EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

PERCEPTION AND AWARENESS ABOUT COVID-19 VACCINES AMONG MALE AND FEMALE MEDICAL STUDENTS

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ABSTRACT
It was a cross sectional study. Total number of participants were 157. The study was conducted among medical students both female and female students who had taken admission to MBBS course in medical colleges of Maharashtra state, India. 1st year students = 65.6 %, 2nd year students = 31.8 % and 3rd year students = 2.5 %. 7.6 % of the participants were fully aware about COVID-19 vaccine. 21% of the students look for information regarding COVID-19 vaccine 3-4 times per week. The mechanism of action of available COVID-19 vaccine new everything 3.8 % participants. 42% of them had taken the COVID-19 vaccine when the study was going on. 9.6 % of their family members were vaccinated during the present study.

KEYWORDS: COVID-19 vaccine, medical student, awareness.

INTRODUCTION
December 2019 the information emerged about the mysterious respiratory illness in Wuhan, China. Then six months later in the context of greater than 10 million cases the COVID-19 pandemic has now become the first public health crisis.[1] The main objectives of vaccination includes reduction of overall COVID-19 mortality and severity, re-opening of society and disease elimination. COVID-19 vaccine will cause side effect which include fatigue, fever, headache, chills, body aches, nausea and pain and irritation at the site of injection. WHO regularly updates a landscape analysis of COVID-19 vaccines in clinical development. Coronavirus disease (COVID-19) is a fatal viral disease.[2] The COVID-19 epidemic was declared a pandemic by WHO on March 11, 2020.[3] Vaccination is prioritized for vulnerable groups in all countries. The development of a COVID-19 vaccine to combat the disease's spread and devastating effect is still ongoing. Vaccine delivery is continuing and the public acceptance of the COVID-19 vaccine is critical. Vaccine hesitancy is becoming increasingly recognized as a serious public health problem. COVID-19 vaccine has been framed as the perfect solution for halting the current pandemic. COVID-19 continues to wreak havoc on lives and livelihoods around the world but the COVID-19 vaccine offers a ray of hope for the future.

MATERIALS AND METHODS
This cross-sectional study was conducted among 157 medical students of either genders. Prevalidated questionnaire via Google form was uploaded. The participants were 18 years and above. Those who agreed to take part in the study were included. Statistical analysis were adapted to Microsoft Excel Spread Sheet.

RESULTS AND DISCUSSION
Table 1: Age of the participants.

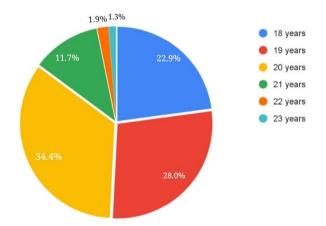| Age	No. of participants	Percentage (in %)
18	36	22.9
19	44	28.0
20	54	34.4
21	18	11.7
22	3	1.9
23	2	1.3

Figure 1: Pie chart depicting relative distribution of participants in different ages.

Table 2: Gender distribution of the participants.

Gender	No. of participants	Percentage (in %)
Male	78	49.7
Female	79	50.3

Table 3: Academic Year of MBBS course of the participants.

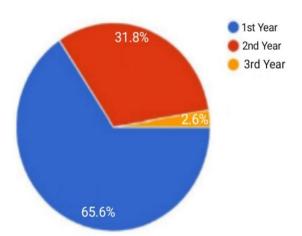| Year of MBBS	No. of participants	Percentage (in %)
1st Year	103	65.6
2nd Year	50	31.8
3rd Year	4	2.5

Figure 2: Pie chart depicting relative distribution of participants in different academic years.

Table 4: Awareness of COVID-19 vaccines among participants.

Awareness level	No. of participants	Percentage (in %)
Very little aware	9	5.7
Somewhat aware	63	40.1
Moderately aware	73	46.5
Fully aware	12	7.6

Table 5: Frequency of looking for information on COVID-19 vaccines.

Frequency	No. of participants	Percentage (in %)
Daily	5.1	5.1
3-4 times a week	33	21
1-2 times a week	57	36.3
Rarely	52	33.1
Never	7	4.5

Table 6: Knowledge about action of any available COVID-19 vaccine.

Level of knowledge	No. of participants	Percentage (in %)
Know nothing	35	22.3
Know something	116	73.9
Know everything	6	3.8

Table 7A: Vaccine status of the participants.

Vaccine status	No. of participants	Percentage (in %)
Taken the vaccine	66	42
Have not taken the vaccine	91	58

Table 7B: Vaccine schedule of the unvaccinated participants.

