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A STUDY TO ASSESS THE PERSPECTIVE OF PARENTS REGARDING COVID-19 VACCINATION AMONG CHILDREN OF 2-17 YEARS AGE GROUP

Deepika Badkur,[1*] Vibha Arjaria,[2] Vikas Pandey[3]

[1*]Associate Professor Department of Community Medicine, L N Medical College and Research Centre, Bhopal (MP)
[2]Associate Professor Department of Community Medicine, L N Medical College and Research Centre, Bhopal (MP)
[3]Tutor cum Statistician, Department of Community Medicine, Government Medical College, Datia, (MP)

Address for Correspondence
Dr. Deepika Badkur
E-mail: deepikabadkur@gmail.com
Orcid Id:
Deepika Badkur- https://orcid.org/0009-0007-9912-1206
Vibha Arjaria- https://orcid.org/0009-0006-9137-907X
Vikas Pandey – https://orchid.org/0009-0004-8090-011X
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ABSTRACT

Background: Covid-19 pandemic lead to an era of lockdowns, social withdrawal, and mask use. In the absence of a specific therapy, vaccination is the only way to decrease the frequency of infections and create herd immunity. Less illness in families, a decline in student absences, and a reduction in stress are all advantages for children who take the Covid-19 vaccine. Safety and effectiveness are usual hurdles in lowering parental willingness for Covid-19 vaccination of children.

Objective: To assess parents' willingness and perspective regarding the Covid-19 vaccination of children.

Methods: An observational cross-sectional study was conducted (June to Dec 2021) in Bhopal using a self-administered online questionnaire. About 350 parents (having children ages 2 to 17 years and filled the informed consent form) were included to answer questions on knowledge related to Covid-19 infection, vaccination, and their willingness and perception to vaccinate their child. The study was approved by the institutional ethics committee. Categorical variables were expressed as frequencies and the chi-square test was used to compare proportions using Microsoft Excel software.

Results: The willingness of parents to get their child Covid-19 vaccine was 71 % and was found to be statistically significant with the age of the child, whether the vaccine will help in the control of infection, parent's vaccination status, and the resources parents utilize to get the latest Covid-19 information.

Conclusion: High willingness rate indicates parents' awareness related to the benefits of Covid-19 vaccination in children and paves the way for the implementation of several ongoing immunization initiatives.

Key-words: Covid19 disease, Willingness, Covid19 vaccination, Vaccine hesitancy

INTRODUCTION

As of December 31, 2021, there were more than 6 million fatalities worldwide.[1] In the absence of any specific therapy, vaccination remains the only promising option to combat Covid-19. On January 16, 2021, India's immunization programme was launched with DCGI's approval of Covishield and Covaxin for use in an emergency.[2] Vaccination is the most efficient method of preventing and controlling infectious diseases[3] and can also be applied to Covid-19. The increase in case reports and case series including severe clinical symptoms in children indicates the need for vaccines. The Covid-19 vaccine will have several benefits, including a drop in the number of serious illnesses in children and families, a normalization of the economy, the opening of school, and a reduction in stress. All of this won't be successful unless herd immunity is developed, for which children will also need to be immunized against the illness.

However, several attitudes and circumstances that influence people's resistance, reluctance, and acceptance of immunization are noted in the literature. Little is known about parents' worries about administering the Covid-19 vaccine to their children.[4] The major obstacles to giving children the Covid-19 vaccine are a lack of parental interest[5] and worries about its efficacy and safety.[6]

Parents are the sole decision-makers for Covid-19 immunization in children, so this study was carried out to assess parents' willingness and perspective regarding the Covid-19 vaccination of children.

MATERIAL AND METHODS

The ethical approval was obtained from the institutional ethics committee of L. N. Medical College and Research Centre, letter number (LNMC&RC/Dean/2021/Ethics/208). An observational cross-sectional study was conducted from June to December 2021 in Bhopal using a self-administered online questionnaire as the data collection tool. Using the formula $4pq/l^2$, a sample size of 350 individuals was determined, taking into account an anticipated vaccination rate of 65%[5], with Z = 1.96 for a 95% confidence interval, and a predicted acceptable margin of error d = 5%.

Inclusion criteria: The study included parents who agreed to complete the self-administered questionnaire and had at least one child ranging in age from 2 to 17 years.

