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Environmental Awareness of the Libyan Community for the COVID-19

Sundus Almontasir[1], Awatif Almagrahi[2], Insherah Idbeaa[3], Fauzia Mohammed[4]

[1,2]Libyan Biotechnology Research Center, Tripoli Libya.
[3]Department of Zoology Faculty of Science, Aljabal ALGharbi University.
[4]Department of Botany, Faculty of Science, Tripoli University.

Abstract
The World Health Organization declared the COVID-19 outbreak to be a global pandemic in March 2020, also the COVID-19 pandemic has caused drastic changes across the globe, affecting all areas of life. However, the pandemic cannot be ended overnight and more social distancing and other self-care measures are needed to protect our Libyan community. Therefore, people´s awareness, knowledge, attitudes, and appropriate behaviors are instrumental to containing the pandemic. This study aims to create a questionnaire to determine the Libyan society's environmental awareness of COVID-19.

Keywords: Libyan, COVID-19, Disease, Environmental, Risk

1. INTRODUCTION

In a recent wave, when the novel COVID-19 spreading all across the globe, the global unified policies have been prepared to minimize human and economic sufferings to reduce susceptible COVID-19 cases and economic crisis (Hiscott et al. 2020). The social sustainability plan also encouraging for sustained long-term growth (Awan et al. 2020a). The COVID-19 measures on environmental changes are although positive in the short-run; however, it is likelihood to exacerbate it in the long-run when economic activities began after pandemic control (Zambrano-Monserrat et al. 2020; Lu et al. 2020). Biomedical waste generation, soil, and water pollution increased many times with increase COVID-19 disease. The safe disposal of biomedical waste and environmental resources are important for patients' safety and medical treatment (Ranjan et al. 2020; Zambrano- Monserrate et al. 2020).

2. Unpredictable Environmental Aspects of COVID-19

As WHO has declared the fast spreading of COVID-19 as an epidemic, the citizens around the globe hastened to go home. For instance, in the case of Wuhan city in China which has been the epicenter of the pandemicwith over than 11 million people, is shown to have produced200 tons of clinical trash on a single day exactly 24 February/2020which is four times the amount the city's only dedicated facility can incinerate per day. As COVID-19 is spreading rapidly to other parts ofthe world, very soon the medical waste management could be a big issue. Medical health organizations waste management companies have already taken step in COVID-19 decontamination services, it is becoming very crucial for governments to find solutions soon.

At the meantime, it is every individual's duty to follow the regulations while discarding of their face masks and other medical wastes (Luan andChing, 2020). To the end, it is possible only by mutual understanding and willingness and world will emerge stronger than this epidemic. Some people are at higher risk of adverse effects from contact to medical wastes as well, including cleaners, trash collectors and some other peoplewho have to spend a great amount of time in public places. All over the world governments stopped students to go to schools and universities, and a lot of employees are being asked to work from home, only those who are maintaining the cleanliness of cities have to go to their jobs daily, that makes them among the most vulnerable groups and one that is highly susceptible to the virus from respiratory shed droplets on the masks.

They may also be infected by other pathogens existing in the discarded pieces of garbage, for instance meningitis and Hepatitis B. The masks are made up of plastic based materials that are liquid- resistant and are long lasting after they are discarded, ending up in ocean or landfill. The surgical masks should not be worn longer than one day, discarding them and empty bottles of hand sanitizer along with solid tissue papers are ending up to a huge trail of medical waste in the environment. For instance, in Hong Kong, where COVID- 19 infection started in late January/2020 the medical wastes have already polluted the environment. Recently, an environmental NGO Ocean Asia in Soko islands took a survey, according to it, in Hong Kong a large amount of discarded single-use masks washed up to a 100-meter stretch of beach. Gary Stokes the director of the Ocean Asia NGO, who has been monitoring the ocean surface trash, his team has seen a few masks over the years, but now they were spotted all along the high tide line and seashore with new deposits coming with each current.

While this recent COVID-19 outbreak, the general public have started wearing surgical masks in order to take precautionary measures. When 7 million people suddenly start wearing one or a couple of masks daily, single use gloves and hand sanitizers, the amount of trash created is going to be substantial. The contrary impacts of such medical wastes are far-reaching. When these are remained discarded in an animal's natural habitat in both land and ocean this could cause animals to mistakenly eat this as food and lead in their death (Hellewell et al., 2020). As showing in figure 1 Medical wastes generated during COVID-19 pandemic in the environment.

