Spatial Variation of Reasons of Spread of the Corona Pandemic among Babylon's Residents in 2020

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Abstract

The Corona pandemic is a global pandemic that was not limited to a specific geographical area, but it included the whole world due to the nature of the virus in terms of the great speed of spread and the invisible method of spread. The present study sheds light on the reasons behind the spread of the virus in the province through distributing (1531) questionnaire forms in the districts of the study area for urban and rural places as shown in (Appendix 1) and Table (1) according to families. The questionnaire is divided into two parts; one is for those infected and the other part is for those who are not infected with the Corona virus. The questionnaire contains axes including the axis of personal or demographic information And the focus of the reasons of the spread of the Corona virus. These reasons were statistically analyzed using the (SPSS) program and the relationship between demographic variables and the spread of the Corona virus. The present study found that the residence, geographical location, and job are among the most variables affecting the spread of the virus, in addition to some other variables that have an effect, but to varying degrees.

1. Introduction

Table 1. The Environmental Geographical Distribution of The Sample Size in Babylon According to the Administrative Units for 2020

Total	Number of distributed questionnaire forms		Sub-district	District
Urban rural	Rural	Urban		
441	90	352	Center of Al-Hilla District	Al-Hilla District
105	88	18	Al-Kifl	
82	62	18	Abi Gharaq	
628	240	388		Total
89	65	24	Center of Al-Mahaweel District	Al-Mahaweel District
97	67	30	Al-Mashrou	
28	18	10	Al-Imam	
44	39	5	Al-Nile	
258	189	69		Total
29	0	28	Center of Al-Hashimia District	Al-Hashimia District
123	60	63	Al-Qassim	
105	58	46	Al-Midhatyya	
66	52	14	Al-Shomali	
29	24	7	Al-Taliaa	
352	194	158		Total
44	0	44	Center of Al-Musayyab District	Al-Musayab District
89	62	26	Saddat Al-Hindia	
36	31	5	Jurf Al-Nasr	
125	47	78	Al-Iskandaria	
293	140	153		Total
1531	763	768	The province total	

Source; The Researcher Based on The Sample Size Equation

The Corona pandemic is a general global human crisis of great dimensions that included the whole world. It first appeared at the end of 2019 and spread very quickly to the whole world without exception. Thus, the World Health Organization announced that the Corona virus has become a global pandemic and described it as the most serious global crisis in the 21st century, stressing that it will have serious and transformative effects on the individual, society, and state level.

The Corona virus has forced the entire world to face one of the most difficult and fierce global challenges in the history of the contemporary world as it caused millions of people to be infected. It is not appropriate to describe the corona virus as merely global health crisis as. Rather, it is a wide-ranged human crisis that resulted in the suffering of the entire people of the world, their misery, and push the social and economic well-being of mankind to the brink of collapse, given the global, regional, and local material and human damage caused by this virus after it claimed the lives of hundreds of thousands of all the world's inhabitants. The virus caused the biggest misery in the history of mankind that led to a general

mobilization at the global level to limit its spread, control it, and try to find a vaccine, which prompted research centers, laboratories, and universities to race to find a vaccine and reduce the damage caused by the virus on the health, economic, social, and psychological levels. So, it is necessary to study the reasons of spread of this virus in the study area.

First; The Problem Statement

The problem statement of the present study revolves around the question about the main reasons of spread of Corona virus among Babylon's residents in 2020.

Second; The Hypothesis of The Study

The present study assumes that there are several reasons that had a major role and effectively contributed to the spread of the Corona virus among Babylon's residents in 2020.

Third; The Iimits of The Study

The Spatial Limits; The province of Babylon, which is located between two latitudes (32☐ 06-00=- 33☐ 03-15) in the north, longitudes (43☐ 58-15=-45=12-40) in the east with a total area of (519) km2. The province consists of (16) administrative units. It is one of the provinces of the Middle Euphrates. From its northern side, it is bordered by Baghdad. From the east, it is bordered by Wassit. From the south, it is bordered by Al-Qadisiyah. From the west, it is bordered by Anbar and Karbala as shown in Map (1).

The Temporal Limits; (2020) because it represents the peak or the great spread of the Corona virus.

Fourth; The objectives of the study.

The present study aims to obtain the following objectives:

1. Learning about the Corona pandemic and the concepts associated with it.

2. Shedding light on spatial variations of the reasons of the spread of the Corona pandemic and its geographical distribution in Babylon.

