

RESEARCH PAPER

How do parents and pediatricians arrive at the decision to immunize their children in the private sector? Insights from a qualitative study on rotavirus vaccination across select Indian cities

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ABSTRACT

Key debates on improving vaccination coverage tend to focus on factors that affect uptake in the public health system while ignoring the private sector that plays an important role in providing health services in any low or middle-income country setting. Using in-depth interviews, we explored factors that influenced the decision of parents as well as pediatricians working in the private sector across 8 Indian cities on whether their children should be vaccinated with a particular vaccine. Pediatricians and their relationship with parents was an important factor that influenced the decision on whether parents vaccinated their children with a particular vaccine or not. The decision to recommend a vaccine is taken on the principle that it is better to be safe than sorry than on any objective assessment of whether a child requires a particular vaccine or not. Family members and social factors also played a major role in the decision-making. According to some parents, vaccinating their child added an aspirational value to their growth. This is especially true of the newer vaccines that are considered optional in India. The cost of a vaccine did not come up as an inhibiting factor in the decision to vaccinate a child. Access to appropriate evidence was limited for both pediatricians and parents and evidence per se played a minimal role in the final decision to vaccinate a child or not. Far more important were the influences of factors such as relationship with the pediatrician, the role of decisions related to vaccination taken by people in the immediate social network.

ARTICLE HISTORY

Received 27 April 2016
Revised 15 July 2016
Accepted 29 July 2016

KEYWORDS

decision; immunization;
India; private; vaccination

Introduction

Vaccines are considered to be among the most potent preventive interventions in modern medicine. Ever since the first use of smallpox vaccine by Edward Jenner in 1796, vaccines have played an important role in the control and eradication of various diseases. Vaccine preventable diseases continue to contribute to a large proportion of under-5 deaths in southeast Asia.¹ India's national immunization program also known as the Universal Immunization Programme (UIP) has evolved since the late 1970s with the addition and removal of some vaccines along the years.² Currently the UIP provides vaccination for Diphtheria, Pertussis, Tetanus, Polio, Tuberculosis, Measles, Hepatitis-B, Japanese Encephalitis, and Pneumonia caused by Haemophilus Influenzae type-b.³ In addition to the present schedule of vaccines in the UIP, the national government announced in 2014 that 4 more vaccines would be added to the UIP,⁴ rotavirus vaccine being one of them. Access to vaccines not on the UIP is currently only available through pediatricians practicing in the private sector. Further, the coverage of existing vaccines under the UIP has been variable with nearly half of India's children not being fully vaccinated.^{5,6}

The Indian health system comprises of a mix of public and private services providers. India's private sector is sought out for care and treatment by a huge segment of its population.

According to an earlier estimate, 80–85% of physicians are employed in the private sector and 80% of outpatient visits in India are to private clinics.⁷ While preventive services including vaccination are considered to be state priorities delivered largely through the public health system, the sheer number of those who access the private sector entails the active involvement of private providers if immunization targets at the population level are to be achieved. According to NFHS-III (National Family Health Survey), the private sector remains the mainstay of health care for households in urban areas in India (70%).⁸ However the private sector is generally left out of key debates on preventive health care, including immunization; immunization is conceived to be the realm of the public health system. Given the reality of the reach of the private health sector in India, it is important that the guiding factors for the uptake of immunization by different stakeholders in this sector and the key factors that influence such decisions are studied.

Anecdotal evidences suggest that uptake of newer vaccines in private sector is mainly driven by prescription practices of physicians, their interpersonal relationship with the clients and affordability patterns of the clients. Since the rotavirus vaccine is not yet a mandatory vaccine, given the crucial role of the health care provider in defining the consumption of the vaccine, the final decision to accept or deny the advice regarding

rotavirus immunization rests with the child's parents and is an outcome of various intrinsic characteristics such as their affordability, education levels, health seeking behavior and others. This article explores the various factors influencing decision-making processes related to the choice of vaccination for a child among parents and pediatricians who work in the private health care sector in India, in the context of currently available rotavirus vaccines.

