

Original Research Article

Awareness and attitudes of mothers towards new vaccines in the childhood vaccination programme in Delhi state: a cross sectional study

Reema Mukherjee¹, Manisha Arora^{2*}, Atul Kotwal², Poonam Hooda²

Department of Community Medicine, ¹Armed Forces Medical College, Pune, Maharashtra, ²Army College of Medical Sciences, Delhi, India

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*Correspondence:

Dr. Manisha Arora,

E-mail: manishaandarora@gmail.com

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ABSTRACT

Background: With the introduction of newer antigens in the childhood immunization programme in several states, the nationwide UIP is eventually going to be further expanded to increase the number of diseases against which children will be protected through the vaccination programme. However, despite the best intentions of the government, a poor awareness of the new vaccines among the caregivers may defeat this purpose and only result in poor coverage and poor uptake. This study was carried out to assess the awareness of mothers regarding the new vaccines introduced in the childhood vaccination programme in Delhi State.

Methods: The study was conducted in the immunization clinic of a tertiary care hospital of Delhi. A total sample of 388 mothers was interviewed. The data was analyzed using SPSS ver 20.

Results: Only 18.3% (95% CI, 14.76-22.46) of the participants were aware that newer vaccines have been introduced into the programme. 48.2% (95% CI 43.27- 53.16) of the respondents were unaware about the same, while 33.5% (95% CI, 28.99-38.35) claimed to have heard about it but were not sure whether newer vaccines had been introduced. It was observed that as the education status of mothers improved, their awareness regarding newer vaccines in the programme also increased. The knowledge regarding age of administration, number of doses etc. was very poor. However multiple pricks during a single vaccination visit was not a disincentive for the mother to get the child vaccinated. The willingness to buy a vaccine that was not available free of cost from the hospital, increased with increasing education level of the mother.

Conclusions: There is a requirement of focused publicity campaigns to increase the awareness and thereby uptake of the new vaccines among caregivers.

Keywords: Newer, Vaccines, Awareness, Attitude

INTRODUCTION

Childhood vaccination is one of the important public health policies of the government of India, which has the potential to affect millions of lives. However, this important health aspect has only in recent times seen increased government investment.^{1,2} With the introduction of newer vaccines in several states, the nationwide UIP is about to be further expanded

eventually to include these newer antigens.³ While the pros and cons of introduction of each new vaccine into the childhood immunization programme has been hotly debated, what is pertinent is that the government has chosen to increase the bouquet of vaccines being offered without trying to increase the immunization coverage which is presently only around 44%.⁴⁻⁷ The proponents of a National Vaccination Policy have questioned the government's move while also stressing on the

importance of having quality data on disease burden and associated factors before pushing for the introduction of newer vaccines into the vaccination programme.^{4,7} Notwithstanding, Delhi is one of the states where several new vaccines were introduced into the immunization programme. Mere introduction of newer vaccines without sufficient awareness regarding the same in the community, may at times impede the gains any childhood immunization programme aims to achieve. Several authors have studied the reasons behind the low immunization coverage in India, and though the main reason appears to be low government spending in this sector, another important identified gap is the poor demand for the vaccines.^{8,9} The reasons for that could range from poor awareness, limited access to health care services or also a distrust in the childhood vaccination programme or anxiety due to the apparent side effects of the vaccines. With the introduction of newer antigens in the childhood immunization programme in several states, there is a need to assess the awareness among parents regarding the revised schedule and acceptability of the newer vaccines.

This study was carried out to estimate the awareness regarding newer vaccines introduced in the vaccination programme in the state of Delhi among parents attending the immunization clinic in a tertiary care hospital in Delhi and to assess the acceptability of the newer vaccines.