Fifth; The Methodology

The method is a way to reach the truth. It is the clear path and the basis that the researcher follows in order to reach the desired facts or results. The strength of the scientific research is linked to the scientific method that the researcher follows.

The present study adopts three types of approaches that are compatible with scientific research methods.

The descriptive analytical approach and the quantitative approach; In order to provide an accurate description of the disease and the reasons of its spread, the systematic and fundamental approach is adopted in order to determine the study

area and its administrative units by showing the spatial variation of the reasons of spread of the Corona virus among these administrative units of the study area. The statistical method is adopted for in evaluating the reasons of the spread of the Corona virus. The questionnaire is used with applying the statistical analysis using the (SPSS) program and Cronbach coefficient Likert scale, Dunnett coefficient, mean and standard deviation.
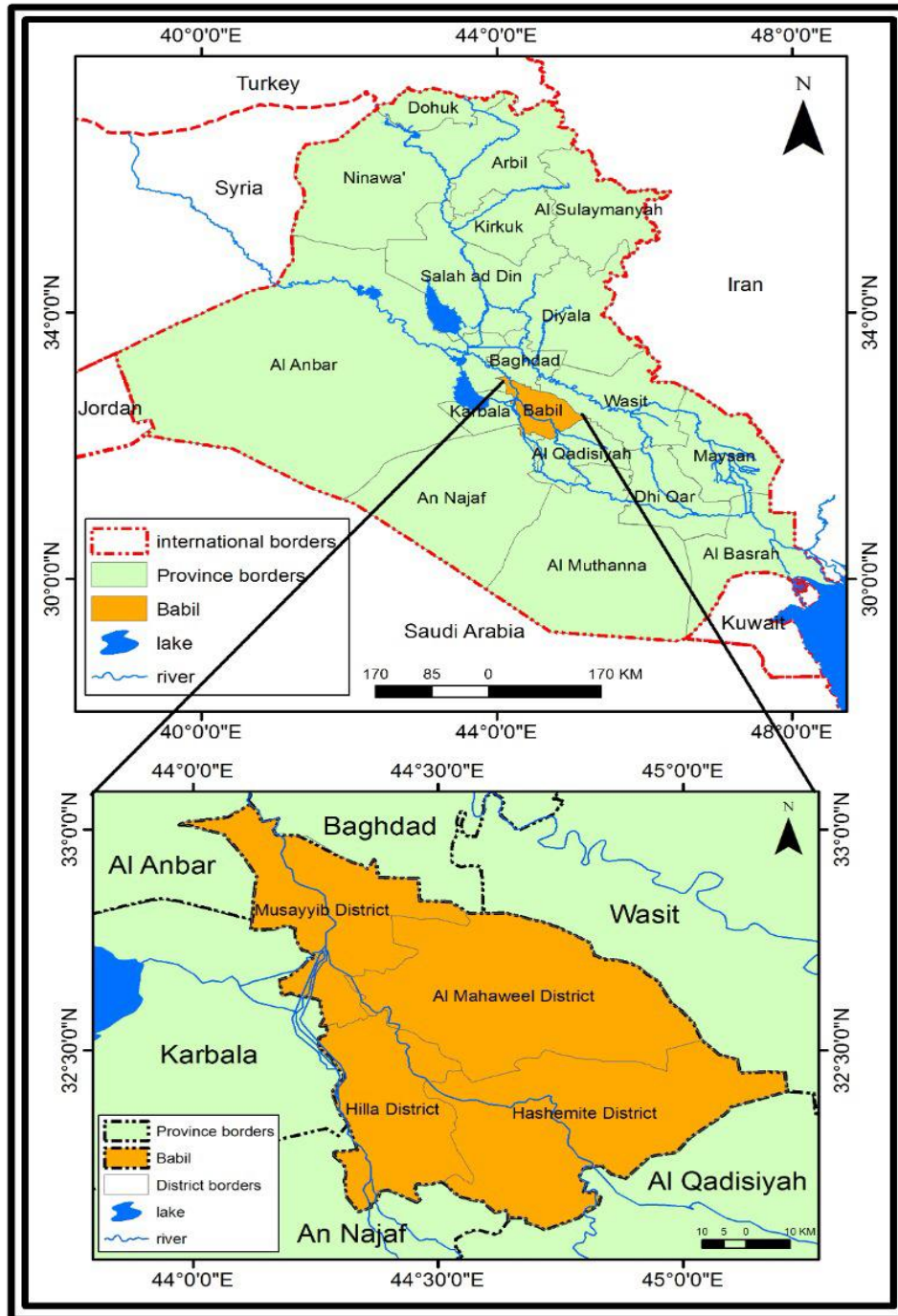
Map 1. Babylon location from Iraq

