**Iraqi Journal of Statistical Sciences**

www.stats.mosuljournals.com

# Extract Analytical Indicators for Covid 19 Disease Database

**Hayfaa H. al-Tai [1] and Ammar T. Al Abd Alazeez [2]**

[1]Department of Arabic, College of Education for Humanities, University of Mosul, Mosul, Iraq
[2]Department of Computer Science, College of Computer Science and Mathematics, University of Mosul Iraq

, ,

**Article information**

***Article history:***
Received August,30,2023
Accepted October , 22,2023
Available online December,1,2023

***Keywords***:
Disease Database
Covid-19
Analytic Indicator

***Correspondence:***
H.H. al-Tai 1
Haifahzim123@uomosul.edu.iq

**Abstract**

In this paper, real data was collected on people infected with the Covid-19 epidemic in the city of Mosul for the period from 1/11/2020 to 1/4/2021. Where the items of the patient's form (resident/output) were approved in the city's hospitals, which contain a current reality of the pathological condition, in addition to the historical situation of the injured person in terms of health. This data was analyzed and build an SQL-Server database system to store patient's data that was collected for analysis through Microsoft Excel. The main objective of the paper is to diagnose the main factors that control the issue of the spread of the Covid-19 epidemic by building a model that simulates all the social components of the city of Mosul in terms of the standard of living, cultural, class decline, and the rest of the factors that describe Mosul society, and then the data collected from health centers are reflected on that model. Through the study and analysis of the data, it was found that the relationships between the incidence of the epidemic and the factors that were identified in the data collection are directly proportional in some characteristics and inversely in other characteristics.

DOI: https://doi.org/10.33899/iqjoss.2023.0181227 , ©Authors, 2023, College of Computer and Mathematical Science, University of Mosul,Iraq.
This is an open access article under the CC BY 4.0 license (http://creativecommons.org/licenses/by/4.0/).

## Introduction

In the year following the discovery of the virus, the World Health Organization called it the emerging corona virus (SARS-CoV-2), and gave the disease it causes the name COVID-19 (COVID-19). In March 2020, it declared an international emergency, considering that COVID-19 is a pandemic that threatens all Countries of the world (1).

Corona viruses are considered a family known to mankind, as some of their types previously caused several diseases, such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), which were discovered for the first time in Asia in 2003 and 2012, respectively, and they are among the most severe diseases caused by the Corona family

(2)(3). The disease COVID-19 is a group of viruses that cause respiratory infections and belongs to the Coronavirus family. The Corona virus affects the respiratory system, as it may cause infections in the lung, stomach and intestines, and reason sever sore in the aerobic scheme, and that drive to kidney failure. Disease signs might progress into sever pneumonia, via harm to the alveoli and swelling of the lung flesh layers, like the virus might ban oxygen from attaching the blood, initiating fragility in the tasks of the person's organs, which can drive to death sometimes (4). The acuteness of symptoms of Covid-19 differ hugely from someone to another. Some persons might not progress any disease

signs at all. Others are so sick that they need to be hospitalized, and the situation may lead them to rely on artificial respirators. The danger of progressing sever disease signs as an output of contagion with the Covid 19 virus boosts in the aged people. The danger might also be boosted in persons of different ages who have other deliberate health issues like heart attack or lung sore, or obesity, a decline immune system, or diabetes (5). This is identical to what occurs with other respiratory sickness, like the flu. The majority of these signs might boost the danger of hardship from real disease factors as an output of getting Covid 19 virus. In other hand, humans who have greater than one health issues are at big danger (3).

Old Age

The COVID-19 virus may affect people of all ages. But it is more common in middle-aged people and older adults. The risk of serious symptoms increases in old age, specifically humans age eighty-five and greater, who likelihood experience serious disease signs. In the United States of America, the death rate from the disease among people 65 years of age and older is about 81%. The risk also increases in the elderly when they have other health problems (6).

Lung Problems - Including Asthma

The COVID-19 virus targets the lungs. Therefore, a person is more likely to develop serious symptoms if he/she already has one of the chronic lung diseases, which includes the following: (chronic obstructive pulmonary illness, lung cancer, cystic fibrosis, pulmonary fibrosis, intermediate to serious asthma attack, pulmonary hypertension, and pulmonary embolism) (7).

**Related Works**

The authors in (8)examined observational researches on the clinical, epidemiological, experimental, and picture features of SARS-CoV-2. Their search was not restricted by type or language of publication, and they searched for studies published between January 1, 2019, and February 24, 2020. Whose recognized a more than sixty samples' studies (59,254 patients) and implemented a fully analyzing of clinical and laboratory information, consist of those connected to hypertension. The researchers in (9) proposed on papers listing on the clinical properties or epidemiological data of patients in hospital with coronavirus. The research was not restricted by type or language of publication (but they only evaluated abstracts of articles published in Chinese) and conducted the search until February 16, 2020. It consists of seven cross-sectional papers that listed the spread of hypertension though COVID-19 ill peoples.

