International Journal of Contemporary Pediatrics
Babu VDV et al. Int J Contemp Pediatr. 2017 May;4(3):999-1003
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: http://dx.doi.org/10.18203/2349-3291.ijcp20171715

Original Research Article

Factors influencing primary immunisation in and around Davangere District: hospital based study

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Received: 27 February 2017
Accepted: 28 March 2017

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ABSTRACT

Background: Infectious diseases are major cause of mortality and morbidity in children. Immunisation is one of the cost effective and easy method of child survival. Universal immunisation of children against a common vaccine preventable diseases have been a goal of universal immunisation programme, but it remains to be done currently. Success of immunisation programme depends on understanding of the reasons for not immunizing a child, so present study was undertaken. The objective of present study was to find out the immunisation status and various reasons for partial or non-immunisation of child to assess the factors associated with immunisation.
Methods: The present study was undertaken in the pediatric OPD of medical college hospital among children(n=194) in the age group of 12 to 60 months. Parents of 194 children were interviewed using preformed study proforma. Children were labelled as completely immunised, partially immunised, or non-immunised according to working definition. Various socioeconomic, demographic, cultural and behavioural factors found to influence immunisation status were outlined. Statistical analysis was done by using chi-square test, p value observed, <0.05 is considered significant.
Results: There were 147 children's (75.8%) who were completely immunised and 41 (21.1 %) partially immunised and 6 (3.1%) were non immunised. Immunisation status was significantly influenced by education of parents, type of family, socio economic status, place of delivery, distance of vaccination centre and locality. Sex of child and birth order has no impact. Most common reasons for partial immunisation (n=41) were education of parents (17%), rural children (23%), socioeconomic status (14%), place of delivery (28.8%), not advised by health worker (29%). Reasons for non-immunisation were (n=6) place of delivery (home=19%), non-availability of immunisation card (10%).
Conclusions: The various factors found to influence the immunisation status of children need to address in order to achieve millennium development goal of reducing under five child mortality.

Keywords: Child, Factors, Immunisation, Reasons, Rural, Vaccination

INTRODUCTION

Immunization is one of the interventions that will help in achieving the millennium development goal of reducing child mortality by 2/3rd between 1990 and 2015. In 1985, the UIP was started in India with the aim of achieving at least 85% coverage of primary immunisation of infants with three doses of DPT and OPV, one dose of BCG and one dose of Measles.[1] Despite all efforts put by government and non-governmental institutes for 100 % coverage still there are low coverage areas, and the factors which results in low coverage needs to address successfully. According to National family health survey 3% of children age 12 to 23 months who received specific vaccine any time before survey (according to the vaccination card or the mother report) and percentage with a vaccination card seen by the interviewer.

According to statistics of NFHS-4 in Davangere district rate of full immunisation is 42.2% in urban and 91.1% in rural area, so there is majority of children are with either partial or non-immunisation.[2] Therefore, the study was conducted to outline the immunization status and highlights the various factors influencing it in children in a hospital based study.

METHODS

This study was carried out between January and July 2015 in paediatric OPD of SSIMS and RC, Davangere located 5 km away from Davangere city. The sample size consisted of 194 children in the age group of 12 to 60 months who had appeared in the paediatric OPD of the hospital for various ailments. Before conducting study prescribed proforma was used to collect details like perinatal history, demographic details, socio economic status (Kuppuswamy scale) of the family, immunisation schedule advice by various health workers, immunisation status of the child, source of immunisation and reasons for failure to initiate or complete immunisation schedule was established.

Mother (preferably) or the father was interviewed after they had got the children examined in the OPD. The immunization status of the study group was assessed according to the national immunization programme. Children who had received BCG vaccine and 3 doses of DPT vaccine/oral polio vaccine (OPV) and measles vaccine as scheduled in the first year of the life were classified as "completely immunised".

Those who had missed any dose of the above vaccine were labelled as "partially immunised" and those who have not received any vaccine except OPV in Pulse Polio immunization up to 12 months of age was defined as "non- immunised". Dates of immunisation were determined by immunisation card and by verbal history. BCG vaccination determined by scar in left shoulder, DPT vaccination determined by injection at thigh and from date of birth. For measles by injection at right arm at age of 9-12 months. Statistical analysis was carried out using chi-square test (p value <0.05 was significant) and logistic regression analysis was done to determine the strength of association between the immunisation status and the recorded socio-economic and demographic factors. Factors influencing immunisation status between urban and rural children were analysed.

RESULTS

Out of 194 children belonging to 12 to 60 months of age group 110 (56. 7%) were males 84 (43.3 %) females. There were 147 children's (75.8 %) who were completely immunised, 41 (21.1%) were partially immunised and 6 (3.1 %) were non-immunised. Immunisation card available with 154 (79.4 %) children.

