

# The Pattern of COVID-19 Disease in Iraq during the Year 2020

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## Abstract

**Background:** The year 2020 witnessed the rapid spread of covid-19 pandemic in Iraq and in almost all the countries in the world. This spread has created a serious health crises and a public health emergency in Iraq and throughout the world. Little is known about the pattern of covid-19 disease in Iraq. The aim of this paper is provide a description an overview of the pattern of covid-19 disease in Iraq. **Materials and methods:** The available unpublished and published data about covid-19 disease in Iraq during the year 2020 reviewed including the demographic data relevant to covid-19 pandemic in Iraq. Some relevant data for three provinces (The Kurdish provinces in the north of Iraq) of the eighteen provinces in Iraq were not available in English or Arabic. **Results:** The population of Iraq in 2020 was estimate at 40.150.174 (20.284.823 males and 19.865.351). During the year 2020, 595291 cases of covid-19 disease were registered by the Iraqi Ministry of Health, 12813 (2.15%) patients died and 537841 (90.3%) patients experienced recovery. 7680 (1.4%) of the covid-19 disease in Iraq during the year 2020 were under the age of ten years, and therefore this age group was the least to be affected with covid-19 disease in this study. 133176 (23.9%) of the covid-19 disease in Iraq during the year 2020 aged between 30 and 39 years, and therefore this age group was the most affected with covid-19. During the year 2020, 173928 individuals died in Iraq including 12813 deaths because of covid-19 disease which accounted for 7.36% of the total deaths in Iraq during the year 2020. Covid-19 resulted in a death rate of 33/ 100000 population in Iraq during the year 2020. 117 (0.9%) of the patients who died because of covid-19 disease in Iraq during the year 2020 were under the age of ten years, and therefore patients in this age group are the least likely to died from covid-19 disease. 2418 (18.9%) of the patients who died because of covid-19 disease aged 50 to 59 years. Therefore, according to this study, patients in this age group are the most likely to die from covid-19 disease. **Conclusion:** Covid-19 disease in Iraq was associated with a significant mortality during the year 2020. It actually changed the previously reported national mortality pattern as covid-19 has become the second most common cause of death in Iraq. Contradictory, to the general belief that mortality associated with covid-19 was generally restricted to the older age groups, 117 children under the age of ten years died because of covid-19 disease. This number of childhood suggests the need to consider vaccination of the younger age groups and to perform the relevant research.

**Keywords:** Covid-19 disease, Iraq, pattern, mortality.

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## INTRODUCTION

Until December, 2020, two beta-coronaviruses (SARS coronaviruses and MERS-coronaviruses were known to cause severe, potentially fatal pneumonia-like illness [1-6].

Increasing number of cases of severe potentially fatal pneumonia caused by a new  $\beta$ -coronavirus was reported from Wuhan China in December 2019, and human-to-human transmission was confirmed early. On the 12<sup>th</sup> of January, 2020 the World Health Organization (WHO) officially named the condition coronavirus disease 2019 (covid-19). The

Coronavirus Study Group of the International Committee suggested naming the new coronavirus "SARS-CoV-2" [1-4].

The year 2020 witnessed the rapid spread of covid-19 pandemic in Iraq and in almost all the countries in the world. This spread has created a serious health crises and a public health emergency in Iraq and throughout the world. Little is known about the pattern of covid-19 disease in Iraq. The aim of this paper is provide a description an overview of the pattern of covid-19 disease in Iraq.

**MATERIALS AND METHODS**

The available unpublished and published data about covid-19 disease in Iraq during the year 2020 reviewed including demographic data relevant to covid-19 pandemic in Iraq. Some relevant data for three provinces (The Kurdish provinces in the north of Iraq) of the eighteen provinces in Iraq were not available in English or Arabic.

