

A Pre Experimental Study To Assess The Effectiveness Of Pamphlet On Knowledge Regarding Hexavalent Vaccination Among Mothers Of Children In Selected Paediatric Opd's Of Pune City

Prajakta Petkar^{1*}, Kanchan Shinde²

¹M. Sc Nursing Student, Child Health (Paediatric) Nursing, Bharati Vidyapeeth (Deemed to be University) College of Nursing, Pune.

²Clinical instructor, Child Health (Paediatric) Nursing Department, Bharati Vidyapeeth (Deemed to be University) College of Nursing, Pune.

***Corresponding Author**
Prajakta Petkar

ABSTRACT

Background: Over the past two decades, several new vaccines have been developed, significantly enhancing protection against childhood infectious diseases. Hexavalent vaccines, which combine six essential vaccines—diphtheria, tetanus, pertussis, poliomyelitis, hepatitis B, and Haemophilus influenzae type b (Hib)—simplify immunization schedules and improve adherence. Despite their availability, maternal knowledge regarding these vaccines remains suboptimal, affecting timely vaccination. Educational tools like pamphlets have been shown to improve awareness and practices related to child health. **Objective:** To evaluate the impact of an educational pamphlet on mothers' knowledge regarding hexavalent vaccination in paediatric outpatient departments of Pune city. **Methods:** A pre-experimental one-group pre-test post-test design was adopted. One hundred mothers of children aged 0–5 years attending selected paediatric OPDs were purposively sampled. A validated structured questionnaire with 20 multiple-choice questions assessed baseline knowledge, categorized as poor, average, or good. After administering the pre-test, mothers received an educational pamphlet covering the diseases prevented, schedule, benefits, and side effects of the hexavalent vaccine. Post-test knowledge was assessed after review. Data were analysed using paired t-tests and chi-square tests to evaluate the effectiveness and associations with demographic variables. **Results:** Pre-intervention, 37% of mothers had poor knowledge, 57% had average knowledge, and only 6% had good knowledge. Post-intervention, 96% achieved good knowledge, with none remaining in the poor category. Paired t-test confirmed a highly significant increase in knowledge ($t = 24.77$, $p < 0.001$). Maternal education, employment status, and family income were significantly associated with baseline knowledge, whereas age of mother, age of child, and child's gender were not. **Conclusion:** Educational pamphlets are highly effective in improving maternal knowledge regarding hexavalent vaccination. They offer a low-cost, accessible, and structured approach to health education, empowering mothers to make informed decisions, ensuring timely immunization, and potentially enhancing child health outcomes. Integrating pamphlet-based interventions into routine paediatric services can strengthen public health initiatives and improve vaccine coverage.

KEYWORDS: Hexavalent vaccine, maternal knowledge, childhood immunization, educational pamphlet, paediatric outpatient department.

How to Cite: Prajakta Petkar, Kanchan Shinde, (2025) A Pre Experimental Study To Assess The Effectiveness Of Pamphlet On Knowledge Regarding Hexavalent Vaccination Among Mothers Of Children In Selected Paediatric Opd's Of Pune City, Vascular and Endovascular Review, Vol.8, No.7s, 78-81.

INTRODUCTION

The non-cancerous enlarge

Over the last 20 years a significant number of new effective vaccines against infectious diseases have become available. Most of these have been adopted worldwide for use in children, with a relevant increase in the complexity of paediatric immunization schedules.¹

Vaccines play a key role in reducing both illness and death caused by numerous childhood infections. Maintaining high vaccination coverage is essential for controlling diseases and preventing outbreaks. Hexavalent combination vaccines offer protection against six serious infections: diphtheria, tetanus, pertussis, poliomyelitis, hepatitis B, and Haemophilus influenzae type b (Hib). By combining multiple vaccines into a single injection, these vaccines can decrease the number of injections per clinic visit and reduce the total number of visits required to complete a child's immunization schedule. As a result, hexavalent vaccines improve adherence to vaccination schedules and ensure timely immunization, contributing to higher overall coverage. Among various factors influencing compliance with immunization schedules, concerns about vaccine safety remain the most commonly reported reason for hesitancy or delayed uptake².