Source; The researcher based on Republic of Iraq, Ministry of Water Resources, Department of Maps, Iraq administrative Map,,2020 with a measurement of 500000/1

Section One

The conceptual framework of the study
First; The concept of the virus

The word virus comes from the Latin word viruleutes, which means poison. It is an organism that makes it impossible to live with it in a peaceful manner. It is characterized by its ability to transmit infection and parasitic behavior in an attempt to spoil the work of vital functions in a hidden way that may not be seen with the eye (Fairy, 2012). Andre Lwoff was the first to define the virus in 1957, ahead of his time. He defined it as a rot-carrying organism that can cause disease. It has one type of DNA that is either oxidized or non-oxidized. Viruses replicate from their own genetic kit. They are not able to divide or grow. They also do not have a special metabolism, which means that they do not produce energy (Fairy, 2012). Viruses have played a key role in shaping many of the major historical events in the human history. Viruses have killed more than (300) million individuals in the past (700) years. Viruses are not cells. They are particles with a protein outer covering surrounding their substance to protect them. They are so small that it is not possible to see them with an ordinary light microscope. Their size is smaller than bacteria by about (100-500) times. In addition, their diameters range between (200-300) nanometers. Viruses have the ability to create and form themselves for several times and to form pathogenic factors after reaching living cells. Viruses are very common as they are found in all different environments, where viruses are influential everywhere, affecting humans, plants, and animals (Hafidh, 2020). The effect of viruses was discovered long before the virus itself was discovered. Viruses cannot be captured because they are elusive and their size is very small. They are simple but ingenious. Experts are divided as to whether viruses are alive or not.

Second; Pandemic

Pandemic is a term intended for the large and global spread of a particular new or old disease that reaches many countries, gets out of control, and spreads in a very wide area of the world. It differs from a stable or endemic disease in terms of the number of people infected with it. It is not considered a pandemic unless it crosses international borders and affects a large number of people ("Academic Insights on the Corona Virus Pandemic (covid-19)," 2020).

Third; Corona Virus

Usually and in most cases, the general public uses the terms Corona virus and Covid-19 to interchangeably refer to the same meaning, but in fact, there is a difference between the two terms. Each of them has its meaning and significance.

Corona viruses are a family of viruses, some of which cause disease in humans, whereas, others do not cause it. The virus of great concern is currently called (sars-cov-2) or severe acute respiratory syndrome coronavirus type 2

(SARS-CoV-2). The World Health Organization defines the Corona virus as a family of viruses that cause disease in humans and animals. A number of corona viruses may cause respiratory infections in humans ranging in severity from common colds to more powerful and dangerous (Kawamen, 2014).

Fourth; COVID-19

It is the disease caused by the new Corona virus emerging in China in 2019. It can also be called the coronavirus disease. The letters are abbreviations for the following words;

Co = the first two letters of the word Corona.

VI = the first two letters of the word virus.

D = the first letter in the word disease in the English language.

19 = the year in which Covid-19 disease appeared.

Section Two

Reasons of spread of the Corona virus in the study area

Despite the role of natural factors and their influence on the spread of the Corona virus, but they are not the only factors responsible for the spread of the virus in the study area as both natural and human factors help the spread of the Corona virus in the study area. The Population distribution, population size, numbers, density, and economic and social factors may exceed the effect of natural factors. Therefore, the study of population centers has become one of the most prominent topics that are addressed when studying the spread and distribution of diseases in a region. In addition, human factors are of a dynamic, variable nature and are not fixed, as is the case for natural factors that are characterized by stability. Therefore, human factors acquire great and wide importance in many population studies. Hence, in the present study, the researcher sheds light on some of the reasons for the spread of the Corona virus in the study area. The questionnaire form was prepared in advance. According to the questionnaire form, the number of infected people is (663) with a percentage of (43.30%) of the total respondents.

The reasons of the spread of the Corona virus topic includes 10 paragraphs that revolve around the reasons of the spread of the Corona virus. Each of these paragraphs is answered according to the five-point Likert scale (strongly disagree, disagree, neutral, agree, strongly agree). So, the response is given This scale that has a score ranging from (1-5) respectively as shown in Table (2).

