RESEARCH PAPER

Vaccine Hesitancy and Immunization Policy: Determinants, Global Burden, and Strategic Responses with a Focus on India

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ABSTRACT
Immunization remains a cornerstone of modern public health, substantially lowering morbidity and mortality from infectious diseases and preventing an estimated 4–5 million deaths annually. Despite these gains, vaccine coverage continues to be uneven, with persistent disparities both across and within countries. Vaccine hesitancy characterized by delayed acceptance or refusal despite vaccine availability has emerged as a major obstacle to achieving optimal immunization targets. This review synthesizes current evidence on the concept, determinants, and global burden of vaccine hesitancy, with a focused analysis of India. Hesitancy is a complex, context-dependent phenomenon shaped by psychological, sociocultural, institutional, and structural influences, further amplified by misinformation and declining trust in health systems. The COVID-19 pandemic intensified these challenges by disrupting routine immunization services and reducing coverage. India's immunization system, led by the Universal Immunization Programme and strengthened through Mission Indradhanush, has made notable progress; however, regional inequities, zero-dose populations, and behavioral barriers persist. While broadly aligned with global frameworks such as Immunization Agenda 2030, gaps remain in life-course immunization and behavioral integration. Addressing these challenges requires coordinated, equity-oriented, and evidence-driven strategies to enhance vaccine confidence and uptake.

Keywords: *Zero-dose children; Immunization equity; Public health policy; COVID-19.*
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1. INTRODUCTION

Immunization is widely recognized as one of the most cost-effective and impactful public health interventions, contributing substantially to the reduction of infectious disease burden and improvements in population health. Over the past century, vaccination programmes have enabled the control, elimination, and, in some cases, eradication of major infectious diseases, thereby extending life expectancy and strengthening health systems globally. Current estimates indicate that vaccines avert approximately 4–5 million deaths each year, underscoring their critical role in advancing global health security[1-3].

Despite these achievements, immunization coverage remains uneven across and within countries. Marked disparities persist between high-income settings and low- and middle-income countries, as well as among marginalized populations. It is estimated that over 14 million children remain "zero-dose," having received no routine immunizations, thereby increasing susceptibility to vaccine-preventable diseases[4,5]. In addition, coverage levels have not fully rebounded following disruptions caused by the COVID-19 pandemic, leaving many populations vulnerable to outbreaks[6].

Vaccine hesitancy defined as delayed acceptance or refusal despite availability has emerged as a key barrier to achieving optimal vaccination coverage[7]. Rather than representing a binary choice, it exists along a continuum ranging from uncertainty to complete refusal and is increasingly recognized as a major global health challenge[7,8].

The drivers of vaccine hesitancy are multifaceted, encompassing psychological perceptions, sociocultural influences, institutional trust, and structural barriers. Concerns related to vaccine safety, reduced confidence in health systems, sociocultural beliefs, and perceived low risk of disease contribute significantly to hesitancy[9-11].

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Furthermore, the rapid expansion of digital media has facilitated the spread of misinformation, shaping public perceptions and influencing vaccination decisions[12].

The COVID-19 pandemic further complicated this landscape by disrupting immunization services and intensifying public uncertainty due to accelerated vaccine development and widespread misinformation[6,13,14]. These disruptions have contributed to declining coverage and resurgence of vaccine-preventable diseases in several regions[15].

Given the complexity of vaccine hesitancy, multidisciplinary and evidence-based approaches are essential. Healthcare professionals, including pharmacists, play a pivotal role in addressing hesitancy through effective communication, patient education, and trust-building. This review examines the determinants, burden, and policy responses to vaccine hesitancy, with a particular focus on India.

2. CONCEPT AND DETERMINANTS OF VACCINE HESITANCY

2.1 Concept of Vaccine Hesitancy

Vaccine hesitancy represents a complex and evolving public health challenge characterized by delayed acceptance or refusal of vaccines despite their availability. It reflects a spectrum of attitudes ranging from uncertainty and indecision to complete rejection, rather than a simple dichotomy between acceptance and refusal. These attitudes are shaped by an interplay of individual perceptions, contextual influences, and vaccine-specific concerns[7].

