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EXPECTATIONS, VIEWS, AND AWARENESS ABOUT COVID-19 VACCINATION IN INDIAN SUBJECTS ATTENDING GENERAL AND DENTAL CLINIC: A CROSS-SECTIONAL STUDY

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ABSTRACT

Introduction: Various vaccines for coronavirus disease (COVID‐ 19) havebeen administered and licensedglobally in various countries. However,the expectations, behaviors, and awarenessabout COVID‐ 19 vaccines among dentalclinic patients are poorly assessed.

Methods: In 1700 patients who visited Indian dental clinics, an e‐ survey was carried outusing a questionnaire of four parts (i.e. sociodemographics,knowledge, attitudes, and perceptions). Informed consent was also taken. Internet methods were usedfor the collection of the dataowing to the infection risk in the pandemic.

Results: The mean awareness score wassignificantly higher forsubjects who had a higher educationallevel, upper socioeconomic status, residing incities, and have previously administered all vaccines needed. Also, the mean attitudescore was higher for female subjects having ahistory of administration of all needed vaccinations. Nearly half (54%) participantssuggested the covid-19 vaccination for all with a slightly higher positive response amongfemales compared to the males (54.9% vs. 45.9%, $P = 0.003$).

Conclusions: The present study concludes that Indian subjects attending dental clinics have a lack of awareness andmore positive attitudes towards COVID‐ 19 vaccination. There is a need for immediate implementation of campaigns for healthpromotion vaccination schedules toincrease awareness.

Keywords: Attitudes, COVID-19, coronavirus disease 2019, knowledge, perceptions, vaccination

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INTRODUCTION

The novel coronavirus disease first reported in November 2019 (COVID- 19) is caused by severe acuterespiratory syndrome coronavirus. This disease was first reported in Wuhan, China, in late 2019. The disease since then hasspread globally, which was later declared as a pandemic by WHO (World Health Organization).The commonly reported symptoms of COVID- 19 include cough, fever, breathing difficulties, fatigue, and anosmia, and ageusia. These symptoms usually appear between 1 and14 days after virus exposure.[1]In subjectswhere these symptoms are detected, majority of nearly 80% developonly mild- to- moderate disease symptoms like mild pneumonia, whereas13% shows the presence of severe symptoms including hypoxia, dyspnea,and/or more than 50% lung involvement on radiographic imaging, andonly 5% suffer severe symptoms including shock, respiratory failure,and/or multiorgan dysfunction. A minimum of one-third of thesubjects remains asymptomatic and do not present any symptoms, however, these subjects still can be disease carriers. After complete healing from COVID-19, a few subjects appearto pass an outcomes seriestermed as long COVID where severe organ damage has been reported.[2]

On coughing or sneezing smallair droplets known as aerosols having the virus are exhaled to air which can spread from theirnose and mouth. While the virus passes from acrossinfected areas, this might not be the most commontransmission method. Infected subjectsmight spread the virusto another healthy person for 2 days before the subject becomesymptomatic. Subject after infection could be contagious for nearly 10 days after the symptom onset in mild cases andnearly for 20 days in severe cases.[3]

Medical treatment for the disease is not identified, and the disease remains incurable. Different vaccines have been produced in differentcountries across the globe. However, various trials are midway for developing a targeted drug for the disease treatmentthat could suppress the infection.The maintherapy presently in use is basically symptom-based. Management of COVID-19 also includes treating complications,isolation, compassionate care, and novel approaches.[4]

In recent times, vaccines are the most and only reliable way to protectthe general population against COVID- 19 disease, owing to the high contiguity of SARS- CoV- 2, it threatens the communityglobally. As vaccines are widely administered and distributed, itis vital to evaluate the approval of COVID- 19vaccinations on the community level. COVID- 19 vaccines to date are controversialamong the general Indian population.[5]Based on a globalsurvey concerning COVID- 19 vaccine adoption among the general population, nearly 48% of the population reported that they were uncertain about the COVID- 19vaccination, and the rest reported being uncertain whether they will get thevaccination. Since the vaccine is the only reliable way of preventing the virustransmission is to prevent the population from beingexposed to COVID- 19, it is vital tovaccinate the subjects who are at higher disease risk as soon aspossible.[6] In such a scenario, it is vital to understand people's views,awareness, andexpectations of the Indian subjects towards the COVID- 19vaccine. Hence, the present study was conducted to assess the expectations, views, and awareness of the Indian population visiting dental clinics towards COVID-19 vaccination.