Exclusion criteria: Parents who did not consent to participate in the study.

The online self-administered poll was distributed to the parents via WhatsApp and mail lists using the snowball sampling approach. Participants were informed about the objectives of the study, the length of the questionnaire, the identities of the researchers, and how the data would be maintained in a section at the beginning of the form. The successful completion and submission of the questionnaire were considered evidence of the subject's consent. The questionnaire was developed after reviewing the pertinent literature [5,6] and was refined for accuracy and clarity after being tested on 20 parents, and translated into Hindi. The self-administered questionnaire of 32 questions could be answered in 7 to 10 minutes. The survey asks parents to provide socio-demographic information about themselves (including the mothers' and fathers' education, employment status, income, and number of children), and characteristics of children (Age, gender, any chronic illness, was child infected with Covid-19). The parents were then questioned regarding their knowledge of Covid-9 infection and vaccination and their attitudes towards having their child receive a Covid-19 vaccination.

Statistical analysis: The chi-square test was applied to determine the association between dependent and independent factors (categorical variables). Results were presented in the form of tables, and findings were compared against the standards and/or findings from similar studies, and discussed.

RESULTS

Socio-demographic characteristics of parents and children show that 50% of the kids were in the 7–12 age range. Children were roughly 60% male and 40% female. More than half (59%) of mothers and 49% of fathers were above high school educated. The majority of moms (65.51%) were housewives, and 5% were employed in a healthcare facility. 96% of the fathers were non healthcare workers. Eighty percent (80%) of the families made less than Rs 50000 per month. Most of parents had 2 children between 2-17 years age group (38.6%). (Table1) Related to parents' Covid-19 vaccination status and Covid-19 disease among children at the time of data collection shows, 64% of parents were not vaccinated against Covid-19 and only 21% had received both doses. More than half (82%) of the children never had a Covid-19 infection. 22% of children were affected by some health-related risk factor (Hypertension, Diabetes mellitus, Cardiovascular disease, Asthma, Lung infection, Drug or vaccine-related allergy). (Table 2) The willingness of parents to vaccinate their child with the Covid-19 vaccine was found to be statistically significant with the age of the child, faith in the vaccine's ability to control infection, their own vaccination status, and the source utilized for the Covid-19 update. (Table 3) The study found parents frequently turn to TV and radio (42.09%). (Figure 1) Related to the knowledge and intent of the parent regarding the Covid-19 vaccination of their children, the study found that more than half of parents (67.09%) expressed the opinion that Covid-19 immunization of children is still vital even if adults are vaccinated. Parents expressed faith in the safety of vaccines to the tune of 68%, while only roughly 19% expressed anxiety. The majority of parents (70.9%) agreed that their children should receive the vaccine while 20.25% of parents believed that because their kids have subclinical antibodies, they don't need to be immunized, and 57.91% of parents disagreed. 48.73% of participants had no faith in the vaccine. 57.28% stated that treatment for Covid-19 vaccination adverse effects is available, while 23.10% said there isn't. Nearly 15% of participants believed that the Covid-19 vaccine could cause death, while a maximum of (64%) of people disagreed. The majority of parents (62.34%) knew how to protect their children from Covid-19 infection. More than half of parents (62.97%) are satisfied that their child can adhere to infection control procedures if necessary. While 59.81% of parents believed that their child was not susceptible to Covid-19 infection. (Figure 2)

DISCUSSION

The study was conducted to understand and assess the parents' willingness, to get their child vaccinated against Covid-19 infection and the different factors influencing their willingness including socio-demographic factors, parents' vaccination status, and their source of knowledge of Covid-19 disease and its vaccine.

Nearly 71% of parents were willing to get their child vaccinated with Covid-19 vaccine. Padhi et al[7] reported a low percentage (33.5%). Mengmou Z et al[8] from China reported that 60% of parents were not willing to vaccinate their

children for Covid-19. Children between the ages of 2 and 17 were involved in the current study, with the majority (50%) falling into the 7 to 12 year age range. Mengmou Z et al[8] included parents having 3-6 years of age group children and more children belonging to 3-4 years age group. Almost all fathers (96%) were working in non-healthcare care settings. Similar results were reported from a study conducted by Mengmou Z et al.[8] The results helped in annihilating health knowledge-related bias encountered if more healthcare workers were included. Almost all participants (80%) in the present study had income below Rs 50,000 per month which was similar to the findings reported by Padhi et al.[7] Mengmou et al,[8] Miliordos K et al,[9] and Almalki OS et al[10] conducted studies on similar topics belonging to developed countries leading to difficulty in scaling the income with the Indian scenario.

