Annals of Nursing Science and Practice
Open Access Original Investigation

Strategies to Improve Mothers' Participation in Complete Basic Immunization in the Working Area of Primary Health Center Kebun Sikolos Padang Panjang City

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SUMMARY

IMPORTANCE The low coverage of complete basic immunization at Kebun Sikolos Primary Health Center increases the risk of vaccine-preventable diseases such as measles, diphtheria, and polio. Strengthening community empowerment through family support is considered important to improve child health and increase immunization participation.

AIMS To analyze strategies to increase mothers' participation in complete basic immunization for toddlers and to identify factors influencing maternal participation in immunization programs.

METHOSDS This study employed a qualitative case study design. Informants were selected using purposive sampling and consisted of 17 participants, including mothers of toddlers, family members, posyandu cadres, community leaders, program coordinators, and the head of the health center. Data were collected through in-depth interviews, observations, and documentation studies, then analyzed thematically using source and method triangulation.

FINDINGS The findings revealed that low maternal participation in complete basic immunization was influenced by limited family support, inadequate health promotion targeting husbands, the role of health workers, policy factors, and socio-cultural conditions. Effective strategies identified included continuous health education, family involvement, strengthening the role of posyandu cadres, and improving access to immunization services. Husband involvement in health education emerged as an important factor in increasing maternal participation.

CONCLUSION Low maternal participation in complete basic immunization is influenced by family support, health promotion, health service factors, and socio-cultural conditions. Family-centered empowerment and husband involvement are important strategies to improve immunization coverage.

RELEVANCE TO CLINICAL PRACTICE Nurses and primary healthcare providers should involve husbands and families in immunization education and strengthen community-based support to increase maternal participation and complete basic immunization coverage.

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KEYWORDS
complete basic immunization, family empowerment

CITATION
Gusmiati, R., Apriadi, D., Hidayati, L., Gustin, R.K., Salsabila, A. (2026). Strategies to improve mother's participation in complete basic immunization in the working area of primary health center kebun sikolos padang Panjang city. *Annals of Nursing Science and Practice, 1(1), –17.*

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Received 13 April 2026; First editorial decision 05 May 2026; Accepted 15 June 2026; Published 29 June 2026

1. INTRODUCTION

Immunization is one of the health interventions aimed at providing immunity in children through the administration of vaccines to stimulate the formation of antibodies against vaccine-preventable diseases, including polio, measles, hepatitis B, tetanus, pertussis, diphtheria, pneumonia, and meningitis. Basic immunization consists of Hepatitis B, Bacillus Calmette-Guérin (BCG), Diphtheria-Pertussis-Tetanus-Hepatitis B-Haemophilus influenzae type b (DPT-HB-Hib), polio, and measles vaccines (Linda Rofiasari & Pratiwi, 2020). According to data from the World Health Organization (WHO) in 2023, approximately 14.5 million children worldwide did not receive immunization (zero-dose children), and Indonesia ranked sixth highest globally, with 1,356,367 children not receiving basic immunization during the 2019–2023 period (Muhawarman, 2025)

Data from the Ministry of Health of the Republic of Indonesia indicated that more than 1.8 million children in Indonesia did not receive complete basic immunization between 2018 and 2023 (Arlinta, 2024). In 2023, there was an increase in outbreaks and cases of vaccine-preventable diseases (PD3I), including 136 cases of measles-rubella, 103 cases of diphtheria, 8 cases of polio, 14 cases of tetanus, and 149 cases of pertussis (whooping cough) (Tarmizi, 2024). These unimmunized children were distributed across 309 districts and cities in 38 provinces throughout Indonesia. One of the provinces with the lowest immunization coverage was West Sumatra, where 32,774 children had not received any basic immunization in 2023(Muhammad, 2024). This figure positioned West Sumatra as the fourth-highest province nationally in terms of unimmunized children.

One of the cities in West Sumatera with low immunization coverage is Padang Panjang, with a coverage rate of only 24.90%. Secondary data demonstrated low immunization achievement across all primary health centers in Padang Panjang. Bukit Surungan Primary Health Center had an annual target of 288 children, of whom 194 received complete immunization, resulting in a coverage rate of 67.36%. Among the four primary health centers in Padang Panjang, Kebun Sikolos Primary Health Center had the lowest immunization coverage, achieving only 38.38% of the expected 100% target. Therefore, the local government of Padang Panjang, through the Health Office and primary health centers, has sought to increase public awareness and mothers' participation in complete basic immunization programs.

