

EXPERIENCES OF COVID-19 VACCINATION AMONG DENTAL UNDERGRADUATES AND INTERNS - AN ONLINE CROSS-SECTIONAL SURVEY

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ABSTRACT

Vaccination has been approved as a successful approach in averting the spread of COVID-19. Dental professionals are one among the vulnerable populations due to their close work space proximity related to oral cavity. Our study aimed to assess the experiences of COVID-19 vaccination among dental undergraduates and interns in a tertiary dental health centre in Kerala, India. Among the participants 86.2% were females and 13.8% were males. Most of them (86.2%) never tested positive for COVID-19, but 9.6% were tested COVID positive before the first vaccination. Pain at the injection site was reported as the most common localised symptom after the first doses as well the second dose. Dentists can act as effective advocates of COVID vaccination and evidence-based planning with effective approaches is warranted to enhance the knowledge and eradicate vaccination hesitancy among general public.

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Background:

Vaccination is considered to be one of the most cost effective public health interventions that has a greater impact on reducing the burden of infectious diseases as well as on promoting and maintaining the health. These beneficial health consequences in turn have a significant economic impact on healthcare systems and society as a whole.¹

Vaccination has been approved as a successful approach in averting the spread of COVID-19.^{1,2} Vaccine hesitancy is a continuum amidst vaccine support and denial, which has become a burning issue of public health concern.³ The success of vaccination greatly depends on people's willingness to receive it. Vaccine uptake can be influenced by a variety of factors, including beliefs that the vaccine causes side effects, perceived susceptibility to illness, knowledge about the vaccine, social influences, and trust in the health system.⁴ Additional factors that influence the acceptance of vaccines include their concern about the probable side effects, lack of information, safety of the vaccine, and effectiveness of vaccination against COVID-19.⁵

Understanding the range of symptoms that vaccination might cause is important for the person receiving the vaccine. The symptoms developed after vaccination can vary from pain, redness, and swelling at the injection site, headache, nausea, tiredness, myalgia and fever. Other serious side effects such as anaphylaxis to a vaccine component have been reported.⁶

Although few studies have assessed experiences of COVID vaccination among various health care workers^{7,8}, no studies have been reported from Kerala, India so far. Dentists and dental students are one among the vulnerable populations due to their close work space proximity related to oral cavity. Hence this study was conducted with an aim to assess the experiences of COVID-19 vaccination among dental undergraduates and interns in a tertiary dental health centre in Kerala, India.

Methodology:

A cross sectional online survey was conducted among undergraduate dental students and interns in

a tertiary dental health centre. A convenience sampling methodology was adopted. The sample size was estimated through a pilot study among 20 students, using the formula

$$n = 4pq/d^2$$

Where p=proportion of students experienced at least one post vaccination symptom,

$$q = 1 - p, d = \text{allowable error}$$

$$p = 86\%, q = 14\%, d = 5, n = 193$$

Applying the formula, the minimum estimated sample size was estimated to be 200.

All the students who underwent at least one dose of vaccination and who are willing to participate were included after getting an informed online consent. Data was collected using a pre-validated questionnaire distributed in google form. The questionnaire mainly focussed on the type of vaccine received and post vaccination symptoms.

Data collected in Google Forms was exported to Microsoft Excel file, which was directly imported into IBMSPSS® 24.0 for statistical analysis. (SPSS Inc; Chicago IL, USA). The data was analysed using descriptive statistics.

Results

A total of 203 students participated. Among the participants 86.2% were females and 13.8% were males. [Figure 1]

