

PARENTAL INTENTION TO VACCINATE THEIR CHILDREN ABOUT COVID-19 VISITING A TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN

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Abstract: *The SARS-CoV-2 virus is the source of the extremely contagious illness known as COVID-19. One of the most important ways to control the pandemic now is vaccination. However, vaccine reluctance exists in various communities due to false information and myths. This study evaluated parental readiness to vaccinate their children following the establishment of pediatric immunization recommendations. Parents who visited the National Institute of Child Health outpatient clinics in Karachi, Pakistan, were the subjects of a cross-sectional survey. Data on demographics, parental attitudes toward the COVID-19 vaccine, and parental readiness to administer it to their children were gathered by trained data collectors. A total of 341 parents participated in the study; the majority (47.2%) were female and between the ages of 31 and 40. Regarding the acceptability of immunizing their kids against COVID-19, 47.2% of parents said they would be willing to do so, while 27% said they would be reluctant. Lack of knowledge (95.5%) and a lack of supporting proof were the most often cited objections among those who declined (92.6 percent). Parental age, notably between the ages of 31 and 40, and the age of their children, particularly between the ages of 4 and 12, were strongly linked with lower vaccine reluctance. The impacts of gender, marital status, or educational attainment were not statistically significant. A big part of stopping the spread of COVID-19 is vaccination. According to our research, the majority of parents are probably going to vaccinate their kids. The age of the kid and certain parent age groups (31–40 years old) were strongly linked to reduced vaccine reluctance. To increase vaccine acceptance rates among parents, addressing the lack of knowledge and evidence, which are the main causes of vaccine refusal, is critical.*

Keywords: SARS-Cov-2, COVID-19, Vaccine Reluctance, Pediatric Immunization, Parental Readiness

Introduction

An important public health measure that significantly contributes to protecting at-risk groups, halting the spread of viral diseases, and saving lives is vaccination (Humble et al., 2021). Nevertheless, vaccine reluctance persists among communities, especially in low- to middle-income nations like Pakistan.

Since its discovery in November 2019, the COVID-19 pandemic, brought on by the brand-new coronavirus SARS-CoV-2, has impacted more than 200 nations (Ahmad et al., 2020). As of May 23, 2022, Pakistan had 1,529,837 confirmed COVID-19 cases and 30,379 fatalities. Children under 19 account for 7.1% of these cases, with a death rate of 0.6% (Noreen et al., 2021). There are still concerns regarding the disease's severe forms, such as Multisystem Inflammatory Syndrome (MISC), which affects a subset of high-risk children, even though the pediatric population appears less seriously affected (Alimoradi et al., 2023; Sadiq et al., 2020). It's also critical to

comprehend the danger of serious illness in children and their contribution to community transmission. A powerful tactic in containing the continuing COVID-19 outbreak is vaccination (Ruggiero et al., 2021). Nevertheless, vaccine reluctance has proved problematic in Pakistan, where many eligible people are still partially or not immunized. Only 128,074,138 Pakistanis have had a partial vaccine, 101,881,176 have received a full vaccination, and 4,869,245 have received booster shots as of March 2022. [3] Vaccine acceptability differs amongst communities and is affected by a number of variables (Catma and Reindl, 2021; Szilagyi et al., 2021). According to research done in the US, 67 percent of people approved of the COVID-19 vaccination, with greater approval ratings seen in men, older age groups (>55 years), and educated people (Malik et al., 2020). According to a different Israeli study, people who believed they were susceptible to disease were more inclined to receive the COVID-19 vaccine when it became available (Dror et al., 2020). The population under 12 in

Pakistan makes up roughly 14.80 percent of the total. On September 28, 2021, the age requirement for receiving COVID-19 immunization in Pakistan was dropped from 16 or older to 12 (Noreen et al., 2021). According to recent studies, one in five parents in Pakistan is reluctant to receive the COVID-19 vaccine. Children's COVID-19 vaccine acceptance differs between nations. It is influenced by attitudes toward the COVID-19 illness, vaccine effectiveness and safety, parental age, location, and completion of recommended immunizations, as well as placing a higher priority on the risk of the COVID-19 illness than vaccine side effects (Thomson et al., 2015). Parents who indicate more intentions to immunize their kids against COVID-19 also frequently show greater intentions for themselves to get the COVID-19 vaccine (Zhang et al., 2020). Addressing parental vaccine reluctance and increasing adult and pediatric vaccination rates is critical. In Pakistan, the COVID-19 vaccination is now licensed for children 12 years and older, with recommendations for younger children to follow soon. In light of these findings, it's critical to comprehend how Pakistani parents feel about the COVID-19 vaccine and whether they'd be willing to provide it to their kids. Given pediatric vaccination recommendations, this study evaluates the likelihood of parents vaccinating their kids by considering demographics, parental perceptions, and vaccine reluctance. We can improve immunization programs' efficacy and lessen the effects of COVID-19 on children and the general community by tackling vaccine hesitancy and raising vaccine acceptance rates.

