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Original Research Article

TO STUDY THE COVERAGE OF PRIMARY IMMUNIZATION IN CHILDREN IN THE AGE GROUP BETWEEN 12-60 COMPLETED MONTHS ADMITTED IN PEDIATRIC WARD

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Abstract

Background: Immunization is the most cost-effective public health intervention to reduce morbidity and mortality due to vaccine preventable diseases. Following the success in the eradication of smallpox in the late seventies, the Expanded Programme of Immunization (EPI) was launched for the control of five vaccine preventable diseases viz., Diphtheria, Pertussis, Tetanus, Poliomyelitis and Tuberculosis. In November 1985 the scope of the programme was universalized (UIP) and measles vaccine was introduced in the programme.It was targeted to cover all pregnant women with immunization against Tetanus and all infants with primary immunization. In 1992 this programme became a part of the Child Survival and Safe Motherhood programme (CSSM). Following the International Conference for Population and Development (IPCD) held at Cairo, a paradigm shift was brought about and "Reproductive and Child Health Programme" was launched in October 1997. Immunization is an important component of the RCH programme

Materials and Methods All the children in age group between 12 to 60 completed months admitted in Pediatric ward in Basaveshwar Teaching and Sangmeshwar Teaching and General Hospitals attached to M R Medical College, Gulbarga, between December 2010 to May 2012. Analysis of a study conducted by Saxena et al. [(1)] shows the primary immunization coverage 30%. Now using the formula,

Results: Out of the 1000 children studied, 685 were fully immunized (68.53%), 189 were partially immunized (18.93%) i.e. the child has received at least one of the immunizations mentioned in the UIP and 125 of them were non-immunized (12.53%) i.e., they had not received even a single immunization.

Conclusion: This study was done to know the knowledge, attitude and practices towards immunization of parents of children admitted to tertiary care hospitals attached to Mahadevappa Rampure Medical College, Gulbarga. Our study included 1000 children in the age of 12 to 60 completed months.

Keywords: Immunization, Children, Vaccines

Introduction

The Indian population has swollen to 1,049million[(2)], which has led to crucial changes in the balance between young and old, rich and poor, urban and rural. India is the 2nd most populous country in the world with 3/4ths of our population coming from a rural background with poor economic status and illiteracy. Children below 5 years constitute 12-15% of the population.

ISSN: 0975-3583, 0976-2833 VOL 14, ISSUE 06, 2023

Because of such large population the number of diseases is also on the rise and most of such diseases can be prevented. The Government of India keeping this in mind has made it mandatory for all children to be immunized against 6 killer diseases.In May 1974 WHO officially launched Expanded Programme on Immunization (EPI) to protect all children of the world against 6 vaccine preventable diseases namely Diphtheria, Whooping cough, Tetanus, Polio, Tuberculosis and Measles by the year 2000. In India EPI was launched in January 1978**(3)**. Prior to 1978 there were no provisions made for immunizations under any of the Government programme. The success of eradication of small pox backed by WHO made the Government and other associated bodies take notice about the importance of immunizations and hence in the V five year plan (1975-80), it introduced immunizations as a priority under MCH services.In a declaration sponsored by the UNICEF, as part of the United Nation's 40th anniversary in Oct 1985, launched a programme called Universal Child Immunization, which aimed to add impetus to the global programme of EPI. In India Universal Immunization Programme (UIP) was launched on Nov 19th, 1985 and was dedicated to Late Smt. Indira Gandhi. The National Health Policy aimed at achieving universal immunization coverage of the eligible population by 1990 **(4)**.A national demographic goal was set up in the national population policy 2000 to achieve universal immunization of children against all vaccine preventable diseases of childhood by 2010(5.The achievements in Xth five year plan were that they bought down IMR from 146 to 70**(6)**, which was mainly due to immunizations.

Materials and methods

Study Design:
This study is a hospital based study done in both the hospitals attached to Mahadevappa Rampure Medical College, Gulbarga.

Source of Data:
All the children in the age group between 12-60 completed months admitted in Pediatric ward in Basaveshwar and Sangmeshwar Teaching and General Hospitals attached to Mahadevappa Rampure Medical College, Gulbarga.

