.2%, 91.9%, 62.2%, 62.2%, 59.5%, 78.4%, 70.3%, 91.9%, 65.7%, 64.9%, and 0.0% of those who mentioned that there was a written plan, mentioned that it contained written guidelines for health promotion activities, social distancing, screening, surveillance, treatment protocols, managing suspected cases, managing contacts, managing positive cases, cured cases follow up, managing deaths, and conducting scientific research, respectively (Table (3)).

Table (3): Respondents' answers regarding the action plan/ instructions contents (Total respondents= 37)

The contents of the written plan/ instructions:		Yes No. (%)	No No. (%)	Don't know No. (%)
Health promotion activities		33 (89.2)	3 (8.1)	1 (2.7)
Social distancing		34 (91.9)	2 (5.4)	1 (2.7)
Screening		23 (62.2)	7 (18.9)	7 (18.9)
Surveillance		23 (62.2)	5 (13.5)	9 (24.3)
Treatment protocols		22 (59.5)	11 (29.7)	4 (10.8)
Guidelines abo	Managing suspected cases	29 (78.4)	6 (16.2)	2 (5.4)
	Managing contacts	26 (70.3)	9 (24.3)	2 (5.4)
	Managing positive cases	34 (91.9)	2 (5.4)	1 (2.7)
	Cured cases follow up	21 (65.7)	11 (29.7)	5 (13.5)
	Managing deaths	24 (64.9)	9 (24.3)	4 (10.8)

Out of the total respondents, about 45.5%, and 13.6% stated that there had been a special registry to record the data relevant to COVID-19 patients and there had been a special body to collect the data sheets after the patient leaves the hospital (cured or dead) respectively (Table (4)).

Table (4): COVID-19 data management (Total respondents= 44)

Data Management	Yes No. (%)	No No. (%)	Don't Know No. (%)	NA* No. (%)
The Presence Of A Special Registry To Record The Data Relevant To COVID-19	20 (45.5)	6 (13.6)	2 (4.5)	16 (36.4)
The Presence Of A Special Body To Collect The Data Sheets After The Patient Leaves The Hospital (Cured Or Dead)	6 (13.6)	6 (13.6)	16 (36.4)	16 (36.4)

* NA= Not applicable

Nearly half of the respondents mentioned that all the staff involved been determined in an official letter, their tasks have been determined to them in a written letter, and have been trained on their assigned tasks, with considerable non-response to the question of training on the assigned tasks (Table (5)).

Table (5): Documented staff assignment, job description and training (Total respondents= 44)

Determination Of:	Yes No. (%)	No No. (%)	Don't Know No. (%)
All The Staff Involved In An Official Letter	20 (45.5)	15 (34.1)	9 (20.4)
Tasks In A Written Letter	19 (43.2)	15 (34.1)	10 (22.7)
Training On Assigned Tasks	18 (40.9)	14 (31.8)	12 (27.3)

About 52.3% of the respondents ranked the availability of the required medications was good, and around 59.1% and 61.4% ranked the availability of personal protection equipment, and sterilizers, respectively, as "Good" (Table (6)).

Table (6): The availability of materials required (Total respondents= 44)

The Availability Of:	Good No. (%)	Not Enough No. (%)	No No. (%)
The Required Medications	23 (52.3)	15 (34.1)	6 (13.6)
The Required Personal Protection Equipment	26 (59.1)	17 (38.6)	1 (2.3)
The Required Sterilizers	27 (61.4)	16 (36.4)	1 (2.3)

About 40.9% of the respondents confirmed that there had been a Center of Operations/ Control. When those where asked about the place of this center, there were no conclusive answers.
When the availability of hot line(s) service for advice was investigated, 36.4% of the respondents mentioned that there had been a phone/ online service to answer the questions of the relevant health staff, and 34.1% of them mentioned that there had been a phone/ online service to answer the questions of the general population. The researchers contacted the phone number assigned and published to the public as information and advice number, but with no success, when it had been frequently busy.
Four respondents only out of 25 relevant respondents mentioned that they received support from the Joint Center of Coordination and Monitoring in the tasks of COVID-19 control.
About 31.8% of the respondents mentioned that they were aware of the existence of written monitoring and evaluation plan for COVID-19 control tasks, half of them conducted monitoring and evaluation for other relevant persons and 40.9% were aware of the existence of official written indicators to assess success (Table (7)).

