

An assessment of knowledge and utilisation of Mission Indradhanush at Qutub Vihar, New Delhi: A cross-sectional study

Akanksha, Nancy Modi, Nida Shaikh, Sumant Swain

International Institute of Health Management Research (IIHMR), New Delhi, India.

ABSTRACT

Background : The Mission Indradhanush, is a flagship programme started by the Government of India in 2014. The objective is to achieve full immunization coverage for children up to 2 years of age and pregnant women. But the urban area has faced a lot of implementation challenges to cover full immunization. **Materials and Methods:** The community-based cross-sectional study was conducted in the peri-urban area of Qutub Vihar, Goyla Dairy, Southwest District, New Delhi between the period of June 2022 and August 2022 to assess the immunization status of the children along with the assessment of the knowledge, attitude, and practice among mothers having children below two years of age. **Results:** Out of 155 participants, only 26 percent heard about Mission Indradhanush, and among those 26 percent participants, only 45 percent know about its ongoing immunization services. 14 percent of children were partially vaccinated, 85 percent of children were fully vaccinated, and one percent were not vaccinated. **Conclusion:** The age of the mother and literacy level of the father and mother is significantly related to the vaccination status of the child. Almost all the child was vaccinated at a government facility and were registered at a nearby facility. Most of the participants were unaware of Mission Indradhanush and its ongoing services at government facilities. Community workers must strengthen the IEC activities related to Mission Indradhanush at the community level for better utilization of services.

Keywords: Mission Indradhanush, child immunization, immunization status, urban area, Qutub Vihar, peri-urban area, and cross-sectional study.

INTRODUCTION

Vaccines are proven one of the most affordable, effective, and safe methods to provide protection to infants and children from diseases, morbidity, and mortality. The World Health Organization (WHO) estimates that about two to three million deaths under five years of age could be preventable through immunization. Over time, many policies, programmes, and targets have been adopted and implemented at the international and national levels to improve immunization. Due to the COVID-19 pandemic and associated disruptions, twenty-five million children unable to take vaccination in 2021[1]. Therefore, World Health Organization has adopted the Immunization Agenda 2030 (IA2030) to address immunisation challenges over the

next decade and set a target to save over 50 million lives. IA2030 aims for a world where everyone, everywhere, at every age, fully benefits from vaccines

Address for correspondence :

Dr Sumant Swain, Assistant Professor
International Institute of Health Management Research (IIHMR),
Plot No 3, Sector 18 A, Dwarka, New Delhi-110075, India.
Email: sumanta.swain@gmail.com
ORCID ID: <https://orcid.org/0000-0003-2513-1739>

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to improve health and well-being. The objective of this agenda is to maintain hard-won gains in immunization, recover from the disruptions caused by COVID-19, and achieve even more – by leaving no one behind, in any situation or at any stage of life[2].

India has been implementing the largest immunization programme in the country which annually covers more than thirty million pregnant women and twenty-six million children through the Universal Immunization Programme (UIP)[3]. This programme was introduced in 1978 as the ‘Expanded Programme of Immunization’ (EPI) by the Ministry of Health and Family Welfare, Government of India. This programme was renamed the ‘Universal Immunization Programme,’ in 1985 and covered all districts in the country by 1989-90. After many years of implementation, UIP has only been able to fully immunize 65 percent of children in their first year of life[4]. Under this programme, India provides free vaccination against vaccine-preventable diseases such as diphtheria, polio, pertussis, tetanus, measles, a severe form of childhood tuberculosis, hepatitis B, meningitis, and pneumonia (*Hemophilus influenzae* type B infections), and Japanese encephalitis (JE) in JE endemic districts with the introduction of newer vaccines such as rotavirus vaccine[5]. The Mission Indradhanush, a flagship programme launched by the Government of India in 2014, aims to achieve full immunization coverage for children up to two years of age and pregnant women. India has also launched Intensified Mission Indradhanush 2.0 to cover the unreachable with all accessible vaccinations and speed up the coverage of children and pregnant women in the designated districts and blocks from December 2019 to March 2020. As of April 2021, during the various phases of Mission Indradhanush, a total of 38.6 million children and 9.68 million pregnant women have been vaccinated[6]. India launched Intensified Mission Indradhanush (IMI) 4.0 on 7 February 2022 to enhance the coverage of the Universal Immunization Programme (UIP). The NFHS-5 report revealed that full immunization coverage among children aged 12-23 months of age has increased from 62 percent (NFHS-4) to 76.4 percent (NFHS-5) at the national level. According to this report, Delhi has 80 percent immunization status with rural Delhi having 79 percent immunization coverage for children. All the districts in Delhi are listed under intensified routine immunization in 2015. Southwest Delhi has 77 percent full immunization coverage, according to NFHS 5 data. So, the Southwest