Table 2. Degrees of Response Alternatives on The Questionnaire Items

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Response alternatives
5	4	3	2	1	Score

The total score for each respondent's response to the paragraphs of the above topic ranged between (10-50) degrees. The overall response rate on each of the paragraphs of this topic has been classified into one of the following categories in Table (3).

Table 3. Response Categories for the Study sample

Categoryᵟ (High response) Greater than 3.667	Second category (Medium response) (3.667-2.333)	First category (Low response) Less 2.333	Topic
Agree	Neutral	Disagree	Reasons of spread of corona virus

The categories in the above table were formed according to the method of identifying the categories in the frequency tables, assuming that the number of categories equals 3 (no, neutral, agree).

1. Calculating the Total Range of the Five-score Likert Scale 1-5 =4

1. Calculating the category length by dividing the total range of the scale by the number of categories (4/3 = 1.333

3. The first category of the scale is determined by adding the length of the category (1.333) to the minimum in the scale (1 + 1.333 = 2.333). Then, the second and third categories are determined in the same way.

When conducting the statistical analysis, the following hypotheses were tested:

For the purpose of identifying whether there were statistically significant differences in the respondents' opinions about the reasons of the spread of the Corona virus for the infected population, the following hypothesis was tested:

1. The null hypothesis; There are no statistically significant differences in the respondents' opinion about each of the paragraphs of the reasons of the spread of the Corona virus.

2. The alternative hypothesis; There are statistically significant differences in the opinion of the respondents about each of the paragraphs of the reasons of the spread of the Corona virus.

The results of testing the reasons of the spread of the Corona virus were summarized in Table (4) and Figure (1). It was found that the respondents' response to all the paragraphs of the reasons of the spread of the Corona virus was statistically significant below the level of significance of less than 0.01 and the evaluation of all reasons was high so that the answer to paragraph 4 Which states (people's ignorance of the seriousness of the virus, the speed of its spread, and the method of its spread) ranked first with an average of (4.332), which is the highest average of responses and a standard deviation of (2.446). The answer to paragraph 3, which states (the dressing of health centers and their treatment and the

inexperience of medical personnel) ranked third with an average of (4.213) and a standard deviation of (0.390).

The answer to paragraph 6, which states (the establishment of funerals, weddings, and the practice of rituals despite their prohibition) ranked Fourth with an average of (4.092) and a standard deviation of (1.800). The answer to paragraph 7, which states (Mixing with others despite their infection and direct contact with them) ranked fifth with an average of (4.048) and a standard deviation of (1.117). The answer to paragraph 8, which states (not to visit a doctor or health centers despite the appearance of symptoms of the Corona virus) ranked sixth with an average of (3.956) and a standard deviation of (1.185).

The answer to paragraph 9, which states (delayed finding the vaccine led to a large spread of the virus) ranked seventh with an average of (3.943) and a standard deviation of (0.592). The answer to paragraph 5, which states (home quarantine due to the lack of a place in the health center and hospitals) ranked eighth with an average of (3.891) and a standard deviation of (0.62). The answer to the paragraph 2 which states (discretion over the real numbers of those infected and deceased with the Corona virus) ranked ninth with an average of (3.836) and a standard deviation of (5.409). The answer to paragraph 10, which states (transfer of workers from outside the province and work within Babylon and vice versa) ranked tenth with an average of (3.745) and a standard deviation of (0.486).

Section Three

The relationship between demographic variables and the spread of the Corona pandemic

In order to identify whether there is a relationship between the demographic variables mentioned in the questionnaire, including residence, gender, age, marital status, educational level, monthly income, occupation, quality of housing, and housing environment and identifying whether there are statistically significant differences in the respondents' opinions about the reasons of disease spread Due to the variables of residence, gender, age, marital status, educational level, monthly income, occupation, quality of housing, and housing environment, the following hypotheses were tested:

1. The null hypothesis; There are no statistically significant differences in the respondents' opinion about the reasons of disease spread due to each of the variables of residence, gender, age, marital status, educational level, monthly income, occupation, housing quality, and housing environment.

2. The alternative hypothesis; There are statistically significant differences in the respondents' opinion about the topic of the reasons of disease spread due to each of the variables of residence, gender, age, marital status, educational level, monthly income, occupation, housing quality, and housing environment.

