



# A Study to Identify Factors Responsible For Low Immunization Coverage in a High Priority District of Madhya Pradesh

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## ABSTRACT

**Background:** Yet the coverage against VPDs remains close to complete but there is a large gap between target and achievement of child immunisation in the country. The study was conducted to assess the dropout rate and primary immunization coverage of children aged 12-23 months in Raisen district of Madhya Pradesh and to know the various reasons for partially or not immunizing the child.

**Methods:** A Community based cross sectional study carried out in the urban and rural area by WHO-Cluster sampling method. Sample size was 900 children (30 children from each cluster) of aged 12-23 months.

**Results:** The mean age of the study subjects was 17.27 months  $\pm$  3.32 SD. **Overall** 65.78% children were fully immunized, 29.11% were partially immunized and 5.11% of them were not immunized. A progressive increase was seen in the drop-out rate from the first to the third dose of DPT & Pentavalent vaccine. The drop-out rate for primary immunization i.e. from BCG to Measles was found to be 7.5%. Obstacle and Lack of information were significant reasons for partial immunization of the children and lack of motivation was the major reason for not immunization.

**Conclusion:** There is scope for improvement by focusing on the factors which are influencing utilization of immunization services.

**Key Words:** Immunization status, 12-23 months' children, Socio-demographic variables, WHO-30 Cluster sampling.

## INTRODUCTION

Immunization forms the major focus of child survival programmes throughout the world. Roughly 3 million children die every year of vaccine preventable diseases (VPDs) and a significant number of these children live in developing countries. Recent estimates suggest that approximately 34 million children are not completely immunized, with almost 98% of them living in developing countries. Effective immunization has reduced the morbidity and mortality of children due to VPD to great extent worldwide.<sup>1</sup> Vaccination coverage in India is also far from complete despite the long-standing commitment to universal coverage. Immunization against common childhood diseases has been an

integral component of mother and child health services in India since adoption of the primary health care approach in 1978 being reinforced by the Declaration of Health Policy in 1983.

However, in developing countries including India, a large proportion of children are either not immunized at all or partially immunized resulting in higher infant and child mortality. The UN Millennium declaration had outlined reduction of under-five mortalities as one of the eight goals with proportion of 1-year old children immunized against measles as one of the monitoring indicators.<sup>2</sup>

A study in different states of India showed that 63.3% children were fully immunized, 27.1% were

partially immunized, and 9.6% were unimmunized.<sup>3</sup>The relatively low percentage of children vaccinated with the third dose of DPT/ Pentavalent and measles is mainly responsible for the low percentage of fully vaccinated children.<sup>4</sup>

Coverage of BCG, DPT, and polio (except “at birth” polio dose) is much higher than all other vaccines. BCG, DPT-1, and polio 1, 2, 3 dose has been received by at least 76% of children, while only 55% of children have received all three doses of DPT. Although DPT and polio vaccinations are given at the same time as part of routine immunization programme, the coverage rates are higher for polio than for DPT (all three doses), undoubtedly because of the pulse polio campaigns. Not all children who begin the DPT and polio vaccination series go on to complete them. The difference between the percentage of children receiving the first and third doses is 21% for DPT and 15% for polio. Around 59% of children aged 12–23 months have been vaccinated against measles. The relatively low percentage of children vaccinated with the third dose of DPT and measles is mainly responsible for the low percentage of fully vaccinated children.<sup>4</sup> To ensure equitable health care and to bring about sharper improvements in health outcomes, the bottom 25% of the districts in every State according to the ranking of districts based on composite health index have been identified as High Priority Districts (HPDs). All Left Wing Affected districts and districts with majority tribal population, whose composite health index is below 50%, are also categorized as HPDs.<sup>5</sup>

Based on this background the objective of the present study was to determine the immunization coverage and reasons for non-immunization and the factors that influence the immunization uptake in the urban slums of the study area. The main objectives of the study were (i) To find out the status of childhood immunization (12–23 months) in the urban and rural population of Raisen district. (ii) To identify the factors associated with immunization uptake in the children. (iii) to find out the causes of non-immunization among the children in Raisen district.