METHODS

The present cross-sectional study was conducted to assess the expectations, views, and awareness of the Indian population visiting dental clinics towards COVID-19 vaccination.

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The study included Indian subjects, in whom; an e-survey was done in the subjects visiting the general hospitals and dental clinics for seeking consultation/treatment. The survey was carried out for a 1-month duration. The questionnaire was based on the e-survey and was shared with the included subjects on social media apps including Instagram, Whatsapp, and/or Facebook. The internet method was adopted owing to the adaptation ofCOVID appropriate behavior and social distancing norms. When the study was started, 2100 subjects were screened and based on study criteria, some subjects were excluded making a final sample size of 1700 subjects having 57% males and 43% females. The inclusion criteria for the study were Indian subjects, subjects attending dental clinics, subjects of age more than 18 years, who were willing to participate in the study, and subjects having good internet connection.

RESULTS

The present cross-sectional study was conducted to assess the expectations, views, and awareness of the Indian population visiting general medical and dental clinics towards COVID-19 vaccination. The study included a total of 1700 subjects having 57% males and 43% females. As shown in Table 1, the study results showed that mean awareness scores for COVID-19 vaccination were higher significantly in subjects having higher education compared to the subjects having a low level of education. Also, the scores were higher in subjects belonging to high socioeconomic, subjects who have previously received other vaccinations, and subjects who live in the cities.

On assessing the attitude of the study subjects towards COVID-19 disease, the mean attitude scores were higher in female subjects especially those who have previously received all other vaccinations (Table 2). Another important noticeable point was that nearly $1/4^{th}$ subjects had faith that the COVID-19 vaccination in India was safer, approximately $2/3^{rd}$ recommended the vaccine to their family members, relatives, or friends, and nearly 60% agreed to have vaccine without hesitating. This warrants campaign for influencing the approach towards COVID-19 vaccination.

The present study also assessed the perception of the study subjects towards COVID-19 vaccines in India, nearly half of the study subjects had the perception that every person should be vaccinated. This tendency was higher in females compared to males in 54.9% females compared to 45.9% males with p=0.003. the majority, approximately 95% of the subjects had the perception that the vaccine should be completely free of cost in India. This perception was also higher in females compared to males. Nearly 90% of subjects have the perception that side-effects might be associated with COVID-19 vaccines. Without vaccines, the COVID-19 can be eliminated was the perception by more than half of the study subjects if COVID appropriate behavior is adapted. Nearly $1/3^{rd}$ of subjects agreed to take the vaccine if given free and not if it is chargeable.

DISCUSSION

Various vaccines are being developed globally against COVID-19, and many vaccines are promising and are under trial and still need to get approval to be used in humans. The Indian government has started the vaccination drive at a large scale giving positive affirmation in controlling the rapidly spreading pandemic. Although various vaccines are available to be administered in India, the relatively new nature and lack of long-term results have raised concern among receivers concerning COVID-19 the vaccines acceptance and delivery in

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India. Nearly, half of Indian population have no experience to COVID-19 vaccine. Awareness was strongly linked to prior vaccine intake monthly income, gender, family, and education level. The most-strong association was seen with prior history of vaccine intake and gender.

The study results have shown that nearly 80% of the study subjects showed positive approach towards uptake of COVID-19 vaccine. The knowledge about vaccine was also influenced by gender to some extent. These findings were against the findings of other studies conducted in India where no effect of the gender was seen on knowledge about COVID-19 vaccine. However, these findings were consistent with the results of the studies by Islam S et al[7] in 2021 and Hossain MA et al[8] in 2020 where authors have reported higher knowledge among males than females about COVID-18 vaccines. This might be attributed to the geographical area and sampling bias in the studies.

Also, data misinterpretation and data under reporting concerning incidence and mortality associated with COVID-19 can cause hesitation and reduce concerns for COVID-19 vaccine. It is vital to make people aware with easy accessibility to the vaccines available. The present study showed that subjects having higher education were more aware towards COVID-19 vaccines. This was in agreement with the study by Harpan H et al[9] in 2016 where subjects with higher education had more disease awareness. This might be because more informed, knowledged, and intelligence leads to more awareness.