Results

Profile of participants

In total, 38 parents of children who were eligible for rotavirus vaccination, 22 pediatricians and 3 key informants from across 8 cities in India were interviewed for this study. Parents who participated were in the age range of 25 to 34 y of age and with their educational qualifications ranging from high school pass outs to those with post-graduation educational qualifications. Most participants in our study had 2 children and were aware of the benefits of vaccinating their children. Providers were typical doctors with post-graduate qualifications in pediatrics and had been practicing in their clinics for an average period of 3 y and above.

Immunization practice in the private sector

When asked to describe the prevailing practice regarding immunization in their clinic, pediatricians across the various sites stated that they insisted on vaccines in the UIP list. In addition to these, vaccines recommended by the Indian Academy of Paediatrics Committee on Immunization (IAPCOI) were recommended for each child as an ideal benefit to him/her. However, vaccines on this list seemed to have a secondary, albeit a highly recommended, status in the assessment of pediatricians. Even if parents refused to accept IAP-recommended vaccines, many pediatricians felt that this was fine, but the same was not the case if any parent refused the vaccines on the UIP list.

"I insist that they vaccinate their child with all vaccines on the mandatory list. After that it is up to them whether they want to go for the IAP (Indian Academy of Paediatrics) list. I tell them that it is good if they give these vaccines also. But if a patient does not want to give a vaccine on the IAP list then we can't insist."

Pediatrician, Surat

Relationship with pediatrician and their recommendations about vaccination

This emerged as the single most important factor that influenced the behavior of parents when it came to making choices about vaccinating their children. Most parents who participated referred to their relationship with the pediatrician and their perception of his/her clinical acumen as a key factor in the decision whether to accept or reject a particular vaccine or a course of treatment for their child. Relationships with the pediatrician were formed primarily based on prior experience of treatment results and the manner in which the pediatrician interacted with their patients. A positive and friendly relationship with the pediatrician facilitated adherence to their recommendations regarding vaccination

without questioning. One parent who chose not to vaccinate her child with rotavirus vaccine described her choice as a result of the pediatrician not recommending the vaccine for her child, emphasizing that had he recommended it, she would have gone ahead and got her child vaccinated.

In cases where the relationship was not very cordial, many parents chose to seek secondary opinions with their peers or other family members about their choices and decisions regarding a particular vaccination for their children. Based on the discussion with their friends or relatives regarding the benefit of the vaccine, they chose to either heed or ignore the advice of their pediatrician. In some cases, we also came across parents who changed their pediatrician because they felt that this particular doctor was prescribing more drugs/vaccines when compared with other pediatricians, as confirmed by their friends or relatives.

"We are satisfied with whatever he says so there is nothing like asking questions and all. Whatever he says you have to give this vaccine, you have to give that."

Parent, Mumbai

"My doctor only told me not to give. He said that there is no use in giving this vaccine and he had not given it to his own daughter. When my doctor itself says that then why will I give it to my child? Whatever he told us to do we have done that."

Parent, Surat

Behavior of peers and other family members

Following the relationship with their pediatrician, the behavior of peers and family members with regard to choosing vaccines for their own children had an impact on how parents made their own choices. Peers had a greater influence among upper middle class and middle class families, whereas family members seemed to have a greater influence on families coming from a lower socio-economic background. One probable reason for this was the fact that participants from a lower socio-economic background lived either in joint families or in close proximity to other family members, whereas participants from a higher economic background were primarily nuclear families who had migrated to the city for work and were living by themselves. Participants described how the choice of particular vaccines or treatments by their peers or family members influenced them by either providing supportive evidence to accept a particular vaccine or in creating doubt about whether a vaccine recommended by their pediatrician was really required for their child.

"They are more amenable to take a vaccine if they have heard that their friend's children or relatives children have taken it."

Pediatrician, Kolkata

"If someone in the family has done it then we will do it for our child also."

