

COVID-19 Vaccination Status and Attitude Towards COVID-19 Pandemic among Medical Students: An Online Cross-Sectional Survey

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Abstract

Aims: Medical students belong to frontline health care providers of future. Risk of COVID 19 exposure is more among medical students, and COVID 19 vaccination plays very crucial role for controlling COVID 19 pandemic. Hence, this study was planned with the objective to evaluate attitude of medical students towards COVID 19 pandemic and their vaccination status.

Materials and Methods: We conducted an online web-based survey among medical students of Madhya Pradesh, India. Online Google form-based Questionnaire was sent through WhatsApp groups, and responses were collected and analysed. Voluntary consent was obtained through from all the participants.

Findings: A total of 516 medical students from different medical colleges of Madhya Pradesh voluntary participated in this study. Out of that majority of the participants were in 18-20 years' age groups, unmarried and belonged to rural areas. Most of them were worried about their MBBS studies due to COVID 19 pandemic. 71% of the medical students received two doses of the COVID 19 vaccination till 15th August, 2021.

Conclusion: Medical students of Madhya Pradesh are worried about their MBBS course completion, examination and education shift towards online due to COVID 19 pandemic. There is a need of psychological counselling and awareness program regarding vaccination among medical students.

Keywords: COVID-19, Medical Student, Attitude, COVID 19 Vaccine.

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Introduction

Corona virus disease 2019 (COVID-19) is a globally emerging public health problem caused by a novel corona virus (SARS-CoV-

2). It was originated from the China (Wuhan) in December 2019 and rapidly spreads all over the world [1]. On 30th Jan

2020 the first case of COVID-19 was reported in India and then spread throughout the country [2]. On 20th March 2020, four cases of the COVID-19 pandemic was detected first time in Jabalpur, Madhya Pradesh. World Health Organization (WHO) was declared COVID-19 infection as a pandemic disease on 11th March 2020 from public health international emergency [3]. COVID 19 pandemic often lead to developed stress among medical students, as they have fear of transmission of infection to their friend and family.

This stress developed anxiety amongst medical student and significantly affects their behavior, mental status and educational status [4]. For the prevention and control against COVID-19 disease, India was launched first COVID 19 vaccine on 16 January 2021. In India from January 2020 all the medical students and health care provider were targeted for COVID 19 vaccination in first phase of COVID 19 pandemic, then subsequently COVID-19 vaccination was extended to general population aged ≥ 60 years and 45-59 years of age with comorbidities from the March 2021 [5].

Government of India provides approval of two vaccines; Covishield and Covaxin in the first phase of COVID 19. Serum Institute of India manufactured Covishield vaccine (adenovirus vectored ChAdOx1 nCoV-19 vaccine - AZD1222) under license from Astra Zeneca [6]. Bharat Biotech of India along collaboration with the Indian Council of Medical Research (ICMR) manufactured Covaxin (BBV152) that is inactivated SARS-CoV-2 vaccine [7]. Various studies have been frequently reported COVID 19 vaccine hesitancy amongst medical students and health care workers.

The possible reasons for non-acceptance of vaccine (vaccine hesitancy) amongst medical students were highly concerned about the vaccine adverse effects, poor efficacy, fear

about new vaccine, insufficient knowledge about vaccine and unduly rapid vaccine development [8]. Subsequently, there is an urgent need for a more updated and more understanding of attitudes towards vaccines and factors determining vaccine intent in the context of the COVID-19 pandemic in order to tailor public health messaging accordingly [9].

Vaccination has play crucial role for prevention of COVID 19 infection. We have found very little literature on vaccination status amongst medical student in Madhya Pradesh, India, that why we have planned this study.

Aim of our study to evaluate self-reported COVID 19 vaccination status and attitude towards the COVID 19 pandemic during second wave amongst medical student of Madhya Pradesh, India.

Materials and Methods

We conducted an online cross-sectional survey among medical students of Madhya Pradesh in all years of study using a prevalidated online Google form. The Google form link was shared via social media (WhatsApp groups) and snowball technique of sampling was used. We collected responses during 10 days (14 to 23 August, 2021). A total of 516 medical students participated in our web-based survey.

The study was conducted according to the ethical guidelines for internet-mediated research [10]. All the students were informed regarding objectives of the study and confidentiality of research data. An informed consent to participate was obtained for this completely anonymized, non-experimental, online study where no identifiable information was gathered. Survey consisted of voluntary informed consent, demographic details, medical college details, COVID 19 vaccination status and attitude towards COVID 19 questions.

Statistical software used was MS Excel, SPSS for Windows Inc. Version 22. Proportions were expressed as percentages

Results

We conducted an online cross sectional survey for assessment of COVID 19 vaccination status and attitude towards COVID 19 second wave pandemic amongst medical students of Madhya Pradesh. A total of 516 medical student participated in our study. Predominant participants (51.94%) were belonging to 18-20 years of age group accompany by (43.22%) 21-23 years age group. We have found almost equal participation by male (49.42%) and female (50.58%) participant. Male to female ratio was 1:1.02. (Table 1) In present study most of the study participant belongs to urban area (61.6%) with rural to urban ratio was 1:1.6. Vast majority of the participant was unmarried (99.2%) and residing in the nuclear family (68.9%). (Table 2)

In our study only 12.6% study participant have been diagnosed COVID 19 positive and 38.9% of their family members (grandparent

/parent/siblings) was found COVID 19 positive. Total of 98.64% medical students received COVID 19 vaccination out of which 71.12% received two doses of vaccination and 27.52% received only one dose of vaccination till the end of study period (15th August, 2021). All data was self-reported by the study participants. ((Table 3)

We observed that majority of the participants (59.1%) were scared of COVID 19 pandemic to some degree and few of the participants (6.9%) were very much scared by COVID 19 pandemic. Most of the participants (41.85) were worried about their studies due to COVID 19 pandemic to very much extent only 3.1% participant have do not worried about their studies during COVID 19 pandemic.

