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Research Article

COVID-19 Vaccination for Children: Acceptance by the Mothers of Children Aged 2-12 Years in Tamil Nadu

Vinoth Gnana Chellaiyan[1], Jerry Alfred[2], Jasmine M[3], Nigilesh Sundar M[4]

[1]Associate Professor, [2]Resident, [3]Assistant Professor, [4]Resident, Department of Community Medicine, Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education (Deemed to be University), Chennai, Tamil Nadu, India.
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I N F O

Corresponding Author:
Jasmine M, Department of Community Medicine, Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education (Deemed to be University), Chennai, Tamil Nadu, India.
E-mail Id:
jasjasmine98@gmail.com
Orcid Id:
https://orcid.org/0000-0002-2070-6196
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A B S T R A C T

Background: Despite the acceptance of COVID-19 vaccination by adults, the parents are hesitant to vaccinate their children due to safety, side effects and efficiency concerns. The objective of the present study is to find acceptance of the COVID-19 vaccine for children among mothers.

Materials and Method: This was a cross-sectional study conducted among mothers of children 2-12 years residing in a village of field practice area of Chettinad Hospital and Research Institute, Chengalpet district. A pre-tested, semi-structured questionnaire was used. Vaccine hesitancy was scored with the Likert scale. The data collected was entered and analysed with SPSS IBM version 22.0.

Results: Among the study participants, the majority of the mothers 121 (90%) had more than 4 visits during their antenatal period. Institutional deliveries 124 (92%) were reported by mothers. The majority of the children 114 (82%) were fully vaccinated as per the immunisation schedule. Few of the mothers 46 (34.3%) reported that adults in the family are yet to be completely vaccinated for COVID-19. 13 (10%) of the mothers reported that there was a COVID-19 related death in the family or neighbourhood. Among the mothers, 50 (37%) had COVID-19 vaccine hesitancy and were not willing to vaccinate their children. Mothers' education, COVID-19 deaths in family or neighbourhood, fathers' education were the determining factors for vaccine acceptance.

Conclusion: Before planning vaccination on a mass scale, we need to increase the acceptance rate through awareness and educational programmes.

Keywords: Vaccine Hesitancy, COVID-19 Vaccine, Vaccination for Children

Introduction

The COVID-19 disease (SARS-CoV-2), which is the most recent pandemic, affected hundreds of countries within weeks after being identified.[1] It is an infectious disease with high incidence, characterised by symptoms like fever, sore throat, headache and mild to moderate respiratory illness.[2] India was in the list of top countries with the most number of COVID-19 cases with its cities like Delhi, Mumbai, Chennai, Kolkata and Bangalore all flagged as red zones[2] making it one of the countries in the world with the heaviest burden of COVID-19 cases and deaths.[3]

Vaccines play a major role in the eradication of a disease, and the only disease to have been eradicated is smallpox, done with the help of vaccines.[4] They not only save lives but also have been shown to result in benefitting the society economically.[5] Vaccines have been always a source of anxiety and a subject of controversies too. Only when the factors behind it are identified and dealt with effectively, the value of vaccines can be fully realised.[6] There is a wide range of factors contributing to vaccine hesitancy, with the common ones being their temporal relations to adverse health outcomes, not being familiar with the diseases that the vaccine prevents, lack of trust in the public health agencies and medical system, even the very compulsory nature of vaccines.[7]

When it had come to the COVID-19 vaccination for the adults, they were a bit hesitant thinking about its safety, side effects and doubts regarding the efficiency of a vaccine produced in a hurry.[8] Now that the vaccine is going to be made available to children under 18 years, the objective of the present study is to find acceptance of the COVID-19 vaccine for children among mothers.

Material and Method

Study Design and Setting

The study was a cross-sectional study. The study was conducted in a village of field practice area of Chettinad Hospital and Research Institute, Chengalpet district. There are 12 villages under the field practice area.

Study Population

The study population included mothers of children 2-12 years residing in the selected village of Chengalpet district. The study duration was from August 2021 to October 2021. There were 155 children in the selected village during the study period. Mothers of children who could not be contacted even after three visits were excluded from the study.

Sampling and Study Design

A simple random sampling method was used to choose a village among the twelve villages. Thandalam village was chosen and a complete enumeration of all the mothers whose children of age 2 to 12 years was done. In the present study, 134 mothers were enrolled.

