

## Parents' willingness to vaccinate their child against COVID 19: A cross sectional study

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**Abstract:** *Background:* An effective COVID vaccine in children will decrease the severity of illness in children as well as transmission rates of the virus, thereby providing direct and indirect benefits. The Government of India has decided to extend the COVID-19 vaccination program to children between 2-18 years of age. In such a situation, parents have the right to decide whether or not to vaccinate their child. *Methods:* This was cross sectional questionnaire based study conducted on parents of children under 18 years attending outpatient department in tertiary hospital, Mangalore. Data was collected using pretested semi structured questionnaires which included sociodemographic factors and reasons for willingness or unwillingness. Data was analysed using descriptive statistics, chi square test and outcomes expressed as frequency, proportions and percentages. *Results:* In our study, it was found that a majority of parents (84.5%) were willing to vaccinate their child against COVID 19. The reason for willingness was that they felt vaccination is necessary to control the pandemic (70.7%). 15.5 % of the parents were not willing to vaccinate their child. Majority of the parents (70.5%) had concerns regarding the safety profile of the vaccine. The study did not find any significant relationship between the age, gender, socioeconomic status or education of the parents with their willingness to vaccinate their child. *Conclusion:* Majority of the parents in our study were willing to vaccinate their children against COVID 19 and appropriate strategies need to be initiated to increase the vaccination rates among children.

**Keywords:** Willingness, Vaccination, Hesitancy, COVID 19.

### Introduction

COVID-19 caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), has spread worldwide with substantial consequences to public health. During the beginning of the COVID 19 pandemic, the number of children affected were less and majority of the affected children were asymptomatic or only had mild symptoms [1-4].

Disease course in paediatric covid 19 was milder than adults, children had better prognosis and deaths were very rare [5]. However, more recent data from the World Health Organization (WHO) showed that children under-5 represented 1.8% of global cases and 0.1% of global deaths. Older children and younger adolescents (5 to 14 years) were 6.3 % of global cases and 0.1% of global deaths while older adolescents and young adults (15 to 24 years) were 14.5% of global cases and 0.4% of global death [6]. Children can also

present with Multisystem Inflammatory syndrome (MIS-C) [6-7].

Many vaccines have been developed since the start of covid 19 pandemic [8]. A safe and effective COVID vaccine in children will decrease the severity of illness in children as well as decrease transmission rates of the virus, thereby providing direct and indirect benefits. However, there are many concerns regarding the safety and effectiveness of covid vaccine and also vaccine hesitancy is now a challenge to the effectiveness of vaccination program in both developed and developing countries [9-10]. Parents positive intention to vaccinate their children are essential to achieve herd community against Covid -19 [11].

The Indian Academy of Pediatrics, in December 2021, declared its support to the

Government of India’s decision to extend the COVID-19 vaccination program to children between 2-18 years of age. In such a situation, parents have the right to decide whether or not to vaccinate their child. In this study, we aim to evaluate the willingness of parents to vaccinate their child with COVID 19 vaccine and the reasons for their decision.

As the Government of India plans to introduce COVID 19 vaccination for children between 2-18 years of age, it is important to understand the parents’ willingness for the same as well as evaluate the reasons for their decision. This will also enable us to identify the barriers that the facilitators of the vaccination program could come across during implementation. Vaccine hesitancy may limit the successful implementation of public health strategies to mitigate the pandemic. However, data regarding the parents’ willingness for COVID 19 vaccination in their children is sparse, especially in the Indian context. With this study, we wish to throw some light on the same.

**Material and Methods**

This was questionnaire based cross sectional study conducted on parents of children under 18 years of age attending an outpatient department in tertiary hospital, Mangalore. Non consenting parents were excluded from the study. It was conducted over a period of two months from June 2022 – July 2022.

Simple Random sampling was done and the sample size was calculated as follows;

$$N = Z_{\alpha}^2 pq / d^2,$$

Where:

$$Z_{\alpha} = 1.96 \text{ at } 95\% \text{ confidence level}$$

$$p = \text{Prevalence} = 68.5$$

$$q = 1 - p$$

$$d = \text{relative frequency} = 10\% \text{ of } p \text{ (90\% power)}$$

With 95% confidence level and 90% power (4) sample size comes to be minimum of 180 with 20% non-response error the total sample size can be increased to 225.