Method of collection of data:
All the children in age group between 12 to 60 completed months admitted in Pediatric ward in Basaveshwar and Sangmeshwar Teaching and General Hospitals attached to Mahadevappa Rampure Medical college, Gulbarga, between December 2010 to May 2012.
Analysis of a study conducted by Saxena et al. (1) shows the primary immunization coverage 30%. Now using the formula,

Inclusion Criteria
1. Children between 12-60 completed months admitted in Pediatric ward, in the hospital.
BCG scar: Parents who did not have an immunization card we used the BCG scar for evaluation of whether BCG was given. For DPT and Measles, we enquired the month when the child was last immunized. Site of injection also gave us an accurate data.
Socio Economic Status:
- Socio economic status was calculated using modified Kuppuswamy's classification(17)

Immunization status:
- Fully Immunized: The child has received all the doses against 6 killer diseases in one year i.e. BCG, DPT/OPV I, II, III and Measles at the right time as mentioned in the immunization schedule.

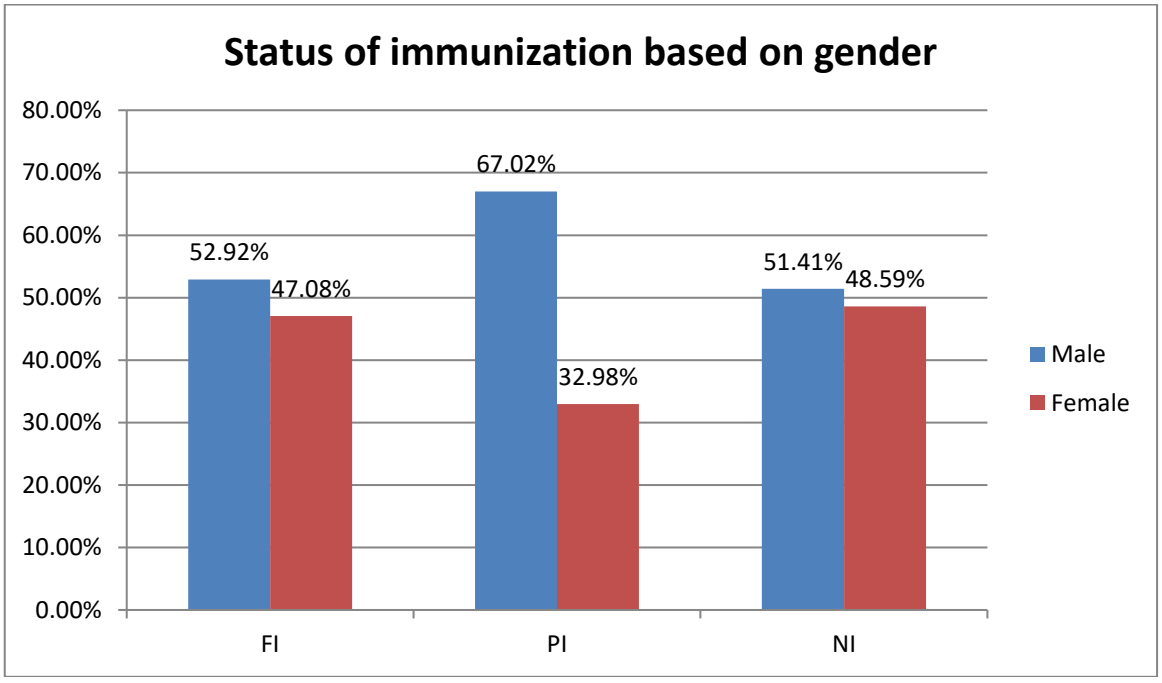
ISSN: 0975-3583, 0976-2833 VOL 14, ISSUE 06, 2023

- Partially Immunized: If the child has missed even a single dose mentioned in the immunization schedule
- Non Immunized: The child has not received even a single dose of any vaccine or who has taken only OPV.

RESULTS AND DISCUSSION

Table 1: distribution of children based on sex and immunization status

STATUS OF IMMUNIZATION	Male		Female		Total
	No	%	No	%	
Fully Immunized(FI)	363	52.92	323	47.08	686
Partially Immunized(PI)	84	67.02	41	32.98	125
Not Immunized(NI)	97	51.41	92	48.59	189
Total	544	54.4	456	45.6	1000
Chi-square=9.587 d.f=2 P<0.010 Significance					