Parent, Kochi

Better be safe than sorry principle

An interesting factor that seemed to influence the decision of parents, and to some extent pediatricians, was the principle of 'being safe rather than sorry'. Most pediatricians described how

if a vaccine was available for a particular condition, they offer the vaccine to every child who came to their clinic, irrespective of whether a particular child was more or less prone to the disease in the first place. In fact, in the case of rotavirus vaccine, none of the pediatricians who participated in this study referred to any assessment of risk of the child for diarrheal disease before offering the vaccine to his/her parents. One pediatrician who spoke about this issue in greater detail mentioned that it was not practically feasible to make risk assessments regarding diarrheal disease for each individual child who stepped into his clinic. Thus all available vaccines were routinely offered to any child who visited the clinic and it was considered better to vaccinate him/her even if that child was not at great risk of the disease in the first place, than to take the risk of the child not being prone to the disease and hence, not offering an available vaccine. The same principle seemed to work with parents who pointed out that when they were strongly advised a particular vaccine by their doctor, they were not comfortable taking a chance with their child even if they knew that the risk of that particular disease might not be high for their child.

Aspirational value for vaccines

One major concern for the newer vaccines (rotavirus vaccine, pneumococcal vaccine, influenza vaccine and others) not available through UIP, but available in private sector, is their cost. Cost has been documented as a barrier to immunization.^{9,10} However, this did not come up as a barrier in our study. Although some pediatricians claimed that cost, even a minor amount, was an influencing factor for decision-making among parents, none of the participating parents brought up cost as a major impeding factor. All participants, including those from lower socio-economic backgrounds, pointed out that they would not take a chance with their child's health and if a particular vaccine was expensive but recommended, then they would be more than willing to sacrifice something for themselves and raise the required money to purchase the vaccine, rather than forego a vaccine purely for the sake of its cost. Even participants who complained about the high cost of specific vaccines such as Pneumococcal conjugate vaccine (PCV) had ensured that they had given the vaccine to their children even if it meant tightening their finances temporarily. The moral value of parental obligation in motivating them to vaccinate their children has been documented in similar settings in India¹¹ and this value seemed to override considerations of cost even if this meant brief financial distress.

"Even if it means we have to forego something, we will not compromise giving our child a vaccination for that. If it is good for the child then we will go ahead and do it even if it is costly."

Parent, Chennai

On this issue, one pediatrician mentioned that he was yet to come across someone who refused a vaccine because it was expensive. He felt that even among those who belonged to a lower socio-economic background, where cost would be a consideration, there was an aspirational value attached to vaccinating their child. This, he felt, was an important reason as to why parents continued to purchase vaccines even if they were expensive.

"You see, people from poor families have this aspirational value. I have seen this in my practice. People want their wives and daughters to deliver in a private nursing home with, of course, the presumption that private equals quality something they could not afford. Then, the next thing is vaccines for the newborn child. They want to give the best vaccines to their children. And following this they will then aspire for a private English medium school once the child grows up. So this aspirational value has a role to play I would say."

Pediatrician, Bangalore

When queried about this issue, a key informant with several years of experience with the health system in India agreed that aspiration plays an important part in the choices made by people and it was entirely possible that this had a role to play with the choice of newer vaccines by those who might not be able to fully afford them.

"Yes it is entirely possible that the aspirational value of getting a new vaccine for their children has a role to play in deciding to get a new vaccine."

Key Informant, Academic institution

One way in which private pediatricians tried to navigate concerns regarding cost was to encourage the parents to visit public health facilities in the area to access vaccine that were offered free of cost under the UIP and to then visit them for those vaccines that were not part of the UIP. Such selective procurement of services from the public and the private health care network has been documented in the past as a means of obtaining services in an environment where public hospitals co-exist with private health care facilities.¹²

The role of information in decision-making

While describing decisions regarding vaccinating their children or not, parents from the upper middle class families referred to the use of Internet as a means of cross-checking details about a vaccine, its efficacy and side effects. A few of the participants referred to the MMR controversy^{13,14} and wondered aloud if vaccines themselves could cause potentially harmful side effects or if their child could be one of those who suffered an adverse event after being vaccinated. Most of them referred to using the Internet to find information on vaccines, a phenomenon that has been documented in other contexts.¹⁵ When queried about how they ensured the reliability of the information, most of those who discussed this issue were unsure of an answer. Some mentioned that if the site claimed to be run by a medical professional, they felt it was potentially offering correct information.