**RESULTS**

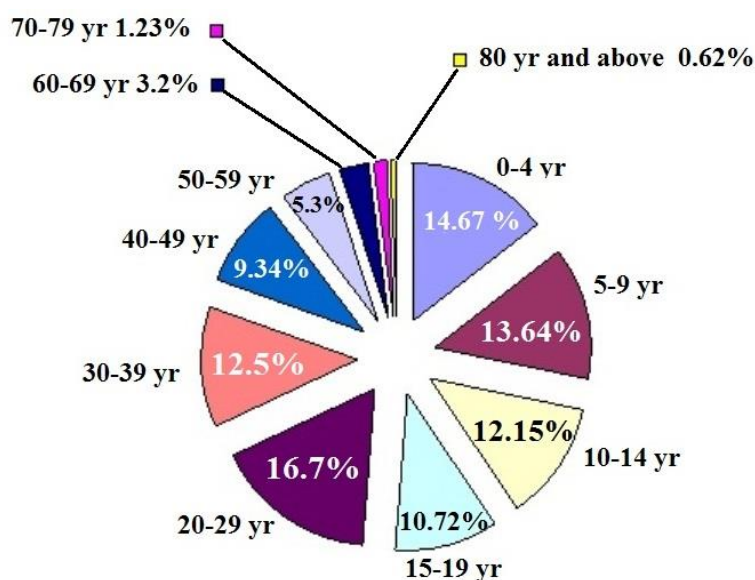
The population of Iraq in 2020 was estimate at 40.150.174 (20.284.823 males and 19.865.351 with 102 males for each 100 females). 40.5% of the population was under the age of fifteen years, and 5% above the age of 60 years. Figure-1 shows the age distribution of Iraq population during the year 2020. 69.8 % of the population was living in urban areas and 30.2% were of the living in rural areas.

During the year 2020, 595291 cases of covid-19 disease were registered by the Iraqi Ministry of

Health, 12813 (2.15%) patients died and 537841 (90.3%) patients experienced recovery. 256 patients who died from covid-19 disease were affiliated to the Iraqi Ministry of Health including 56 medical personnel and 133 health personnel.

The spread of covid-19 in Iraq was first recognized during February, 2020 with the report of the first confirmed cases of the infections on the 22<sup>nd</sup> of February in the province of Najaf. The first reported case in Iraq was an Iranian student of religion. The first case of covid-19 in the Kurdish region of Iraq in the North of the country was reported on the first of March, 2020. However, the first death from covid-19 disease in Iraq was reported from the province of Suleimaniya in the Kurdish region of Iraq.

The patient was a 70-year-old man who was known to have chronic heart failure associated with asthmatic manifestations.



**Fig-1: The age distribution of Iraq population during the year 2020**

The second death from covid-19 diseases in Iraq was reported from the province Baghdad, while the first recovery was reported on the 6<sup>th</sup> of March.

On the 27<sup>th</sup> of March,2020, all 19 Iraqi provinces cases have reported confirmed cases, and on the 7<sup>th</sup> of April, 28,414 tests have been performed with 1202 of them were positive.

On the first of April, 2020, the total number of confirmed covid-19 cases in Iraq was 728. Early during June, the number of the reported cases exceeded 12,000, and the deaths exceeded 300. The table-1 shows the confirmed cases of covid-19 disease in Iraq in the provinces of Iraq the 7<sup>th</sup> of June 2020.

**Table-1: The confirmed cases of covid-19 disease in Iraq in the provinces of Iraq the 7th of June 2020.**

Province	Cases	Deaths	Recovered
Baghdad	2,234	97	941
Al-Anbar	6	0	5
Al-Qadisiya	15	1	11
Babil	49	5	39
Basra	747	18	578
Thi Qar	96	4	72
Diyala	45	5	21
Duhok	102	0	26
Erbil	397	4	243
Halabja	25	0	22
Kerbala	152	8	118
Kirkuk	72	2	59
Maysan	52	2	45
Muthanna	117	4	95
Najaf	431	6	324
Nineveh	12	0	6
Suleimaniya	811	23	246
Saladin	127	0	18
Wasit	1,018	18	139
Total	12,366	346	5,168

On the 28<sup>th</sup> of June, the Iraqi Medical association reported occurrence of 45402 cases of covid-19 diseases including 788 Iraqi doctors, and 1756 patients died and including 13 Iraqi doctors.

