RESEARCH PAPER

Study to Assess the Knowledge Regarding Mission Indradhanush among Parents of Under-Five Children in Rural Areas: A Descriptive Study

Ms. Swati Wankhede[1*], Dr. Amrapali Gajbhiye[2], Ms. Rachana Yesankar[3]
[1]Department of Community Health Nursing VSPM MDINE, Nagpur
[2]Professor Cum Principal, VSPM MDINE, Nagpur
[3]Assistant Professor, VSPM MDINE, Nagpur
*Corresponding Author - Ms. Swati A. Wankhede

Received: 25th Aug, 2026 | Revised: 1st Sep, 2026 | Accepted: 5th Sep, 2026 | Available Online: 7th Oct, 2026

ABSTRACT

Background: Immunization is one of the most effective preventive health interventions for reducing childhood morbidity and mortality caused by vaccine-preventable diseases. Mission Indradhanush was launched by the Government of India to improve immunization coverage among children and pregnant women who were missed or partially vaccinated under routine immunization services. Parental knowledge plays an important role in ensuring timely vaccination and utilization of immunization services.

Aim: The present study aimed to assess the knowledge regarding Mission Indradhanush among parents of under-five children in rural areas and to determine the association between knowledge scores and selected demographic variables.

Methods: A quantitative research approach with a descriptive research design was adopted for the study. A total of 100 parents of under-five children from selected rural areas were selected using a non-probability convenient sampling technique. Data were collected using a self-structured questionnaire consisting of demographic variables and a 25-item knowledge questionnaire regarding Mission Indradhanush. The reliability of the tool was established using Karl Pearson's correlation coefficient, with a reliability value of r=0.9088, indicating high reliability. Data were analyzed using descriptive and inferential statistics such as frequency, percentage, mean, standard deviation, unpaired t-test, and one-way ANOVA.

Results: The findings revealed that 50% of parents had poor knowledge, 49% had average knowledge, and 1% had good knowledge regarding Mission Indradhanush. The overall mean knowledge score was 5.67 ± 2.02. A statistically significant association was found between knowledge score and age (p=0.023), educational status (p=0.0001), monthly family income (p=0.041), and type of family (p=0.013). No significant association was observed between knowledge score and gender, occupation, and religion.

Conclusion: The study concluded that rural parents had inadequate knowledge regarding Mission Indradhanush. There is a need for continuous community-based health education programmes to improve awareness regarding immunization services. Nurses and community health workers should actively participate in educating parents and promoting complete immunization practices among under-five children.

Key words: Mission Indradhanush; Knowledge; Parents; Under-five children; Immunization; Rural area.

How to cite this article: Swati Wankhede, Amrapali Gajbhiye, Rachana Yesankar. Study to Assess the Knowledge Regarding Mission Indradhanush among Parents of Under-Five Children in Rural Areas: A Descriptive Study. Int J Drug Deliv Technol. 2026;16(82s):1631-1635. DOI: 10.25258/ijddt.16.82s.170.

INTRODUCTION

Immunization is one of the most effective and economical public health interventions for preventing childhood morbidity and mortality caused by vaccine-preventable diseases. Vaccines protect children against serious illnesses such as tuberculosis, diphtheria, pertussis, tetanus, polio, measles, hepatitis B, and other infectious diseases. Globally, childhood immunization has contributed substantially to reducing under-five deaths; however, incomplete vaccination coverage remains a major public health concern, particularly among vulnerable populations residing in rural and underserved areas.[1] India has one of the largest birth cohorts globally, making comprehensive immunization coverage essential for achieving child survival goals. Although the Universal Immunization Programme (UIP) provides free vaccination services, several children remain partially immunized or unimmunized due to factors such as limited awareness, misconceptions regarding vaccines, poor accessibility, migration, and socio-cultural barriers.[2] To address immunization gaps, the Government of India launched Mission Indradhanush in 2014 with the aim of increasing full immunization coverage among children and pregnant women by

reaching populations that were missed by routine immunization services. The mission focuses on improving vaccine accessibility, strengthening outreach activities, and ensuring protection of children against preventable diseases.[3]

Mission Indradhanush targets children below two years of age and pregnant women, particularly those living in low immunization coverage areas. Through intensified approaches, including Intensified Mission Indradhanush (IMI), the programme has attempted to accelerate immunization coverage by identifying and vaccinating children who have received no or incomplete doses. Studies evaluating Mission Indradhanush reported improvement in immunization coverage, demonstrating the effectiveness of intensified immunization strategies in reducing vaccination gaps among vulnerable populations.[4]