In the review (10), the researchers examined papers that evaluate the connections among diabetes and hypertension, and the harshness and result of COVID-19. It contains papers released in English via 31-3-2020. The authors determined three cohort papers and four case samples (All: 2018 persons), all of them are in China. In the survey paper (11) the researchers examined for papers assessing the spread and harshness of epidemic in ill people with COVID-19. They searched on March 10, 2020. They included 21 clinical studies (with a total of 47,344 patients), 20 from China and 1 from Singapore. Some reported high blood pressure. In the review (12), the researchers examined papers that evaluate the correlation and consequence of ACE restraints or ARBs on danger of SARS-CoV-2 spread disease, harshness of COVID-19 virus, and mortality for old people. They explore for this 4-5-2020 printing of the survey. They contained fourteen sample papers and recognize four existing arbitrary trials evaluation ACEIs or ARBs as curing for coronavirus.

In the review (13), the researchers examined papers assessing the connection among ACE inhibitors and ARB treatments for hypertension and the harshness of coronavirus. The paper was restricted to researches published from 1-12-2019 to 9-5-2020. It contained sixteen papers from a average of different regions (total: 24,676 participants). In the survey (14), the researchers examined for papers enrolling young people COVID-19 patients with data on hypertension and important outcomes (mortality rate, disease severity, acute respiratory distress syndrome as ICU and disease progression). Search was limited to studies with at least 20 patients who performed the search on April 7, 2020. It contains thirty sample papers, the majority of them were printed as an advance reduplicate at time survey. In the review (15), the authors examined papers on indicators of death between COVID-19 patients in hospital. The researchers examined papers printed among 1-1-2020, and 24-4-2020. They contained eleven articles with data on hypertension. In the review (16), the authors searched for studies examining the risk of infection or death with COVID-19 in hypertensive patients treated with RAAS inhibitors versus patients not using these drugs. Searched in May 2020. It included 8 studies (with a

total of 62,706 patients) from China (four articles), Italy (1) and the USA. In the review (7), the authors searched for studies describing the clinical and epidemiological characteristics of coronavirus, and the spread of chronic illness between persons with coronavirus. The paper was limited to studies printed from 1-1-2019 and the paper was focused on 25-2-2020. In addition, they contained four papers that supplied information on the spread of hypertension between coronavirus patients.

In the presented analysis of previous papers, the researchers examined articles revealing the connection among hypertension and serious clinical coronavirus patients in China. The study was limited to papers printed in English and Chinese, from 1-12-2019 to 20-3-2020. The research included 18 retrospective studies, 12 of which analyzed the severity of COVID-19 and 6 of which analyzed the mortality rate of COVID-19 in patients with high blood pressure. Previous cardiovascular illness, in addition, is a negative expected for sick peoples of coronavirus. Articles have explained that the majority of public cardiovascular complex for coronavirus patients were heart attack, heart muscle problems, and arrhythmias. Other complex symptoms contained acute coronary syndrome, cardiac arrest, and disseminated intravascular coagulation (17).

Generally, the virus is spread via indoors building which contain individuals, always via droplets and respiratory droplets outputting from sneezing, touching, or talking. Droplets normally exist to the base or surfaces wanting spread via the air for very long distances. Secondly, persons might be infected by putting their hands on the eyes, mouth, or nose after contacting a place covered with the virus. Transmissibility is big through the 1st, 2nd, and 3rd days after the signs of disease, with the capability of spread of the illness before the signs of disease in asymptomatic patients.

General signs disease consists of fever, cough, fatigue, problem in breath, and lose smell and taste. The group of complexes might contain all of pneumonia and acute respiratory distress syndrome. The period among spread the virus and the identify symptoms average from 2 to fourteen days, with a mean of 5 days (2).Figure (2) shows the general shape of the virus.

**Research Methodology**

The research methodology was divided into two parts: the research problem and the importance of search.

Research Problem

This research paper aims to address the problem of diagnosing the main factors that control the spread of the Covid-19 epidemic by building a model that simulates all the social components of the city of Mosul in terms of the standard of living, cultural, class regression, and the rest of the factors that describe Mosul society and then collected from health centers on that model, mathematical relationships are established that show the importance of each of these characteristics by working to make changes to those factors within the permissible range that applies practically to the facts of those variables based on the available data.