"There is this whole issue about MMR vaccine, right and autism. How far is this true?"

Parent, Bangalore

"R: I check up online about vaccines and see what it is said there..."

I: How do you ensure that the information you are reading online is correct?"

R: Hmm...well I see if the site is run by a doctor or by some good agency...then I feel it would be correct...don't you think so?"

Parent, Chennai

With reference to rotavirus and other newer vaccines, some of the doctors who participated in our study pointed out that they hardly had any evidence to understand the various claims

and counter claims that were being made regarding particular vaccines and their efficacy. One pediatrician described that after medical school, most of the data that he had access to, were those that pharmaceutical companies provided him at his clinic. However, he also opined that such data could potentially be biased since there was an obvious conflict of interest between the manufacturer of a drug or vaccine providing information on its efficacy and effectiveness. Another pediatrician while discussing this issue pointed out that at present neither her nor her friends, who were also practising in the city, made use of any data while taking decisions regarding what course of treatment to offer a particular child or not. This issue came up across various cities and pediatricians when probed about how they made decisions without referring to any updated evidence base as part of their clinical decision making process. Reasons for this included the lack of access to latest research findings other than those made available by pharmaceuticals and professional associations such as IAP or IMA (Indian Medical Association). While a key informant from the pharmaceutical industry mentioned that they did make efforts to compile and make available peer-reviewed literature on specific vaccines to health care providers, those who participated in our study refuted this claim pointing to promotional materials provided by pharmaceuticals as the primary source of information that was accessible for clinicians in the private sector

“The engagement with health care providers is at two levels. One is the promotion of science where published literature from peer-reviewed indexed high impact journals is compiled, synthesized and articulated with them. Second is product information—here latest evidence on disease, its burden, potential impact of intervention/product is discussed and shared with them.”

Key Informant, Pharmaceutical industry

“Sir the leaflets that I use in my clinic and the material that I have on this vaccine actually they are all given to me by the manufacturer itself. Other than that I do not have access to any published papers or so.”

Pediatrician, Chennai

“See I can tell you that neither me nor my friends who are practising have any access to all this data from research. Where do we go and access it? So in actual practice we do not use such data to take decisions. We purely go by our clinical knowledge and experience that’s all.”

Pediatrician, Bangalore

“Who uses such evidence in the private sector? Even the evidence we have, most of it is from western countries. Where do we have good local evidence that is available for doctors in the private sector to access? We don’t have such evidence available. In the case of Rotavirus we are lucky that here we have the Kolencherry study¹⁶ that gives us local findings but even that how many doctors are aware of the findings in the private is a big question.”

Pediatrician, Kochi

Discussion

People in general arrive at decisions after taking into account a host of factors including personal values, likes and dislikes, information available with them, influence of those in their immediate social networks, financial feasibility etc. and this is

true of the decision to vaccinate or not. Among the various factors that we explored in our study, arguably the most important factor that influenced the decision of parents was the relationship they had with their pediatrician. Previous work has shown that health care workers including physicians are considered as a highly reliable source of information regarding vaccinations¹⁷ and positive recommendations from physicians typically increases the uptake of a particular vaccine in the population.¹⁸⁻²⁰ Our study further adds to this by showing that a positive doctor-patient relationship was essential for patients’ adherence to clinical advice offered by physicians with regard to vaccinating their children. Hence pediatricians need to ensure that their patients are able to discuss their concerns and get their queries answered in a welcoming, non-threatening environment. For this to happen, doctors need to be trained not just in clinical skills but also in soft skills that would promote more positive doctor-patient relationships, particularly good communication skills, rather than the unequal power relationship that generally exists. Professional associations and medical councils should step in by including such training as part of the medical curriculum for graduates and refresher programs for practicing doctors.