A previous study conducted by Andesi Putri Dwi Kartika through a literature review revealed that maternal knowledge and attitudes were associated with the completeness of basic immunization among infants in Indonesia. The review of 17 analyzed articles showed that maternal knowledge consistently had a significant influence on complete basic immunization, while maternal attitudes were also found to be significant in most studies, although one study reported contradictory findings. In addition, the review identified several other contributing factors, including age, educational level, occupation, beliefs, socioeconomic status, distance and quality of health services, the role of health workers, behavior, number of children, and family support (Kartika et al., 2023). Strong family support may serve as an important factor in achieving targeted vaccination coverage. Therefore, this study aims to explore strategies to improve mothers' participation in toddler immunization programs in the working area of Kebun Sikolos Primary Health Center.

2. METHODS

2.1 Study Design

This study employed a qualitative research approach using a case study design to explore strategies for improving mothers' participation in complete basic immunization programs.

2.2 Setting and Data Sources

The study was conducted in the working area of Kebun Sikolos Primary Health Center from September to October 2025. Data were collected through in-depth interviews, observations, and documentation review.

2.3 Participants and Sample Size

Informants were selected using purposive sampling in accordance with the study objectives. A total of 17 informants participated in the study, consisting of mothers of toddlers, family members (husbands and mothers-in-law), posyandu cadres, the immunization program coordinator, the head of the primary health center, and community leaders.

The inclusion criteria for the main informants (mothers) were: having a toddler, residing in the working area of Kebun Sikolos Primary Health Center, being willing to participate in the study, and having the ability to communicate effectively.

2.4 Data Analysis
Data validity was ensured through source or theory triangulation, data triangulation, and method triangulation. Data analysis was conducted using data reduction, data display, and conclusion drawing techniques.

2.5 Ethical Considerations
This study adhered to research ethics principles, including informed consent, confidentiality, justice, non-maleficence, and other ethical considerations throughout the research process.

3. RESULTS

3.1 Participant Characteristics
The study involved 17 informants consisting of various stakeholders who played roles in the implementation of the basic immunization program in the working area of Kebun Sikolos Primary Health Center. Table 1 below presents the characteristics of the informants.

Table 1. Participant Characteristics

Number of Participants	Age (Years Old)	Gender	Education	Roles
1	42	Female	Bachelor's Degree	Program Coordinator
2	51	Female	Senior High School	Community Leader
3	46	Female	Senior High School	Community Leader
4	36	Female	Diploma III	Community Leader
5	48	Female	Diploma III	Community Leader
6	51	Female	Senior High School	Posyandu Cadre
7	46	Female	Diploma III	Posyandu Cadre
8	42	Female	Senior High School	Posyandu Cadre
9	46	Female	Diploma III	Posyandu Cadre
10	53	Female	Senior High School	Mother
11	44	Female	Bachelor's Degree	Mother
12	47	Female	Senior High School	Mother
13	42	Female	Bachelor's Degree	Mother
14	55	Male	Senior High School	Supporting Family Member
15	57	Male	Senior High School	Supporting Family Member
16	40	Male	Senior High School	Supporting Family Member
17	47	Male	Senior High School	Supporting Family Member

3.2 Primary Analysis

3.2.1 Input Analysis
a. Policy
The interview findings indicated that the success of the immunization program in the working area of Kebun Sikolos Primary Health Center was influenced by the synergy between formal policies and their implementation at the community level.

"At every posyandu session, we provide immunization and health education so that mothers are willing to participate, mainly through our cadres. We also involve the village head. However, what we really need is a stronger policy or punishment regarding immunization from higher authorities. Similar to the COVID-19 situation, at first many people refused, but eventually there was a government policy supported by the authorities..." (IF 1)

Another informant explained:
"This immunization program is very good because it is important for our children's health. In the field, cadres are usually more active in visiting houses and directly inviting mothers to attend the posyandu. At the neighborhood level, we usually only announce it during community meetings or gatherings. Our role is more about reinforcing the information already delivered by the cadres. Once the cadres have approached the community, we usually do not repeat the invitation. So, we complement each other's roles." (IF 2)

Based on the interviews, it can be concluded that the implementation of the basic immunization program in the Kebun Sikolos area has been carried out through routine posyandu activities and additional programs such as national immunization campaigns. However, the implementation has not yet been fully optimal. Existing policies remain general in nature and lack binding enforcement, resulting in suboptimal community participation.

b. Human Resources
The findings revealed that the success of immunization implementation largely depended on collaboration among health workers, cadres, community leaders, and families. Health workers and cadres had actively conducted health education and direct community outreach; however, barriers remained, particularly from family members, especially husbands, who were less supportive.