Data was collected using pretested semi structured questionnaires which included sociodemographic factors and reasons for willingness or unwillingness. The questionnaires

were distributed among parents of children under 18 years of age in Mangalore between June 2022 - July 2022. Categorical variables were analyzed using frequencies and proportions and compared using  $\chi^2$  tests and Fischer’s exact test. Continuous variables were expressed using mean  $\pm$  standard deviation (SD) if values were symmetrical, or median and interquartile range (IQR), if the data was skewed with significantly distorting outliers and compared using Student’s t-test or the nonparametric Mann–Whitney test accordingly. A statistical package SPSS version. 23.0 was used to do the analysis.  $p < 0.05$  was considered as significant.

**Results**

A total of 283 parents were included in the study. The demographic details of the parents are given in the table below.

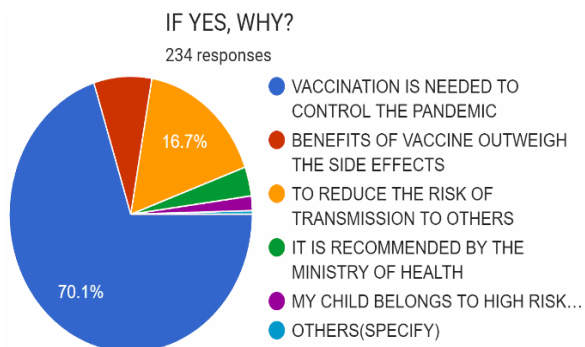
<b>Table-1: Sociodemographic characteristics</b>			
<b>Sociodemographic Characteristics of the Parents</b>		<b>Count</b>	<b>%</b>
Parents’ age (years)	18 – 29	66	23.3
	30-39	158	55.8
	$\geq 40$	59	20.8
Parents’ gender	Male	85	30
	Female	198	70
Parents’ education	Higher secondary or below	167	59
	Graduate and above	116	41
Socioeconomic status	Lower	47	16.6
	Middle	220	77.7
	Upper	16	5.7
History of COVID diagnosis in child	Yes	37	13.1
	No	246	86.9

As shown in the table 1, majority of the parents in our study belonged to the age group of 30-39 years (55.8%). The questionnaire was predominantly answered by mothers (70%). The education status of 59% of the parents in the study was higher secondary level or below and majority (77.7%) of them perceived their economic status as belonging to middle class. Majority of the parents

(97.2%), had taken the vaccines themselves. Only 2.8% had not.

Out of 283 parents, 37(13.1%) parents gave history of child being diagnosed with COVID 19 infection atleast once.

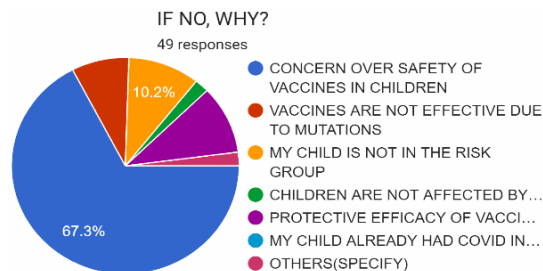
**Fig-1: Reasons for willingness for vaccination**



In our study, it was found that a major proportion of parents (84.5%) were willing to vaccinate their

child against COVID 19. The reason for willingness in most parents was that they felt vaccination is necessary to control the pandemic (70.7%) as shown in figure 1. Other reasons included reducing the risk of transmission to others (16.8%), benefits of the vaccine outweighing the side effects (7.5%), recommendations by the ministry of health (3.3%) and their children belonging to high-risk groups (1.7%).

