

Vaccination in the Time Of COVID-19: Survey Study at the University of Tlemcen in the Spring of 2022

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Received: January 20, 2023; Accepted: July 26, 2023; Available online: October 16, 2023

ABSTRACT

Background: The novel human coronavirus SARS-CoV-2 causing COVID-19 with symptoms ranging from the common cold to pneumonia, has been responsible for the current health crisis, it has spread rapidly at record speed leaving many deaths of different ages and different ethnicities, and in order to stop this propagation, scientists rushed to create several efficient vaccines against this virus, and despite being marketed in all countries of the world, opinions diverged between supporters and opponents. This prompted us to carry out this survey study on vaccination against COVID-19 at the University of Tlemcen, with the aim of exploring the perceptions and opinions of participants on vaccination and vaccines in general.

Subjects dan Method: A cross-sectional study was conducted over a two months period, using a questionnaire to collect data from Teachers and Students of the University of Tlemcen with a 382 calculated sample size, the survey was shared via email and social media networks. Variables of interest included exposure to the pathogen, the laboratory testing results, effectiveness and adherence to the preventive measures, while also monitoring the vaccine acceptance and hesitancy. Descriptive and statistical analysis were run on SPSS Statistics with a p value <0.050.

Results: The majority of respondents for this study belonged to young people of the female gender (37.4%), despite the latter, men were the most vaccinated (53.4%), fortunately, most of them also acknowledge the association between prevention and vaccination (94.6%).

Conclusion: Vaccine reluctance is a huge problem in the face of a pandemic that is not yet over. Even with the availability of vaccines and vaccination campaigns, unexplained fear due to rumors and conspiracy theories on social media still wins over the public about the safety of these vaccines.

Keywords: COVID-19, SARS-CoV-2, investigation, vaccination, University of Tlemcen.

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Cite this as:

Zatla I, Boublenza L, Zair S, Diab N (2023). Vaccination in the Time Of COVID-19: Survey Study at the University of Tlemcen in the spring of 2022. J Epidemiol Public Health. 08(04): 434-440. <https://doi.org/10.26911/jepublichealth.2023.08.04.02>.



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BACKGROUND

On the 30th of January, 2020, the WHO Director-General declares the 2019-nCoV

outbreak a public health emergency of international concern (Werf and Peltekian, 2020). The current COVID-19 pandemic has

prompted the international scientific community to find therapeutic and vaccine answers to control SARS-CoV-2, despite all the efforts devoted to developing a safe and effective vaccine against coronavirus, many fears and uncertainties in its application.

Vaccines have been developed at an unprecedentedly rapid pace to control the spread of the virus and prevent hospitalizations and deaths (Forni and Mantovani, 2021). In the race for a safe and effective vaccine against COVID-19, the science of pharmaceutical formulation played a vital role throughout the development, manufacturing, and distribution phases of vaccination. The correct choice of the type of vaccine, carrier or vector, adjuvant, excipients, dosage form, and route of administration can have a direct impact on the immune responses induced and the resulting efficacy against COVID-19 (Wang et al., 2020; Zatla et al., 2022). The objective of this study is to explore the perceptions of teachers and students on vaccination against COVID-19 through a questionnaire carried out at the University of Tlemcen.

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 2 months.

2. Population and Sample

The data were collected through a questionnaire, which was diffused online on social media for two groups, students and teachers of the University of Abou Bekr-Belkaid Tlemcen to participate in, the calculated sample size of this study was 382, with a confidence level of 95%, and a margin of error= 5%.

3. Study Variables

Variables included in this study were infection, testing, prevention, masks, vaccination.

4. Operational Definition of Variables

Confirming the infection with laboratory testing to identify whether or not a person is infected with the virus, how to prevent the infection and considerate the measures taken to prevent the occurrence or spread of the disease with the consideration of wearing a mask and vaccines, all monitored with respect to age, gender, and occupational status.

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

A descriptive analysis was run, numbers and frequencies were reported. Analytical statistics were 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 by each participant.

RESULTS

Results obtained from the survey were classified in order of these criteria, to find answers to our research objective

1. Sociodemographic Criteria

a. Distribution by age

The results indicate that almost half of the respondents (47%) are in the age group of (17-24), followed by that of (25-34) with 16.9%.

b. Distribution by age

69% of respondents are females and 31% are males.

c. Breakdown by age and gender

Figure 1 shows a predominance of female participation in the age group (17-24) years with a percentage of 37.4% against 9.7% of male participants in the same age group.

d. Distribution by status

The results indicate that 59.9% of the participants are students and the rest (40.1%) are teachers. According to Figure 2, the female

sex was more dominant than the male sex among both students and teachers with rates of 45.2% and 23.8% respectively.