The conceptual understanding of vaccine hesitancy is commonly framed through the "3C model," which identifies confidence, complacency, and convenience as key determinants. Confidence refers to trust in vaccine safety, effectiveness, and the systems that deliver them. Complacency arises when perceived risk of vaccine-preventable diseases is low, reducing motivation for vaccination. Convenience encompasses structural factors such as accessibility, affordability, and service availability[9]. This framework has been further expanded into the "5C model," incorporating calculation (individual risk–benefit evaluation) and collective responsibility, highlighting the social dimension of vaccination behavior[10].

Importantly, vaccine hesitancy is highly context-specific, varying across populations, geographic settings, and time. Sociocultural norms, political environments, and prior healthcare experiences significantly influence vaccine-related attitudes. Evidence suggests that vaccine confidence is dynamic and has fluctuated in recent years, particularly in the context of the COVID-19 pandemic[12].

Given its complexity, vaccine hesitancy is now widely regarded as a critical barrier to achieving high immunization coverage and sustaining global disease control efforts[8]. The theoretical models explaining vaccine hesitancy are presented in Table 1.

Table 1. Theoretical Models Explaining Vaccine Hesitancy

Model	Components	Key Concept	Application
3C Model	Confidence, Complacency, Convenience	Core determinants influencing vaccine behavior	Foundational framework in vaccine hesitancy research
5C Model	Confidence, Complacency, Constraints, Calculation, Collective responsibility	Behavioral expansion of 3C model	Used in psychological and behavioral assessments
Health Belief Model (HBM)	Perceived susceptibility, severity, benefits, barriers	Health decision-making based on perceived risk	Applied in vaccination uptake studies
Theory of Planned Behavior (TPB)	Attitude, subjective norms, perceived behavioral control	Behavioral intention predicts vaccination behavior	Used for designing interventions
Socio-Ecological Model	Individual, interpersonal, community, policy levels	Multi-level determinants of health behavior	Public health programme planning

2.2 Determinants of Vaccine Hesitancy

The determinants of vaccine hesitancy operate across multiple levels and reflect a complex interaction of behavioral, social, and systemic factors[7,9]. At the individual level, perceptions regarding vaccine safety and effectiveness, fear of adverse events, and personal risk–benefit considerations strongly influence decision-making[10,14]. Emotional responses such as anxiety and mistrust further shape attitudes toward vaccination[15].

The widespread dissemination of misinformation, particularly through digital platforms, has significantly altered public risk perception and contributed to declining vaccine confidence. Sociocultural and demographic factors including religious beliefs, education level, socioeconomic status, age, and prevailing social norms also play a substantial role in influencing vaccination behavior[16,17].

At the health system level, trust in healthcare providers and institutions is a critical determinant. Barriers such as limited access to services, financial constraints, and inefficiencies in service delivery can result in delayed or missed vaccinations[3,7]. Additionally, the communication environment can amplify hesitancy, as misinformation spreads rapidly through social networks and digital media ecosystems[11,12].

The COVID-19 pandemic further intensified these challenges by introducing uncertainty, accelerating vaccine development timelines, and disrupting routine immunization services[13,14]. Broader structural issues, including health inequities, governance limitations, and disparities in healthcare access, continue to affect vaccine uptake, particularly in resource-constrained settings[15,16].

Overall, vaccine hesitancy reflects a dynamic and multifactorial phenomenon that requires integrated, context-sensitive, and evidence-based strategies to improve vaccination coverage.

3. GLOBAL BURDEN OF VACCINE HESITANCY

Vaccine hesitancy has become an increasingly significant global public health concern, affecting countries across all income levels[7,9]. It contributes to declining vaccination coverage and the re-emergence of vaccine-preventable diseases such as measles, pertussis, and diphtheria, even in settings where effective vaccines are readily available[8,15].

The COVID-19 pandemic further amplified this burden by disrupting routine immunization services worldwide. Lockdowns, workforce limitations, and supply chain interruptions resulted in widespread service disruptions[6], with many countries reporting partial or complete interruptions. As a consequence, coverage of essential vaccines, including the third dose of diphtheria-tetanus-pertussis, declined and has not yet fully recovered in several regions[4]. Importantly, the magnitude and nature of vaccine hesitancy vary across populations and settings, influenced by sociocultural factors, trust in health systems, and access to reliable information. This variability highlights the need for context-specific strategies to address hesitancy and improve global immunization outcomes[9,12]. The prevalence of vaccine hesitancy reported in selected countries and populations is summarized in Table 2.