Study Tool

A pre-tested, semi-structured questionnaire was used. The questionnaire has questions on socio-demographic details such as age, sex, occupation and education of parents, type of family, total family members, total family income, socioeconomic class. Brief antenatal history and history of COVID-19 infection in the family were collected. A vaccine hesitancy scale was used to assess the acceptability of vaccines by the mothers. SAGE Vaccine Hesitancy Model* was used to develop the study tool – vaccine acceptance component. There are ten statements assessed using 5 points Likert scale with scores given for each option as Strongly agree-5, Agree-4, Neutral-3, Disagree-2, Strongly disagree-1. Those who score more than 25 were considered to be willing for COVID-19 vaccination. After obtaining written informed consent from the mothers, the study was conducted. The data was collected using the questionnaire and vaccine acceptance was determined.

Data Analysis

The data collected was entered and analysed with SPSS IBM version 22.0. Proportions and mean were calculated. Normality of data was assessed before applying tests of significance. Chi-square test was applied. A p-value of < 0.05 is considered as significant. The study was conducted after the approval of the ethics committee of the institution. Confidentiality and privacy of the study participants were maintained.

Results

The mean (SD) age of the children was 3.3 (± 2.4) with a minimum of one year to 12 years of age (Table 1).

Among the study participants, the majority of the mothers 121 (90%) had more than 4 visits during their antenatal period. Institutional deliveries 124 (92%) were reported by mothers. The majority of the children 114 (82%) were fully vaccinated as per the immunisation schedule. Few of the mothers 46 (34.3%) reported that adults in the family are yet to be completely vaccinated for COVID-19. 13 (10%) of the mothers reported that there was a COVID-19 related death in the family or neighbourhood (Table 2).

Among the mothers, 50 (37%) had COVID-19 vaccine hesitancy and were not willing to vaccinate their children. Mothers' education, COVID-19 deaths in family or neighbourhood, fathers' education were the determining factors for vaccine acceptance (Table 3).

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Table 1.Sociodemographic Profile of the Study Participants (n = 134)

S. No.	Variables	N (%)
1.	**Age group (years)**	
	2-5	113 (84.3)
	6-10	16 (11.9)
	11-12	5 (3.7)
2.	**Gender**	
	Male	62 (46.3)
	Female	72 (53.7)
3.	**Mothers' occupation**	
	Housewife	109 (81)
	Unskilled	12 (9)
	Semi-skilled	8 (7)
	Skilled	2 (1)
	Clerk/ shop owner/ business	3 (2)
4.	**Mothers' education**	
	Illiterate	64 (48)
	Primary	53 (40)
	High school	17 (12)
	Graduate and above	0 (0)
5.	**Fathers' occupation**	
	Unemployed	0 (0)
	Unskilled	56 (42)
	Semi-skilled	34 (25)
	Skilled	23 (17)
	Professional	0 (0)
	Clerk/ shop owner/ business	21 (16)
6.	**Fathers' education**	
	Illiterate	12 (9)
	Primary	84 (63)
	High school	36 (27)
	Graduate and above	2 (1)
7.	**Religion**	
	Hindu	124 (92.5)
	Christian	6 (4.6)
	Muslim	4 (2.9)
8.	**Family type**	
	Joint family	118 (88)
	Nuclear family	16 (12)
9.	**Socioeconomic status**	
	Upper	0 (0)
	Upper middle	21 (15.7)

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	Lower middle	45 (33.5)
	Lower	68 (50.8)
10.	**Total number of siblings**	
	None	75 (56)
	1	36 (26.9)
	2	23 (17.2)

Table 2.Assessment with Vaccine Hesitancy Scale (n = 134)

Vaccine Hesitancy related Statements	Strongly Agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)
COVID-19 vaccines are important for my child's health	9 (7)	89 (66)	34 (25)	1 (1)	1 (1)
COVID-19 vaccines are effective	10 (7)	112 (84)	1 (1)	3 (2)	8 (6)
Having my child vaccinated for COVID-19 is important for the health of others in my community	10 (7)	109 (81)	8 (6)	7 (5)	0 (0)
All COVID-19 vaccines approved by the government of India are beneficial	18 (13)	101 (76)	15 (11)	0 (0)	0 (0)
New vaccines like COVID-19 carry more risks than older vaccines	10 (7)	6 (4)	111 (83)	5 (4)	2 (2)
The information I receive about vaccines from the media is reliable and trustworthy	11 (8)	111 (83)	9 (7)	3 (2)	0 (0)
Getting COVID-19 vaccines is a good way to protect my child/ children from disease	16 (12)	113 (85)	3 (2)	0 (0)	0 (0)
Generally, I do what my doctor or health care provider recommends about COVID-19 vaccines for my child/ children	13 (10)	116 (87)	2 (1)	3 (2)	0 (0)
I am concerned about the serious adverse effects of COVID-19 vaccines	25 (19)	99 (74)	5 (4)	3 (2)	2 (1)
My child/ children do or do not need COVID-19 vaccines	10 (7)	2 (1)	77 (58)	40 (30)	5 (4)