Research Importance

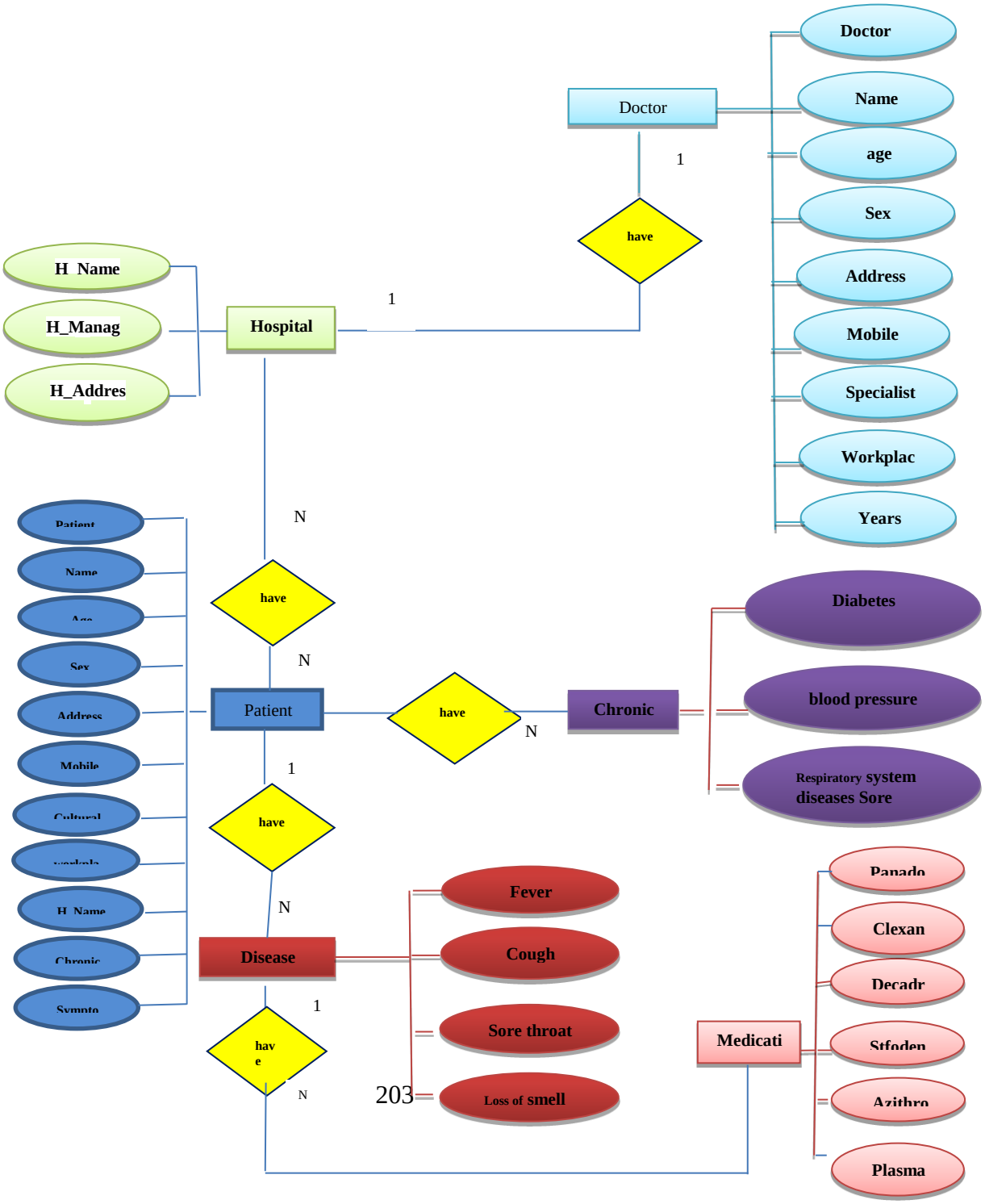
The importance of the research lies through the curves that are drawn and the tables that are obtained assuming a change in the coefficients of the mathematical relations that are obtained. It is clearly established the permissible range for each parameter, which helps the health department in the city of Mosul to draw up plans that lead to the reduction of the spread of the epidemic. Which opens wide horizons in order to reflect all that has been done on the Mosul community to simulate other societies within Governorate or inside Iraq.

**COVID-19 Patients Database System**

There are three main steps for database systems: analysis, design, and implementation.

1. Analysis Step

The analysis step in this system consists of conducting field visits to a group of hospitals in Nineveh Governorate. The patient's form contained personal data, including (age, profession, residence, place of work, cultural level), as well as the patient's health condition, including chronic diseases (diabetes, high blood pressure, respiratory diseases) as well as symptoms (fever, cough, loss of smell and taste, Sore throat). And then collect and rearrange the forms to prepare for moving to the design step.


