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Research

COVID-19 Impact on the Lives of Diverse Populations: A Descriptive and Analytical Cross-Sectional Study

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ABSTRACT

Background: SARS-CoV-2 is a highly pathogenic and transmissible respiratory virus that causes the COVID-19 disease, that has affected both our physical and mental health leaving scarring lesions on both. Our objective was to assess the impact of this virus on the social behavioral status of individuals and the acceptance of its impact.
Subjects dan Method: A cross-sectional study was conducted from June 2021 to September 2021, using a questionnaire to collect data from random international study participants. Descriptive and statistical analysis were run on SPSS Statistics with a p value <0.050.
Results: Results obtained found that most of the participants (78.3%) followed the procedures to prevent the infection, few (25.8%) of the them have been infected or have at least confirmed the infection with COVID-19 tests, but also few of these partakers (40.4%) have been vaccinated.
Conclusion: The pandemic and its surrounding rumors about the virus or COVID-19 vaccines never fail to affect day-to-day life. The disease and its post-complications had/still surround many enigmas for our physical and mental health and the return to normal would be even harder.

Keywords: COVID-19, SARS-CoV-2, Impact, Pandemic, Survey.

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BACKGROUND

The SARS-CoV-2 virus has rapidly spread across the globe leading to many infected people and multiple deaths (Zatla et al., 2021), with multiple health care systems around the world facing insufficient resources (Filip et al., 2021). However, infectious diseases transmitted from man to man are nothing unusual and have accompanied humanity for centuries (Heitzman, 2020), where human/virus interactions have been known since the emergence of our species, indicating extensive co-evolutionary pathway (Zatla et al., 2021).

Science can be manipulated to promote disinformation, where from the earliest days of the outbreak, missinformation and disinformation about COVID-19 circulated widely across social media (Stanely et al., 2021) Despite the strict health measures

and vaccine development, psychological factors played an important role in adherence to public health measures, such as vaccination, and in how people cope with the threat of infection and consequent losses (Cullen et al., 2021). Our objective was to assess the impact of this virus SARS-CoV-2 on the social behavioral status of individuals and the acceptance of their impact.

SUBJECTS AND METHOD

1. Study Design

This study was designed as a cross-sectional web-based survey, conducted in compliance with the STROBE guideline, over a period of 3 months (from June 2021 to September 2021), to determine the impact of COVID-19 on the social behavioral life of diverse populations.

2. Population and Sample

The data were collected through a questionnaire, which was diffused online on social media for diverse populations to participate in, from rural and urban areas. The calculated sample size of this study was 756, with a confidence level= 90%, and a margin of error= 3%.

3. Study Variables

Variables included, acknowledging SARS-CoV-2, infection, testing, prevention, hygiene, masks, treatments, drugs, herbs, vaccination.

4. Operational Definition of Variables

Knowledge about the virus, how to prevent the infection and long covid with the consideration of treatments and vaccines was monitored with respect to age, gender, race, intellectual and occupational status, in addition to the weight and having chronic diseases.

5. Study Instruments

The data were downloaded as an Excel file and stored after cleaning and analysis using the IBM SPSS Statistics version 22, with a statistical significance of $p < 0.050$.

6. Data Analysis

Descriptive analysis was run, numbers and frequencies were reported. Analytical statistics was conducted to measure the association between independent and dependent variables using univariate analysis

7. Research Ethics

Research ethical issues including informed consent, anonymity, and confidentiality, were addressed carefully during the study process. The research ethical clearance approval letter was obtained from the Scientific Research Ethics Committee of University of Tlemcen, Algeria, No. 7/SREC/2022, on June 19, 2022.

RESULTS

1. Sociodemographic Analysis

516 individuals responded to our survey concerning the investigation of the COVID-19 Pandemic, with 38.8% Males and 61.2% Females, with a variety of ages that ranged from 20-30 (43.2%) to 70-80 (1%) (Table 1).

