THE USA JOURNALS
THE AMERICAN JOURNAL OF SOCIAL SCIENCE AND EDUCATION INNOVATIONS (ISSN- 2689-100X)
VOLUME 06 ISSUE06

PUBLISHED DATE: - 17-06-2024
DOI: - https://doi.org/10.37547/tajssei/Volume06Issue06-18 **PAGE NO.: - 95-113**

RESEARCH ARTICLE **Open Access**

THE LOCAL ENVIRONMENT AND ITS RELATIONSHIP TO THE QUARTERLY DISTRIBUTION OF THE MOST COMMON DISEASES IN NAJAF GOVERNORATE FOR THE YEAR (2023)

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Abstract
The research aims to reveal the effect of the local environments (the alluvial plain and the western plateau) on seasonal diseases and the variation in the response of these diseases to one environment rather than another. It also aims to provide a geographical point of view regarding the characteristics of the local environment and its impact on the seasonal distribution of the most common diseases in Najaf Governorate.
The research dealt with the study of the quarterly distribution of the most common diseases in the Najaf Governorate for the year 2023, and it included three sections. The first focused on studying the theoretical framework of the research. In contrast, the second dealt with the general trend of infection with the most common diseases in the Holy Najaf Governorate, and the research ended with a study of the natural factors affecting the quarterly distribution of the most common diseases. Spread in Najaf Governorate.
The research concluded that summer diseases are more responsive to the environment of the alluvial plain than in the Western Plateau, and we find this evident in the recurrence of disease peaks in the Manathira and Mishkhab districts.
The local environments, with their natural and human characteristics, played a significant role in the spread and decline of diseases. This was evident in their diversity and the number of infections recorded in a place, as well as their variation from one season to another. To study the local environment in the study area, the researcher conducted a comprehensive field survey. This survey included administrative units from district centers and districts, represented by health centers and hospitals. The researcher also relied on medical records, counting as many as possible, to ensure the accuracy and reliability of the data used in the study.

Keywords Medical records, health centers and hospitals, spread and decline of diseases.

INTRODUCTION

After recording the most common diseases, they were classified according to the seasonal climatic classification, based on the number of occurrences recorded in the statistical divisions, in addition to the scientific consultation of a group of specialized doctors, where the researcher counted (44) types of the most common diseases. Because of the large size of their diversity, the researcher was limited in his study. One year, which is 2023. This is, on the one hand, and on the other hand, the data that preceded this period was characterized by its

inaccuracy due to the spread of the Coronavirus in the period 2019-2021, which resulted in the presence of people traveling in their homes. The researcher used descriptive, statistical, and cartographic methods to provide a clear picture of The relationship between the local environment and the seasonal distribution of the most common diseases; despite his difficulties, it did not weaken the researcher's determination to continue the research.

Section One

A Theoretical Framework for the Research

First: The problem of the study:

The research problem was as follows:

"What is the local environment that affects the most widespread diseases in the study area?" To answer this problem, it was necessary to divide it into sub-problems:

1- What is the climatic season in which types of diseases are more common than in other seasons of the year?

2- What is the local environment in which seasonal diseases are concentrated?

Second: Research hypothesis:

The general hypothesis of the problem was formulated as follows:

"The environment of the Western Plateau is considered one of the most disease-causing environments in the study area."

The sub-hypotheses are:

1- Summer diseases are among the most diverse diseases in the study area.

2- Summer diseases are more concentrated in the environment of the Western Plateau than in the alluvial plain.

Third: Justifications for choosing the topic:

We provide a clear picture through which we reveal the relationship between the local environment and its impact on the increase and decrease in the number of infections during the seasonal change in the study area.

Fourth: Spatial and temporal limits of the study:

