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Assessment of Health Awareness: Spreading and Prevention of Infection with SARS-CoV-2 Virus in the Anbar Governorate-Iraqi Community

Harith Abdulrahman Ahmed^{1*}, Mustafa Nuhad Al-Darraji² and Osama Abdulrahman Ahmed³

¹Iraqi Ministry of Education, Iraq.

²Department Biology, College of Science, University of Al-Anbar, Iraq.

³Public health, Iraqi Ministry of health and Environmental, Iraq.

*E-mail: sc.mustafa_79nt@uoanbar.edu.iq

Abstract. SARS-COV-2 virus is one of the fastest spreading viruses targeting the respiratory and other system in the body. Therefore, it is necessary to emphasize the needs for preventive measures, particularly at the moment because the virus is spreading fast in various parts of the world, causing various levels of infections: medium to severe, and fatal. The study aimed at assessing health and environmental awareness apart from correcting some scientific healthy concepts related to COVID-19. Additionally, this study also attempted to spread awareness in a simple way that simulates all levels of society. The current study focused on Iraq, specifically Al-Anbar governorate, as it is free from COVID-19 infections according to the reports of the Iraqi Ministry of Health in cooperation with the WHO. In this study, a set of electronic questionnaire was selected to collect relevant data. The electronic questionnaire was chosen because of the quarantine order by the authority due to the COVID-19. The items were built based on a variety of health, preventive, and environmental scientific questions and it was electronically distributed to 2084 individuals in Governorate. The findings revealed that Ramadi city had the most participants responding to the questionnaire (47%). The participation rate for female was 52% while the rate for male is 48%. The biggest age group was 20-24 years old and the highest academic background was a bachelor's degree in education. The findings indicated a good percentage of health awareness among the participants in the governorate emphasizing on health instructions and preventive measures taken by the Crisis Cell, which had an important role in being infectious-free during the period. It is summarized that the level of health awareness and the role of the Crisis Cell: worked together COVID-19 the infection. Additionally, this questionnaire had a great role in correcting some understanding of scientific concepts among the public.

Keywords. Awareness, COVID-19, Crisis Cell, Health, Prevention.

1. Introduction

Coronavirus (CoVs) is a form of single-stranded RNA viruses that can infect peoples and animals, causing respiratory, other diseases of which gastrointestinal, hepatic, and neurologic diseases. [1]. As



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large family known RNA viruses, coronavirus are further divided into genera: alpha-coronavirus, beta coronavirus, gamma-coronavirus, and delta coronavirus [2]. As well, (CoVs) are the largest of respiratory viruses that can cause mild to moderate diseases, ranging from the common cold to severe respiratory syndromes [3]. COVID-19 disease is an infectious disease caused by the newly discovered coronavirus. The most common symptoms of COVID-19 disease are fever, fatigue, and dry cough. Some patients may experience pain and aches, nasal congestion, cold, sore throat, or diarrhea. These symptoms are usually mild and begin gradually. Some people become infected without showing any symptoms and without feeling ill. Most people (about 80%) recover from the disease without the needs for special treatment [4]. Also, the severity of the disease intensifies in approximately one person out of every six people who develop COVID-19 infection, who suffer from difficulty breathing. The risk of the elderly and people with underlying medical problems such as high blood pressure, heart disease, or diabetes are severe. About 2% of people who have contracted the disease have died. People with fever, cough, and breathing difficulty should seek medical care. The disease can be transmitted from a person to a person through small droplets scattered from a nose or mouth when a person with COVID-19 disease coughs or sneezes. These droplets fall on the objects and surfaces surrounding the person. Other people can then develop COVID-19 disease when they are exposed to these objects or surfaces and then touch their eyes, nose, or mouth. People can also get COVID-19 disease if they breathe droplets that come out of the person with the disease with a cough or exhale. Therefore, it is important to stay away from a sick person more than one meter (3 feet) [4]. In December 2019, an outbreak of pneumonia due to unknown cause occurred in Wuhan, China and rapidly spread throughout the country within 1 month. Coronavirus disease 2019 (COVID-19) is an announced universal pandemic, by a WHO on 30 January 2020 [5]. It then resulted in a challenging outbreaks in many regions in China and expanding globally [6]. Serious pandemic continues to progress until most invaded the world, reaching Iraq, recorded the first case with COVID-19 in late February in Baghdad [7]. The incidence started to increase, reaching 1,400 COVID-19 cases by mid-April according to Iraqi Ministry of Health. The highest incidences were in the southern governorates of Iraq, for example, Basra, Najaf, and Karbala, as well as the northern governorates such as Erbil and Sulaymaniyah. The number of incidence in the middle governorates was very few, such as Anbar, Nineveh, and Salah Uddin, compared to other governorates according to the Iraqi Ministry of Health. Al-Anbar Governorate is the largest governorate of Iraq, with an area equivalent to a third of the country's area, with an area of 138,500 square kilometers, and a total population of 1,818,318 people (2019 census) according to the yearly report of the Planning Directorate in Anbar Governorate. It is a border to the north by Salah al-Din and Nineveh governorates, to the northwest by Syria, to the west by Jordan, to the east by the Baghdad governorate, to the south by Saudi Arabia, and the southeast by governorates of Karbala and Najaf. It is worth mentioning that the Anbar Governorate did not record COVID-19 incidence except for two cases according to the Iraqi Ministry of Health. This study aimed to assess health awareness and investigate the extent to which citizens in Anbar Governorate have absorbed this serious pandemic, invading most of the countries in the world and claimed the lives of many people in various regions in very short periods. However, the issue cannot be compared to a similar pandemic in previous periods. It is stressed that this study did not have the intention to spread fear among people and curb their hopes for recovery, but rather to show the reality of seriousness and ways to survive from this pandemic. The effective role of the Crisis Cell (Al-Anbar Governorate) was also highlighted to face this disease, especially referring to the decisions taken by the Iraqi Government generally and Al-Anbar Governorate particularly as a distinct role in the non-expansion for the disease among the citizen. Besides, it aimed to investigate the requirements that must be provided to citizens by the Crisis Cell in terms of health and services during this period, which contributed to overcoming this dangerous stage.

2. Materials and Methods

The responses from the questionnaire were received from April 8 to April 20, 2020 during the quarantine period in the Al-Anbar Governorate. This period was chosen because it is considered the most appropriate time for people to sit at homes, thus, this condition resulted in a large number of participants. A large number of participants are an advantage for this study to build their health awareness and to correct misconceptions of some people about COVID-19. The research team decided to collect the data online: the questions was developed through a Google Form and sent to a large number of residents in cities of Al-Anbar through the social media such as WhatsApp, Viber, Messenger, and others [8]. The questionnaire was followed by an explanation on objectives of the questionnaire and also an instruction on responding to the items based on their beliefs which they feel appropriate. The participants were residents of Al-Anbar province aged 20 years and above who agreed to participate and were instructed to complete the questionnaire by clicking the provided link. The approval in distributing the questionnaire was obtained from the President of the Crisis in Al-Anbar Governorate. The questionnaire was designed to investigate the demographic details and evaluation of health awareness among the participants. The questionnaire consisted of several parts. The first part includes demographic details: place of current residence, gender, age, education [9] as illustrated in Table 1.

