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Spatial Distribution of Deaths from Viral Hepatitis in Babylon Province in 2010-2020

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Abstract

This research aims to know the spatial distribution of deaths from hepatitis C, a type in Babil Governorate, for the purpose of giving a clear picture of the geographical reality of the disease, since the pathological phenomenon is a geographical phenomenon, and the place has a great impact on the variation of its existence. Knowing the places where the disease is concentrated and spread, and then the emergence and spread of the disease can be interpreted spatially, because the place contains natural and human factors that help provide factors for the emergence and spread of the disease. During the study of spatial and temporal variance, the highest seasonal percentage of deaths of types A and E was recorded during the summer months, while the highest rate of viral hepatitis disease type B and type C was recorded during the autumn in October. As for the human factors for people with hepatitis, it was found that the disease affects both sexes and appears in all age groups.

Keywords

spatial variability, disease, hepatitis, epidemic , virus , infection

Abstract

This research aims to know the spatial distribution of hepatitis C infections, a type in Babylon Governorate, for the purpose of giving a clear picture of the geographical reality of the disease, since the pathological phenomenon is a geographical phenomenon, and the place has a great impact on the variation of its existence. Knowing the places of concentration and spread of the disease, after which the emergence and spread of the

disease can be explained spatially, because the place contains natural and human factors that help provide factors for the emergence and spread of the disease. he epidemiological type of viral hepatitis differs in the province of Babylon during the study period, as it did not appear at a uniform pace. Through the study of spatial and temporal variation, the highest seasonal rate of infections and deaths of types A and E was recorded during the summer months, while the highest seasonal rate of infections and deaths of types A and E was recorded The highest incidence of viral hepatitis type B and type C occurred during the autumn season in October. As for the human factors for people with hepatitis, it was found that the disease affects both sexes and appears in all age groups, and there is a discrepancy in the rates of injuries and deaths for both sexes. With the high percentage of males with all types of disease.

First: the introduction

Health and disease are an important field for many sciences, including geography, as this is evident in the rationale for medical geography, which is a branch of human geography that deals with the study of human health problems in different environments. Geography closely, and direct awareness of environmental problems and the practical solutions that may result from many of those problems.

The subject under study is included within medical geography, which is concerned with detecting pathological phenomena and studying the spatial relationships of environmental conditions related to human health and correcting the health reality from a geographical perspective. Or human beings, as humans are exposed to many and varied diseases, which represents a real and big problem for the population in the world because it is a case of abnormal change in building the function of any part of the human body.

Babil Governorate is one of the governorates that contributed to the eradication of diseases, including viral hepatitis, but this does not prevent the emergence of the disease and its continuous increase day after day due to environmental pollution and its problems, as well as the deteriorating economic, social and health conditions that are the outcome of the wars the country has gone through. And the accompanying and subsequent economic conditions and the resulting deterioration of the environment and the low level of public services.

Second : The research problem

Is there a spatial variation for hepatitis C deaths in Babylon province?

Third: The hypothesis of the study

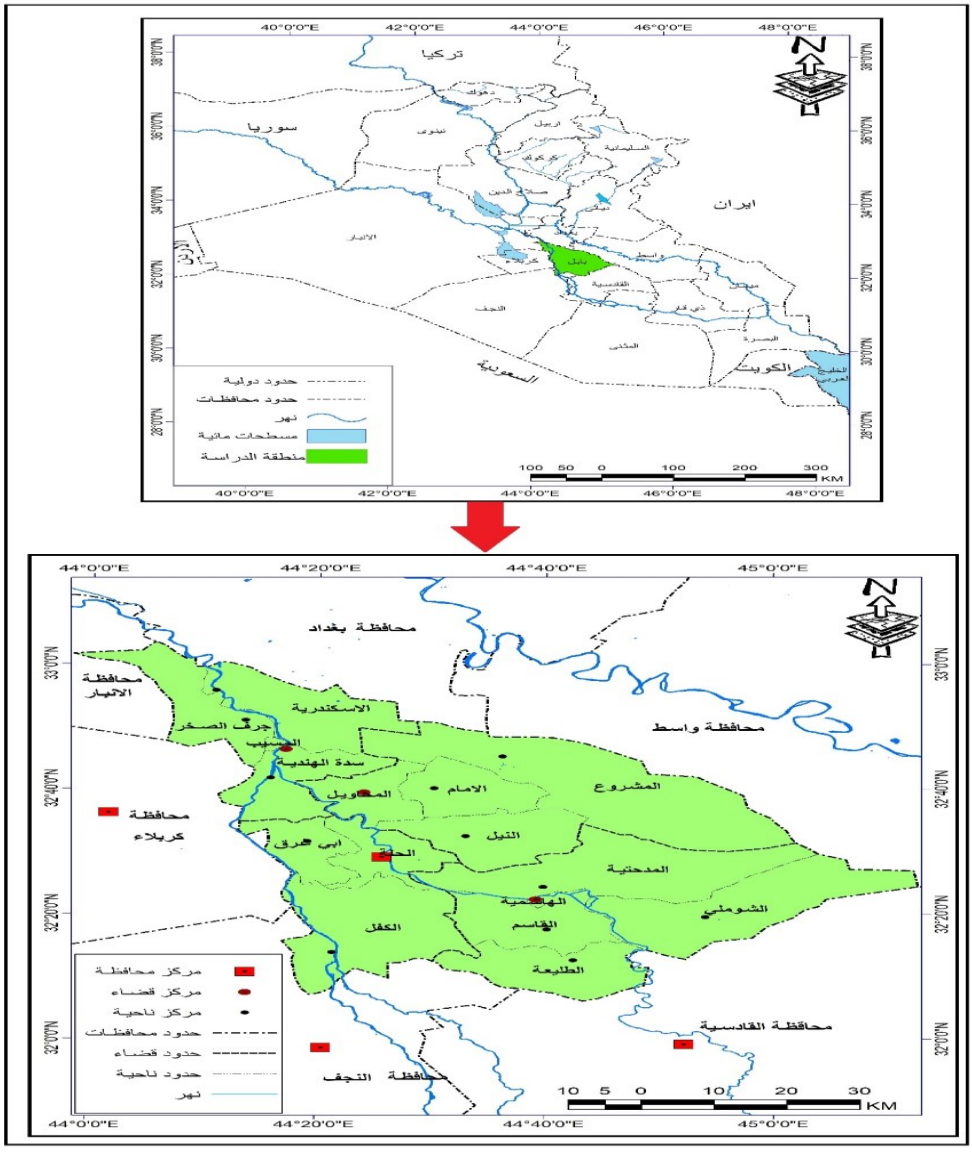
There is spatial variation in hepatitis C deaths in Babylon governorate from 2010-2020.