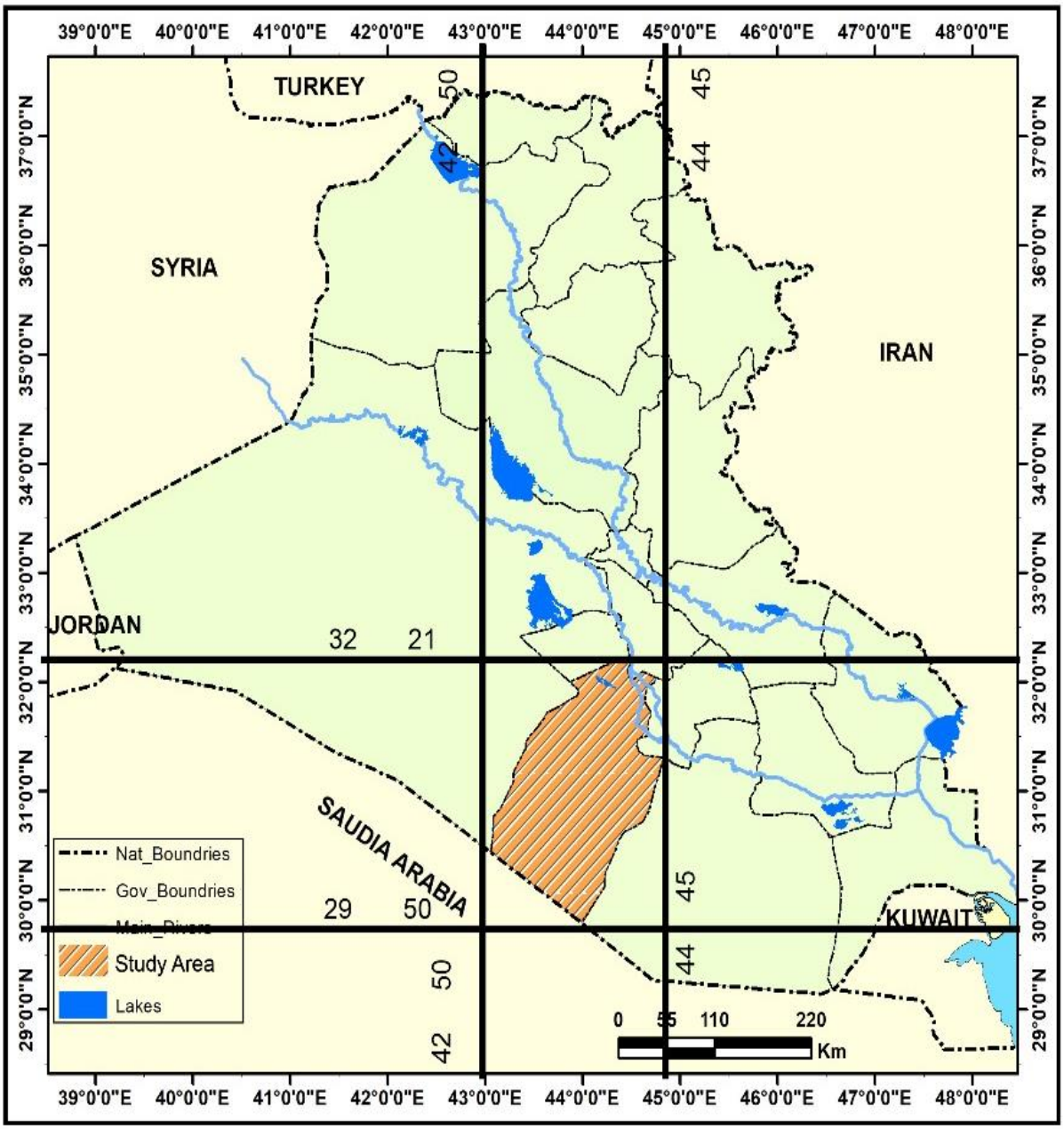
The spatial borders are specific to Najaf Governorate, which comes in the seventh sequence among the Iraqi governorates in terms of area, amounting to 28,824 square kilometers and constituting 6% of the area of Iraq. Najaf Governorate is located on map (1) between latitudes 30.29 north and 32.33 north. Its longitudes are 44.43 and 45.46 east, and it is thus located in central Iraq in the Middle Euphrates region. It is surrounded by the governorates of Karbala and Babil from the north, Al-Qadisiyah and Muthanna from the east, Anbar from the west, and the international borders of the Kingdom of Saudi Arabia from the south. "The General Survey Establishment - 1995" consists of administrative units (Najaf district, followed by the districts Al-Haidariyah and Shabaka, and the Kufa district, followed by the districts Al-Abbasiyah, Al-Hurriya, and Al-Manathira district followed Al-Hirah, Al-Qadisiyah, and Al-Mishkhab, as in map (2). This site greatly impacted the study area's natural characteristics, making it a desert climate with hot summers and cold, rainy winters.

The time limits for the study area are in the year 2023.

Fifth: Method and method:

The fundamental systematic approach, which specializes in studying the phenomenon in a limited spatial area represented by the Najaf Governorate, was followed. The methods followed were descriptive, statistical, and graphological.

Map (1): The astronomical website of Najaf Governorate



Source: Republic of Iraq, Ministry of Water Resources, General Cadastral Establishment, Baghdad, Administrative Map of Iraq, 2023.

Sixth: The basic concepts of the study:

1-Health health

A state of physical, mental, and social well-being, not just freedom from disease or harm. "Al-Akhd-1973-1"

2-Disease

A state of deficiency in the vital activities of the human body or a state of imbalance between the person and his environment. "Sami-1980-7"

3-Infection

It is the means through which the disease can be transmitted from one person to another ((www.katib.net))

4- Geopathological factors

These are the natural and human factors related to the development of the disease (Al-Muzaffar-2002-105).

6- Biological factors, pathogens

They are the factors that directly affect the formation or incidence of the disease. "Al-Muzaffar-2002-102."

Classification of the most common diseases in the study area for the year 2023:

Diseases are generally classified into:

First: - infectious diseases d d.

These diseases are transmitted from one person to another, such as measles, tuberculosis, and polio (Al-Safadi - 2001-17).

Second: Non-communicable diseases infectious d.

These diseases, such as stomach ulcers and kidney stones, are not transmitted from one person to another. "Al-Safadi-2001-17"

The international classification that was relied upon is the classification of diseases in the international list of causes of death, as follows:

1. Infectious and parasitic diseases
2. Tumors
3. Blood and immune diseases
4. Endocrine diseases
5. Mental disorders
6. Nervous system diseases
7. Eye diseases
8. Ear disorders
9. Diseases of the circulatory system
10. Respiratory diseases
11. Digestive system diseases

We have adopted this classification because it is more detailed and issued by the World Health Organization. This is in addition to our reliance on the seasonal climate classification, which represents the focus of our research.

Second section

The general trend of infection with the most common diseases in Najaf Governorate

First: The general trend of infection with the most common diseases in the study area:

1- Numerical and relative distribution of the size of the injury:

The total incidence of the most common seasonal diseases in the study area for 2023 was approximately 680,247 disease cases, as shown in Table (1).

Winter diseases ranked first in terms of the number of cases of the most common diseases, with a staggering 305,308 disease cases recorded, representing 45% of the total infection volume. This high number underscores the severity of the situation and the need for immediate action. Autumn diseases followed, with 203,539 cases, representing 30% of the total. Summer diseases were in third place, with 128,550 cases, a 19% increase. Finally, 42,850 disease cases were recorded in the spring, constituting 6% of the total infection rate in the study area.

Table (1): Numerical and relative distribution of the most common seasonal diseases in the study area for the year 2023

Percentage	Number of infections	The Disease
45	305308	Winter Diseases

30	203539	Autumn Diseases
19	128550	Summer Diseases
6	42850	Spring Diseases
100	680247	The Total

Source: Based on field survey (hospitals/health centers/kept records).

Table (2) shows the percentage of infection with the most common seasonal diseases among the study area's population, which, according to estimates by the Central Bureau of Statistics, amounts to 1,672,312 people for the year 2023.

Winter diseases ranked first, constituting 18% of the total population size, followed by fall diseases in second place, comprising 12%, then summer diseases in third place, containing 7%, and finally, spring diseases, which accounted for 2% of the population of the study area.

Table (2): Percentage distribution of the most common seasonal diseases for the year 2023.