**Fig-2: Reasons for non willingness for vaccination**



Parameter		Willing (n=239) n (84.5%)	Unwilling (n=44) n(15.5%)	Total (n=283)	P- value
Age	18-29 Years	51(77.3)	15(22.7)	66(23.3)	0.172
	30-39 Years	136(86.1)	22(13.9)	158(55.8)	
	>=40 Years	52(88.1)	7(11.9)	59(20.8)	
Gender	Male	69(81.2)	16(18.8)	85(30)	0.319
	Female	170(85.9)	28(14.1)	198(70)	
Socioeconomic status	Lower	44(93.6)	3(6.4)	47(16.6)	0.141
	Middle	181(82.3)	39(17.7)	220(77.7)	
	Upper	14(87.5)	2(12.5)	16(5.6)	
Education	Higher secondary or lower	142(85)	25(15)	167(59)	0.748
	Graduate and above	97(83.6)	19(16.4)	116(41)	

15.5 % of the parents were not willing to vaccinate their child against COVID 19. Majority of the parents (70.5%) had concerns regarding the safety profile of the vaccine (Figure 2). Others were unwilling to vaccinate as they believed that the protective efficacy of the vaccine was of a short duration (11.4%), that their child was not at risk (9.1%), that vaccines are not effective due to mutations (6.8%) or that children are not as affected by the disease as adults (2.2%). The study did not find any significant relationship between the age, gender, socioeconomic status or

education of the parents with their willingness to vaccinate their child (Table 2).

**Discussion**

The government of India has extended the COVID 19 vaccination program to include children from 2-18 years of age. The Indian Academy of Pediatrics has supported this government initiative and has partnered in the implementation of this program and the surveillance that is necessary following the

roll-out [11]. In such a scenario, it becomes important to understand the parents' willingness to vaccinate their child as well as the potential reasons for their decision. We aimed to throw some light on the same with our study.

Majority of the parents who were part of the study were willing to vaccinate their children against COVID 19, the most common reason for willingness being that vaccination is needed to control the pandemic. The most common reason for non-willingness of the parents was their concerns regarding the safety profile of the vaccines. Our study did not find any significant relationship between the age, gender, socioeconomic status or education of the parents with their willingness to vaccinate their child.

In a cross-sectional web-based study conducted among 770 parents in India, Padhi et al found that Indian parents reported high knowledge of the COVID-19 virus and were aware of the development of a novel vaccine. However, about one-third of parents intended to vaccinate their children, and about half of them were not sure whether to vaccinate their children or not against the COVID-19 virus [12]. Yilmaz et al, in their cross-sectional study, conducted on 1035 parents in Turkey found that willingness of parents to vaccinate their child against COVID was low [1]. Khelaiwi et al, in their study conducted in Saudi Arabia, concluded that the acceptability of the COVID vaccine among parents was low [13]. These were in contrast to our study where majority of the parents were willing to vaccinate their child.

In an Italian study conducted by Gabriella et al, it was found that a relevant proportion of parents are willing to vaccinate their children with parents of adolescents showing a higher willingness compared to those of younger children. This was in contrast to majority of the studies where parents were not willing [14]. In a study done at Chicago in urban area, it was found that the hesitancy rates were found in demographic groups that have been adversely affected by the pandemic which is in contrast to our study [15]. The reason for majority of the

parents being willing in our study in contrast to studies conducted elsewhere could be attributed to the type of population and period of study. As adult vaccines have reached a peak, parents' confidence in the vaccine has also increased. The overall awareness regarding the need for the vaccination and its benefits over risks have probably played a significant role.

Limitations of our study are the small sample size and hence may not be applicable for general population, However larger study is needed to supplement the findings of our study. Many strategies could be applied to encourage parents to accept to vaccinate their children and to achieve herd immunity, for example, including the COVID-19 vaccine in the school vaccination program, communicating clear and transparent information about the COVID-19 vaccine development process and the expected side effects of the vaccine, and establishing health promotion programs based on positive parental attitudes and perceived behavioral control.

### Conclusion

This study investigated the relations between the sociodemographic factors and reasons for willingness or unwillingness for Covid vaccine to their children. Majority of the parents in our study were willing to vaccinate their children against COVID 19. There are many factors responsible for unwillingness, in this study only the small percentage of the parents were not willing to vaccinate their child mainly due to the concerns regarding the safety profile of the vaccine. To increase the confidence in vaccine safety among the parents, proper education regarding the vaccine and promotion campaigns are to be provided.