Childhood immunization is globally recognized as one of the most successful and cost-effective strategies for preventing infectious diseases³. According to the World Health Organization (WHO), vaccines prevent 4–5 million deaths every year⁴. In

India, despite progress under the Universal Immunization Programme (UIP), vaccine-preventable diseases (VPDs) remain a major cause of under-five mortality⁵.

Despite their benefits, maternal awareness remains suboptimal. A recent pilot study in Jharkhand found that although most mothers favoured immunization, many lacked knowledge about newer vaccines and appropriate schedules⁴. Similarly, a study in Karnataka revealed that 61% of mothers had only average knowledge of immunization, with literacy strongly influencing awareness⁶.

Health education can bridge this gap. Pamphlets are simple, low-cost tools that improve awareness across diverse health topics. Studies have demonstrated their effectiveness in enhancing knowledge of breastfeeding, infection prevention, and immunization⁷. Jelly et al. recently confirmed that structured materials significantly improved parents' knowledge, attitudes, and practices regarding childhood immunization⁸.

NEED OF THE STUDY

Immunization has been recognized as one of the most successful and cost-effective strategy for improving child survival all over the world. Over the past few years, a host of newer vaccines have been developed leading to better protection of children from life-threatening illnesses. These vaccines were initially introduced in developed countries and have proved effective in reducing their disease burden.

Due to vaccinations introduction, a considerable number of diseases have been controlled and avoided. Those diseases comprehend Diphtheria, Tetanus, Pertussis, Poliomyelitis, Hepatitis B and Hib infections, for whom immunization can be reached in a single vaccine administration, hexavalent vaccine.⁹

Aleena Sunny(2018) A Study to Assess and Correlate the Knowledge, Attitude and Practices of Vaccination among Mothers with Educational Status in a Teaching Hospital in South India. : Even though most of the mothers had satisfactory knowledge, attitude and practice, almost 25% children were identified as un-immunized or partially immunized. Educational status of mothers were identified as an independent factor in the determination of their children's vaccination status. There is an urgent need to increase the coverage of UIP (Universal Immunization Programme) vaccines and there is a dire need to arrange for health education program sessions for all the parents regarding the importance of complete adherence of vaccination among children. TV, newspaper and other Medias can be also promoted as most important sources which can be used for spreading educational messages regarding vaccination.¹⁰

Hexavalent vaccines, also known as 6-in-1 vaccines, can provide protection Hib. They may be beneficial in India because they could, reduce the number of injections: This can lead to cost savings on syringes, safety boxes, and the cold chain. Simplify vaccination schedule, this could improve compliance. Support polio eradication: The vaccines can increase opportunities for under-immunized children to receive sufficient IPV doses.¹¹

In the context of paediatric outpatient departments (OPDs) in Pune city, where a large number of children receive routine healthcare services, it becomes essential to assess whether educational materials can effectively enhance mothers' knowledge about hexavalent vaccination.

AIM OF THE STUDY

To evaluate the impact of an educational pamphlet on mothers' knowledge regarding hexavalent vaccination in paediatric outpatient departments of Pune city.

MATERIALS AND METHODS

Study Design and Setting: A pre-experimental one-group pre-test post-test design was adopted. The study was conducted in selected paediatric OPDs in Pune city, Maharashtra, chosen for high attendance of mothers with under-five children.

Participants and Sampling: One hundred mothers of children aged 0–5 years were purposively sampled. Inclusion criteria were ability to read Marathi, Hindi, or English, and willingness to participate. Mothers of critically ill children were excluded.

Tools: A validated structured questionnaire included demographic details and 20 multiple-choice knowledge questions (definition, schedule, benefits, side effects). Scores were categorized as poor (0–7), average (8–14), and good (15–20). Reliability testing yielded Cronbach's alpha of 0.82.