"Health workers provide counseling and motivation, and we have also motivated the health cadres in the field. The main problem now comes from the families. Since COVID-19, mothers of toddlers think that we are giving COVID vaccines to their children through immunization, so they try to avoid bringing their children for immunization." (IF 1)

Another informant stated:
"When community leaders provide explanations, people tend to be more open and trusting of what is being done. Usually, when cadres report activities to me, I share the information in the neighborhood WhatsApp group and encourage parents to come to the posyandu for immunization." (IF 3)

The role of community leaders also influenced the level of participation, although the degree of involvement varied across different areas. Overall, support from all parties and effective communication were identified as key factors in improving mothers' participation in complete basic immunization.

3.2.2 Process Analysis
Family Influence
Family influence emerged as an important factor in decision-making regarding whether children received immunization. Several informants described the role of husbands in determining immunization decisions.

"My husband was kind of against it because he was afraid. Back then there were many news reports saying injections were related to COVID and things like that, so my husband became scared..." (IF 10)

Informant IF 11 expressed a similar experience regarding the husband's role as the key decision-maker in immunization. While IF 10 described fear influenced by misinformation, IF 11 emphasized distrust toward immunization itself.

"It was the husbands who prohibited it... because they did not trust immunization injections." (IF 11)

3.2.3 Output Analysis
Immunization Program Achievement
The interview findings showed that improving mothers' participation in immunization programs requires an integrated approach involving education, socialization, motivation, and formal policy support. Education provided by cadres and health workers, both through direct counseling and guidance at the

primary health center, increased parents' understanding of the risks of vaccine-preventable diseases and strengthened their trust in the benefits of immunization.

"Usually, mothers are advised about what could happen if children are not immunized, such as getting whooping cough. They are told that if a child is not immunized, diseases like whooping cough may occur and require long treatment. However, if the child receives immunization, severe illnesses can be prevented, and ordinary coughs can be treated with regular medication." (IF 6)

Another informant continued this finding by explaining that after receiving education, parents were directly referred to the primary health center for further counseling.

"Yes, after that, both the mother and father are invited to come directly to the primary health center for further explanation and counseling..." (IF 7)

4. DISCUSSION

The interview findings indicated that Kebun Sikolos Primary Health Center has implemented policies supporting the complete basic immunization program. These policies were carried out through immunization recording and reporting systems both inside and outside the primary health center, with data recapitulated every three months. Through this monitoring and reporting system, the health center was able to regularly track the progress and coverage of complete basic immunization within its working area. This finding suggests that the existing policy implementation has functioned adequately and represents an essential component of the immunization program's success.

The recording and reporting system also enabled health workers to monitor immunization coverage comprehensively and identify areas that had not achieved the expected targets. Follow-up actions, such as repeat visits and immunization sweeping activities, could then be conducted in collaboration with cross-sectoral stakeholders, including posyandu cadres, village midwives, and community leaders. Furthermore, the findings revealed that these policies served not only as administrative mechanisms but also as operational guidelines defining the responsibilities of each stakeholder involved in immunization activities. The head of the primary health center played a role in policy direction and program coordination, while coordinating midwives and immunization officers acted as technical implementers to ensure that all activities were conducted according to schedule and target indicators. Therefore, the study concluded that the internal policies had been implemented relatively well and constituted one of the key components supporting the success of the complete basic immunization program in the Kebun Sikolos area.

These findings are consistent with the study conducted by Putri (2025), which emphasized that internal policies at the primary health center level, including routine reporting and quarterly evaluation of immunization coverage, significantly influence the success of immunization programs (Putri & Wulandari, 2025). Rahmawati also explained that periodic reporting contributes to more effective immunization programs by improving the monitoring of vaccine recipients and ensuring continuity of service delivery (Rahmawati, 2007). The findings may further be interpreted using the policy implementation theory proposed by George C. Edwards III (1980), which states that four major variables determine the success of policy implementation: communication, resources, implementers' disposition, and bureaucratic structure (Riadi & Kurnia, 2024)

In addition, the in-depth interviews demonstrated that human resources played a crucial role in the successful implementation of complete basic immunization. Health workers, particularly midwives and posyandu cadres, served as the frontline providers of immunization services and as the primary link between the health system and the community. Their responsibilities extended beyond technical duties such as vaccine administration to include health education, counseling, and reminding mothers whose children had not completed their immunization schedules. These activities were routinely conducted through posyandu services and home visits, allowing for a more personal and persuasive approach.

Collaboration among midwives, cadres, and community leaders also became an important component of social communication strategies aimed at building public trust and awareness regarding immunization. These findings align with the study by Hanani et al. (2023), which demonstrated a significant relationship between the role of health workers and cadres and the completeness of infant immunization coverage (Hanani et al., 2024). The more active and competent health workers were in delivering health education, the higher the level of community participation in childhood immunization.