METHODS

This observational study was carried out in the immunization clinic, of a large tertiary care hospital located in Delhi, providing services to serving and retired soldiers including families and defence civilians. The study was carried out from Aug to Dec 2016. To ensure maximum sample size, the expected awareness of newer vaccines was kept at 50%, alpha error -05%, absolute error -05%. The sample size calculated was 384, final sample included in the study was 388. Study subjects were the mother/parent of a child upto 10 years who attended the immunization clinic. All mothers/parents who agreed to be a part of the study were included in the sample. Written informed consent was obtained from all participants. The mothers were interviewed while they were awaiting their turn in the immunization clinic. Ethical clearance was obtained from the Institutional Ethics Committee before conduct of this study.

A pilot tested and pretested questionnaire was used for assessing the acceptability of newer vaccines. Questionnaire was prepared in English and was administered by trained Medico Social Worker from the Dept of Community Medicine, Army College of Medical Sciences, Delhi. Data were collected by face to face interviews of mothers along with verification of immunization records. A data base was created in MS Excel and data were entered and checked for inaccuracies. Analysis was carried out using SPSS ver 20.¹⁰

RESULTS

Table 1 depicts the baseline characteristics of the children brought for immunization and their parents/mothers. Most of the children brought to the immunization clinic were in the age group of 18 months to 05 years followed by less than 03 months' age group.

Table 1: Baseline characteristics.

Characteristics	Frequency (%)
Age (months)	
Less than 3	100 (25.8)
>3- <6	50 (12.9)
>6-<9	40 (10.3)
>9-<12	15 (3.9)
>12-<18	61 (15.7)
>18-<60	109 (28.1)
> 60	13 (3.4)
Total	388 (100)
Gender	
Male	240 (61.9)
Female	148 (38.1)
Total	388 (100)
Mother employed	
Yes	34 (8.7)
No	354 (91.2)
Total	388 (100)
Mother education	
Illiterate	0
1-5	2 (0.5)
6-12	122 (31.4)
Graduate	173 (44.6)
Postgraduate	91 (23.5)
Total	388
No of children in family	
1	141 (36.3)
2	222 (57.2)
3	22 (5.7)
4	2 (0.5)
Twins	1 (0.3)
Total	388 (100)
Accompanied by	
Father	26 (6.7)
Mother	99 (25.5)
Both	263 (67.8)
Total	388 (100)

Table 2 depicts awareness regarding the newer vaccines introduced in the childhood immunization programme in Delhi State. Only 18.3% (95% CI, 14.76-22.46) of the participants were aware that newer vaccines have been introduced into the programme. 48.2% (95% CI 43.27-53.16) of the respondents were unaware about the same, while 33.5% (95% CI, 28.99-38.35) claimed to have heard about it but were not sure whether newer vaccines had been introduced. It was observed that as the

education status of mothers improved, their awareness increased ($p=0.000$).
regarding newer vaccines in the programme also

Table 2: Awareness regarding newer vaccines and mothers education status.

	Not Aware N (%)	Maybe N (%)	Aware N (%)	Total
Upto class 12	85 (68.5)	37 (29.8)	2 (1.6)	124 (100)
Graduate	76 (43.9)	67 (38.7)	30 (17.3)	173 (100)
Post Graduate	26 (28.6)	26 (28.6)	39 (42.9)	91 (100)
Total	187 (48.2)	130 (33.5)	71 (18.3)	388 (100)

Table 3: Awareness regarding newly introduced vaccines.

		PENTA N (%)	TYPH N (%)	MMR N (%)	IPV N (%)
Diseases it protects	Correctly identifies	64 (16.5)	67 (17.3)	97 (25)	80 (20.6)
	Not aware	324 (83)	321 (82.7)	291 (75)	308 (79.4)
	Total	388 (100)	388 (100)	388 (100)	388 (100)
Age given	Aware	63 (16.2)	62 (16)	94 (24.2)	77 (19.8)
	Not aware	325 (83.8)	326 (84)	294 (75.8)	311 (80.2)
	Total	388 (100)	388 (100)	388 (100)	388 (100)
No of doses	Aware	64 (16.5)	61 (15.7)	93 (24)	75 (19.3)
	Not aware	324 (83.5)	327 (84.3)	295 (76)	313 (80.7)
	Total	388 (100)	388 (100)	388 (100)	388 (100)

Table 4: Non-availability of newer vaccine from Govt source.