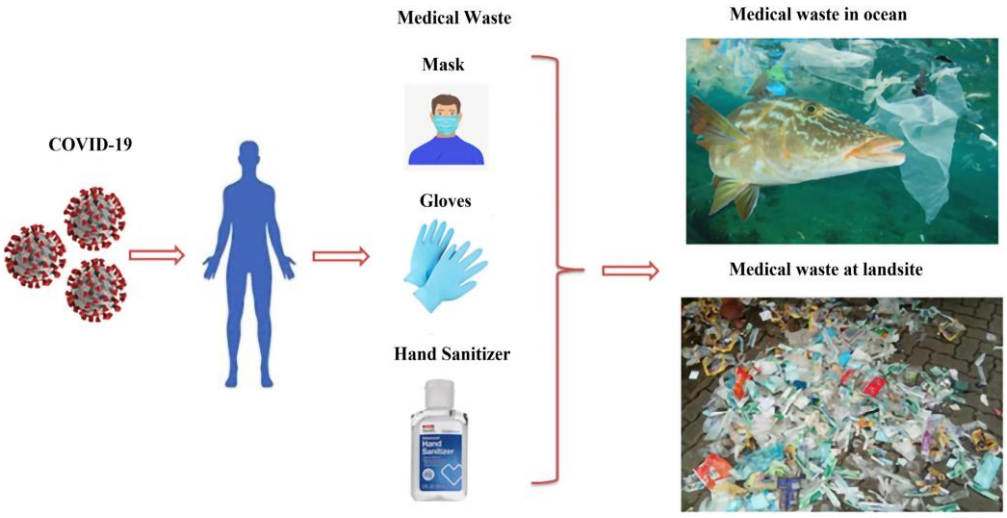

Fig 1: Medical wastes generated during COVID-19 pandemic in the environment (Hellewell et al., 2020).

3. Socio Economic Environmental Aspects ofCOVID-19

COVID-19 does not affect everyone in the same way. There are several reasons that's why different socioeconomic groups are affected by this pandemic in different ways. To understand the consequences, and to predict how this pandemic affects differently with various socioeconomic groups is not easy and good data is the key to it. These socioeconomic factors include population density, urban and rural settings, education level, lifestyle, the size of household and homeowners & tenants. Sometimes only a single block distance neighborhood household within the socioeconomic spectrum can make a huge difference in one's life (demonstrate form the US in Club Vita's US longevity map).

Therefore, sometimes it is very unfortunate that people who are feelingthe effects of COVID-19 very severely, are probably in your neighbors (Messner, 2020). Majority of the countries are now trying different tactics to stop the spreading of the disease and trying to limit only a subsetof the people would catch the disease. It has been indicated that groupswith lower socioeconomic status could be more at danger from thespread of the COVID-19, based on the analysis of New York showing that poor neighborhoods have been affected highly. COVID-19 spreads by droplets shed of the respiratory system by someone with the virus, which means it would spread with higher proximity of people, larger contact networks and lower levels of hygiene. There are some factors, which increase the risk of catching the virus.

1. Population density: Close contact among people is very high in urban areas rather than rural areas.
2. Household size: A big household will have a higher chance to bring the virus home, while in household where one person lives alone; he/she will have to catch the virus outside the household. In Sweden, social-distancing regulations are not taken very strictly due to the high proportion of single person household. Whereas in Italy based on themulti-generational homes apparently contributed to the multiplication of the COVID-19.
3. Social distancing level: social distancing is very effective to stop the spread of the disease, but several reasons that various groups might show dissimilar levels of social distancing:
    - Official advice might be dependable between regions, for instance, guidance in the US has varied even between neighboring towns. Access to local guidance might be different between socioeconomic groups, for instance guidance might be provided online or in particular languages.
    - Working from home might reduce social contact, but can only be available to some people focused in jobs linked to higher socioeconomic status.
    - Stay at home regulations would be more than a challenge for those who live in smaller and crowded houses or without outside space.
    - Some groups would be obedient to social distancing regulations not all.
    - Not all who are infected by the COVID-19 will react severely to it.There are somefactors that contribute to the risk of COVID-19 but they are probably felt differently by different socioeconomic groups (Lipsitch et al., 2020).
    - People who have had medical problems of diabetes, chronic respiratory disease, cardiovascular disease, or even high blood pressure and cancer are at higher risk from COVID-19 (Giannis et al., 2020; Fang et al., 2020; Zheng et al., 2020).
    - WHO has warned the smokers that they might be highly at risk because to the obvious effects of smoking on the lungs and smoking is common in lower socioeconomic groups.

Different socioeconomic groups do not have access to the same level of healthcare services. This would particularly common in countries like US where the huge number of uninsured population is

concentrated in certain industries not to universal health care system. Therefore, some socioeconomic groups are more likely at risk compared to others. So, logically higher numbers of deaths can be expected from certain parts of society. This can be highly related for pension plan using analysis ofthis experience of the population to predict future mortality rates. The post pandemic population may look more different compared to the start point of this outbreak. The annual percentage change in Gross domestic products is shown in Table.1.

Table 1: Latest world Economic Outlook Growth Projections (Real GDP, Annual Percent Changes)

	2019	Projections	
		2020	2021
World output	2.9	-3.0	5.8
US	2.3	-5.9	4.7
Germany	0.6	-7.0	5.2
France	1.3	-7.2	4.5
Italy	0.3	-9.1	4.8
Spain	2.0	-8.0	4.3
Japan	0.7	-5.2	3.0
United Kingdom	1.4	-6.5	4.0
China	6.1	1.2	9.2
India	4.2	1.9	7.4
Russia	1.3	-5.5	3.5
South Africa	0.2	-5.8	4.0

Source: InfoWorld Economic Outlook, April 2020 (IMF.org).