Table 1. Demographic details of the participants

No.	Demographic details	Options		
1	Place of residence	Ramadi	Fallujah	Haditha
		Khalidiya	Aana	Rawah
		Heet	Ratba	Qaam
2	Gender	Male		Female
		20-24	25-29	30-34
3	Select your age group	35-39	40-44	45-49
		50-54	55-59	+60
		Master's degree and above		
		Bachelor's degree		
4	Education	Diploma degree		
		Middle school and below		
		I did not get a degree but read and write		

The second part consisted of seven questions about the coronavirus: its existence, origin, methods of spreading, assessing health awareness, and the role of environmental pollution in addition to other questions related to the virus SARS-CoV-2. The third part investigated the participants' views on assessing health awareness and ways to prevent COVID-19 and the role of the Crisis Cell in the province in controlling the disease in addition to health and services provided to the citizens. The last part consisted of an assessment of health awareness about how to curb COVID-19 in the society, as well as how those who had recovered from COVID-19 joined into the society again. More than one correct answer was discovered from the responses; however, there was more correct answer, as well as incorrect answers. Rates were used to present the correct answers and various practices. The results from the questionnaire were presented through percentages in terms of knowledge scores, attitudes and practices of the participants according to the level of health awareness among them. In addition, the demographic details were independent variables and knowledge score as the outcome variable. These were conducted to identify factors associated with knowledge.

3. Results and Discussion

There were 2084 participants in this study who came from different cities in the Governorate of Anbar and were divided according to their approximate ratio from high to low. Where Ramadi was the largest number of respondents participating in the questionnaire with 47%, and then followed by the

city of Fallujah (21.1%), Haditha (11.9%), Khalidiyah (7%), Heet (6.8%), Al Qaam (1.9%), while the rest of the cities was 1% and less. The female participation rate was 52%, while the male participation was 48%. The percentages of age groups were 38.6%, 16.7%, 14.7%, 9.3%, 9.0%, 4.8%, 3.8%, 1.3% and 1.7 for age groups of 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59 and 60 above respectively. As for the level of education, the percentages were 17.6%, 54.8%, 21.6%, 5.3% and 0.7% master's degree and above, Bachelor's degree, diploma degree, Middle school and below, and I did not get a degree but read and write, respectively. All the demographic details are illustrated in Table 2.

Table 2. Demographic details of the questionnaire.

No.	Demographic details	Options	Number of participants	Percentage %
1	Place of living	Ramadi	985	47.3
		Fallujah	440	21.1
		Khalidiya	145	7
		Heet	142	6.8
		Haditha	249	11.9
		Aana	33	1.6
		Rawah	24	1.2
		Qaam	41	1.9
		Ratba	25	1.2
2	Gender	Male	1006	48.3
		Female	1078	51.7
3	Age group	20-24	804	38.6
		25-29	348	16.7
		30-34	307	14.7
		35-39	194	9.3
		40-44	188	9
		45-49	100	4.8
		50-54	80	3.8
		55-59	27	1.3
4	Education	60+	36	1.7
		Master's degree and above	367	17.6
		Bachelor's degree	1141	54.8
		Diploma degree	450	21.6
		Middle school and below	111	5.3
	I did not get a degree but read and write	15	0.7	

In this part, the results of the questionnaire on evaluating health and environmental awareness of the community in Anbar Governorate were presented based on the responses to each item in the questionnaire.

3.1. Item 1: Do you think there is a disease called COVID-19 (or locally called the Corona) caused by a type of corona virus?

Based on the analysis, 68% of the respondents chose (A) Yes, there is a reasoned virus COVID-19 according to reports by WHO, which confirms this [10]. This is the most correct answer if compared

to answers to others. While 10% of the respondents chose (B) I think it is a way to control and fabricate the global economic crises, followed by 6% who chose (C) Do not think a virus but the sarin gas according to what is circulating in social media [11]. Next, is followed by 7% who chose (D) I think it is simpler than that because its symptoms are somewhat similar to flu, I do not think it is so scary [12]. While the last choice indicated 9% who chose (E) I do not know. These findings are illustrated in Figure 1.

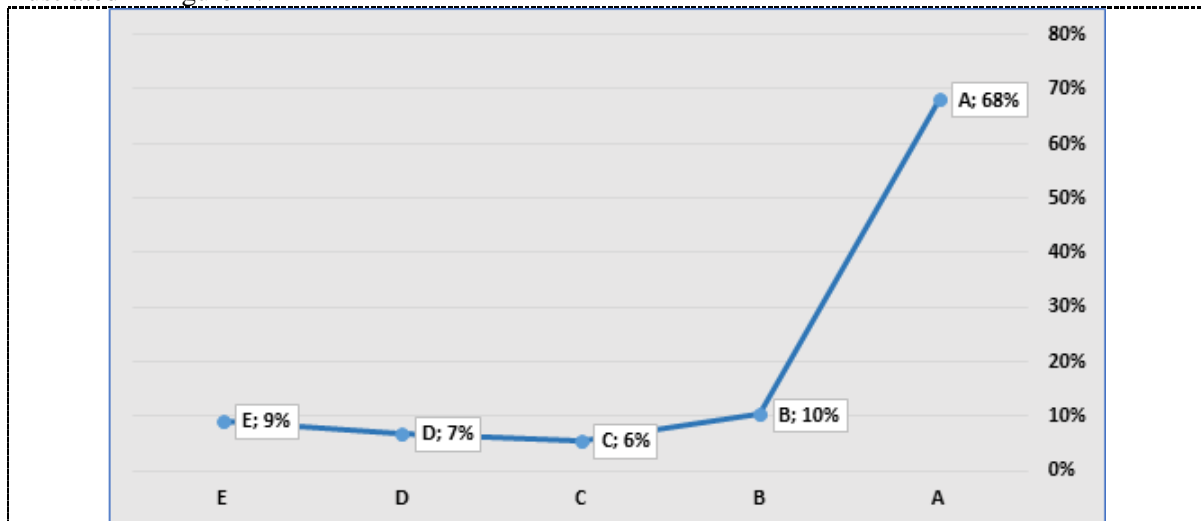


Figure 1. Findings for Item 1: Do you think there is a disease called COVID-19 (or locally called the Corona) caused by a type of corona virus?

3.2. Item 2: How do you rate your knowledge about viruses in terms of infection and prevention methods and others?

There are four options of answers the participants can choose for their respond. Based on the findings, it revealed that 30% of the respondents chose (A) excellent through published scientific research and reports WHO while 30% chose (B) very well through the instructions posted by the Crisis Cell on governorate. In addition 25% of the respondents chose (C) good through reports on social media and finally 10% of the respondents chose (D) I have no interest in the subject. This findings indicated a danger to the society because they are lack of interest in personal protective methods against COVID-19.

