

REVIEW ARTICLE

PREVALENCE OF PEDIATRIC IMMUNIZATION IN KISHANGANJ DISTRICT OF BIHAR

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INTRODUCTION: Vaccines have made a major contribution to public health but vaccines preventable diseases (VPDs) are still responsible for significant deaths of under five children. Universal immunization Programme was started in India in 1985 with an aim of achieving at least 85% coverage of Primary immunization of infants with 3 doses of DPT and OPV, one dose of BCG and one dose of measles by 1990. At present, vaccines against seven VPDs are being provided free of cost to children in India. Despite this, it has been found during National Family Health Survey (NFHS-3) that only 44% of infants in India are fully immunized which is much less than desired goal of 85%. Annual Health Survey (2011-12) of Bihar reported that while 93.5% of children were given BCG, the full immunization rate was only 65.6%, 4.5% children did not receive any vaccination. It has been reported that in Kishanganj district, even though 69.5% children were having immunization card, full immunization rate was only 26.6%, the lowest in the state. 11.7% children in this district did not receive any vaccine.

OBJECTIVES: To find the status of immunization of children of Kishanganj District from 12 – 23 months of age and to assess the reasons behind non-immunization of these children, visiting OPD and ward of MGM Medical College and LSK Hospital, Kishanganj.

Study Design: Cross sectional observational study.

Setting: Pediatric outdoor department and indoor ward of Mata Gujri Memorial Medical College and Lions Seva Kendra Hospital, Kishanganj.

Participants: 100 children were included in this study. Of these 50 children were selected from Pediatrics OPD and another 50 from indoor ward.

DATA COLLECTION: Standard semi structured proforma was developed. This was piloted and necessary corrections were made. The mother /caretaker of the eligible child selected for the study was approached and apprised of the need of the study. Informed consent was obtained. Personal interview technique and clinical examination was used for data collection.

RESULTS: According to expert evaluation it showed that 53% children were males and 47% were females. In the present study, it was observed that full immunization rate decreases as birth order increases. There was significant association between these two variables ($p < 0.05$). Full immunization rate was higher in higher socio economic classes and this difference was significant ($p = 0.03$). In the present study, better maternal education was related to better immunization status ($\chi^2 = 9.35$,

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$p=0.03$) and better immunization was seen in children of families with easy access to Health care facilities.

CONCLUSION: Full immunization rate is very low in Kishanganj and lowest in Bihar. Various factors like sex of the child, socio economic class of the family, maternal education and easy availability of health services plays significant role in immunization of a child. Further community based studies should be conducted to find out the reason for non-immunization.

METHODS: The present study was conducted using cross sectional observational design from Jan 2014 to Jan 2015. Study was conducted in Pediatrics department outdoor and indoor ward of Mata Gujri Memorial Medical College and Lion Seva Kendra Hospital, Kishanganj. It has been observed in AHS (2011-12) for Bihar that in Kishanganj 26.6% children were found to be fully immunized. Considering the following parameters, p =anticipated population proportion =0.266, d =absolute precision required = 0.1, $1-\alpha$ = confidence level =0.05. Sample size was calculated using WHO software. Ethical consideration –informed consent was taken from the respondents. Data was kept confidential and was used only for research purpose. Factors associated with immunization coverage were included in this study like maternal age, maternal education, Sex of the child, birth order, socio-economic status, household size and access to health care.

DISCUSSION: In present study, 50.9% males and 42.6% females were fully immunized. NFHS-3 survey showed that full immunization rate was 45.3% for males and 41.5% for females.⁽¹⁾ A gender gap of 5% existed in individual vaccines also. Singh et al (2012) found that in NFHS -3, female infants born to adolescent mothers had lower full immunization rates than males (39.6% vs 42.3%).⁽²⁾ In Bihar, Srivastava and Nayak (1995), found gender bias in immunization coverage.⁽³⁾ The present study is in accordance with other studies in terms of showing gender bias against female child.

