ORIGINAL ARTICLE
pISSN 0976 3325 | eISSN 2229 6816
Open Access Article
www.njcmindia.org

IMMUNIZATION STATUS OF CHILDREN UNDER 5 YEARS IN A TRIBAL AREA, PAROL, THANE DISTRICT

Naveen C Khargekar[1], Vandana C Khargekar[2], Poonam P Shingade[3]

Financial Support: None declared
Conflict of interest: None declared

How to cite this article:
Khargekar NC, Khargekar VC, Shingade PP. Immunization Status of Children Under 5 Years in a Tribal Area, Parol, Thane District. Ntl J of Community Med 2015; 6(4):522-527.

Author's Affiliation:
[1]Fellow in preventive oncology, Dept of preventive oncology, Tata memorial hospital, Parel, Mumbai; [2]Assistant Professor, Dept of community medicine, The Oxford Medical College Hospital and Research Centre, Bangalore; [3]Asst Prof, Dept of community medicine, ESIC medical college, Gulbarga

Correspondence:
Dr. Naveen Khargekar
Email: naveenkhargekar@gmail.com

Date of Submission: 16-10-15
Date of Acceptance: 06-11-15
Date of Publication: 31-12-15

ABSTRACT

Background: Infectious diseases are a major cause of morbidity and mortality in children. One of the most cost-effective and easy methods for the healthy well-being of a child is immunization. In India, immunization services are offered free in public health facilities, but despite rapid increases, the immunization rate remains low in some areas.

Objectives: The objective of the study was to study the socio-demographic profile and immunization status of the children aged less than 5yrs.

Materials and Methodology: The present study was carried out in a tribal area of Parol in Thane district. In this descriptive cross sectional study tribal children in the age group of 1-5 years were assess for their immunization status.

Results: Completely immunized children were 71.1%, partially immunized were 17.8% and 11.1% were not immunized. The most common reason for not immunizing the child was 'fear of side effects' (40%) and for partially immunizing the child was 'visit to native place' or 'other sibling not well' (37.5%). There was significant association between poor immunization status and Muslim religion of the children, poor socio-economic status, home delivery, and not having immunization card.

Conclusion: The overall coverage of immunization among the tribal area is good but still it has pockets of poor immunization.

Key words: Tribal area, complete immunization, partial immunization

INTRODUCTION

Infectious diseases are a major cause of morbidity and mortality in children. One of the most cost-effective and easy methods for the healthy well-being of a child is immunization. The goal of immunizing children against Tuberculosis, Polio, Diphtheria, Pertussis, Tetanus, Hepatitis B, and Measles, responsible for child mortality and morbidity, is indeed a noble one.[1] The most important indicators mentioned in the Millennium Development Goals (MDGs) for which India is a signatory, are the under-five mortality rate (U5MR) and Infant Mortality Rate (IMR).About one-quarter or 25% of the under-five mortality is due to vaccine-preventable diseases.[2] National immunization program in India has a primary objective of reducing morbidity and mortality due to vaccine preventable diseases.[3]

Despite all the efforts put in by the governmental and non-governmental institutes for 100% immunization coverage, there are still pockets of low coverage areas. In India, immunization services are

offered free in public health facilities, but despite rapid increases, the immunization rate remains low in some areas. According to the National Family Health survey (NFHS-3),[4] in India only 44% of the children of age one to two years have received the basic package. According to DLHS-3 (2007-2008)[5] rural area of Maharashtra, 67.8% children were fully immunized, 1.2% of the children were unimmunized, while the total rates in the state of Maharashtra were 69.1 and 1.1, respectively. Data of NFHS-3 revealed that the percentage of children in Maharashtra, with full immunization (BCG, measles, and three doses each of polio/DPT) was 58.8% and in the rural area of Maharashtra it was 49.8%.[6]

The present study was conducted to assess the immunization coverage, to find out the various reasons for partial or non-immunization of children in the tribal area, Parol, Thane district which is the field practice area of T.N.Medical college.

OBJECTIVE

The objective of the study was to study the socio-demographic profile of the children aged under 5yrs and to study the immunization status of children under 5 years

MATERIAL AND METHODS

The present study was carried out in a tribal area, Parol, Thane district. The study population comprised of children in the age group of 1-5 years. Study design: Cross sectional Descriptive epidemiological study.

The inclusion criteria included children between 1-5 year, those residing atleast for 6 month in study area and those children whose parents were willing for study.

The exclusion criteria included those children who are seriously ill, those children whose parents were not present during the visit and those children whose parents were not willing for study.

Consent was taken from parents or family head. Data was collected using preformed questionnaire, which includes general information, anthropometry and socio-demographic factors. The age of child was confirmed either by parents or anganwadi worker.