People whom were considered to be health and possibly having good immunity like former football players and bodybuilding champions (Figure-2A) also died during the year 2020.

The death of Ahmed Radhi (Figure-2B), a former player of the Iraqi National football team during June, 2020 was associated with public criticism for the Iraqi Minister of Health during that time who was regarded as a non-technocrat minister as he was a military pharmacist and not a real physician. Shortly after the death of Ahmed Radhi, Haider Al-Mulla, a politician asked the prime minister to appoint a real Minister of Health.



**Fig-2A: Mohammed Al-Kaabi, an Iraqi bodybuilding champion who died because of covid-19 disease during the year 2020**



**Fig-2B: Ahmed Radhi in hospital before his death. He is a former player of the Iraqi National football team who died during June, 2020, and his death was associated with public criticism for the Iraqi Minister of Health**

It is worth mentioning that Hassan Mohammed Abbas, the minister of health during that time was forced to resign during the year 2021 following the occurrence of a huge burn in Ibin Al-Khateeb Hospital in Baghdad and killed many patients.

In Iraq, a high covid-19 disease ministerial committee was established by the Iraqi Ministry of health to lead the efforts to control. The committee designed an official protocol (Figure-3) for the treatment of the disease and distributed it to hospitals.

Lopinavir/ritonavir + ribavirin combination was at the top of the suggested therapies to be used in the treatment of covid-19 disease, and that was excellent from the evidence-based medicine point of view. However, the suggested treatment was not available at all in the country. The second suggested treatment was plasma therapy which it was impossible to offer to any patient needs treatment supposing that is an acceptable therapeutic option.

During the year 2020, 182607 cases of covid-19 disease were registered in Baghdad accounting for 31% of the total cases of the disease in Iraq. Table-2 shows the number of covid-19 cases in the Iraqi provinces during the year 2020 and their outcomes of death or recovery.

7680 (1.4%) of the covid-19 disease in Iraq during the year 2020 were under the age of ten years, and therefore this age group was the least to be affected with covid-19 disease in this study. 133176 (23.9%) of the covid-19 disease in Iraq during the year 2020 aged between 30 and 39 years, and therefore this age group was the most affected with covid-19. Figure-4 shows the age distribution of covid-19 patients during the year 2020. Table-3 shows the percentage of the recovered patients in various age groups.

During the year 2020, 173928 individuals died in Iraq including 12813 deaths because of covid-19 disease which accounted for 7.36% of the total deaths in Iraq during the year 2020. Covid-19 resulted in a death rate of 33/ 100000 population in Iraq during the year 2020.

117 (0.9%) of the patients who died because of covid-19 disease in Iraq during the year 2020 were under the age of ten years, and therefore patients in this age group are the least likely to died from covid-19 disease. 2418 (18.9%) of the patients who died because of covid-19 disease aged 50 to 59 years.

Therefore, according to this study, patients in this age group are the most likely to die from covid-19 disease. Figure-5A shows the number of deaths in various age groups and figure-5B shows the percentage of deaths in various age groups.