Our study showed that out of 1000 children 686 were fully immunized, 125 were partially immunized and 189 were not immunized. Among males 363 were fully immunized (52.92%). Among females 323 were fully immunized (47.08%). This shows males had better immunization than females and it is statistically significant. Nirupam S. showed six bias in immunization coverage in urban area of UP. Vaccination coverage was found to be higher for male children as compared to females for every vaccine.[7] A study by Agarwal R.K, et al, (1990) revealed that out of 500 children there was no significant sex difference among male and female children.[8] Bashir Gaash, et al in their study showed that in Kargil the immunization coverage rates were similar in boys and girls.[9]. J. Yadav, P. Singh in their study stated coverage levels for males were higher than females. Among males 63.7% children were fully immunized while

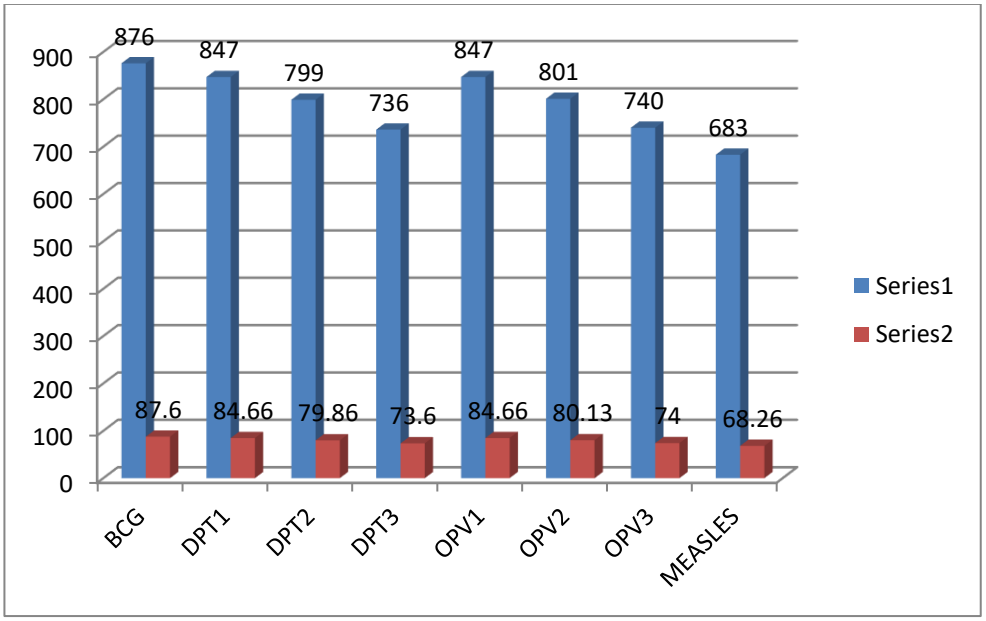
ISSN: 0975-3583, 0976-2833 VOL 14, ISSUE 06, 2023

in females fully immunized were 57.1%[10]. Malini Kar, et al, in their study titled "Primary Immunization Status of children in Slum Areas of South Delhi - The Challenge of Reaching the Urban Poor" found that 70.7% of the males were fully immunized with BCG, DPT3, OPV3 and measles; 29.3% were partially immunized as seen in the table. Males had a better immunization coverage compared to females.[11]

Variables	Complete immunization		Partial/non-immunization		Total
Sex of Baby[11]					
Male	65	(70.7)	27	(29.3)	92
Female	50	(67.6)	24	(32.4)	74

Table 2: distribution of children based on the type of vaccinations received

Immunization Status	No of Children Vaccinated	Percentage
BCG	**876**	**87.6%**
DPT1	**847**	**84.66%**
DPT2	**799**	**79.86%**
DPT3	**736**	**73.6%**
OPV1	**847**	**84.66%**
OPV2	**801**	**80.13%**
OPV3	**740**	**74%**
MEASLES	**683**	**68.26%**



shows the vaccinations received by children. There is progressive decline in the vaccinations received from 876 children who reported for BCG (87.6%) to a dismal 683 children for measles (68.2%). Other vaccines received were 847 for DPT-1 (84.66%), 799 for DPT-2 (79.86%), 736 for DPT-3 (73.6%). This shows that there is gradual drop out from BCG to Measles. In Vardha district, Singh M.C, et al, noticed that vaccine coverage for BCG and primary dose of DPT/OPV was 95.9% and 80% respectively. It was 57.4% for the third dose.[12] Balraj in 1988 conducted a coverage survey among 12-23 months old children in North Arcot district in South India. In the towns, coverage ranged from 29-53% for measles vaccine, for BCG from 65-91% and for OPV and DPT third dose from just over 60% to just over 80%. In rural areas (rural