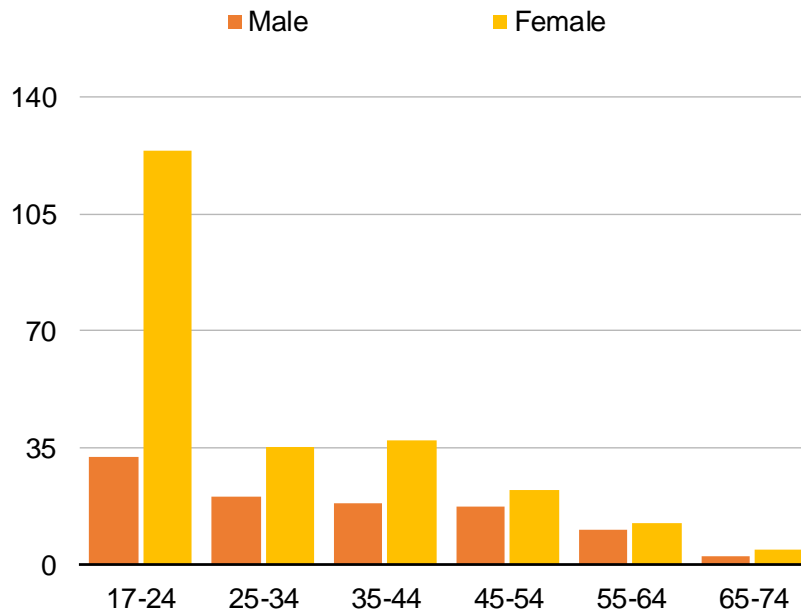


Figure 1. Breakdown by age and gender at Tlemcen's University in 2022

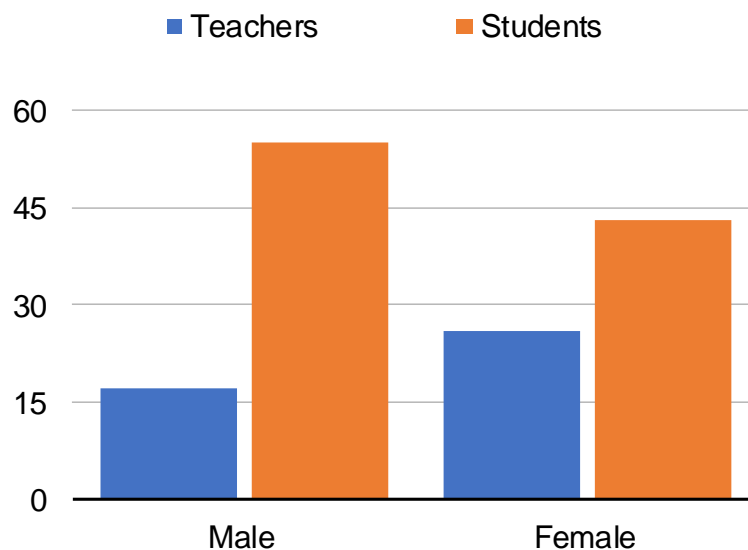


Figure 2. Breakdown by sex and status at Tlemcen's University in 2022

2. Knowledge of COVID-19 and vaccines criteria

a. Distribution by the suspicion of having COVID-19

The results show, 37% of respondents had

suggestive symptoms of COVID-19 several times, 32.8% had them only once and 19% were not sure. Nevertheless, most of the respondents who had symptoms suggested COVID-19 either once or several times

belonged to the age group (17-24) years with a rate of 30.2% (100/332). Among the 232 participants who reported having had symptoms suggestive of COVID-19 one or more times, a rate of 71.1% (165/ 232) of women was recorded compared to 28.9% (67/232) of men.

b. Distribution according to confirmation of the disease by a test

The results obtained show that 36.1% of the participants confirmed the infection by a test each time they presented symptoms, of which 48.4% confirmed the infection by a test only once and less than 6% did so more

than 3 times, 11.1% did not do so each time, compared to 52.7% who never confirmed with a test.

c. Distribution by COVID-19 vaccination rate

The results indicate that 54.8% are not vaccinated, 41.3% are, and 3.9% plan to do soon. It was found that more than half of the vaccinated belonged to the age group over 25 (52%), with much higher male participation (53.4%). Moreover, the breakdown by status shows that teachers were the most vaccinated with a rate of 59.4% (Table 1).

Table 1. Distribution of COVID-19 vaccination rate by sex, and status at Tlemcen’s University in 2022

Characteristics	Category	Vaccinated	Soon Vaccinated
Gender	Males	53.4%	3.9%
	Females	35.8%	3.9%
Status	Students	29.1%	3%
	Teacher	59.4%	5.3%

d. Distribution by fear of post-vaccination complications

The results indicate that 42.8% of participants do not believe they will experience any adverse effects following vaccination, 28% fear having post-vaccination complications and 29.2% are moderately reluctant. It was also found that 199 (27.4%) of the respondents are students who are not worried about experiencing side effects after vaccination against 51 teachers (15.3%).

e. Distribution by SARS-CoV-2 infection pre/post-vaccination

The results show that 39.8% of respondents declared that they were infected before vaccination and 30.1% after, and the same percentage declared that they were infected before and after vaccination. Furthermore, the results of respondents’ opinions on the possibility of being infected with the virus after the vaccination against COVID-19,

show that 93.1% think they can be infected with the virus after vaccination and 6.9% think the opposite.