Table (7): The existence of monitoring and evaluation strategy (Total respondents= 44)

	yes no. (%)	no no. (%)	don't know no. (%)
the presence of written monitoring and evaluation plan for covid-19 control tasks	14 (31.8)	17 (38.7)	13 (29.5)
the presence of monitoring and evaluation activities on the ground	22 (50.0)	19 (43.2)	3 (6.8)
the presence of written indicators to assess success	18 (40.9)*	11 (25.0)	15 (34.1)

* Only 4 mentioned 4 non-conclusive variable indicators.

About 29.5% of the respondents non-conclusively nominated an official body/ person, whom they had officially been informed that it/they in-charge of updating data and control protocols. These included the Department of Public Health, the Departments of Technical Affairs, the Director General, the hospital public health section, the Department of Public Health and of Technical Affairs, the Department of Public Health and Technical Affairs jointly with the WHO, the Directorate management, the Head of the medical institution, and the Heads of Technical Affairs and Public Health Departments.
About 45.5%, 27.3%, 29.6%, 22.8%, 22.8%, 29.6%, and 15.9% of the respondents stated that there had been an effective coordination with security offices, civil defense, borders control, governmental offices indirectly involved, non-governmental organizations, charities, and social

figures and leaders respectively (Table (8)). In addition to the actors mentioned in the Table, 23 respondents added that there was effective coordination with the Governor office, Directorate of Human Rights, Popular mobilization, University of Basra, College of Health Technology, College of Nursing, Police Directorate.

Table (8): The effective coordination with partners and stakeholders (Total respondents= 44)

The effective coordination with:	Yes No. (%)	No No. (%)	Don't know No. (%)	NA* No. (%)
Security offices	**20 (45.5)**	**6 (13.6)**	**2 (4.5)**	**16 (36.4)**
Civil defense	**12 (27.3)**	**7 (15.9)**	**9 (20.4)**	**16 (36.4)**
Borders control	**13 (29.6)**	**6 (13.6)**	**9 (20.4)**	**16 (36.4)**
Governmental offices indirectly involved	**10 (22.8)**	**9 (20.4)**	**9 (20.4)**	**16 (36.4)**
Non-governmental organizations	**10 (22.8)**	**8 (18.1)**	**10 (22.8)**	**16 (36.4)**
Charities	**13 (29.6)**	**7 (15.9)**	**8 (18.1)**	**16 (36.4)**
Social figures and leaders	**7 (15.9)**	**17 (38.6)**	**5 (11.4)**	**15 (34.1)**
Others	**23 (52.3)**	**0 (0.0)**	**21 (47.7)**	**0 (0.0)**

* NA= Not applicable

Regarding any volunteers' role in the response, it is clear from Table (9) that about 70.5% and 20.5% of the respondents mentioned that they know about the presence of volunteers in fighting COVID-19 in Basra, and there was a written plan for recruiting and qualifying them to be able to play an effective role respectively.

Table (9): The role for volunteers (Total respondents= 44)

The presence of volunteers	Yes No. (%)	No No. (%)	Don't know No. (%)
Their presence	31 (70.5)	4 (9.1)	9 (20.5)
Recruiting volunteers and qualifying them to be able to play an effective role	9 (20.5)	14 (31.8)	21 (47.7)

Those who stated that they know what do the volunteers do, mentioned some of their tasks. These were participating the education campaigns, cleaning, conducting infection control measures, sterilization, making face masks, and other simple requirements, donating food, distributing food inside the hospital, giving medications, looking after patients, preparing culture media, preparing sterilizers, reception and providing information, taking blood samples, transferring dead bodies, transferring oxygen cylinders.