Doctor
Name
age
Sex
Address
Mobile
Specialist
Workplac
Years
Doctor
1
have
H_Name
H_Manag
H_Addres
Hospital
1
N
have
N
Patient
Name
Age
Sex
Address
Mobile
Cultural
H_Name
Chronic
Sympto
Patient
have
Chronic
N
Diabetes
blood pressure
Respiratory system diseases Sore
1
have
N
Disease
Fever
Cough
Sore throat
Loss of smell
1
hav
e
N
Medicati
Panado
Clexan
Decadr
Stfoden
Azithro
Plasma

2. Design Step

This step uses a data flow diagram DFD, which is a common design tool. Figure 3 shows the main steps of the system. The first step includes entering patient's data, while the second step includes arranging and processing that data in terms of lack and purity of data. The third step includes creating a database system for the patients. Fourth step consist of obtaining the required statistical indicators, while the last step includes printing reports on all these indicators
and their impact on the course of treatment.

Figure 2: The general appearance of the Corona virus

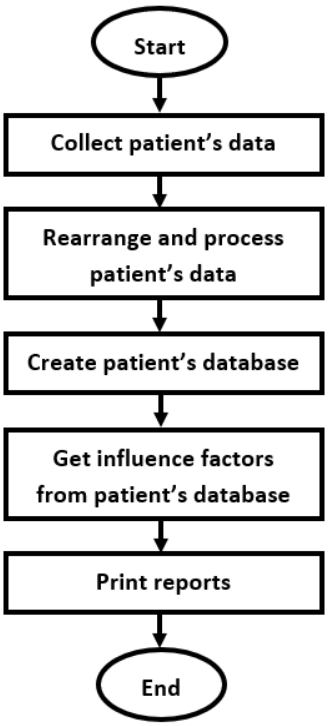



Figure 3: The general outline of the proposed system

3. Implementation Step: This step includes three stages:

First: Create six tables: Patient, Hospital, Symptoms, Chronic Diseases, Medications, and Doctor.

Patient table

| Patient | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Patient _id | Name | Age | Sex | Address | Mobile number | Cultural leve | Workplace | H_Name | Chronic diseases | Symptoms |

This table includes general information about the patient, such as name, age, gender, address, and mobile number, the name of the hospital, symptoms and chronic diseases. The main key for this table is the patient number.

Hospital schedule

| Hospital | | |
|---|---|---|
| H_Name | H_Manager | H_Address |

This table includes information about the hospital, including the name of the hospital, the address of the hospital, and the name of the hospital director. The primary key for this table is the name of the hospital.

3. disease symptoms table

| Disease | | | |
|---|---|---|---|
| Fever | Cough | Sore throat | Loss of smell and taste |

This table includes information about the symptoms of the disease, including fever, cough, sore throat, and loss of sense of smell and taste.4. Chronic disease table .

Chronic disease table

| Chronic | | |
|---|---|---|
| Diabetes | blood pressure | Respiratory system diseases |

This table includes information on chronic diseases, diabetes, high blood pressure ,and respiratory diseases.

medication schedule

| Medication | | | | | |
|---|---|---|---|---|---|
| Panadol | Clexane | Decadron | Stfoden | Azithromycin | Plasma blood |

This table includes information about the medications given to the patient, Panadol , Stfoden, Decadron , Azithromycin, and Plasma blood.

6. Doctor table

| Doctor | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Doctor _id | Name | age | Sex | Address | Mobile number | Specialist | Workplace | Years servers |

This table includes information about the doctor, name, age, gender, address, mobile number, specialization, place of work, and years of service.

Second: Using the SQL Server language to create the patient database and its tables, as follows:

1. To create the database, the following command was used:

```
CREATE DATABASE COVID-PATIENT
```

2. To create the tables, the following instructions were used:

To create Patient table:

```
CREATE TABLE [dbo].[tb_Patient](
[Patient_Id] [int] NOT NULL,
[Name] [nvarchar](50) NOT NULL,
    [Age] [nvarchar](50) NOT NULL,
    [Sex] [nvarchar](50) NOT NULL,
[Adress] [nvarchar](50) not null,
[Mobile_No] [nvarchar](50) NOT NULL,
[Cultural_leve] [nvarchar](50) not null,
```

[Workplace] [nvarchar](50) NOT NULL,
[Chronic_Diseases] [nvarchar](50) NOT NULL,
[Symptoms] [nvarchar](50) not null,
CONSTRAINT [tb_ Patient] PRIMARY KEY CLUSTERED )
For other tables we followed the saim instructions.