كوميدي عراقي  
وه زاريفتي تندورستي  
فهرمانكه ي كاروباري هونتهري

جمهورية العراق  
وزارة الصحة / البينة  
مديرية الامور الفنية  
قسم العلاجية

العدد: /1/4/  
التاريخ: /6/2020م

<p><b>Severe:</b> patient meets any of the following criteria:</p> <p>A-respiratory distress RR &gt; than 30/m in adults, RR &gt; than 40/m in children less than 6 years</p> <p>B-blood oxygen saturation less than 93% on ambient air</p> <p>C-PaO2/FiO2 less than 300</p> <p>D-lung infiltrates &gt;50% of the lung field within 24 hours.</p>	<ol style="list-style-type: none"> <li><b>Antiviral therapy:</b> -Lopinavir-Ritonavir (200/ 50 mg) 2 tablets PO BID and Ribavirin 400 m PO BID for 7 days. -Interferon beta-1b (optional depending on clinical judgment)</li> <li><b>Plasma therapy</b> to be considered and can be used depending on clinical judgment.</li> <li>Immune modulating drugs such as <b>Tocilizumab</b> can be used for cytokine storm</li> <li><b>Antibiotics</b> should be used as empirical and then deescalated according to culture and sensitivity. if C/S not available initial antibiotics should be reconsidered.</li> <li><b>Anticoagulant</b> is essential (low molecular weight heparin is preferable) providing that there is hyper-coagulable state.</li> <li>In the absence of hypercoagulable state which should be evaluated actively, <b>prophylactic anticoagulant</b> may be sufficient)</li> <li><b>Corticosteroids</b> can be used as adjuvant therapy.</li> <li><b>Supportive:</b> (antipyretics, fluid, tonics such as, Zinc, Selenium and vitamins D and C ...etc.)</li> </ol> <p><b>Interferon-beta 1b (Betaferon):</b> Interferon beta 1b 8 million units (250 microgram) Sub- cutaneous on alternative days for 3 doses or use through Nebulization 8 million units (250 microgram)/vial, mix reconstituted solution of 1 vial of Betaferon with 2 ml of normal saline BID X 5 days</p>
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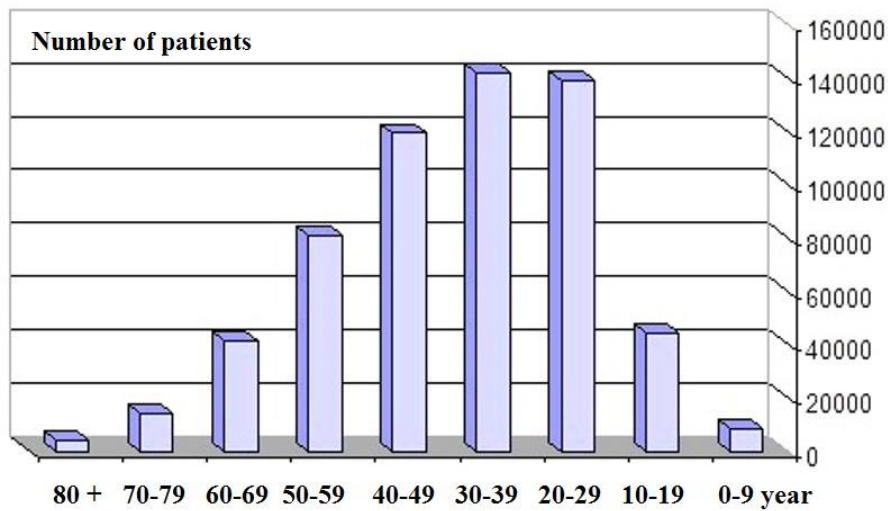
وزارة الصحة / مديرية الامور الفنية

Figure-3: The official protocol designed by the higher ministerial committee for the treatment of covid-19 disease