The weaknesses of COVID-19 control strategy in Basra that were diagnosed by the respondents:

1. Poorly applied curfew measures
2. Shortage in training
3. Non control of the service users' attendance to the hospitals
4. Looseness in the use of Personal Protection Equipment
5. The overutilization of the Hospital services and overcrowding in the outpatient clinics, emergency departments, and consultancy clinics
6. Lack of coordination between different parties
7. Non-informing staff about their duties
8. Lack of clear action plan
9. Inability to make the suspected persons to use personal protection equipment
10. Delay in the results of PCR swabs because of the overload
11. Non informing the correct phone numbers of the patients
12. Looseness in controlling the positive patients
13. Shortage in the number of the nursing staff
14. Non seriousness of follow up process
15. Shortage in providing requirements
16. Non-coordination between implementers
17. No plan to prevent the chaperon being infected

Discussion

The characteristics of respondents:

Regarding the participants' characteristics, the interviewed sample showed a variability from specialty, place of work, position, and the role in the process of controlling COVID-19. This could help in receiving answers from variable stakeholders with different experiences and points of view, which is expected to make the assessment more realistic and comprehensive.

The existence of a preparedness plan to control epidemics:

It seems that the respondents in general did not have/ had a very little idea about the existence of preparedness plan, if any. In spite of that international reports and literature stress on the importance of putting and training on a preparedness plan to control epidemics[7][8], it seems that this issue has not been considered seriously except partially for cholera[9]. The gap here is that many countries have assessed their response to the COVID-19 pandemic against their preparedness plans[10], while in Basra there has been no well-defined plan to manage emerging disease outbreaks specifically at the beginning of the pandemic to be assessed, as this disease is an emerging one. It was clear that the respondents, who mentioned that they were aware about the presence of such a plan, which has been trained on, had not been, in fact aware about the details of the plan and specified role of each person.

The availability of crisis management specialists:

In spite of the statement of health literature about the importance of having health crises management specialists among the health system to be active players in the process of planning, implementation, and evaluation of crises management[11], it seems that such a specialty, or even at least training in this discipline had not been available at the Directorate of Health, which is, in fact, a central issue relevant to the Ministry of Health headquarter[9]. Although, the researchers could not find a clue to the presence of health crises management specialists at the Directorate of Health, surprisingly, more than one third of the respondents assured that there were such specialists among the staff of the Directorate and about half of those mentioned that the crisis management specialists have played a role in the response to COVID-19 crises; maybe because they were not aware about the meaning of such a specialty.

High level management:

Regarding putting management plan, the researchers could not reach any conclusive information about conducting the plan in a systematic approach, in terms of producing a comprehensive document contains situational analysis, determination of problems and needs, prioritization to the problems, and best alternative approach chosen[9]. The available were official report minutes containing these activities individually separated. Although, the approach above represents the principle of planning[12], it seems that it has not been conducted promptly for COVID-19 management plan.

Management instructions

The epidemic management protocols/instructions and/or guidelines/pathways have been made according to 3 main actors, namely the World Health Organization, Iraqi Ministry of Health headquarter, and the Basra Directorate of Health[9]. However, the respondents mentioned other sources of the protocols and guidelines, namely international organizations other than the WHO, recognized research centers, and health authorities in other countries; on the other hand, about half of the respondents did not mention the 3 real sources (WHO, Ministry of Health, and Directorate of Health) in their answers. This may refer to that the picture had not been clear for nearly half of the people involved in the management of the epidemic, other than the high level, about the source of the policy instructions and guidelines.