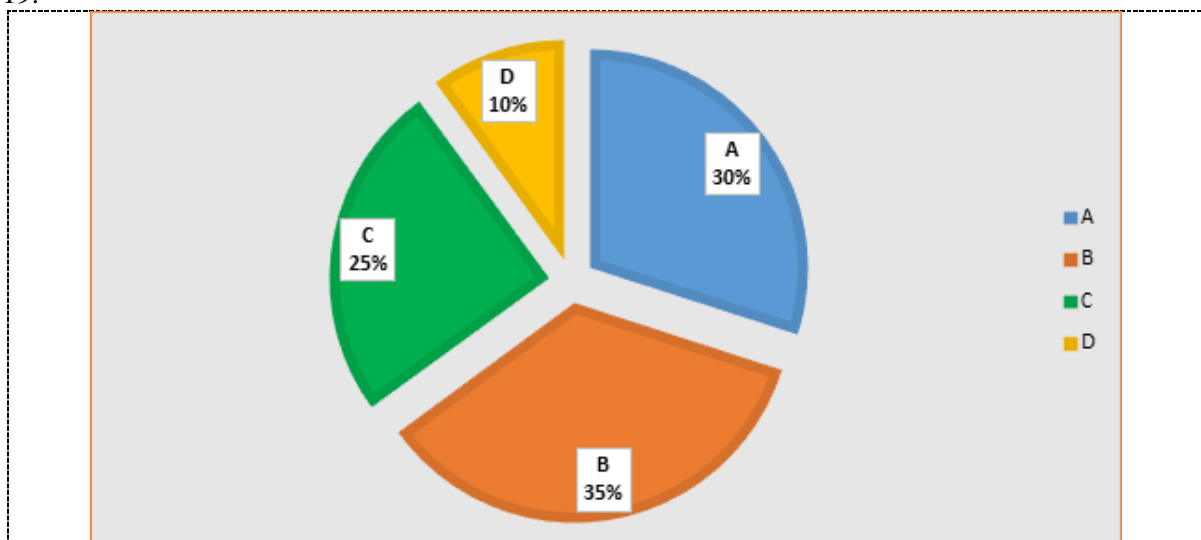


Figure 2. Findings for Item 2: How do you rate your knowledge about viruses in terms of infection and prevention methods and others?

3.3. Item 3: What distinguishes the SARS-CoV-2 causing COVID-19 from other viruses?

According to the findings, 59% of the respondents chose (A) Rapid spread in societies, this answer was considered correct because since the outbreak of the disease in late December 2019 till the present time, according to the reports of the World Health Organization, the infection has reach 3 million worldwide [13]. While 10% chose (B) Style of infection through the respiratory tract. This answer is considered correct as it indicates that the virus is characterized by a respiratory infection. However, a new study showed that the virus infects blood hemoglobin and reduces its efficiency in carrying oxygen and carbon dioxide [14]. This is followed by options (C), (D), and (F) which obtained 6% respectively. The choice of (C) Multiple strains and mutations of the virus is considered correct because the statement is proven by studies on the virus [12]. However, it is not considered a characteristic because most viruses have this characteristic. This is followed by choice (D) The number of deaths caused by the virus, which this is also not a distinctive characteristic due to the fact that the number of deaths does not exceed 3%, according to the statistics of the WHO [13]. As for option (F) I did not know what distinguishes this virus, 6% of the respondents had chosen this option. Finally, as for option (E) few studies are available on the virus, 12% of the respondents chose this option, thus this answer is considered an incorrect answer because there are thousands of studies on this pandemic. The findings are illustrated in Figure 3..

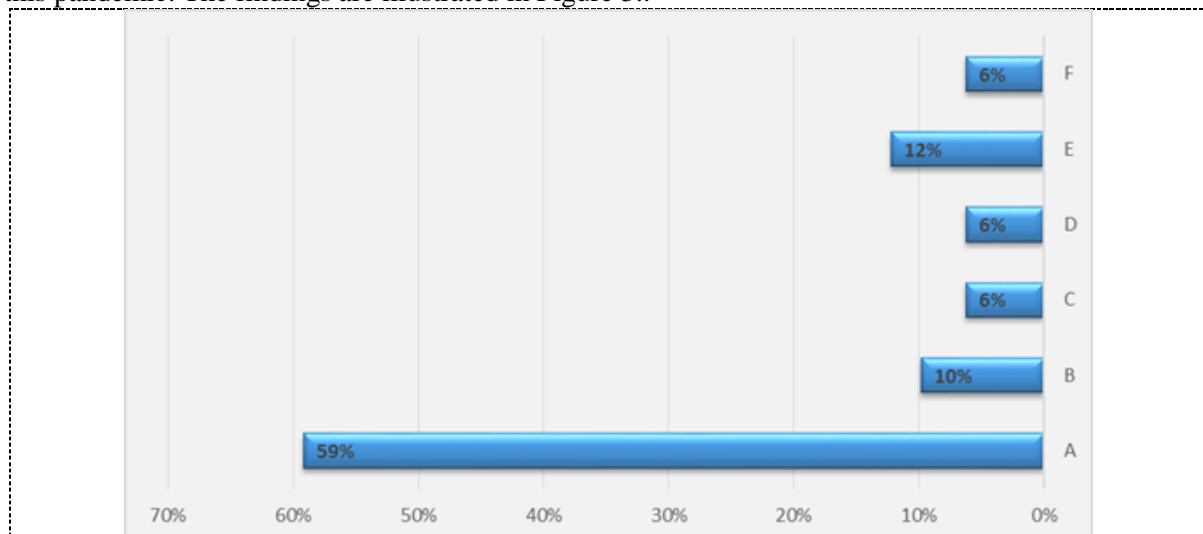
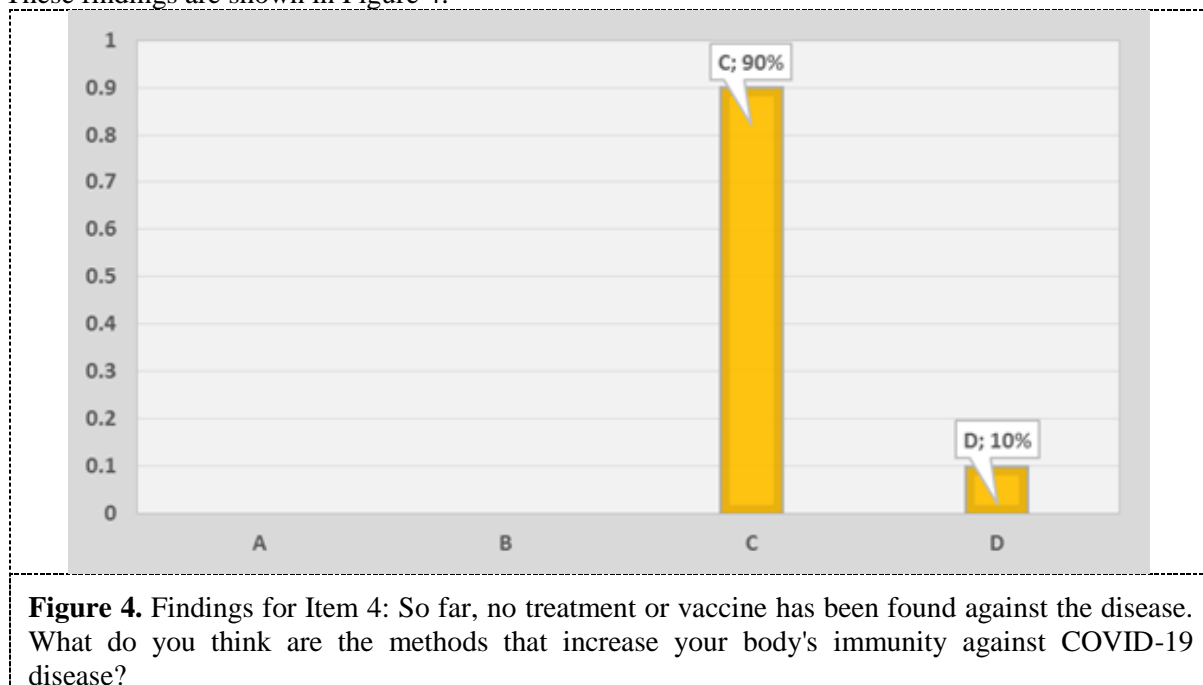


Figure 3. Findings for Item 3: What distinguishes the SARS-CoV-2 causing COVID-19 from other viruses?