Percentage	The Disease
18	Winter DISEASES
12	Autumn DISEASES
7	Summer DISEASES
6	Spring DISEASES

Source: Based on field survey (hospitals/health centers/kept records)

Second: Numerical and qualitative distribution of the most common diseases in the study area:

1- Percentage:

Table (3) shows the percentage of the most common types of seasonal diseases in the study area about its total number of 44 types, as follows:

When it comes to the seasons, winter takes the lead in disease variety. We recorded a total of 18 types, making up a significant 40% of the total. Summer, on the other hand, is not far behind with 16 types, accounting for 37% of the total.

B - Summer diseases ranked second, with 16 recorded types constituting 37% of the total.

T - Spring diseases ranked third, with seven types recorded, constituting 16% of the total.

In conclusion, our survey revealed that spring diseases are the least prevalent in the study area, with only 3 types recorded, making up a mere 7% of the total. This data provides valuable insights into the distribution of common diseases in the study area.

Table (3): Percentage distribution of the most common types of seasonal diseases in the study area for the year 2023

Percentage	Number	The Disease
40	18	Winter Diseases
37	16	Summer Diseases
16	7	Spring Diseases
7	3	Autumn Slumber
100	44	The Total

Source: Field survey (hospitals/health centers/kept records)

We note from Table (4) the monthly and daily infection rates of the most common seasonal diseases in the study area for the year 2023, as follows:

A - The daily infection rate with winter diseases reached 836 sick cases, compared to the monthly average of 25,442 sick cases.

B. On a similar note, the daily incidence of summer diseases was also significant, reaching 352 sick cases, compared to the monthly average of 10,712 sick cases.

C - The daily infection rate with spring diseases reached 117 sick cases, compared to the monthly average of 3570 sick cases.

The daily incidence of fall diseases reached 557 cases, compared to a monthly rate of 16,961.

Table (4): Monthly and daily infection rates of the most common seasonal diseases in the study area for the year 2023

Monthly Infection Rate	Daily Infection Rate	The Disease
25442	836	Winter Diseases
10712	352	Summer Diseases
3570	117	Spring Diseases
16961	557	Autumn Diseases

Source: This comprehensive report is based on a meticulous field survey conducted in hospitals, health centers, and kept records, ensuring the accuracy and reliability of the data.

Table (5) presents the crucial quarterly distribution of the most prevalent diseases in the study area for the year 2023, providing a comprehensive understanding of the health landscape in our region.

1- We find that bronchitis ranked first among winter diseases, with 88,539 cases recorded, representing 29%. It is followed by influenza, where 58,008 cases were recorded, representing 19%; then asthma, where 48,690 cases were recorded, representing 13%; followed by laryngitis, which 33,583 cases of illness were recorded, representing 11%; pneumonia, where 18,318 cases of the disease were recorded, representing 6%. Then comes otitis media, where 1,609 cases of illness were recorded, making up 5%, followed by tonsillitis and the common cold, where each recorded 1,212 cases of the disease, representing 4%. Sinusitis and arthritis recorded 9,159 cases of the disease, constituting a rate of 3%, and then bronchiectasis, where 6,106 cases of the disease were recorded, constituting a rate of 2%. As for muscle spasms, 2440 cases were recorded, representing 0.008%, followed by scarlet fever and pleurisy, each recorded 1,526 cases, representing 0.005%. Then comes tuberculosis, where 305 cases were recorded, representing 0.001%, followed by whooping cough, recording 244 cases, representing 0.0008%. Measles, which recorded 183 cases, a rate of 0.00006%, and finally, head lice, which recorded 122 cases, a rate of 00004%.

2- Diarrheal disease ranked first among summer diseases, with 74,559 cases recorded, constituting 58%, followed in second place by skin fungi, with 20,568 cases recorded, constituting 16%. Then in

The third type is kidney infection, which recorded 8,968 cases, representing a rate of 7%, followed by skin allergy, which recorded 7,713 cases, a rate of 6%, followed by skin abscess and furunculitis, which each recorded 5,142 cases, a rate of 4%, then typhoid and paratyphoid, where 2,584 cases were recorded, a rate of 3%, and then Sunburn, which recorded 2571 cases, at a rate of 2%, followed by sunstroke, which recorded 640 cases, at a rate of 0.005%, followed by dysentery, which recorded 386 cases, at a rate of 0.003%, followed by meningitis and hair follicle inflammation, each of which recorded 257 cases, at a rate of 0.002%, and then Melasma, impetigo, and inflammation of the sebaceous glands each recorded 129 cases, at a rate of 0.001%, and finally food poisoning, which recorded 51 cases, at a rate of 0.00004%.

3- Among the spring diseases, blepharitis ranked first, with 26,138 cases recorded, representing a rate of 61%. Skin allergy disease came in second place, with 5,999 cases recorded, a rate of 14%. Then chicken pox came in third place, which recorded 3,856 cases, a rate of 9%, followed by disease. Eczema recorded 3678 cases, representing a rate of 8%, then eye allergy disease, where 2989 cases were recorded, representing a rate of 7%, followed by mumps, where 176 cases were recorded, representing a rate of 004%, and finally German measles, where 4 cases were recorded, representing a rate of 0001%.

4- We find that asthma ranked first in the number of cases, with 140,441 cases recorded6, at a rate of 9%, followed by bronchiectasis and scarlet fever, where the first recorded 56,992 cases, at a rate of 28%, and the second recorded 6,106 cases, at a rate of 3%. From the previous table, it is clear:

A - The data reveals the presence of seasonal diseases that peak in a specific season, such as bronchitis, diarrhea, blepharitis, and eczema, which can guide healthcare professionals in their preparedness and response strategies.

B - There are common diseases that increase in more than one season, for example (asthma, scarlet fever, and bronchiectasis).

