

Measles-rubella vaccination campaign: Evaluation of coverage in rural area of Central India

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ABSTRACT

Background: Measles-rubella (MR) vaccination campaign was launched in India in a phasic manner. Maharashtra has launched this in November 2018. **Objectives:** This study was conducted to evaluate the coverage of MR vaccine in children aged 9–15 years in a rural area of Mohgaon village. **Materials and Methods:** A community-based cross-sectional study was carried out in the households of the rural village of Mohgaon, with 250 families and 390 eligible children in the age group of 9 months–15 years. Data were collected by the house-to-house visit. **Results:** Vaccination coverage was found to be 96.41%. Most of the children were in the age group of 6–15 years (74.46%) with no gender bias. Among vaccinated children, 56.25% and 94.27% had thumb mark and vaccination cards, respectively. Less than 5% of the children had minor side effects. **Conclusion:** Vaccination coverage in a rural area was found to be 96.41%, which is similar to the coverage found other states in an earlier phase.

KEY WORDS: Measles-Rubella Vaccination; Evaluation; Campaign; Thumb Mark; Eradication

INTRODUCTION


Measles and Rubella are highly contagious viral diseases that are spread by contact with an infected person through. One-third of all measles-related deaths worldwide occur in India. India accounts for around one-third of all children born worldwide with congenital rubella syndrome (CRS). Although the measles vaccine was introduced in the universal immunization schedule since 1985 and the second dose later in 2010, it is still difficult to control measles because of its low coverage.^[1] A 2016 report mentioned that 49,000 children died from measles infection annually in the country, of which 8000–10,000 deaths took place in Maharashtra.^[2]

India, along with the other World Health Organization (WHO)-SEAR countries, in September 2013, had resolved to eliminate measles and control CRS by the year 2020. The purpose of the measles-rubella (MR) campaign is to protect your child and eliminate transmission of measles and rubella from the community by vaccinating 100% target children with MR vaccine. It is a special campaign to vaccinate all children of 9 months to <15 years of age group with one additional dose of MR vaccine. The nationwide vaccination drive against MR kicked off in February 2017.^[1,3] Maharashtra launched the MR campaign in November 2018. Till now, 20 states/union territories have been covered by this campaign. The vaccination drive is currently on in eight states, including Maharashtra.^[1]

This study was conducted to evaluate the coverage of MR vaccine in children aged 9–15 years in a rural area of Mohgaon village.

MATERIALS AND METHODS

A community-based cross-sectional study was carried out in the households of the rural village of Mohgaon. The Primary

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Health Center at Raipur, Hingna covers six subcenters. Using simple random sampling, one subcenter, i.e., Mohgaon is selected which has a population of 1550. The study sample included all the families in the village (250 families).

Inclusion Criteria

Any parent/guardian with children of age between 9 months and 15 years and willing to participate in the study was included in the study.

Exclusion Criteria

Parents/guardians with a child of age between 9 months and 15 years not willing to participate in the study or not present even after the second visit were excluded from the study.

Data Collection

Ethical Committee Clearance was obtained. Written informed consent was obtained from the parents/guardians after assuring them that confidentiality and anonymity of information would be maintained. Data collection house-to-house visit was made, and eligible parents and guardians were briefed regarding the purpose of the study. They were interviewed using a pre-designed, pre-tested, and semi-structured questionnaire. Details regarding their socio-demographic characteristics, routine immunization, and MR vaccination were asked. Data analysis was compiled and analyzed. The results were expressed in percentages and proportions with 95% confidence interval.

RESULTS

In this study, a total of 250 families were covered in the village, with 390 children in the age group of 9 months–15 years. According to Table 1, the majority of families belonging to the Hindu religion (88.4%) and living in nuclear families no mother is illiterate. Almost 85% of the families were belonging to Class II or III according to Prasad scale. According to Table 2, the majority of children were availing the service from government hospitals. Three hundred and fifty-three (90.51%) children have received complete immunization. When studied for Measles/Measles-Mumps-Rubella (MMR) vaccine, 5 (1.28%) of the children had not received any vaccine. Thirty-two (8.21%) children had received MMR vaccine from the private practitioner. According to Table 3, all the families were provided with information about the campaign either from health worker (58.40%) or school (38.4%). Two hundred and forty-eight families, i.e., 99.20% had received invitation card for the same. Of them, 202 males and 188 females were in the age group of 9 months–15 years, and 196 males, i.e., 97.02% and 180 females, i.e., 95.74% had received the MR vaccine under the campaign. Thus, MR vaccination coverage was 96.41%. As per Table 4, almost 75% of the children received

Table 1: Socio-demographic profile of families

Characteristics	Number (n=250) (%)
Religion	
Hindu	221 (88.40)
Muslim	7 (2.80)
Buddha	21 (8.40)
Jain	1 (0.40)
Type of families	
Nuclear	165 (66.00)
Joint	85 (34.00)
Education of mother	
Illiterate	0
Primary	34 (13.60)
Middle	103 (41.20)
Secondary	93 (37.20)
Higher secondary	16 (6.40)
Graduate and above	4 (1.60)
Socio-economic status	
I	30 (12.00)
II	112 (44.80)
III	102 (40.80)
IV	6 (2.40)

