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Contextual Narratives Associated with Immunization Services During COVID-19 Disease Outbreak in Chennai, Tamil Nadu

Sree T Sucharitha[1], Aravind Manoharan[2], Jaishree Vasudevan[3], Aaditya Fernando[4]

[1,4]Tagore Medical college and Hospital, Chennai, Tamil Nadu, India
[2,3]Chettinad Hospital & Research Institute, Chettinad Academy of Research & Education, Kelambakkam, Tamil Nadu, India

ABSTRACT

Background: Essential health services including immunization were significantly impacted due to COVID-19 with devastating outcomes in low- and middle-income countries (LMIC). The disruption in immunization services due to global pandemic and measures undertaken at regional levels to overcome need to be studied as pandemic preparedness strategy.

Objective: To document the contextual narratives related to immunization services during the Covid-19 disease outbreak by interviewing qualified paediatricians in the field practice area of private tertiary care teaching medical college

Methodology: In-depth phone-based interviews were conducted with paediatricians in diverse settings during November 2020 to March 2021. Reflexive thematic analysis was performed, major themes identified, and case studies documented.

Results: Paediatricians shared rich experiences related to immunization services impacted due to COVID-19 especially during the earlier months due to imposition of lockdowns leading to discontinuation, disruption of services, decrease in volume of immunizations, modest transition to telehealth service delivery, facility-level changes brought in to ensure immunization services and capacity building measures for upskilling.

Conclusions: Contextual narratives revealed in this study provide rich narrative about the disruption of immunization services due to COVID-19. These findings need to be understood and leveraged to be future ready and prevent further disruptions by identifying and scaling up key solutions piloted in this study.

Key words: SARS-CoV-19, paediatricians, immunization services, contextual narratives

BACKGROUND

The pandemic of SARS-CoV-19 posed never-before experienced challenges on the burdened health systems in third world countries battling with vaccines preventable diseases. The gains obtained after decades of public health efforts were at risk of slipping away in the measures geared solely for containment of Covid-19. Non- COVID-19 related care and services including immunization services were adversely affected in early periods of emergence of pandemic. In 2018, globally 86 percent of under five children (U<5) were vaccinated with three doses of diphtheria, tetanus and pertussis (DTP3) and one dose of the measles vaccine (72 percent in 2000).[1] The number of children paralyzed by polio has been reduced by 99.9 percent worldwide.[1] However as mitigation ef-

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Correspondence: Dr. Aravind Manoharan (Email: m_aravind86@yahoo.co.in)

forts towards COVID-19 were kicking into place, the apex public health body, World Health Organization (WHO) issued guidelines for suspension of mass immunization programs temporarily due to which 80 million infants were put at risk.[3,4,5,6]

Effective alternate health care delivery strategies need to be initiated, lead and managed by health care professionals, supported by technology systems in addressing immunization care needs of the community.[1] The WHO guidelines outline the measures to be continued for maintaining immunization delivery to pregnant and vulnerable age groups. If health systems can ensure mandatory pandemic preventive measures such as physical distancing, after assessing the risks of local transmission of COVID-19, maintenance of immunization services can be undertaken. Earlier studies have highlighted the implication on maternal and child health due to disruptions of essential health services in low- and middle-income countries including immunization during pandemics.[7,8] To understand these dire implications WHO in partnership with bilateral agencies including UNICEF and GAVI has undertaken online immunization "pulse" surveys and the findings identified the impact of COVID-19 as being heavily detrimental to delivery of routine immunization services in rich and poor countries alike.[9,10,11,12,13] It is important to assess the impact of Covid-19 on routine immunization services from the point of view of practicing clinicians for gaining in-depth understanding of disruption at individual level as pediatric practice is mainly client-driven. With this background, to document the contextual narratives related to immunization services during the COVID-19 disease outbreak we undertook a qualitative exploration study by interviewing qualified paediatricians in the field practice area of private tertiary care teaching hospital in Chennai. This first of its kind qualitative study might reveal the troubleshooting efforts undertaken at individual level by practitioners to overcome these barriers to immunization. This study findings might reveal valuable qualitative insights about both public and private system's ingenuity to be future ready in similar situations.