Although adult immunization rates are currently higher, 64% of research participants had not yet received any doses of the Covid-19 vaccine at the time of data collection, and 36% of parents reported receiving one or two doses of the vaccine due to the early phase of the Covid-19 vaccination drive, where the prospect of immunization and the supply of the vaccine presented significant challenges. Miliordos K et al[9] reported high prevalence of Covid-19 vaccination.

More than half (82%) of the parents responded inconclusively about Covid-19 infection in their children. Yılmaz M et al[5] and Kyei-Arthur F et al[11] have concluded that the majority of parents believed their child had never experienced Covid-19 and was at little risk of being impacted in the future.

About 22% of children were found to have some health-related risk factor. Some parents whose children have chronic conditions may be willing to vaccinate their children, while others may be unwilling due to fear of adverse effects. Miliordos K et al[9] reported similar results while Ran D. Goldmana et al[6] reported that only 14% suffer from chronic illness.

The source of information about the Covid-19 disease and the vaccines available has an impact on people's willingness to receive Covid-19 immunization since reliable information can inspire people, whereas false information can demoralize those who are already terrified of the pandemic. The most popular source for parents to stay updated on Covid-19 disease and vaccination was found to be digital media (56%). Yılmaz M et al[7] and Almalki OS et al[10] found digital media as a resource used by parents to update information on the pandemic, while Miliordos K et al[9] reported healthcare providers as the main source which might be due to differences in education and healthcare manpower.

After widespread vaccination of adults, in the present study, around 67% of parents thought that vaccination of children was relevant; this is a favourable sign for the kids vaccination drives. Only 39% of parents were interested in encouraging others to immunize their kids against Covid-19. Temsah M-H et al[12] concluded that the majority of parents agreed that the Covid-19 vaccination of children would benefit the community. More than half (68%) of parents said they had confidence in the Covid-19 vaccine, while 19% said they were worried about safety concerns. Kyei-Arthur F et al[11] (61.4% not safe), and Temsah M-H et al[12] (38.9% agree and 32.1 % strongly agree) have reported different opinions of parents on the safety issues of vaccines. More than half (58%) of the parents disagreed with the notion that antibody formation lessens the efficacy of the Covid-19 vaccine. This may be because of various antibody (IgM, IgG) levels were tested and surveys were done during the Pandemic time.[16] The majority of parents (49%) disagreed that immunisation could aid in containing the Covid-19 infection. Kyei-Arthur F et al[11] revealed similar findings. So, vaccines can be one of the methods to stop the pandemic, but other approaches are also required. More than half of the parents disagreed with this statement about issues relating to the long-term safety of vaccines, such as untreatable vaccine side effects or death risks (58% for untreatable side effects and 64% for death risk). In the opinion of more than half (60%) of the parents, their child is not prone to Covid-19 infection, similar findings were reported by Padhi et al.[7]

According to the results of the current study, parents of children in the 7–12 age range are more likely to vaccinate them with the Covid-19 vaccine. The association between children's age and parents' willingness to get them vaccinated was found to be statistically significant. Ran D. Goldmana et al.[6] found greater willingness of parents associated with older children. Gender, and mother's education were not found to be associated with parents willingness for vaccination. Ran D. Goldmana et al,[6] Mengmou et al,[8] and Almalki OS et al[10] reported similar findings. Although researches by Padhi et al,[7] Miliordos K et al,[9] and Kyei-Arthur F et al[11] have found a correlation between willingness for children vaccination and their education level, this might be a sign that educated parents were aware of the importance of vaccines in halting the epidemic. The study revealed no association between the child's health-related risk factors and the parents' willingness to children's Covid-19 vaccination. This can be because of the parent's fear of putting the child at greater risk after vaccination. Ran D. Goldmana et al,[6] and Miliordos K et al[9] reported similar outcomes. The study discovered a relationship between parents' willingness to vaccinate their children and their knowledge that the Covid-19 vaccine will aid in controlling the spread of infection. The same is likely true for Covid-19. However, the converse was true in the study conducted by Kyei-Arthur F et al.[11] The results of the present study show a statistically significant link between parent vaccination status and preparedness to immunize their children against Covid-19. Parents who had not received the Covid-19 vaccination were shown to be more likely to vaccinate their children than parents who had received the vaccine in two doses, who were found to less likely to do so. Possibly, parents are preventing their children from experiencing the same adverse effects as they did. Yılmaz M et al,[5] Ran D. Goldmana et al,[6] and Miliordos K et al[9]