## METHODOLOGY

The present community based cross sectional study was conducted at Raisen District urban and rural area from August 2015 to July 2016 by using the WHO 30-cluster survey methodology.<sup>6</sup> Necessary approvals were taken from Dean of L.N. Medical College, Bhopal, MP; Deputy Director Routine immunization services, Department of health and family welfare Govt. of Madhya Pradesh Bhopal; CM&HO District Raisen Madhya

Pradesh; and Head of Institutional Ethical Committee (IEC) L.N. Medical College, Bhopal, MP. It is a kind of two-stage sampling technique where 30 slums from the district were randomly selected in the first stage according to Probability Proportion to Size (PPS), which ascertains that the probability of a particular sampling unit being selected in the sample is proportional to the population size of the sampling unit.<sup>7</sup> In the second stage, the selection of the required number of children was done from each of the selected clusters. The first child in each cluster was selected randomly, and the rest of them were selected from the contiguous households till the required number of children was attained.

The total 900 children were studied, with 30 children in each cluster {P = 53.2 (proportion of fully immunized children aged 12–23 months in Raisen District, according to National Family Health Survey-3 (NFHS-3),<sup>8</sup> confidence limit 95%, absolute precision (d) = 5%, design effect = 2}.<sup>9</sup> In the houses having twins, only one was selected randomly.

A pre-tested structured questionnaire was used to elicit the information from the study participants. Information was collected on the various socio-demographic factors, about the immunization status and reasons for partial immunization and immunization of the children. Socioeconomic status of the study participants was classified according to Agarwal classification based on the latest AICPI of India and per capita income.<sup>10</sup> The method used for the determination of the vaccination status was the vaccination card and the recall method. The primary respondent was the mother of the child; and in case of her absence, the father acted as the next respondent. In case of absence of both of them, an adult in the household who remained with the child for most of the time or had taken the child for immunization on at least one occasion was interviewed. The child was considered as fully immunized, if he/ she had received one dose each of BCG and measles and three doses each of DPT and polio (excluding Polio 0 dose) by his/ her first birthday. Those who had missed any one vaccine out of the six primary vaccines were described as. Partially immunized, and those children who had not received any vaccine up to 12 months of age were defined as Unimmunized.<sup>11</sup> The overall dropout rate was the percentage point difference between the vaccines of the maximum and the minimum antigen received, expressed as a percentage of the maximum dose. Statistical analysis was done by using the MS Excel spreadsheet for Windows 10. A p-value of <0.05 was considered significant. Unadjusted Odds Ratio was calculated in the variables determining immunization status of children.

**RESULT**

The present study was carried out in the urban and rural area of Raisen district among children aged between 12-23 months. The mean age of the study subjects was 17.27 months ± 3.32 SD. As seen in Table, majority of children were in the age group of 18-20 months (32.89%), followed by 29.78% children belonging to the age group 12-14 months. In our study 52% of the children were males and 48% were females. (Table 1)

Table 2 shows that, overall, 592 (65.78%) children were fully immunized, 262 (29.11%) were partially immunized, and 46 (5.11%) were not immunized. Full immunization coverage is higher for males 324 (69.23%) than for females 268 (62.04%). but children with no immunization coverage higher in females 25 (5.79%) than for males 21 (4.49%) and this difference was not significant (p= >0.05).

Table3 presented variables affecting immunization status of children. Female children 62.04% are less completely immunized (OR=0.72, 95%CI=0.55;0.95) than male 69.23% and the difference was found significant statistically (p=0.02).Immunization status of children went on improving as their parent education level increased, as majority 84.31% & 80.6% of full immunized children of mothers and father respectively was educated up-to graduation/post-graduation level. A clear difference can be seen in case of partially immunized children also. This positive association between immunization status of children and level of education of their mothers was statistically significant with OR=1.5, 2.8, 4.2 with ascending manner of literacy. It was observed by that, Hindus (69.1%) had better immunization status than Non Hindus like Muslims (57.4%) and others (65.3%) and it was found statistically significant with OR 1:0.6:0.8 for Hindu vs Muslim vs Others respectively.

