

## A Cross-Sectional Study on Perspective of COVID-19 Vaccination among Indian overseas Travelers, Chennai, Tamil Nadu

Dr. Daivik<sup>1</sup>; Dr. Mukilan. S<sup>2</sup>; Dr. Sankar. K<sup>3</sup>; Dr. Anbu Selvam. M<sup>4</sup>; Dr. Shobana. N<sup>5</sup>

<sup>1</sup>Assistant Professor, Dept. of Community Medicine, Govt. Namakkal Medical College, Tamil Nadu

<sup>2</sup>Assistant Professor, Dept. of Community Medicine, Govt. Namakkal Medical College, Tamil Nadu

<sup>3</sup>Assistant Professor of Community Medicine, Govt. Namakkal Medical College, Tamil Nadu

<sup>4</sup>Assistant Professor of Community Medicine, Govt. Namakkal Medical College, Tamil Nadu

<sup>5</sup>Assistant Professor of Community Medicine, Govt. Namakkal Medical College, Tamil Nadu

### Corresponding Author

**Dr. Mukilan. S**

Assistant Professor, Dept. of  
Community Medicine, Govt.  
Namakkal Medical College,  
Tamil Nadu

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### ABSTRACT

**Background:** Large numbers of Indian residents travel each year to other countries for various reasons. Considering the accelerated global vaccine development efforts in response to the devastating COVID-19 pandemic, little is known about how Indian overseas travellers perceive the risk associated with COVID-19 vaccination. In view of the "vaccine tourism" being planned by different travel agencies in India, the study becomes even more relevant. This study was therefore performed to determine the COVID-19 vaccination-related knowledge, attitudes, and willingness of Indian overseas travellers.

**Methods:** Pretested The interviewer administered Semi-structured questionnaires were administered to 429 Indian nationals aged 18 years or more, selected by simple random sampling, arriving at Chennai, who had travelled to various overseas destinations, and the results were analysed in SPSS version 16 using statistical tests. **Results:** Of all the demographic factors, only source of information about COVID-19 was found to be significant with respect to knowledge of the respondents. Whereas attitude and willingness for COVID-19 vaccination were found to be significant in those with previous history/loss of family members to COVID-19 and also with frequency of travel. Interestingly, the respondent's marital status had significance with respect to COVID-19 vaccination-related attitude.

**Conclusion:** This study demonstrated important shortcomings in the attitude and willingness of COVID-19 vaccination among Indian overseas travellers. Furthermore, the study highlights the need for national-level provision of specialized travel-related vaccination programs and the implementation of educational programs promoting COVID-19 vaccination.

**Key words:** Knowledge, Attitude, Willingness, Vaccine, COVID-19, Travelers.

### INTRODUCTION AND JUSTIFICATION:

Nearly 27 million Indian citizens travelled outbound from India in 2019, up from the previous year. Every year, millions of Indian nationals go to other parts of the world for a variety of reasons<sup>1</sup>. Because of the widespread COVID-19 pandemic, the majority of travellers are infected while on their route; therefore, proper pre-travel information and immunizations are required to limit the odds of being ill outside<sup>2</sup>. In comparison to the incredibly large number of Indian nationals overseas each year, very little data exists on their awareness of COVID-19 immunization. The study gains significance since "vaccine tourism" is conducted by several travel firms in India. As a result, the current study was conducted to assess Indian overseas travellers' knowledge, attitudes, and willingness to receive COVID-19 immunization<sup>3</sup>.

### MATERIALS AND METHODS

This cross-sectional community-based study was conducted for two weeks at Chennai International Airport in Chennai, Tamil Nadu. The sample size was estimated using the past prevalence of awareness of any form of travel-related

vaccination <sup>4</sup> of about 57.3% with 95% confidence and absolute precision of 5%, as well as non-response 10% further sampling. The estimated the sample size was 429 with 10% non-response rate.

**Inclusion Criteria:**

- Over 18 years of age
- Resident of Chennai at the time of recruitment.
- History of Travel to Any Foreign Country Other than India

**Exclusion criteria:** Not willing to participate in the study

This study used simple random sampling. Simple random sampling was used to select Chennai International Airport from among all of Tamil Nadu's airports. The information was gathered throughout the day to accommodate as many tourists as possible. If the several tourists were part of the same family, only one respondent was selected. 450 travel respondents were approached for inclusion, and 429 were selected (95.3% response rate). Following informed written consent, information was acquired using an interviewer-administered semi-structured questionnaire <sup>5</sup>. There were two main sections to the questionnaire, and certain sociodemographic characteristics were asked about. The questionnaire took less than ten minutes to complete and was available in both English and Tamil for the convenience of the participants. Questionnaires were sent to participants who arrived at Chennai International Airport via an international aircraft. A pilot study of 20 people was conducted to assess the time required to complete questions and the ease of reading them. Section I provides participant socio-demographic information, whereas Section II includes a questionnaire on knowledge, attitude, and desire to receive the COVID-19 vaccine.