Table (5): Quarterly distribution of the most common diseases in the study area for the year 2023

%	Number	Autumn diseases	%	Number	Spring diseases	%	Number	Summer diseases	%	Number	Winter diseases
69	40441	asthma	61	26138	Blepharitis	58	74559	diarrhea	29	88539	Bronchitis
28	56992	Bronchial allergy	14	5999	skin Sensitivity	16	20568	Skin fungi	19	58008	flu
3	6106	Scarlet necrosis	9	3856	Chicken pox	7	8998	Kidney inflammation	13	48690	asthma
			8	3678	Eczema	6	7713	skin Sensitivity	11	33583	Erysipelasitis
-	-	-	7	2989	Eye allergy	4	5142	Skin abscess	6	18318	Pneumonic
-	-	-	0,004	178	Mumps	4	5142	Keratitis	5	16093	ear infection
-	-	-	0,0001	4	rubella	3	2584	TAIFYAD	4	12212	tonsillitis
-	-	-	-	-	-	2	1866	Sunburn	3	9159	Cold
-	-	-	-	-	-	0,005	640	Sunstroke	3	9159	paranasal sinuses
-	-	-	-	-	-	0,003	386	Dysentery	2	6106	arthritis
-	-	-	-	-	-	0,002	257	Inflammation of hair follicles	0.008	2440	Bronchiectasis
-	-	-	-	-	-	0,002	257	Meningitis	0.005	1526	Muscle spasm
-	-	-	-	-	-	0,001	129	Melasma	0,005	1526	Scarlet fever

-	-	-	-	-	-	0,001	129	Inflammation of the sebaceous glands	0.001	305	pleurisy
-	-	-	-	-	-	0,001	129	Impetigo	0.00008	244	Tuberculosis
-	-	-	-	-	-	0,004	51	Food poisoning	0,00006	183	Whooping cough
-	-	-	-	-	-				0.0004	122	The pill
100	203539	Total	%100	42850	Total	100 %	128550	Total	%100	305308	Total

Source: Based on field survey (archived records).

We note Table (6), which shows the general total rates of infection with the most common diseases per 1,000 inhabitants of the study area by district, as follows:

1-The Manadhira District ranked first in the total rates of infection per 1,000 inhabitants with the most common diseases, with 1,729 disease cases recorded. We find that the rate of infection with summer diseases is 848 cases, followed by the rate of infection with spring diseases, which is 428 cases, then the rate of infection with winter diseases, 272 cases, and finally, the rate of infection with autumn diseases, 181 sick cases.

2- Kufa District, with 1,626 disease cases recorded, is a close second in the total rates of infection per 1,000 inhabitants with the most common diseases. The winter disease infection rate recorded 730 disease cases, followed by the fall season disease infection rate, where 487 disease cases were recorded. Summer season diseases, where 307 disease cases were recorded, and finally, The rate of infection with diseases in the spring season, as 102 disease cases were recorded

3- Al-Mishkhab district ranked third in the total infection rates with the most common diseases, with 1,552 disease cases recorded. We find that the infection rate with winter diseases is 807 cases, followed by the infection rate with winter diseases, where 286 disease cases were recorded, then spring season diseases with a rate of 269 disease cases, and finally, Autumn diseases at a rate of 190 cases.

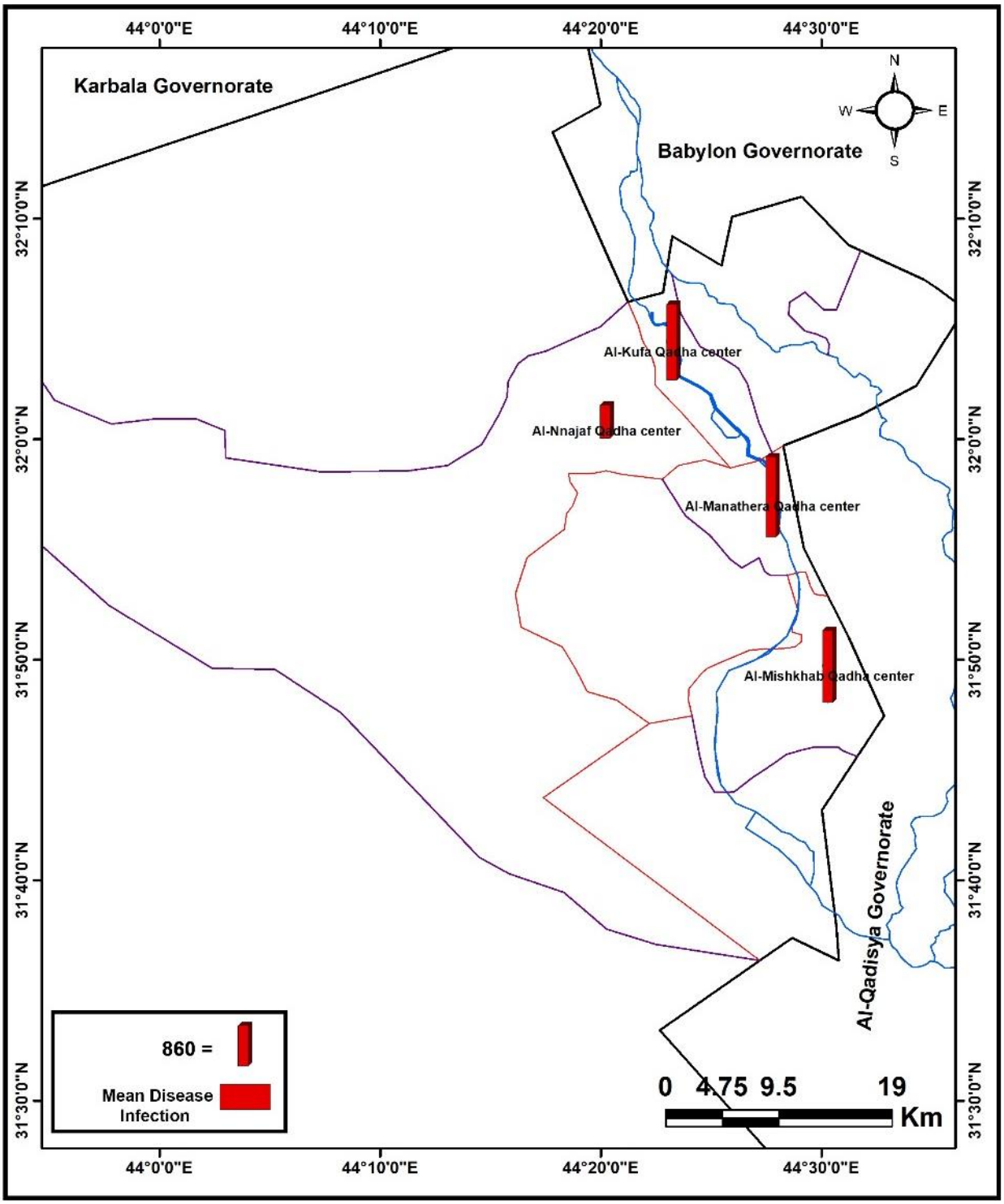
4- Najaf district ranked last regarding the total incidence of the most common diseases per 1,000 inhabitants, with 715 disease cases recorded. We find that the rate of infection with winter diseases is 318 disease cases, followed by the rate of infection with autumn season diseases, where 216 disease cases were recorded, and then the rate of infection with summer season diseases. Where 136 disease cases were recorded, and finally, the rate of disease infection in the spring season, which was recorded at 45 disease cases