**Table-2: The number of covid-19 cases in the Iraqi provinces during the year 2020**

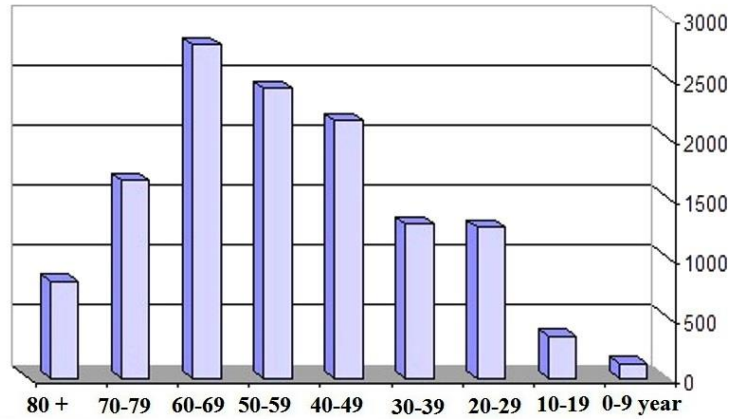
Province	Cases	Deaths	Recovered
Baghdad	182607	2843	173186
Al-Anbar	7739	71	7486
Al-Muthanna	12501	231	11779
Al-Qadisiya	18352	407	17678
Babil	20795	592	19882
Basra	39835	915	38967
Thi Qar	23808	813	22443
Diyala	21413	273	20889
Duhok	33932	681	23075
Erbil	35717	912	25771
Kerbala	22594	513	21486
Kirkuk	31521	784	26824
Maysan	18435	445	17695
Najaf	22025	318	21484
Nineveh	23762	490	22184
Saladin	15478	253	12321
Suleimaniya	32741	1797	23027
Wasit	32036	475	31664
<b>Total</b>	<b>595291</b>	<b>12813</b>	<b>537841</b>



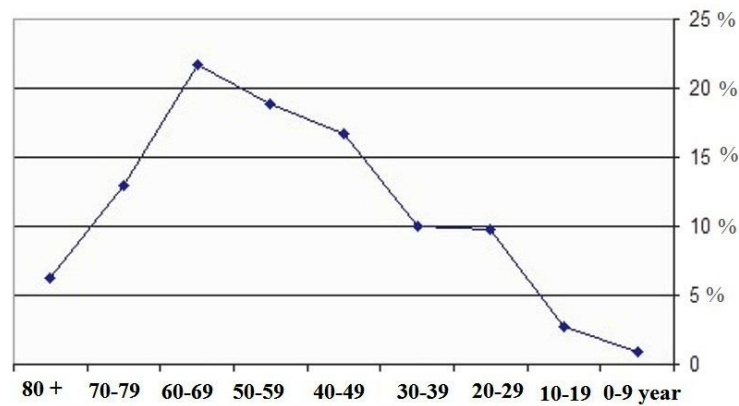
**Figure-4: The age distribution of covid-19 patients during the year 2012**

**Table-3: The percentage of the recovered patients in various age groups**

Age group	Percentage the recovered patients
0-9 year	90.65 %
10-19 year	90.45 %
20-29 year	93.3 %
30-39 year	93.56 %
40-49 year	87.32 %
50-59 year	90 %
60-69 year	84 %
70-79 year	80.26 %
80 and older	70 %



**Fig-5A: The number of deaths in various age groups**



**Fig-5B: The percentage of deaths in various age groups**

Covid-19 disease was the second most common cause of death in Iraq accounting for 7.36% of all deaths. During the year 2020, ten conditions accounted for 64.6% of the total deaths in Iraq except the Kurdish provinces in the North of Iraq during the year 2020 (Table-4A). Covid-19 disease was also the second most common cause of death in males (Table-4B), but it was the sixth most common cause of death in

females (Table-4C). However, covid-19 disease was the third most common direct cause of maternal death (Table-4D). Covid-19 disease was the sixth most common cause of hospitalization of patients aged 20 to 24 years in Iraq except the Kurdish provinces in the North of Iraq during the year 2020 accounting for 0.95 % (Table-4E).

**Table-4A: The main causes of mortality in Iraq, except the Kurdish provinces in the North of Iraq during the year 2020**

	Disorder	Percentage
1	Ischemic heart disease	11.2 %
2	Covid-19 disease	8.6 %
3	Cerebro-vascular disorders	8.5 %
4	Hypertensive disease	8.1 %
5	Non-ischemic, non hypertensive heart disease	6.3 %
6	Diabetes mellitus	6 %
7	Cancers	5.8 %
8	Renal failure	4.1 %
9	Neonatal cardiopulmonary disorders	3.7 %
10	Road Traffic accidents	2.3 %

**Table-4B: The main causes of mortality in males in Iraq, except the Kurdish provinces in the North of Iraq during the year 2020**