Children who received BCG, measles, and three doses each of DPT and polio (excluding polio 0) are considered to be fully vaccinated. All the vaccines must be administered by the time the child is one year of age. Information regarding birth date, vaccination card, dates of vaccines received, presence of BCG scar and reasons for incomplete or no vaccination was collected through pretested questionnaire schedule. Dates of vaccines received were verified from office record in case vaccination card was not available. Response rate was 100%. The total number of children examined was 225.

The team was trained on proper/appropriate filling of proforma, inspection of scar mark of BCG, source of immunization, making tally of households, relevant questions to be asked.

Proof of immunization: The child was considered as immunized or not immunized based on information on the immunization card. For those without an immunization card, information from the mother or any other responsible and reliable person in the family stating that the child had been immunized was considered. If the mother could not remember anything about the vaccination or in presence of any other confounding factor, the child was considered as not immunized with the vaccine under consideration. The child was considered fully immunized if he/she had received one dose of BCG, three doses of DPT, three doses of OPV, and one dose of measles, and as unimmunized if he/she had received none of these vaccines, and partially immunized if some doses were given, but immunization was not complete. The OPV given in PPI was not considered for classification. In case of a partially/non-immunized child the most important single reason for not immunizing was asked

The data was compiled and analyzed using statistical package for social sciences software for appropriate statistical tests.

Ethical clearance: The study was approved by ethical committee of T.N. medical college, Mumbai.

RESULTS

As observed from Table 1, among the study group, 54.6% were males and 45.4% were females. 45.3% of the mothers were illiterate and 10.7% of the fathers were illiterate According to the Kuppuswamy's scale of socioeconomic status classification 52% belonged to class IV. Higher proportions (78.67%) of women in the study area were of parity 1-2. Immunization cards were available with 80% of the mothers' of children. Among the study group, the percentage of births occurring in a health facility is 84.9%. Vaccination coverage: 71.1% of the children had complete immunization,17.8% were partially immunized and 11.1% were not immunized among the study group.

The gender of the child significantly affects the immunization status of the child. There was significant association between immunization status and religion of the children, socio-economic status, those children born in hospital, the place of deliv-

ery of the children and the presence of the immunization card. Male gender has more complete immunization when compared to female gender. Hindu children have more complete immunization when compared to Muslim children. The children of illiterate fathers were more unimmunized when compared to children of literate fathers. The children from joint family were more completely immunized compared to those from nuclear family. Higher the socioeconomic status, more is the complete immunization. Delivery in health facility had more complete immunization compared to home delivery.

Table 1: Distribution of children according to sociodemographic factors and the association of immunization coverage with socio-demographic factors

Socio-demographic factors	Immunization status of Children (n=225)			Total	P value
	Complete (N=160)	Partial (N=40)	Unimmunized (N=25)		
Sex					
Male	98 (61.3)	10 (25.0)	15 (60.0)	123	< 0.001
Female	62 (38.8)	30 (75.0)	10 (40.0)	102	
Religion					
Hindu	159 (99.4)	37 (92.5)	23 (92.0)	219	< 0.01
Muslim	1 (0.6)	3 (7.5)	2 (8.0)	6	
Education of mothers					
Illiterate	52 (32.5)	28 (70.0)	22 (88.0)	102	< 0.001
Primary	103 (64.4)	8 (20.0)	2 (8.0)	113	
Secondary	5 (3.1)	4 (10.0)	1 (4.0)	10	
Higher secondary	0 (0.0)	0 (0.0)	0 (0.0)	0	
College/Degree	0 (0.0)	0 (0.0)	0 (0.0)	0	
Education of father					
Illiterate	4 (2.5)	2 (5.0)	18 (72.0)	24	< 0.001
Primary	68 (42.5)	19 (47.5)	7 (28.0)	94	
Secondary	70 (43.8)	15 (37.5)	0 (0.0)	85	
Higher secondary	10 (6.3)	4 (10.0)	0 (0.0)	14	
College/Degree	8 (5.0)	0 (0.0)	0 (0.0)	8	
Type of family					
Nuclear	80 (50.0)	20 (50.0)	15 (60.0)	115	< 0.01
Joint	68 (42.5)	10 (25.0)	6 (24.0)	84	
Three generation	12 (7.5)	10 (25.0)	4 (16.0)	26	
Socioeconomic status					
I	9 (5.6)	0 (0.0)	0 (0.0)	9	< 0.01
II	15 (9.4)	1 (2.5)	0 (0.0)	16	
III	19 (11.9)	10 (25.0)	0 (0.0)	29	
IV	111 (69.4)	4 (10.0)	2 (8.0)	117	
V	6 (3.8)	25 (62.5)	23 (92.0)	54	
Birth order					
1	47 (29.4)	24 (60.0)	17 (68.0)	88	< 0.01
2	75 (46.9)	8 (20.0)	6 (24.0)	89	
3	36 (22.5)	7 (17.5)	2 (8.0)	45	
4	2 (1.3)	1 (2.5)	0 (0.0)	3	
Place of birth					
Health facility	154 (96.3)	37 (92.5)	0 (0.0)	191	< 0.001
Home	6 (3.8)	3 (7.5)	25 (100.0)	34	
Presence of immunization card					
Yes	151 (94.4)	29 (72.5)	0 (0.0)	180	< 0.001
No	9 (5.6)	11 (27.5)	25 (100.0)	45	