Children belonging to upper socio economic classes like Class I and Class II were better immunized than those belonging to middle and lower

socio-economic class (Class IV & Class V), and this was found to be highly significant (<0.001) and OR of fully immunized and partially + unimmunized children was decreasing as socio economic declining. . Proportion of fully immunized children(73.49%) was significantly more than those children (39.81%) whose immunization cards were available with OR=0.23, while 67.6% of fully immunized children belonging to Nuclear families and were close to joint families 63.3% (OR=0.83). In average more than 80% of the children were fully immunized whose parents were professionals while Children whose mothers were housewives were more completely immunized (65.5%) when compared to children of non professional working mothers and it were found just statistically significant(OR=0.48). A higher percentage of fully immunized children (76.25%) were found in to urban area than those living in rural areas (61.67%) and it was found just significant statistically with OR=0.51. Immunization status of children those born at hospital were significantly more fully immunized 61.3% than to children born at home 34.5%. This association was found to be highly significant with OR=0.33. Also, better Immunization statuses (Fully immunized 78.6%) were found in children who belonged to first order in comparison to 2<sup>nd</sup> and others meaning children went on deteriorating as their birth order increased i.e. I (78.57%) and II (65.96%) were fully immunized than those having lower one i.e. III and more (48.78%) with OR=1:0.53:0.26 respectively.

As seen in Table 4, the drop- out rates between first and third dose of DPT (DPT1-DPT3) and first and third dose of Pentavalent (Penta1-Penta3) were close to identical 4.8% and 4.7% while the drop-out rate for OPV vaccine was only 2.5%. A progressive increase was seen in the drop-out rate from the first to the third dose of each of the above mentioned vaccine. 820 children had received BCG vaccination and 758 children received measles vaccination.

**Table1. Distribution of children based on their age and gender**

Age of the child in months	Gender of the child				Total	% (95%CI)
	Male	% (95%CI)	Female	% (95%CI)		
12-14	140	52.24 (46.08 - 58.33)	128	47.76 (41.67 - 53.92)	268	29.78 (26.83 - 32.90)
15-17	84	52.50 (44.49 - 60.39)	76	47.50 (39.61 - 55.51)	160	17.78 (15.37 - 20.47)
18-20	152	51.35 (45.51 - 57.16)	144	48.65 (42.84 - 54.49)	296	32.89 (29.84 - 36.08)
21-23	86	48.86 (41.31 - 56.47)	90	51.14 (43.53 - 58.69)	176	19.56 (17.04 - 22.33)
<b>Total</b>	<b>468</b>	<b>52.00 (48.68 - 55.30)</b>	<b>432</b>	<b>48.00 (44.70 - 51.32)</b>	<b>900 (100)</b>	

**Table 2: Immunization Coverage (Status) in study area**

Immunization status	Children (n=900)	Percentage (95% CI)
Fully immunized	592	65.78 (62.56 - 68.86)
Partially immunized	262	29.11 (26.18 - 32.22)
Unimmunized	46	5.11 (3.81 - 6.81)