3.4. Item 4: So far, no treatment or vaccine has been found against the disease. What do you think are the methods that increase your body's immunity against COVID-19 disease?

Based on the analysis of the questionnaire data, foods rich in vitamins A, C, E, B6 and B12, zinc, and iron such as citrus fruits, dark green leafy vegetables, nuts, and dairy products were some of the responses given by the participants [15]. From the findings, evidence showed that there is a 12% overall protective effect of vitamin D supplements against bacterial and viral acute respiratory tract infection. In addition, vitamin C (L-ascorbic acid) has a pleiotropic physiological role, and there is evidence supporting the protective effect of high dose intravenous vitamin C against COVID-19 [16]. Maintain a healthy lifestyle by exercising (home-exercises), regular sleep and meditation and avoid

smoking, alcohol, and drugs [15] but high-intensity exercises probably due to the production of oxidants and suppression of the immune system may be dangerous, however, it helps to exacerbate the COVID-19 virus. It means that moderate-intensity exercise should be recommended as a non-pharmacological, inexpensive, and viable way to cope with the COVID-19 virus [17]. This COVID-19 epidemic has aroused an increasing attention worldwide. Patients, health professionals, and the public are under insurmountable psychological pressure, which may lead to various psychological problems, such as anxiety, fear, depression, and insomnia. Psychological crisis intervention plays a pivotal role in the overall deployment of the disease control. In addition, awareness regarding the devastating consequences of hoarding and panic buy should be spread in the community [18]. The item consists of two correct options (A) Through exercise sport, healthy nutrition, and mental health and (B) may be by using some vitamins that increase my immunity. This is followed by the third options (C) that contains the previous two options which obtained 90% compared to the other first two options. Finally, option (D) I have obstacles that prevent me from changing my lifestyle, and so I do not think as affecting which is the wrong answer, and therefore resulted in only 10% of the overall percentage. These findings are shown in Figure 4.



3.5. Item 5: In light of the advanced scientific capabilities, why have not been reached so far as a treatment or vaccine for COVID-19 disease?

The first three options for Item 5 were considered wrong or not yet proven. From the options provided, option (A) Difficulty dealing with this type of virus due to its dangers obtained 22% from the overall response. As for option (B) This is a virus genetically modified and has many mutations, the findings indicated 20% of the response rate by the respondents. This is followed by option (C) Failure to unify efforts and consider the matter materially which obtained 7%. The current COVID-19 pandemic is an international public health problem. There have been rapid advances in what we know about the pathogen, how it infects cells and causes disease and clinical characteristics of the disease due to the rapid transmission around the world [19]. As for option (D) the rapid spread led to the dispersion of efforts between researchers and redress health reality, the findings indicated that this option obtained 26% of response rate. Currently, there is not sufficient evidence that any existing antiviral drugs can efficiently treat COVID-19 pneumonia. In addition, the vaccines and therapeutic antibodies aimed to specifically target SARS-CoV-2 are also being tested; this solution is more long-term, as they require

thorough testing of their safety [20]. This is similar to option (E) the topic needs time to ensure the safety and security of the treatment or vaccine which obtained 25% of the response rate. These findings are shown in Figure 5.

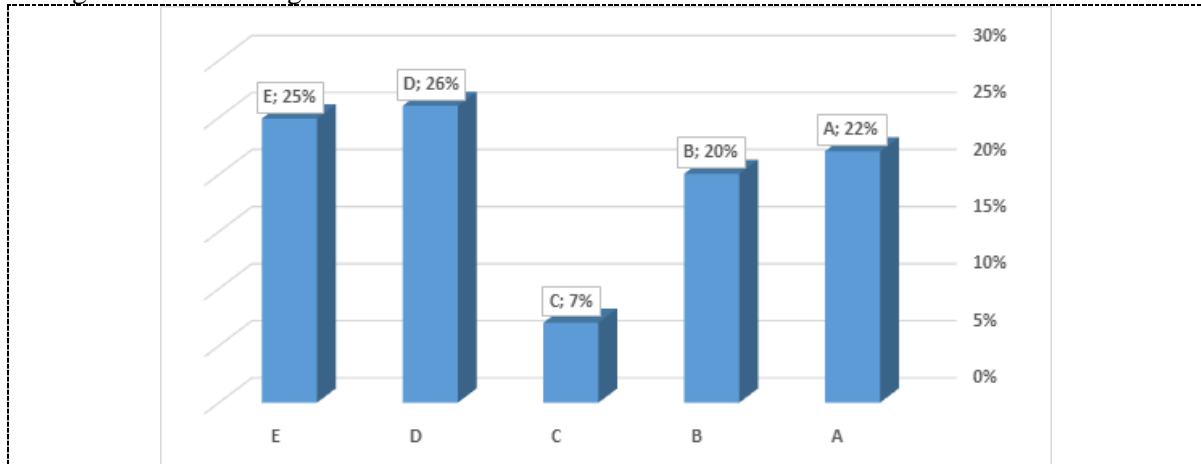


Figure 5. Findings for Item 5: In light of the advanced scientific capabilities, why have not been reached so far as a treatment or vaccine for COVID-19 disease?

3.6. Item 6: One of the theories of the emergence of viruses due to environmental pollution. Do you think that environmental pollution has a role in the emergence of viruses?

One theory hypothesizes that viruses arose from circular DNA (also called a plasmid) that can replicate independently and move between cells, transferring genetic information from one organism to another. For example, some plasmids carry the genes responsible for antibiotic drug resistance. According to this theory, the plasmid escapes from cells and evolves in a way that allows it to enter another cell to produce viruses. Another theory suggests that viruses could have evolved from more complex free-living organisms, such as bacteria or cells. A recent study showed that a protein called ARC that is important for memory in humans could form virus-like particles and transfer RNA between cells. In all cases, environmental pollution contributes significantly to the emergence of viruses [21]. This is somewhat similar to option (A) Yes, a belief that it contributes significantly to the emergence of viruses, which received 36% of the response rate. This is followed by option (B) I do not think that environmental pollution cause it with 20% response rate, option (C) I think this virus is laboratory-produced which suggests the conspiracy theory circulated in various media outlets and obtained 35% response rate, and the final option (D) I do not know obtained 9% response rate. These findings are shown in Figure 6.