Table 2. Global Prevalence of Vaccine Hesitancy

Region/Country	Study Population	Reported Hesitancy (%)	Key Reasons
United States	Adults	20–30	Safety concerns, mistrust
United Kingdom	General population	15–25	Misinformation
India	Parents	18–28	Religious beliefs, safety fears
Nigeria	Caregivers	25–35	Cultural beliefs
France	Adults	30–40	Vaccine safety concerns

4. EPIDEMIOLOGY OF IMMUNIZATION AND VACCINE HESITANCY IN INDIA

India operates one of the largest publicly funded immunization systems globally through the Universal Immunization Programme (UIP), which delivers vaccines to millions of infants and pregnant women each year. Although this large-scale system has significantly improved vaccine access and coverage, disparities in uptake and persistent vaccine hesitancy continue to limit optimal programme performance[18,19].

4.1 National Immunization Coverage Trends

India has demonstrated steady improvements in routine immunization over the past decade. Full immunization coverage among children aged 12–23 months increased from approximately 62% (NFHS-4, 2015–16) to nearly 76% (NFHS-5, 2019–21), with administrative data suggesting further improvement in recent years[19,20]. However, a considerable proportion of children remain partially immunized or completely unvaccinated, indicating ongoing gaps in service delivery and vaccine acceptance[19].

4.2 Zero-Dose and Under-Vaccinated Populations

A persistent public health concern is the presence of "zero-dose" children those who have not received any routine vaccination. Although their number has declined, significant clustering remains in states with high population density and health system constraints, including Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan, and Maharashtra. These patterns reflect deep-rooted structural and access-related inequities[4].

4.3 Regional and Socioeconomic Disparities

Immunization coverage in India shows marked geographic and socioeconomic variation. Higher coverage is typically observed in southern and eastern states, whereas lower performance persists in certain northern and northeastern regions[19]. These differences are closely associated with maternal education, poverty levels, rural residence, and social marginalization, highlighting systemic inequities in healthcare access[21].

4.4 Burden of Vaccine-Preventable Diseases

Despite progress in immunization coverage, vaccine-preventable diseases such as measles, hepatitis B, and Haemophilus influenzae type b continue to contribute significantly to childhood morbidity and mortality. These ongoing burdens indicate gaps in timely and complete vaccination[22].

4.5 Vaccine Hesitancy and Behavioral Factors

Vaccine hesitancy in India is shaped by safety concerns, perceived risks, cultural norms, and varying levels of trust in healthcare systems. During the COVID-19 vaccination rollout, hesitancy was estimated in certain populations to range between 15–30%, particularly among younger individuals and those with lower educational attainment[7,14].

4.6 Adult Immunization Gap

Adult immunization remains limited in India, with low uptake of vaccines such as influenza and incomplete

vaccination coverage even among certain healthcare professionals, reflecting gaps in awareness and preventive vaccine practices[23,24].

4.7 Impact of Immunization Programmes

India has achieved major public health milestones, including polio eradication and elimination of maternal and neonatal tetanus. However, sustaining these gains requires addressing remaining inequities, strengthening delivery systems, and improving public trust in vaccination services[25].

5. IMMUNIZATION POLICY FRAMEWORKS IN INDIA

India's immunization architecture is based on a universal delivery model supported by targeted initiatives aimed at improving equity, coverage, and vaccine acceptance. This dual strategy combines routine service delivery with focused outreach to underserved populations[18,19].

5.1 Universal Immunization Programme (UIP)

The Universal Immunization Programme (UIP) forms the backbone of India's vaccination strategy and is among the largest public health programmes globally. It provides free vaccines to infants, children, and pregnant women, thereby reducing financial barriers and improving equitable access[18]. Each year, UIP targets approximately 26 million newborns and 34 million pregnant women through an extensive network of fixed and outreach immunization sessions[18,20]. The programme includes vaccines against major infectious diseases such as tuberculosis, polio, diphtheria, pertussis, tetanus, hepatitis B, measles-rubella, rotavirus, Haemophilus influenzae type b, and pneumococcal disease[18].

Despite its strengths[19,20] such as strong government financing, cold-chain infrastructure, and integration with primary healthcare challenges remain, including geographic disparities, missed vaccination opportunities, and vaccine hesitancy influenced by misinformation and trust deficits[19,26].