Table 2: Distribution of study subjects according to routine immunization (Universal Immunization Programme)

Immunization practices	Number (n=390) (%)
Immunization card	
Present	345 (88.46)
Absent	45 (11.54)
Source of immunization	
Government	356 (91.28)
Private	34 (8.72)
Immunization status	
Complete	352 (90.26)
Partial	34 (8.72)
Not known	4 (1.02)
Received routine measles/MMR vaccine	
Measles	353 (90.51)
MMR	32 (8.21)
None of the above	5 (1.28)

MMR: Measles-Mumps-Rubella

the vaccine from schools. Out of all children, vaccinated 5 (2.55%) males and 7 (3.89%) females observed side effects. The most common side effect was mild fever in 3 (60%) males and 4 (57.14%) females followed by rash in 1 (20%) male and 2 (28.57%) females. One (20%) male and 1 (14.29%) female children observed pain at the injection site. No major side effects were observed.

Table 3: Knowledge, attitude regarding MR vaccine campaign

Knowledge, attitude	Number (n=250) (%)
Awareness regarding MR campaign	
Yes	250 (100)
Source of awareness	
Health worker	146 (58.40)
School	96 (38.40)
Mass media	6 (2.40)
Government hospital	2 (0.80)
Received MR invitation card	
Yes	248 (99.20)
No	2 (0.80)
Prepared to give vaccine	
Yes	236 (94.40)
No	14 (5.60)
Reason for non-preparedness	
Fear of side effects	10 (71.43)
Considered not important	3 (21.43)
Not known	1 (7.14)

MR: Measles-Rubella

Table 4: Utilization of Measles-Rubella vaccine in eligible children

Practices	Male (n=196)	Female (n=180)
Age (years)		
<1	13 (6.63)	10 (5.56)
1–5	30 (15.31)	21 (11.67)
6–10	78 (39.80)	73 (40.56)
11–15	75 (38.26)	76 (42.22)
Source of vaccination		
School	146 (74.48)	134 (74.45)
Government hospitals	56 (28.57)	45 (25.00)
Outreach camps	4 (2.04)	1 (5.55)
Private health facility	0	0
Thumb mark		
Present	104 (53.06)	112 (62.22)
Absent	92 (46.94)	68 (37.78)
Vaccination card		
Present	190 (96.94)	172 (95.56)
Absent	6 (03.06)	8 (04.45)
Side effects		
Yes	5 (2.55)	7 (3.89)
No	191 (97.45)	173 (96.11)

DISCUSSION

In this study, vaccination coverage was found to be 96.41%. Vaccination coverage was found to be 96.41%. Most of the children were in the age group of 6–15 years (74.46%) with no gender bias. Among vaccinated children, 56.25% and 94.27%

had thumb mark and vaccination cards, respectively. All the people knew about the campaign. Source of information was health worker and school.

Measles is one of the most infectious human diseases and can cause serious illness, lifelong complications, and death. Before the availability of measles vaccine, measles infected over 90% of children before they reached 15 years of age. In 2000, the WHO estimated that 535,000 children died of measles, the majority in developing countries, and this burden accounted for 5% of all under-five mortality. Global estimates of the burden of rubella suggest that the number of infants born with CRS in 2008 exceeded 110,0001, which makes rubella a leading cause of preventable congenital defects. The 2008 estimates suggest that the highest CRS burden is in Southeast Asia (approximately 48%) and African (approximately 38%) regions.^[1,3]

The WHO Southeast Asia regional strategic plan 2014–2020 states goal of elimination of measles and control rubella/ CRS by the year 2020 and achieve and maintain at least 95% of population immunity with two doses against measles and rubella within each district of each country in the region through routine and/or supplementary immunization.^[4,5] The campaign aims to rapidly build up population immunity by reaching out to 100% target children with MR vaccine, knocking out the susceptible cohort and thereby reducing the morbidity and mortality associated with measles and rubella.^[6] Therefore, the Government of India launched a measles-rubella vaccination campaign on February 6, 2017, in the country in a phased manner. It is the greatest ever campaign aiming at about 41 crore children across India.

The target age group for MR campaigns will be all children in the age group of 9 months–15 years irrespective of their prior vaccination status or history of measles/rubella illness.