- i. Seven knowledge-based questions. One point for each correct answer and zero for each incorrect response. The median score was used as a cutoff. The respondents were ranked as shown below. Good (score > 50%) and Bad (score < 50%)
- ii. Seven attitude-related questions. The median score was used as a cutoff. The respondents were ranked as follows. Positive (score > 50%) and negative (score < 50%)
- iii. Nine questions about self-reported practice. The median score was used as a cutoff. The respondents were ranked as follows. Good (score > 50%) and Bad (score < 50%)

The study was carried out with ethical permission from the Institute Ethical Committee and local authority consent. The research was entirely voluntary, and all data was obtained anonymously. All individuals provided written informed consent before participating, and no money was paid to any of them. None of the participants will be contacted after the study.

**RESULTS AND DISCUSSION**

Of all the respondents, 429 (83.4%) were males and 71 (16.6%) were females. The age of the participants varied from 18 to 81, with a mean of 34.9 ± 10.3 years (Table 1). In terms of travel profile, most of the respondents (52.0%) travelled to the UAE, followed by the UK (25.4%). There were quite a number of reasons stated for travel; the most frequent was professional in 168 (38%) of the interviewees, followed by business in 140 (32.6%), and the minimum reason stated for travel was education in four (0.9%) of the interviewees. Education up to the undergraduate level was established in 56.2% of the interviewees, and the remaining were all postgraduates. The majority of them (96.7%) were traveling abroad frequently, i.e., within 3 months. In terms of health profile, 69.2% of respondents reported no comorbidities. 7.7% of respondents had a history of COVID-19, but the percentage of respondents' family members was higher (24.7%). Furthermore, around 6.7% of respondents stated that COVID-19 caused the death of one or more family members.

**Table 1: Socio-demographic details of the participants (N=429)**

Variables	Frequency	Percentage
H/O COVID19 in Respondent/Family members	Yes	123 28.6%
	No	306 71.4%
Loss of family members to COVID19	Yes	26 6.1%
	No	403 93.9%
Sex	Male	358 83.4%
	Female	71 16.6%
Age in yrs.	18-25	52 12.1%

	26-50	327	76.2%
	Above 50	50	11.7%
Religion	Hindus	349	81.4%
	Muslims	60	14%
	Christians	20	4.7%
Type of family	Nuclear	116	27%
	Joint family	306	71.3%
	Three generation	7	1.6%
Purpose of Travel	Business	140	32.6%
	Education	4	0.9%
	Professional	163	38%
	Tourism	74	17.2%
	Others	48	11.2%
Education	Undergraduate	242	56.2%
	Postgraduate	187	43.6%
Country Visited Last	UAE	223	52.0%
	UK	105	24.5%
	US	80	18.6%
	Others	21	4.9%
Frequency of Travel	More than Once in 3 months	417	96.9%
	Less Than once in 3 months	12	0.2%
Co Morbidities	None	297	69.2%
	Asthma	14	3.3%
	Diabetes	49	11.4%
	Hypertension	7	1.6%
	Thyroid	7	1.6%
	Joint Disease	14	3.3%
	Others	41	9.6%