Table (6): Seasonal disease incidence rate per 1,000 inhabitants according to districts of the study area.

Total Infection Rates Per 1000 Population	Incidence Rate Of Autumn Diseases Per 1000 Population	Incidence Rate Of Spring Diseases Per 1000 Population	Incidence Rate Of Summer Diseases Per 1000 Population	Incidence Rate Of Winter Diseases Per 1000 Population	Judiciary
1729	181	428	848	272	Al-Manathira
1626	487	102	307	730	Kufa
1552	190	269	807	286	Al-Mishkhab
716	216	45	136	318	Najaf

Source: Field survey (hospitals/health centers / preserved records)

Map (2): The general total rates of infection with the most common diseases per 1000 population by district. In the study area and for the year 2023.



Source: The researcher's work is based on the data in Table (6).

Table (7) presents a comprehensive overview of the infection rates per 1,000 inhabitants of the most common diseases in the study area, categorized by district and district centers for the year 2023. This data is crucial for understanding the health landscape of the area, and it reveals some interesting findings:

Al-Abbasiya district, Al-Marabah, ranked first, with 526 medical cases recorded, followed by the Kufa district center, ranked second, with 1,204 medical cases recorded. Then, the Al-Hurriya district came in third place, recording 156 sick cases, and then the Al-Hira district, where 123 sick cases were recorded. They were followed by Al-Qadisiyah district, which recorded 105 sick cases, followed by Al-Qadisiyah district, which recorded 105 sick cases, followed by Al-Qadisiyah district, which recorded 105 sick cases, followed by the district. Al-Haidariya, where 90 disease cases were recorded, then the Najaf district center, with a rate of 63 disease cases, followed by the Mishkhab and Manathira district centers, with a rate of 53 disease cases, and finally, the Shabaka district, which recorded 25 disease cases.

Table (7): This table is a key component of our research report, providing the incidence rates of the most common seasonal diseases per 1,000 people, categorized by district and sub-district centers. It is our hope that these findings will contribute to the development of effective public health strategies in the area.

Infection Rate Per 1000 Population	Administrative Unit
526	Abbasiya District
204	Kufa District Center
156	Freedom District
123	The Area Of Confusion
105	Al-Qadisiyah District
90	Haidariya District
63	Najaf Center
53	Al-Mishkhab District Center
53	Manathira District Center
20	Network Hand

Source: Field survey (hospitals/health centers / preserved records).

From Tables (5), (6), and (7), we conclude the following:

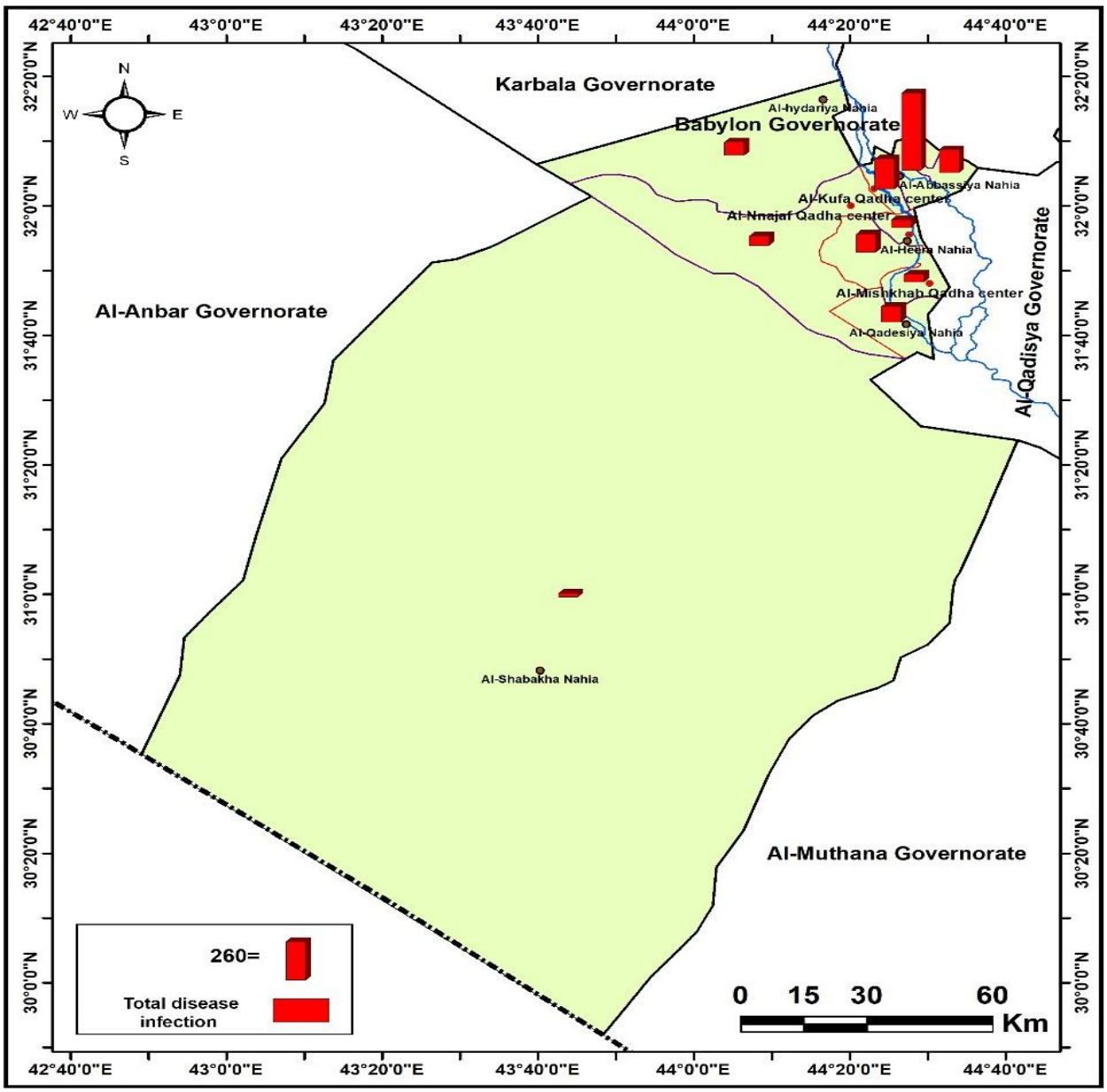
1- The administrative units (Al-Hurriya and Al-Abbasiya sub-districts and the Kufa district center) distributed within the alluvial plain environment