The short-term scenarios of the COVID-19 environmental aspects raise many questions. China is struggling to rebound from the epidemic and has to limit the re-entry of COVID-19 to its region by put a check on travelers coming from abroad (Bogoch et al., 2020). In a country with such a high population, where the majority of its population has not yet experienced COVID-19, and has no immunological contact with this virus, the possibility of second wave is a big risk. European and North American countries has not yet reached to the peak of the epidemiological curve. One crucial aspect seems obvious: the fast control of the outbreak done by China could not be implemented to democratic countries where rights of individuals are very high. Therefore, outside china no leader has the capability to enforce these measures at the level of China (Bai et al., 2020).

The question is: what will happen in countries of Indian sub-continent, the Middle-East and South America, where they live in crowded forms traditionally, big gatherings are common, and the public health systems are insufficient. The possibility of secondary peak appearance could not be estimated. In the mid-term, the scenario in the southern Hemisphere should be considered. Not almost all South American and African countries have access to national health systems and sufficient health care services.Many of these nations decided to close the borders, however very late, when they already had patients of COVID-19 inside.

All these indications show that the Southern Hemisphere would not escape from this pandemic. The outbreak is widening in the southern Hemisphere now, and this is happening while the higher income nations are struggling over their own problems in:

1. applying control actions.
2. trying to recuperate from the massive social and economic impacts.
3. focusing in preventing re-entry of COVID-19 by foreign travelers (Chinazzi et al., 2020).

The long-term scenario of probable secondary waves of outbreak is concerning as well. A second wave might be devastating more than the first one, based on other pandemics in history. Economists have shown serious concerns about the economic effects of control measures taken during this crisis (Hemida and Abduallah, 2020). However, there are many models that show the economic impacts of the disease and majority of the economists are challenged by the social and economic depth of the pandemic. They are trying to understand the control as soon as possible. Although the economic losses are obvious, but still economists are not able to grasped the extending nature of the outbreak that is causing far more economic damage compared to drastic measures taken to end the pandemic globally as soon as possible (Meo et al., 2020; Anderson et al.,2020. The COVID-19 pandemic will have severe impact on socioeconomic growth across the globe as shown in Table 2.

Table 2: Merchandise Trade Volume and Real Gross Domestic Products (GDP) 2018–2021 Annual Percent Change (Trade Set to Plunge as COVID-19 Pandemic Upends Global Economy).

	Historical		Optimistic Scenario		Pessimistic Scenario	
	2018	**2019**	**2020**	**2021**	**2020**	**2021**
Volume of the world merchandise trade	2.9	-0.1	-12.9	21.3	-31.9	24.0
	Exports					
North America	3.8	1.0	-17.1	23.7	-40.9	19.3
South and Central America	0.1	-2.2	-12.9	18.6	-31.3	14.3
Europe	2.0	0.1	-12.2	20.5	-32.8	22.7
Asia	3.7	0.9	-13.5	24.9	-36.2	36.1
Other regions	0.7	-2.9	8.0	8.6	-8.0	9.3
North America	5.2	-0.4	-14.5	27.3	-33.8	29.5
South and Central America	5.3	-2.1	-22.2	23.2	-43.8	19.5
Europe	1.5	0.5	-10.3	19.9	-28.9	24.5
Asia	4.9	-0.6	-11.8	23.1	-31.5	25.1
Other regions	0.3	1.5	-10	13.6	-22.6	18.0
Real GDP at market exchange rate	2.9	2.3	-2.5	7.4	-8.8	5.9
North America	2.8	2.2	-3.3	7.2	-9.0	5.1
South and Central America	0.6	0.1	-4.3	6.5	-11	4.8
Europe	2.1	1.3	-3.5	6.6	-10.8	5.4
Asia	4.2	3.9	0.7	8.7	-7.1	7.4
Other regions	2.1	1.7	-1.5	6.0	-6.7	5.2

4. Materials and Methods:

A study was conducted among some Libyans cities using a well-designed questionnaire consisting of 11 questions to assess the aim of the study. 204, who agreed to participate, participated in this study from different educational levels and different ages.

5. Result and discussion

The response rate of Libyan community to find out the environmental awareness for the Covid-19 virus, was the percentage that of females in the sample population is (56.4%), while the percentage of males is lower, reaching (43.6%) in the sample population.The results are proven that the largest age group in the study population is (35-45) with a percentage of (36.8%), followed by the group (25-34) with a percentage of (36.38%), then followed by the group (55-46) with a percentage of (21.1%).The higher educational level was university graduate (49.20%), followed by the (Master's - PhD) category (25.10%), then the (Technical Technician) category (14.10%), where the source of information used was social networking 1.47%,and the least of which is information obtained from newspapers, magazines and books. The relationship between the degree of satisfaction shows that satisfaction with the local environment is considered (average) according to the opinion of the respondents, as the majority gave an average rating of (4 out of 10).It also shows that (92.2%) of the respondents answered that they would take strict measures and laws to preserve the environment in the economic recovery plans after the pandemic, while (4.9%) said they were not sure, while (2.9%) did not take precautionary measures.And (63.2%) have changed their view of the environment around you for the better after the Corona pandemic, they have become more concerned about the environment, and (24.0) are not sure, while (12.7%) their view of the environment surrounding you has not changed for the better after the Corona pandemic, and they have become more concerned about the environment.