	No. of participants	Percentage (in %)
This month	50	58.8
Next month	20	23.5
Not in the near future	15	17.6

Table 7C: Vaccine status of the acquaintances of the participants.

No. of acquaintance with vaccine	No. of participants	Percentage (in %)
None	43	27.4
<3	30	19.1
4-6	29	18.5
>7	55	35

Table 7D: Vaccine status of the family members/relatives of the participants.

No. of vaccinated family members/relatives	No. of participants	Percentage (in %)
None	83	52.9
<3	56	35.7
4-6	15	9.6
>7	3	1.9

Table 8A: Response to whether a person who hasn't tested positive for COVID-19 vaccine even once, should take the vaccine.

Opinion	No. of participants	Percentage (in %)
Yes	152	96.8
No	5	3.2

Table 8B: Response to whether a person should take COVID-19 vaccine after developing immunity against COVID virus.

Opinion	No. of participants	Percentage (in %)
Yes	125	79.6
No	32	20.4

Table 9A: Response to whether the COVID-19 vaccines definitely prevent COVID-19 infection.

Opinion	No. of participants	Percentage (in %)
Yes	26	16.6
No- it is still possible to get a mild infection	131	83.4

Table 9B: Response to whether a vaccinated person can transmit COVID-19 infection.

Opinion	No. of participants	Percentage (in %)
Yes	104	66.2
No	53	33.8

Table 9D: Response to whether people, who are on medication for hypertension/ diabetes/ cancer, etc. should take the vaccine.

Opinion	No. of participants	Percentage (in %)
True	116	73.9
False	41	26.1

Table 9C: Response to whether a vaccinated person should wear a face mask.

Opinion	No. of participants	Percentage (in %)
Yes	149	94.9
No	8	5.1

Table 10: Response to which of these people should not be administered with COVID-19 vaccine.

Condition	No. of participants	Percentage (in %)
Those with a history of severe allergic reactions.	118	75.2
Those younger than 16 years of age	58	36.9
Pregnant women	101	64.3
Those who are currently experiencing COVID-19 symptoms	80	51
Those who have been administered with a non-covid vaccine	51	32.5

Table 11: Response to which test should be done for a person with history of allergic reactions before administering COVID-19 vaccine.

Test	No. of participants	Percentage (in %)
Complete Blood Count (CBC)	10	6.4
Immunoglobin-E (IgE) levels	130	82.8
C-reactive Protein (CRP)	15	9.6
Intradermal skin test	2	1.3

Table 12: Response to- when does the COVID-19 antibodies develop in a vaccinated person.

Opinion	No. of participants	Percentage (in %)
After 1st dose	30	19.1
After 2nd dose	105	66.9
Much after 2nd dose	22	14

Table 13: Opinion on why some COVID-19 vaccines are given in more than 1 dose.

Opinion	No. of participants	Percentage (in %)
A single large dose may prove harmful	46	29.3
Antibodies develop only after 2nd dose	104	66.2
2nd dose prevents side effects	7	4.5

Table 14: Participant's' knowledge on the side effects of COVID-19 vaccines.

Side effects	No. of participants	Percentage (in %)
Fever	141	89.8
Headache	138	87.9
Joint pain	99	63.1
Fatigue	104	66.2
Spasms	47	29.9
Swollen lymph nodes	43	27.4

Table 15: Participants' knowledge on the duration of COVID-19 vaccine side effects.

Duration of side effects	No. of participants	Percentage (in %)
<24 hours	31	19.7
48-78 hours	102	65
More than 1 week	8	5.1
Uncertain	16	10.2

Table 16: Opinion on whether there is a person-to-person variation in the occurrence of side effects.

Opinion	No. of participants	Percentage (in %)
True	155	98.7
False	2	1.3

Table 17: Opinion on whether the COVID-19 vaccines should be available free-of-cost in India.

Opinion	No. of participants	Percentage (in %)
Yes	141	89.8
No	16	10.2

Table 18: Participants' knowledge of the available COVID-19 vaccines.