Reaction	Frequency	Percentage (%)
Pay self	314	80.9
Wait only if schedule not delayed	34	8.8
Will not get child vaccinated OR wait for it to be available from the hospital	40	10.3
Total	388	100

Table 5: Reaction on non-availability of newer vaccine and mothers education status.

	Will pay N (%)	Will wait only if no delay N (%)	Will wait even if delay OR will not vaccinate N (%)	Total (%)
Upto class 12	93 (75)	19 (15.3)	12 (9.7)	124 (100)
Graduate	139 (80.3)	12 (6.9)	22 (12.7)	173 (100)
Postgraduate	82 (90.1)	3 (3.3)	6 (6.6)	91 (100)
Total	314 (80.9)	34 (8.8)	40 (10.3)	388 (100)

Table 3 shows the awareness regarding different vaccines introduced in the childhood immunization programme on three aspects, the disease/s it protects against, the age at which it is first given and number of doses required for complete immunization. Awareness on all three aspects was highest for MMR vaccine (25%, 24.2% and 24% respectively) followed by IPV vaccine (20.6%, 19.8%, 19.3%). Despite pentavalent vaccine having been introduced before IPV, awareness regarding pentavalent vaccine was lowest.

Table 4 shows the reaction of mothers to non-availability of the newer vaccines from the government, which are available free for all children. Almost 80% of the mothers said that they are willing to pay in case of non-availability of the vaccine.

Table 5 depicts the reaction of mothers to non-availability of free vaccines when analyzed against mothers' education status. The higher the mothers' education status the more willing they were to buy vaccines when not available free from the government sources ($p=0.009$).

55% of participants claimed that multiple pricks during one immunization visit did not worry them and 42% were either slightly concerned or somewhat concerned about multiple pricks to the child, less than 1% of participants were extremely or moderately concerned about multiple pricks.

DISCUSSION

In the present study, only 18.3% of the participants were aware that new vaccines had been introduced into the

childhood immunization programme in Delhi. Around 83% of them either had no awareness or were vaguely aware regarding the same. In a similar study carried out in Hyderabad a similar number of caregivers (80%) were unaware regarding the newer vaccines recommended as per the government immunization schedule in the state Andhra Pradesh.¹¹ A study carried out in Delhi, specifically about typhoid vaccines for children, revealed that around 60% of the caregivers had not heard of typhoid vaccine and were not aware it was a part of the immunization schedule in Delhi.¹² In our study, when the participants were specifically asked about the diseases prevented by the newer vaccines and the age of administration and number of doses required, it was seen though overall knowledge about these aspects was uniformly poor, however larger percentage of them (25%) had knowledge regarding MMR vaccine followed by IPV (20.6%) and typhoid (17.3%). Least knowledge/awareness was regarding pentavalent vaccine. This is surprising given the fact that pentavalent vaccines was introduced in the programme much before the IPV vaccine. In the study carried out in Hyderabad, more than half the parents were unaware regarding the diseases the vaccines confer protection against.¹¹ In a study carried out in the rural area of Telangana, India to assess the awareness of mothers regarding the newer vaccines in the immunization programme, only one third of the mothers were aware about pentavalent vaccination, one fourth about IPV and extreme low level of awareness (2%) was seen regarding rota virus vaccine. However, when questioned further most mothers were unaware of the doses of the vaccines required, the age of administration and the diseases it protects against.¹³ A similar situation was also observed in our study, despite this study being carried out in an urban area, in the capital of the country and the participants were educated. This only highlights the poor awareness in the community regarding the newer vaccines, in both urban and rural areas and across all socioeconomic strata and underlines the need for robust campaigns at the time of inclusion of vaccines in the programme that will increase the acceptance and uptake of these vaccines. In a similar study carried out in Taiwan, to assess the awareness of parents and caregivers regarding the newer vaccines, it was seen that only between 20% to 46% of parents could correctly identify the specific diseases the different vaccines prevented and these figures are like our findings.¹⁴ Mothers' education status was found to be significantly associated with awareness of newer vaccines. Similar findings have been reported from various studies carried out in India and other countries too.^{15,16} Mother's education status is usually associated positively with all aspects of children's health and related status. In the present study, 80% of the mothers were willing to pay for the vaccines, in case they were not available free through the government vaccination programme. In a study carried out in Delhi regarding awareness of typhoid vaccine among caregivers and physicians, it was seen that around 95% of the caregivers were willing to buy the vaccine incase required.¹² The willingness to pay for vaccines was significantly associated with mothers' education status in the present study ($p=0.009$). Our study findings indicate