found that parents who had had vaccinations were more likely to support their children's Covid-19 vaccine. The current study shows an association between the source of knowledge regarding the Covid-19 update and readiness to immunize children. The majority of parents were found to rely on digital media for information. Lower parental Covid-19 vaccination reluctance was discovered by Alfieri, N. L. et al [14] (used family, friends, the internet, healthcare professionals, social media, mass media, and government media as information sources).

Limitations: The study population is not representative of the population since snowballing sampling techniques were applied. This study was cross-sectional, so causality cannot be established. All respondents who participated in the study had formal education and internet access. Based on these limitations, the findings of this study should be interpreted with caution.

CONCLUSION AND RECOMMENDATION

The fact that COVID-19 vaccines are readily available and are licensed for use in children of any age does not guarantee that parents will immunize their kids. It's critical to comprehend the parent's concerns about their child's COVID-19 vaccination status. This is one of the few studies carried out in India to determine how parents' willingness, awareness, and other factors affect their children's COVID-19 immunization. This study shows that Indian parents are adequately aware of the value of the COVID-19 vaccination, as indicated by a high willingness rate. The study prepares the path for the implementation of numerous ongoing immunization initiatives by assisting the authorities in comprehending parents' perspectives on different immunizations and ultimately raising immunization coverage in India.

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TABLES

Variable	Frequency (%)
Age of child	
2-6 yr	77 (24.4%)
7-12 yr	158 (50%)
13-18 yr	81(25.6%)
Gender of child	
Male	188 (59.5%)
Female	128 (40.5%)
Mother's Education	
Illiterate	49 (15.5%)
High School or below	149 (47.1%)
Above high school	118 (59.4%)
Father's Education	
Illiterate	25(7.9%)
High school or below	136 (43%)
Above high school	155 (49.1%)
Father's Occupation	
Health care worker	12 (3.8%)
Non health care worker	304 (96.2%)
Mother's Occupation	
Health care worker	16 (5.1%)
Non health care worker	93 (29.4%)
Housewife	207 (65.5%)
Monthly family income in rupees	
<50000	254 (80.3%)
>50000	59 (16.7%)
Don't know	3 (1%)
Number of children (between 2-17 yrs) every parent have	
1	120 (37.97%)
2	122 (38.60%)
>=3	75 (23.73%)

Table 1: Socio-demographic characteristics of the study respondents (n = 316)

Vaccination Status	Yes		No	Don't know
Parents' Covid-19 vaccination status	1st dose 15%	2nd dose 21%	64%	NA
History of Covid-19 infection in a child	4%		14%	82%
Health-related risk factors reported by parents in their child	22%		78%	0%

Table 2: Parents' Covid-19 vaccination status and children Covid-19 diseases

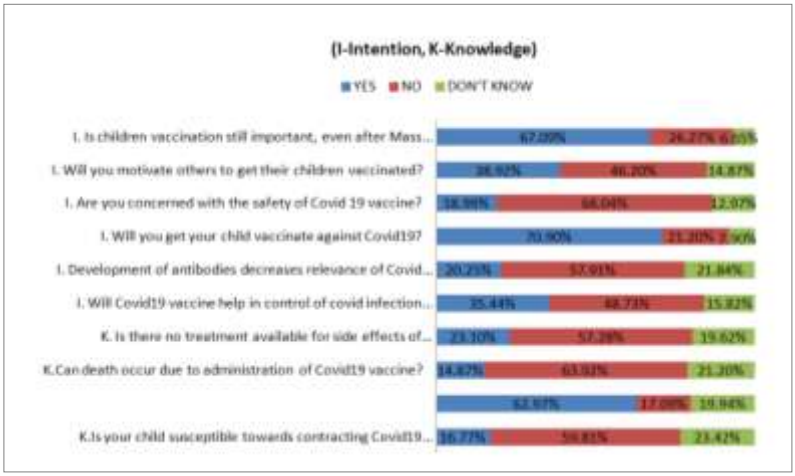
Willingness to get child vaccinated with Covid19 vaccine					
	Yes n (%)	**No n (%)**	**Don't know n (%)**	**Total n(%)**	**P Value**
Age of child					
2 - 6 Years	20 (6.33)	45 (14.24)	12 (3.80)	77 (24.36)	0.049*
7-12 Years	65 (20.57)	77 (24.37)	16 (5.06)	158 (50)	
13 - 17 Years	25 (7.91)	51 (16.13)	5 (1.58)	81 (25.63)	
Total	110	173	33	316	
Gender of child					
Male	92 (29.11)	85 (26.98)	11 (3.48)	188 (59.49)	0.157
Female	75 (23.73)	44 (13.92)	9 (2.85)	128 (40.50)	
Total	167	129	20	316	