METHODOLOGY

Study design and participants: A qualitative study was conducted to gather swift transitions in pediatric clinical practice related to immunization services based on the experiences of pediatricians. Principal investigator trained in qualitative research methodology approached qualified pediatricians through social contacts and snowballing technique via phone calls and obtained schedules appointments for one-on-one, personal, phone-based interviews. Interviews were conducted between November 2020 and March 2021, in Chennai.

Interview Guide: The interview guide was designed to suit the objectives of the study. The interview guide had components like i. socio-demographic characteristics ii. professional qualifications iii. immunization services during COVID-19 iv. guidelines available from professional bodies or CMEs attended during this period. A combination of closed and open-ended questions was included to allow for natural style of conversation with interviewees and engagement in open discussion. Pilot testing was attempted with two potential participants and interview guide was finalized with modifications. These interviews were not included in the final analysis.

Interview Process: Informed consent was obtained prior to the interviews for audio recording and purpose of the study along with the objective was clearly explained. Institutional Ethics Committee approved this study. All interviews were conducted in English language via phone and notes was taken by PI. Average duration of the interviews ranged from 15-20 minutes and discussions were focused on the impact of Covid-19 on the immunization services in the early lockdown phase in comparison to pre-pandemic period.

Data Analysis: The audio recorded interviews were transcribed verbatim manually by PI and co-author and read multiple times independently in an attempt to identify recurring themes. Data analysis was performed by applying reflexive thematic analysis principles[14] and coding for emerging themes and subthemes was done independently by above authors. Both sets of themes were shared with the co-authors and consensus was arrived after review and discussion sessions which extended for 60-90 minutes each. At the end of this period, inductive approach was employed, and finalization of themes was collectively agreed. The reporting of these results adhered to Standards of Reporting of Qualitative Research (SRQR).[15]

RESULTS

The mean age of the pediatricians was 38.5± 9.5 years. 90.5% were from private sector hospitals. Majority (66.6%) have postgraduate degree in pediatrics. (Table 1)

Table 1. Characteristics of the study participants (N=21)

Characteristics	Participants (%)
Gender	
Male	14 (66.6)
Female	7 (33.4)
Age (years)	
Mean ± SD	38.5± 9.5
Education	
MD	14 (66.6)
DCH	4 (19.1)
DNB	2 (9.5)
Fellowship-Neonatology	1 (4.7)
Work Sector	
Private	19 (90.5)
Public	2 (9.5)

The following main themes were identified from analysis of the interviews with pediatricians

Theme 1: Inactive immunization services immediately after COVID-19

All the interviewees shared the common impact of COVID-19 during March 2020-May 2020 wherein the immunization services were completely paralyzed.

"Our utmost priority was to actually protect our patients first of all. So, in that situation, we gave less importance to routine immunization, so we asked all our patients to come after one month or so, they kept on calling us and we were in constant touch with them. We just informed them to get it after". (Male, 39 years, Private Practitioner)

"I would say from April, may, June, and, uh, no one was like even willing to come for vaccination." (Female, 29 years, Govt. Employee)

"Yeah, I usually do one or two vaccines regularly per day. But during these COVID months I rarely encounter such things. (Male, 49 years, Private Practitioner)

"They didn't come. They are very afraid of the COVID, and they didn't come much really." (Female, 29 years, Senior Resident, Medical College)

"I am seeing babies without vaccination for the past six months also they have stopped vaccinations for nine months or so like that." (Male, 33 years, Private Practitioner)

"When the lockdown started even, we thought we should even stop the vaccinations. Yeah, even though it is essential, because we thought the lockdown will be for a month or two. So, we thought we actually stopped vaccines, even told our parents not to come for even vaccines for first month. And then by the end of second month, we realized that this is not going to end now. Then we started getting…… started telling our patients by phone or by any other means, like orally telling those vaccines are now more important. We cannot wait for a few months to end the COVID because COVID is not going to end". (Male, 35 years, Assistant Professor, Private Medical College)

Theme 2: Interrupted immunization services after the initial phase of pandemic

Majority of the paediatricians shared those interruptions were common compared to routine immunization trends and patterns at their setting. The interruptions were equally similar in private settings with individual practitioners' small number of clients as well as institutional set-ups with high volumes.