Evidence-based clinical practice has been of great focus in the last few decades especially in the western world. While this might be accepted as the ideal manner of conducting clinical practice, the reality in the developing world is such that access to evidence is always restricted. This is especially the case with private practitioners in small clinics and hospitals. While every doctor who participated in this study agreed about the importance of using the latest evidence to inform their practice, most of them pointed out that the only evidence they had practical access to were pamphlets provided by pharmaceutical companies. Parents today have access to multiple sources of information on their health and well-being, but it is not clear how they make sense of conflicting pieces of information regarding vaccines, how they prioritize one source of information over the rest or identify reliable sources from fake ones and take a decision. As it stands today, the plethora of conflicting information available on the health of their children seems to add to the doubts and queries of parents, rather than promoting scientific and sound decision-making with regard to vaccinating their children. It is precisely at this point that a pediatrician who is well informed with the latest evidence can act as someone to whom parents can turn to in order to get their doubts and worries resolved and be provided with the latest clinical advice on what is best for their children. Hence there is an urgent need to consider how latest evidence can be made available to physicians in order to inform their daily practice. This would enable doctors not just to prescribe the latest therapeutics, but also provide information to their patients in order to clear their doubts and support their decision-making process.

Cost has been documented as a key barrier for access to clinical care including immunization.²¹⁻²³ However, in our study we did not come across this as a key factor. Participants overcame financial barriers to vaccinate their children by prioritizing vaccinations over other things. While investigating if this constitutes catastrophic expenditure that could have adverse implications on aspects of their lives is beyond the scope of this study, what does emerge is that when it comes to vaccinating

their children, cost does not figure as a key impediment. Various ways, including selective procurement of services from both the public as well as private health care facilities were utilised to ensure that children were immunized with all vaccines that were recommended by their pediatrician.

The educational level of parents did not come up as an influential variable in our sample as parents were keen to give the best to their child irrespective of education levels. This could also have been the case due to the fact that our sample was entirely drawn from urban centers where awareness related to vaccines was high and all participants had a basic level of education.

It would be useful for pediatricians to remember that an individual parent has to negotiate decisions regarding the child's health under the influence of these social circles. Hence, understanding the accepted behaviors in the parents' social circles with regard to vaccinations, including concerns about vaccines, would help to identify and potentially address influences beyond their own agency that might have an impact on their patient's choice. Awareness of vaccine preventable illnesses and the benefits of vaccination alone are not sufficient to support parents in deciding whether they should vaccinate their child against a particular illness or not. Families take decisions related to vaccination as a result of the interplay of various factors. The idea that greater awareness alone would lead to greater adherence has had great influence in determining program and policy directions while promoting immunization programmes. In particular, Fisher's model of Information Motivation and Behavioral skills has been influential in developing our belief that well informed people who are motivated to act and possess behavioral skills to take action would take optimal decisions about their health when presented with all facts.²⁴ However, this is not necessarily true in the real world and our results bear testament to the fact that in addition to information and awareness, other factors in the social environment influence the decision to vaccinate. Even those participants who had vaccinated their children did not do so purely based on facts, but as a result of a combination of various influences including behavior within their social circles with regard to vaccinations, relationship with their pediatrician as well as a strong sense of parental moral obligation. Hence, programs that aim to improve immunization coverage should take into account these factors and not merely focus on providing more information about a disease in the hope that such information alone would facilitate the decision to vaccinate. It is worth nothing here that while we have focused on how decisions to vaccinate children were taken using qualitative data, the statistical significance of these factors, can be measured objectively but is beyond the scope of this paper.

Methods

Data for this study were collected during fieldwork conducted across 9 cities in India between August 2014 and February 2015. In order to identify appropriate participants for the qualitative arm, stratified purposive sampling was adopted. Based on Intercontinental Marketing Services (IMS) rotavirus vaccine sales audit data of 2012 in the private sector, cities were classified as having high, medium or low uptake. In each category, the top 3 cities were selected and pediatricians registered with Indian Academy of

Pediatrics (IAP) and working in the private sector were contacted and invited to participate in the study. Those who agreed to participate were also requested to facilitate access to the parents of children who were either eligible for rotavirus vaccination or had accessed the vaccine in the preceding 6 months. Members of the research team visited the clinics of those who had agreed to participate and interviewed pediatricians. During visits to each clinic, the research team randomly selected parents of children visiting the clinic who matched the criteria for inclusion and who agreed to participate in the study. The clinic was revisited the following day in case adequate parents or caregivers matching the criteria were not found on day one. Additionally, a list of key informants was drawn purposively through snowballing. These included representatives from technical agencies, Ministry of Health and Family Welfare as well as the pharmaceutical industry (Refer Table 1).