Third: Using Microsoft Excel to perform the required statistics from the database as follows:
1. Age with sex and by age group (1: 7):
Comparing the number of patients with the disease according to the age group (1:7) for both sexes.
Note: the age column (A2:A1250) is symbolized as follows; 1-9=1, 10-19=2, 20-29=3, 30-39=4, 40-49=5, 50-59=6, 60 and over=7. The gender column (B2:B1250) is denoted as follows; male = 1 and female = 2.
For infected males according to age groups (1:7), the statistical function was used:
COUNTIFS (A2:A1250,1, B2:B1250,1)
For infected females according to age groups (1:7) the same function was used:
COUNTIFS (A2:A1250,1, B2:B1250,2)
After applying the function to all groups of both sexes, the patients were divided according to age groups and sex was determined in Table (1). For example, people whose ages ranged between 1-9 were coded with the symbol 1, so the number of males was 32 and the females were 28. And the categories from 10-19 were coded 2, so the number of males was 51 and the females were 50. And the categories from 20-29 were coded 3, so the number of males was 205 and the females were 83.

2. Age with the cultural level and according to the age groups for both males and females:
Comparison of age with academic achievement and according to the age group (1:7) for both sexes.
Note: the age column (A2:A1250), the gender column (B2:B1250), the cultural level column (C2:C1250) are denoted as follows: Non-reading = 1, Elementary = 2, Intermediate = 3 ،Preparatory Nursing = 4, Preparatory School = 5, Technical Diploma = 6, Bachelor's = 7, Higher Diploma = 8, Master's and above = 9.
For infected males according to the age groups from (1:7) and according to the cultural level from (1:9), the function was used:
COUNTIFS (A2:A1250,1, B2:B1250,1, C2:C1250,1)
For infected females according to the age groups from (1:7) and according to the cultural level from (1:9), the same function was used:
COUNTIFS (A2:A1250,1, B2:B1250,2, C2:C1250,1)
After applying the function to all groups of both sexes, the patients were divided according to age groups, gender and cultural level were determined in Table (2). For example, people between the ages of 1-9 were coded with the code 1, and the cultural level did not read the code 1, so the number of males was 32, and the females were 28.And those whose level was primary school certificate with code 2, so the number of males were 0, and females were 0, and those whose cultural level was middle with code 3, so the number of males was 0, and the females 0, the cultural level was Preparatory Nursing With code 4, so the number of males was 0, females 0, the cultural level was preparatory, with code 5, so the number of males and females was 0, the cultural level was technical diploma. By code 6, the number of males was 0, and females 0 The cultural level was Bachelor's, by code 7, so the number of males and females was 0, the cultural level was high diploma by code 8, so the number of males and females was 0. The cultural level was master's and above. By code 9, so the number of males and females was 0.

3. Age with type of occupation; Military or civilian:
Comparison of the number of people infected with the disease, whether military or civilian, according to the age group (1:7).
Note: the age column (A2: A1250), the military or civilian column (B2: B1250) is denoted as follows; Military = 1 and civilian = 2
For injured males according to age groups (1:7) military, the function equation was used:

COUNTIFS (A2:A1250,1, B2:B1250,1)
For infected males according to age groups (1:7) civilians, the same function was used:
COUNTIFS (A2:A1250,1, B2:B1250,2)
After applying the function to all groups of both sexes, the sick persons were divided according to age groups and type of occupation (military or civilian) in Table (3). For example, people whose ages ranged between 1-9 were coded with the code 1, military with code 1, so the number of males was 0, and civilian with code 2, so the number of males was 60, and groups from 10-19 were coded 2, military with code 1, so the number of males was 1, and civilian with code 2, so the number of males was 100.

Table 1.- Age with sex (male/female)

| Age | Males | Females |
|---|---|---|
| 1=9-1 | 32 | 28 |
| 2=19-10 | 51 | 50 |
| 3=29-20 | 205 | 83 |
| 4=39-30 | 259 | 84 |
| 5=49-40 | 159 | 66 |
| 6=59-50 | 90 | 55 |
| 7=60< | 49 | 38 |
| | 845 | 404 |

Table 2. Age with cultural level for both sexes

| Age | Male does not have a certificate | Male has primary school certificate | male has middle school certificate | A male with a preparatory nursing certificate | male with a high school diploma | a male with a technical diploma | male with a bachelor's degree | a male with a higher diploma | male with a master's degree or above | female who does not have a certificate | female with a primary school certificate | female with a middle school diploma | a female with a preparatory nursing certificate | female with a high school diploma | female with a technical diploma | female with a bachelor's degree | female with a higher diploma | female with a master's degree or above |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1=9-1 | **32** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **28** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2=19-10 | 1 | 20 | 27 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 27 | 20 | 0 | 3 | 0 | 0 | 0 | 0 |
| 3=29-20 | 0 | 24 | 84 | 45 | 26 | 0 | 26 | 0 | 0 | 1 | 17 | 34 | 11 | 10 | 1 | 1 | 8 | 0 |
| 4=39-30 | 0 | 35 | 79 | 45 | 37 | 1 | 57 | 4 | 1 | 0 | 15 | 18 | 12 | 18 | 2 | 17 | 1 | 1 |
| 5=49-40 | 1 | 33 | 41 | 23 | 14 | 1 | 40 | 4 | 2 | 2 | 20 | 16 | 5 | 11 | 0 | 11 | 1 | 0 |
| 6=59-50 | 1 | 16 | 36 | 10 | 10 | 1 | 10 | 5 | 1 | 1 | 10 | 17 | 10 | 10 | 0 | 6 | 1 | 0 |
| 7=60< | 9 | 12 | 19 | 5 | 1 | 0 | 3 | 0 | 0 | 6 | 6 | 18 | 2 | 2 | 0 | 4 | 0 | 0 |
| | 44 | 140 | 286 | 129 | 90 | 3 | 136 | 13 | 4 | 38 | 95 | 123 | 40 | 54 | 3 | 39 | 11 | 1 |