5.2 Mission Indradhanush (MI) and Intensified Strategies

Mission Indradhanush was launched to accelerate immunization coverage among unvaccinated and partially vaccinated populations, particularly in high-risk and underserved regions. The programme aims to achieve at least 90% full immunization coverage through targeted outreach[26].

Its implementation relies on microplanning, identifying low-coverage districts, and delivering focused interventions in urban slums, tribal areas, remote regions, and migrant populations[21,26]. Intensified Mission Indradhanush introduced time-bound campaigns and digital monitoring systems, resulting in measurable improvements in coverage in targeted districts[21,26].

5.3 Policy Approaches to Address Vaccine Hesitancy

India incorporates behavioral strategies aligned with the 3C framework[7] (confidence, complacency, convenience). Community engagement through frontline health workers and local influencers strengthens trust at the household level[26]. Risk communication campaigns and provider-based counselling are used to counter misinformation and improve awareness[7]. Integration of immunization with maternal and child health services further strengthens continuity of care[19,26].

5.4 Emerging Policy Directions

India is gradually transitioning toward a life-course immunization approach. The introduction of vaccines such as HPV in select regions reflects this shift[27]. Digital platforms such as the Electronic Vaccine Intelligence Network (eVIN) and CoWIN have enhanced vaccine logistics, monitoring, and real-time data tracking[27,28].

5.5 Remaining Gaps and Future Priorities

Despite progress, challenges persist in adult immunization, regional equity, and integration of behavioral science into routine programming. The role of pharmacists and private sector providers remains underutilized[20,28]. Strengthening these areas is essential for achieving universal immunization goals.

6. COMPARATIVE GLOBAL POLICY ANALYSIS: INDIA AND WORLD HEALTH ORGANIZATION (WHO)

6.1 WHO Immunization Agenda 2030 (IA2030)

The World Health Organization's Immunization Agenda 2030 provides a global strategic framework focused on equity, life-course immunization, and universal access[27]. It aims to achieve ≥90% coverage for essential vaccines, reduce zero-dose children by half, and strengthen integration with primary healthcare systems[27].

6.2 India's Immunization Strategy

India implements its immunization programme through UIP and Mission Indradhanush. UIP ensures routine vaccine delivery[18], while Mission Indradhanush focuses on reaching underserved and zero-dose populations through targeted outreach strategies[26].

6.3 Areas of Convergence

Both WHO and India prioritize equity, reduction of immunization gaps, and strengthening of primary healthcare systems. Digital health tools such as eVIN and CoWIN align with global efforts to improve real-time monitoring and data-driven decision-making[18,26,27].

6.4 Key Differences

WHO emphasizes a comprehensive life-course immunization approach, while India's focus remains largely on maternal and child health[18,27]. Behavioral science integration is more explicit in WHO frameworks, whereas India addresses hesitancy primarily through operational outreach and communication[26].

6.5 Governance and Scale

WHO provides global policy guidance, whereas India focuses on large-scale national implementation across diverse populations and geographic contexts[18,27].

6.6 India's Global Role

India plays a major role in global vaccine production and supply, contributing significantly to global immunization security and pandemic response efforts[18].

6.7 Policy Lessons and Future Directions

Key opportunities for India include expanding adult immunization, integrating behavioral science into policy design, and strengthening data-driven decision-making systems[18,26,27].

6.8 Strategic Alignment

India's immunization framework aligns well with global priorities in terms of equity and coverage expansion; however, gaps remain in adult immunization, behavioral interventions, and comprehensive policy integration. Strengthening alignment with IA2030 principles can improve vaccine confidence and accelerate progress toward universal immunization and sustained disease control[18,26,27]. A comparative analysis of India's policies versus IA2030 is outlined in Table 3.