Figure in parenthesis indicate percentage

As observed from Table 2, according to the respondents, the most common reasons for not immunizing the child were: fear of side effects (40%) followed by unaware of need for immunization(28%). The common reasons for partially immunizing the child were due to visit to native place or other sibling not well(37.5%) followed by time of immunization inconvenient(32.5%).

Table 2: Reasons for non immunization and partial immunization

Reasons	Frequency (%)
Reasons for non immunization	
Lack of information	
Unaware for need for immunization	7 (28.0)
Unaware of need to return for 2nd and 3rd dose	4 (16.0)
Place and / or time of immunization unknown	5 (20.0)
Fear of side effects / reactions	10 (40.0)
Wrong ideas about contraindications	4 (16.0)
Lack of motivation	
Postponed until another time	5 (20.0)
Reasons for partial immunization	
Place of immunization too far	11 (27.5)
Time of immunization inconvenient	13 (32.5)
Vaccinator absent	2 (5.0)
Vaccine not available	3 (7.5)
Mother too busy	10 (25.0)
Family problem including illness of mother	5 (12.5)
Child ill not brought	6 (15.0)
Child ill, brought but not given immunization	9 (22.5)
Long waiting time	7 (17.5)
Others *	15 (37.5)

*includes visit to native place or other sibling not well

DISCUSSION

In the present study, the percentage of fully immunized children (71.1%) has been more for males (79.6%) than for females (60.8%). The NFHS-3 (2005 - 2006)[4] data of Maharashtra has reviewed the full immunization coverage in the rural area of Maharashtra, which is 49.8%, and is lower than that in the present study, and the coverage is 38.6% in rural India. A survey done by DLHS-3 (2007-2008),[5] has shown that full immunization coverage in rural Maharashtra is 67.6%. DLHS-3 data also shows a higher percentage of immunization in males than in females.[5] The full immunization coverage in the present study is higher, may be because the area is near the city (peri-urban) and DLHS/NFHS data is for the entire state of Maharashtra, which includes the backward districts/tribal areas also. The complete immunization status of children, against all six vaccine preventable diseases in other studies conducted by Chaturvedi M.[7] in the urban area of Agra (49.7%), Sharma *et al*.[8] in Surat (25.1%), Singh and Yadav[9] in the BIMARU states (48%), a Rapid household survey-RCH II[10] (42%), and a study by Varsha Chaudhary and Rajeev Kumar[1] in Bareilly city (61.9%) have been much lower than in the present study. This could be due to regional variation. However, the same and higher coverage of full immunization (73.33, 84.09, and 93.25%) has been reported by various other studies.[11,12,13]

In the present study, immunization cards were available with 80% of the mothers' of children. Coverage was better in case of children who had their immunization cards available. This shows that mothers probably were well motivated and have understood the importance of maintaining such records with them for follow-up. Similar results were shown in the studies conducted by Tapare *et al*.[14] and Kadri *et al*[15]. in which 81.25% and 88.4% of the mothers possessed the immunization card with them, respectively. Similarly the study conducted by Yadav *et al*.[16] for evaluation of immunization coverage in urban slums of Jamnagar city, showed that the immunization card was possessed with 74.28% mothers of children. It was also evident from National Family Health Survey III (NFHS-III) [4] survey results that only 12.22% of the mothers did not have the immunization cards with them.

In this study, vaccination coverage was: 71.1% of the children were completely immunized, 17.8% were partially immunized and 11.1% of the children were not fully immunized among the study group, which is less than the desired goal of achieving 85% coverage.[4] Somewhat similar findings were seen in the study by Tapare *et al*.[14] at Miraj. Yadav *et al*.[16] revealed that percentage for fully immunized children was 73.3% and for partially immunized children it was 23.8%, and for unimmunized it was 2.8%. Another study by Punith *et al*.[17] also found

that overall vaccination coverage of completely immunized children was 92.10% and the percentage of partially immunized was 6.58%, and unimmunized children accounted for 1.31%. Similar level of coverage was also documented in other studies by Kadri *et al*., [15] Khokhar *et al*.,[18] and Kar *et al*.[19] in urban slums of Ahmadabad and Delhi city, respectively.