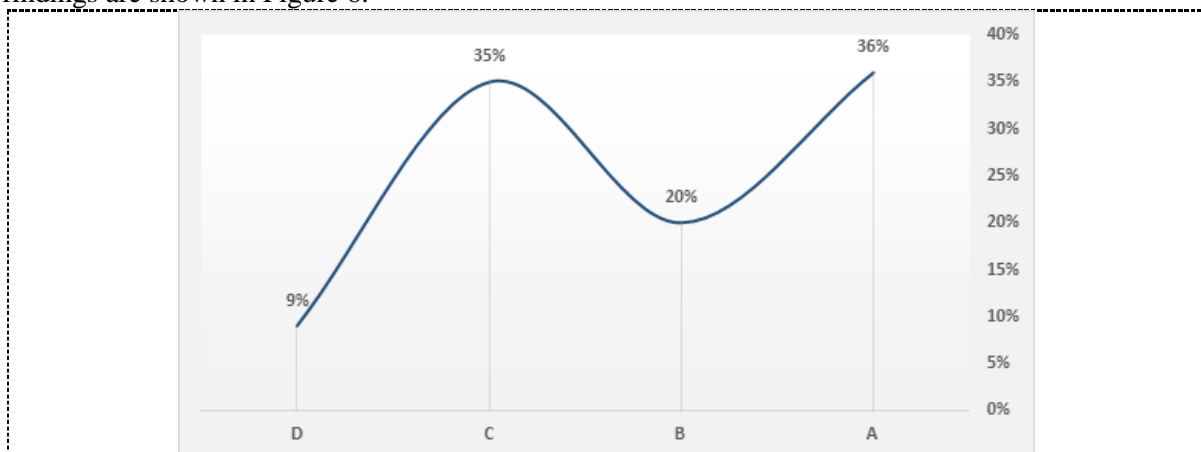


Figure 6. Findings for Item 6: One of the theories of the emergence of viruses due to environmental pollution. Do you think that environmental pollution has a role in the emergence of viruses?

3.7. Item 7: In your opinion, what are the most important ways to spread the virus in societies?

According to WHO Guidance, it is suggested to maintain at least 1-meter distance between two people. When someone coughs, sneezes, or speaks he or she sprays small liquid droplets from their nose or mouth which may contain viruses. If a person is too close to someone else, he or she can breathe in the droplets, including the COVID-19 virus if the person has the disease because it is considered the primary method of virus infection. From the analysis of Item 7, option (A) Through flying drizzle from coughing and sneezing of a person with COVID-19 obtained 55% response rate [4]. Likewise, WHO considers option (B) touching surfaces, food, or commercial goods contaminated with the virus to be correct and obtained 20% response rate. It can be considered as a correct answer if it is assumed that a person sneezes or coughs on certain surfaces that may be touched by a healthy person and then places his hand on his mouth, nose, or eye [4]. As for option (C) studies are indicating that animals a role has been of Virus transport, the findings indicated that this option obtained 7% response rate where bats harbor viruses including sars-COV-2. In some circumstances, facilitating spillover happens which includes direct contact with bats (bites, scratches, consumption of bats), contact with materials contaminated by bat saliva, feces or urine, and amplification via intermediate hosts such as domestic animals or other wildlife species. Due to this reasons, a person must stay away from bats to reduce the transmission risk of viruses from bats to humans and livestock [22, 23]. The last option (D) overpopulation, received 18% response rate. This indicated that a person must avoid going to crowded and overpopulation places because when people are together in crowds, they are more likely to come into close contact with someone who has COVID-19 and it is more difficult to maintain a physical distance of 1 meter, thus, this has been confirmed by the World Health Organization [4]. The findings for Item 7 is illustrated in Figure 7.

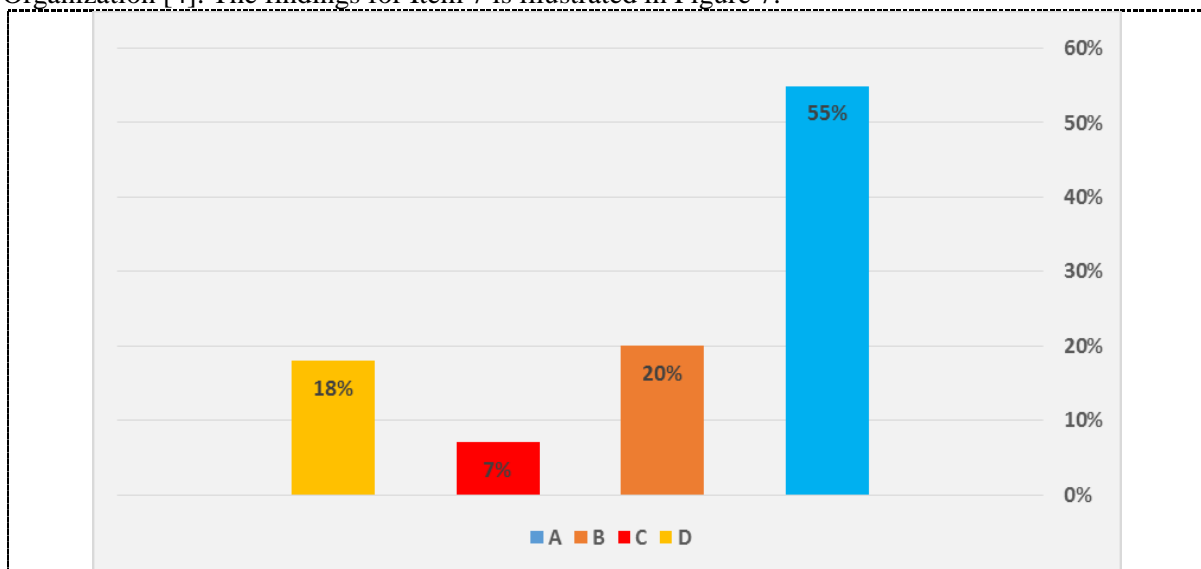


Figure 7. Findings for Item 7: In your opinion, what are the most important ways to spread the virus in societies?

3.8. Item 8: WHO urges to stay at home, not go out except when necessary, follow good hygiene practices, practice social spacing, and take preventive measures such as wearing masks and gloves to reduce the spread of COVID-19, do you follow these procedures?

Findings for Item 8 revealed that 67% of the respondents chose option (A) I apply it at all times to protect the community and myself, and this is evident as what was observed in the cities of Al-Anbar Governorate who applied the procedures of the home quarantine approved by the Crisis Cell in the Governorate. Nevertheless, option (B) I am committed to staying at home, but sometimes when I leave the house cannot apply precautions obtained 21% response rate. This is considered an incorrect answer because it is a failure not to apply preventive measures that are not available continuously during this period and their prices are high. In addition, option (C) I Apply it well but I cannot stay home is considered valid because this is the same for some categories of employees if he applies the preventive measures recommended by the WHO [24] and this option obtained 8% response rate. As for the final option (D) I do not expect these measures to work, this option is considered a wrong choice and obtained only 4% due to community fear of COVID-19 infections. The findings are shown in Figure 8.