To create measures that improve access and encourage vaccine acceptance, it is essential to comprehend parents' attitudes and intentions toward the COVID-19 vaccination of their children. It is possible to remove obstacles and raise immunization rates for kids by understanding the elements causing vaccine reluctance. The current analysis aimed to evaluate parents' opinions on providing COVID-19 vaccinations to their children when they visit tertiary care facilities in Karachi, Pakistan.

Methodology

In this cross-sectional study, we included parents who brought their kids to the NICH's outpatient clinics. No matter if they had received a COVID immunization, people who had at least one kid between the ages of 12 and 18 were enrolled. Parents of patients who had recently or now have a serious Covid infection were excluded.

The sample size was determined using data from a study done in China, where it was discovered that 72.60 percent of parents were willing to vaccinate their children (Ruggiero et al., 2021). The sample size is determined with a population percentage of 0.72, a

95 percent confidence level, and an absolute precision of 0.05. We now have 310 samples, thanks to this. To account for refusals, we increased the sample size by 10%, bringing it to 341 participants. Taken from IERB NICH reference no. 31/2022 for ethical approval.

Parents were spoken to in the NICH OPDs. They were interviewed in a designated area after receiving their informed consent. The first part of the questionnaire covered socio-demographic information, asking about the child's age, gender, ethnicity, parental education level, and monthly household income, the source of knowledge about the COVID-19 vaccines, and the parent and child's immunization status. When parents refused to vaccinate their children, the third section asked them why they didn't. The second survey component asked parents about their opinions about the COVID-19 vaccine for children. On a Likert scale, responses to the questions in section C were strongly agree, agree, not sure, disagree, and strongly disagree. Interviews with participants took place between October 2022 and March 2023. SPSS version 24 was used to analyze the data for categorical factors, including gender, ethnicity, parental educational attainment, monthly household income, source of COVID-19 vaccine information, and parent and child immunization status; frequencies and percentages were provided. For quantitative data like age, the means and standard deviations were presented (years). A five-point Likert scale with options like strongly agree, agree, not sure, disagree, and strongly disagree was used to gauge parental intent for COVID-19 immunization.

Results

The study involved 341 parents who visited outpatient clinics for their children and were evaluated regarding their perception of COVID-19 vaccination for children. The socio-demographic details of the parents are presented in Table 1. Most parents were 31-40 years old (47.2%), and most participants were females (61.0%). In terms of education, approximately 32% had a matriculation level of education, while around 16.4% had an intermediate or higher degree. About 57.2% of the parents were unemployed. The family history of COVID-19 was reported by 53.7% of the participants. Additionally, 41.3% of the participants had a child between the ages of 7 to 12 years.

Regarding positive attitudes towards COVID-19 vaccination, 31.9% of parents agreed it effectively protects their children from COVID-19. Only 53.8% agreed that implementing COVID-19 vaccines can contribute to controlling COVID-19 in Pakistan. The overall mean score for positive attitudes was 5.75 (SD \pm 1.38).

Table 1 Socio-demographic details of the parents (n=341)

| Study variables | N (%) |
|-----------------------------------|-------------|
| The age group of parents | |
| 18 – 30 years | 105 (30.7%) |
| 31 – 40 years | 161 (47.2%) |
| >40 years | 75(21.9%) |
| Gender | |
| Male | 133 (39.0%) |
| Female | 208(61.0%) |
| Educational level | |
| No education | 57(16.7%) |
| Madras | 35(10.2%) |
| Primary | 50(14.6%) |
| Matric | 109(31.9%) |
| Inter | 34(9.9%) |
| College degree or higher | 56 (16.4%) |
| Occupation | |
| Unemployed | 195 (57.2%) |
| Own business | 74 (21.7%) |
| Govt employed | 72 (21.1%) |
| Family history of COVID-19 | |
| Yes | 183 (53.7%) |
| No | 158 (46.3%) |
| Child age | |
| 0 – 3 years | 69 (20.3%) |
| 4 – 6 years | 88 (25.8%) |
| 7 – 12 years | 141 (41.3%) |
| 13 – 17 years | 43 (12.6%) |