According to the respondents, the most common reasons for not immunizing the child was: fear of side effects(40%) followed by unaware of need for immunization(28%). The common reasons for partially immunizing the child were due to visit to native place or other sibling not well(37.5%) followed by time of immunization inconvenient(32.5%). A study conducted at Lucknow by Nath *et al.*[20] showed visit to the native place/village (14.7%), carelessness (11.7%), apprehensiveness due to sickness of the child or an elder sibling as a result of vaccination (11.7%), and lack of knowledge (10.4%). Kar *et al*.[19] also revealed that the major cause for incomplete immunization was postponement of vaccination due to illness of the child (30.8%), lack of knowledge of immunization schedule (23.1%), and migration to native village (23.1%). Another study by Yadav *et al.*[16] also found that the main reasons for dropout or unimmunization of children were visit to native place/village in about 80% and 20% inconvenience in the rest. Kadri *et al.*[15] also revealed that the main reason for dropout or nonimmunization of the children may be ignorance and illiteracy among parents. Punith *et al.*[17] also revealed that unaware of the need of immunization followed by fear of side reaction was the major reason for nonacceptance/discontinuation of immunization.

As observed, gender of the child significantly affect the immunization status of the child. In another study at Delhi by Kar *et al*.,[19] which reported that the sex of the child did not affect significantly the immunization of the child. The percentage of births occurring in a health facility is 84.9% and remaining mothers gave birth to their babies at home among the study group. NFHS-III data, which shows that 67.5% of the births in urban area do occur in the health facility. [4] This might be due to the availability of health facilities in their vicinity. Present study shows higher vaccination coverage (71.1%) as compared with the National data 43.5% [4] and studies conducted in Madhya Pradesh [21] and in Rajasthan [22] that found 60.8% and 67.3% coverage rate of vaccination, respectively.

There was significant association between religion and immunization status of the children. The children belonging to the Hindu community have a higher coverage of vaccination as compared with the Muslim community. A study conducted at Lucknow by Nath *et al.*[20] found similar results with the impact of religion on the immunization status of the children.

In the study, it was found that those children born in hospital had a higher immunization coverage rates than those delivered at home. Similarly the study conducted at urban slums of Lucknow by Nath *et al.*[20] found that children born at home were found to be less likely to receive any vaccination.

The importance of having a card should be stressed to them as being similar to the other documents. The DLHS-3 data[5] mentioned that the percentage of the unimmunized in rural Maharashtra was 1.1%.

The present study was in a tribal area, where the population was defined, and the service provided by the Health Department was better than in the urban area. In the tribal area, contact between field staff and population is also better than in the urban area, probably resulting in a lesser dropout rate. In the present study, the main single reason for partial immunization was, 'inconvenient time of immunization'. The same reason was also given by other studies like that by Swami.[23] The immunization was usually in the mornings when most of the parents went to the field or for work. Hence, this time was possibly inconvenient for immunization for parents as this was their work time and they could not afford to lose their daily wages. Yadav *et al*.,[11] Ugade *et al*.,[24] and Ray *et al*.,[25] in their studies, mentioned that the fear of side effects was the most common reason for partial immunization and unimmunization.

CONCLUSION

In this study we found that the overall coverage of immunization among the tribal area is good but still it has pockets of poor immunization. Immunization is often cited as being one of the most cost-effective public health interventions. Hence, more vigilant surveys should be conducted so that these pockets are identified properly and proper actions can be taken.

RECOMMENDATION

Regular health education sessions and motivation through an encouraging and persuasive interpersonal approach, regular reminders and removal of misconceptions prevailing among people and improving the quality of the services at the health facility will solve the problems of nonimmunization.

Acknowledgment: The authors express gratitude to the children and their parents who participated in the study for their support and co-operation.