Table 3.Determining Factors for Vaccine Hesitancy (n = 134)

S. No.	Factors	Hesitant N = 50 N (%)	Willing N = 84 N (%)	P value
1.	**Age group (years)**			
	2-5	39 (78)	74 (88)	0.121
	6-12	11 (22)	10 (12)	
2.	**Gender**			
	Male	23 (46)	39 (47)	0.232
	Female	27 (54)	45 (53)	
3.	**Mothers' education**			
	Illiterate	44 (88)	20 (24)	0.042
	Literate	6 (12)	64 (76)	
4.	**Fathers' education**			
	Illiterate	12 (24)	0 (0)	-

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	Literate	38 (76)	84 (100)	
5.	**Family type**			
	Joint family	50 (100)	68 (81)	-
	Nuclear family	0 (0)	16 (19)	
6.	**COVID-19 vaccinated adults in the family**			
	Yes	16 (32)	72 (86)	0.09
	No	34 (68)	12 (14)	
7.	**COVID-19 deaths in family/ neighbourhood**			
	Yes	1 (2)	12 (14)	0.01
	No	49 (98)	72 (86)	

Chi-square test applied, p-value < 0.05 is significant.

Discussion

Vaccine hesitancy has been an age-old challenge faced not only in India[9] but even in developed countries.[10] Despite the contributions of vaccines to public health, many parents are hesitant towards vaccines, either delaying them or not giving them at all for their children. This has repercussions not only on the individual health but also on the society in case of outbreaks.[11] There is a 99% or even greater amount of decline in deaths due to diseases preventable by vaccines over the years since the 80s.[12] Hence vaccines are a necessity in controlling the spread of COVID-19 and its mortality. A study revealed that a COVID vaccine with an efficacy of 70% can prevent an epidemic and with a little more efficacy can even put an end to an epidemic without the need for other measures (like social distancing, hand sanitising).[13] Despite the availability of vaccines for COVID-19, hesitancy is a factor affecting its usefulness among the public. This study revealed that the majority of the mothers 84 (63%) were willing to give their children the COVID-19 vaccines. 50 (37%) of the mothers were hesitant about it, given that about 34% had adults in their house not yet fully vaccinated against COVID-19. Where there are adults themselves who have not completed the vaccine due to hesitancy or other factors, there is vaccine hesitancy towards giving their children also.

The COVID-19 deaths in families or neighbourhoods also showed to have a significant association with vaccine hesitancy. This could mean that they have gained more information about this particular illness after witnessing it or heard about it personally. The other important determining factor being the educational status of the parents, mother and father both also had a significant association with vaccine hesitancy. There were a majority of illiterate mothers on the hesitant side. This could be why only 63% of the mothers were willing for the COVID vaccine. Another study with more mothers on the educated side with participants from many countries including the USA, the UK, India, Brazil, Russia and Australia, showed that Indian mothers and mothers-to-be were the most willing for the COVID-19 vaccine to their children when it is safe and was available to them for free. Also, Indian mothers were the most confident in believing their public health agencies if they approve a vaccine to be safe and having no harmful side effects and being effective.[14] Vaccine hesitancy could turn out to be a factor affecting the successful control of this COVID-19 situation.[15]

It is also wise and important to calculate the vaccine acceptance rates before planning out a mass vaccination camp in that area. When the acceptance rate is not high enough for it to be beneficial in controlling the spread of the disease and be cost-effective, awareness and education programmes can be set up before the camps to increase the rate. By giving assurance to the people regarding the safety of the vaccine (rare harmful side effects), giving knowledge about the disease and the role of the vaccine, making the vaccine available and accessible to them easily, one can improve the acceptance rates.[16,17] Such programmes can be conducted in these villages before setting up vaccination camps.

Conclusion

It is apparent from the study that there is a significant association between COVID-19 vaccine hesitancy for their children and determinants like the educational status of the parents, COVID-19 deaths in the family or neighbourhood and completed vaccination of adults in the family. Before planning vaccination on a mass scale, we need to increase the acceptance rate through awareness and educational programmes.

Limitations

This study was conducted in a village setting; hence the findings/ results are not generalisable to parents residing in the urban area.

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