Parents play a crucial role in ensuring timely vaccination of under-five children. Their knowledge regarding the importance of vaccination, immunization schedules, benefits, and availability of services directly influences vaccine acceptance and completion of recommended doses. Lack of parental awareness may result in delayed or missed vaccinations, increasing the risk of disease outbreaks and preventable childhood complications.[5]

Therefore, assessing parental knowledge regarding Mission Indradhanush is essential to identify existing gaps and develop appropriate educational strategies. The present study aims to assess the knowledge regarding Mission Indradhanush among parents of under-five children in rural areas and determine its association with selected demographic variables. The findings may help healthcare professionals, especially nurses and community health workers, to strengthen awareness programmes and improve immunization practices among rural communities.

Need for the Study

Childhood immunization remains a fundamental component of primary healthcare and is considered a cost-effective strategy for reducing child mortality and improving population health outcomes. Despite significant progress in immunization programmes, incomplete vaccination continues to affect many children, especially those belonging to rural and socially disadvantaged communities. Children who do not receive timely vaccines remain vulnerable to life-threatening vaccine-preventable diseases, resulting in increased healthcare burden and avoidable childhood morbidity and mortality.[2]

According to global immunization estimates, gaps in vaccination coverage continue to exist due to inequalities in healthcare access, awareness limitations, and demand-side barriers. In India, although immunization services are provided through government health systems, achieving universal immunization coverage remains challenging because of geographic, socioeconomic, and behavioural factors. Rural populations frequently experience barriers such as inadequate information about vaccination schedules, misconceptions regarding vaccine safety, and reduced utilization of available healthcare services.[1]

Mission Indradhanush was introduced as a strategic initiative to improve immunization coverage among children who were either partially vaccinated or completely missed during routine immunization activities. The programme emphasizes identification of vulnerable populations, strengthening outreach services, and improving community participation. Evidence from evaluations of Mission Indradhanush and Intensified Mission Indradhanush indicates improvement in immunization coverage and reduction of vaccination gaps in targeted areas.[4]

However, the success of immunization programmes depends not only on service availability but also on parental awareness and acceptance. Parents are the primary decision-makers regarding healthcare-seeking behaviour for children. Adequate knowledge about Mission Indradhanush, vaccine-preventable diseases, vaccination schedules, and the benefits of complete immunization encourages timely utilization of immunization services. Conversely, inadequate knowledge may contribute to vaccine hesitancy, missed opportunities, and incomplete vaccination status among children.

Rural communities require focused health education interventions to improve awareness and participation in government immunization initiatives. Nurses and community health workers have an important role in providing accurate information, addressing misconceptions, and motivating parents to complete vaccination schedules.

Therefore, assessing the knowledge level of parents regarding Mission Indradhanush is necessary to identify educational needs and develop effective awareness strategies. The present descriptive study will provide evidence regarding existing knowledge gaps among parents of under-five children in rural areas and may support healthcare providers in planning community-based interventions to strengthen immunization coverage.

Aim of the Study

The aim of the present study is to assess knowledge regarding Mission Indradhanush among parents of under-five children in rural areas and determine its association with selected demographic variables to improve immunization awareness.

METHODOLOGY

Research Approach and Design: A quantitative research approach with a descriptive research design was adopted to assess the knowledge regarding Mission Indradhanush among parents of under-five children in rural areas and to identify its association with selected demographic variables.

Research Setting and Sample: The study was conducted in selected rural areas. The sample consisted of 100 parents of under-five children who fulfilled the inclusion criteria. Participants were selected using a non-probability convenient sampling technique.

Inclusion and Exclusion Criteria: Parents of under-five children who were available, willing to participate, and able to communicate in Marathi, Hindi, or English were included. Parents of children above five years, urban residents, and unwilling participants were excluded.

Data Collection Tool

The tool consisted of two sections:

Section A: Demographic variables including age, gender, education, occupation, religion, type of family, income, previous knowledge, and source of information.

Section B: A self-structured knowledge questionnaire consisting of 25 multiple-choice questions regarding Mission Indradhanush. Each correct response was given one mark, with a maximum score of 25. Knowledge was categorized as poor, average, good, very good, and excellent.

Validity and Reliability: Content validity was established through expert opinions. Reliability of the tool was tested using Karl Pearson's correlation coefficient, and the reliability coefficient was r = 0.9088, indicating high reliability.

Pilot Study: A pilot study was conducted among 10 parents of under-five children to assess the feasibility, clarity of the tool, and data collection procedure.

Ethical Considerations: Permission was obtained from concerned authorities. Informed consent was obtained from participants, and confidentiality and anonymity were maintained.