REFERENCES

1. Chaudhary V, Kumar R, Agarwal VK, Joshi VK, Sharma D. Evaluation of Primary immunization coverage in an urban area of Bareilly city using Cluster Sampling Technique. NJIRM. 2010;1:10–5.
2. Nath B, Singh JV, Awasthi S, Bhushan V, Kumar V, Singh SK. A study on determinants of immunization coverage among 12-23 months old children in urban slums of Lucknow district, India. Indian J Med Sci. 2007;61:598–606.
3. Reproductive and Child Health, Module for Medical Officer, National Institute of Health and Family Welfare, New Delhi, May 2000.
4. Mumbai: India Reports International Institute for Population Sciences (IIPS); 2006. National Family Health Survey 2005-2006 (NFHS-3)
5. India, Maharashtra: Mumbai IIPS; 2010. District Level Household and Facility Survey (DLHS-3). 2007-08: International Institute for Population Sciences (IIPS)
6. Murthy BN, Radhakrishna S, Venkatasubramanian S, Periannan V, Lakshmi A, Joshua V, et al. Lot Quality Assurance Sampling for Monitoring Immunization Coverage in Madras City. Indian Pediatr.1999;36:555–9.
7. Chaturvedi M, Nandan D, Gupta SC. Rapid assessment of immunization practices in Agra district. Indian J Public Health. 2007;51:132–4.
8. Sharma R, Desai VK, Kavishvar A. Assessment of immunization status in the slums of Surat by 15 clusters multi indicators cluster survey technique. Indian J Community Med. 2009;34:152–5.
9. Singh P, Yadav RJ. Immunization status of children in BIMARU states. Indian J Pediatr. 2001;68:495–500.
10. Gulati SC, Bhatt PN, Sharma S. New Delhi: 1999. Rapid Household Survey-RCH project phase II, Agra, Uttar Pradesh, Population Research Center, University Enclave.
11. Yadav S, Mangal S, Padhiyar N, Mehta JP, Yadav BS. Evaluation of immunization coverage in urban slums of jamnagar city. Indian J Community Med. 2006;31:300–1.5.
12. Punith K, Lalitha K, Suman G, Pradeep BS, Jayanth Kumar K. Evaluation of Primary immunization coverage of infants under universal immunization programme in an urban area of Bangalore city using cluster sampling and Lot quality assurance sampling techniques. Indian J Community Med. 2008;33:151–5.
13. Chopra H, Singh AK, Singh JV, Bhatnagar M, Garg SK, Bajpai SK. Status of routine immunization in an urban area of Meerut. Indian J Community Health. 2007;19:19–22.
14. Tapare VS, Borle PS. Assessment of vaccination performance by lot quality technique in an urban community of Miraj. Indian J Community Med 2006;31:182-5.
15. Kadri AM, Singh A, Jain S, Mahajan RG, Trivedi A. Study on immunization coverage in urban slums of Ahmadabad city. Health Population: Perspectives and Issues 2010;33:50-4.
16. Yadav S, Mangal S, Padhiyar N, Mehta JP. Yadav BS. Evaluation of immunization coverage in urban slums of Jamnagar city. Indian J Community Med 2006;31:300-1.
17. Punith K, Lalitha K, Suman G, Pradeep BS, Jayanth Kumar K. Evaluation of primary immunization coverage of infants under universal immunization programme in an urban area of Bangalore city using cluster sampling and lot quality assurance sampling techniques. Indian J Community Med 2008;33:151-5.
18. Khokhar A, Chitkara A, Talwar R, Sachdeva TR, Rasania SK. A study of reasons for partial immunization and non-immunization among children aged 12-23 months from an urban community of Delhi. Indian J Prev Soc Med 2005;36:83-6.
19. Kar M, Reddaiah VP, Kant S. Primary immunization status of children in slum areas of south Delhi - The challenge of reaching the urban poor. Indian J Community Med 2001;26:151-4.
20. Nath B, Singh JV, Awasthi S, Bhushan V, Kumar V, Singh SK. A study on determinants of immunization coverage among 12-23 months old children in urban slums of Lucknow district, India. Indian J Med Sci 2007;61:598-606.
21. Yadav RJ, Singh P. Immunization status of children and mother in the state of Madhya Pradesh. Indian J Community Med 2004;29:147-8.
22. Zafer A, Tamboli BL, Bhatnagar R, Ameta KD. Immunization coverage - A comparison between tribal, non-tribal and urban areas of Udaipur district. Indian J Community Med 1996;21:47-2
23. Swami HM, Thakur JS, Bhatia SP, Bhatia V, Bhan VK. Coverage evaluation survey of pulse polio immunization in chandigarh. IJCM. 2005;25:83–5.
24. Ughade SN, Zodpey SP, Deshpande SG, Jain D. Factors responsible for delayed immunization among children under 5 years of age. J Indian Med Assoc. 2000;98:4–5.
25. Ray SK, Dasgupta S, Dobe M, Biswas R, Mehta P, Baishya AC. IPHA. An evaluation of routine immunization coverage in some district of west Bengal and Assam. Indian J Public Health. 2004;48:82–7.