district of Delhi is lacking behind the immunisation target. With this cross-sectional study, we aimed to assess the knowledge and utilisation of Mission Indradhanush at Qutub Vihar, New Delhi, India.

MATERIALS AND METHODS

A community-based cross-sectional study was conducted in the peri-urban area of Qutub Vihar, Goyla Dairy, South West district, New Delhi between the period of June 2022 and August 2022. A small study was planned with around twenty-five hundred of the population residing in a part of this area. The study participants were mothers of children of age less than 2 years from different age groups, education levels, and diverse experience in the immunization programme.

Calculated using Stat Cal sample size calculator of Epi Info for simple random sampling in a population survey with the expected frequency of 14.85 percent, with a 10 percent acceptable margin of error, a design effect of one, and a 95 percent of confidence level, the sample size was estimated as 155.

The snowball sampling technique was used for gaining the desired numbers. The technique was followed in two steps: (1) identification of mothers of all the children of age 0-2 years from the ASHA registers in the Qutub Vihar area. (2) These participants were asked to give information about immunization-related information and so on. This was continued till all 155 mothers were identified and included in this study.

The protocol was approved by the IIMR Student Research Review Board. After obtaining informed consent, data on socioeconomic characteristics, parental awareness regarding Mission Indradhanush, vaccination status of the child, parental knowledge, attitude, and practices regarding routine vaccination were collected using a structured questionnaire designed through a google form. Socio-economic status was assessed using the Modified Kuppuswamy Scale. The collected data were coded and analyzed with the help of STATA. Descriptive statistics and cross-tabulation were mainly used for data analysis.

RESULTS

Out of a total of 155 participants, 11 percent of mothers were in the age group (less than 20 years), 75 percent in the age group (20-30 years), and 14 percent in the age group (more than 30 years). 33 percent of mothers

were illiterate, 49 percent had an education up to high school and only 18 percent had an education above high school. 86 percent of women were housewives and only 14 percent were employed. 92 percent of women had undergone institutional delivery and 8 percent had home delivery.

This study found that 24 percent of fathers of the child were illiterate, 50 percent had an education up to high school, and only 26 percent had an education above high school. 5 percent of the fathers were unemployed, 35 percent worked daily, 24 percent were regularly salaried, and 36 percent were self-employed. (Table:1)

Table 1: Characteristics of the study population

Maternal Characteristics

Characteristics	Frequency (N)	Percentage
Age of Mother		
Less than 20 years	18	11%
20-30 years	116	75%
More than 30 years	21	14%
Education Status		
Uneducated	51	33%
Up to High School	75	49%
High School and above	29	18%
Occupation		
Housewife	134	86%
Employed	21	14%
Place of Delivery		
Institutional	143	92%
At Home	12	8%
Characteristics of Father		
Characteristics of Father	Frequency	Percentage
Educational Status		
Uneducated	38	24%
Up to High School	79	50%
High School and above	38	26%
Occupation		
Unemployed	7	5%
Wages	55	35%
Regular Salaried	38	24%
Self Employed	55	36%

