Original Article

Impact of covid-19 pandemic on routine immunization of children

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Objective: To find the impact of Covid-19 pandemic on routine immunization of children.

Methodology: This cross sectional study was done at the New City Teaching Hospitaland Divisional Head Quarter Teaching Hospital, Mirpur, Azad Kashmir from March to September 2021. Data about routine immunization of children from parents was collected by using predesigned questionnaire. All data were analysed using SPSS version 20.

Results: The study included 1200 parents. We found that 80% parents had scheduled vaccination for their children, 18% had delayed vaccination while 2% missed vaccination during Covid – 19 pandemic. Major reason for delayed vaccination was fear of contracting Covid – 19 in 65% respondents. We found that 80% parents feared that their children have chance to get Covid – 19 infection, 78% responded that their children might transmit this infection while 74% reported that their children have chance to get hospitalized due to Covid-19. Majority of the respondent had positive attitude towards vaccination.

Conclusion: Covid-19 pandemic had major impact on the timing of routine immunization of children in Pakistan.

Keywords: Covid – 19, pandemic, routine immunization, children.

INTRODUCTION

Firstly, SARS CoV-2was detected in Wuhan, China in December 2019 and caused pneumonia in a high proportion.[1,2] In Pakistan, it came on 26 February 2020.[3] It was declared by WHO as pandemic on 11th march 2020 prompting governments to implement numerous interventions such as total or partial lockdown, restrictions over public transport, shutdown of schools and routine health servicesto prevent its transmission.[4]

The coverage of full immune children in Pakistan is 66% with periodic outbreaks of polio and measles.[5,6] In countries with pre-existing low coverage rates, this may result in increased morbidity and death from vaccine preventable diseases.When given on a regular basis to maintain herd immunity, vaccination is regarded the most cost-effective way of preventing infection and lowering childhood morbidity and death.[7] Delaying immunization reduces vaccine coverage and increases the risk of epidemics.[8,9]

The Covid – 19 pandemic is a major cause for delaying vaccines in low- and middle-income countries.[10,11] Unvaccinated children are more vulnerable to outbreaks of vaccine-preventable diseases, such as polio and measles amongst others.[12] WHO guideline proposed that routine immunization programs be maintained while maintaining the health care workers and population safety and mass immunization initiatives to be temporarily suspended.[13] Therefore, this study was done to determine the impact of Covid – 19 pandemic on routine immunization of children in Pakistan.

METHODOLOGY

This cross sectional studywas carried out at New City Teaching Hospitaland Divisional Head Quarter Teaching Hospital, Mirpur, Azad Kashmirfrom Marchto September 2021. The hospitals research and ethical committee approved the study and Informed consent was taken from all the parents or guardian of the children. The inclusion criteria were all the parents or guardian of the children who visited the outpatient department during the specified period of time and having children less than two years of age. Exclusion criteria were all the parents/guardian of the children who visited the hospital outpatient department but had children of age 2 or their children had immune deficiencies problems.

In Pakistan, the routine EPI immunization schedule includes six visits and covers ten vaccine preventable diseases. These includes polio, pertussis, tuberculosis, Haemophilus influenza, diphtheria, tetanus, Hepatitis B, pneumococcal diseases, measles and rotavirus diarrhea. Typhoid Conjugate Vaccine was also included to the regular immunization schedule as of January 2020.

A proper questionnaire was developed which included information about parent demography, status child routine immunization, their attitude towards routine

immunization and different reasons associated with delay or missed routine immunization. In this study, vaccine delay was defined as immunization that occurred more than one month beyond the scheduled day and time.Parents' responses were recorded on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree".

Statistical Analysis: All data were analysed using SPSS 20.Mean and standard deviation were documented for continuous variables, while categorical variables were calculated as percentages and proportions.

RESULTS

Out of 1200 parents/guardians, 966 (80.5%) were mothers of children and 234 (19.5%) fathers of children. The demographic features of the parents/guardian are given in Table 1. Majority of parents strongly agreed that their children should be vaccinated and vaccine is essential for child health (Table 2). The awareness about COVID – 19 risk assessment in children is given in Table 3.

Majority of respondent had positive attitude towards vaccination. In our study, 80% of the parents had scheduled vaccination for their children during Covid-19 while 18% delayed vaccination. And 2% participants responded that their kids had no routine immunization during Covid-19 pandemic (Fig. 1) 65% of participants responded that the major reason for delayed vaccination was fear of contracting Covid – 19 while 1% had issues

Table 1: Demographic features of participants.