occupied the first ranks regarding the number of infections with the most common diseases in the study area.

2-The highest incidence of summer diseases occurred in the alluvial plain environment, which was represented by the Al-Manathira and Al-Mishkhab districts.

3- The highest incidence of winter diseases was in Najaf District (plateau environment) and Kufa District (plain environment). This means that the alluvial plain environment is more responsive to summer diseases due to factors that will be explained later.

Map (3): Incidence rates of the most common diseases per 1000 people in the study area. According to the centers of districts and districts for the year 2023



Source: From the researcher's work based on Table (7)

The third section: Natural factors affecting the most common diseases in the study area:

Natural and human factors and the interaction between them create what is known as a healthy environment. Therefore, disease represents the relationship between man and his environment (Leamonth-1981-18).

1- Surface forms: landforms

The surface of the study area is divided into two main parts: the alluvial plain and the western plateau. As for the alluvial plain, it occupies the northeastern part of the study area, and most of the administrative units are located there. It extends in a longitudinal strip along the Euphrates River, its two branches (the Shatt al-Kufa and the Abbasid River), and its extensions. The topography does not differ from the other parts of the plain, as it gradually descends with the parts of the Western Plateau; it does not have clear borders. The high parts above this plain are the shoulders of the Euphrates River and the streams branching from it, and the permanent and seasonal marshes spread above it, which are the lowest parts of the plain. "Ayed 2001-35 As for the western plateau, which occupies the majority of the surface of the study area and is part of the lower valleys region, in general, the height of the plateau above sea level is 130 meters, and the level of the area above it is 40 meters. "Al-Attiyah-2006-26."

We can conclude that the gradual elevation of the surface level of the region from the east (the plain) to the west (the plateau) has a role in determining the network of streams branching off from the Euphrates River, which made the desert plateau deprived of this surface water. In general, the surface depicts two different environments: the environment of the alluvial plain and the environment: the desert plateau and the first provided reasons encouraging human settlement. The environment of human settlements is an ecomen-inhabited area, while the second environment expels people and is uninhabited. The climate conditions and water resources have completely distinguished both environments.

2- Climate

The study area is located within the arid climate, which covers about 70% of the area of the country (Iraq) "Halaf-1965-118", as the distance of Iraq had a role in the emergence of this dry environment, and the astronomical location influenced the climate of the study area to be characterized by two long seasons. Summer, which extends for five months starting from May

Until September, the winter season extends for three months, from December until February, and two short seasons, spring (March and April) and autumn (October and 2nd). Al-Qassab - 1986-42. Table (8) shows the temperature and rain rates during the month of the year for the year 2023. We find that the warmest month is July, with the average temperature reaching 38.3 degrees Celsius, and the coldest month is January, with the average temperature reaching 11.6 degrees Celsius.

As for rain, the heaviest month is January, where the average rainfall reached 15.6 mm, while the driest months are (June, July, and September).

Table (8): Temperature and rainfall rates in the study area for the year 2023.

General Rainfall Rate/Mm	General Average Temperature M	The Month
15,6	11,6	January
11,9	13,9	February
11,1	19,2	March
12,6	24,9	April
3,2	31,2	Mays
0	35,9	June
0	38,3	July
0	38	Dad
0	32,2	September
4,9	26,9	October
18	18,2	November
14,3	12,9	December

Source: General Authority for Meteorology and Seismic Monitoring (unpublished data)

3- Water resources

There are two types of water resources in the study area: surface water and groundwater. The first type is:

It is more influential because it occupies most of the alluvial plain, the population depends primarily on it, and most of the administrative units in the study area are distributed there.

The Euphrates River (Shatt al-Hindiyya) branches into branches and streams, the number of which reaches (101) branches and streams, forming a vast network that creates an environment that encourages human settlement, as the river valleys are characterized by low soil and water temperatures and howling. Small bodies of water play a significant role in the thermal distribution of the Air in contact. This, in turn, creates local conditions that distinguish it from the rest of the neighboring regions, where the air humidity above the water bodies during the warm season is higher than in the adjacent areas. Therefore, large amounts of water evaporate from their surfaces, and this depends on the depth of the water, the air temperature and humidity, the water surface area, and the speed of the wind. "Al-Ani et al.-1982-178."