Intervention: After completing the pre-test, mothers received a pamphlet covering diseases prevented, schedule, benefits, and side effects of hexavalent vaccination. It was available in English, Hindi, and Marathi with pictorial aids.

Procedure and Ethics: Pre-test questionnaires were administered, pamphlets distributed and explained, and post-tests conducted after review. Ethical clearance was obtained, and informed consent was secured. Confidentiality was maintained.

Data Analysis: Data were analysed using SPSS v26. Descriptive statistics summarized demographics and knowledge. Paired t-test compared pre- and post-test scores. Chi-square examined associations with demographics. Logistic regression identified predictors of knowledge improvement. Significance was set at $p < 0.05$.

RESULTS

Demographic Characteristics of Participants

Among the 100 mothers, 47 were aged 25–30 years. Fifty-three percent had completed secondary education, 51% were employed, and 43% had a monthly income between ₹26,000–50,000. Slightly more children were female (52%).

Knowledge Scores Pre- and Post-Intervention

Before the intervention, 37% of mothers had poor knowledge, 57% had average knowledge, and only 6% had good knowledge. After the pamphlet intervention, knowledge improved significantly: 96% achieved good knowledge, while none remained in the poor category.



Effectiveness of the Pamphlet

Paired *t*-test revealed a statistically significant increase in knowledge after the intervention ($t = 24.77, p < 0.001$), confirming the effectiveness of pamphlet-based education,

Association between Pre-Test Knowledge and Demographics

Chi-square tests showed that maternal education, working status, and family income were significantly associated with pre-test knowledge levels, while age of mother, age of child, and child's gender were not.

DISCUSSION

The findings of this study revealed a significant improvement in maternal knowledge regarding hexavalent vaccination following exposure to an educational pamphlet. Mean knowledge scores nearly doubled, and the proportion of mothers with “good” knowledge rose from 6% to 96%. These results support the effectiveness of pamphlets as an educational tool in outpatient paediatric settings. Jelly et al. reported improved knowledge, attitudes, and practices regarding child immunization following distribution of structured materials¹². Pamphlets are particularly useful in outpatient departments, where consultation times are limited. Their portability and visual appeal allow mothers to review information at their convenience. A cross-sectional study in rural Bihar also reported that targeted educational interventions increased mothers' immunization awareness and corrected misconceptions¹³.

These findings highlight the pivotal role of nurses in maternal and child health promotion. In resource-constrained outpatient settings, pamphlets provide an efficient way to deliver standardized information without extending consultation times. They also act as reinforcement for verbal counselling, enabling mothers to share the information with family members at home.

From a public health perspective, improved knowledge is expected to translate into better vaccine adherence. O'Neill et al. demonstrated that maternal education interventions in Uttar Pradesh not only improved knowledge but also increased actual immunization uptake¹⁴. Incorporating pamphlet-based interventions into national immunization programs could therefore contribute to bridging coverage gaps, especially for newer vaccines like the hexavalent formulation.

CONCLUSION

The study demonstrates the significant impact of educational pamphlets in enhancing mothers' knowledge regarding hexavalent vaccination in paediatric outpatient departments. Before the intervention, a large proportion of mothers had only average knowledge, with many exhibiting poor understanding of the importance, schedule, and benefits of the vaccine. Following the pamphlet-based education, knowledge improved markedly, with almost all mothers achieving good knowledge and none remaining in the poor category.

Statistical analysis confirmed that this increase in knowledge was highly significant, highlighting the effectiveness of pamphlet interventions as a simple, cost-effective method for health education. The findings indicate that mothers can rapidly assimilate

crucial information when it is presented in an accessible and structured format. Furthermore, the study underscores that educational tools can empower mothers to make informed decisions about their children's health, potentially improving timely immunization coverage and reducing the risk of vaccine-preventable diseases.