**Table3. Factors determining the immunization status of children**

Characteristics n	Fully immunized 502 (55.78%)	Partially immunized 352 (39.11%)	Un immunized 46 (5.11%)	Odd Ratio (95%CI)*	P value
<b>Gender</b>					
Male (468)	324(69.23)	123(26.28)	21 (4.49)	Reference	
Female (432)	268(62.04)	139(32.17)	25 (5.79)	0.72(0.55;0.95)	0.02
<b>Education of mother</b>					
Illiterate (311)	170(54.66)	117(37.62)	24 (7.72)	Reference	
Just literate/ primary (322)	209 (64.91)	99(30.75)	14 (4.35)	1.5(1.1;2.1)	0.008
Secondary to intermediate (165)	127(76.97)	30(18.18)	8 (4.85)	2.8(1.8;4.2)	0.001
Graduate /PG (102)	82 (84.31)	16(15.69)	0 (0)	4.2(2.4;7.6)	0.001
<b>Education of father</b>					
Illiterate (132)	76(57.58)	46 (34.85)	10 (7.58)	Reference	
Just literate/ primary (434)	266 (61.29)	140 (32.26)	28 (6.45)	1.17(0.78; 1.73)	0.44#
Secondary to intermediate (195)	138(70.77)	49 (25.13)	8 (4.10)	1.78(1.12;1.83)	0.01
Graduate /PG (139)	112(80.58)	27(19.42)	0 (0)	3.06(1.78;5.26)	0.001
<b>Religion</b>					
Hindu's (609)	421 (69.13)	165 (27.09)	23 (3.78)	Reference	
Muslims (242)	139 (57.44)	81 (33.47)	22 (9.09)	0.60(0.44;0.82)	0.001
Others (49)	32 (65.31)	16 (32.65)	1 (2.04)	0.84 (0.45;1.55)	0.57#
<b>socio-economic status of family</b>					
Upper (113)	99(87.61)	14(12.39)	0 (0)	Reference	
Upper middle (202)	139(68.81)	61(30.20)	2 (0.99)	0.31(0.16;0.58)	0.02
Lower middle (257)	167(64.98)	82 (31.91)	8(3.11)	0.26(0.14;0.48)	0.001
Upper lower (224)	135(60.27)	74(33.04)	15(6.70)	0.21(0.11;0.40)	0.001
Lower (104)	52(50.00)	31(29.81)	21(20.19)	0.14(0.07;0.28)	0.001
<b>Immunization card</b>					
Present (694)	510 (73.49)	184 (26.91)	0 (0)	Reference	
Absent (206)	82 (39.81)	78 (37.86)	46 (22.33)	0.23(0.17;0.33)	0.001
<b>Type of family</b>					
Nuclear/Single (510)	345(67.65)	140(27.45)	25 (4.90)	Reference	
Joint (390)	247(63.33)	122(31.28)	21 (5.38)	0.83(0.63;1.28)	0.017
<b>Occupation of mother</b>					
Professional/Clerical (54)	43 (79.63)	11 (20.37)	0 (0)	Reference	
Skilled/Non skilled (127)	78 (61.42)	38 (29.92)	11 (8.66)	0.41(0.19;0.86)	0.027
House wife (719)	471 (65.51)	213 (29.62)	35 (4.87)	0.48(0.25;0.96)	0.048
<b>Occupation of father</b>					
Professional/Clerical (86)	72(83.72)	14(16.28)	0 (0)	Reference	
Skilled/Unskilled (453)	299(66.00)	128(28.26)	26 (5.74)	0.38(0.21;0.69)	0.001
Business (152)	97(63.82)	52(34.21)	3 (1.97)	0.34(0.18;0.66)	0.001
Agriculture (190)	113(59.47)	61(36.84)	16 (8.42)	0.28(0.15;0.54)	0.001
Unemployed (19)	11(57.89)	7(42.11)	1 (5.26)	0.27(0.09;0.78)	0.001
<b>Type of Residence</b>					
Urban (240)	183(76.25)	50(20.83)	7(2.92)	Reference	
Rural (660)	409(61.97)	212(32.12)	39(5.91)	0.51(0.35;0.71)	0.001
<b>Place of delivery</b>					
Hospital (712)	437 (61.38)	253 (35.53)	22 (3.09)	Reference	
Home (188)	65 (34.57)	99 (52.66)	24 (12.77)	0.33(0.24;0.46)	0.001
<b>Birth Order</b>					
1 (322)	253(78.57)	58(18.01)	11(3.42)	Reference	
2 (332)	219(65.96)	97 (29.22)	16 (4.82)	0.53(0.37;0.75)	0.002
3 and more (246)	120(48.78)	107(43.50)	19 (7.72)	0.26(0.18;0.37)	0.001

\*between fully immunized and Partially+unimmunized; # Insignificant

**Table 4: Drop rate for different vaccination**

Vaccine	Total Children	Vaccinated Children (%)	Drop out (%) (95% CI)
BCG to DPT1, OPV1, HEP B1	820	742(90.49)	78 (9.51) (7.63 - 11.78)
DPT1, HEP B1 to DPT3, HEP B3	415*	395(95.18)	20 (4.82) (3.05 - 7.47)
OPV1 to OPV3	742	723(97.44)	19 (2.56) (1.59 - 4.05)
Penta1 to Penta3	340	324(95.29)	16 (4.71) (2.80 - 7.68)
BCG to Measles	820	758(92.44)	62 (7.56) (5.89 - 9.64)

\* Excluding Pentavalent

**Table5. Association between immunization status with the reason of failure for immunization (N=308)**

Reasons of failure	Un immunization	Partial immunization	Total
	No.(%) (95CI)	No.(%) (95%CI)	No.(%) (95%CI)
Lack of information	25 (21.37) (14.55 - 30.11)	92 (78.63) (69.89 - 85.45)	117 (37.99) (32.59 - 43.69)
Lack of motivation	16 (30.19) (18.74 - 44.51)	37 (69.81) (55.49 - 81.26)	53 (17.21) (13.26 - 22.00)
Obstacle	5 (3.62) (1.34 - 8.68)	133 (96.38) (91.32 - 98.66)	138 (44.81) (39.19 - 50.55)
<b>Total</b>	<b>46</b>	<b>262</b>	<b>308</b>

The drop- out rate for primary immunization i.e. from BCG to Measles was found to be 7.5%.

