

**Short Commentary***Open Access, Volume 3***How well informed are our parents about polio in today's communication rich environment?****Deepanjan Bhattacharya; Bhavneet Bharti\****Department of Pediatrics, Advanced Pediatric Centre, Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India.***\*Corresponding Author: Bhavneet Bharti**

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**Abstract**

**Objectives:** Pulse Polio Immunization, launched in 1995, aimed for 100% coverage of polio vaccine and has resulted in eradication of the disease from India, while improving herd immunity. However, the level of awareness among the caregivers of vaccinees, is unclear, although it is of paramount significance for the overall success of the programme. This study was conducted to assess the awareness, knowledge and opinion of parents and other caregivers of vaccinees regarding Pulse Polio Immunization.

**Methodology:** This observational cross-sectional study was carried out during Pulse Polio Immunization in January 2018. Guardians of vaccinees were interviewed using a pre-designed, pre-tested questionnaire.

**Results:** Out of 566 guardians of vaccinees interviewed, mean score was  $2.77 \pm 2.06$  out of maximum 9. Only 38.5% knew that polio is caused by virus and 14.8% could state the correct mode of transmission. However, 97.9% were of the opinion that polio is a vaccine preventable disease. Nearly 40% were aware that India is polio free but no one could state the correct schedule of OPV. When asked to rate Pulse Polio Immunization programme on a scale of 10, mean rating was  $7.56 \pm 2.54$ . Higher education status, income and socioeconomic status were associated with better scores and greater satisfaction ( $R=0.69$ ,  $0.46$  and  $0.67$  respectively). Guardians with fewer children also had higher scores and satisfaction. Score directly correlated to satisfaction ( $R=0.52$ ).

**Conclusions:** Although we have come a long way in immunization against poliomyelitis and have been successful in its eradication, awareness still remains one of the drawbacks among guardians of vaccinees.

**Keywords:** Awareness; National immunisation schedule; Pulse polio immunisation.

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## Introduction

Poliomyelitis is an infectious disease caused by single stranded RNA virus, poliovirus of the Enteroviridae family. It is transmitted through feco-oral route, with paralysis occurring in less than 1%. There is no specific treatment, and affected individuals have significant long term neurological morbidity.

Since human is the only known reservoir, it is possible to eliminate poliomyelitis by immunization.

Pulse Polio Immunisation was launched in 1995 aiming for 100% coverage of polio vaccine. It aimed at simultaneous immunization of all children irrespective of vaccination status on a single day, along with a high level of surveillance.

India achieved polio free status in 2016, following the last reported case of poliomyelitis in January, 2011.

Pulse polio immunization has been continued to improve herd immunity and reduce rates of indigenous transmission. The trivalent vaccine has been replaced with bivalent vaccine, after excluding type 2 strain which was associated with cases of Vaccine Associated Paralytic Polio (VAPP). Inactivated Polio Vaccine (IPV) has been introduced in the National Immunisation Schedule alongside the OPV.

Few studies have been conducted over the past 10 years, regarding the awareness about polio immunization and eradication among the general public and caregivers. The results have been far from satisfactory.

Hence, the level of awareness among general public, especially caregivers of vaccinees, is unclear, although it is of paramount significance for the overall success of the programme.

## Methodology

This was an observational cross-sectional study carried out during Pulse Polio Immunisation (28th – 30th January, 2018). Parents and caregivers of children being vaccinated were interviewed using a pre-designed pre-tested questionnaire, after taking an informed consent.

Socioeconomic status was assessed using Kuppuswamy scale 2016. Awareness was evaluated using a 9 point questionnaire, which included etiology, mode of transmission, mode of prevention, initiation of pulse polio immunization programme, vaccination schedule of for polio, brand ambassador and polio free status of the country.

Parents were asked to rate the success of pulse polio immunization on a scale of 1-10 (10 – very successful, 1 – not successful at all).

Data was entered in a Mastersheet. Statistical analysis was done using SPSS version 23. Quantitative variables were reported as mean (SD), median and inter-quartile range for skewed data and qualitative variables were reported as proportions. Comparisons were made by using student t test, ANOVA and chi square test, as appropriate. Correlation coefficient was obtained by Pearson's test. A p value of <0.05 was considered significant.