4- Natural plant vegetation

Natural vegetation is considered one of the factors influencing local conditions, especially since the

study area witnesses an apparent diversity in it, as the vegetation is concentrated on the shoulders of rivers and along the streams branching from them, which is represented by trees of the tamarisk, tamarisk, and brambles, as well as palm groves and swamps in which aquatic plants such as seaplanes and plants grow. In agricultural fields, in addition to cultivated crops such as tartar and baked goods, desert plants characterized by their tolerance to extreme heat conditions have spread over the western plateau of the region.

The study, of which 70% are annual plants (Rafid—2007-40). In general, the density of natural plants increases as we head from the plateau towards the plain due to the availability of water resources and suitable soil.

5- Soil

There are five types of soil in the study area, three of which are found in the alluvial plain area (river shoulder soil, river basin soil, and marsh and swamp soil), and the remaining two types in the Western Plateau region. Due to the high groundwater level, the plain's soil is moist and saturated with water. As is the case (the soil of marshes, swamps, and river basins), some of which are rich in organic matter, joined in the soil of river banks, as these soils were formed due to the sediments carried by the river during its flow, and the diversity of the mineral content of these soils has a significant role in the process of increasing the moisture tension of the soil and thus Retaining water (Al-Rashidi-1987-118), which helped the presence of microorganisms in it.

These five elements contributed significantly to the occurrence of diseases in one way or another, as the ideal temperature for humans was 24-27 degrees Celsius (Al-Khafaf and Khudair - 1999-18). Compared with the average temperatures in summer and winter, we find they are very far from this standard. The following factor follows: Heat is a factor in precipitation, as the absence or lack of rain leads to the scattering of soil particles due to its dryness, which makes it easy for them to be picked up by the wind, carrying with them deadly microbes, which causes health problems such as respiratory diseases, which cause inflammation of the mucous membranes and may lead to death ((William-1975-474)) In the event of rain, it stabilizes the soil, cleans the Air, and increases its humidity, and this is what meets the needs of most microbes for their livelihood. As for the winds, their northwest direction agrees with the plateau's slope toward the plain, which leads to dust being carried from the desert areas toward the plain areas.

As for the water, it is not suitable for drinking, as it is considered hard water. The ideal permissible hardness is (200-300) mg/liter. It was recorded in January as (600-700) mg/liter and in July as (500-2000) mg/liter. "Safaa - 2007- 61". In addition to the pollution that included some marshes and swamps and its impact on the food chain, "Farhan-1983-65."

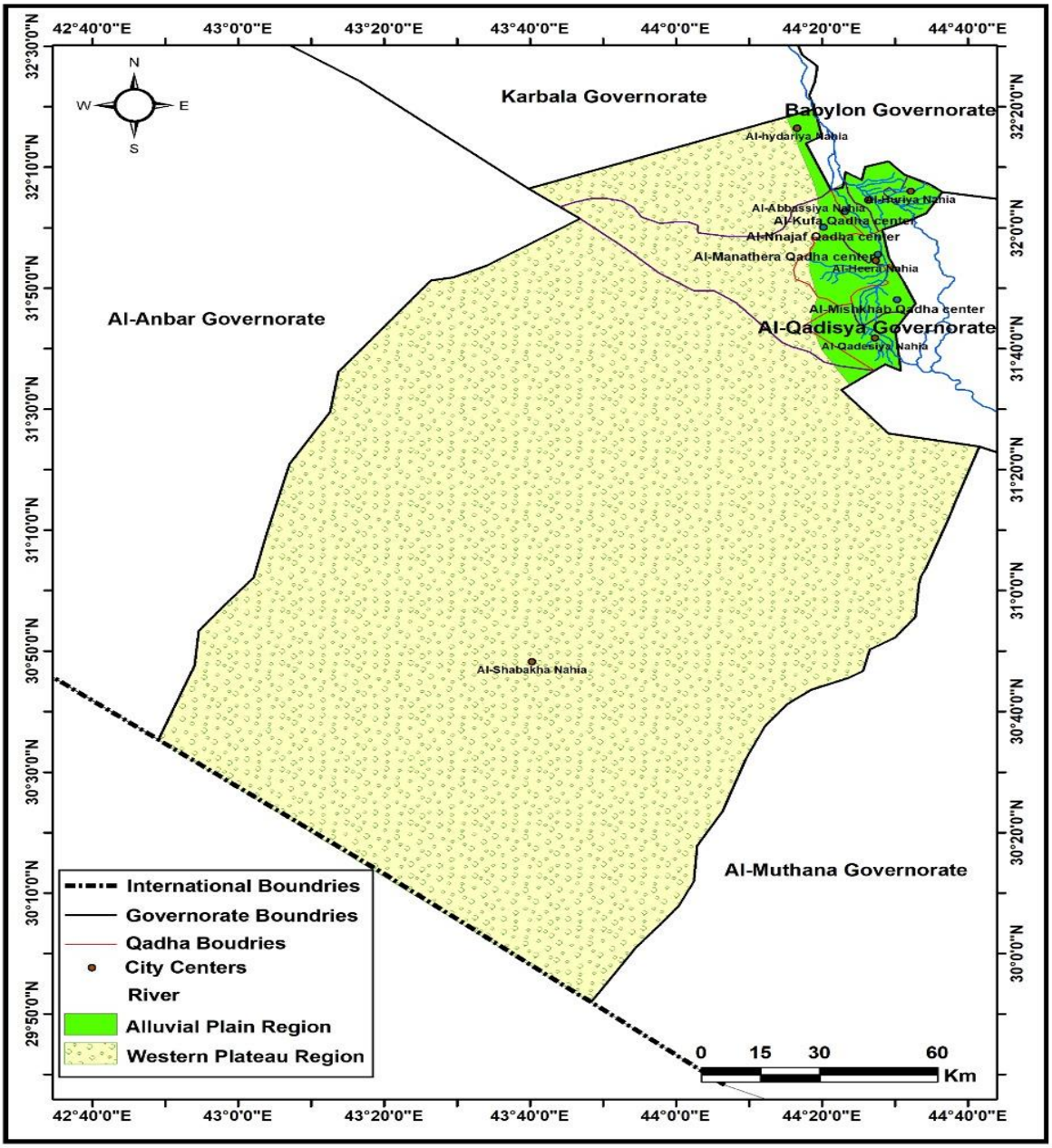
As for the soil, the more moisture and organic matter available, the more suitable an environment for worms and parasites that cause diarrhea, such as pinworms and tapeworms (Woltlerodifo-1985-266), which are active in the summer and not very cold winters (Al-Ani and Sabbah - 1989-226), as well as the activity of the coccyxes that lead to the release of their spores through Air, which may cause some diseases, "Khalifa-1990-222".