The demographic characteristics of the participants are displayed in figure 1. A total sample of 204 responses and females participated in this study about, (56%) and were the rate of the males are (44%).

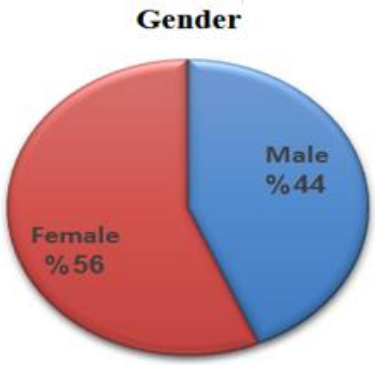

Fig 1: Shows the Rate of the Males and Females

Figure 2 Age distribution of respondents and gives a vivid picture of the age range of the participated in this research study. It was observed that the highest number of respondents ranged from 20-76 years of age with a frequency value of 204. This was followed by a higher age ranging from 35-45 with a frequency of 75. Finally, the least age distribution among staffs was discovered to be in the range of 56-76 years and above with 12 frequency distribution. All the age distribution from the highest number of staffs to the lowest has a percentage value of 37%, 35%, 22% and 6% respectively.

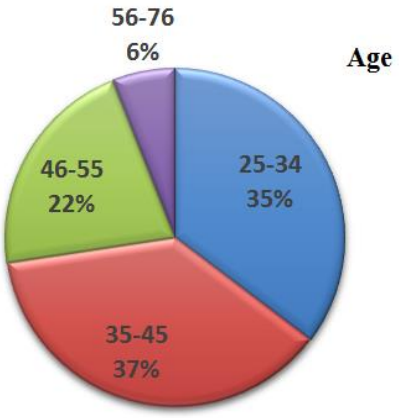

Fig 2: Shows the Rate of the Age

A total sample of 204 responses, 1% of those who received a preparatory certificate, a high school diploma or its equivalent were 9.50%, received a university degree were 49.20%, received a master's or PhD were 25.10%, and others 1%.

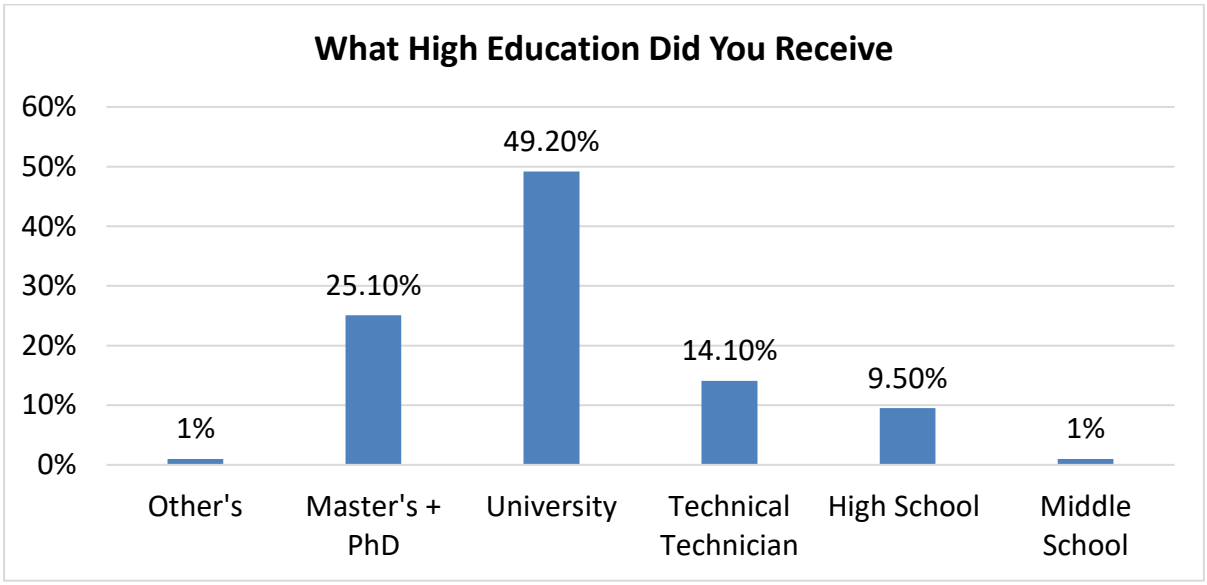

Fig 3: Shows the Hight Education Did you Receive

As show in figure 4 that the Surrounding Environment is Important Because? the current study reported all respondents to the question which (Is the surrounding environment important because of 1 - an important source of oxygen, 2 - a source of food, 3 - a comfortable view, 4 - places of recreation or 5 - all of the above). It turned out that 78.9% of the respondents agree that the environment is important and they agree on all points No. 5, all of the above, and point No. 4 that it is an important source of oxygen, were 25.5%, and point No. 3 and 4 that it is a source of food and a comfortable view, were the same percentage 13.7%, what about being places for recreation, were 9.8%.