Generally, the first-line officials met[9], stated that the management instructions included health promotion activities, preventive measures (social distancing, screening, and surveillance), treatment protocols, managing suspected cases guidelines, managing contacts guidelines, managing positive cases guidelines, cured cases follow up guidelines, managing deaths guidelines, and conducting research guidelines (when the Directorate of Health jointly with the Iraqi Association for Medical Research and Studies adopted a considerable research initiative). However, the respondents' answers came less consistent with this. Again, this inconsistency showed some sort of interrupted flow of information from the higher managerial level to the lower levels in the Directorate hierarchy.

In spite of that there was no any official letter determines the staff involved in the process of management of the epidemic, but they have been trained on their newly assigned tasks[9], about half of the respondents mentioned that all the staff involved had been determined with their tasks

in an official letter, and had been trained on their assigned tasks.
There was a little complaint, by the respondents, regarding the availability of the required medications, personal protection equipment, and sterilizers. This goes with, and probably better than, the situation in many health systems, even among the developed countries ones[13].

Management Documentation: It is supposed that there had been a special case-sheet form to record the data relevant to COVID-19 patients[9], but nearly half of the respondents stated that such a registry had not been available at the hospitals where they work. This may refer to inappropriate provision of such registry to all relevant medical service supply institutions.
No conclusive information about the availability of any special archiving unit to collect the data sheets after the patient leaves the hospital (cured or dead) could be elicited[9]. This was reflected in the answers of the respondents, when just above 14% confirmed the presence of such a body. The researchers could not trace its existence neither from the first-line officials nor from the respondents.
The researchers tried to check the completeness and correctness of COVID-19 epidemic management data; it was found that percentage of completed data forms out of the total data collected at the Section of Statistics at the Directorate of Health was 69.3%. This seems to be non-consistent with the respondents' answers, when a high proportion of them mentioned that the data recorded were complete and correct.
There was no conclusive information about the existence of a center of operations and control[9]. However, nearly half of the respondents confirmed its existence! But, they gave variable answers about its location, which may refer to the possibility that they do not know what this term does exactly mean.
The Directorate of Health stressed that there had been phone services to answer the questions of the general population and the relevant health staff, but no online service, but mentions that these services had not been effective[9]. To confirm their work, the research team tried to contact the number of the public information, it had been frequently busy. Regarding the respondents' answers, only nearly one third of them mentioned that they were aware about the presence of phone numbers.
In spite of that the Directorate of Health had not received any support from the Joint Center of Coordination and Monitoring in the tasks of COVID-19 control[9], about 20% of respondents stated that they have received such a support. Again, this inconsistency may refer to the possibility that the respondents do not know what "the Joint Center of Coordination and Monitoring" exactly means. This was a weakness in the performance of the Joint Center, when it had to be strongly present in the process of the pandemic management.
There were non-conclusive statements regarding nominating the official body/ person, whom the respondents had known that they in-charge of updating data and control protocols[9]. Again, this vagueness was a weakness in the control process carrying out.
Although, there had been no any written monitoring and evaluation plan for COVID-19 control tasks[9]; surprisingly, about one third of respondents mentioned that they was such a plan! About half of the respondents stated that there were monitoring and evaluation activities on the ground. It seems that these monitoring activities have been conducted officially but not according to a well-structured plan.

The Directorate of Health stated that there were written indicators to assess success[9]; however, no document contains such indicators could be traced. About half of the respondents mentioned that they have been aware of the existence of official written indicators to assess success. Generally, the research team had not been able to know exactly what these indicators were.

Support: The variability in the levels of effective cooperation with the different relevant non-health bodies in the Governorate[9], may refer to the probability that the support of these cooperators had been very obvious in some areas by some parties. Although, it was stated that the roles of the relevant non-health bodies have not been determined and written in-advance[9], a quarter of the respondents assured that there had been written roles! This probably refers to an expectation made by the respondents rather than information held in certainty or there have been local written roles at the level of department/hospital.