high awareness of importance of vaccines in the minds of the parents/mothers in general which directly correlates with the education status of the parent.

In a seven-nation study carried out on the attitude of parents and health care providers on administration of new infant vaccine, 28% of parents indicated that they were comfortable with following their health care worker's recommendations, whatever it may be, while 15% were comfortable with only one injection and 42% with two injections.¹⁷ A study carried out on parental attitudes in Georgia, USA in 1996 when IPV vaccine was being first introduced into the childhood vaccination programme also revealed that parents are not concerned regarding multiple pricks to the child, in case the health care worker recommended the same.¹⁸ However, in a study carried out in Netherlands, to study the number of vaccine injections parents found acceptable in one visit, it was revealed that around 70% of the parents surveyed felt that three vaccinations during a single visit is 'too much' and they were only comfortable with the child getting two vaccines during a single visit.¹⁹ In a study carried out in South Africa, on the acceptability of three vaccines being given to infants during a single visit, overall acceptance of three injections was high, with 97% of caregivers expressing willingness to bring their infant for three injections again in future visits despite concerns about the pain and discomfort that the infant experienced.²⁰ In a systematic review carried out to study the parental and the health care providers concerns about multiple vaccines, it was noted that though parents were worried about multiple vaccines during a single visit, however as the recommendation for the number of vaccines to be administered in a single visit changed over time with the introduction of newer vaccines, the parents acceptance of the same also increased. Further, reassurance by the vaccine provider on this aspect, positively influenced the parents attitude. Though most of the studies included in the systematic review originated from high income group countries and especially USA, the relevance on the aspect of acceptability of multiple vaccines is universal.²¹ In our study, more than half of the mothers interviewed were not worried about their child receiving multiple pricks during one immunization visit and is thus not a disincentive to the mother in getting the child vaccinated. This may be due to belief in the mothers that administering multiple pricks even though painful will provide greater protection to the child's health espousing the 'no pain, no gain' ideology. Further research is required to dwell deeper into this aspect of parental attitude. As the vaccination programme is poised to further expand in the future, number of vaccines being administered in a single visit may increase. The importance of proper education and awareness to allay any fears that the parents may have is of utmost importance.

To the best of authors' knowledge, this is probably the first study to assess the awareness and acceptability of newer vaccines introduced in the vaccination programme in the Delhi state.

CONCLUSION

Despite the childhood immunization programme having been in existence for several decades now, the immunization coverage in India stands at a dismal 44%. The government's initiative to introduce newer vaccines has to be backed by simultaneous sustained publicity regarding the same. Across various settings, countries and socioeconomic strata, awareness regarding new vaccines is usually poor, as is evident from our study and discussion, and this in turn directly affects the uptake of the vaccines. A poor awareness and thus low uptake of vaccines will eventually negate whatever gains the government hopes to make in the field of child health.

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