Tabel 1. The distribution of partakers according to gender and age

Age	Gender	
	Females	Males
<20	33.3%	66.7%
20 - 30	65.9%	34.1%
30 - 40	59.5%	40.5%
40 - 50	62.9%	37.1%
50 - 60	52.1%	47.9%
60 - 70	72.1%	27.9%
70 - 80	40%	60%

Most of the respondents had a university level (86.2%) or a secondary school level (11.8%) (Figure 1). Moreover, (66.8%) of contributors had an occupation, ranging from doctors, biologists, and health care assistants to engineers and even students, there were also (29.3%) unemployed and the rest were retired (3.9).

Respondents participated from generally all of the continents with all of their different ethnicities, like Caucasians 51.8% Arabs/Africans 35.4% Asians 7.2% Latinos/ Hispanics 5.6%, and others had a mixed race (Figure 2), with most of them on urban places of residence (85.3%) and some on rural ones (14.7%) (Figure 3).

Only 27.7% of the participants were overweight, and 21.1% had chronic diseases, generally asthma or heart disease (Figure 4).

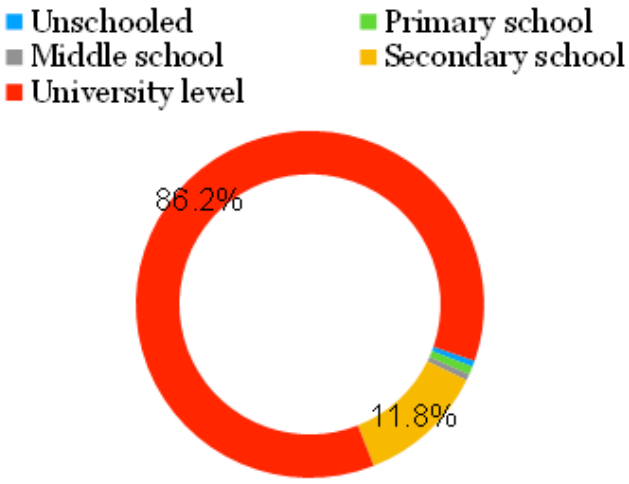

Figure 1. Donut chart that represents the education level of survey respondents

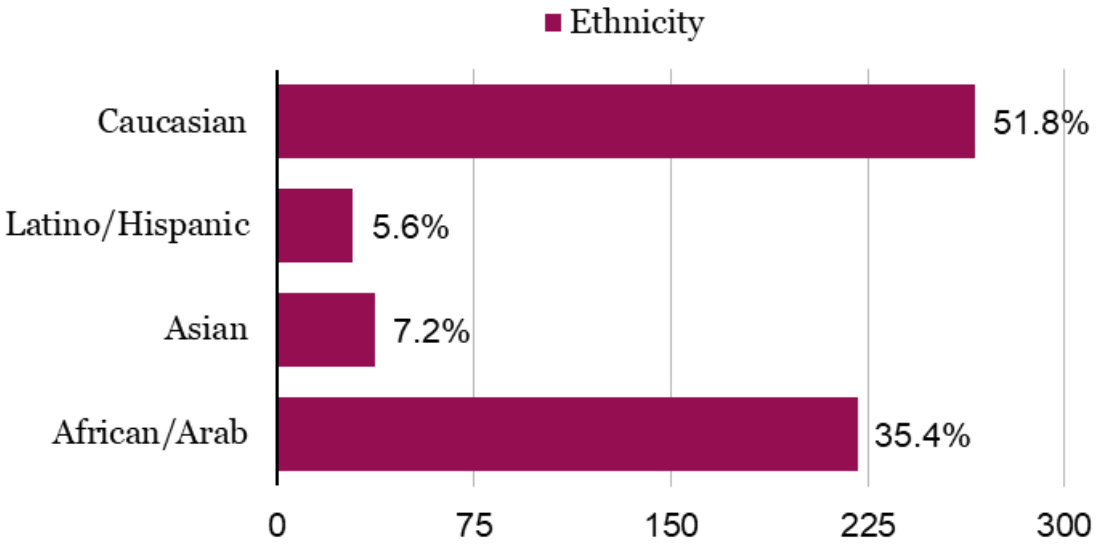

Figure 2. Bar chart that represents the distribution of ethnicities from survey respondents