In the present study, it was observed that full immunization decreased as birth order increases. It was also seen in NFHS-3 that vaccination declines with increasing birth order⁽⁴⁾ and CES (2009) by UNICEF⁽⁵⁾ Singh et al (2012) also noted that infants with higher birth order had lower vaccination coverage.⁽²⁾ It is clear from the above findings that higher birth order increases chances of non-immunization. In the present study it was observed that full immunization rate was higher in high socio economic classes and this difference was significant ($p=0.03$). Direct relationship was observed between the economic status of families and immunization status in CES survey (2009).⁽⁵⁾ Full immunization rate was 57.1% for urban and 34.1% for rural area. The association between area and immunization status was significant ($p=0.02$).CES (2009) also reported that 67.4% urban children and 58.5% rural children were fully immunized.⁽⁵⁾

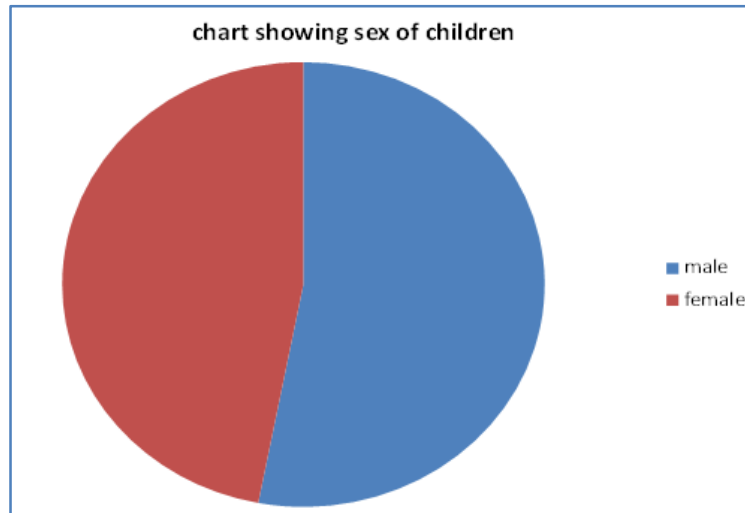
The present study demonstrated that children from nuclear family had better full immunization rate (53.8%) as compared to those belonging to joint or three generation family (39.6%). The difference was not significant ($p=0.15$). Kar et al (2001) also noted that 70.2% of children from nuclear family and 60% from joint family were fully immunized.⁽⁶⁾

In the present study, better maternal education was related to better immunization status. ($\chi^2=9.35$, $p=0.03$)

In CES survey (2009) also, maternal education and full immunization showed a significant positive correlation.

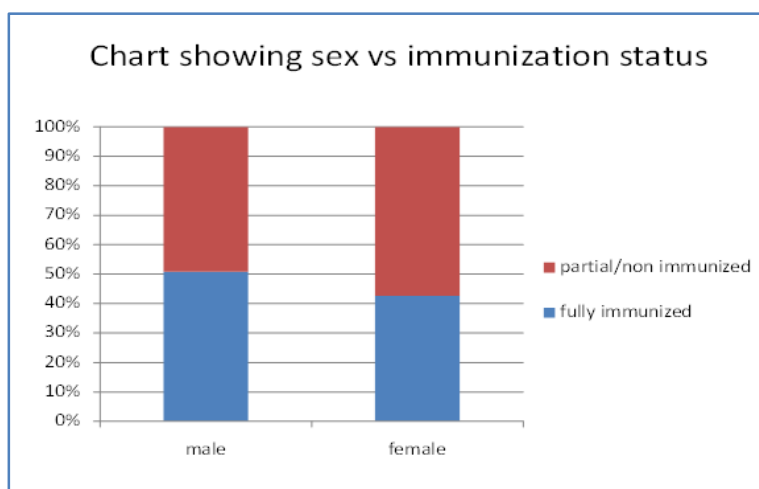
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In the present study, better immunization status was seen in children of families with easy access to healthcare. Sahu et al (2010) also saw that infants living in communities with all weather roads, public sector health facilities had higher complete vaccination coverage compared to their counterparts.⁽⁷⁾



Showing sex-wise distribution of children

Sex	NUMBER	%
MALE	53	53
FEMALE	47	47
TOTAL	100	100



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Showing age –wise distribution of children

AGE	NUMBER	%
12-14	35	35
15-17	24	24
18-20	19	19
21-23	22	22
TOTAL	100	100

Showing socio economic status of children

Table shows that most (48%) of the children belonged to lower class.