Obstacle and Lack of information were significant reasons for partial immunization of the children and lack of motivation was the major reason for not immunization.

Our study found that the major reason for incomplete immunization was obstacles (44.8%) like illness of the child because of which parents did not take the child to the immunization centre and mother being too busy in her household work to take the child for immunization. Under the category lack of information there was around 38% who failed to complete immunization while 17.2% did not have the motivation to complete immunization of their children and this difference was found statistically significant (Table5).

## DISCUSSION

Immunization is one of the most cost effective public health interventions, which is directly or indirectly responsible to prevent the bulk of mortalities in under five children. Thus, vaccinating the children to the maximum is a great need of the future specially to reduce the child mortality and morbidity. The study has tried to bring out the specific factors responsible for partial immunization, and role of socio-demographic factors in immunization of children, as compared to similar studies, so that it will be helpful to strengthen the universal immunization program (UIP) in India

In the present study, overall, 65.78% children were fully immunized, 29.11% were partially immunized, and 5.11% were not immunized. Similar results were shown by Singh et al. in a study in different states of India, where 63.3% children were fully immunized, 27.1% were partially immunized, and 9.6% were un immunized,<sup>6</sup> but Bholanath et al<sup>12</sup> and Vohra R et al<sup>13</sup> in a study showed higher unimmunized 23.9% and 12.9% respectively. Males are more fully immunized (69.23%) in comparison to females (62.04%). This fact is similar to the general observation that many a times female children are neglected for their health care, especially in developing countries like India. Imteyaz A et al<sup>14</sup>, and Yadav S et al<sup>15</sup> also found that there are males who are more fully immunized when compared to fe-

males. But Bhatia V et al<sup>16</sup> in his study on Immunization status in children found that there was no sex difference in immunization status. Literacy statuses of parent's significantly increase in the immunization status of their children. The present study findings are similar with the studies of Imteyaz A et al,<sup>14</sup> Nath B et al<sup>16</sup>, where they found that literacy status of mother is a significant independent predictor of immunization status of the child. This fact highlights the role of female literacy and female education for the utilization of child health services. Chhabra P et al,<sup>17</sup> Singh P et al,<sup>3</sup> and Yadav RJ et al<sup>18</sup> found that immunization coverage was low among children of illiterate fathers when compared to literate fathers. Our study showed that Hindu are comparatively more fully immunized (69.13%) when compared to Others (65.31%). And these findings were similar to other studies i.e., Sharma S,<sup>19</sup> Nath B et al,<sup>12</sup> Yadav RJ et al,<sup>18</sup> Imteyaz A et al<sup>14</sup>. Various socioeconomic, cultural, behavioral and other such factors of different religious groups in the study area might have responsible for this. In present study Statistical analysis clearly revealed significant relation between the immunization status of children and socioeconomic status of their families, higher proportion of complete immunized children from the families belonging to upper socioeconomic class (87.6%) in comparison to middle class (64.98%) and lower class (50.0%). Similarly, there was not a single non-immunized child from the high income group against 20.19% such children from low income families. A clear difference can be seen in case of partially immunized children also. Similarly, The UNICEF 2009-10 survey<sup>20</sup> also reported a direct relationship between the economic status of families and vaccination coverage; the respective complete vaccination rate in the ascending order of wealth quintiles was 47.3%, 61.8%, 66.4%, 70.0%, and 76.5%. In a study based in Udaipur district of Rajasthan,<sup>21</sup> shows the same findings, the coverage by ascending order of wealth quartiles was found but in contrast to our finding, Kar M et al in their study showed that lower income group (73.5%) had better coverage when compared to higher income group (59.2%),<sup>22</sup> it was due to study was carried in dense peripheral area of town. (Table 3)

Our study revealed a highly significant association between the presence of immunization card and

the immunization status of children ( $p < 0.01$ ). Study carried out by Chhabra et al<sup>17</sup> and Kumar et al<sup>23</sup> showed similar findings. Presence of immunization card reminds the mothers of the subsequent vaccinations to be given and thereby avoids drop outs and encourages them to completely immunize the child. There was not found much difference in the immunization status of children belonging to Nuclear and joint family but Kar M et al<sup>22</sup> found that children belonging to nuclear families (67.65%) were more likely to be completely immunized when compared to those belonging to joint families (63.33%). However, the association was not statistically significant.