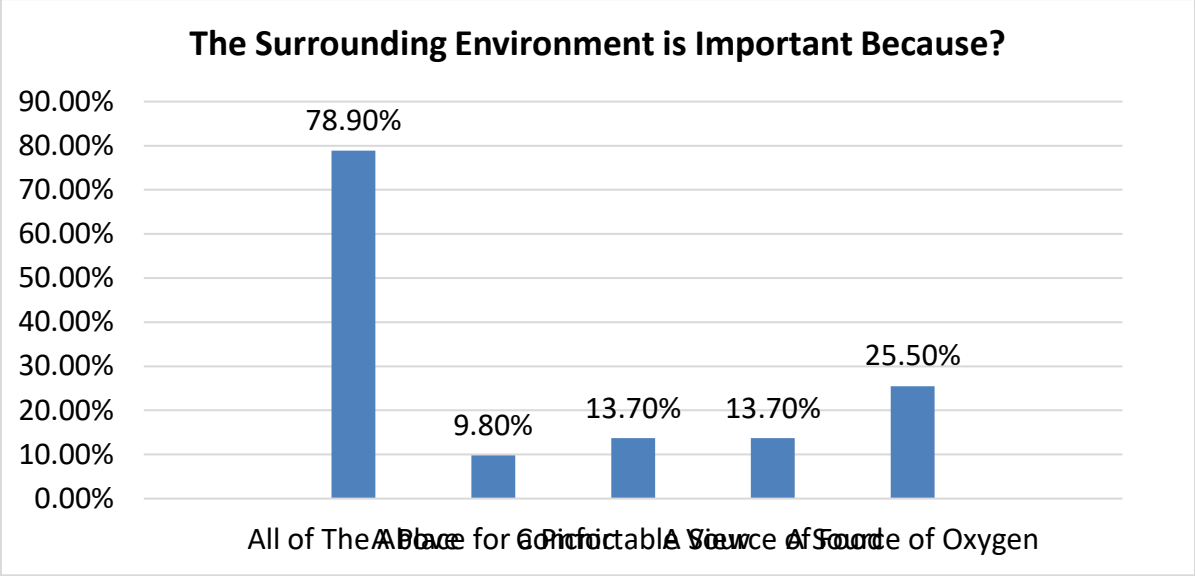

Fig 4: Shows the Surrounding Environment Is Important Because?

As shown in the figure 5, the most frequently used sources of information are social media at a rate of 79.4%, while newspapers, magazines and books are the least at a rate 9.8%.