Fourth: Research limits

1- Spatial boundaries

The spatial boundaries of the study are represented in the province of Babylon, which is astronomically located between two latitudes -06□ 32-00-03-33 □ to the north, and longitudes 15-58-40-12-45 to □the east. As the area of the governorate reached 5119 km 2, and the governorate consists of 16 administrative units, and it is one of the governorates of the Middle Euphrates, and it is located in the middle of Iraq, as it is bordered on the north by Baghdad Governorate, and on the east by Wasit Governorate, and on the south side it is bordered by the Najaf and Qadisiyah governorates, while it is bordered by From the west, each of the provinces of Anbar and Karbala, as shown in Map No. 1.

Map 1. the location of Babil Governorate in Iraq



Source: The researcher, relying on the Republic of Iraq, Ministry of Water Resources, General Authority for Survey, Map Production Department, Iraq Administrative Map, 2020, at a scale of 1/500,000

2- Temporal limits

As for the temporal limits of the study, it was represented by the year 20 1 0 and according to the data represented by the number of injuries and deaths in Babil Governorate, which were obtained from the Ministry of Health and the Babil Health Department, in addition to the field study represented by the questionnaire that was distributed to all administrative units of urban and rural areas, as well as Personal interviews conducted with those concerned with the subject of the study.

Fifth: Study objectives

1- Identify the spatial variation of deaths from hepatitis, its types, and the most important age groups affected by the population.

2- Identify deaths among both males and females.

3- Highlighting the variance of mortality due to hepatitis C disease in the study area and its variance between males and females.

Sixth : study methodology

Seventh: Research Structure

The spatial distribution of deaths recorded with hepatitis C in Babil Governorate from 2010-2020. It was distributed into two sections. The first section included types of viral hepatitis. The second section dealt with the spatial distribution of deaths recorded with viral hepatitis in Babil Governorate 2020. In addition to conclusions, recommendations and a list Sources .

1- The first topic

Symptoms of viral hepatitis

Types of viral hepatitis

The liver has been exposed to many viral infections that affect its functions in one way or another and thus affect the human being and his health, as medical information indicates, the most common of which is a group of viruses that gray in what is known as viral liver endings

This group includes hepatitis A virus , hepatitis B virus, hepatitis C virus, hepatitis D virus, hepatitis E virus, hepatitis H virus , and hepatitis virus G The group expects the alphabetic letters denoting the current types of viral hepatitis to increase in number according to the identification of new individuals for these viruses

The following paragraphs include a review of the types of viral hepatitis and associated viruses

1- Hepatitis C type A

This disease is known as infectious hepatitis, because it is transmitted either through material or food contaminated with the virus, and it is a simple disease from which the patient usually recovers without any complications. The incubation period for this disease is about two to six weeks. This virus is generally spread in hot countries.

2- Hepatitis C type B

This type of disease is known as serous hepatitis because it is transmitted through blood serums contaminated with virus B , as this virus is considered one of the most common types of viruses among humans, and it also constitutes a global health problem as it comes second after tobacco as a cause of cancer, in addition to In addition, hepatitis B virus is considered more contagious than HIV, which causes AIDS, as this virus destroys liver cells and causes cirrhosis and liver cancer, so this disease is considered one of the most dangerous diseases that threaten humans and public health .

3- Hepatitis C _ _

It occurs to the majority of the disease in the youth stage, and this type of inflammation differs from other hepatitis infections, as the virus that causes it is not exposed to significant resistance from the patient's immune system, so it is often described as a silent epidemic because it remains relatively unknown . It is usually diagnosed in its chronic stages when it causes severe liver disease, and it is one of the most contagious and most common types of HIV , the virus that causes AIDS. liver damage

4- Hepatitis C virus type D

It is caused by the virus D , also called the delta virus, and this virus is considered strange as it causes hepatitis only in patients with hepatitis B hepatitis B , as it cannot multiply except in the presence of another virus, and it is possible that chronic and potential hepatitis B turns into hepatitis Severe, hepato-destroying, causing type D inflammation

5- Hepatitis C type E

It is considered one of the types of viral hepatitis, and it is also considered an epidemic disease associated with water pollution. Hepatitis E E has caused epidemic disasters in enemy countries such as the Soviet Union and in refugee communities in eastern Sudan and Somalia. This disease was discovered in 1980, i.e. Recently, studies and research on it are still somewhat scarce, and this type of disease is widespread in a number of Arab countries such as Egypt and Saudi Arabia

6- Hepatitis C type G

It is considered an epidemic disease and is called a silent killer. It is diagnosed in the chronic stage when it causes severe liver disease. This type is more contagious and more common than the AIDS virus HIV. Infection with this disease takes 15-30 years for the disease to develop in the liver before scars or scars appear on the patient. Cancer cells and this virus was discovered in 1996, but there is little information available about it and research is still ongoing

of hepatitis A

The patient goes through early signs and signs in the first days of the disease, including malaise and distress, loss of appetite, nausea, vomiting, diarrhea, heat, itching in the body and pain in the mouth of the stomach or the right side of the abdomen, and these symptoms may continue for several months, and may not appear in the infected person and he is a carrier . Then jaundice appears, and its signs are that the color of the urine becomes dark and the stool is light. The jaundice stage usually ends within weeks, but it causes fatigue and depression for a period

Symptoms of hepatitis B type

Symptoms begin to appear 60-120 days after infection, and symptoms appear only on infected adults. As for infants and children, symptoms are often less common, and some infected people become very ill after infection with the virus. Symptoms include jaundice, i.e. yellowing of the skin and eyes, and urine turning color. The stool becomes dark, and the stool turns light. The carrier of this virus may experience loss of appetite, general weakness, bowels, vomiting, fever, headache, and joint pain. The infected person may also experience a rash or itching and pain in the upper right part of the abdomen, and he cannot tolerate fatty food and cigarettes

Symptoms of hepatitis C infection

There are many symptoms that a person infected with the hepatitis C virus can feel, and we can summarize them in the following points: Feeling tired and exhausted. Ascites fluid collection in the abdomen. Jaundice and its symptoms include yellowing of the urine, a change in the color of the stool to a light color, and yellowing of the skin. Also, the person infected with this type of disease may not show any of the previous symptoms, and the patient may discover it by chance when conducting routine examinations. A symptom of this type of disease is also a rise in body temperature

of Hepatitis D

The carrier of this type of virus is usually free from diseases, so the disease

is transmitted to healthy people more than others, and its symptoms, if any, are somewhat similar to the symptoms of hepatitis B , represented in yellowing of the skin and eyes, urine turning into a dark color, and stools into a light color. The patient may feel joint pain, loss of appetite, fatigue, vomiting, fever, headache and other aforementioned symptoms