"They come for follow-up because they didn't want to miss the vaccination of their new-borns, but the others were not coming for vaccination during May June there were not much of that. After August we started to get calls 'whether we can get our immunization' then we said the immunization services are open with all the safety precautions as per orders. So, they used to come from August one by one after inquiring." (Female, 44 years, Consultant)

"They called and asked about whether we can postpone the vaccine or we have to put like that…we said that it's not necessarily, we can postpone for one or two months. It's not like immediately, we have to put". (Female, 29 years, Senior Resident, Medical College)

"Overall immunisation was interrupted. Almost 50 percent patient especially in age group above 1 year, they delayed vaccination". (Male, 43 years, Private Practitioner)

"Like after one month, two months depends upon the age of the child, younger child we can postpone two months, for older children we postponed when things settled. basic vaccines and primary immunization were not postponed much, others are left to the parents whenever they feel comfortable, and they can come in". (Male, 45 years, Private Poly clinic Practitioner)

Theme 3: Decline in universal immunization volumes due to COVID-19

All the interviewed participants mentioned the notable decline in the volume of immunizations performed at their clinical settings due to COVID-19.

"That time, per day, I used to see around 10 patients a day in that age around four to five, Okay, now just an average and around four to five." (Female, 44 years, Consultant)

"Now, it's like, we are trying to follow up patients and ask them to come for vaccination. Instead, it's just getting back to normal with 40% returning. Like I think it will take another two months to actually get back to normal." (Female, 29 years, Govt. Employee)

"Yeah, I usually do one or two vaccines regularly per day. But during these COVID months I rarely encounter such things". (Male, 49 years, Private Practitioner)

"No, no, no, actually, um, immunization, uh, uh, things have reduced, uh, because not, uh, they are not getting vaccinated. They probably got vaccination from a nearby paediatrician". (Male, 38 years, Neonatology Consultant)

"*Immunization clinics were running but census came down in initial lockdown periods due to transport issues and fear of infections…overall OPD itself has come down, but now it is slowly returning to normal."* (Female, 41 years, Govt. Employee)

Theme 4: Surge in uptake of respiratory vaccines due to COVID-19

Majority of paediatricians shared those parents enquired about certain optional vaccines which were not part of the universal immunization program

(UIP) such as Flu and Pneumococcal vaccine. They believed that there were certain changes in the demands for these vaccines during COVID-19 pandemic.

"But one or two parents asked for this flu vaccine which is usually due during this August month". (Male, 49 years, Private Practitioner)

"*Pneumococcal demand was same; flu vaccines acceptance is more*." (Male, 43 years, Private Practitioner)

"There are more influx of patients requesting for a flu vaccine, which was not suggested by us but they had requested and they used to book upon it and come to us like that". (Male, 33 years, Private Practitioner)

"Increased demand for optional vaccines such as seasonal Flu vaccines, they have started believing that vaccines can cure, they started believing in what we say". (Female, 32 years, Poly Clinic Consultant)

"Usually, parents will think a bit more about Flu vaccine, but now they are readily taking and even asking for it". (Female, 33 years, Private Consultant)

Theme 5: Transition to tele-health practices due to COVID-19

There was a mixed response in our group of child specialists regarding adaption to various technology enhanced mediums of clinical services in the middle of pandemic.

"No mam, not online consultation also. No, no, no. I didn't do any online consultation." (Male, 49 years, Private Practitioner)

"Other specialties were doing, even Paediatrics department also but I did not do it". (Female, 32 years, Poly Clinic Consultant)

"Yeah, telemedicine we were doing. Immunizations we were not doing. We usually do WhatsApp video calls. It helped to some extent in pediatric skin ailments". (Female, 33 years, Private Consultant)

Due to lockdowns and restrictions imposed to contain Covid-19, operating health care facilities became extremely challenging for independent private practitioners compared to specialty settings.

"Yeah definitely different only, previously I used to avoid phone consultation. Um, I'll probably use first day alone. I may write some medications second day, third day I won't do over phone now we have to do that also, mostly with WhatsApp" (Male, 45 years, Private Poly clinic Practitioner)

"Some, a few of the patients opt for video consultation and they got appointment through the hospital, and they consulted me over, for video calling". (Male, 38 years, Neonatology Consultant)

Owing to unavailability of paramedical staff, lack of clear guidelines and fear of contracting infection physical clinics were shut down and telehealth portals scaled up quickly.