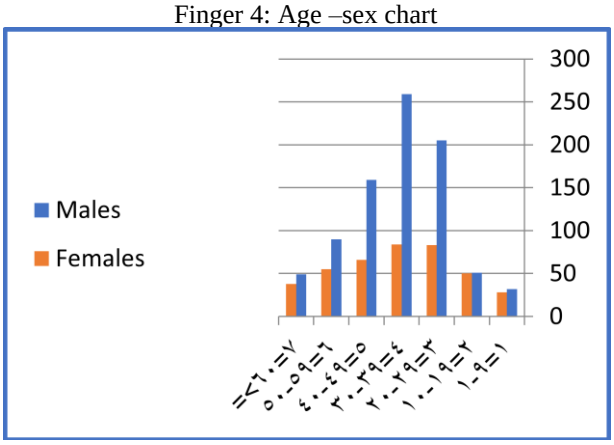
Table **3**. - Age with casualty, military/civilian

| Age | Soldier | Civil |
|---|---|---|
| 1=9-1 | 0 | **60** |
| 2=19-10 | 1 | 100 |
| 3=29-20 | **16** | 272 |
| 4=39-30 | 24 | 319 |
| 5=49-40 | **13** | 212 |
| 6=59-50 | 3 | 142 |
| 7=60< | 0 | 87 |
| | 57 | 1192 |

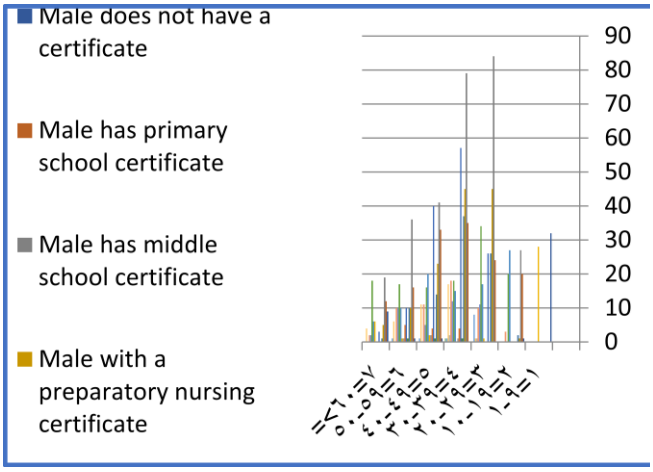
**Results Discussion**

1. To analyze the data of Table (1), a chart was drawn as shown in Figure (4). The results of the data analysis showed the following: The number of injuries among males was distributed according to age, as it was the highest percentage in the age group (30-39) years. This can be explained by the fact that they move a lot and socialize, although this group is healthy and has few diseases common chronic diseases (blood pressure, diabetes mellitus, respiratory system).
2. To analyze the data of Table (2), a chart was drawn as shown in Figure (5). The results of the data analysis showed the following: The number of injured among Intermediate certificate holders and below and nursing certificate holders were more affected than their peers due to the low cultural level for intermediate certificate holders and below and the mixing of nursing certificate holders with visitors in the hospital.
3. To analyze the data of Table (3), a chart was drawn as shown in Figure (6). The results of the data analysis showed the following: The number of civilian casualties is much higher than that of members of the security forces, due to the presence of high discipline and adherence to instructions among that group compared to civilians from the patient community. The highest injuries were for the age group (30-39) years.