Symptoms of hepatitis E infection

E and type A hepatitis, as their treatment causes acute hepatitis that usually goes away spontaneously. Body temperature, and inflammation can lead to the killing of hepatocytes. Hepatic failure, death occurs, especially in pregnant women

Symptoms of hepatitis C infection

Its incidence is estimated at 0.3 or three cases in every 1000 cases of viral hepatitis, and it is believed that it causes 900 to 2000 cases of infection per year, most of which are asymptomatic, and that about 90% to 100% of those infected with it become chronic, but it rarely It causes a severe chronic disease compared to other species

2- second topic

Spatial distribution of viral hepatitis deaths in Babylon province

1- The spatial distribution of type A deaths

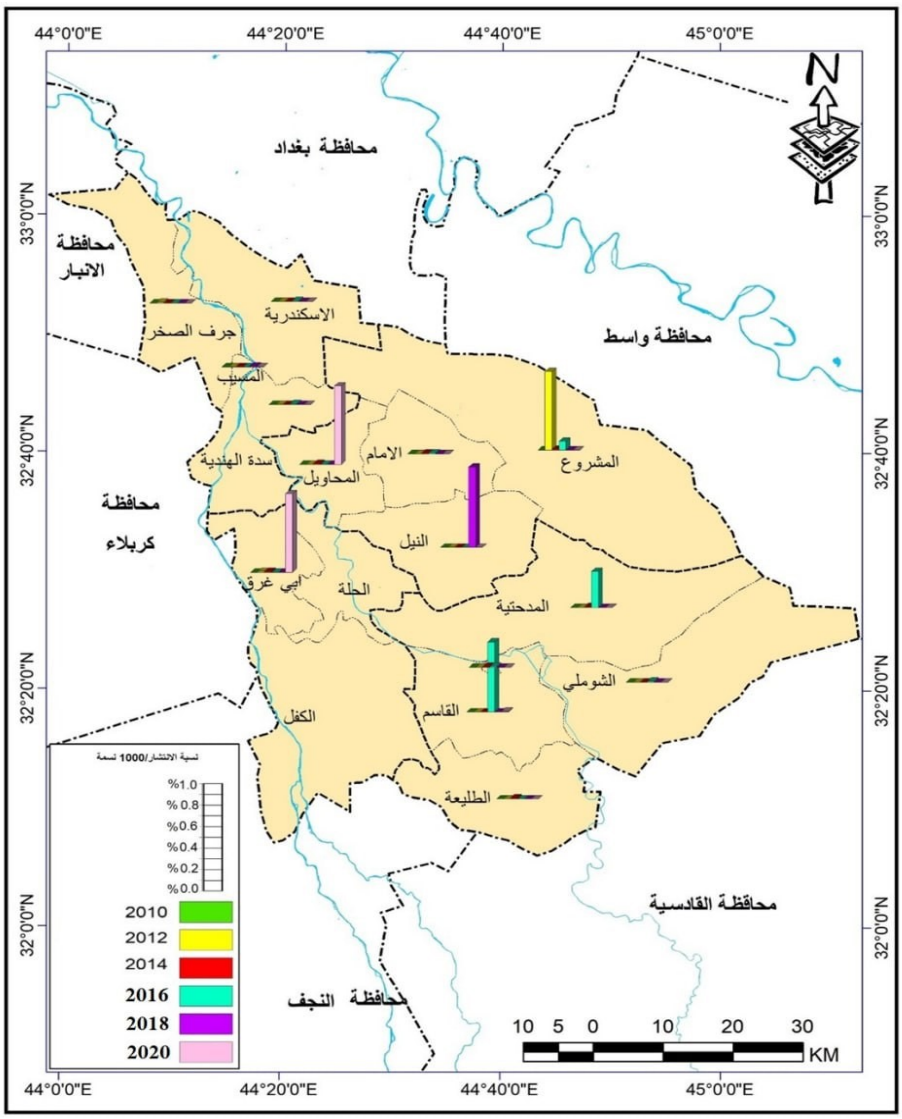
It is clear from the data of Table 1 that type A deaths vary between the study regions. In the year 2010, the prevalence rate was absent in all governorates, while a low prevalence rate was recorded in the year 2012 in the regions of Abi Ghark - The project - Jurf Al-Sakhar at a rate of 0.01 death cases per 1000 people of the population. A low prevalence rate was recorded in the year 2014 in the regions of Abi Ghark - Al- Mahaweel - Al-Mashroua - Nile - Al-Qasim - Jurf Al-Sakher at a rate of 0.01 death case per 1000 of the population. With regard to the spatial distribution of deaths of type A in the year 2016 , the vanguard areas came in the first place with a prevalence rate of 0.02 and a spatial value that exceeds the general average by 2.53 standard degrees. Followed by Al-Mashrou' – Al-Nil – Al-Qasim – Al-Musayyib District – Jurf Al-Sakhr in the second place, with a prevalence rate of 0.01 in the year 2016, which was absent in all regions except for Al-Tali'ah areas, which represented the first place, and Al-Qasim ranked second, with a low prevalence rate of 0.01 . 0.01 - 0.003 and with spatial values above the general average by -3.83, -0.94 standard scores for each of them, respectively, as shown in the map 12 . As for the case of the spatial distribution for the year 2018 , it is clear that the prevalence rate also disappeared in all governorates except Abi Ghark - Al- Mahaweel - Al-Qasim, with prevalence rates of 0.01 and a spatial value of 3.17 a standard degree above the general average.