ISSN: 0975-3583, 0976-2833 VOL 14, ISSUE 06, 2023

blocks and panchayats) coverage ranged for measles vaccine from 10.8% to 19.3%, for BCG from 25.1% to 34.1%, for DPT III dose from 42.2% to 50.4% and OPV III dose from 39.6% to 48%[13]. Mehra M. et.al conducted immunization Coverage Evaluation Surveys (CES) in rural Nerela zone and city zone areas of Delhi and showed percentage of children immunized with DPT3/OPV3/BCG was 70 and 73.1 % in the rural and city zones respectively, while those immunized with DPT3/OPV3/BCG/Measles was only 30 and 37.3 % in the two zones.[14] A study by Agarwal R.K, et al., (1990) revealed that out of 500 children, 482 showed presence of BCG scar i.e., 96.4% showed normal reaction after BCG vaccination. There was no significant sex difference. Children with normal nutritional status at the time of vaccination showed a higher percentage of the presence of the scar (97%) as against malnourished 95.7%, P <0.05. Children vaccinated below one month of age showed less BCG scar against those vaccinated after one month of age (96.72%, P<0.001). Children with complication following BCG vaccine in the form of lymphadenopathy in axilla were 2 out of 500.[14] Dr. S. Nirupam studies immunization status of infants in the community development block of Sarojininagar having a population of 1.6 lakhs, was assessed in 1985-86 and 1987-88 to study the impact of UIP. A significant increase in vaccine and dose wise coverage was observed, this being 35.7%, 25.2% and 15.5% for DPT I, II and III in pre UIP as compared to 69.5%, 57.1%, 44.8% respectively for UIP. Similar difference was observed for OPV, BCG and measles.[7] V.S Salhotra, AK Sharma in their studies showed administration of individual vaccines is as follows: BCG - 85%, DPT I + OPV I - 82.3%, DPT2 + OPV 2 - 82%, DPT 3+ OPV 3 - 78.67%, Measles vaccine – 73.67%[15] .Bashir Gaash, et al., in their study showed that in Kargil antigen-wise, the highest coverage (92.5%) was seen for BCG, and the poorest (65%) for measles vaccine.[9] J. Yadav, P. Singh in their study done in Madhya Pradesh stated coverage levels for all vaccines were as follows[10]

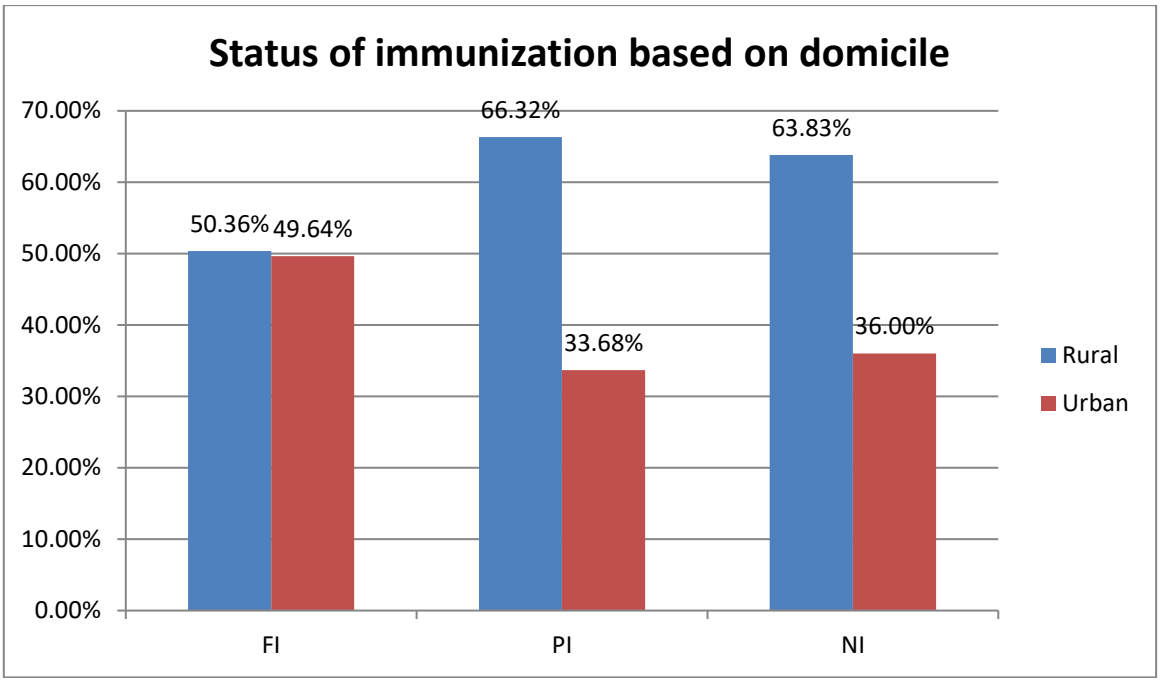
Vaccine	**Percentage**
BCG	82.1
DPT 1	82.7
DPT 2	79.9
DPT 3	75.1
OPV 1	83.3
OPV 2	80.6
OPV 3	76.0
Measles	65.2