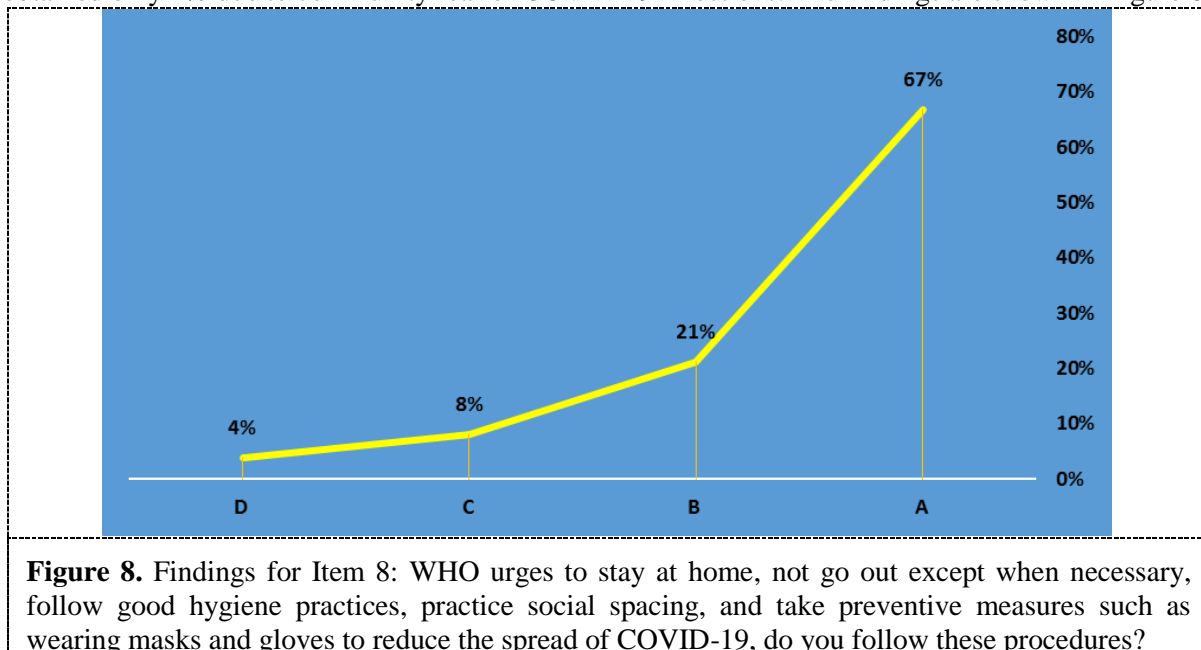
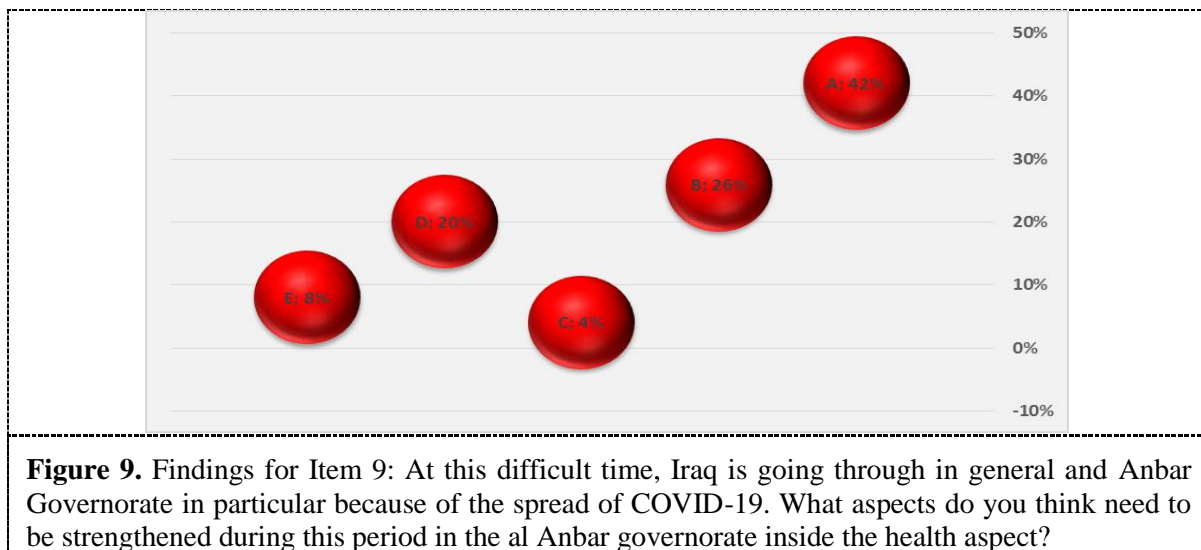


Figure 8. Findings for Item 8: WHO urges to stay at home, not go out except when necessary, follow good hygiene practices, practice social spacing, and take preventive measures such as wearing masks and gloves to reduce the spread of COVID-19, do you follow these procedures?

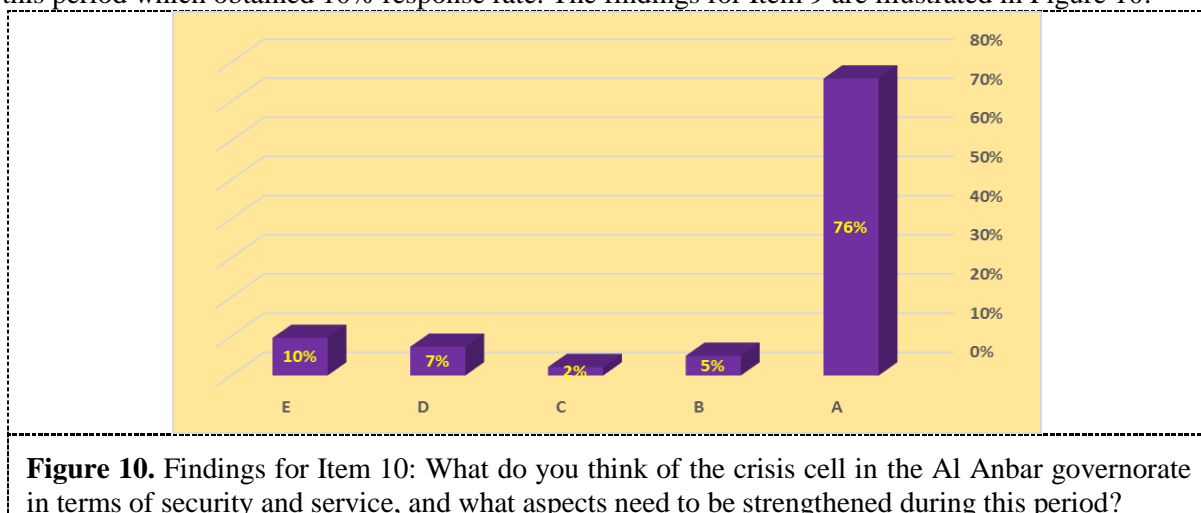
3.9. Item 9: At this difficult time, Iraq is going through in general and Anbar Governorate in particular because of the spread of COVID-19. What aspects do you think need to be strengthened during this period in the al Anbar governorate inside the health aspect?

In this period, some of the options which can be done in combating COVID-19 are increase sterilization, spread health awareness in the community about methods of prevention from COVID-19, as well as establish quarantine places and examine samples. As for the options for Item 9, option (A) By increasing the sterilization and fumigation processes for institutions health, streets, and methods of basic preventive e obtained 42% response rate. In addition, option (B) By spreading community health awareness around methods infection, disease prevention, and others obtained 26% of response rate, followed by option (C) Create more places of quarantine and examine the samples inside the governorate which obtained 4% of the response rate. Based on the correct options mentioned, the total response rate was 72%. As far as the incorrect options are concerned, option (D) Perform a field examination of all the regions of the governorate to ensure that they are free from the incidence of COVID-19 obtained 20% of the response rate because there is no record of cases in the governorate. This is followed by option (E) Providing mobile ambulances in the governorate areas for helping citizens who are unable to reach hospitals which obtained 8% because of our needs to have all health personal and medical equipment to fight COVID-19. The findings are shown in Figure 9.



3.10. Item 10: What do you think of the Crisis Cell in the Al Anbar governorate in terms of security and service, and what aspects need to be strengthened during this period?