	Disorder	Percentage
1	Ischemic heart disease	14.1 %
2	Covid-19 disease	8.8 %
3	Cerebro-vascular disorders	6.8 %
4	Hypertensive disease	6.5 %
5	Non-ischemic, non hypertensive heart disease	6.1 %
6	Diabetes mellitus	4.9 %
7	Renal failure	4.9 %
8	Neonatal cardiopulmonary disorders	4.8 %
9	Road Traffic accidents	2.8 %
10	Cancers	2.8 %
	<b>Ten most common causes of death</b>	<b>61.9 %</b>

**Table-4C: The main causes of mortality in females in Iraq, except the Kurdish provinces in the North of Iraq during the year 2020**

	Disorder	Percentage
1	Ischemic heart disease	13.5 %
2	Cerebro-vascular disorders	10.5 %
3	Hypertensive disease	9.2 %
4	Cancers	9.2 %
5	Non-ischemic, non hypertensive heart disease	7.3 %
6	Covid-19 disease	6.2 %
7	Renal failure	6.2 %
8	Diabetes mellitus	4.2 %
9	Neonatal cardiopulmonary disorders	3.5 %
10	Bacterial diseases	2 %
	<b>Ten most common causes of death</b>	<b>71.8 %</b>

**Table-4D: The main causes of direct maternal death in Iraq during the year 2020**

	Disorder	Percentage
1	Postpartum hemorrhage	29.6 %
2	Unspecified maternal hypertension	14.5 %
3	Covid-19 disease	9.9 %
4	Pulmonary embolism	9.6 %
5	Uterine rupture	3.2%
6	Obstetric embolism	2.1 %
7	Sepsis	1.5 %
8	Abortion	1.6 %
9	Eclampsia	0.02 %
10	Complications of anesthesia	0.003 %
	<b>Ten most common causes of death</b>	<b>72 %</b>

**Table-4E: The main causes of hospitalization of patients aged 20 to 24 years in Iraq, except the Kurdish provinces in the North of Iraq during the year 2020**

	Disorder	Percentage
1	Disorders of the digestive system	5.8 %
2	Disorders of genitourinary system	3.0 %
3	Hematological disorders	2.2 %
4	Injury, poisoning and other external causes	2 %
5	Disorders of the respiratory system	1.4 %
6	Covid-19 disease	0.95 %
7	Specific medical procedures	0.94%
8	Disorders of circulatory system	0.66 %
9	Undiagnosed illnesses	0.28 %
10	Infectious and parasitic diseases	0.26 %

## DISCUSSION

On the first of June 2021, 1,201,352 cases of covid-19 were reported by the Iraqi Ministry of Health,

and 16375 patients died because of the disease. During, the first week of June, 2021, the death of three Iraqi patients having covid-19 disease complicated by mucormycosis was reported [7-9].

On the 30<sup>th</sup> of July 2021, the total number of covid-19 cases reported throughout the world was 197,647,322 including 178,716,095 patients who recovered from the disease.

4,219,147 patients throughout the world died because of covid-19 disease, and therefore 2% of the total covid-19 disease patients in Iraq died.

On the 30<sup>th</sup> of July 2021, the total number of covid-19 cases reported in Iraq was 1,616,384 including 1,455,659 patients who recovered from the disease.

18,595 patients in Iraq died because of covid-19 disease, and therefore 1.15% of the total covid-19 disease patients in Iraq died [10].

## CONCLUSION

Covid-19 disease in Iraq was associated with a significant mortality during the year 2020. It actually changed the previously reported national mortality pattern as covid-19 has become the second most common cause of death in Iraq. Contradictory, to the general belief that mortality associated with covid-19 was generally restricted to the older age groups, 117 children under the age of ten years died because of covid-19 disease. This number of childhood suggests the need to consider vaccination of the younger age groups and to perform the relevant research.

## ACKNOWLEDGEMENT

Some of the figures published in this book were included in previous author's publications, but the author has their copy right.

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