Awareness about the MR campaign in the families was found to be 100%. The main source of information was health workers and school authorities. Out of them, 94.4% of families were ready to vaccinate after being informed. These findings were almost similar to the findings by Kumar *et al.*,^[5] A study by Chaudhary had found that providing information the stakeholders has a major impact in achieving the coverage.^[7-9]

We had studied the vaccination coverage in rural settings, i.e., subcenter of primary health care and vaccination coverage was 96.41%. This was similar to that found in Karnataka. This coverage is higher as compared to this outsized the number as compared to United Kingdom (90%), New Zealand (56–85%), Hong Kong (77%), Myanmar (93%), Georgia (50%), and Bangladesh (90%) in their campaign among general population. Similar coverage was observed in Egypt (97.1%), while at the same time, coverage was very high in Bhutan (98.17%), Albania (99%), and Iran (100%).^[9-14]

In this study, the majority of children were in the age group of 6–15 years. Those who have not received the vaccine majority are <5 years. The most possible reason may be fear of side effects in under-five children. There was no gender bias in vaccination as the coverage was almost the same. The findings were similar to that by El Sayed, *et al.* at Egypt and Kumar *et al.*^[4,7]

Thumb marking and the presence of vaccination card are the identities that the child has received the vaccine. Vaccination card was present in 97% of those received vaccine, whereas more than 50% had thumb marking similar to most other findings.

Side effect of vaccine was observed by only 2–3% of children, which was very low as compared to the study by Kumar *et al.* and El Sayed *et al.*^[4,7] No serious adverse event was present after vaccination.

The study was conducted in rural subcenter of primary health center, where the awareness about the MR campaign was 100%. This is the positive aspect that the health workers have made their 100% attempt to aware people, while the vaccination coverage was also considerably high. Limitation includes smaller sample size to evaluate the coverage.

CONCLUSION

Hence, finally to conclude the MR vaccine coverage was high in the rural area. Nearly 3.69% of the children were not immunized with the most common reason for fear of side effects after repeated counseling. This is 1-time effort to assess for coverage. However, measles surveillance data should be continued to be used to identify any areas with children missed by vaccination, identify, and rectify the programmatic errors, thereby contributing to the measles and rubella elimination and control effort.^[5]

REFERENCES

1. Introduction of Measles and Rubella Vaccine (Campaign and Routine Immunization). National Operational Guidelines. Ministry of Health and Family Welfare, Government of India; 2017. Available from: http://www.searo.who.int/india/topics/measles/measles_rubella_vaccine_guidelines.pdf. [Last accessed on 2019 Apr 12].
2. Vaidya SR, Kamble MB, Chowdhury DT, Kumbhar NS. Measles and rubella outbreaks in Maharashtra state, India. *Indian J Med Res* 2016;143:227-31.

3. Surveillance Standards for Measles and other Priority Vaccine-preventable Diseases in South-East Asia. Report of a Regional Workshop New Delhi, India; 2013. p. 23-7. Available from: http://www.searo.who.int/immunization/documents/surv_standards_measles_vpd_2013.pdf. [Last accessed on 2019 Apr 12].
4. Measles and Rubella. Strategic Plan 2012-2020. World Health Organization; 2012. Available from: http://www.apps.who.int/iris/bitstream/10665/44855/1/9789241503396_eng.pdf. [Last accessed on 2019 Apr 12].
5. Kumar A, Pai DV, Chaudhary AS, Ramireddy M, Kamath A. Measles rubella campaign: Coverage among slum children of Udupi municipality area in Karnataka. *Int J Community Med Public Health* 2018;5:3006-11.
6. Chaudhary P, Saxena S. Measles and rubella vaccination campaign in India: Why, how, when and where. *Indian J Community Health* 2018;30:111-4.
7. El Sayed N, Kandeel N, Barakat I, Moussa I, Alexander JP Jr., Naouri B, *et al.* Progress toward measles and rubella elimination in Egypt. *J Infect Dis* 2011;204 Suppl 1:S318-24.
8. Bethou A, Chandrasekaran V. Media and measles-rubella vaccination campaign - musings from Pondicherry. *Indian Pediatr* 2017;54:421-2.
9. Giri BR, Namgyal P, Tshering K, Sharma K, Dorji T, Tamang C, *et al.* Mass measles rubella immunization campaign: Bhutan experience. *Indian J Community Med* 2011;36:109-13.
10. Khetsuriani N, Imnadze P, Baidoshvili L, Jabidze L, Tatishili N, Kurtsikashvili G, *et al.* Impact of unfounded vaccine safety concerns on the nationwide measles-rubella immunization campaign, Georgia, 2008. *Vaccine* 2010;28:6455-62.
11. Pourabbas B, Ziyaeyan M, Alborzi A, Mardaneh J. Efficacy of measles and rubella vaccination one year after the nationwide campaign in Shiraz, Iran. *Int J Infect Dis* 2008;12:43-6.
12. Uddin MJ, Adhikary G, Ali MW, Ahmed S, Shamsuzzaman M, Odell C, *et al.* Evaluation of impact of measles rubella campaign on vaccination coverage and routine immunization services in Bangladesh. *BMC Infect Dis* 2016;16:411.
13. Regional office for South East Asia. Defeating Rubella and Measles in Myanmar. World Health Organization. Available from: <http://www.searo.who.int/mediacentre/events/defeating-measles-and-rubella-inmyanmar.pdf>. [Last accessed on 2019 Apr 12].
14. Scobie HM, Ray A, Routray S, Bose A, Bahl S, Sosler S, *et al.* Cluster survey evaluation of a measles vaccination campaign in Jharkhand, India, 2012. *PLoS One* 2015;10:1-15.

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