Table 3: immunization status of children based on domicile status

STATUS OF IMMUNIZATION	Rural		Urban		Total
	No	%	No	%	
Fully Immunized(FI)	345	50.36	340	49.64	**685**
Partially Immunized(PI))	126	66.32	64	33.68	**190**

ISSN: 0975-3583, 0976-2833 VOL 14, ISSUE 06, 2023

Not Immunized(NI)	80	63.83	45	36	**125**
Total	551	55.1	449	44.9	**1000**
Chi-square=19.871	d.f=2	P<0.001	Significance		



shows, 340 children (49.64%) from the urban area and 345 children (50.36%) from the rural region were fully immunized. Similarly, 64 children (33.68%) from the urban areas and 126 children (66.32%) from the rural areas were partially immunized. This was found to be statistically significant. Dhadwal D; et al, studied the immunization coverage among urban and rural children in the Shimla hills. 84.37% of the urban children and 57.59% of the rural children were fully vaccinated. [16] Balraj in 1988 conducted a coverage survey among 12-23 months old children in North Arcot district in South India. In the towns, coverage ranged from 29-53% for measles vaccine, for BCG from 65-91% and for OPV and DPT third dose from just over 60% to just over 80%. In rural areas (rural blocks and panchayats), coverage ranged for measles vaccine from 10.8% to 19.3%, for BCG from 25.1% to 34.1%, for DPT III dose from 42.2% to 50.4% and OPV III dose from 39.6% to 48% [13] .Mehra M. conducted immunization Coverage Evaluation Surveys (CES) in rural Nerela zone and city zone areas of Delhi and showed percentage of children immunized with DPT3/OPV3/BCG was 70 and 73.1 % in the rural and city zones respectively, while those immunized with DPT3/OPV3/BCG/Measles was only 30 and 37.3 % in the two zones. [17] Bashir Gaash, et al, in their study showed that in Kargil the immunization was as follows 65% of infants received full primary immunization, with rural areas faring worse (62%) than the urban areas (72%). [9] J. Yadav, P. Singh in their study stated coverage levels were lower for children of inaccessible villages. They stated coverage in rural areas (fully immunized children) was 57% and urban areas were 66.8%. They saw a better coverage in urban areas. [10]