"These things WhatsApp, video conferencing, as well as Google Hangout call video conferencing. I used to do that. And apart from that, I was I am attached to corporate clinic, so they have a telemedicine app so that I'm enrolled in that also". (Male, 33 years, Private Practitioner)

Theme 6: Facility-level changes to deliver immunization services due to COVID-19

The study participants highlighted the changes they made to their facility to cope with the changing situations with respect to crowd management to avoid contacts between patients

"They have to come in prior appointment, don't do walk-in, well established protocols and streamlined everything… where coming in, all of them, they will have to fill out a form, parents will be checked, there'll be separate waiting area for paediatrics. So, staff nurses will follow the protocol: social distancing, sanitizing, mask etiquette and one parent with one child for the immunization, will be done only by a pediatrician, they will be monitored for 20 minutes and then only sent. After eight o'clock in the night there will be no vaccination okay late night because you have to watch for adverse effects, they will observe the sister will record for any adverse event and then sent" (Female, 44 years, Consultant)

"That we gave separate timings for each patient different walk-in or different time for vaccination and consultation. We used separate slots to make. Oh, make them more comfortable. we ran separate OPDs that is the main thing". (Male, 43 years, Private Practitioner)

"Like opening of the clinic or the end of the clinic, separate timing for them. And that was really helpful. Patients were asking for home vaccination, but I didn't." (Male, 45 years, Private Poly clinic Practitioner)

"Actually, um, most of the, uh, babies, we, encourage them not to bring the baby straight away. Uh, first we will give a questionnaire, uh, whether a baby's having fever, cough, cold, anything, if nothing is there. They will just wait, uh, wait in the car, keep, uh, keep the babies, uh, uh, themselves, themselves, the father or mother first comes get the vaccination prescribed, then they'll go to the pharmacy. And then after buying the vaccine, normally they will bring the baby. I have contributed to this ideation and implementation to reduce the overcrowding in waiting area. Any discussions will be before the day of arrival, and they get the shot and move immediately". (Male, 38 years, Neonatology Consultant)

"*Now I have restricted, uh, my appointments only to less than 10 maximum 10, 10 appointments per day. And, uh, that too to avoid overcrowding is kind of, uh, strategies. And, uh, uh, uh, my appointment time is be-*

tween five to eight, five to eight means only 15 minutes, 15 minutes slots, for each patient so maximum at the most 10 or 12." (Male, 38 years, Neonatology Consultant)

"*What we are advising is wherever they are to go for vaccination whether it is a private institution or a government institution, so I have personally sent SMS and WhatsApp messages to my patients to have flu shots and also have regular vaccinations".* (Male, 33 years, Private Practitioner)

"Actually sisters, they said they were not willing to come so only I had to manage it on my own. Yeah, one man shows, and I had given specific timing slot, like half an hour slot for every patient appointment basis." (Male, 31 years, Private Practitioner)

Theme 7: Capacity building of health workers to deliver immunization services due to COVID-19

Majority of the study participants have attended webinar to gain knowledge about the immunization protocols to be followed during pandemic. Based on the knowledge gained they were able to train the paramedics who were working under them.

"We train the staff nurses in the emergency because the calls always come to the emergency…then outpatient staff in the morning eight to eight shift used to receive calls we also conducted a separate training session we also put that some of the notices in the notice board" (Female, 44 years, Consultant)

"*Participated yeah a lot madam, IAP-Indian Academy of Paediatricians itself conducted one or two, WHO I didn't go for any webinar I went to websites only regarding immunization practice*" (Male, 45 years, Private Poly clinic Practitioner)

"Yeah, attended a lot of webinars uh, the early months of COVID. We have discussed a lot among our, uh, pediatricians and peers and colleagues as to how to, uh, continue immunization in this, uh, pandemic. who has missed the vaccination, almost most of them more than 90% has come, uh, got their shots little later, but they have almost done." (Male, 38 years, Neonatology Consultant)