Table 1 Prevalence rate and standard degree of mortality from viral hepatitis A disease in Babil Governorate from 2010-2020

the years	year 2010		Year 2012		year 2014		Year 2016		year 2018		year 2020	
Regions	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative
Hilla district	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00
sponsor	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00
my father drowned	0	0	0.01	-0.09	0.01	0	0	0.00	0	0.00	0.91	1.53
attempts	0	0	0	0	0.01	0	0	0.00	0	0.00	0.91	1.53
The project	0	0	0.91	1.64	0.01	0	0.1	0.08	0	0.00	0	0.00
Imam district	0	0	0	0	0.01	0	0.01	-0.43	0	0.00	0	0.00
Nile	0	0	0	0	0	0	0	0.00	0.93	1.34	0	0.00
Hashemite district	0	0	0	0	0.01	0	0.01	-0.43	0	0.00	0	0.00
denominator	0	0	0	0	0	0	0.81	0.00	0	0.00	0.01	-0.20
Medhatia	0	0	0	0	0.01	0	0.42	1.88	0	0.00	0	0.00
Shomali	0	0	0	0	0	0	0.01	-0.43	0	0.00	0	0.00
vanguard	0	0	0	0	0.01	0	0	0.00	0	0.00	0	0.00
Musayyib district	0	0	0	0	0	0	0	0.00	0.01	-0.07	0	0.00
Hindi	0	0	0	0	0	0	0.01	0.00	0	0.00	0	0.00
rock cliff	0	0	0.01	-0.09	0	0	0	0.00	0	0.00	0	0.00
Alexandria	0	0	0	0	0	0	0.01	0.00	0	0.00	0	0.00
the average	0		0.06		0.01		0.09		0.06		0.11	
standard deviation	0		0.52		0.01		0.16		0.65		0.52	

The source of the researcher's work, based on the data of the Babylon Health Department

Map 2. Spatial distribution of mortality A in Babylon Province 2010-2020



Source: Based on Table 44

First: The levels of the standard degree of death type A according to the administrative units.

level one :- Units whose standard score ranges from +0.50 or more for type A .

It can be seen from Table 1 and Map 2 that this level includes each district Abi Ghark / Al-Mahaweel , as its standard score is 1.53/1.53 for each of them, respectively, due to the concentration of the population and the increase in their number.

Second Level :- Administrative units whose standard score ranges between 0.01/0.49 for type A , there are no administrative units within this level.

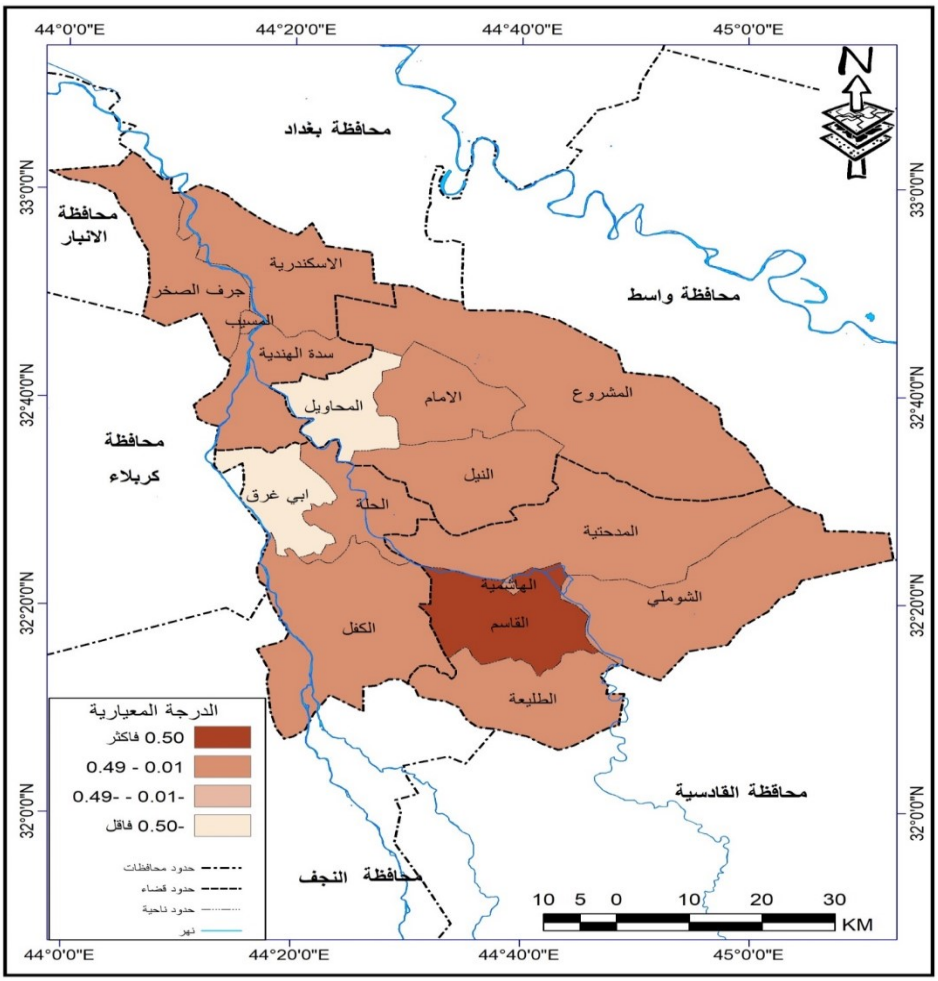
The third level :- Administrative units whose standard score ranges between -0.50 / less for type A . This level includes each of Al-Qasim, whose standard score reached -0.20.

The fourth level: Administrative units whose standard score ranges between -0.01 / - 0.49 for type A . There are no administrative units within this level.

Table Prevalence rate and standard degree of death from viral hepatitis in Babylon Governorate from 2010-2020

Administrative units	Class type standardA	Class type standardB	Class type standardC	Class standardE type
Hilla district	0.00	2.64	1.37	0
sponsor	0.00	0.00	0.00	0
my father drowned	1.53	-0.08	-0.61	0
attempts	1.53	0.00	-0.61	0
The project	0.00	1.04	-0.61	0
Imam district	0.00	0.00	-0.61	0.01
Nile	0.00	0.00	-0.61	0
Hashemite district	0.00	1.04	-0.61	0
denominator	-0.20	-0.08	1.35	0.01
Medhatia	0.00	0.00	0.00	0.01
Shomali	0.00	0.00	1.35	0.01
vanguard	0.00	0.00	1.37	0.01
Musayyib district	0.00	1.04	-0.61	0
Hindi	0.00	0.00	1.37	0
rock cliff	0.00	0.00	-0.61	0
Alexandria	0.00	0.00	0.00	0
the average	0.11	0.01	0.30	
standard deviation	0.52	0.01	0.46	