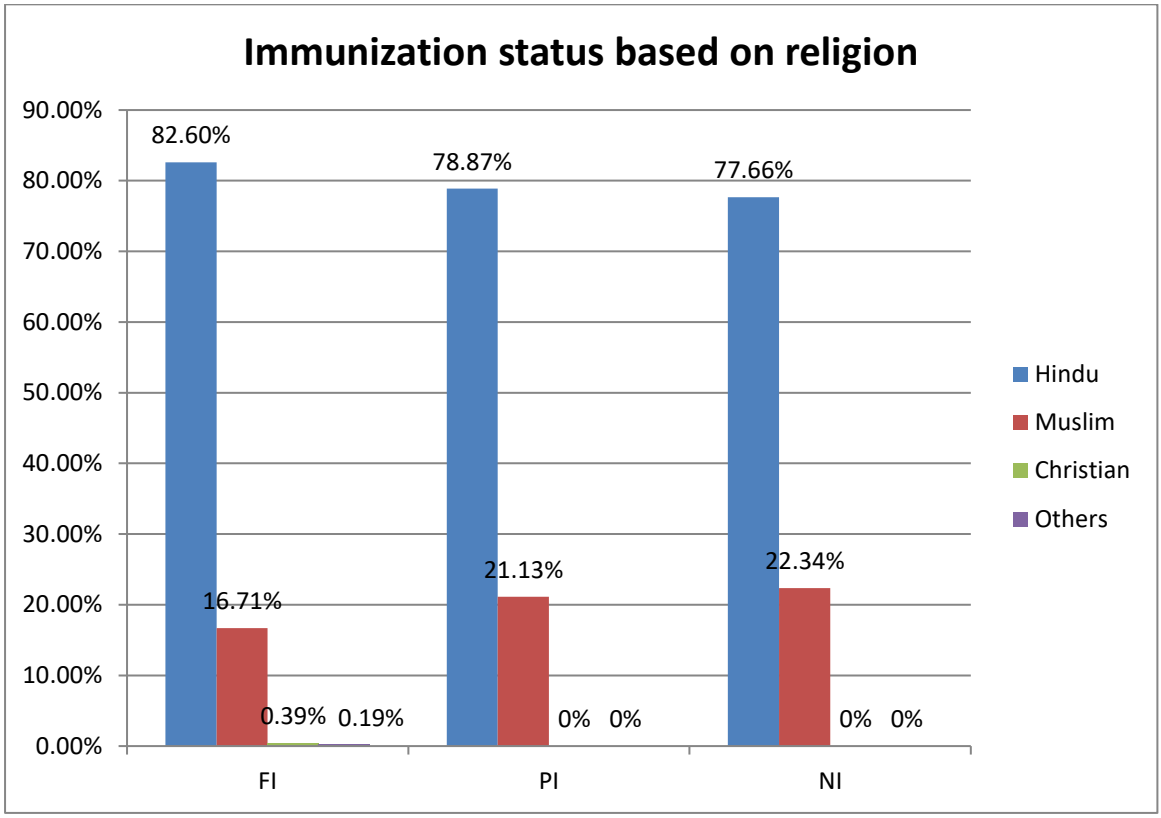
Table 4: immunization status of children based on their religion

	Hindu	Muslim	Christian	Others	Total

ISSN: 0975-3583, 0976-2833 VOL 14, ISSUE 06, 2023

STATUS OF IMMUNIZATION	No	%	No	%	No	%	No	%	No
Fully Immunized(FI)	567	82.6	115	16.71	3	0.39	1	0.19	686
Partially Immunized(PI)	149	78.87	40	21.13	0	0	0	0	189
Not Immunized(NI)	97	77.66	28	22.34	0	0	0	0	125
Total	813	81.33	183	18.27	3	0.27	1	0.13	1000

Chi square=5.217 d.f=6 P>0.05 insignificant



clearly shows among the fully immunized children Hindus constituted 567 (82.6%), Muslims 115 (16.71%) and Christians 3 (0.39%). Among the partially immunized - Muslims had 21.13% compared to Hindus 78.87% and Christians 0%. Non immunized children among Muslims 22.34% compared to Hindus 77.6%. This was found to be statistically significant. J. Yadav, P. Singh in their study stated coverage levels for different religions were as follows.[10.]