Table 1: Demographic profile of the study subjects.

Variable	Category	Immunisation status			Total	X^2	P value
		Fully immunized	Partially immunized	Non- immunized			
Sex	Male	84(76.4)	23(20.9)	3(2.7)	110(100)	0.13	0.94
	Female	63(75)	18(21.4)	3(3.6)	84(100)		
Place	Urban	65(80.2)	15(18.5)	1(1.2)	81(100)	2.37	0.31
	Rural	82(72.6)	26(23.0)	5(4.4)	113(100)		
Religion	Hindu	134(75.3)	36(21.3)	6(3.4)	176(100)	0.66	0.72
	Muslim	13(81.2)	3(18.8)	0(0.0)	18(100)		
Type of family	Nuclear	94(80.3)	18(15.4)	5(4.3)	117(100)	6.75	0.03
	Joint	53(68.8)	23(29.9)	1(1.3)	77(100)		
Father's education	>primary	11(84.6)	1(7.7)	1(7.7)	13(100)	14.46	0.006
	Primary	16(51.6)	14(45.2)	1(3.2)	31(100)		
	Nil	120(80.0)	26(17.3)	4(2.7)	150(100)		
Mother's education	>primary	12(75.0)	2(12.5)	2(12.5)	16(100)	13.91	0.008
	Primary	31(62.0)	18(36.0)	1(2.0)	50(100)		
	Nil	104(81.2)	21(16.4)	3(2.3)	128(100)		
Ses	1	27(87.1)	4(12.9)	0(0.0)	31(100)	20.05	0.01
	2	49(87.5)	6(10.7)	1(1.8)	58(100)		
	3	22(66.7)	11(33.3)	0(0.0)	33(100)		
	4	26(74.3)	6(17.1)	3(8.5)	35(100)		
	5	23(59.0)	14(35.9)	2(5.1)	30(100)		

Rate of partial immunisation is observed more commonly in rural children (23.5%). Education of parents, type of family, socioeconomic status had significantly impacts on immunisation status (i.e. p value <0.05). Religion, place, and sex of child had no impact on immunisation status. Rate of partial immunisation is high (28.8%) in children delivered in home, and non-immunisation rate is 19% (p value <0.05). Type of delivery and birth order has no

significant role in immunisation status of children. Children even though have immunisation card has partial immunisation rate of 22.1% and non-immunisation of 10%. (p value <0.05), and those with prior advice by health worker has partial immunisation of 29%, none of the children were non-immmunised with prior advice by health care providers.

Table 2: Birth profile.

Variable	Category	Imm Status			Total	X^2	P value
		Fully immunized	Partiall immunized	Non-immunized			
Place of delivery	Home	11(52.4)	6(28.8)	4(19.0)	21(100)	21.699	0.00
	Hospital	136(78.6)	35(20.2)	2(1.2)	173(100)		
Type of delivery	LSCS	42(77.8)	11(20.4)	1(1.9)	54(100)	0.43	0.81ns
	NVD	105(75.0)	30(21.4)	5(3.6)	140(100)		
Birth order	1	68(77.3)	19(21.6)	1(1.1)	88(100)	10.57	0.10ns
	2	63(79.7)	13(16.5)	3(3.8)	79(100)		
	3	14(66.7)	6(28.6)	1(4.8)	21(100)		
	4	2(33.3)	3(50.0)	1(16.7)	6(100)		

On applying multiple Logistic regression analysis in order to compare the group having complete or partial immunisation with group by having no immunization the immunization status children were significantly affected by type of family (p= 0.07, p <0.10) education of father (p = 0.05, p <0.10) prior advice, schooling at anganawadi.

Table 3: immunization profile.

Variable	Category	Immunisation Status			Total	X^2	P value
		Fully immunized	Partially immunized	Unimmunized			
Imm Card	Available	118(76.6)	34(22.1)	2(1.3)	154(100)	8.16	0.02
	Non-available	29(72.5)	7(17.5)	4(10.0)	40(100)		
Prior-advise	Doctor	81(80.2)	18(17.8)	2(2.0)	101(100)	26.01	0.00
	Nurse	36(85.7)	6(14.3)	0(0.0)	42(100)		
	HW	19(70.4)	8(29.6)	0(0.0)	27(100)		
	Nil	114(45.8)	937.5)	4(16.7)	24(100)		
Anganwadi	No	102(76.7)	27(20.3)	4(3.0)	133(100)	0.2	0.91
	Yes	44(73.8)	14(23.0)	2(3.3)	61(100)		
OPPPIP	0	8(50.0)	5(21.2)	3(18.8)	18(100)	20.57	0.008
	1-2	51(75.0)	15(22.1)	2(2.9)	68(100)		
	4-6	57(75.0)	18(23.7)	1(1.3)	76(100)		
	6-10	29(90.6)	3(9.4)	0(0.0)	32(100)		
	>10	2(100)	0(0.00)	0(0.0)	2(100)		

DISCUSSION

In this study, 75.8% were fully immunized, 21.1% were partially immunised and 3.1% were non-immunised. We have tried to bring out specific factors responsible for partial immunisation and non-immunization as compared to previous studies, so that solution can be found to individual group.