Covid vaccines	No. of participants	Percentage (in %)
Covaxin	142	90.4
Mynvax	16	10.2
CoronaVac	36	22.9
Covishield	139	88.5
Sputnik V	64	40.8

The present study shows 157 number of participants. Male = 49.7%, female = 50.3 %. Their age was from 18 years to 23 years. 22.9 % = 18 years, 28 % = 19 years, 34.4 % = 20 years, 11.7% = 21 years, 1.9% = 22 years and 1.3 % = 23 years. Among the medical student 1st year MBBS students = 65.6 %, 2nd year = 31.8 % and 3rd year = 2.5 %. Their awareness level about COVID-19 vaccine was very little = 5.7%, somewhat aware = 40.1 %, moderately aware = 46.5 % and fully aware = 7.6 %. The participants reported about the question how often the look for information regarding COVID-19 vaccines, daily = 5.1 %, 21% = 3 to 4 times a week, 36.3 % = 1-2 times per week, rarely = 33.1% and never = 4.5%. As per E. Hager et al[4], government needs to strengthen their health system and effectively apply standard infection prevention and control measure along with continuously providing accurate and timely information to their masses. The knowledge of the participants regarding the mechanism of action of any of the available COVID-19 vaccine, know nothing = 22.3 %, know something = 73.9 % and know everything = 3.8 %. B. Unnikrishnan[5] and others revealed that there is a partial knowledge among health care workers regarding recent updates on COVID-19 pandemic. As per G. Paul et al[6], health care workers had moderate level of knowledge. S. Mahmood[7] & others reported in their study that the effective measures are being taken by the government and public still need further awareness campaigns and knowledge. Among the family members and relatives of the participants who had taken the vaccine 52.9 % = none, 35.7 % = <3, 9.6 % = 4-6 members and 1.7 % = >7 of the relatives. The opinion about whether a person should take the vaccine if he/she has never tested positive for COVID-19, 96.8 % = yes and 3.2 % = no. About the question whether a person can take vaccine if he/she has developed immunity to COVID-19, 79.6% = yes. Whether COVID-19 vaccines definitely prevent infection, among the participants 16.6% = yes and no = 83.4%. About the

opinion regarding can a vaccinated person transmit COVID-19 infection, yes = 66.2%, no = 33.8%. Regarding wearing a mask yes = 94.9%. The study of S. Loomba and others[8] reported that scientific-sounding misinformation is more strongly associated with declines in vaccination intent. K. A. Mannan et al[9] revealed there is low rate of acceptability is alarming and there is a need of awareness campaign. The work of K.H. Gohel et al[10] reported that health care students with their education background and basic understanding about COVID-19 can play a significant role by making community people aware about the seriousness of this pandemic situation. The participant responds regarding the question about the people not eligible for COVID-19 vaccine, 75.2% = those with the history of severe allergic reaction, 39.6% = those younger than 16 years of age, 64.3% = pregnant women, 51% those who are currently experiencing COVID-19 symptoms and 32.5% = those who have been administered with a non-COVID vaccine. The work of a Narayanan et al[11] reported that the students of various medical colleges had good knowledge of COVID-19 and extensive knowledge about general information like people at a high risk symptoms and signs and complications. In the present study the participants reported about the question that after taking COVID-19 vaccines when will the antibodies develop, 19.1% reported after 1st dose, 66% after a 2nd dose and 14% much after 2nd dose. About the questions some COVID-19 vaccines are given in more than one dose, the reason, 29.3% = a single large dose may prove harmful, 66.2 % = antibodies develop only after 2nd dose and 4.5% = 2nd dose prevents side effect. Ashraf I. K. and others[12] revealed that the medical student showed expected level of knowledge about the COVID-19 virus and implemented proper strategies to prevent it's spread. Regarding the side effects of COVID-19 vaccines, the participants reported 89.8% is fever, 87.9% is headache, 63.1% joint pain and 66.2% fatigue. As per Christina[13] M et al adverse effects are more frequently reported in younger individuals, women and among those who previously had COVID-19. A Riad & others[14] reported that the prevalence of some local and systemic side effects was higher than manufacturers report. The opinion of the participants regarding COVID-19 vaccines should be made available free of cost in India 89.8% partcipants agreed for it. Regarding the varieties of available COVID-19 vaccine 90.4% knew about Covaxin, 10.2% about Mynvax, 22.9% CoronaVac, Covishield was known by 88.5% and 40.8% knew Sputnik V. The work of S. S. Enitan and others[15] reported that misinformation and disinformation strengthen vaccine skepticism and rejection. S Deo et al[16] revealed vaccine development and approval will not put an end to the current pandemic. The imperative will be robust production and distribution policies and protocols to ensure that the vaccine can be administered universally.

CONCLUSION

Vaccines are being considered as the critical tool in battle against the COVID-19. We should not put off getting vaccinated. It is of dominant importance in order to define the clear and measurable goals for the vaccination process. The COVID-19 pandemic continues to wreak havoc on lives and livelihood around the world but COVID-19 vaccine offers a way of hope for the future.

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