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## References

1. Yilmaz M, Sahin MK. Parents's willingness and attitudes concerning the COVID vaccine: a cross-sectional study. *The International journal of clinical practice*. 2021; 75(April):1-11.
2. Livingston E, Bucher K. Coronavirus Disease 2019(COVID-19) in Italy. *JAMA*. 2020; 323:1335.
3. Dong Y, MoX, Hu Y. Epidemiological characteristics of 2143 pediatric patients with 2019 coronavirus disease in China. *Pediatrics*. 2020; 145:e20200702.
4. Nallasamy K, Angurana SK, Jayashree M, Mathew JL, Bansal A, Singh MP, Bora I, Laxmi P, Verma S, Sankhyan N, Suri V, Guru RR, Puri GD; Pediatric COVID Management Team. Clinical Profile, Hospital Course and Outcome of Children with COVID-19. *Indian J Pediatr*. 2021; 88(10):979-984.
5. Ludvigsson JF. Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults. *Acta Paediatr*. 2020; 109(6):1088-1095.
6. World Health Organization. COVID-19 disease in children and adolescents. *WHO*. 2021; (September):1-10.
7. Jiang L, Tang K, Levin M, Irfan O, Morris SK, Wilson K, Klein JD, Bhutta ZA. COVID-19 and multisystem inflammatory syndrome in children and adolescents. *Lancet Infect Dis*. 2020; 20(11):e276-e288.
8. Lurie N, Saville M, Hatchett R, Halton J. Developing Covid-19 Vaccines at Pandemic Speed. *N Engl J Med*. 2020; 382(21):1969-1973.
9. Bell S, Clarke R, Mounier-Jack S, Walker JL, Paterson P. Parents' and guardians' views on the acceptability of a future COVID-19 vaccine: A multi-methods study in England. *Vaccine*. 2020; 38(49):7789-7798.
10. Alsubaie SS, Gosadi IM, Alsaadi BM, Albacker NB, Bawazir MA, Bin-Daud N, Almanie WB, Alsaadi MM, Alzamil FA. Vaccine hesitancy among Saudi parents and its determinants. Result from the WHO SAGE working group on vaccine hesitancy survey tool. *Saudi Med J*. 2019; 40(12):1242-1250.
11. Aldakhil H, Albedah N, Alturaiki N, Alajlan R, Abusalih H. Vaccine hesitancy towards childhood immunizations as a predictor of mothers' intention to vaccinate their children against COVID-19 in Saudi Arabia. *J Infect Public Health*. 2021; 14(10):1497-1504.
12. Padhi BK, Satapathy P, Rajagopal V, Rustagi N, Vij J, Jain L, Chakrapani V, Patro BK, Kar SS, Singh R, Pala S, Sankhe L, Modi B, Bali S, Kiran T, Goel K, Aggarwal AK, Gupta M. Parents' Perceptions and Intention to Vaccinate Their Children Against COVID-19: Results From a Cross-Sectional National Survey in India. *Front Med (Lausanne)*. 2022; 9:806702.
13. Al-Khlaiwi T, Meo SA, Almousa HA, Almebki AA, Albawardy MK, Alshurafa HH, Althunayan MA, Alsayyari MS. National COVID-19 Vaccine Program and Parent's Perception to Vaccinate Their Children: A Cross-Sectional Study. *Vaccines*. 2022; 10(2):168.
14. Di Giuseppe G, Pelullo CP, Volgare AS, Napolitano F, Pavia M. Parents' Willingness to Vaccinate Their Children With COVID-19 Vaccine: Results of a Survey in Italy. *Journal of Adolescent Health*. 2022; 70(4):550-558.
15. Alfieri NL, Kusma JD, Heard-Garris N, Davis MM, Golbeck E, Barrera L, Macy ML. Parental COVID-19 vaccine hesitancy for children: vulnerability in an urban hotspot. *BMC Public Health*. 2021; 21(1):1662.

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