Table 2 Assessment of Attitude and Behaviors

| Statement | Agree N(%) |
|---|-------------|
| Attitude positivity toward COVID-19 vaccination | |
| Attitude Positivity scale score (mean ± SD) | 5.75 ± 1.38 |
| The COVID-19 vaccine is successful in preventing your child from contracting the disease. | 109 (31.9%) |
| The introduction of COVID-19 immunization can help Pakistan regulate COVID-19. | 184 (53.8%) |
| Attitudes Negativity towards COVID-19 vaccination | |
| Attitude negativity scale score (mean ± SD) | 8.48 ± 1.89 |
| Rumors and myths | 141 (41.3%) |
| The main cause for not immunizing may be side effects from the COVID-19 vaccine. | 66 (19.8%) |
| Only in a short period will COVID-19 vaccination protection be effective. | 133 (39.0%) |
| Your youngster fears getting immunized. | 141 (42.3%) |
| Time your child's COVID-19 vaccinations carefully. | 37 (11.1%) |
| Perceived subjective norm related to child's COVID-19 vaccination | |
| Your family would encourage you to vaccinate your child against COVID-19. | 159 (47.7%) |
| Response score (mean ± SD) | 2.24 ± 0.81 |
| Perceived behavioral control to have the child take up COVID-19 vaccination | |
| If you wish the youngster to receive the COVID-19 vaccination, it is simple for you to do so. | 248 (74.5%) |
| Response score (mean ± SD) | 2.64 ± 0.66 |

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On the other hand, vaccination against COVID-19 was met with unfavorable attitudes. According to 19.8% of parents, rumors and myths led them to fear that the vaccine might have negative side effects. 41.3 percent of parents said their child fears getting immunized, 39.0 percent thought the COVID-19 vaccine's protection would only endure for a short period, 42.3 percent agreed, and 11.1 percent cited lack of time as the primary barrier to getting their child the vaccine. The mean negative sentiment score was 8.48 (SD: 1.89).

Discussion

A sizeable section of the population in Pakistan shows vaccine hesitation, mostly due to false information and stories about COVID-19 vaccine side effects that have been spreading on social media and the internet. These claims, however, are unsupported by science. Parents and kids who have not received the COVID-19 vaccine are still at risk of contracting the disease and could spread it to others. Investigating the variables that influence parental acceptance or rejection of the COVID-19 vaccination is essential. According to our research, parents between 31 and 40 generally approve of immunizing their kids against COVID-19. Furthermore, most individuals in this age bracket had matriculated or had higher education. Parents in this age range also had kids that were older than three or had several kids. It's interesting to note that parents whose kids were older than three were far more likely to consent to their kids receiving the COVID-19 vaccine. According to our study, many parents fear the persistent misconceptions and rumors associated with de Albuquerque et al. (de Albuquerque Veloso Machado et al., 2021). This result is consistent with a Bell et al. study, which similarly showed a high acceptability rate for the COVID-19 vaccination, driven by the desire to protect oneself, one's family, and others. Parental acceptance of the COVID-19 vaccine for their children did not show statistical significance compared to other demographic characteristics like educational attainment and gender (Bell et al., 2020). During interviews, most parents who denied the COVID-19 immunization stated that they lacked information and supporting data. These results align with the study by Skirrow et al., which found that despite the majority of people being eager to get the COVID-19 vaccine for themselves and their children, the most often reported reason for refusing it was a lack of proof (Skirrow et al., 2022). In conclusion, a number of factors affect how well-received the COVID-19 vaccine is among Pakistani parents for their children. Age seems to be linked to greater acceptance rates in the 31–40 age range. The main causes of vaccine reluctance among parents are

Regarding support and simplicity of persuasion, 74.5 percent of parents felt it would be simple to persuade their child to have the COVID-19 vaccination, and 47.7 percent of parents believed their family members would support them in getting their child the vaccine. These findings illustrate parents' conflicted attitudes and beliefs toward immunizing their children against COVID-19, with favorable and unfavorable factors impacting their choices.

a lack of knowledge and data regarding the safety and efficacy of the vaccine. Therefore, addressing concerns and giving factual information may help parents and kids accept vaccines more readily. The studies finding emphasize the value of immunization in preventing the spread of COVID-19 and shielding kids from infection and any potential sequelae. The results show that most parents are willing to vaccinate their kids against COVID-19, which supports public health initiatives. The study also finds specific age ranges of parents and kids who exhibit less vaccine reluctance, indicating that addressing the worries of these particular groups may help raise vaccine acceptance rates.

Conclusion

Prevention by vaccination is essential in controlling the spread of COVID-19. Our results suggest that most parents will follow through with vaccinations for their children. Vaccine acceptance was substantially correlated with the child's and parent's ages (31–40 years old). If we want to increase vaccine acceptance rates among parents, we need to address better the fundamental reasons for vaccine refusal: a lack of information and evidence.

Conflict of interest

The authors declared the absence of a conflict of interest.

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