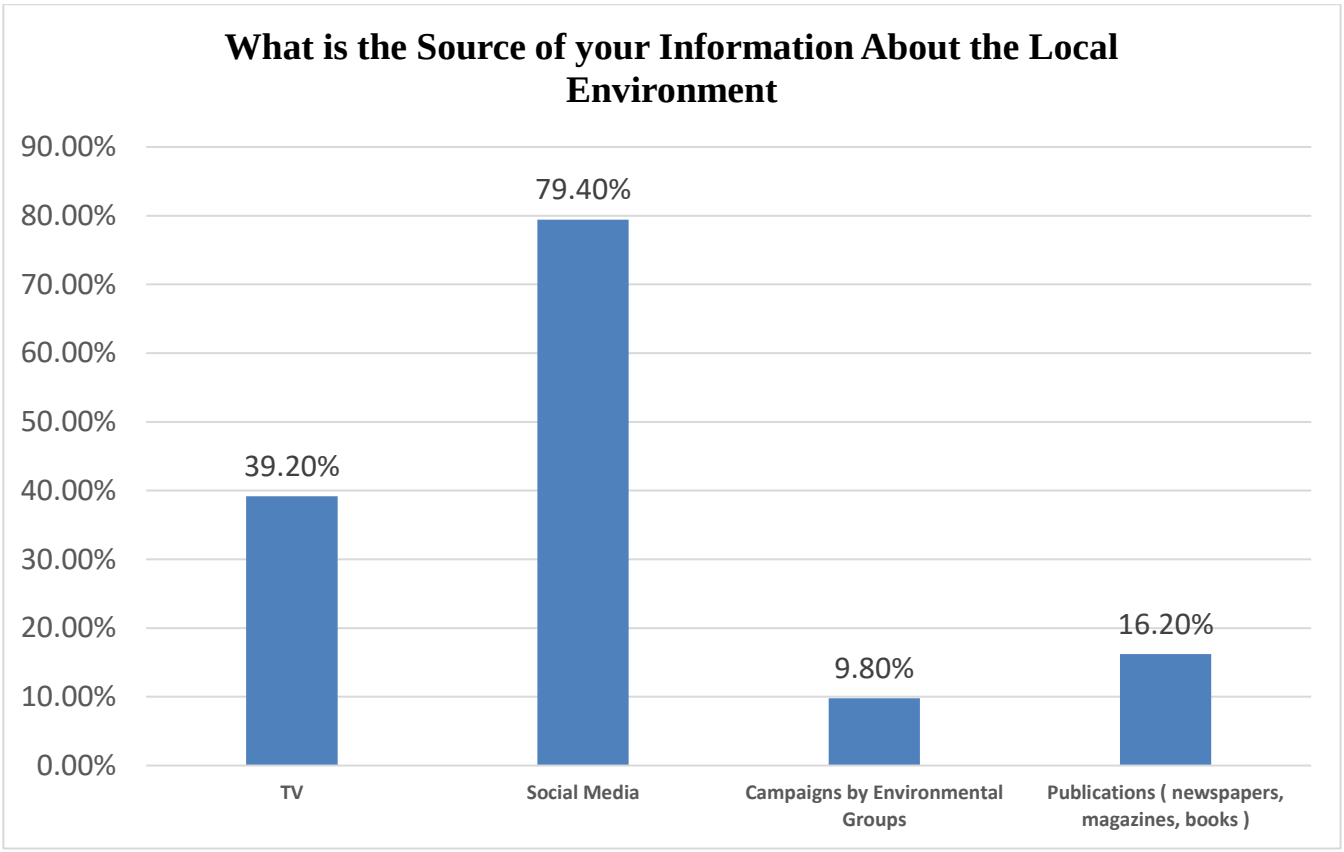

Fig 5: Shows the Source of Information about the Local Environment

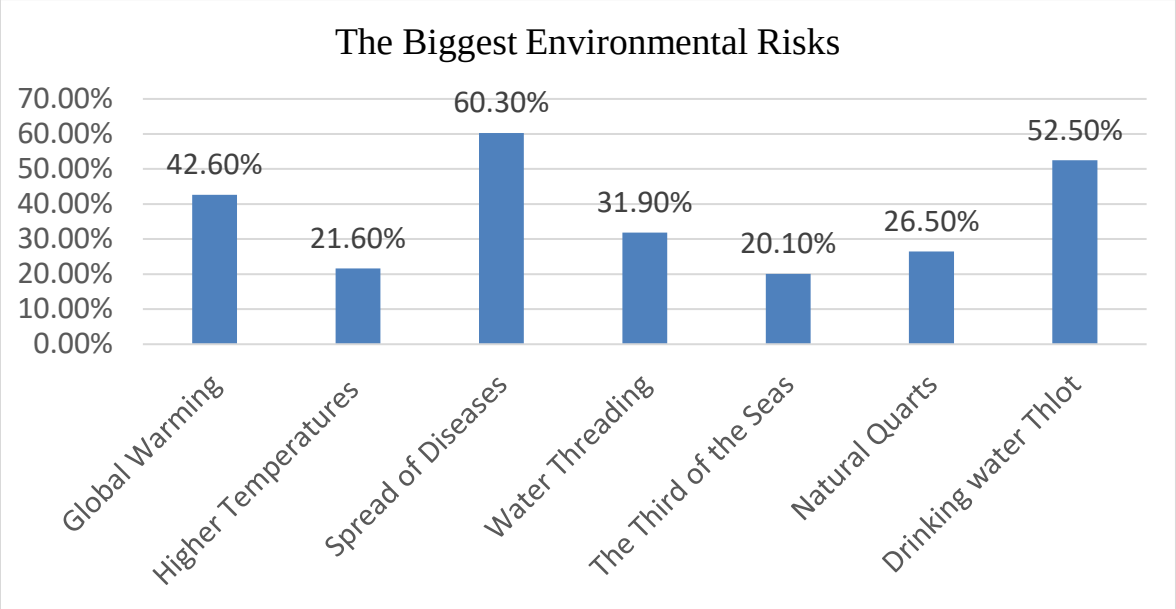

Fig 6: Shows the Biggest Environmental Risks

According to respondents' opinions, as seen in Table 1, the local environment is deemed to be satisfactory (average), with most giving it an average value of 4 out of 10. Since less than 50% of participants in the study expressed satisfaction with their surroundings, it may be concluded that researchers as a whole are generally not happy with their surroundings as shown in figure 7.