"*Lot of webinars and knowledge sharing was there, and we were asked to continue immunization*". (Female, 41 years, Govt. Employee)

"All the paramedical staff were trained how to give immunization without impacting the children, practicing social distancing, we displayed posters in the hospital prominently". (Female, 32 years, Poly Clinic Consultant)

"Related to immunization I did not attend any webinars. IAP guidelines were released about immunization. We actually trained the staff about sanitization measures and disinfection of immunization rooms and separated immunizations and ran fever rooms separately". (Female, 33 years, Private Consultant)

Theme 8: Hearsay practices to deliver immunization services impacted due to COVID-19

Most of the pediatric practitioners talked about the delivery of immunization services at doorsteps to the eligible candidates and one of the study participants emphasized the need to segregate staffs in fever clinic and immunization service.

"Someone in my area advertised like that we will bring vaccine to your doorstep". (Male, 43 years, Private Practitioner).

"Segregate immunization staff from fever clinic and other services staff". (Male, 38 years, Neonatology Consultant)

"Corporates delivering immunization services at home". (Female, 44 years, Consultant)

DISCUSSION

Pediatricians who participated in the study shared their view that immunization services were due to COVID-19 especially during the earlier months due to imposition of lockdowns leading to discontinuation and disruption of services. These findings were in line with the study conducted in South-East Asian Region (SEAR) which infers that 95% of countries reported vaccination disruption and the reason behind this to be fear of infection, travel restrictions and limited access to healthcare.[16]A cross sectional survey conducted among pediatric practitioners in Lebanon revelled that utilization of vaccination services at the national level decreased by 31%. In the private sector, immunization services provision diminished by 46.9%.[17] This finding was comparable to our study finding where the participants highlighted that impact was almost similar in both individual and institutional level.

All the interviewed participants mentioned the notable decline in the volume of immunizations performed at their clinical settings due to lack of access. This finding was in line with the Survey Conducted by Imprint—The Immunizing Pregnant Women and Infants Network which identified access issue and provider issue to be the reason for impact of immunization service during the pandemic.[18]

An expert review by Janet Sultana et al states that influenza, pneumococcal and tuberculosis vaccines are being considered for their potentially beneficial role in preventing or improving the prognosis of COVID-19 vaccines and a metanalysis done with 23 published articles with 1,037,445 participants showed that influenza vaccination was associated with reduced risk of COVID-19 infection.[19,20] On par with the above findings most of our study participants narrated that parents enquired about certain optional vaccines which were not part of the universal immunization program (UIP) such as Flu and Pneumococcal vaccine. They believed that there were certain

changes in the demands for these vaccines during Covid-19 pandemic.

Although we could observe mixed response among our study participants regarding adaption to various technology enhanced mediums of clinical services in the middle of pandemic, a systematic review about the role of telehealth during COVID-19 outbreak urged the need of telehealth in minimizing the risk of COVID-19 transmission by avoiding direct physical contact thereby providing continuous care to the community.[21]

The contextual narrative also revealed that there is need for facility-level changes to be brought in to ensure immunization services during pandemic, training the healthcare providers for upskilling and preparedness during pandemic and newer methods adapted by the institutions to continue immunization services. There are few studies which have emphasized the need for facility level protocols such as infection control procedure/precautions like proper sanitation measures, using personal protective gears in immunization tracking and need for newer methods like reminders and recall for needed vaccinations.[22,23]

CONCLUSION

This study presents novel qualitative data from pediatric practitioners from both individual and institutional setups about immunization services during COVID-19 pandemic from Chennai, South India. The findings give significant information about the disruption of immunization services due to COVID-19 especially during the earlier months due to imposition of lockdowns leading to discontinuation and disruption of services, decrease in volume of immunizations, modest transition to telehealth service delivery, facility-level changes brought in to ensure immunization services, capacity building measures for upskilling. These findings need to be understood and leveraged to be future ready and prevent further disruptions by identifying and scaling up key solutions piloted in this study.

LIMITATIONS

This is the first qualitative study undertaken to explore the difficulties faced by the pediatric practitioners from Chennai, South India with respect to immunization services during COVID-19 pandemic. Thus, it captured qualitative inputs from only 21 specialists and study findings may be applicable to this setting alone.

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