From the analysis, 76% of the participants chose option (A) Preventing the entry of expatriates to the governorate except after making sure of their safety from an incidence of COVID-19 no matter how important. This option obtained the highest percentage because all the recorded cases in the governorate were imported cases which may cause an epidemic in the governorate. Therefore, all expatriates must be ensured to be free from the disease in order to make sure of their safety from COVID-19. As for option (B) Sterilization and fumigation of all goods and foodstuffs entering into governorate, it obtained 5%. This option is correct, however, it is less important than option (A). Based on this findings, the correct choices for Item 9 obtained a total of 81% response rate. Referring to the wrong choices, the total percentage is 19%. This findings included option (C) Providing the necessary services that the citizen needs, for example, electricity, the Internet, and others which obtained 2%; having services is one of the essential things in life, not just in times of crisis. This is followed by option (D) Open the ban is partially for helping the citizen to fetch his needs, especially after the end of the official working hours with 7% response rate; this option is unnecessary because the crisis cell allowed the opening of food stores and pharmacies to provide people with their basic needs. Finally was option (E) Providing the necessary foodstuffs to the low-income individuals during this period which obtained 10% response rate. The findings for Item 9 are illustrated in Figure 10.



3.11. Item 11: Will the Crisis Cell in Anbar Governorate succeed in overcoming the COVID-19 crisis by keeping the province free of casualties?

Based on the analysis, 80% of the respondents in the cities of Al-Anbar province trust the work of the Crisis Cell by applying the preventive measures recommended by the WHO [4] by selecting option (A) yes, by implementing preventive measures for the Crisis Cell in Al-Anbar Governorate and thus constitutes a kind of healthy cultural awareness to overcome the COVID-19 crisis. While option (B) Perhaps there will be no the infection of COVID-19 in the governorate, but I am not sure about the work of the Crisis Cell obtained 13% response rate, and the reason is due to unavailability of some preventive and hygienic supplies in the world in general [25]. While option (C) I do not expect its success and often infection of COVID-19 will occur in the future obtained 5% response rate due to the two new cases; it was found that the person had COVID-19 and the Crisis Cell sent the person to their governorate for further action. As for the last option (D) thinks they do not care about the success or failure of the Crisis Cell the findings indicated 2% response rate. It is considered as a negative view and lack of awareness. The findings are shown in Figure 11.

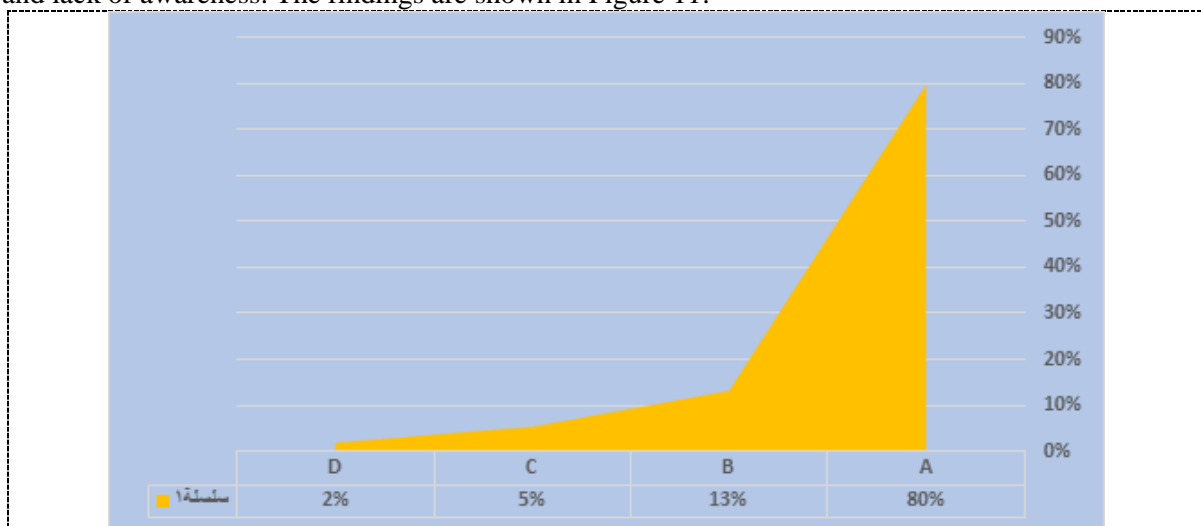


Figure 11. Findings for Item 11: Will the crisis cell in Anbar Governorate succeed in overcoming the COVID-19 crisis by keeping the province free of casualties?

3.12. Item 12: When reading health reports about COVID-19, how would you rate the health status of any community?

From the analysis of Item 12, option (A) according to the number of registered epidemic infections obtained 60% response rate, this referred to the WHO recorded cases according to its latest report on April 30, 2020, in which the number of infections reached more than 3 million [26]. This is the correct option in which the health situation in the world is assessed, and for Al-Anbar Governorate, the number of infections in Al-Anbar did not exceed five cases since the first infection recorded in Iraq. As for the remaining options, they were considered wrong because the WHO has yet to find an approved treatment from this pandemic and always the right choice. The society can be protected by not recording through cases of the disease [4]. As for the remaining options, option (B) according to the number of deaths recorded obtained 10%; through it the quality of health care can be assessed and the only case remained in the isolation hospital in the governorate was cured. As for option (C) according to cases of recovery from illness, it obtained 21% response rate. In addition, option (D) I don't know obtained 9% response rate. Therefore, the society needs to be educated more about protecting themselves from the COVID-19 pandemic. The analysis of the findings is shown in Figure 12.

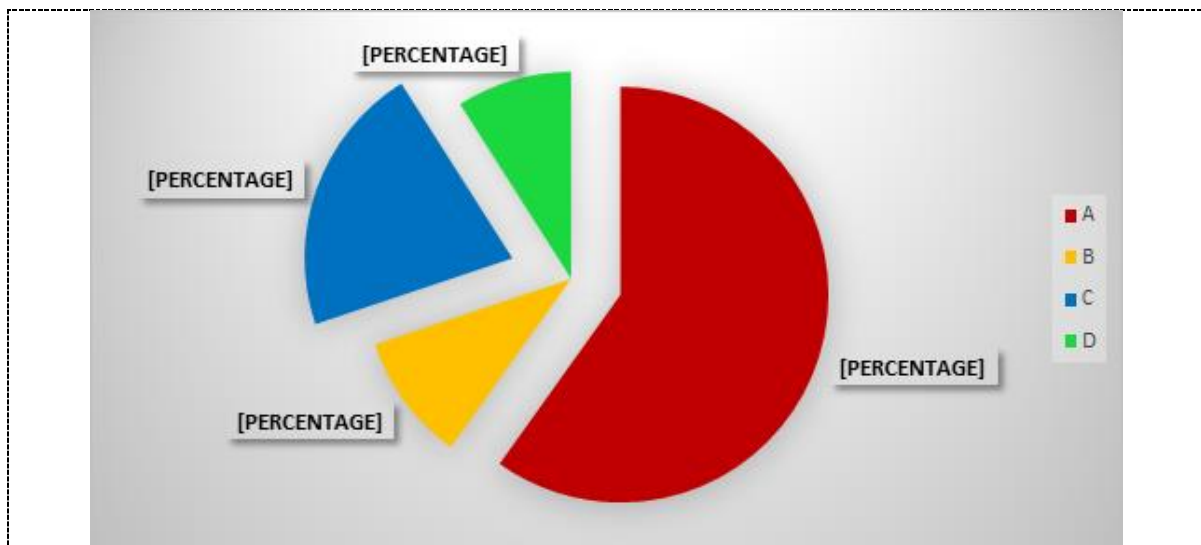


Figure 12. Findings for Item 12: When reading health reports about COVID-19, how would you rate the health status of any community?