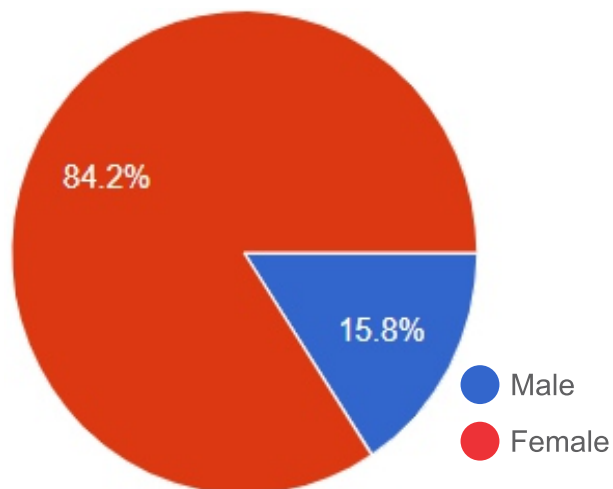


Figure 1. Distribution of participants based on gender

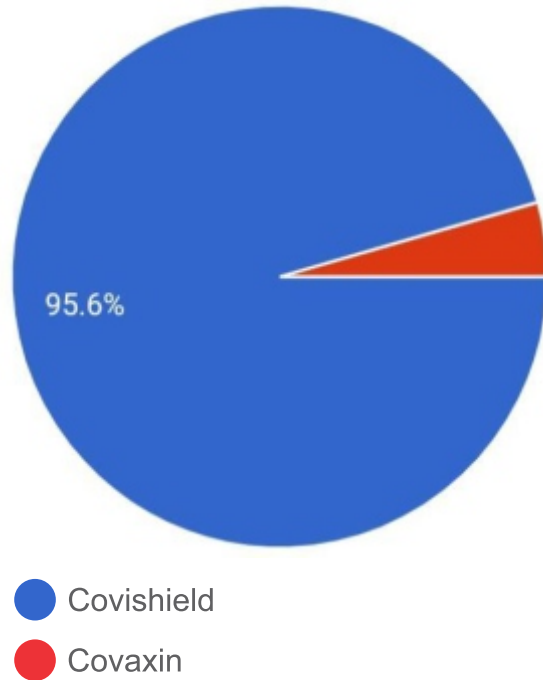


Figure 2. Distribution of participants based on the type of vaccination received

Around 97.6% of the students were vaccinated with Covishield and majority got it done from government institutions. [Figure 2] Most of them (86.2%) never tested positive for COVID-19, but 9.6% were tested COVID positive before the first vaccination. [Figure 3]

About 3% and 0.5% were tested positive for COVID after the first and second doses respectively. Almost 80% of them experienced at least one post vaccination symptom after taking first dose of vaccination but after the second dose only 13.2 % reported of any symptom. Among the various post vaccinations symptoms including fever, pain, chills and fatigue, pain at the injection site was reported as the most common localised symptom after the first doses as well the second dose. [Figure 4 & 5] This finding supports the fact that the majority of the post-COVID-19 vaccination adverse effects are self-limiting, and the recipients recover promptly; none of the symptoms is severe enough to necessitate hospitalization.