Medical students were very much worried about their MBBS completion due COVID 19 pandemic (34.1%), only 10.6% students do not worried about their MBBS completion. Majority of the medical students (33.1%) were very much concern about education shift toward online due to COVID 19 (Table 4)

Table 1: Age and gender wise distribution of medical students

Age Group	Male (%)	Female (%)	Total (%)
18-20 year	121 (47.45)	147 (56.32)	268 (51.94)
21-23 year	111 (43.53)	112 (42.91)	223 (43.22)
24-26 year	15 (5.88)	1 (0.38)	16 (3.10)
27+ year	8 (3.14)	1 (0.38)	9 (1.74)
Total	255 (49.42)	261 (50.58)	516 (100)

Table 2: Sociodemographic variables of study participants

Residence area	
Rural	198 (38.37)
Urban	318 (61.63)
Marital Status	
Married	4 (0.78)
Unmarried	512 (99.22)
Type of Family	
Joint	160 (31.01)
Nuclear	356 (68.99)

Table 3: History of COVID-19 & Vaccination status of study participants

Diagnosed positive for COVID-19	N (%)
Yes	65 (12.60)
No	451 (87.40)
Any family member (grandparent/parent/sibling) was diagnosed positive for COVID-19	
Yes	201 (38.95)
No	315 (61.05)
COVID-19 vaccination	
Not vaccinated	7 (1.36)
Vaccinated with one dose	142 (27.52)
Vaccinated with two doses	367 (71.12)

Table 4: Attitude towards COVID-19 pandemic

Are you scared by COVID-19 pandemic?	N (%)
Not at all	66 (12.79)
To some degree	305 (59.11)
To considerable degree	109 (21.12)
Very much	36 (6.98)
Are you worried about your studies due to COVID 19 pandemic?	
Not at all	16 (3.10)
To some degree	112 (21.71)
To considerable degree	172 (33.33)
Very much	216 (41.86)
Are you worried about completion of your MBBS course due to COVID 19 pandemic?	
Not at all	55 (10.66)
To some degree	157 (30.43)
To considerable degree	128 (24.81)
Very much	176 (34.11)
Are you concerned about the shift towards online education due to COVID 19 pandemic?	
Not at all	54 (10.47)
To some degree	142 (27.52)
To considerable degree	149 (28.88)
Very much	171 (33.14)

Discussion

All the countries are fighting against COVID-19 disease. Most of the countries accept that medical students can be considered in a portion of the emergency and non-emergency clinical based jobs and should be prearranged for health care

workers shortage [11]. An increasing role of medical students in spearheading a voluntary task force while gaining skills and experience has been proposed in recent times.16 In the midst of this crisis, the Indian health ministry has proposed to provisionally permit medical

undergraduates of senior grades to treat COVID-19 patients [12]. This approach would not only help to reduce the doctor population ratio and provide care to a large number of people in need. Hence, medical students were included in our study.

Present study observed almost equal participation of male and female medical students (male: female = 1:1.02) echoes finding also observed by others Indian studies conducted by Gahlot *et al* [13], Joshi R *et al* [14], Maheshwari S. *et al* [15] and Krishna *et al* [16]. Current study found that majority of the participant (51.9%) were belongs to less than 21-year age that was almost similar to the Badi, *et al* [17] and Padmanaban *et al* [18], many other studies like Joshi R *et al* [14] and RAO *et al* [19] reported that 21-25 years age group participants were the most common.

We have found that maximum no of participants was unmarried (99.2%) and belongs to nuclear family, our results consistent with the other Indian studies finding like Kalliath JD, *et al* [20]. Present study observed that majority of the participant (59.1%) is scared /worried about COVID 19 pandemic to some extent accordance to Yakar *et al* [21]. In our study most of the medical students are very much worried about their studies, completion of MBBS course and shifting of education pattern toward online, this was concordance with the South Korean study conducted by Hong *et al* [22].

In our study majority (71.1%) of the medical student received two doses of COVID 19 vaccination echoes finding also observed by Leela GR *et al* [23] conducted a study in Kerala where 73% female medical students and 65% male medical student accepted COVID 19 vaccine. Another study conducted by Kose S *et al* [24] in turkey where approx 68% health care professional received COVID 19 vaccine hesitancy of medical

students for taking COVID 19 vaccine was reported by Victoria C *et al* [25], the hesitancy for taking vaccine may be due to concerns about the vaccine side effects, lack of safety and lack of trust in the information received from public health experts.

In our study approximately 25-30% medical students did not receive COVID 19 vaccine. This vaccine hesitancy may be due to lack of awareness about the vaccine, lack of trust, fear for vaccine side effects, safety and efficacy issue. We have spread awareness toward COVID 19 vaccine and promoted the medical students to take vaccine so that they can motivate general population regarding vaccine acceptance. In the current running third wave of COVID 19 (omicron) pandemic positive cases raises very rapidly but hospitalization rate was very less as compared to first / second wave this may be due to effect of COVID 19 vaccination.

Conclusions

Majority of the medical students of Madhya Pradesh are very much worried about their MBBS studies, course completion and education shift towards online due to COVID 19 pandemic. 29% of medical students of Madhya Pradesh did not receive any dose of COVID 19 vaccine. There is a need of psychological counselling and increasing awareness regarding vaccination among medical students.

Ethical Code

The study was conducted according to the ethical guidelines for internet-mediated research [10]

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