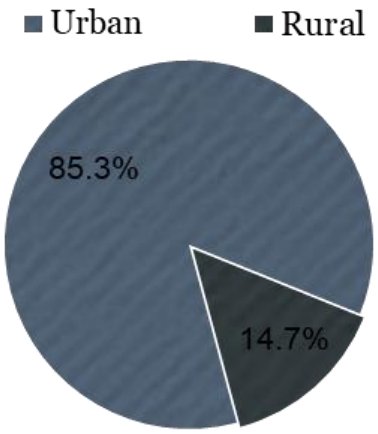

Figure 3. Pie chart that represents the respondents place of residence

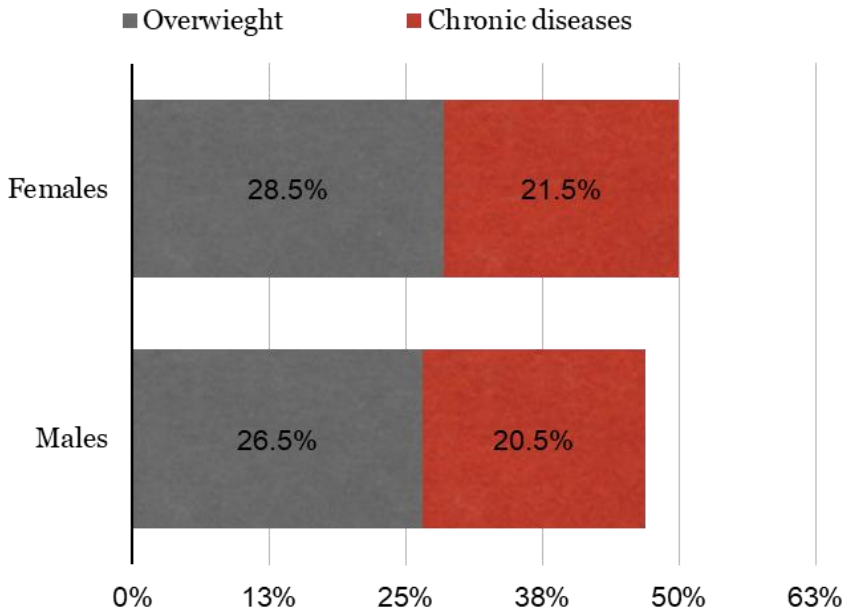

Figure 4. Stack bar that represents the respondents who are overweight and those with chronic diseases according to their gender.

2. According to knowledge and prevention

Most of the respondents (93.6%) believed in the SARS-CoV-2 virus, with 61.9% of females against 38.1% of males, and 35.3% of theme chose that it's a natural pathogen, and surprisingly 42.1% consider it as a mix between the two, referring to, a natural-lab-manipulated-virus**.** Furthermore, 78.3% of the candidates have taken preventive measures against the virus for reducing the risk of infection, like social distancing (83.2%), and wearing a surgical or non-surgical mask (91.9%) or following the hygiene measures (88.3%) like hand washing (96.9%), applying the hydro-alcoholic gel (77.7%) or cleaning the surfaces and purchases (65.7% and 48.8% respectively).

In our survey, 58.9% of members believed that a mask could prevent the virus from entry into the respiratory tract, but 20.3% denied its function against holding

out or preventing the entry of the virus**.** Also, 84.3% of participants chose not to have another respiratory disease apart from COVID-19 since the start of the pandemic, where 39.1% correlated it with taking the previous preventive sanitary measures, whilst 31.1% did not have an idea and 29.7% of them denied this correlation**.**

2. According to infection and long COVID

Most of the partakers (61.6%) did not get infected by the virus and few (12.6%) had doubts, whilst from those confirmedly infected, most of them had mild symptoms of fever-like and a loss of smell and taste (48.9% and 46.3% respectively), whereas 14.4% had severe symptoms including a pneumonia. After recovery, 15.8% of members had doubts about having post-infection complications, like Tiredness 77.7%, Complete loss of smell and taste, and hair loss 22.3%, and Diabetes and Thyroiditis 3.2% 5.3% respectively.