## Results

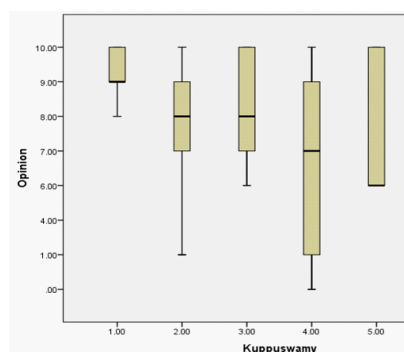
In our study 566 parents and guardians of vaccinees interviewed (Figure 1). Out of a maximum of 9, mean score was  $2.77 \pm 2.06$  (95% CI 2.75-3.25) (Table 1). Only 38.5% knew that polio is caused by virus and 14.8% could state the correct mode of transmission. Only 40.5% were aware that India is polio free while none could state the correct schedule of OPV in national immunization schedule. 62% identified Amitabh Bachhan as the brand ambassador, while the tagline was correctly stated by only 24.6%. However, 97.9% were of the opinion that polio is a vaccine preventable disease.

When asked to rate Pulse Polio Immunisation programme on a scale of 10, mean rating was  $7.565 \pm 2.545$  (95%CI 7.46-7.66). Score directly correlated to satisfaction ( $R=0.521$   $p<0.001$ ).

Higher education status and income were associated with higher scores ( $R= 0.692$ ,  $p<0.001$  and  $R=0.475$ ,  $p<0.001$ ) and better satisfaction ( $R=0.464$ ,  $p<0.001$  and  $R=0.676$ ,  $p<0.001$ ).

Number of children had inverse relationship to score and opinion ( $R=-0.495$ ,  $p<0.001$  and  $R=-0.315$ ,  $p<0.001$ ), i.e., people with less children had higher scores and better satisfaction.

Socioeconomic status (Kuppuswamy scale) had a direct influence on both score as well as opinion of parents and guardians ( $p<0.001$  and  $p<0.001$  respectively) (Figure 1).



**Figure 1:** Box and whisker plot demonstrating opinion of guardians regarding Pulse Polio Immunisation as per Kuppuswamy scale.

**Table 1:** Distribution of guardians according to Kuppuswamy scale.

SE status Kuppuswamy	I	II	III	IV	V
N	43	260	75	160	28
Mean score	5.88	3.72	2.67	0.70	1.36
Median score	6.00	4.00	3.00	0.00	1.00
SD	1.67	1.38	1.40	1.19	0.91
95%CI	5.48-6.28	3.56-3.88	2.36-2.97	0.49-0.91	0.86-1.53

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## Discussion

Pulse polio immunisation is one of the most important projects undertaken in India, as a result of which India has been declared polio free.

However, this study demonstrates that awareness about this programme is poor among guardians of vaccinees.

None of the guardians knew about the correct schedule of OPV in the national immunisation programme, which is indeed alarming. Even it has been 4 years since India has eradicated polio, this fact is oblivious to 60% of the guardians.

However, it is plausible that more than 97% of the guardians agree that vaccination can prevent polio, which is significantly higher than the previous studies [1-5]. The fact that education and higher socioeconomic status lead to better awareness and satisfaction, supports the fact that more campaigns and public education programmes are necessary to consolidate our fight against poliomyelitis.

One major limitation of our study was a relatively small sample size. Larger population based surveys are required to understand the actual scenario.

## Conclusion

Although we have come a long way in immunization against poliomyelitis and have been successful in its eradication, awareness remains one of the drawbacks among guardians of vaccinees. Probably more emphasis on awareness campaigns is required.

### What is known about this topic

→ Pulse Polio Immunisation has been a successful project in India, leading to the eradication of poliomyelitis.

→ The level of knowledge and awareness about same among the caregivers of vaccinees is unclear.

## What this study adds

→ General knowledge and awareness about poliomyelitis and the Pulse Polio Immunisation Programme is quite poor.

→ However, caregivers of vaccinees are quite satisfied with the success of the programme, and degree of satisfaction is directly related to their awareness and socioeconomic scale.

## Declarations

**Acknowledgment:** The authors acknowledge the active cooperation of parents of the vaccinees during the survey.

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**Conflicts of interest:** None.

## Author's contribution

DB: Collection of data, statistical analysis and drafting of manuscript

BB: Clinician in-charge and approval of final manuscript

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