Standard degree of mortality from viral hepatitis A disease in Babylon province



Spatial distribution of type B deaths

The prevalence rates of viral hepatitis type B vary between the regions of the governorate in the study area. We find from Table 2 that all the study areas were devoid of prevalence rates in the year 2010, see map 3 , while a low prevalence rate was recorded in 2012 , as it came in the first place Hilla district - Al- Mahaweel - Al-Mashrou' - and Al-Hashimiyya district with a prevalence rate of 0.01 and a spatial value that exceeds the general average limit by 1.77 a standard score for each of them, followed by Abu Gharq and Al-Qasim in the second place, with a prevalence rate It reached 0.003, with a spatial value of 0.11, a standard score above the general average for each of them, while the prevalence rate was absent in the rest of the governorate. The highest prevalence rate of deaths of the aforementioned pattern was recorded in the year 2014 in the regions of Al-Mahaweel , as it ranked first with a prevalence rate of 0.02 with a spatial value of 2.81 a standard degree above the general rate, and came in the second rank Al-Kifl - Al-Imam neighborhood - Al- Medhatiya . Al-Musayyib district with a prevalence rate of 0.01 and spatial values above the general average by 1.10 a standard degree for each of them, while low prevalence rates were recorded with spatial values falling within the last rank of 0.09 , -0.44 a standard degree below the general average in Abiy. Ghark and Al-Qasim while the rest of the regions were devoid of deaths. In the year 2016 , we find that Hilla district ranked first, followed by the regions of Al-Musayyib district ranked second because of the spread of this pattern, as it reached 0.03-0.02 and spatial values above the general average by 2.22-1.75 a standard degree for each of them, respectively. While Abi Ghark - Al-Mahaweel - Al-Hindiyya - Alexandria ranked third with a prevalence rate of 0.01 and with spatial values above the general average by 0.58 a standard degree for each of them, as it was recorded in Al-Qasim regions, with a prevalence rate with a spatial value that ranked last and amounted to -0.47 a standard score below the average, while the prevalence rate was absent in the rest of the study regions, as it is clear to us from the data of Table 45 that the spatial distribution of type B deaths in the year 2018 varied between regions, as the highest rate was recorded The prevalence in the attempts reached 0.02, and thus it ranked first with a spatial value of 0.88 , a standard score above the general average. It was followed in the second place by Hilla District - Al-Mashrou' - Al-Imam District - Al-Hashimiyya District - Al-Hindiya with a prevalence rate of 0.01 and a spatial value that exceeds the general average by 3.53 standard degrees for each, while the prevalence of type B deaths decreased in Al-Qasim. With a spatial value below the general average, it falls within the last rank, and its value was -0.11 as a standard score, while the prevalence rate was absent in the rest of the study area.

The spatial distribution of type B deaths mentioned in the year 20/20 shows that the highest prevalence rate was recorded in Hilla district and reached 0.02 . - Al-Hashimiyya district - Al-Musayyib district with a prevalence rate of 0.01 and a spatial value of 1.19 a standard degree above the general average for each of them, while Alexandria ranked third with a low prevalence rate of 0.004 and a spatial value of 0.12 a standard degree above the general average. In the

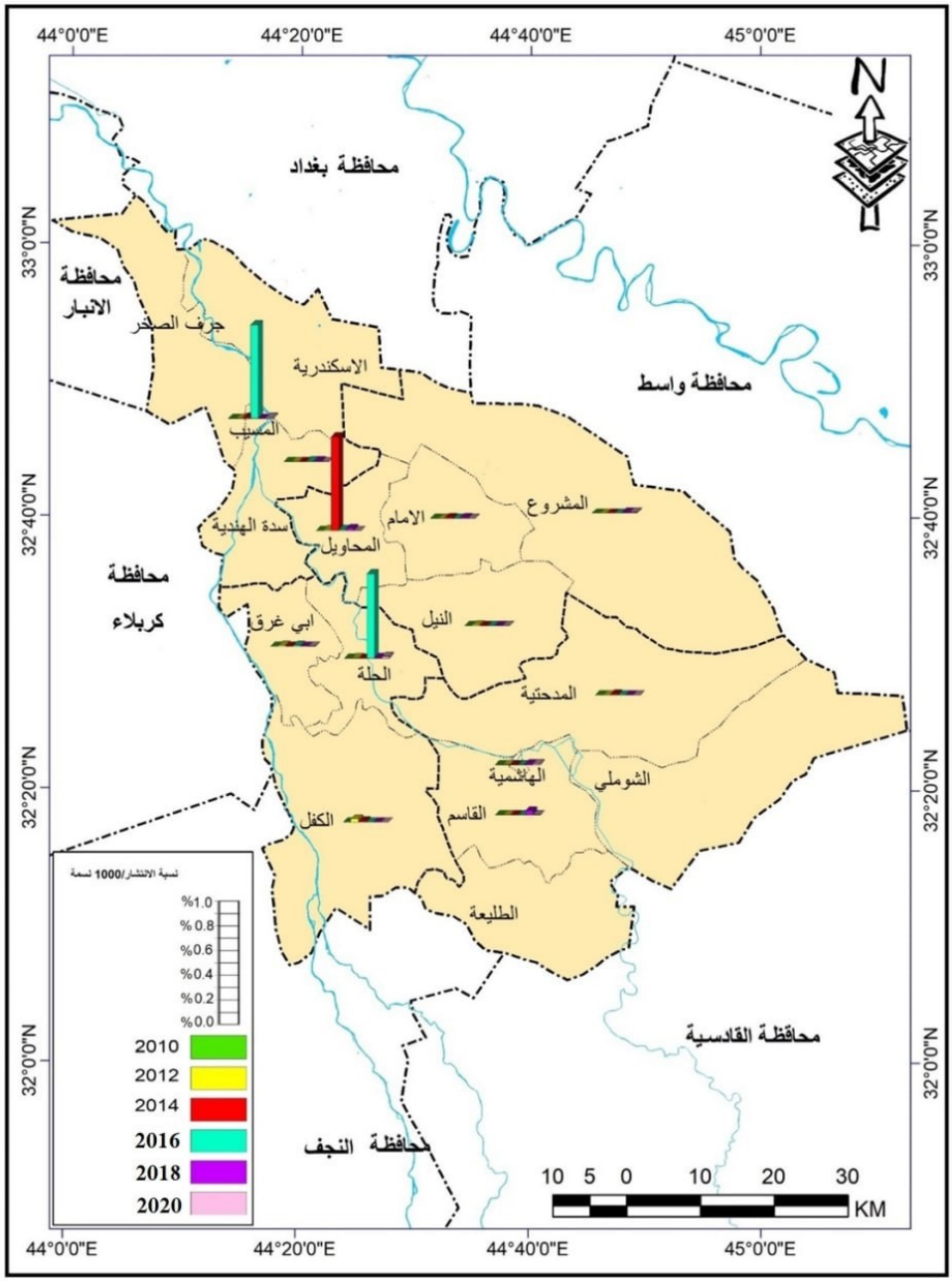
prevalence rate below the general average was recorded in the regions Abi Ghark Al-Qasim, to be among the last rank and with a spatial value below the general average by -0.06 a standard degree, and there was no percentage