Variable		Frequency	%
Gender	Male	966	80.5%
	Female	234	19.5%
Age group	20-30	420	35%
	31-40	576	48%
	41-50	96	8%
	5-60	96	8%
	≥61	12	1%
Level of education	Secondary or low	792	66%
	Bachelor	240	20%
	Master	120	10%
	Higher education	48	4%
Medical field	Yes	72	6%
	No	1128	94%
Child under age 2 years	One	1080	90%
	Two	120	10%
Number of children	One	480	40%
	Two	264	22%
	Three	204	17%
	Four	156	13%
	Five or more	96	8%
Where you vaccinate your children?	Government hospital	1080	90%
	Private hospital	60	5%
	Both type of hospital	60	5%

Table 2: Attitude assessment of parents about routine immunization of children.

Statement	A n (%)	SA n (%)	N n (%)	D n (%)	SD n (%)
For children health vaccinations are essential	900 (75%)	164 (22%)	24 (2%)	6 (0.5%)	6 (0.5%)
Vaccination should be done on time	720 (60%)	336 (28%)	120 (10%)	12 (1%)	12 (1%)
Vaccination delay does not affect child health. You can give vaccine regardless of due time.	60 (5%)	360 (30%)	240 (20%)	360 (30%)	180 (15%)

A-agree, SA-strong agree, N-neutral, D-disagree, SD-strongly disagree

Table 3.Parents awareness about COVID-19 risk assessment in children.

Statement	Frequency	%
Fear that their children have chance to get covid-19	960	80%
Children might transmit infection	936	78%
Children have chance to get hospitalized due to Covid–19	888	74%

of transportation. Preferred location for vaccination was home in 40% followed by vaccination at dedicated hospital for vaccination (36%).

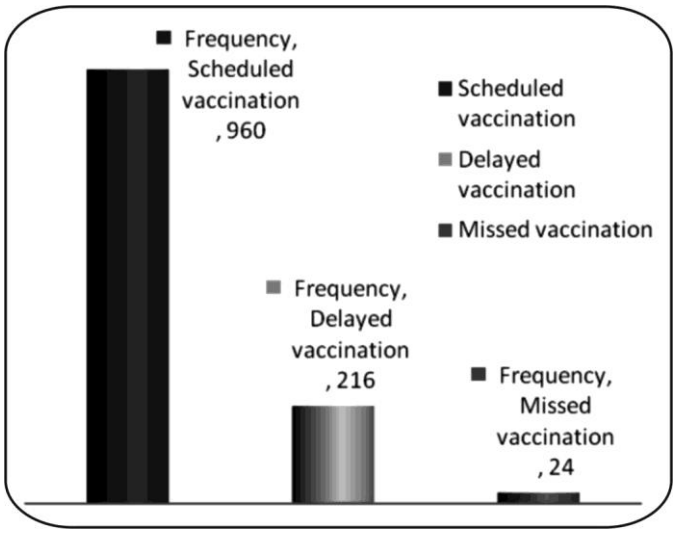

Fig. 1: Routine vaccination status of the children during covid-19.

DISCUSSION

It has been suggested in early findings from around the world that routine childhood immunization rates may have declined during the Covid-19 pandemic.[10,14] Our findings show that the Covid-19 pandemic had an impact on the regularity of children vaccination in Pakistan. This is the first investigation to assess the Covid – 19 pandemic impact on children immunization in Pakistan.

There were 966 (80.5%) mothers of children and 234 (19.5%) fathers of children in our study. We found that 1080 (90%) had vaccination of their children in government hospital.These findings are in accordance with the previous study which observed that majority of the parents vaccinate their children in government hospital.[15]

According to Abbas et al the risk of dying from vaccine preventable diseases exceeded the chance of dying from Covid-19 infection during hospital visits.[16] Following the announcement of a national emergency in the United States, a decrease in regular immunizations was noticed, particularly among children older than one month.[10]In England, MMR vaccination rates dropped by nearly 20%, Hexavalent vaccination reduced as well, however not as much as MMR.[17]

Regarding the attitude of the parents towards vaccination, majority of the respondent had positive attitude towards vaccination. We observed that majority of the parents strongly agreed that their children should be vaccinated and vaccine is essential for child health.On the other hand, a study from Saudi Arabia reported that 65% of parents were not worried about delay in routine vaccination.[18] This might be due to the reason that most of our study participants were educated.In our study, 80% of the parents had scheduled vaccination for their children during Covid – 19 while 18% delayed vaccination. These findings are in accordance with a previous study.[15]

Whereas the study's findings are significant, it does have certain limitations. The research was carried out in a particular area of Pakistan that might or might not be representative of the whole population. Furthermore, owing to the restricted number of questions, attitude assessment may be inadequate. Despite this, our research contributes to a better knowledge of the overall picture of vaccination delays in Pakistan during the pandemic. As a result, the findings might be utilized to outline methods for increasing vaccine coverage in regular immunization programs during environmental disasters and pandemics.

CONCLUSION

Covid – 19 pandemic had major impact on the timing of routine immunization of children in Pakistan. The findings of our research revealed a plenty of obstacles to timely vaccination.

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