To test this hypothesis, the researcher used the analysis of variance test for one criterion to identify the differences in the mean estimates of the study sample as shown in Table (5) and Figure (2) that illustrate the test results.

Table 4. Responses of the Study Sample Members to Assess the Reasons of The Spread of the Corona Pandemic in Babylon in 2020

Assessing reasons of spread	Rank	Statistical significance	Degree of freedom	Calculated T-Value	Standard deviation	Arithmetic mean	Degree of agreement					Paragraph
							Totally agree	Agree	Neutral	Disagree	Totally disagree	
High	1	0	662	37.657	2.446	4.332	357	224	36	37	9	4
High	2	0	662	31.525	1.24	4.226	336	210	67	31	19	1
High	3	0	662	29.755	0.39	4.213	347	191	66	37	22	3
High	4	0	662	24.204	1.8	4.092	321	203	56	45	38	6
High	5	0	662	20.692	1.117	4.048	351	163	38	52	59	7
High	6	0	662	20.755	1.185	3.956	271	236	49	70	37	8
High	7	0	662	20.637	0.592	3.943	283	192	79	85	24	9
High	8	0	662	22.129	0.62	3.891	205	282	93	65	18	5
High	9	0	662	18.483	5.409	3.836	240	209	107	79	28	2
High	10	0	662	16.622	0.486	3.745	209	214	133	76	31	10

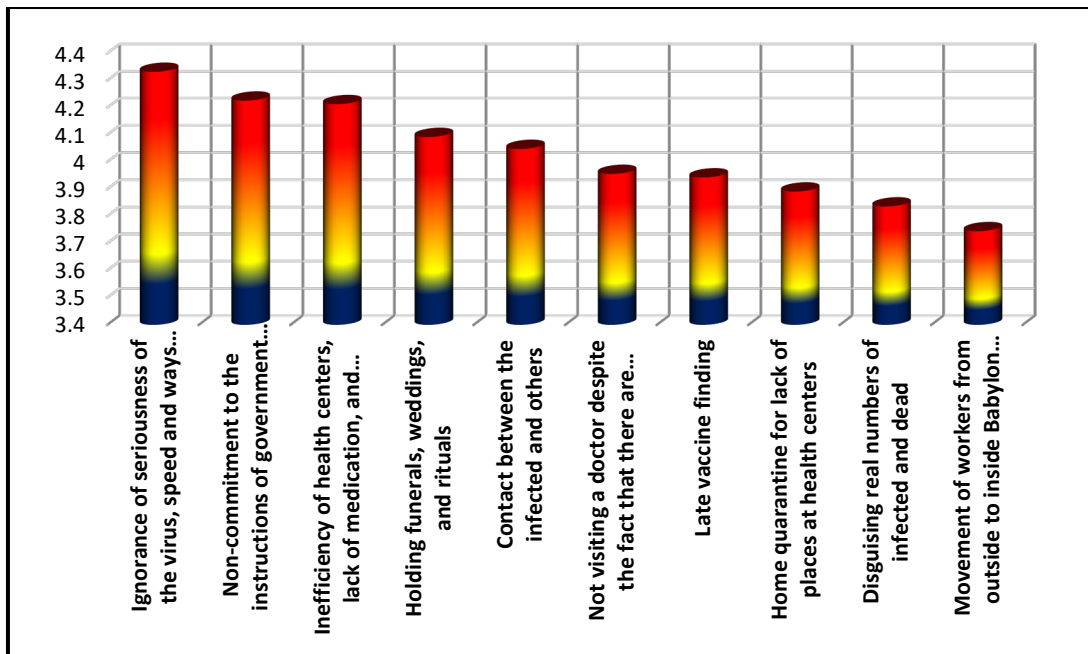Source; The researcher based on the questionnaire and (SPSS)

Figure 1. Responses of study sample members for reasons of spread of corona virus in Babylon in 2020

Source; The researcher based on (4)

The results of Table (5) and Figure (2) show that there are statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the variables of residence and occupation. It was found that the respondents' opinions regarding these variables are statistically significant under a significance level of less than (0.01). Whereas, there are no statistically significant differences in the respondents' opinion about the reasons for the spread of the disease attributed to the other variables of gender, age, marital status, educational level, monthly income, quality of housing, and housing environment as they are below the level of significance of (0.05).