Women who were pregnant and got infected were asked if they suffered from a miscarriage or abortion, and out of those pregnant females, 13.7% answered positively**.**

3. According to impact and treatment

Only 31.2% of respondents used treatments**,** 68.9% of those used drugs like vitamin supplements (83.5%) antibiotics (35.1%), antipyretic (26.8) and corticosteroids (11.3%), whereas 62.1% applied natural herbs and different essential oils.

More than half of our partakers did not get a COVID-19 vaccine (59.3%), and the rest of theme 30.6% wished to get vaccinated in future times with vaccines such as Pfizer taking the lead choice (60.9%), after it, comes Moderna with (28.8%) and Astra-Zeneca in third place with (16.1%) responses, or others like Sputnik V, Sinovac and Novavax and Janssen (Johnson and Johnson); and 32.6% chose not to get vaccinated at this period, but 36.8% completely refused a COVID-19 vaccine, whilst 40.7% were vaccinated.

In the final open-ended question, 72.3% of the respondents agreed on changing their social and hygiene habits, practicing more distancing than usual, or more frequent hand-washing, but 27.7% said that there was no impact on their lives since the start of the pandemic.

DISCUSSION

The sad truth about any health calamity is being accompanied by an inundation of miss information and conspiracy theories and this novel coronavirus pandemic is no exception (Aiyewumi and Okeke, 2020), while many people played down the danger of COVID-19, others claimed that it had been intentionally manufactured in a laboratory (Aiyewumi and Okeke, 2020; Imhoff and Lamberty, 2020). In a nationally representative poll conducted by The Economist/YouGov, 13% of Americans reported that COVID-19 was probably or a hoax and only 62% of Americans expressed certainty that COVID-19 was not a hoax (Aghagoli et al., 2020). Another study, based on the knowledge scores of the Iranian participants, an overall correct rate of 90% and 85%, demonstrated that the majority of participants are knowledgeable about COVID-19. Similar to a previous study in China, which also showed an overall correct rate of 90% knowledge among the Chinese, also similar to our survey results where most of our respondents (93.6%) believed in the SARS-CoV-2 virus, with 35.3% choosing that it's a natural virus (Erfami et al., 2020).

To curb this pandemic infection rate of COVID-19, preventive care would play a significant role (Pradhan et al., 2020). Hopefully, our results indicate that more than 3/4 of our partakers have taken the necessary preventive measures against the virus, since

minimizing personal contact and hand sanitization are mandatory to limit the community spread of viral diseases (Priyadarsini and Suresh, 2020). Moreover, in an emerging outbreak of infectious respiratory disease, face masks and respirators may be the ultimate protection in the absence of medical measures (MacIntyre and Chughtai, 2020). These masks would present a physical barrier, reducing the penetration of aerosolized virus molecules (Pradhan et al., 2020). In line with these studies, 58.9% of our survey participants believed in the efficacy of the face mask in preventing the entry of the virus, although there were a lot of contradictory opinions about it. In terms of face-mask use, the physical barrier may also prevent contact transmission such as hand to face, mouth, or nose (MacIntyre and Chughtai, 2020).

Hospitalized patients with asthma, cardiac, pulmonary, and kidney disease, malignancy and dementia, Cardiovascular disease, hypertension, diabetes, respiratory disease, and cancers were all associated with an increased risk of death from COVID-19 in a large Chinese study, with also an increased risk of death with the degree of obesity (Willianson et al., 2020), demonstrating a correlation between being overweight and having a Chronic disease with death from COVID-19, while in our survey there was a very minor percentage of 27.7% of the participants that were overweight, and 21.1% had chronic diseases, whom severed sever COVID-19 symptoms. Furthermore, pregnancy is considered high risk due to vulnerability to viral infections, but the implication of COVID-19 infection during pregnancy remains unclear (Allotey et al., 2020). However, the incidence of miscarriage was increased by 25% during the COVID-19 pandemic in our population, but with no causal link between miscarriage and SARS-CoV-2 infection (Baraniuk, 2021). Yet, miscarriage and SARS-CoV-2 infection as the causal factor cannot be completely ruled out (Allotey et al., 2020). This theory can be supported by our survey analysis of 13.7% of women who were pregnant and went through abortion after being infected with COVID-19.