Our study reveals that significant improvement in percentage of complete immunization for 59% in urban Karnataka 2005 to 2006 NFHS-3 compare to 75% in our study as a result of sustained efforts of government.

In the present study, percentage of fully immunized was 75.1 % being more for males (76.4 %) than the females (75%) above rate higher than the study conducted by Chaturvedi in urban area of Agra (49.7 %).[3,4]

Sharma et al reported 51.7 % partial immunization and 23.1 % non-immunization which is much higher than the present study (21.1 %) and 3.1% including Singh and Yadav in Bimaru States (48%) and NFHSM (42%) study respectively.[5,6] The higher coverage of full immunization (73.33%, 84.09%, 93.25%) had been reported by various other studies.[7-9]

Whereas Punit K ET al 10 Chopra reported as low percentage (14.09 % 5.2 5% respectively) of partially immunised children as compared to our study.

Yadavs 12 reported 6% of non-immunised children which is more than the present study.[9]

Table 4: Reasons for partial immunisation as cited by parents in study population (n=41).

Reasons for partial immunisation	Rural (n=30)	Urban (n=11)
Lack of knowledge of immunisation	13(56%)	7(63%)
Fear of injection	2(8.6%)	0
Lack of knowledge of subsequent immunisation	5(21.7)	4(36%)
Lack of faith in effectiveness	2(8.6%)	0
Busy in profession	3(12.5%)	1(9%)
Child is sick at scheduled visit	1(4.3%)	0
Health facilty is far away	8(34.7%)	0
Migration	1(4.3%)	0
Staff remains absent	0	0
Elderly people objection	1(4.3%)	0
Death of sibling	0	0
Infrequent vaccine availability	4(17.39%)	1(9%)
Immunisation card lost	1(4.3%)	1(9%)
Adverse effect following immunisation	0	0
Adverse effect following immunisation to previous sibling	0	0
Parent forget fullness	3(12.5%)	0
Non-availability of health worker	1(4.3%)	0
Family problems	4(17.39%)	1(9%)
Child is too young	0	0

Table 5: Reasons for non-immunisation as cited by parents in study population (n=6).

Reasons for non-immunisation	Rural (n=04)	Urban (n=02)
Lack of knowledge of immunisation	3(56%)	0
Fear of injection	0	0
Lack of knowledge of subsequent immunisation	1(21.7)	0
Lack of faith in effectiveness	0	0
Busy in profession	0	1(9%)
Child is sick at scheduled visit	1(4.3%)	0
Health facilty is far away	2(34.7%)	0
Migration	1(4.3%)	0
Staff remains absent	0	0
Elderly people objection	1(4.3%)	0
Death of sibling	0	0
Infrequent vaccine availability	0	1(9%)
Immunisation card lost	0	0
Adverse effect following immunisation	0	0
Adverse effect following immunisation to previous sibling	0	0
Parent forget fullness	0	0
Non-availability of health worker	1(4.3%)	0
Family problems	4(17.39%)	0
Child is too young	0	0

Lack of knowledge of immunization was found to be the main reason for partial immunization and non-immunization of children's 56.1%.

In the present study (10.4 vs 23.1%) by malanikar et al. other reasons for partial immunization were lack of knowledge of subsequent immunization, fear of injection, health facility far away, busy profession, child is sick at the schedule time, lack of Faith ineffectiveness solving these would require proper education and constant motivation through and encouraging persuasive interpersonal approach regular reminders through automatic SMS and removal misconception prevailing among people and improving the quality of the services

at the health facility along with proper training of health provider to cease the missed opportunities.

CONCLUSION

Routine immunization of all children has been long recognised and credited as one of the cost effective programme by health sector. The need of the study is to make it as felt need of the community, increasing the knowledge and understanding of the care taker of young children about the essentiality and benefit of routine immunization would be a strong step forward in achieving a goal.

For improving situations, efforts should be made to have information regarding the immunisation, education campaigns, communication activities targeted to educate mother and also the pulse polio days should be utilised as good opportunity as advocacy of routine immunization.

ACKNOWLEDGEMENTS

Authors would like to thank faculty, residents, junior doctors and other staff of the Department of paediatrics SSIMS and RC Davangere, for their valuable contribution and support in the completion of this study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Babu VDV, Latha GS, Mallikarjuna GP. Factors influencing primary immunisation in and around davangere district: hospital based study. Int J Contemp Pediatr 2017;4:999-1003.