Religion	Immunization status
Hindu	61.5
Muslim	50.5
Sikh	66.7
Christian	100.0

ISSN: 0975-3583, 0976-2833 VOL 14, ISSUE 06, 2023

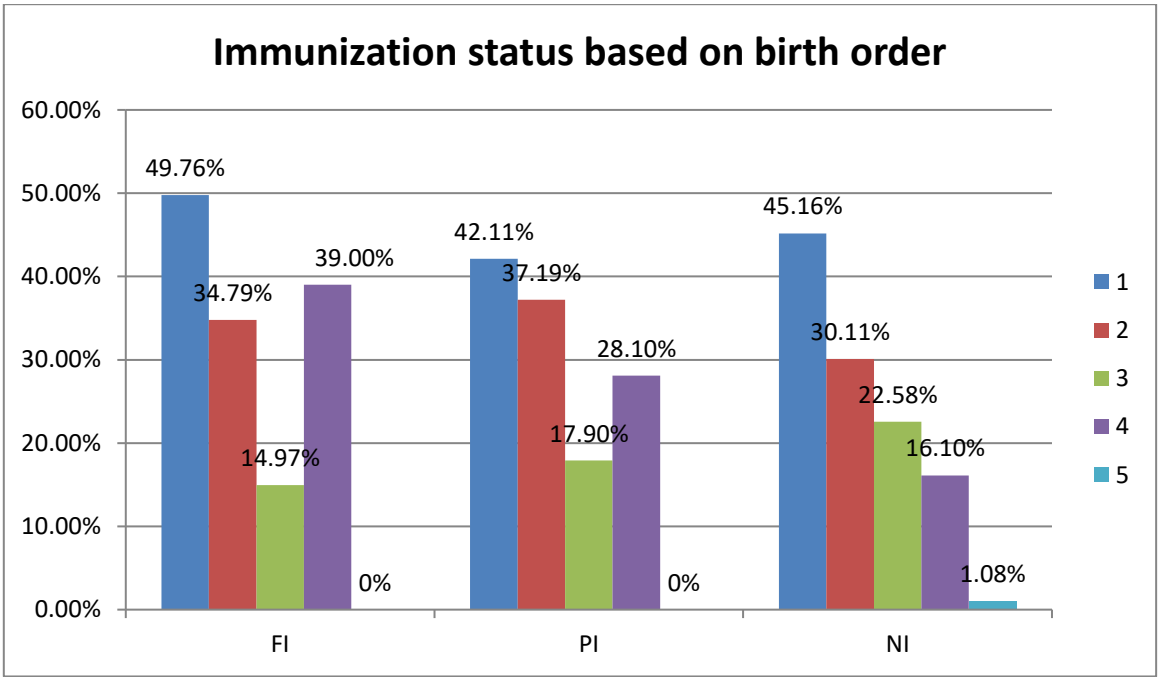
Malini Kar, et al, in their study titled "Primary Immunization Status of children in Slum Areas of South Delhi - The Challenge of Reaching the Urban Poor" found that there is an almost equal coverage among Hindus and non Hindus[11]

Variables	Complete immunization		Partial/non-immunization		Total
Religion[11]					
Hindu	93	(69.9)	40	(30.1)	133
Non-Hindu	22	(66.7)	11	(33.3)	33

Table 5: immunization status of children based on their birth order

STATUS OF IMMUNIZATION	1		2		3		4		5		Total
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**
Fully Immunized(FI)	341	49.76	239	34.79	103	14.97	3	0.39	0	0	686
Partially Immunized(PI)	80	42.11	71	37.19	34	17.9	5	2.81	0	0	190
Not Immunized(NI)	56	45.16	37	30.11	28	22.58	2	1.61	1	1.08	124
Total	477	47.73	347	34.67	165	16.47	10	1	1	0.13	1000

Chi square =9.814 d.f=4 P<0.05 significant



Among the 1st born 477, fully immunized were 341(49.76%), 119 (37.66%) partially immunized were 80(42.11%) and 56(45.16%)were non immunized. The bulk of the study population was formed by the 1st born i.e. 477 children. Among the 2nd born, 239 were fully immunized (34.79%), 71were partially immunized (37.19%), 37 was non immunized (30.11%). The 2nd born totaled to 347 children. Therefore, adding the 2 groups we have 824 children. This shows us that most of the parents follow a 2-child norm, which made 3/4th of our study population.

ISSN: 0975-3583, 0976-2833 VOL 14, ISSUE 06, 2023

Conclusion

This study was done to know the knowledge, attitude and practices towards immunization of parents of children admitted to tertiary care hospitals attached to Mahadevappa Rampure Medical College, Gulbarga. Our study included 1000 children in the age of 12 to 60 completed months. The study group comprised of 544 males and 456 females. 449 were from the urban area while 551 were from the rural area. 813 of the children were Hindus, which was the majority. Our study showed that the 685 children were fully immunized (68.5%), 189 were partially immunized (18.9%), 125 were non-immunized (12.5%). Showing that the immunization status is still not upto accepted levels as prescribed by the Government. Males had better immunization coverage than females. Among males 363 were fully immunized (52.92 %) and among females 323 were fully immunized (47.08%). This shows gender bias exists. There is progressive decline in the vaccinations received from 876 children for BCG (87.6%) to 683 children for measles (68.2%). Other vaccines received were 847 for DPT-1 (84.6%), 799 for DPT-2 (79.8%), 736 for DPT-3 (73.6%). Measles is the worst hit. Ignorance and causal attitude of parents could be the cause.

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