Table 5. The Results of the Analysis of One-Way Analysis of Variance By Variables to Find Out the Differences on the Topic of the Reasons of the Spread of the Corona Pandemic

Level of significance		F-Value	Average	Total	Degree of freedom	Source of variation
Significant	0.000	9.33	4.059	12.178	3	Residence
insignificant	0.941	0.006	0.002	0.002	1	Gender
Insignificant	0.073	1.682	0.732	8.052	11	Age
Insignificant	0.057	2.665	1.16	3.479	3	Marital status
Insignificant	0.624	0.732	0.318	1.91	6	Educational level
Insignificant	0.060	2.274	0.99	3.958	4	Monthly income
Significant	0.000	7.478	3.253	16.267	5	Occupation
Insignificant	0.051	6.286	2.735	5.47	2	Housing quality

Insignificant	0.500	0.455	0.198	0.198	1	Housing environment
			0.435	272.367	626	Error
			3.488	33.7	207	Total

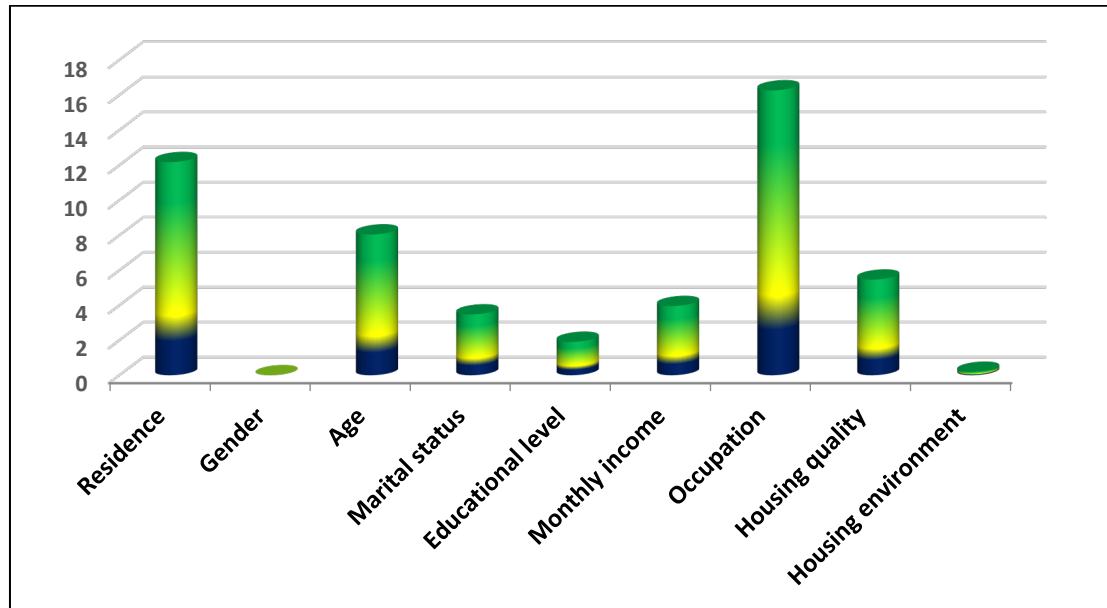Source; The researcher based on the questionnaire and (SPSS

Figure 2. The results of the one-way analysis

Source; The researcher based on Table (5)

This hypothesis can be broken down as follows:

1. There are statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the variable of residence under a level of significance of less than (0.05).

The researcher attributes this result to the fact that each region in the study area is characterized by characteristics or factors that distinguish it from others, especially human factors in terms of the number of the population and its qualities, age, environmental and density composition, as well as the available services and their quality, especially health services as most of them suffer from a clear lack of health services, especially areas that are away from the center. So, this factor has a significant influence on the spread of the Corona virus. In an area, if residence is in crowded centers, it increases the possibility of infection due to the high population density.

2. There are statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the variable of occupation under a level of significance of less than (0.05).

The researcher attributes this result to the fact that the impact of the Corona pandemic included everyone and from different occupations, but there is a discrepancy in its impact, as the category of low-income earners are the most affected compared to others due to the interruption of their work due to lockdown and closing their workplaces. So, it is noticed that there are differences in The opinions of the respondents between the daily income workers and the employee,

who may be affected less than the daily income workers, the retiree, or others, about the reasons of the spread of the Corona virus, in addition to the fact that a large percentage of people with limited income are not committed to the instructions of prevention and social distancing in terms of breaking the lockdown and going out to work. This helps to infect them and transfer the virus to Others, which increases the spread of the Corona virus. There were also differences in their opinions about the reasons of the spread of the Corona virus due to their lack of commitment.