Table 2: Characteristics of study population P Value

Variables	Awareness of Mission Indra Dhanush	P value	Awareness on Immunization	P value
Age of Mother				
Less than 20 years	3	0.708	12	0.027
20-30 years	12		52	
More than 30 years	2		5	
Education Status of Mother				
Uneducated	6	0.975	34	0.00
Up to High School	8		29	
High School and above	3		6	
Education Status of Father				
Uneducated	8	0.002	26	0.002
Up to High School	4		31	
High School and above	4		11	
Occupation of Father				
Unemployed	1	0.44	3	0.08
Wages	3		19	
Regular Salaried	5		15	
Self Employed	8		32	
Place of Delivery				
Institutional Delivery	14	0.105	61	0.108
At Home	3		8	

Sources of information are very important to avail of the services. 76 percent of the total participants got to know about the immunization services from ASHA, 11 percent from AWW, 4 percent from ANM, and 9 percent from informal sources or self. (Table:3)

Table 3: Source of information on Immunization services

Source of Immunization services	Frequency	Percentage
ASHA	118	76%
AWW	17	11%
ANM	6	4%
INFORMAL SOURCES	14	9%
N	155	100%

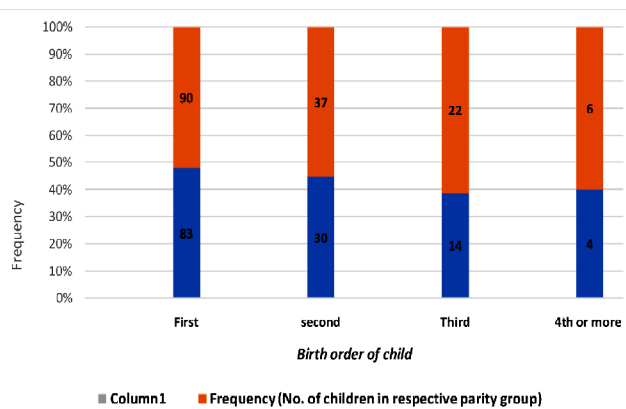
The perception and attitude of the individual differ from person to person on immunization. 28percentof participants consider immunization as important, and 72 percent consider it very important. (Table:4)

Table 4: Importance of Immunization for child

Rate the Importance of Immunization for child	Frequency	Percentage
Important	43	28%
Very important	112	72%
N	155	100%

Out of 155 participants interviewed, 58 percent (n=90) were the first child, 24 percent (n=37) was the second child, 14percent(n=22) were the third child and 4 percent (n=6) wasthe fourth child or more. Out of those 90 first-parity children, 83 children were fully vaccinated, 30 children out of 37-second parity were fully vaccinated, 14 children out of 22 third-parity children, and only 4 out of 6 fourth-parity children were fully vaccinated. Out of the total participants,91 percent got their child immunized at a government facility, and only 9percentvisit a private facility for their child vaccination. Out of which 94 percent got their child registered at the nearest health facility.

Figure 1: Birth Order of the children (n)



Out of 155 participants, only 26 percent (n=17) heard about Mission Indradhanush and among those 26percentparticipants, only 45 percent (n=69) know about its ongoing immunization services.

Out of the total of 155 participants,14 percent of children were partially vaccinated, 85 percent of children were fully vaccinated, and 1 percent were not vaccinated.

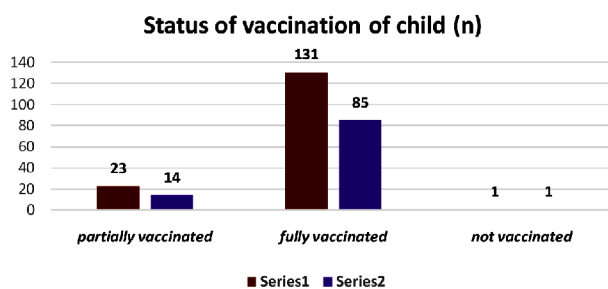
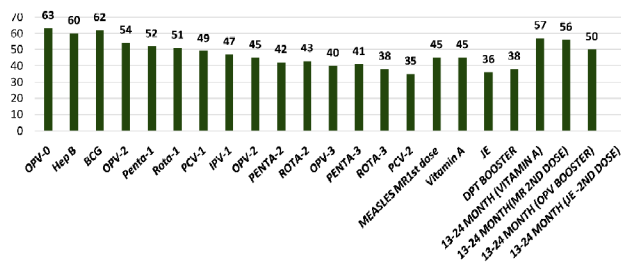