Table 3. Comparative Conceptual Framework of Immunization Policies (WHO IA2030 vs India)

Dimension	WHO Immunization Agenda 2030 (IA2030)	India (UIP and Mission ndradhanush)
Strategic Vision	Global equity-driven immunization ensuring "leave no one behind" across all age groups	National goal of universal immunization for children and pregnant women
Target Population	Life-course approach (infants to older adults)	Primarily maternal and child population; limited adult vaccination
Core Priorities	≥90% coverage, 50% reduction in zero-dose children, outbreak preparedness, integration, innovation	Coverage expansion, reduction of zero-dose/dropout children, outreach to underserved groups
Implementation Approach	Policy guidance, global coordination, and country adaptability	Large-scale operational execution with microplanning and campaign-based delivery
Health System Integration	Strong integration with primary healthcare systems globally	Integration with primary healthcare via sub-centres, ASHA, ANM, Anganwadi networks
Data and Monitoring Systems	Global monitoring frameworks, standardized evaluation indicators	Digital systems: eVIN, HMIS, CoWIN for real-time tracking and logistics management
Behavioral and Hesitancy Strategy	Explicit focus on vaccine confidence, demand generation, behavioral science integration	Indirect approach via communication campaigns and community outreach
Governance Scale	Multi-country global coordination and partnerships	National and sub-national implementation across diverse socio-geographic settings
Operational Focus	Strategic policy direction and global benchmarking	Field-level implementation and service delivery efficiency
Equity Focus	Universal equity across all populations and age groups	Targeted equity focus on high-burden districts and vulnerable groups
Key Innovation Area	Life-course immunization, global surveillance, outbreak preparedness	Digital health systems, outreach immunization campaigns, microplanning
India's Global Role	Country contributor to global frameworks and targets	Major vaccine producer and supplier; contributor to global immunization security

7. ROLE OF HEALTHCARE PROFESSIONALS

Healthcare professionals are central to improving vaccine acceptance and uptake[7,10]. Studies among healthcare providers have also demonstrated that awareness, knowledge, and vaccination practices significantly influence immunization advocacy and public confidence in vaccines[24]. Their recommendations strongly influence patient decisions and remain one of the most powerful predictors of vaccination behavior. Physicians and nurses serve as primary vaccinators, responsible for administering vaccines[29,30], ensuring schedule adherence, and providing counseling[31]. Direct and confident recommendations significantly improve acceptance rates[32]. Pharmacists contribute by addressing misinformation[33], improving accessibility[34] through community pharmacies, and providing vaccination services in many settings[35]. Evidence shows that pharmacist-led interventions improve immunization coverage[36], particularly among adults and underserved populations. Collectively, healthcare professionals enhance vaccine confidence through education, service delivery, and trust-building, reinforcing the effectiveness of immunization programmes.

8. COMMUNICATION STRATEGIES TO ADDRESS VACCINE HESITANCY

Vaccine hesitancy is shaped by cognitive, emotional, and sociocultural determinants, making communication a central and modifiable factor influencing vaccine uptake. Evidence consistently demonstrates that structured, patient-centered communication delivered by healthcare

professionals significantly enhances vaccine confidence and acceptance[7,10].

Empathy-based counseling forms the foundation of effective communication by acknowledging patient concerns without judgment. This approach fosters trust, encourages dialogue, and improves willingness to vaccinate, particularly among hesitant individuals[30]. Active listening techniques, including reflective responses and open-ended questioning, further strengthen engagement and enable tailored, patient-specific communication[37].

Positive risk–benefit framing is essential in shaping vaccine perceptions. Emphasizing individual protection and community benefits improves acceptance more effectively than fear-based messaging, although transparent discussion of risks is necessary to maintain credibility[38]. Structured models such as the CASE approach (Corroborate, About me, Science, Explain/Advise) and presumptive communication strategies, where vaccination is presented as the default option, have demonstrated higher effectiveness in improving uptake[10,39].

Healthcare professionals from multiple disciplines, including dentistry and oral health, also contribute to preventive health education and behavioral counseling, reinforcing the broader role of health communication in public health promotion and effective patient engagement[40,41].

Overall, communication strategies grounded in empathy, clarity, and behavioral science are critical to reducing vaccine hesitancy and strengthening immunization outcomes.

9. STRATEGIES TO ADDRESS VACCINE HESITANCY

Vaccine hesitancy is a multidimensional challenge influenced by confidence, convenience, and complacency, requiring integrated and evidence-based interventions. Multi-component strategies have consistently shown greater effectiveness than isolated interventions in improving vaccination uptake[7,42]. Clear and consistent communication remains fundamental in building public trust. Healthcare professionals play a central role in providing accurate, culturally appropriate information on vaccine safety and effectiveness. Strong provider recommendations, combined with transparency regarding rare adverse events, significantly enhance vaccine acceptance[30,39].