Table 3: Shows the Satisfied With Local Environment

Percent	Frequency	Are You Satisfied With Your Local Environment (On A Scale Of 1-10)
%13.7	28	1.0
%9.3	19	2.0
%15.7	32	3.0
%18.6	38	4.0
%16.2	33	5.0
%8.8	18	6.0
%8.3	17	7.0
%5.4	11	8.0
%2.5	5	9.0
%1.5	3	10.0
%100.0	**204**	**Total**

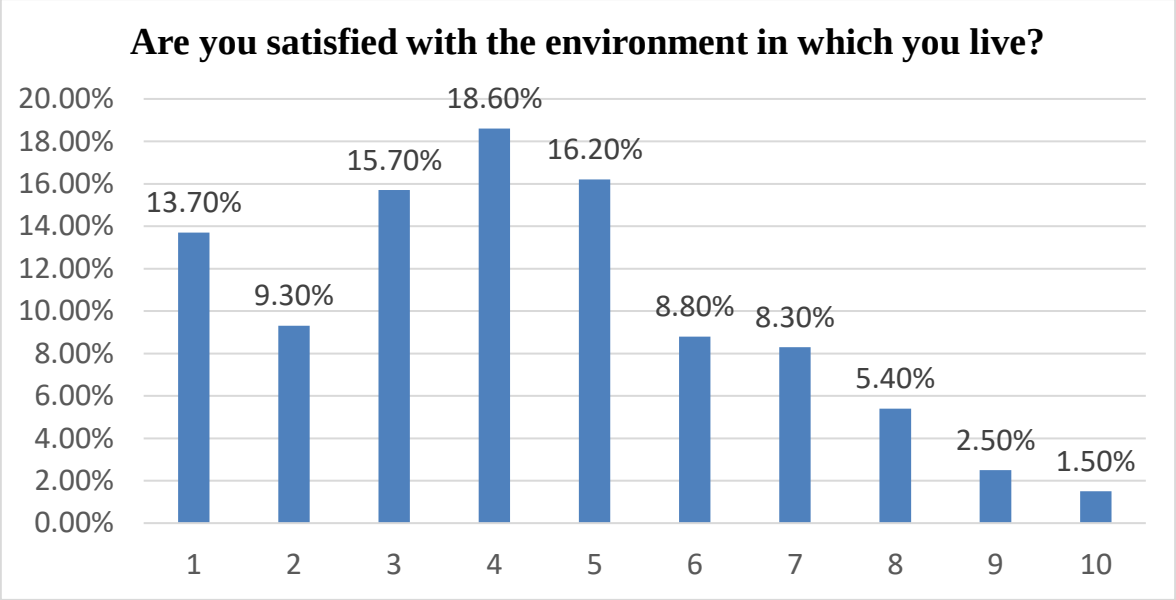

Fig 7: Shows the community satisfaction rate with the environment.

Scale from (1-10).

Figure 8 presented that 37% answered yes and 42% answered no, and as noted that the difference between (yes and no) is 5%, and this is a very small percentage.

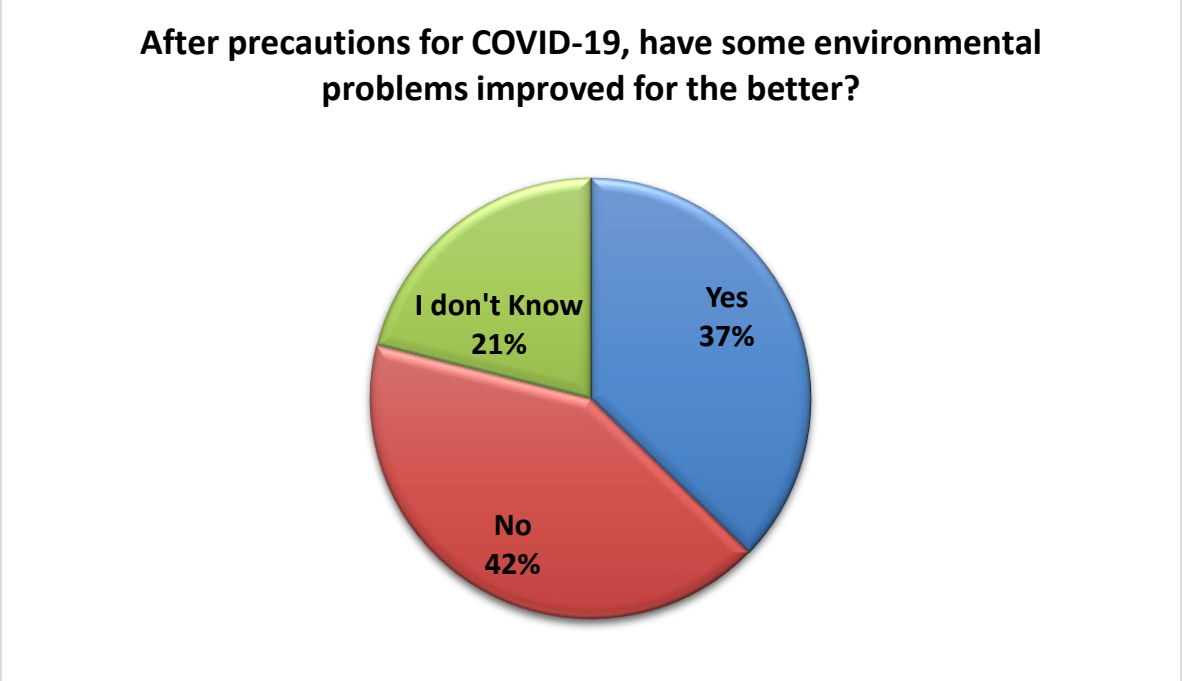

Fig 8: Shows the time of the COVID-19 pandemic, the ban and the lockdown, have some environmental problems improved for the better?