Natural factors are a reservoir that embraces pathogens, and the more stable these factors are, the more they help complete the incubation period, which varies from one cause to another. For example, the chicken pox virus has an incubation period of (7-14) days (AANDRSON-1971-394).

From the above, the most widespread seasonal diseases in the study area occur more in the plain environment than in the plateau environment.

Therefore, we find that the center of the Kufa District and Al-Manathira and its environs recorded the highest number of infections, in contrast to the center of the Najaf District and its surroundings.

Map (4): Natural features in the study area and for the year 2023



Source: Ayed Jassim Al-Zamili, 2001, Spatial Analysis of Variation in Surface Forms in Najaf Governorate, unpublished master's thesis, College of Arts, University of Kufa, p. 38. This research provides crucial insights into the spatial distribution of diseases in Najaf Governorate, shedding light on the diversity of diseases, infection rates, and environmental factors affecting disease prevalence in different seasons and districts.

CONCLUSIONS

1- The winter season ranked first in the diversity of diseases, amounting to 18 types of diseases, followed by the summer, where 16 types of diseases were recorded; followed by the spring season, where seven types were recorded; and finally, the fall season, where three types were recorded.

2- The winter season ranked first in the number of infections, with 305,308 cases of illness recorded. This was followed by the fall season, where 203,359 cases of illness were recorded. The summer season, with 128,550 cases of illness recorded, followed by the spring semester, which recorded 42,850 cases of illness.

3- The alluvial plain environment, with its unique geographical features, was a hotbed for seasonal diseases. The Abbasiya and Al-Hurriya sub-districts, along with the center of the Kufa District, were the most affected areas.

4- The districts of Kufa and Manathira ranked first in cases of seasonal diseases per 1,000 people, as the rate of total infections per 1,000 in the district of Kufa reached 1,626 disease cases. In the district of Mathura, there were 1,729 disease cases. The district of Mishkhab, with a rate of 1,552 disease cases, followed by the district of Najaf, with 715 disease cases.

5- The local natural factor had the first effect on infection rates, and this is evident in the center of the Najaf district and its environs; despite the population size of 943,949 people, it came in last place in terms of infection rates at the level of the district and its administrative units compared to the Kufa district and its environs, which has a population of 417,691 people, and the Manathira district. Its district has a population of 159,248 people.

REFERENCES

1- Al-Aktha', Abdul Rahman, Public Health and Health Care, University of Aleppo, 1972.

2- Al-Khafaf, Abd Ali and Shaaban Kazem Khudair, Climate, and Man, first edition, Jordan, 1999.

3- Al-Rashidi, Radi Kazem, Soil Microbiology, University of Basra, 1987.

4- Al-Zamili, Ayed Jassim, Spatial Analysis of Surface Forms in Najaf Governorate, unpublished master's thesis, College of Arts, University of Kufa, 2001.

5- Sami, Ismat Abdel Qader, Internal Diseases, Part One, 1980.

6- Al-Sayegh, Rafid Abdul Nabi, Climatic characteristics and their relationship to palm diseases in Najaf Governorate, unpublished master's thesis, College of Arts, University of Kufa, 2007.

7- Al-Ani, Hazem Tawfiq and others, Local Climate, University of Baghdad, 1982.

8- Al-Qassab, Nafi Nasser, The geographical theater of the Western Plateau region in Iraq and its development qualifications, Iraqi Geographical Journal, issue eighteen, University of Baghdad, 1986.

9- Al-Muzaffar, Mohsen Abdel-Sahib, Medical Geography: Content, Method, and Spatial Analysis.

10- Al-Muzaffar, Safaa Majeed, Spatial Analysis of Soil Pollution in Najaf Governorate, unpublished master's thesis, College of Arts, University of Kufa, 2007.

11- Khalifa, Ahmed Khalifa, Foundations of Immunology, University of Baghdad, 1990.

12- Al-Ani, Falah Khalil and Sabah Naji Al-Abbasi, Infectious diseases in cows and buffaloes, 1989.

13- Muhaisen, Farhan Majmad, Diseases and Parasites of Fish, 1983.

14- Khalaf, Jassim Khalaf, Geography of Iraq, 1965.

Foreign References

1-Andrson,pathology,sixth edition ,university maiami,,1971.

2-Leamonth,a.t.a,medicine and medical geography9studies in disease ecology).

3-Wiliam,review of medical physiology,7th,university of califorinia.

Field sources:

1- Al-Sadr Teaching Hospital, Statistics Division, unpublished data, 2023.

2- Al-Hakim General Hospital, Statistics Division, unpublished data, 2023.

3- Manathira General Hospital, Statistics Division, unpublished data, 2023.

4- Al-Sajad Hospital, Statistics Division, unpublished data, 2023.

5- Primary Health Center, Al-Hira District, Statistics Department, unpublished data, 2023.

6- Primary Health Center in Al-Qadisiyah District, Statistics Division, unpublished data, 2023.

7- Primary Health Center, Al-Mishkhab District, Statistics Division, unpublished data, 2023.

8- Primary Health Center, Al-Hurriya District, Statistics Division, unpublished data, 2023.

9- Primary Health Center, Al-Haidariya District, Statistics Division, unpublished data, 2023.

10- Abbasiya District Health Center, Statistics Division, unpublished data.

International and Government Publications:

1 Meteorological Department, Najaf, unpublished data, 2023.

2-General Survey Establishment, Baghdad, unpublished data, 2023.

3- Water Resources Directorate, Najaf Governorate, unpublished data, 2023.

4- Central Bureau of Statistics, Najaf, unpublished data, 2023.