Community engagement is equally essential, particularly in populations influenced by cultural, religious, or social norms. Collaboration with trusted community leaders and participatory programme design improves acceptance and fosters collective responsibility[38,40].

Improving access to vaccination services is critical to reducing missed opportunities. Strategies such as mobile clinics, school-based vaccination, workplace programmes, and extended service hours enhance accessibility, particularly in underserved populations. Inclusion of pharmacists and decentralized delivery models further strengthens coverage[10,33].

Addressing misinformation requires proactive and sustained public health responses. Digital engagement, health literacy promotion, and collaboration with media platforms are essential to counter false narratives. Evidence-based approaches such as prebunking and debunking have demonstrated effectiveness in reducing misinformation impact[11,43].

Collectively, these strategies highlight the need for an integrated, systems-based approach to sustainably reduce vaccine hesitancy and improve immunization outcomes.

10. FUTURE DIRECTIONS FOR IMMUNIZATION PROGRAMMES

The future of immunization programmes depends on strengthening equity, health system resilience, and innovation-driven delivery models. Global and national strategies must prioritize sustained vaccine confidence and universal access[7,42].

The WHO Immunization Agenda 2030 (IA2030) provides a strategic framework emphasizing life-course vaccination, integration with primary healthcare, and reduction of zero-dose populations[27]. Aligning national policies with these global priorities is essential for achieving equitable immunization coverage. Strengthening health systems remains a core priority. Investments in workforce capacity, cold-chain infrastructure, and supply chain resilience are necessary to ensure uninterrupted vaccine delivery. Integrated surveillance systems are equally important for real-time monitoring, outbreak detection, and performance evaluation[42,44].

Addressing inequities requires targeted interventions for marginalized and hard-to-reach populations. Community-based delivery models, outreach services, and multisectoral collaboration can significantly improve access and uptake[5]. Digital health technologies are transforming immunization systems through electronic registries, mobile applications, and real-time analytics. These innovations improve tracking, reduce missed doses, and enhance programme responsiveness[45].

Finally, ongoing research in behavioral science and implementation science is essential to understand evolving drivers of hesitancy and to design context-specific interventions. Evidence-informed policymaking will be critical for optimizing long-term immunization success[7,10].

11. CONCLUSION

Vaccine hesitancy remains a significant barrier to achieving optimal immunization coverage despite major global advances in vaccine development and delivery systems. This review highlights its multifactorial nature, driven by behavioral, sociocultural, institutional, and structural determinants. While India’s immunization programme demonstrates strong operational capacity and

alignment with global frameworks, persistent challenges such as regional disparities, zero-dose populations, and limited adult vaccination coverage continue to constrain public health gains. Addressing these gaps requires a shift toward life-course immunization, integration of behavioral science into policy design, and strengthening of health system responsiveness.

Future progress depends on transparent risk communication, community engagement, and the strategic use of digital health technologies. Interprofessional collaboration across physicians, nurses, and pharmacists is essential to reinforce vaccine confidence. A coordinated, equity-focused, and evidence-driven approach is critical to sustaining immunization gains and achieving long-term global health security.

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Mohanraj Rathinavelu: Conceived and designed the comprehensive review; drafted the manuscript; critically revised the manuscript for important intellectual content; and approved the final version of the manuscript.

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ABBREVIATIONS
3C Model - Confidence, Complacency, Convenience; 5C Model - Confidence, Complacency, Constraints, Calculation, Collective Responsibility; ANM - Auxiliary Nurse Midwife; ASHA - Accredited Social Health Activist; CASE - Corroborate, About me, Science, Explain/Advise; CoWIN - COVID Vaccine Intelligence Network; COVID-19 - Coronavirus Disease 2019; DTP3 - Diphtheria–Tetanus–Pertussis (third dose); eVIN - Electronic Vaccine Intelligence Network; HBM - Health Belief Model; HCPs - Healthcare Professionals; HMIS - Health Management Information System; HPV - Human Papillomavirus; IA2030 - Immunization Agenda 2030; IMI - Intensified Mission Indradhanush; LMICs – Low- and Middle-Income Countries; MI - Mission Indradhanush; NFHS - National Family Health Survey; TPB - Theory of Planned Behavior; UIP - Universal Immunization Programme; WHO - World Health Organization.

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