The interview topic guides were piloted among a group of pediatricians and parents and checked to ensure the validity of the key questions that the study sought to answer, phrasing of the questions, understanding them and whether the topic guide covered all areas that they felt were relevant to their experience of getting their child immunized. Feedback of the participants of the pilot phase helped to further refine the topic guide. Members of the team with prior experience of conducting qualitative research conducted the interviews. Interviews were conducted in separate closed rooms in the clinic to ensure that the respondents spoke freely about the topics that were discussed, with no fear of being overheard or seen by the clinic staff during the interview. Data collection was carried out until saturation was observed across the various themes that were explored with the participants.

Interviews were digitally recorded, transcribed verbatim and then translated into English to produce the final transcripts used for the analyses. These were then crosschecked for any omissions or errors by the researcher (including listening to the original recording) and necessary corrections were made. In addition to interview transcripts, the researcher maintained detailed field notes during the entire period of fieldwork. Data captured in the field notes included observations at the clinic as well as discussions and observations made by the participants and staff at the clinics. The data from these field notes were coded and accounted for in the analyses. All data were uploaded on to Atlas ti 7.2. A reflexive and inductive approach was utilized to code the material allowing the codes and categories to emerge from within the data rather than an apriori identification of categories.

Table 1. Sampling framework.

Category	Locations	Doctors	Parents
High	Mumbai	4	6
	Hyderabad	2	6
	Kolkata	3	5
	Total	9	17
Medium	Bangalore	3	3
	Chennai	3	6
	Bhopal	2	2
	Total	8	11
Low	Kochi	3	6
	Surat	2	4
	Total	5	10
Key Informants	Delhi	3	

Ethical approval was obtained from the ethics committee of the Indian Institute of Public Health Delhi at the outset. All participants were briefed about the nature of the study and written consent was obtained prior to beginning data collection.

Limitations

There are limitations to our study that are worth highlighting in this paper. Since we focused on the practice of rotavirus vaccination in private health centers located in urban India, it is possible that some of the factors that influence the decision-making including barriers such as distance, accessibility or cost might have been missed. More importantly, it is also possible that we could have potentially come up with some other factors that would have been presented if we had expanded our study to include other vaccines, especially the MMR vaccine on which there has been considerable controversy in the past.¹⁴ Further since the pediatricians who participated in our study were members of IAP and the academy had taken a positive stance with regard to rotavirus vaccine, it is possible that our sample had more pediatricians in particular who were favoring the vaccine that those critical about it.

Nevertheless, we feel that our findings add to the evidence on how decisions are taken with regard to vaccination of children especially in the private sector and present greater detail on factors that influence this decision adding value to the decisions of policy makers and program managers who are keen on improving immunization coverage in their places where the private sector has a huge role in providing health care services.

Ethics approval and consent to participate

The study received ethics approval from the institutional ethics committee of the Indian Institute of Public Health Delhi. Both the protocol as well as the topic guides used for data collection were reviewed by committee and approved. Further, the study did not collect and does not report any personal identifiers of any participant. Signed consent was obtained from all participants.

Disclosure of potential conflicts of interest

No potential conflicts of interest were disclosed.

Acknowledgments

We would like to thank all paediatricians and their clients who spared us time in the middle of their busy schedules and shared with us their experiences with regard to vaccinating children.

Funding

This study was funded through a sub-grant that was part of a larger grant provided by the Bill and Melinda Gates Foundation to the Immunisation Technical Support Unit at the Public Health Foundation of India.

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