Children whose mothers were Professional/ Clerical were found to be better immunized than children of housewife mothers. This observed difference was statistically significant. Similar to mother's education, her working status was also observed to be an important factor for completion of immunization of child. Contrary to present study results, H. Perry et al<sup>24</sup> showed that children of women who worked for money had lower immunization coverage than those whose mothers did not. Another study by Malini Kar et al<sup>22</sup> observed no difference with the occupation status of mother. Children whose father were professionals were better immunized ( $p < 0.01$ ), this can be due to better awareness and increased affordability of health services. A study by J.C. Okoro et al<sup>25</sup> and Bugvi et al<sup>26</sup> noted similar trend in the study in Nigeria and Pakistan respectively. However, a contrary view was documented in a study by Malkar et al<sup>27</sup> in India where the occupation of the father did not affect the immunization status of the child. A higher percentage of urban children (76.25%) was found to be fully immunized than those living in rural areas (61.97%). The trend found statistically significant. The NFHS-3 survey had also found 57.6% of urban children fully vaccinated against a much lower percentage of 38 in case of rural children.<sup>4</sup> A similar urban-rural gap was reported in the ICMR 1999 survey<sup>5</sup>, the UNICEF 2009-10 survey<sup>20</sup> and the Department of Family Welfare survey done in 2002,<sup>8</sup> all of which reported an urban-rural gap ranging from 9% to 24% for fully immunized children. Place of delivery was also associated with the immunization status as good immunization coverage was observed in 74.45% fully immunized children born at institution. This shows that the child born at home was less likely to have immunization services and health services are not accessible/ reached to them. The studies by Bhuwan Sharma et al<sup>28</sup> was also observed 82.3% institutional deliveries among completely immunized and only 17.7% among partially / non-immunized child. Study carried out by Trivedi et al<sup>29</sup> and Chhabra et al<sup>17</sup> showed similar

findings. Mothers who deliver at home may be non-users of health services in general. Hence there is a need to stress upon the institutional deliveries. Birth order also came out to be an important factor to influence the vaccination coverage in our study, children in the lower birth order showing a better coverage but this difference was found statistically significant. This stresses the importance of small family size so that the children get proper care and attention. The NFHS-3 data also showed a declining vaccination trend with increasing birth order.<sup>4</sup> Several other studies also show the effect of birth order on immunization coverage, including a Goa study.<sup>12, 22</sup>

In the present study, the dropout rate for OPV 1 to OPV 3 was 2.56%, DPT1 to DPT3 was 4.8% and these findings were contrary to other studies carried by Sharma R et al.<sup>30</sup>, Bholanath et al.<sup>12</sup> and Yadav et al.<sup>18</sup> where drop-out rate were much higher than our study. Drop-out rate of pentavalent was not compared because during previous studies pentavalent were not started. Over all dropout rate of our study from BCG to measles was 9.51% and it was found much less in comparison to other previous studies.<sup>12, 30, 31</sup> This difference shows the reflection of gradually development and awareness regarding complete the immunization of their children among community.

The overall dropout rate for BCG to measles in the present study was 9.51%. Similar study by Bholanath et al. in urban slums of Lucknow showed the overall dropout rate of 33.24%. Sharma R et al.<sup>30</sup> in their study showed that the dropout rate for BCG to measles was 60.2% in the slums of Surat.<sup>33</sup> In the present study, the overall dropout rate for DPT 1 to DPT 3 was 4.82%. Sharma R et al.<sup>30</sup> in the slums of Surat, Bholanath et al.<sup>12</sup> in urban slums of Lucknow, and Yadav et al.<sup>18</sup> in urban slums of Jamnagar showed that the dropout rate for DPT 1 to DPT 3 was 31.9%, In the present study, Obstacle and lack of information were significant reasons for incomplete immunization of the child. Similarly, Vohra R et al<sup>13</sup> in a study in urban and rural area of Lucknow showed that, Lack of motivation and obstacle were significant reasons for partial immunization of the child and lack of information was the major reason for unimmunization of the child.

## CONCLUSION

In this study, majority (65.8%) of children were completely immunized. Significant association was found between educational status of mother and socioeconomic status of family with immunization status of children. In this study, overall coverage of immunization is good but still, it has pockets of

partial immunization and non-immunization. So there is an urgent need to review the current strategies of immunization..

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