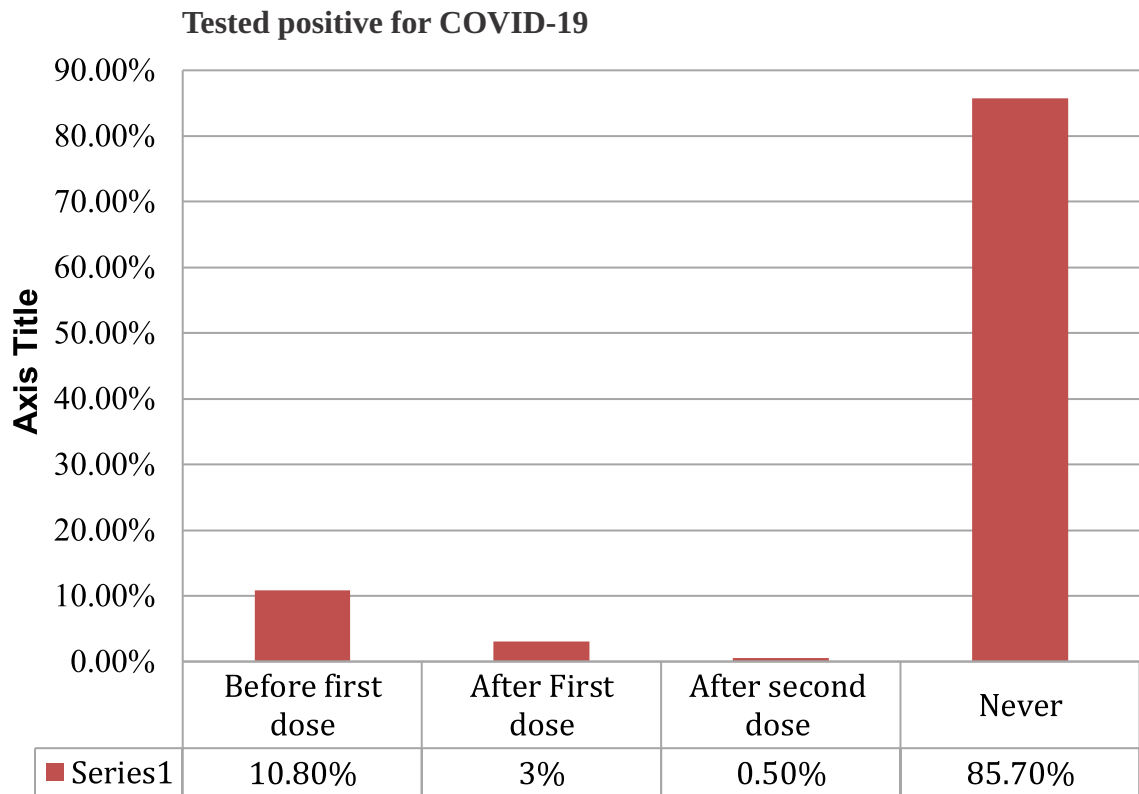


Figure 3: Prevalence of COVID 19 infection among the participants

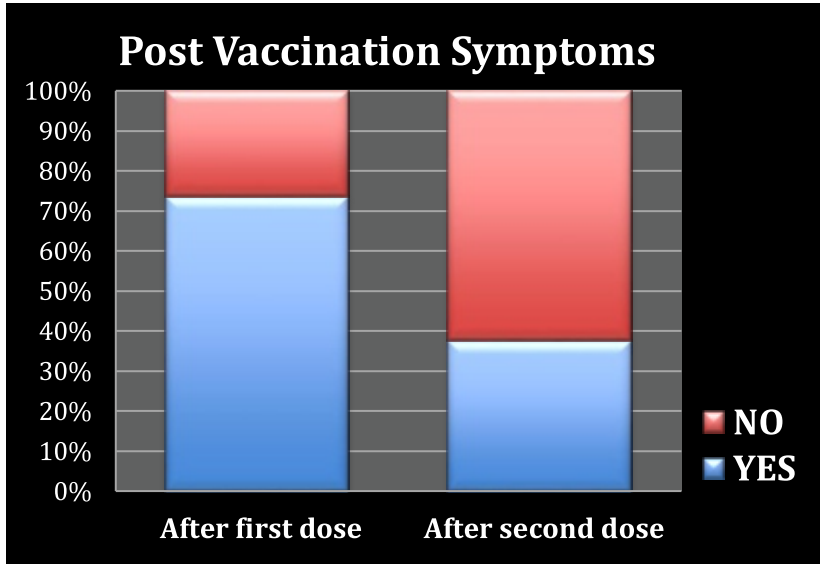


Figure 4 : Prevalence of COVID 19 infection among the participants

Figure 5:
Distribution of participants
based on prevalence of
symptoms after first dose of
vaccination

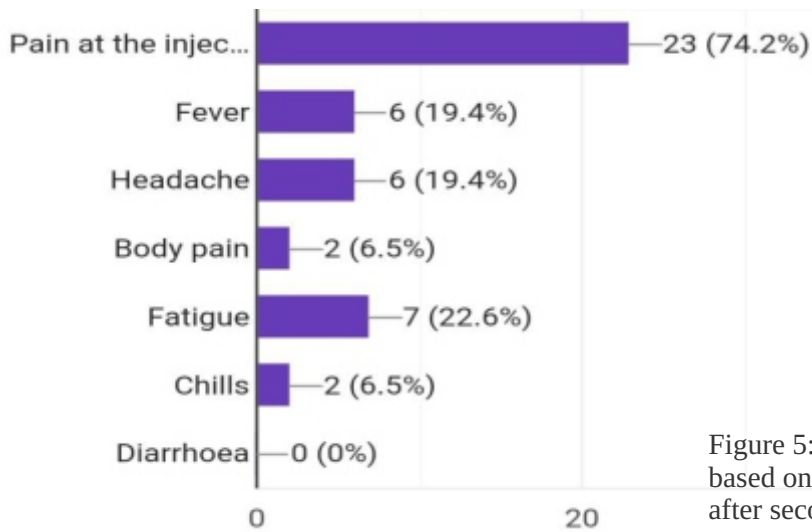
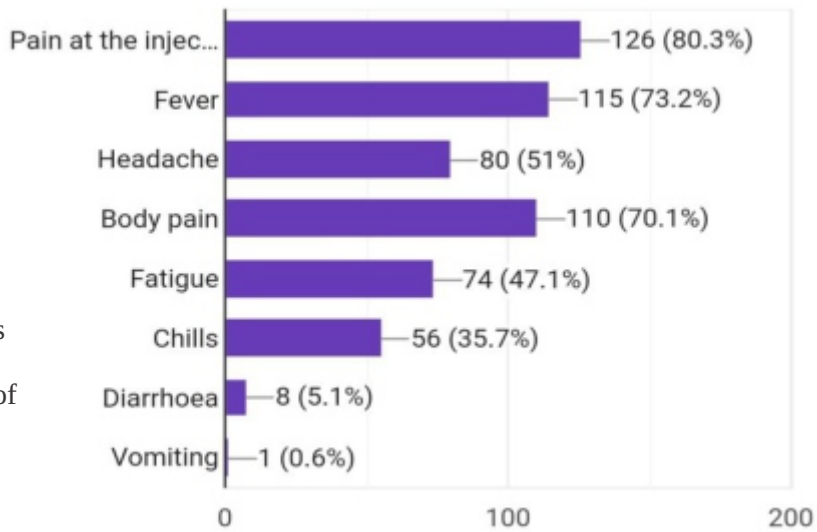