f. According to post-vaccination complications

Of the 157 vaccinated participants, 89.8% said they had no side effects after vaccination, compared to 10.2% who had complications. It is reported that out of 91 of the participants who had COVID-19 after vaccination; 58.8% had mild symptoms, 38.5% had moderate symptoms and 7.7% had severe symptoms. However, the results of participants’ opinions on the possibility of avoiding severe forms after vaccination against COVID-19 indicate that the majority of participants (71.7%) believe that vaccination will protect against these severe forms and may prevent hospitalization against 28.9% who think the opposite.

g. According to the importance of wearing a mask after vaccination

The results of participants opinions on whether or not to wear masks after vaccination show, 94.6% think that wearing mask will still be necessary even after vaccination, compared to 5.4% think the opposite.

DISCUSSION

COVID-19 is an emerging disease whose significant ability to spread in a population devoid of immunity is well established. This pandemic has exerted pressure on the global community that we have not seen outside of wartime. In our interconnected world, we have seen that none of us is safe until we all are. In this potential chaos, the only hope lay in the rapid development of effective solutions against SARS-CoV-2. However, the acceptance of these solutions by the population would not be that obvious.

The majority of participants in our survey belonged to young people, which could be explained by their active presence on social networks since the survey was launched online. Moreover, the most active component of our study was the female gender as shown in our results. These latest results are in line with two previous studies conducted in Iran and Morocco that mention how young individuals and females tend to respond at higher rates to these surveys (Pourani et al., 2021 ; Samouh et al., 2021).

Testing is of great importance in reducing the risk of transmission (WHO, 2021), but more than half of our participants haven't had any test to confirm their infection. Furthermore, large-scale diagnostic tests are a key tool in epidemiology and in containing outbreaks such as COVID-19 (Weissleder et al., 2020). Also, the appearance of symptoms doubtful of COVID-19 does not always indicate the presence of SARS-CoV-2 infection (Laura et al., 2020), where for our study, women reported having

COVID-19 symptoms more than males, similar to the literature results where several reports highlight the gender difference in infection (Mukherjee and Pahan, 2022). Nevertheless, the Global Health 50/50 research has presented an overview of global sex-disaggregated data, showing a similar number of cases in women and men, but an increase in case fatality in men (Global Health 50/50, 2022).

Like everywhere in the world, the confusion and doubt about the effectiveness of vaccines and their possible side effects have divided the world into pro-vaccine and anti-vaccine groups, but also into a lost and confused group between conspiracy theorists' rumors and scientists' pieces of evidences. The vaccination results against COVID-19 across our university show that it has not achieved its objectives, despite the vaccination campaign launched in its halls. Moreover, we noticed that men at our university were more vaccinated than females and this could be explained by the women's character in being more reluctant to get vaccinated. In addition to that, teachers were more vaccinated than students on our campus, quite possibly due to their awareness of the seriousness of the situation and to plan for better control of the spread of the disease. As well, the WHO in March 2022 indicated that vaccination plays a vital role in preventing deaths and hospitalizations caused by infectious diseases and helps to control the spread of the disease as most of our partakers (71.7%) have responded in our survey which shows having knowledge about these vaccines and their effect.

According to scientists, all vaccines are safe and effective (Zatla et al., 2021). Yet, a wide range of serious neurological complications have been reported following vaccination against COVID-19 and the most devastating neurological complication was cerebral venous sinus thrombosis (Kumar and

Kumar, 2022), and there are increasing reports of myopericarditis following COVID-19 vaccination, particularly in adolescents and young adults (Ling et al., 2022). Also, the WHO in July 2021 said that even after receiving all the recommended doses and waiting a few weeks for immunity to build up, there is still a possibility of getting infected, and that vaccines do not provide full protection, In spite of that, their impact on infection and severe diseases is important, since they also retain their effectiveness against variants because of the large-scale immune response they induce, which means that changes or mutations in virus are unlikely to render vaccines entirely ineffective.

Our study focused on vaccination against COVID-19 at the level of the University of Tlemcen, where the majority of respondents were young people with a predominance of women and despite the availability of different vaccines, more than half of the participants were not vaccinated. We hope through this study to have sensitized and raised awareness in the community of our university and to encourage them to be vaccinated, to protect themselves and their loved ones. From perspectives, it would be interesting to carry out awareness studies with greater participation and other objectives, to attest to the seriousness of the situations and to see how people react in the heart of a health crisis.

AUTHOR CONTRIBUTION

Ilyes Zatla contributed to conceiving the presented idea, managed data collection and data analysis, and wrote the manuscript. Lamia Boublenza contributed to planning the study design, interpreted results, refined the research questions, and helped supervise the project. Soumia Zair contributed to writing and reviewing the manuscript. Nesrine Diab contributed to writing and reviewing the manuscript.

ACKNOWLEDGMENT

None.

FUNDING AND SPONSORSHIP

This research received no external funding.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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