3. There are no statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the gender variable under a level of significance of less than (0.05).

The researcher attributes this result to the fact that both males and females were exposed to infection with the Corona virus, in addition to the high incidence of male infections compared to females, but this did not affect the variation in the respondents' opinions about the reasons of the spread of the Corona virus. The effect of gender is less than the influence of occupation and residence variables in the spread of the virus.

4. There are no statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the age variable under a significance level of less than (0.05).

The researcher attributes this result to the fact that the impact of the pandemic included the category of young people as well as the elderly category. So, the effect of age on the spread of the Corona virus is less than other variables, as well as its impact on the variation in the respondents' opinions about the reasons of the spread of the Corona virus is less than the residence and occupation variables.

5. There are no statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the variable of marital status under a significance level of less than (0.05).

The researcher attributes this result to the fact that all single, married, widowed, and divorced persons were affected by the Corona virus, whether they were infected or not. Therefore, opinions were similar about the reasons of the spread of the Corona virus, in addition to the fact that the impact of marital status on the spread of the Corona virus is almost non-existent or very little.

6. There are no statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the educational level variable under a significance level of less than (0.05).

The researcher attributes this result to the fact that when the Corona virus spread, it affected everyone and infected many residents of the study area and from different educational levels. Therefore, the educational level did not affect the dispersal of opinions and the presence of differences, as well as its impact on the spread of the Corona virus compared to other variables.

7. There are no statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the variable of monthly income under a significance level of less than (0.05).

The researcher attributes this result to the fact that the pandemic affected all low, middle, and high incomes, but to varying degrees.

8. There are no statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the variable of housing quality under a significance level of less than (0.05).

The researcher attributes this result to the fact that ownership, rent, etc.) did not affect the quality of their housing in the opinion of the respondents about the reasons of the spread of the Corona virus.

9. There are no statistically significant differences in the respondents' opinion about the reasons for the spread of the disease due to the variable of housing environment under a significance level of less than (0.05).

The researcher attributes this result to the fact that the Corona virus did not adhere to any geographical limits, and infected many people, whether city dwellers or rural dwellers.

In order to identify the source of the differences in relation to geographical location, the Dunnett post-test was used as shown in Table (6) that shows the results of the Dunnett test.

The results indicate that there are differences between the opinions of the respondents in Al-Hilla District and Al-Mahaweel District in favor of Al-Hilla District, that is, the residents of Al-Hilla District are more in agreement with the paragraphs of the reasons for the spread of the Corona virus due to the high infections in the district compared to other districts, as well as the availability of most of the conditions that the virus needs to be transmitted, including natural and human factors , such as high population density, high population numbers, lack of services, crowding, and mixing. There are also differences between the opinions of the respondents in Al-Hilla District and Al-Hashimia District in favor of Al-Hilla District for the same reasons mentioned above. The results also reveal that there are differences between the opinions of the respondents in Al-Mahaweel District and Al-Musayyab District in favor of Al-Musayyab District because of the large population gathering and the irregular distribution of the population and their concentration In the centers of districts and cities, as well as the lack of commitment. This means that the residents of Al-Musayyab district are more compatible with the paragraphs of the reasons for the spread of the Corona virus for the same previous reasons.

In order to identify the source of the differences in relation to the occupation, the Dennett posttest is used as in Table (7). The results indicate that there are differences between the opinions of the employee and the employer in favor of the employee due to the nature of the work between the employee and the employer in terms of going out, working, and breaking the lockdown. Therefore, employees are more in agreement with the paragraphs of the reasons of the spread

of the Corona virus. The type of occupation plays a role in the spread of the Corona virus. This has a strong relationship with the extent of commitment. Employees are often not committed to the instructions of the concerned authorities in terms of prevention and social distancing.