The study also revealed that socio-cultural conditions within the Kebun Sikolos community significantly influenced the implementation of the immunization program. Communities that trusted health workers, community leaders, and official information sources were more cooperative in bringing their children for vaccination. Management support from the primary health center, effective communication among health personnel, and the involvement of cadres as community partners further strengthened the effectiveness and sustainability of the immunization program. This synergy demonstrates that successful immunization programs depend not only on well-designed policies but also on the dedication, integrity, and performance of the human resources responsible for implementing them. These findings are also consistent with the study by Hanani et al. (2024), which found a significant relationship between the role of health workers and cadres and complete basic immunization among infants (Hanani et al., 2024).

Another important finding was that one of the strategies implemented by Kebun Sikolos Primary Health Center to improve immunization coverage involved counseling and educational interventions specifically targeting fathers or heads of households. This strategy emerged in response to vaccine refusal cases associated with limited understanding of vaccine benefits and the spread of misinformation and hoaxes through social media. Health workers and cadres actively encouraged couples to participate in educational sessions conducted at posyandu, schools, and other community activities.
This direct educational approach was shown to increase family awareness regarding the importance of vaccination, reduce concerns, and motivate mothers to participate in immunization programs. These findings are supported by Qurrotul et al. (2023), who reported that video-based educational interventions effectively improved parents' knowledge and attitudes toward complete basic immunization (Qurrotul et al., 2023). The findings emphasize that various forms of health education, whether through direct interaction or educational media, play an important role in shaping family understanding and positive attitudes toward immunization.

Through active family involvement, strengthening the role of cadres, improving immunization literacy, and maintaining sustainable cross-sectoral support, communities may develop greater collective awareness regarding the importance of immunization for child health. Consequently, family and community empowerment not only increases immunization coverage but also strengthens overall community health resilience.

4.1 Strengths and Limitations

Strengths
This study provides an in-depth exploration of strategies to improve mothers' participation in complete basic immunization using a qualitative case study approach. The inclusion of multiple stakeholders, including mothers, family members, health workers, posyandu cadres, community leaders, and health center managers, enriched the data and enabled triangulation of perspectives. In addition, the study highlights the important yet often overlooked role of husbands and family support in immunization decision-making, offering valuable contextual insights for community-based immunization programs.

Limitations
This study was conducted in a single primary health center setting; therefore, the findings may not be generalizable to other regions with different socio-cultural characteristics. The qualitative design also relied heavily on participants' subjective experiences and perceptions, which may introduce response bias. Furthermore, the study did not quantitatively measure the effectiveness of specific intervention strategies, limiting the ability to determine causal relationships between educational interventions and immunization outcomes.

4.2 Implications for Practice, Education, and Policy

Implications for Practice
Health workers and posyandu cadres should strengthen family-centered approaches in immunization programs by actively involving husbands and other family members in health education activities. Home visits, personalized counseling, and community-based communication strategies may improve public trust and participation in immunization services.

Implications for Education
Health education programs should incorporate culturally sensitive educational methods and utilize various media platforms to address misinformation regarding vaccines. Educational interventions targeting fathers and household decision-makers may improve family understanding and support for childhood immunization.

Implications for Policy
Policymakers should develop stronger and more comprehensive immunization policies that support community engagement and cross-sectoral collaboration. Formal policies involving community leaders, local governments, and family-centered health promotion strategies may enhance immunization coverage and strengthen public confidence in vaccination programs.

5. CONCLUSION

The findings revealed that education and husband involvement were determinant factors in increasing mothers' participation in complete basic immunization programs in the working area of Kebun Sikolos Primary Health Center. Limited husband involvement in health promotion was influenced by policies and educational approaches that had not optimally targeted family decision-makers. However, when husbands gained adequate understanding through health education and positive family support was established, mothers' participation in complete basic immunization increased significantly, thereby contributing to improved immunization program coverage.

Author Contributions
RG, DA, and LH: Conceptualized and designed the study. RG, DA, and RKG: Developed the methodology. RG, LH, AS, and RKG: Conducted the formal analysis and investigation. DA, LH, and AS: Performed data curation. RG, DA, and AS: Wrote the initial draft of the manuscript. LH, RKG, and RG: Critically reviewed and edited the manuscript. RG and DA: Supervised the project and managed project administration. All authors read and approved the final manuscript.

Generative AI Transparency Statement
The authors declare that no generative artificial intelligence (AI) or AI-assisted technologies were used in the conceptualization, data analysis, writing, or preparation of this manuscript.

Conflict of Interest Disclosure
The authors declare no conflict of interest regarding the research, authorship, or publication of this article.

Funding
This research received no specific grant or external funding from any agency in the public, commercial, or non-profit sectors.

Acknowledgements
The authors express their gratitude to the staff of the Primary Health Center Kebun Sikolos Padang Panjang City and all participating mothers for their support and cooperation during this study.

Data Availability Statement
The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

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