Schedule 2. of mortality from viral hepatitis B disease in Babylon Governorate from 2010-2020

the years	year 2010		Year 2012		year 2014		Year 2016		year 2018		year 2020	
Regions	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative
Hilla district	0	0	0.01	0.59	0	0.00	0.83	1.60	0.01	0.24	0.02	2.64
sponsor	0	0	0.03	2.77	0.01	-0.15	0	0.00	0	0.00	0	0.00
my father drowned	0	0	0.01	0.59	0.003	-0.17	0.01	-0.23	0	0.00	0.003	-0.08
attempts	0	0	0.01	0.59	0.92	2.49	0.01	-0.23	0.02	1.01	0	0.00
The project	0	0	0	0.00	0	0.00	0	0.00	0.01	0.00	0.01	1.04
Imam district	0	0	0	0.00	0.01	-0.15	0	0.00	0.01	0.00	0	0.00
Nile	0	0	0.01	0.59	0	0.00	0	0.00	0	0.00	0	0.00
Hashemite district	0	0	0.003	-0.17	0	0.00	0	0.00	0.01	0.24	0.01	1.04
denominator	0	0	0	0.00	0.001	-0.17	0.001	-0.25	0.04	2.54	0.003	-0.08
Medhatia	0	0	0	0.00	0.01	-0.15	0	0.00	0	0.00	0	0.00
Shomali	0	0	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
vanguard	0	0	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Musayyib district	0	0	0	0.00	0.01	-0.15	0.92	1.80	0	0.00	0.01	1.04
Hindi	0	0	0	0.00	0	0.00	0.01	-0.23	0.01	0.24	0	0.00
rock cliff	0	0	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Alexandria	0	0	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
the average	0		0.01		0.06		0.11		0.01		0.01	
standard deviation			0.01		0.34		0.45		0.01		0.01	

Source: The researcher's work based on the data of the Babylon Health Department

Map 3. Spatial distribution of type B deaths in Babylon Governorate 2010-2020



Source: Based on Table 2

Second: Levels of the standard degree of type B deaths according to administrative units

The first level: administrative units whose standard score ranges from 0.50 / or more to type B

It can be seen from Table 2 and Map 3 that this level includes each of Hilla district, as its standard score reached 2.64.

Second Level :- Administrative units whose standard score ranges from

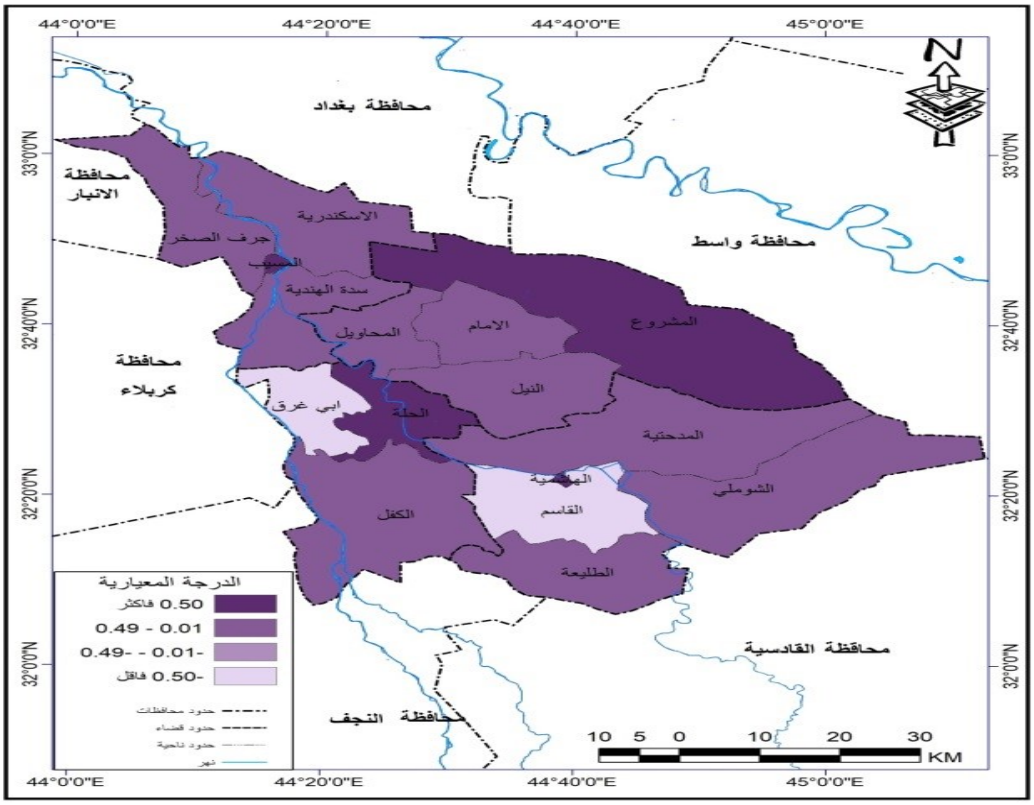
0.01 / 0.49 for type B. This level includes the project / Musayyib district with a standard score of 1.04 / 1.04 for each of them, respectively**.**

The third level :- Administrative units whose standard score ranges from 0-50 , or less for type B

There are no administrative units within this level

fourth level :- Administrative units whose standard score ranges from -0.01 to -0.49 for type B . This level includes each of Abu Gharq - Al-Qasim with a standard score of -0.08 and -0.08.

Standard degree of mortality from viral hepatitis B disease in Babylon province



Spatial distribution of type C deaths

The spatial distribution of C deaths varies in the study area, as it is clear from the data of Table 3 and Map 4 that the prevalence rates were zero in all regions of the governorate in the year 2010, while low prevalence rates were recorded in 2012 in Al-Tali'a, as it reached 0.01 death case per 1,000 of the population, with a spatial value that exceeds the general rate limit by an amount 4.00 as a standard score, while the prevalence rate was absent in the rest of the study area. As for in general 2014 We find that the highest prevalence rate recorded in Al-Imam neighborhood - Al-Qasim - Al- Medhatiyah district - Al-Musayyib district amounted to 0.02, as the first place was taken with a spatial value of 1.63 a standard degree above the general average for each of them, followed by the second place Al- Mahaweel - Al Hashemite District - Alexandria with a prevalence rate of 0.01 and a spatial value above the general average by 0.46 a standard score

for each of them, while the rest of the governorate was devoid of prevalence rates of type C deaths. Al-Hindiya district ranked first among the study areas with the prevalence of C for the year 2016 , as it reached 0.02 with a spatial value above the general average by 2.66 standard degrees, followed by Al- Mahaweel - Nile - Al-Qasim - Medhatia - Alexandria with a prevalence rate of 0.01 and a spatial value of 0.99 degrees. Standard above the general average for each of them, while a low prevalence rate with a spatial value below the general average was recorded in Abi Ghark, and it was -0.81 a standard degree, while the prevalence rates were absent in the rest of the study areas.