Mother Education					
Illiterate	34 (10.76)	10 (3.16)	5 (1.58)	49 (15.51)	0.154
High School or below	114 (36.07)	23 (7.28)	12 (3.80)	149 (47.15)	
Above high school	77 (24.37)	33 (10.44)	8 (2.53)	118 (37.34)	
Total	225	66	25	316	
Father Occupation					
Health care worker	9 (2.85)	2 (0.63)	1 (0.32)	12 (3.80)	0.935
Non health care worker	216 (68.35)	64 (20.25)	24 (7.59)	304 (96.20)	
Total	225	66	25	316	
Any health related risk factor your child has?					
Yes	53 (16.77)	12 (3.80)	2 (0.63)	67 (21.20)	0.195
No	173 (54.75)	55 (17.40)	21 (6.65)	249 (78.80)	
Total	226	67	23	316	
Will vaccine help in control of Covid-19 infection?					
Yes	73 (23.10)	32 (10.13)	7 (2.22)	112 (35.44)	0.000001*
No	128 (40.51)	14 (4.43)	12 (3.80))	154 (48.73)	
May be	23 (7.28)	21 (6.65)	6 (1.90)	50 (15.82)	
Total	224	67	25	316	
As a parent are you vaccinated against Covid-19?					
No	160 (50.63)	24 (7.59)	18 (5.69)	202 (0.64)	0.000001*
First dose received	29 (9.17)	14 (4.43)	4 (1.27)	47 (14.87)	
Both doses received	35 (11.08)	29 (9.17)	3 (0.95)	67 (21.20)	
Total	224	67	25	316	
What resource do you use to stay up to date on the latest information on Covid-19 and its vaccines?					
Print Media	28 (8.86)	18 (5.70)	6 (1.90)	52 (16.46)	0.0000009*
Digital/Social Media	149 (47.15)	19 (6.01)	10 (3.16)	178 (56.32)	
Peer Group	47 (14.87)	30 (9.49)	9 (2.85)	86 (27.21)	
Total	224	67	25	316	

Table 3: Association between parents' willingness to vaccinate their children with socio-demographic factors and their knowledge related to Covid-19 disease. (n = 316)

Figures in the parenthesis indicate percentage out of the total. *P=<0.05 statistically significant

FIGURES:



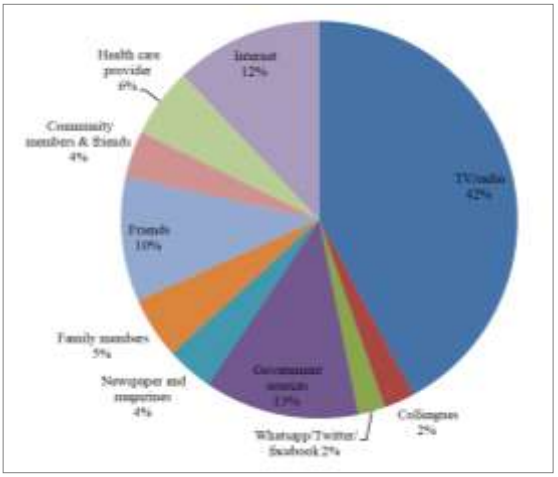


Figure 1: **Resources utilized for information on Covid-19 and its vaccines, Figure 2: Parent's knowledge and intention toward Children's Covid-19 vaccination**