Overall, the study supports the implementation of structured, low-cost educational interventions in paediatric healthcare settings. By improving maternal awareness, such initiatives can have a meaningful impact on child health outcomes and foster greater community engagement in immunization programs. The results advocate for wider use of pamphlets and similar educational resources to strengthen public health initiatives.

Conflict of Interest

The authors certify that they are involved 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. Centers for Disease Prevention and Control. Immunization Schedules. For everyone: Easy-to-read Schedules. Available at: <http://www.cdc.gov/vaccines/schedules/easy-to-read/index.html>
2. Esposito, S., Tagliabue, C., Bosis, S., Ierardi, V., Gambino, M., & Principi, N. (2014). Hexavalent vaccines for immunization in paediatric age. *Clinical Microbiology and Infection: The Official Publication of the European Society of Clinical Microbiology and Infectious Diseases*, 20 Suppl 5, 76–85. <https://doi.org/10.1111/1469-0691.12444>
3. World Health Organization. Immunization coverage. 2025 Jul 15. Available from: <https://www.who.int/news-room/fact-sheets/detail/immunization-coverage>
4. Centers for Disease Control and Prevention. Global Immunization Fast Facts. 2025 Jul 14. Available from: <https://www.cdc.gov/global-immunization/fast-facts/>
5. World Health Organization. Vaccines and immunization: know the facts. 2025. Available from: <https://www.who.int/health-topics/vaccines-and-immunization/know-the-facts>
6. Martinelli D, Lopalco PL, Prato R, et al. Post-marketing surveillance of DTaP2-IPV-HB-PRP-T hexavalent vaccine: safety profile in routine use. *Vaccine*. 2020;38(52):8307–8314. doi:10.1016/j.vaccine.2020.11.006
7. Özen M, Alkan Ö, Çelik M, et al. A worldwide overview for hexavalent vaccines and a glimpse into Türkiye's perspective. *Hum Vaccin Immunother*. 2024;20(1):e2345493. doi:10.1080/21645515.2024.2345493
8. Kroger A, Bahta L, Hunter P. General Best Practice Guidelines for Immunization: Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP). CDC; 2022. Available from: <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf>
9. Orsi, A., Azzari, C., Bozzola, E., Chiamenti, G., Chirico, G., Esposito, S., Francia, F., Lopalco, P., Prato, R., Russo, R., Villani, A., & Franco, E. (2018). Hexavalent vaccines: characteristics of available products and practical considerations from a panel of Italian experts. *Journal of Preventive Medicine and Hygiene*, 59(2), E107–E119. <https://pmc.ncbi.nlm.nih.gov/articles/PMC6069402/>
10. Sankar, B. K., Rameh, S., & Sunny, A. (2018). A study to assess and correlate the knowledge, attitude and practices of vaccination among mothers with educational status in a teaching hospital in south India. *Primary Health Care: Open Access*, 08(01), 1–6. <https://doi.org/10.4172/2167-1079.1000290>
11. UNICEF. Vaccination and Immunization Statistics. 2025 Jul 14. Available from: <https://data.unicef.org/topic/child-health/immunization>
12. Jelly P, Jeenwal N, Wadhwa N, et al. Knowledge, attitude, compliance and barriers of immunization among parents of under-five children. *Int J Afr Nurs Sci*. 2023;19:100608. doi:10.1016/j.ijans.2023.100608
13. Chaudhuri PK, Ghosh N, Mandal S, et al. A pilot study on the knowledge, attitude, and practice of mothers about their children's vaccination in a medical institute in Jharkhand, India. *Cureus*. 2024;16(6):e61478. doi:10.7759/cureus.61478
14. O'Neill S, Grieve R, Singh K, Dutt V, Powell-Jackson T. Persistence and heterogeneity of the effects of educating mothers to improve child immunisation uptake: experimental evidence from Uttar Pradesh, India. *J Health Econ*. 2024;96:102899. doi:10.1016/j.jhealeco.2024.102899