Figure 5: Distribution of participants
based on prevalence of symptoms
after second dose of vaccination

Discussion:

Dental profession has been ranked one among the highest risk for COVID-19 infection.⁹ Studies conducted in U.S. found participants to be more willing to get vaccinated if it would be recommended by their healthcare provider.^{10,11} The close proximity of the dental practitioner to his patient during a dental visit and the length of the visit, as well as the documented evidence virus transmission through aerosols and droplets, make dentists more vulnerable to fall into the high-risk category. Also, certain countries have accredited dentists to administer the vaccines to their patients. These points highlight the impact of dentists in accepting COVID-19 vaccination, and functioning as advocates for the vaccines to their patients.¹² Hence the current study was conducted among dental health workers to assess their experiences of vaccination against COVID infection.

Since the development of COVID-19 vaccine, there were concerns about the efficacy, safety and post vaccination adverse effects. Understanding the range of symptoms that vaccination might cause is important for the person receiving the vaccine, for caregivers/decision-makers, and for the healthcare professionals.

In our study among dental graduates and interns, majority of the participants were females which depicted a similar gender representation in the field of dental admissions.

The prevalence of Covishield vaccination was found to be comparable to a study reported, where around 94% were vaccinated with Covishield.⁷ Regarding the infection, those tested positive after first (23%) and second dose (73%) were found to be much higher in another study.⁷ This could be dependent on the disease prevalence among their patients, time of contact and the extent of personal care measures adopted by the individual.

Generally the side effects of vaccine could be classified as either local or systemic, with its severity fluctuating from mild to moderate. The common discomforts were found to be localised than systemic similar to other studies.^{7,8}

The side effects reported in the study were in agreement with those listed by CDC and other studies.^{6,7,8}

In the current study, majority of them were mild and non-life threatening, found to be self - resolving without any requirement of hospitalisation.⁸ The overall prevalence of side effects was observed to be much lesser when compared to other studies.⁷ The most common discomfort was pain at the site of injection. Lowering the patient's arm where injection is given, helps to alleviate this adverse effect. Also, injection into a relaxed muscle causes negligible discomfort compared to that into a tensed one. Vaccines need to be stored at a low temperature as it is reported that injections without acceptable warming may upsurge the possibility of pain at the injection site.⁸

Our study is not free from limitations. The cross sectional nature of the survey in itself carries the inherent biases. Data collection was done at a single tertiary dental care centre, so the results might not be generalizable. Hence an extensive survey on the long term experiences of vaccination based on its influencing factors is recommended to conduct on a wider dentist population.

As a result, contradicting the rumours, misconceptions, and conspiracy theories regarding COVID-19 vaccinations and their real adverse effects could boost public trust and confidence in COVID-19 vaccines.⁷

Conclusion: The study reports that COVID vaccination caused mild self-resolving discomfort among the dental students and interns. The most common discomfort post COVID vaccination was found to be pain at the injection site. Dentists can act as effective advocates of COVID vaccination and evidence-based planning with effective approaches is warranted to enhance the knowledge and eradicate vaccination hesitancy among general public.

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