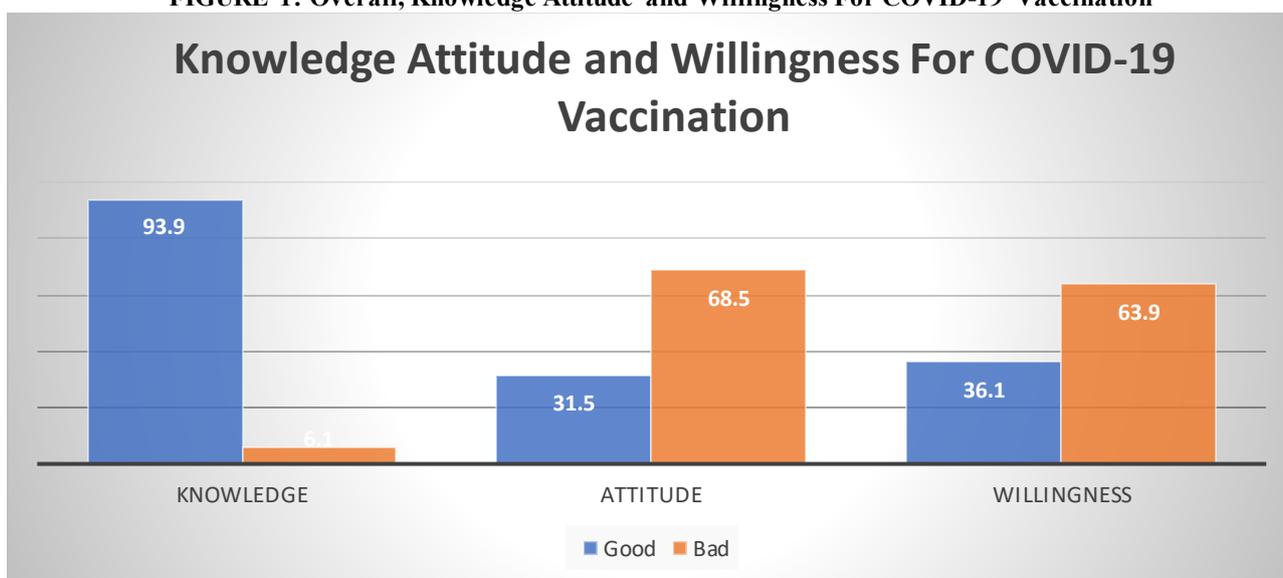
**TABLE 2: Significance of various variables and Respondent Knowledge Attitude**

Variables		Knowledge		P Value	Attitude		p value	Willingness		p value
		Good	Bad		Good	Bad		Good	Bad	
Sex	Male	335	23	0.478	118	240	0.295	123	235	0.086
	Female	68	3		17	54		32	39	
Age group	≤ 50 years	359	20	0.061	123	256	0.226	141	238	0.203
	>50 years	44	6		12	38		14	36	
Religion	Hindus	331	18	0.102	114	235	0.265	130	219	0.314
	Muslims & Christians	72	8		21	59		25	55	
Marital Status	Single	5	118	0.272	29	94	<b>0.026</b>	41	82	0.444
	Married	285	21		106	200		114	192	
Occupation	Work Related	155	8	0.433	85	181	0.782	56	107	0.549

	Others	248	18		50	113		99	167	
Education	Under graduate	172	15	0.135	70	172	0.197	92	150	0.355
	Post Graduate	232	11		65	122		63	124	
Frequency of Travel	Less than once in 3 Months	12	0	0.372	1	11	<b>0.022</b>	8	4	<b>0.029</b>
	More than Once in 3 Months	391	26		135	282		147	270	
Co Morbidity	Yes	124	8	1.000	41	91	0.903	49	83	0.776
	No	279	18		94	203		106	191	
H/O COVID-19 in Respondent/Family	Yes	116	7	0.839	49	74	<b>0.018</b>	27	96	<b>0.000</b>
	No	287	19		86	220		128	178	
Loss of Family to COVID-19	Yes	25	1	0.181	25	1	<b>0.000</b>	1	25	<b>0.000</b>
	No	377	26		109	294		155	248	
Source of Information about COVID-19	Medical Fraternity	101	2	<b>0.044</b>	30	70	0.557	35	68	0.602
	Others	302	24		105	221		120	206	

Table 2 shows the significance of various demographic variables and the reported Knowledge attitude and willingness for COVID-19 vaccination. Of all the variables, Only Source of information about COVID-19 was found to be significant with respect to knowledge of the respondents. Whereas Attitude and willingness for COVID-19 vaccination was found to be significant in those with Previous history of COVID-19 in respondent and his/her family, those who lost one or more family members to COVID and also to Frequency of Travel. Interestingly respondent's marital status had significance with respect to COVID-19 Vaccination related attitude.