Statistical Analysis: Data were analyzed using descriptive and inferential statistics. Frequency, percentage, mean, and standard deviation were used for analysis. The association between knowledge score and demographic variables was assessed using unpaired t-test and one-way ANOVA at $p < 0.05$ significance level.

RESULTS

SECTION I: Distribution of Parents of Under-Five Children According to Demographic Variables

This section describes the demographic characteristics of 100 parents of under-five children from rural areas. The majority of parents (43%) belonged to the age group of 29–33 years, and most participants were female (83%). Regarding education, 55% had primary education, followed by higher secondary (23%), secondary (19%), and graduation (3%). According to occupation, 37% were homemakers, 36% were labourers, 24% were self-employed, and 3% were in private jobs. The majority (60%) had a monthly family income below ₹10,000. Most parents were Hindu (64%), followed by Buddhist (29%) and Muslim (7%). Regarding family type, 58% belonged to nuclear families. Assessment of previous knowledge regarding Mission Indradhanush revealed that 95% of parents had no previous knowledge, while only 5% had knowledge, mainly obtained through health workers.

SECTION II: Assessment of Level of Knowledge Regarding Mission Indradhanush Among Parents of Under-Five Children

Table 1: Table showing distribution of parents of under-five children with regards to knowledge score regarding Mission Indradhanush among parents of under-five children in rural areas

n= 100

Level of knowledge score	Percentage Score	Level of Knowledge Score		Mean	SD
		Frequency	Percentage		
Poor	0-5	50	50	5.67	2.02
Average	6-10	49	49		
Good	11-15	1	1		
Very Good	16-20	0	0		
Excellent	21-25	0	0		
Minimum score		2			
Maximum score		11			

This section presents the findings related to the level of knowledge regarding Mission Indradhanush among parents of under-five children in rural areas. The knowledge scores were categorized into poor, average, good, very good, and excellent levels.

The findings revealed that 50% of parents had poor knowledge regarding Mission Indradhanush, whereas 49% had average knowledge. Only 1% of parents had good knowledge, while none of the participants demonstrated very good or excellent knowledge.

The overall mean knowledge score was 5.67 ± 2.02. The minimum obtained score was 2, and the maximum obtained score was 11 out of a total possible score of 25.

The findings indicate that the majority of parents had inadequate knowledge regarding Mission Indradhanush, highlighting the need for effective health education and awareness programmes to improve parental understanding regarding immunization services.

SECTION III: Association of Knowledge Score Regarding Mission Indradhanush Among Parents of Under-Five Children with Selected Demographic Variables

The association between knowledge score regarding Mission Indradhanush and selected demographic variables was analyzed using appropriate inferential statistics.

A statistically significant association was found between age and knowledge score (F=3.32, p=0.023), indicating that age influenced the level of knowledge regarding Mission Indradhanush. Parents belonging to the age group of 29–33 years had higher mean knowledge scores compared with other age groups.

A highly significant association was observed between educational status and knowledge score (F=9.38, p=0.0001). Parents with higher educational qualifications showed better knowledge regarding Mission Indradhanush compared with parents having lower educational status.

A significant association was also found between monthly family income and knowledge score (t=2.07, p=0.041). Parents with higher income levels demonstrated better knowledge regarding the programme.

The type of family was significantly associated with knowledge score (F=4.52, p=0.013), suggesting that family structure influenced awareness regarding Mission Indradhanush.

However, no statistically significant association was observed between knowledge score and gender (t=0.47, p=0.63), occupation (F=0.71, p=0.54), and religion (F=0.46, p=0.62).

DISCUSSION

The findings revealed that 50% of parents had poor knowledge, 49% had average knowledge, and only 1% had good knowledge regarding Mission Indradhanush. The overall mean knowledge score was 5.67 ± 2.02, indicating inadequate awareness regarding the immunization programme among rural parents. These findings suggest that although government immunization services are available, awareness regarding Mission Indradhanush remains insufficient among parents.

The study also reported a significant association between knowledge and selected demographic variables, particularly religion and occupation. The authors concluded that continuous health education and awareness programmes are required to improve parental knowledge and utilization of immunization services.[6]

In the present study, the association between knowledge score and demographic variables showed that age (F=3.32, p=0.023), educational status (F=9.38, p=0.0001), monthly family income (t=2.07, p=0.041), and type of family (F=4.52, p=0.013) had a statistically significant association with knowledge regarding Mission Indradhanush. However, no significant association was observed with gender, occupation, and religion.