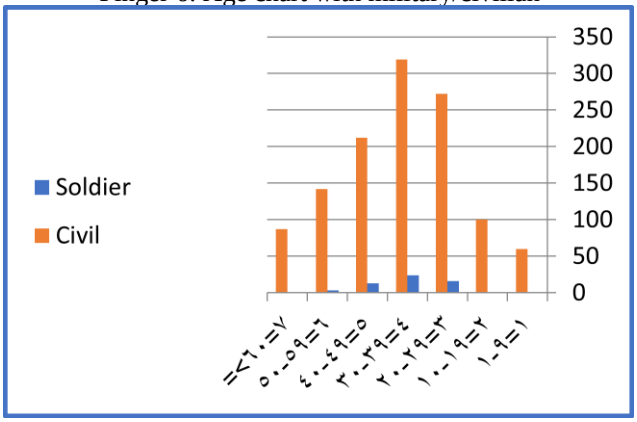
Finger 4: Age –sex chart




Finger 5: Age chart with cultural level for males and females




Finger 6: Age chart with military/civilian



**Conclusion**

Studying and analyzing cases of people infected with the Covid-19 epidemic, is of great importance after the outbreak of the disease all over the world. An analysis of the study data provides away to reduce the number of infected people by explaining how the epidemic spread within the Mosul community. In this study, real data was collected and analyzed on people infected with the Covid-19 epidemic in the city of Mosul for 1249 people, and then an integrated database system for patients was built. Where the patient's form was accredited in the city's hospitals. After that, statistical methods were used to extract knowledge from the data retrieved from the database. In this research, the main factors that control the issue of the spread of the Covid-19 epidemic in the city of Mosul were diagnosed by presenting a proposed model that simulates the social conditions of the city. The research presented the possible associations between the incidence disease and the factors and scales that have been identified, which are directly proportional in some traits and inversely proportional in other traits. Based on this, it can be said that there are interactive means that can be worked on in order to reduce infections with this epidemic.

Through the results and conclusions, the future work can be summarized as follows:

1. Applying the program to other real data for other governorates and countries.
2. Developing the program to include all governorates of Iraq.
3. Uploading the program on the Internet, so that it can be used in Iraqi health institutions.

**Recommendations**

- ✓ Stay at least 6 feet (2 meters) away from anyone outside your home.
- ✓ Avoid crowding and poorly ventilated enclosed spaces.
- ✓ Hands should be washed frequently with soap and water, provided that the washing period is not less than 20 seconds. If you are not able to wash your hands, use a hand sanitizer that contains at least 60% alcohol.
- ✓ Put a mask in public places, especially when there is difficulty in social distancing.
- ✓ Cover your mouth and nose with your elbow or a tissue when coughing or diving. Dispose of the tissue after using it. And wash your hands immediately.
- ✓ Avoid touching eyes, nose and mouth.
- ✓ Frequently touched surfaces should be cleaned daily.
- ✓ If you are overweight or obese, be sure to lose weight by following a healthy diet and continuing to perform physical activities.

.

**References**


1. 1. K. Rochelle and W. Venexia et al, "Association of COVID-19 With Major Arterial and Venous Thrombotic Diseases: A Population- Wide Cohort Study of 48 Million Adults in England and Wales", Published by American Heart Association ,Online ISSN: 1524-4539 , Print ISSN: 0009-7322, Circulation 146(12):892-906,2022
2. 2. A. Bleibtreu and M.Bertineb, et al,"Focus on Middle East respiratory syndrome coronavirus (MERS-CoV)Le point sur le MERS-Cov", Medecine et Maladies Infectieuses ,Volume 50, pages 243-251,2020.
3. 3. W. Katarzyna and K. Kakareko, "The Impact of Cardiovascular Risk Factors on the Course of COVID-19", Journal of Clinical Medicine 11(8): 2250, 2022.
4. 4. A. Abbood and "Early Diagnosis COVID_19 by Computed Tomography Scan",Journal of medical &pharmaceutical Sciences Volume (5), Issue (2):30 P: 35 -49. International Sakharov Environmental Institute of Belarusian State University (ISEI BSU) || Belarus Minsk ,2021.
5. 5. B. J Cowling and G. M Leung ," Epidemiological research priorities for public health control of the ongoing global novel coronavirus (2019-nCoV)", 25, Issue 6, 13 ,2020.
6. 6. Coronavirus disease (COVID-19). World Health Organization (WHO) [Internet], Available from: https://www.who.int/en/news-room/q-a-detail/coronavirus-disease-covid-19 ,2021.