As for the case of spatial distribution in the year 2018 , we find that the district of Al-Musayyib ranked first with a prevalence rate of 0.03 and a spatial value that exceeds the general average limit by 2.56 standard degrees. 1.43 a standard score above the general average for each of them, while they were followed in third place by Al - Mahaweel – Al-Mashrou' – Al-Hashimiyya District – Al-Qasim – Al-Shomali – Al-Hindi . While the prevalence and mortality rates of C with a spatial value below the general average in Abu Ghark, to fall within the last rank by -0.50 a standard score, while the death rate was absent in the rest of the study area

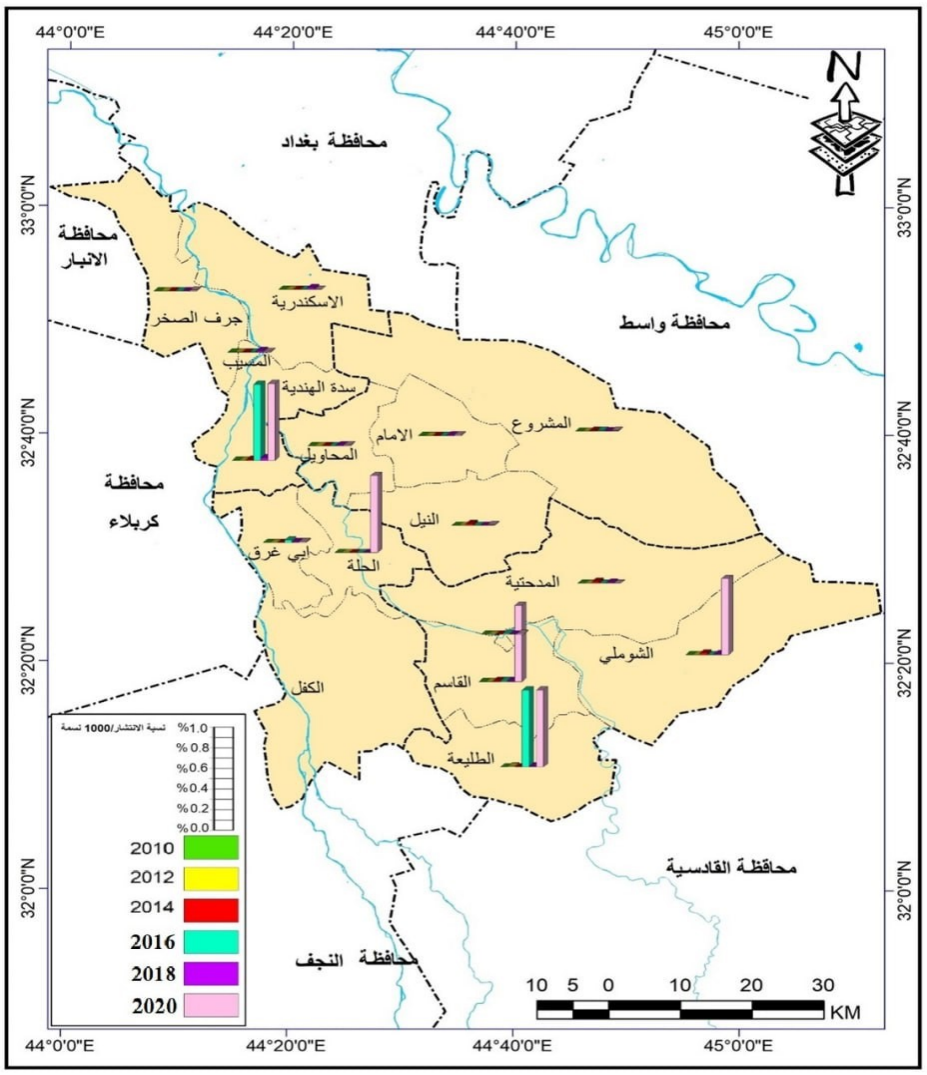
Table 3. Prevalence rate and standard degree of mortality from viral hepatitis C disease in Babil Governorate from 2010-2020

the years	year 2010		year 2011		Year 2012		year 2013		year 2014		Year 2015	
Regions	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative	prevalence rate on 1000 breeze	Class Normative
Hilla district	0	0	0	0	0	0.00	0	0.00	0	0.00	0.92	1.37
sponsor	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00
my father drowned	0	0	0	0	0	0.00	0.03	-0.19	0.01	0.14	0.01	-0.61
attempts	0	0	0	0	0	0.00	0	0.00	0.01	0.14	0.01	-0.61
The project	0	0	0	0	0.01	0.80	0.01	-0.23	0.003	-0.80	0.01	-0.61
Imam district	0	0	0	0	0	0.00	0	0.00	0.01	0.14	0.01	-0.61
Nile	0	0	0	0	0.02	2.62	0	0.00	0	0.00	0.01	-0.61
Hashemite district	0	0	0	0	0	0.00	0.01	-0.23	0	0.00	0.01	-0.61
denominator	0	0	0	0	0.01	0.80	0.01	-0.23	0.01	0.14	0.91	1.35
Medhatia	0	0	0	0	0.02	2.62	0	0.00	0.01	0.14	0	0.00
Shomali	0	0	0	0	0.02	2.62	0	0.00	0.01	0.14	0.91	1.35

vanguard	0	0	0.01	0	0	0.00	0.92	1.73	0.01	0.14	0.92	1.37
Musayyib district	0	0	0	0	0	0.00	0	0.00	0.02	1.49	0.01	-0.61
Hindi	0	0	0	0	0.01	0.80	0.91	1.70	0.03	2.84	0.92	1.37
rock cliff	0	0	0	0	0	0.00	0	0.00	0	0.00	0.01	-0.61
Alexandria	0	0	0	0	0	0.00	0	0.00	0.02	1.49	0	0.00
the average					0.01		0.12		0.01		0.30	
deviation normative					0.01		0.46		0.01		0.46	

Source: The researcher 's work , based on the data of the Babylon Health Department

Map 4. Spatial distribution type C in Babylon Governorate 2010-2020



Source: Based on Table 46

Third: Levels of the standard degree of type C deaths according to administrative units.

The first level : administrative units whose standard score ranges from -0.50 or more for type C .