"Long covid" is a term being used to describe illness in people who have either recovered from COVID-19 but still report lasting effects of the infection or have had the usual symptoms for far longer than would be expected (Mahase, 2020). It is hypothesized that, in the long-term, a significant number of patients with COVID-19 will suffer from lung function impairment, residual pulmonary parenchymal abnormalities, decreased physical capacity, loss of muscle mass, anxiety, depression, cognitive deficits, post-traumatic stress disorder, fatigue, and poor health status (Balachandar et al., 2020). A team of researchers from Italy reported that nearly nine in 10 patients (87%) discharged from a Rome hospital after recovering from COVID-19 were still experiencing at least one symptom 60 days after onset and two-fifths of patients reported a worsened quality of life (Mahase, 2020), another study from 194 cities in China in 2020 found that 54% of respondents rated the psychological impact of the COVID-19 outbreak as moderate or severe; 29% reported moderate to severe anxiety symptoms, and 17% reported moderate to severe depressive symptoms (Baraniuk, 2021); The results of these different studies support the claims of our respondents as being anxious, depressed, and unhappy after their recovery.

In our survey, 31.2% of participants used treatments, especially drugs, like vitamin supplements where a study showed that the roles of vitamins A, C, D, and E are more defined and may be more effective on the immune system and emphasizes the impor-

tance of vitamins in the prevention of viral infections, including COVID-19 (Jadhao and Magar, 2021), it is also suggested that Zn supplementation may be of benefit for prophylaxis and treatment of COVID-19, at the right dose (Kumar et al., 2020; Pal et al., 2021). Or antibiotics (35.1%) like azithromycin, although there is no clear evidence that it exerts beneficial effects in COVID-19 beyond antibacterial activity in bacterial superinfection (Sultana et al., 2020). Withal, essential oils have long been known to have anti-inflammatory, antioxidant, immunomodulatory, and antiviral properties and are being proposed to have activity against SARS-CoV-2 (Asif et al., 2020). According to their importance and long before use, 62.1% of our survey responders applied different natural herbs and essential oils like Eucalyptus, Laurel, Verbena, Thyme, ginger, cloves, Garlic, and Lemons.

A huge range of vaccine approaches against SARS-CoV-2 has been proposed, including traditional approaches and more novel ones (Ndwandwe and Wiysonge, 2021). However, vaccine hesitancy has quickly become a global health issue of our time fueled by widespread misinformation and false conspiracy beliefs (Bruder and Kunert, 2021), where, more than half of our survey participants did not get vaccinated (59.3%).

Death as a social process has been disrupted for those dying in hospital and for those dying at home, making the grieving process very hard (Odone et al., 2020), and rich descriptions of changes in hygienic practices among rural villagers, as a result of the COVID-19 pandemic, were reported in a study, including improvements in water treatment and household, an increase in hand-washing frequency, thoroughness, and use of soap (Bauza et al., 2021), these reports approve our open-ended question about the impact of the pandemic, where most of our participants indicated a change in their hand washing procedures, detailing on doing it more frequently and more efficiently, while also using constantly the hydro-alcoholic gel.

Important data is always needed everywhere to assess the gravity of situations and to know how people react in front of an infectious disease outbreak. For this survey, we conclude that most of the partakers did believe in this novel coronavirus, and most of them followed the necessary implications of the hygienic measures to prevent the propagation of the virus, and even though most of participants acknowledge the risk, they did not get a COVID-19 vaccine due to many confusions and fear of false conspiracy theories. This study had many limitations like issues with research samples and selection for statistical measurements, limited access to the analysis tool and conflicts arising from cultural bias.

Life with COVID-19 became our new normal, how to act and react to information about the virus, how to prevent it, and what to do while infected became an obsession, hopefully, vaccines are available and we should all be involved.

AUTHOR CONTRIBUTION

Ilyes Zatla contributed to conceiving the presented idea, managed data collection and data analysis, wrote the manuscript. Lamia Boublenza contributed to planning the study design, interpreted results, refined the research questions, helped supervise the project. Ghouti Zatla contributed to refining the research questions, suggested issues in the discussion. Zoubida Chikh contributed to running statistical analysis, supervised the findings of this work.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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