**FIGURE 1: Overall, Knowledge Attitude and Willingness For COVID-19 Vaccination**



**FIGURE 2 to 6: Respondents Belief about various Scenarios.**

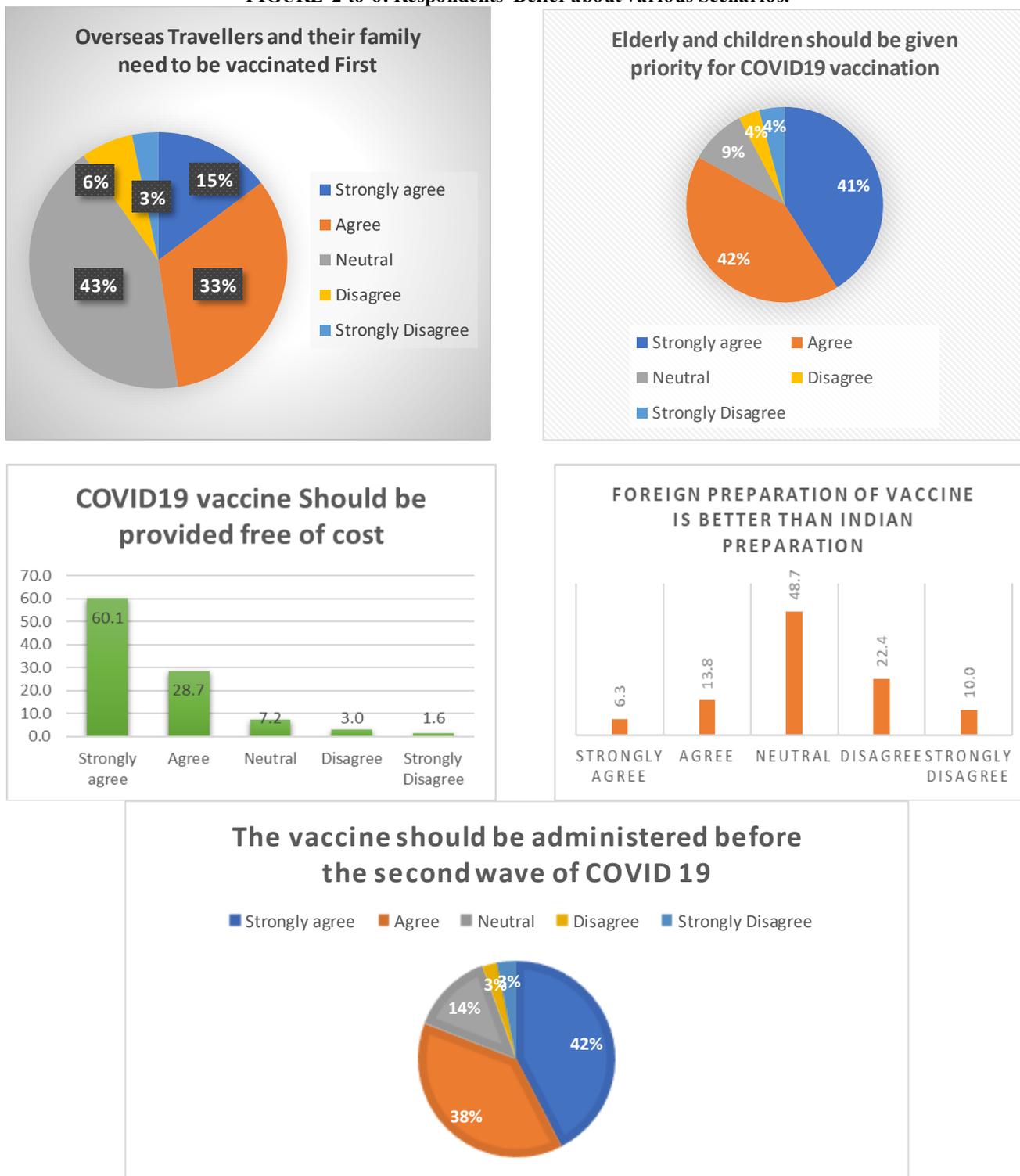


Figure 1 shows the respondents overall Knowledge attitude and willingness for COVID-19. It was found that an Overwhelming 93.9 % of the respondents had Good Knowledge about COVID-19 and Vaccination. Whereas 68.5% had good attitude and about 63.5 % had willingness for COVID-19 vaccination. The study on COVID-19 vaccine acceptance in India by Kumar et al. <sup>6</sup> shows 62.6% had an acceptance towards vaccination, which was similar to our study result. Figure 2 to 6 shows the respondent belief in COVID-19 vaccination related scenarios. Interestingly only 48% (33%-a agree

& 15%-Strongly agree) agreed that overseas travelers and their family members should be vaccinated first. An overwhelming 83% of respondents agreed that elder persons and children should be given priority in COVID-19 Vaccination. Similarly, majority (88.8%) wanted the COVID-19 vaccination to be free of cost and 80% wanted the COVID-19 vaccine to be administered before the Second wave. Interestingly nearly half of the respondents (48.7%) were neutral with respect to site of preparation of COVID-19 vaccination.

#### **CONCLUSION AND RECOMMENDATIONS:**

In conclusion, this study showed that there is an adequate level of knowledge among travelers but a relatively low level of attitude and willingness to vaccinate for COVID-19, and furthermore the study highlights the need for national level provision of specialized travel-related vaccination programmes and the implementation of educational programs promoting COVID-19 vaccination. This study recommends the creation of a well-structured travel-related vaccination service with the appropriate promotional plan. It also recommends repeating this analysis, including more destinations and various other international airports in the region, for a longer period of time.

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