Figure 3: Vaccination status (n)



children were either partially vaccinated or not vaccinated, fourteen were not aware of the vaccine or time of vaccination, eight were not in the area at the time of vaccination day, two children were sick after past vaccination, one had a bad experience with healthcare providers, and one had financial difficulty in accessing the service. Only twopercent of participants paid the cost of immunization. 17percent of children experienced adverse effects after immunization. Out of these 17 percent, only 8 percent (n=5) report to health facilities the adverse effect after immunization. Out of these 8 percent, 60 percent (n=3) visited UPHC and 40 percent (n=2) visited private clinics. The study instrument also asked about personal experiences at the time of the facility visits. 20percentof participants out of the 8percent(n=5) have given scale ratings. 60 percent have given a four-scale rating and 20percent have given five a scale rating for the level of satisfaction with facility services. 90 percent of the total participants were aware of the next immunization schedule.

DISCUSSION

The present study found that most (75%) of the mothers were in the age group of 20-30 years, had high school education (49%) and was a housewife (89%), and had institutional delivery (92%). The majority of the fathers had a high school education (50%) and were self-employed (36%). Most of the participants we interviewed had male children (53%) and were in the age group of 13 to 24 months (43%). Government facilities were considered by 93 percent of participants for child

immunization. 94 percent of participants got their child registered at a nearby facility. Most of the participants had 2 children (42%) and 1st child was mostly immunized (58%). The education of the father and mother has a great impact on immunization and role of gender has a greater role in immunization coverage.

This study showed that the IEC campaign is very poor to reach out at the community level. Only 26 percent of participants have heard about the mission of Indradhanush. Most of the participants were unaware of Mission Indradhanush. ASHA was the major source of immunization services. Many of the study participants consider immunization as very important (72%) for children's life. A similar study conducted by Summan et al reported that children with mothers who had graduate degrees had 75 percent coverage of full vaccination as compared with 59 percent among children whose mothers had no schooling. There was also a large urban-rural divide in vaccination rates. Rural children had 80percentfull vaccination coverage as compared with 66 percent among urban (peri-urban areas) children [7].

This study found that almost all the children were fully vaccinated (85%) and only 15 percent were not vaccinated or partially vaccinated. Frances et al study also indicated that parents found difficulties in accessing routine immunization when traveling for work. This study showed knowledge gaps regarding the benefits and risks of vaccination, and fears surrounding certain vaccines due to negative news reports and common side effects [8]. Most of the participants were aware of the next immunization schedule, indicating that people are aware of the vaccination and its importance. The major reason for partial or no vaccination was either not aware of the vaccine or time of vaccination or not being in the area at the time of vaccine day. Vaccination was free of cost for almost all except for two percent who had to pay for vaccination.

ANMs were not provided sufficient information regarding the name of the vaccine, diseases prevented, normal or adverse effects of the vaccine, and their management. Only post-immunization instructions were given by ANM about the next schedule and benefits of immunization cards. Few participants were not satisfied with immunization services (11%) at the government facility level.

CONCLUSION

Mission Indradhanush is the most important flagship program to immunize children. Over a period, this programme has been modified to increase immunization coverage including migrants, vulnerable populations, children in pockets of less immunization coverage, and high-risk, and hard-to-reach areas. Despite many innovations and strategies, this programme faced lots of problems in urban areas mainly peri-urban areas. IEC activities and training of frontline health workers need to be strengthened to succeed in this programme. The collective and collaborative efforts of the healthcare providers, communities, and beneficiaries would be required to achieve the target of full immunization coverage in the country, especially in the peri-urban areas.

Author Contributions:

AK, NM & NS conceptualized the study, collected the data, analysed the results, and drafted the manuscript and SS analysed and drafted the final manuscript. All authors read and approved the final manuscript.

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