Table 6. Dunnett's Test Results to Identify the Differences in the Total Degree of Response with Respect to the Variable of Residence

Significance level		Mean variation	Residence location		Variable
Significant	0.000	0.348	Al-Mahaweel District	Al-Hilla District	Residence area
Significant	0.001	0.283	Al-Hashimia District		
Insignificant	0.538	0.077	Al-Musayyab District		
Significant	0.000	-0.348	Al-Hilla District	Al-Mahaweel District	
Insignificant	0.779	-0.065	Al-Hashimia District		
Significant	0.003	-0.271	Al-Musayyab District		
Significant	0.001	-0.283	Al-Hilla District	Al-Hashimia District	
Insignificant	0.803	0.065	Al-Mahaweel District		
Significant	0.018	-0.206	Al-Musayyab District		
Insignificant	0.537	-0.077	Al-Hilla District	Al-Musayyab District	
Significant	0.003	0.271	Al-Mahaweel District		
Significant	0.019	0.206	Al-Hashimia District		

Source; The researcher based on the questionnaire and)SPSS(

Table 7. The Results of Dunnett to Identify the Total Variations for Occupation Variable

Significance level		Mean variation	Occupation		Variable
Insignificant	0.363	-0.230	Unemployed	Worker	Occupation
Insignificant	0.150	-0.127	Employee		
Insignificant	0.301	-0.199	Student		
Significant	0.001	0.626	Housewife		
Insignificant	0.293	0.403	Retired		
insignificant	0.272	0.230	Worker	Unemployed	
Insignificant	0.863	0.103	Employee		
Insignificant	1.000	0.031	Student		
Significant	0.000	0.856	housewife		
Insignificant	0.051	0.633	Retired		
Insignificant	0.152	0.127	Worker	Employee	
Insignificant	0.941	-0.103	Unemployed		
Insignificant	0.968	-0.072	student		
significant	0.000	0.753	housewife		
Insignificant	0.078	0.530	Retired		

Insignificant	0.249	0.199	Unemployed	Student	
Insignificant	1.000	-0.031	Worker		
Insignificant	0.937	0.072	Employee		
Significant	0.000	0.825	housewife		
Insignificant	0.051	0.602	Retired		
Significant	0.001	-0.626	Unemployed	Housewife	
Significant	0.000	-0.856	Worker		
significant	0.000	-0.753	Employee		
Significant	0.000	-0.825	Student		
Insignificant	0.788	-0.223	Retired		
Insignificant	0.159	-0.403	Unemployed	Retired	
significant	0.032	-0.633	Worker		
significant	0.043	-0.53	Employee		
Significant	0.032	-0.602	Student		
Insignificant	0.704	0.223	Housewife		

Source; The researcher based on the questionnaire and (SPSS)

2. Conclusions

The present study found that the demographic variables, including residence, gender, age, marital status, educational level, monthly income, occupation, quality of housing, and housing environment are related to the spread of the Corona virus, but they differ from each other in terms of the severity of the impact. Tgeographical location and the occupation variables are among the most prominent Demographic variables affecting the spread of the Corona virus compared to other variables, in addition to the fact that there is a discrepancy in the opinions of the respondents about the reasons for the spread of the Corona virus in relation to the geographical location in terms of agreement with the paragraphs of the reasons of the spread of the Corona virus. The residents of Al-Hilla district are more in agreement with the reasons for the spread of the virus than The residents of Al-Mahaweel district and Al-Hashimia district. There are also differences in the opinions of the respondents between the residents of Al-Mahaweel district and the residents of Al-Musayyab district in favor of the residents of Al-Musayyab district in terms of their agreement and support for the reasons for the spread of the virus. There are differences between the opinions of the respondents in Al-Musayyab and Al-Hashimia districtss in favor of Al-Musayyab district, which means that The residents of Al-Musayyab district are more compatible with the reasons for the spread of the Corona virus in Babylon, especially since there is a difference in opinions among the residents of the study area in terms of occupation. There are differences between the opinions of the population with the occupation, including a worker and a housewife in favor of the worker, that is, the working population is more supportive of the reasons for the spread of the Corona virus. The same is true for other occupations.

Appendix (1)

Annex (1) The reasons for the spread of the Corona virus in Babylon Governorate for the year 2020

No.	Item	Strongly agree
1	Non-commitment to the instructions of government and ministry of health	
2	Disguising real numbers of infected and dead	
3	Inefficiency of health centers, lack of medication, and inefficiency of staff	
4	Ignorance of seriousness of the virus, speed and ways of its spread	
5	Home quarantine for lack of places at health centers	
6	Holding funerals, weddings, and rituals	
7	Contact between the infected and others	
8	Not visiting a doctor despite the fact that there are cymbtimsymptomss	
9	Late vaccine finding	
10	Movement of workers from outside to inside Babylon and vise versa.	

Source / researcher based on the questionnaire form in the master's thesis tagged with spatial variance of the spread of the Corona pandemic and its effects in Babil Governorate.

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