7. 7. Yang and Y Zheng and X Gou, et al," Prevalence of comorbidities and its effects in patients infected with SARS-CoV-2: a systematic review and meta-analysis", International Journal of Infectious Diseases.;94:91-95, 2020.
8. 8. I.J. Nascimento and N. Cacic and H.Abdulazeem , et al,"Novel Coronavirus Infection (COVID-19) in Humans :A Scoping Review and Meta-Analysis ", Journal of Clinical Medicine., 9:941 , 2020.
9. 9. A. Emami and F. Javanmardi and N.Pirbonyeh , et al," Prevalence of underlying diseases in hospitalized patients with COVID-19: A systematic review and meta-analysis", Archives of Academic Emergency Medicine;8(1):e35 , 2020.
10. 10. R. Parveen and N. Sehar and R. Bajpai, et al," Association of diabetes and hypertension with disease severity in COVID-19 patients: A systematic literature review and exploratory meta-analysis"., Diabetes Research and Clinical Practice. 2020 Aug 1; 166:108295, 2020.
11. 11. Y. Hu and J. Sun and Z. Dai, et al," Prevalence and severity of corona virus disease 2019 (COVID-19): A systematic review and meta-analysis",Journal of Clinical Virology, 14:104371, 2020.
12. 12. K. Mackey and V. King and S. Gurley, et al," Risks and Impact of Angiotensin-Converting Enzyme Inhibitors or Angiotensin-Receptor Blockers on SARS-CoV-2 Infection in Adults: A Living Systematic Review", Annals of Internal Medicine.;173(3):195-203 , 2020.
13. 13. C.Pirola and S. Sookoian ,"Estimation of RAAS-Inhibitor effect on the COVID-19 outcome: A Meta-analysis.", Journal of Infection. 81(2);276-81,2020.
14. 14. R. Pranata R and Lim MA, Huang I, et al," Hypertension is associated with increased mortality and severity of disease in COVID-19 pneumonia: A systematic review, meta-analysis and meta-regression", Journal of the renin-angiotensin-aldosterone system: JRAAS. Apr-Jun;21(2) , 2020.
15. 15. W. Tian and W. Jiang and J. Yao, et al, "Predictors of mortality in hospitalized COVID-19 patients: A systematic review and meta-analysis.", Journal of Medical Virology.;92(10):1875-83, 2020.
16. 16. M. Usman and T.Siddiqi and M.Khan, et al," A Meta-Analysis of the Relationship Between Renin-Angiotensin-Aldosterone System Inhibitors and COVID-19", American Journal of Cardiology 2:130;159-61, 2020.
17. 17. J. Zhang and J .Wu and X. Sun, et al, "Association of hypertension with the severity and fatality of SARS-CoV-2 infection: A meta-analysis.", Epidemiology & Infection.;148:e106,2020.


# استخلاص المؤشرات التحليلية من قاعدة بيانات مرضى كوفيد 19


**هيفاء حازم الطائي و عمار ظاهر ياسين طه**

قسم اللغة العربية، كلية التربية للعلوم الإنسانية، جامعة الموصل، الموصل، العراق

قسم علوم الحاسوب، كلية علوم الحاسوب والرياضيات، جامعة الموصل العراق



**الخلاصة**

تعد دراسة حالات المصابين بوباء كوفيد 19 ذات اهمية عالية لكون العمل على تحليل بيانات تلك الدراسة تقدم كشفا لأسلوب تحجيم اعداد المعرضين للإصابة من خلال بيان مسار انتشار الوباء داخل مكونات المجتمع. في هذا البحث تم جمع بيانات حقيقية عن المصابين بوباء كوفيد 19 في مدينة الموصل للفترة من 2020/11/1 الى 2021/4/1. حيث تم اعتماد مفردات استمارة المريض (الراقد/ المراجع) في مستشفيات المدينة والتي تحوي على واقع حالي للحالة المرضية مضافا اليها المسيرة التاريخية للمصاب من الناحية الصحية. تم تحليل هذه البيانات وتبويبها لبناء نظام قاعدة بيانات SQL Server لخزن بيانات المرضى التي جمعت لأجل تحليلها من خلال برمجيات حاسوبية مساعدة (مثل Microsoft Excel). الهدف الرئيس

للبحث هو تشخيص العوامل الرئيسة التي تتحكم بموضوع انتشار وباء كوافيد19 من خلال بناء نموذج يحاكي كافة المكونات الاجتماعية لمدينة الموصل من حيث المستوى المعاشي والثقافي والانحدار الطبقي وباقي العوامل التي تصف مجتمع الموصل ومن ثم يتم عكس البيانات التي يتم جمعها من المراكز الصحية على ذلك النموذج ليتم وضع علاقات رياضية على ذلك النموذج تبين مدى تأثير تلك الصفات من خلال العمل على اجراء تغييرات على تلك العوامل ضمن المدى المسموح والذي ينطبق عمليا على حقائق تلك المتغيرات بالاعتماد على البيانات المتوفرة. من خلال الدراسة والتحليل للبيانات تبين ان العلاقات بين الاصابة بالوباء والعوامل التي تم تحديدها في جمع البيانات تتناسب طرديا في بعض الصفات وعكسيا في صفات اخرى؛ عليه تكون هناك وسائل عمليه يمكن اتخاذها لأجل الحد من الاصابات بهذا الوباء.

الكلمات المفتاحية: قاعدة بيانات الامراض، كوفايد-19،المؤشر التحليلي