The study results also showed that subjects with higher socioeconomic status were more aware about COVID-19 vaccination and vaccines. This was similar to a study conducted by Islam JY et al in 2018to assess Dengue vaccine where study results showed that high awareness was seen in subjects with high socioeconomic status. Another study in China by Wang J et al[10] in 2002 conducted for COVID-19 vaccine showed that more acceptability towards COVID-19 vaccine was seen in subjects who were recently vaccinated against influenza. The results of this study were consistent with the present study where more acceptability was seen in subjects who had previously received other vaccines.

It was also shown by the present study that males were more open towards the acceptance of COVID-19 vaccines compared to females. These findings were consistent with the results of Nguyen LH et al[11] in 2020 in China and Callaghan T et al[12] in 2021 where authors have shown more acceptability in males for COVID-19 vaccine and in addition have shown that subjects who had previously received vaccinations had more acceptability towards COVID-19 vaccine which was similar and comparable to the present study.

Nearly half of the study subjects had the belief that everyone in India should get vaccinated for COVID-19 and the health-professionals should be first one to get vaccinated. This can be due to more exposure risk in health-care professionals as frontline workers. Approximately 90% study subjects had the belief that COVID-19 vaccines may be related to the side-effects as it is newly identified. These results were similar to the study of Chou WS et al[13] in 2020 where subjects reported results similar to the present study.Sonawane MR et al,[16]Basu Ret al[17] and Yadav RS et al[18] were also suggested same reports about covid infection patients in clinical practice as well as impact on normal population.

CONCLUSION

Within its limitations, the present study concludes that COVID-19 has largely affected social, physical, and emotional health of humans worldwide and vaccines have a potential role in preventing spread and controlling the disease. The results of the present study campaign and

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programs should be implemented to increase awareness and knowledge towards COVID-19 vaccine. However, the study had few limitations including newer availability of COVID-19 vaccines, less long-term data, cross-sectional study, and small sample size. Hence, more longitudinal studies with larger sample size should be conducted.

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TABLES

Variables	Subgroup	Females % (n)	Males % (n)	Total % (n)
Awareness about COVID-19	Yes	90 (1530)	90 (1530)	90 (1530)
	No	5 (85)	6 (102)	5 (85)
	Not aware	5 (85)	4 (68)	5(85)
Effectiveness of COVID-19	Yes	53 (901)	55 (935)	54 (918)
	No	19 (323)	20 (340)	20 (340)
	Not aware	28 (476)	25 (425)	26 (4420
Vaccine and allergic reactions	Yes	31 (527)	39 (663)	36 (612)
	No	5 (85)	6 (102)	6 (102)
	Not aware	70 (119)	55 (935)	59 (1003)
Is overdose dangerous	Yes	65 (1105)	62 (1054)	63 (1071)
	No	2 (34)	3 (51)	3 (51)
	Not aware	33 (561)	35 (595)	34 (578)

Table 1: Knowledge about COVID-19 vaccine based on gender distribution

Variables	Parameters	Females % (n)	Males % (n)	Total % (n)
Vaccine is risk free	Disagree	4 (68)	5 (85)	5 (85)
	Unaware	75 (1275)	66 (1122)	70 1190)
	Agree	22 (374)	29 (493)	25 (425)
Vaccine is vital for survival	Disagree	3 (51)	5 (85)	4 (68)
	Unaware	23 (391)	21 (357)	22 (374)
	Agree	74 (1258)	74 (1258)	74 (1258)
Vaccine could only limit pandemic	Disagree	10 (170)	17 (289)	14 (238)
	Unaware	23 (391)	23 (391)	23 (391)
	Agree	67 (1139)	60 (1020)	63 (1071)
Suggest vaccine to family and friends	Disagree	4 (68)	9(153)	7(119)
	Unaware	28 (476)	27 (459)	28 (476)

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	Agree	67 (1139)	70 (1190)	65 (1105)
Takevaccinewithouthesitation	Disagree	7 (119)	12 (204)	10(170)
	Unaware	34 (578)	29 (493)	31 (527)
	Agree	59 (1003)	59 (1003)	59 (1003)
Vaccine should be equally given	Disagree	1 (17)	2 (34)	2 (34)
	Unaware	9 (153)	9 (153)	9 (153)
	Agree	90 (1530)	89 (1513)	89 (1513)

Table 2: Attitude towards COVID-19 vaccine based on gender distribution