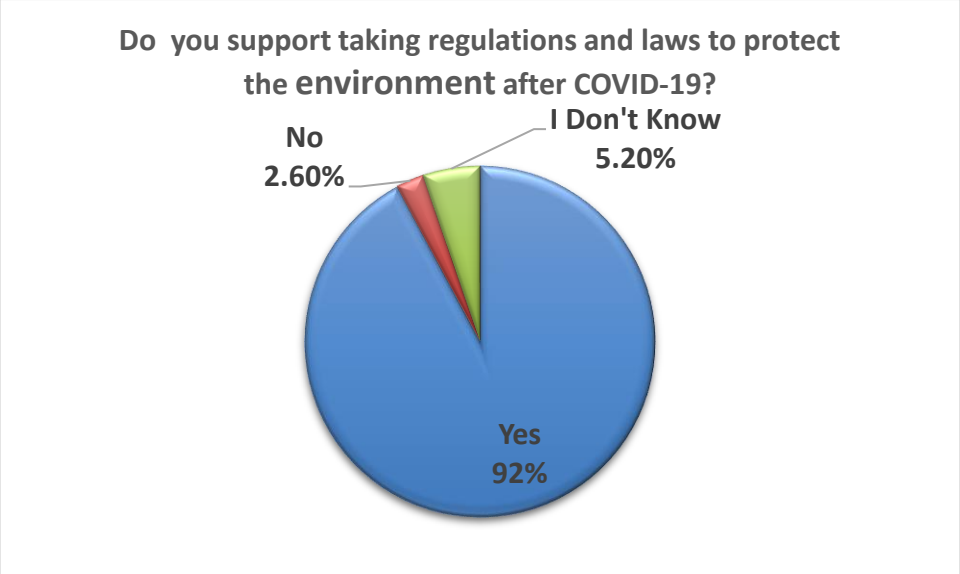

Fig 9: Shows if the Community Prefers and Supports the Regulations and Laws to Protect the Environment After COVID-19.

As shown in Figure 9, the opinion of a sample of Libyan society shows whether they prefer and support adopting regulations and laws to protect the environment. Where 92% of the answers were yes, we support the adoption and implementation of laws and regulations to protect the environment and this is a very high percentage. This confirms the extent of society's belief and support for implementing laws, as shown in Figure 10, which shows environmental concern for the environment after COVID-19, it was 63% of answers (no) about if after the COVID-19, have you started to worry more about the environment? and 13% of answer get (yes) as in Figure 10.

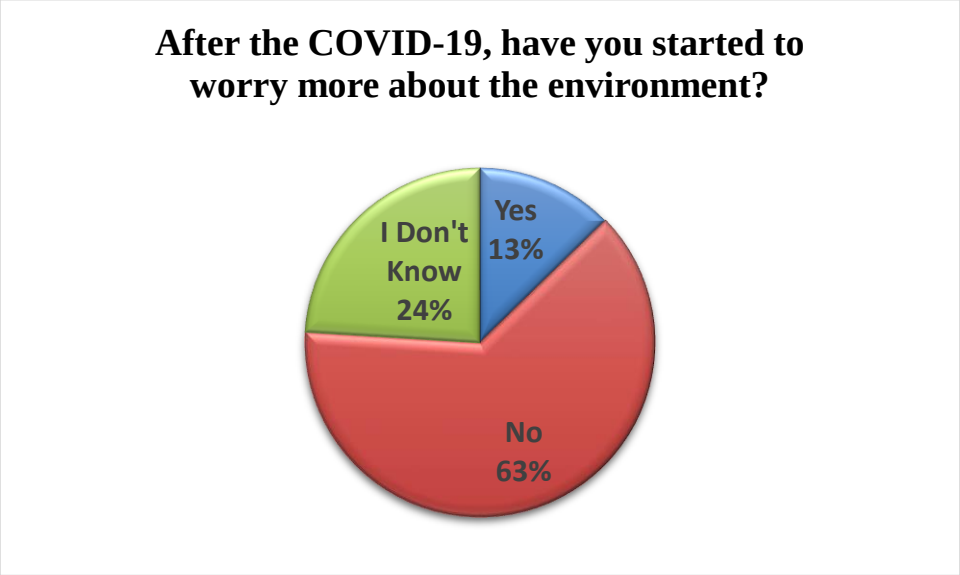

Fig 10: Shows the Environment Worry After COVID-19.

6. Conclusions

For the COVID-19 epidemic, the Libyan populace possesses a commendable degree of awareness and opinion for the implementation of requisite preventive measures. Age, gender, place of residence, and

educational attainment all have an impact on prevention strategies. In order to support the National Center for Disease Control's efforts, the current study offers information.

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