Volunteers: There have been volunteers playing a role in COVID-19 in Basra fighting process, but there were no any details about them apart from the tasks they have been conducting[9]. However, some of the respondents confirmed that there have been written plan(s) for recruiting, calling, classifying, training them, organizing their work, distributing them according to need, and gave estimates for their numbers in the place where they work, and mentioned the tasks they have been conducting. Again, it is probable that the answers given by the respondents based on local roles at the level of department/hospital.

Perceived weaknesses and recommendations: The diagnosed, by the respondents, weaknesses of COVID-19 control strategy in Basra included non-convincing performance of the national health system, hospital managements, Basra Task Force, and the population. The recommendations raised were partly to improve performance.

Conclusions

1. There had been a tangible gap in the principles of scientific handling of epidemics within the context assessing the situation, formulating a plan document (including monitoring and evaluation activities and determining indicators of success of control measures, properly managing volunteers' role), conducting training courses, and informing health staff about its existence.
2. There have been no any staff specialized in health-crises management.
3. There has been some shortage in planning, reflecting the need to upgrade capacity in health care system management and dynamic processes of preparing protocols and guidelines.
4. Although the management instructions have, reasonably, included the majority of required activities; but, this have needed to be well transferred to service providers.
5. At organizational level, important aspects such as terms of reference, names, job description, and staff training have not promptly been put in formal letters or in the management plan. Further, coordination with other partners was not well articulated or documented.
6. With respect to the main supplies required to deal with the epidemic, good efforts and results were achieved, but documentation of outcomes of care was not adequate. The implications are clear. Effective research would be defective.

7. The monitoring process lacked adequate set of indicators to observe the effectiveness of control measures implemented to overcome the epidemic at facility and population levels.
8. Contribution of other partners to the control efforts were not well documented. And there is no role for the Joint Center of Coordination and Monitoring in the COVID-19 control process.
9. The support given by relevant bodies from outside health system in the Governorate has differed, qualitatively and quantitatively, according to the level of health institution. The details of this support had not been determined or written in-advance. The role of media seems to be unsatisfactory.
10. Despite all the above-stated limitations, a good deal of success was achieved within a package of complex constraints and uncertainty. We highly recommend that a comprehensive assessment task could be organized by the end of the epidemic to list down major successes and failures for future benefit.

Recommendations: The actions below urgently need to be adopted by the Iraqi Ministry of Health:

1. It is very necessary to work hard on developing an integrated and flexible preparedness plan to deal with epidemics, and training those relevant at various levels to implement it; creating units/sections specialized in disaster management that include experts in crisis management in all health directorates; creating central task room in each health directorate that contains the requirements of 24-hour work with means of communication and management for the various joints of the health department; launching a special website contains everything that the health sector staff and citizens need to know; and founding a specialized and trained staff center, to answer citizens' communications, helps to reduce the momentum on health institutions and helps spread the correct information.
2. It is necessary to switch to electronic documentation of patient files and all other administrative processes. Modern technologies must be used in communication, documentation and building databases by linking all hospitals and health centers with a unified electronic system, through an intranet, that facilitates accurate and immediate access to information and can monitor the defect as soon as it occurs.
3. It is very important to create a unit specialized in preparing short term plans to effectively absorb, train and manage volunteers.
4. Some recommendations raised by the participants, need to be considered; these are putting guidelines to deal with the acute psychological effects, reducing short term negative effect on the quantity and quality of non-COVID-19 health services, improving staff performance, and upgrading statistics relevant to the lost staff members because of the epidemic.

Conflicts of Interest:

1. Three of the research team members are from the first line administrative staff at Basra Directorate of Health. However, the assessment process conducted objectively and those members had not taken any direct role in interviewing the respondents. The team contained the administrative staff members, a member from the Iraqi Association for Medical Research and studies, a member from the provincial government and an academic. The team was structured in

this way to avoid any bias.

2. The authors would like to acknowledge the support supplied by the Basra health institutions managements and the Task Force Unit staff for facilitating conducting the study.

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