It is clear from the table and the map that this level includes each sub-district Abu Ghareq / Al- Mahaweel / Al-Mashrou' / Al-Imam neighborhood / Al-Nil / Al-Hashemiya district / Al-Musayyib district / Jurf Al-Sakher with a standard score -0.61 / -0.61. /-0.61 /-0.61 /-0.61 /-0.61 /-0.61 /-0.61 /-0.61

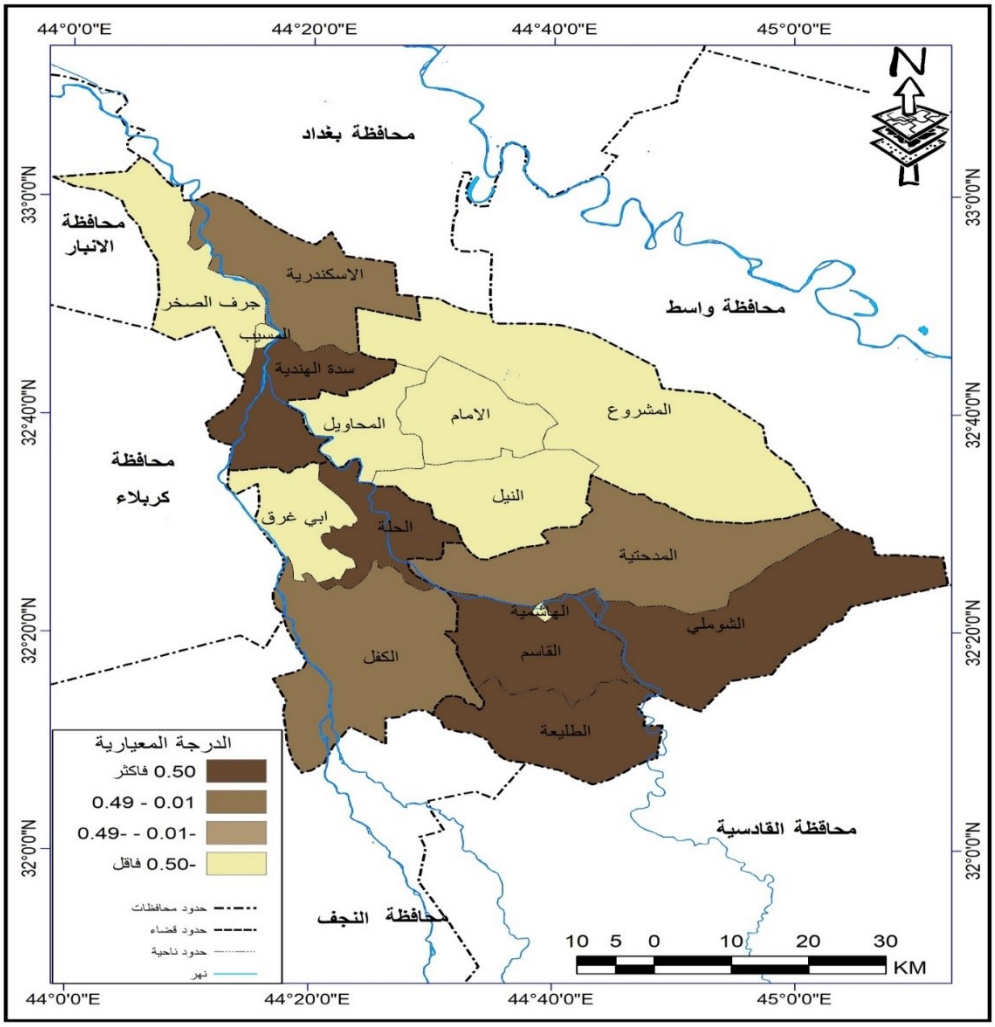
Second Level :- Administrative units whose standard degree ranges from -0.01 / - 0.49 for type C , there are no administrative units within this level.

The third level :- Administrative units whose standard score ranges from +0.50 / or more for a type

C There are no administrative units within this level.

fourth level :- Administrative units whose standard score ranges from 0.01 - 0.49 for type C . 35 / 1,37 / 1,37 .

The standard degree of mortality from viral hepatitis C disease in Babil Governorate



3- Conclusions

1. It was found through the study that the general infection rate reached 8 deaths in the entire study area out of every 100 infected person, that is, out of every 100 infected with viral hepatitis of all kinds DCBA, 8 of them died . Where the highest death cases were recorded for type A in 2011 with 20 cases and 16 cases for type B and in 2012, and the highest cases of type C were recorded in 2013 to reach 31 deaths, while we find type E The highest number of deaths was recorded, which amounted to 15 deaths throughout the study area in the year 2020.
2. Viral hepatitis affects both sexes and appears in all age groups, as the statistical test of chi- square values showed that there is a discrepancy in the rates of infections and deaths of both sexes, with a clear increase in the percentage of males in all types of the disease . uneven.
3. The study of the spatial distribution of viral hepatitis infections and deaths throughout the study area indicated a spatial variation in the prevalence rates between administrative units, as the highest prevalence of type A infections was concentrated in the vanguard area, while the highest prevalence rate was recorded for types B and C in Al-Mahaweel district , while we find the highest prevalence rate recorded for the type E in each Al-Tali`ah, Al-Musayyib district, Al-Medhatiya .
4. The study of the spatial distribution of disease deaths showed that there was a variation in the prevalence rates of disease deaths among the general study area, as the highest prevalence of type A deaths was recorded in Abi Ghark, Al-Mashrou', Al-Nil, Al-Qasim, Al-Talee'a, Alexandria while the highest rates of deaths were concentrated in type A. C in Al-Imam neighborhood, Al-Qasim, Al-Medhatiya , Al-Tali`ah, Al-Musayyib district, Al-Hashimiyya, and finally the type E , as the highest prevalence rates were recorded in Al-Qasim, Al-Tali`ah, Al-Musayyib district, Alexandria, Jurf Al-Sakher.
5. The study showed that the centers of the districts and the densely populated administrative units are characterized by a high number of infections in them, due to the high population numbers in them, as well as the high population density in those areas, which leads to an increase in infection, as is the case in the Hilla district, which is characterized by a high number of population, as the number of injuries reached In the center of the Hilla district from 2011-2020 4174 injuries.

4- Recommendations

1. Paying attention to the implementation of the objectives related to the eradication of epidemic diseases
2. The Ministry of Health shall provide the necessary health awareness about hepatitis C to all segments of society, and this shall be done by providing health and preventive programs for all infectious diseases in general for all audio, print and visual media so that the benefit spreads, as well as coordination with the educational administration in the field of health education for citizens in particular And that educational institutions are among the places that witness the rapid

transmission of infectious diseases in general and hepatitis C in particular

3. The need for health control by the Ministry of Health on food products, restaurants, kiosks and street vendors

4. Developing appropriate legislation that helps reduce the spread of diseases and imposing compulsory examination before marriage

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