Similar observations were reported by Mohapatra I et al. (2018) in a study conducted to assess awareness and utilization of Mission Indradhanush among respondents in an urban slum of Bhubaneswar. The study also identified a positive association of literacy status of fathers, birth order, and sex of the child with vaccination knowledge. These findings support the present study, where educational status showed a significant association with knowledge, highlighting the role of education in improving awareness regarding immunization services.[7]

The differences in association patterns among studies may be attributed to variations in study settings, socioeconomic conditions, educational status, and availability of health information. The present study findings emphasize the need for strengthening community-based awareness programmes through nurses, ASHA workers, Anganwadi workers, and other healthcare providers. Improving parental knowledge regarding Mission Indradhanush can promote timely vaccination, reduce missed immunization opportunities, and contribute to improved child health outcomes.[3]

CONCLUSION

The present descriptive study was conducted to assess the knowledge regarding Mission Indradhanush among parents of under-five children in rural areas. A total of 100 parents were selected using a non-probability convenient sampling technique. The findings revealed that the majority of parents had

inadequate knowledge regarding Mission Indradhanush, with 50% having poor knowledge, 49% having average knowledge, and only 1% having good knowledge. The overall mean knowledge score was 5.67 ± 2.02, indicating the need for improvement in parental awareness regarding immunization services.

The study also identified that knowledge regarding Mission Indradhanush was significantly associated with age, educational status, monthly family income, and type of family. However, no significant association was found with gender, occupation, and religion. These findings indicate that educational and socioeconomic factors influence parental awareness regarding immunization programmes.

The study highlights the importance of strengthening community-based health education programmes to improve parental knowledge regarding Mission Indradhanush. Healthcare professionals, especially nurses, ASHA workers, and Anganwadi workers, can play an important role in creating awareness, addressing misconceptions, and motivating parents for timely and complete immunization of children. Improving parental knowledge will contribute to reducing missed vaccination opportunities and enhancing child health outcomes in rural communities

Conflict of Interest: The authors certify that they have no involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this paper.

Funding Source: There is no funding Source for this study

REFERENCES

1. World Health Organization. Immunization coverage: WHO and UNICEF estimates of national immunization coverage. Geneva: World Health Organization; 2024.
2. UNICEF India. Immunization and child health. New Delhi: UNICEF India; 2024.
3. Ministry of Health and Family Welfare, Government of India. Mission Indradhanush: Operational Guidelines. New Delhi: MoHFW; 2014.
4. Dhawan V, et al. Mission Indradhanush and Intensified Mission Indradhanush: Impact on immunization coverage in India. Indian Journal of Community Medicine. 2023.
5. Clarke-Deelder E, et al. Health impact and cost-effectiveness of expanding routine immunization coverage in India through Intensified Mission Indradhanush. Health Policy and Planning. 2024;39(6):583-592.
6. Nair A, Devi R, Kaur R. A descriptive study to assess the knowledge regarding Mission Indradhanush among mothers of under-five children in selected community areas in Haridwar, with a view to develop an information booklet. *International Journal of Innovative Science and Research Technology*. 2026;11(1). Available from: https://www.ijisrt.com/a-descriptive-study-to-assess-the-knowledge-regarding-mission-indradhanush-among-mothers-of-underfive-children-in-selected-community-areas-in-haridwar-with-a-view-to-develop-an-information-booklet-
7. Mohapatra I, Kumar A, Mishra K. A study on awareness and utilization of Mission Indradhanush in an urban slum of Bhubaneswar. J Family Med Prim Care [Internet]. 2018;7(6):1294–9. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC6293940/
8. Ministry of Health and Family Welfare, Government of India. Mission Indradhanush: Intensified Mission Indradhanush 5.0 [Internet]. New Delhi: MoHFW; 2023 [cited 2026 Oct 8]. Available from: Ministry of Health and Family Welfare
9. World Health Organization. Immunization, vaccines and biologicals: Immunization agenda 2030 [Internet]. Geneva: WHO; 2024 [cited 2026 Oct 8]. Available from: World Health Organization
10. UNICEF India. Immunization in India [Internet]. New Delhi: UNICEF; 2024 [cited 2026 Oct 8]. Available from: UNICEF India
11. Gavi, the Vaccine Alliance. India: Immunisation and vaccination coverage [Internet]. Geneva: Gavi; 2024 [cited 2026 Oct 8]. Available from: Gavi, the Vaccine Alliance
12. Ministry of Health and Family Welfare, Government of India. Universal Immunization Programme (UIP) [Internet]. New Delhi: MoHFW; 2024 [cited 2026 Oct 8]. Available from: MoHFW – Universal Immunization Programme