SES	NUMBER	%
I	0	0
II	3	3
III	20	20
IV	29	29
V	48	48
TOTAL	100	100

Showing area wise distribution of children

AREA	NUMBER	%
URBAN	56	56
RURAL	44	44
TOTAL	100	100

Showing type of family of children

TYPE OF FAMILY	NUMBER	%
NUCLEAR	52	52
JOINT	48	48
TOTAL	100	100

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Showing birth order of children

BIRTH ORDER	NUMBER	%
1	35	35
2	26	26
3	18	18
4 AND ABOVE	21	21

Showing educational status of mother

Table shows that more than half (53%) mothers were illiterate

MOTHER'S EDUCATION	NUMBER	%
ILLITERATE	53	53
PRIMARY	17	17
MIDDLE	24	24
HIGH SCHOOL AND ABOVE	6	6
TOTAL	100	100

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Showing availability of immunization cards

The table shows that immunization card was available with three fourth mothers

IMMUNIZATION CARD AVAILABLE	NUMBER	%
YES	73	73
NO	27	27
TOTAL	100	100

Showing distribution of children according to immunization status

Table shows that only 47% children were fully immunized.

IMMUNIZATION STATUS	NUMBER	%
FULLY IMMUNIZED	47	47
PARTIALLY IMMUNIZED	46	46
NON IMMUNIZED	7	7
TOTAL	100	100

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Showing distribution of children according to vaccines received

The table shows that the percentage of coverage for BCG was found to be highest & measles being the least. It was found that the coverage of immunization decreases from BCG to Measles.

VACCINES RECEIVED	Number(n=100)	%
BCG	93	93
OPV-0	87	87
HeptB- 0	62	62
DPT-1	83	83
OPV-1	83	83
HeptB-1	78	78
DPT-2	79	79
OPV-2	79	79
HeptB-2	77	77
DPT-3	72	72
OPV-3	72	72
HeptB-3	69	69
Measles	48	48

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Showing distribution of children according to reasons for inadequate immunization

Unawareness and fear of side effects were major hinderance in immunization

Reasons for inadequate immunization	Number(n=53)	%
Did not know when to go	31	58.5
Did not know where to go	18	34.0
Unaware of need	21	39.6
Fear of side effects	26	49.1
Child ill	11	20.8
Vaccine not available	7	13.2
Staff unavailable	2	3.8
others	3	5.7

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Showing association between immunization status and other variables

Background variables	categories	Fully immunized	Partially/non immunized	Association
AGE	12-14	18(51.4%)	17(48.6%)	Chi2=1.36, P=0.71
	15-17	12(30.0%)	12(30.0%)	
	18-20	9(47.4%)	10(52.6%)	
	21-23	8(36.4%)	14(63.6%)	
SEX	MALE	27(50.9%)	26(49.1%)	Chi2=0.7,p=0.4 OR=1.40
	FEMALE	20(42.6%)	27(57.4%)	
RESIDENCE	URBAN	32(57.1%)	24(42.9%)	Chi2=5.26 P=0.02 OR=2.58
	RURAL	15(34.1%)	29(65.9%)	

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Showing association between immunization status and other

Background variables	Categories	Fully immunized	Partially/non immunized	Association
Mother's education	Illiterate	18(34.0%)	35(66.0%)	Chi2=9.35
	Primary	9(52.9%)	8(47.1%)	P=0.03
	Middle	15(62.5%)	9(37.5%)	
	High school & above	5(83.3%)	1(16.7%)	
Immunization card	Yes	39(53.4%)	34(46.6%)	Chi2=4.48,p=0.03
	no	8(29.6%)	19(70.4%)	OR=2.72
Access to health facility	Easy	25(53.2%)	22(46.8%)	Chi2=1.36,p=0.24
	difficult	22(41.5%)	31(58.5%)	OR=1.60

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