3.13. Item 13: If one day, if you notice symptoms of COVID-19 what will you do?

According to the data analysed for Item 13, option (A) I call the Crisis Cell or go to the hospital, and check for infection with COVID-19 obtained 60% response rate. A high percentage indicated that the respondents are aware of their health and environment towards this epidemic in order not to spread the epidemic in the governorate. As for option (B) I will quarantine myself at home until you confirm I hit of COVID-19 and I will not approach anyone obtained 37% response rate. This answer is also considered correct despite fears in the case of infection, the disease may be transmitted to one of the family members, but the WHO confirms this until symptoms appear and then the patient is transferred to the special quarantine hospitals of COVID-19 [4]. As for the last two options which were considered incorrect answers, they only obtained 3% response rate: option (C) I do not care about the topic and go to work because I do not think I am infected COVID-19, but I will not come close to my family and option (D) Even if I have infected COVID-19 I will go to work, but I take care of preventive measures. These are illustrated in Figure 13.

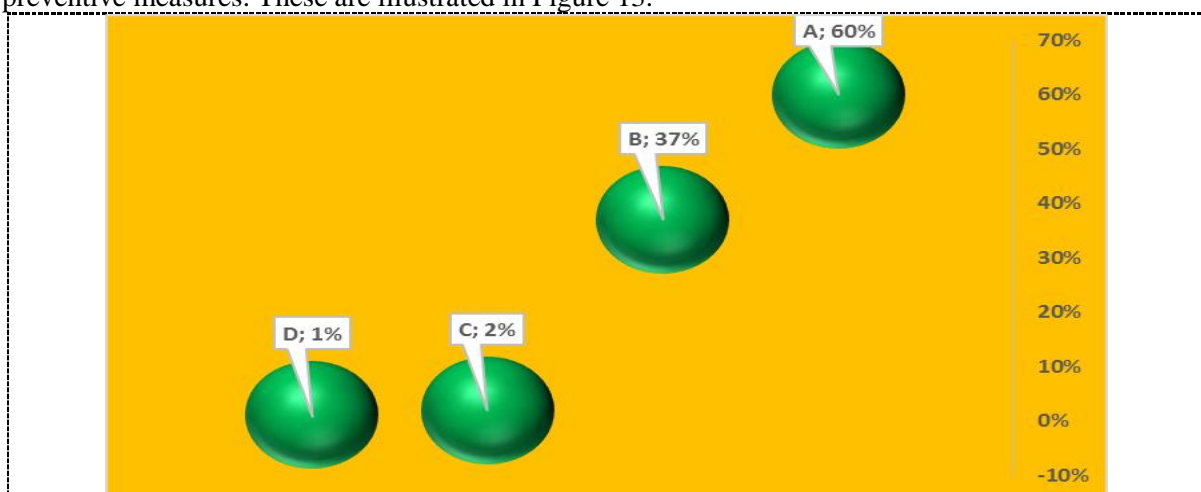


Figure 13. Findings for Item 13: If one day, if you notice symptoms of COVID-19 what will you do?

3.14. Item 14: What is your personal opinion is it possible for people who have recovered from COVID-19 to integrate into society and practice their lives as they were before the infected occurred?

The data analysis for Item 14 revealed that option (A) Yes, after ensuring complete recovery obtained 72% response rate and it is considered as the wrong option because many cases in the world which were recovered from COVID-19 were infected again as a result of the virus developed again and infectious. Patients who recovered from the disease need health care so that the infection will not repeat [27]. This is similar to option (B) Maybe, but it may adversely affect the health of the recovered in the future which obtained 14% followed by option (C) Often appear to have future health problems which obtained 6% response rate. While the last incorrect option (D) I don't know obtained 8% response rate, therefore, the total percentage of response rate for incorrect options for Item 14 is 80%. This findings indicated that the Crisis Cell must educate people about this pandemic despite their recovery from COVID-19 because the possibility of them being infected again is very high. In addition, it is also observed that those who discovered from COVID-19 were then infected by other diseases such as cirrhosis of the lungs, testicular atrophy in males [27]. Therefore, good awareness among the society is crucial and required in the aspect mentioned before. The findings are illustrated in Figure 14.

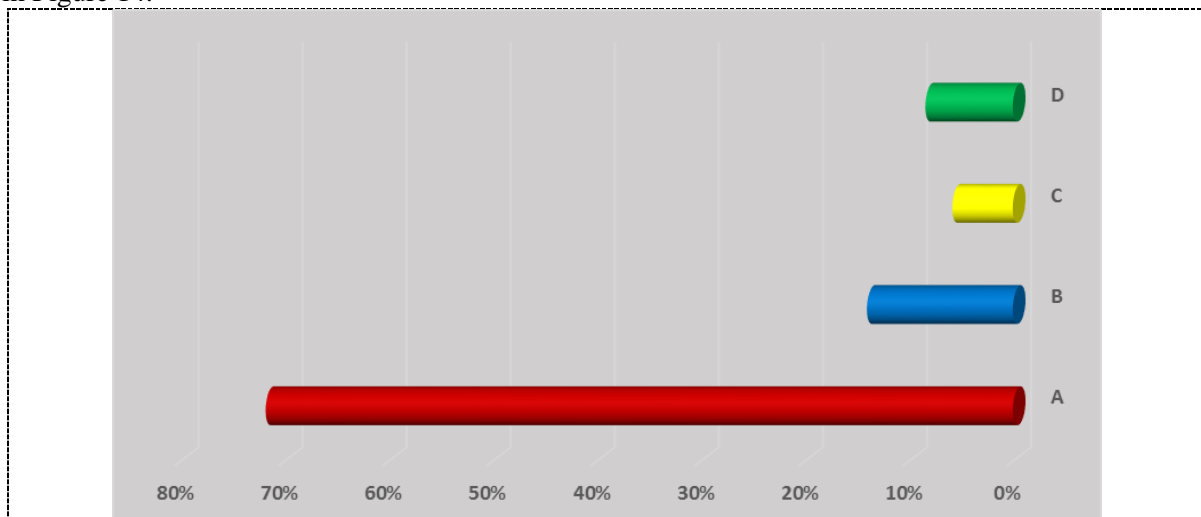


Figure 14. Findings for Item 14: What is your personal opinion is it possible for people who have recovered from COVID-19 to integrate into society and practice their lives as they were before the infected occurred?

4. Conclusion

From the results of the questionnaire on the evaluation of health and environmental awareness of citizens in Al-Anbar Governorate, it revealed a very good level of awareness about the virus, its causes, and methods of prevention. This is demonstrated through the commitment of citizens in obeying the quarantine procedures by the governorate very well. However, some aspects about health and environmental culture about COVID-19 need to be delivered to the society including how to deal with the recovering patients from COVID-19. In addition, environmental pollutants need to be avoided because it is harmful to human health and one of the etiologies of viruses. It is a need to pay a tribute to the main roles of the Crisis Cell in Al-Anbar Governorate in the process of fighting this pandemic by following procedures, as well as through the awareness methods used in addition to all the possibilities that were harnessed to serve the citizens in Al-Anbar.

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